State of Missouri
Workers Compensation Insurance

Actuarial Review of
NCCI Voluntary Market Advisory Loss Cost Filing
Effective January 1, 2017

November 2016

Prepared by:

ACTUARIAL
SOLUTIONS

STATE OF MISSOURI
WORKERS COMPENSATION INSURANCE

ACTUARIAL REVIEW OF
NCCI VOLUNTARY MARKET ADVISORY LOSS COST FILING
EFFECTIVE JANUARY 1, 2017

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EXECUTIVE SUMMARY

A. Introduction/Scope

Actuarial Solutions has been engaged by the Missouri Department of Insurance, Financial Institutions and Professional Registration (the "Department") to conduct an independent actuarial review of the National Council on Compensation Insurance's (NCCI) Missouri workers compensation voluntary market advisory loss cost filing with a January 1, 2017 effective date.

We were asked by the Department to:

- review the NCCI's ratemaking data, methods and assumptions to determine if the proposed loss costs meet the requirements of Missouri law and are actuarially sound;

- identify the effect on the filed loss costs if the NCCI had excluded assigned risk loss experience;

- conduct an independent analysis of the Missouri loss costs and recommend an alternative overall loss cost change, if warranted by our findings.

B. Summary of the NCCI Filing

The NCCI has filed an overall decrease in loss costs of 3.7% effective January 1, 2017. This decrease is comparable to the changes of -2.4% and -3.7% filed by the NCCI effective January 1, 2016 and January 1, 2015, respectively.

The 3.7% decrease filed by the NCCI is comprised of several items, including changes in experience, trend and LAE, as well as changes in Missouri workers compensation benefit levels. The effect of the July 1, 2016 Missouri benefit change causes an increase of 0.6% in the loss costs. The impact of reflecting an 18.5% LAE provision in lieu of the January 1, 2016 LAE provision of 19.4% produces an indicated decrease of 0.8%. The combined impact of the increase in the annual indemnity trend from -3.0% to -2.0% and the decrease in the annual medical trend from 0.0% to -1.0% causes a decrease of 0.4% in the loss cost level. The final component of the loss cost change is a decrease of 3.1% due to loss experience. It is important to note that the NCCI's estimated effect of Senate

Bill 1[1] (SB1) continues to be reflected in this filing, although it will be several years before the actual effect of this law change fully manifests in insurers' historical experience.

C. Overall Findings

We find the NCCI's calculations to be actuarially sound. Three areas in which we have exercised alternative actuarial judgment with respect to the filing are the experience, trend and LAE components of the indication.

1. Experience

With respect to the experience component of the loss cost indication, we have two areas to discuss; the first relates to loss development. The NCCI has chosen its development factors based upon the application of various rules. For example, the NCCI selected age-to-age paid loss development factors by taking the arithmetic average of the two most recent factors, and selected paid plus case LDFs by taking the average of the most recent five factors. We do not take exception to the rules utilized by the NCCI, but prefer to select each LDF judgmentally. Some of our LDFs vary from the corresponding LDF utilized by the NCCI. Overall, the experience indication would be 0.1% higher than the NCCI's experience indication based upon our selected development factors.

Second, in our review we noted that the NCCI used different assumptions regarding the timing of the average policy effective date within a given month in two components of the filing. The NCCI assumed policies were written on the first day of each month in the loss on-level calculation; the NCCI assumed policies were written, on average, at the midpoint of each month to calculate the SB1 adjustment factor for the 2nd to ultimate indemnity paid and paid plus case LDFs to be applied to policy year 2013. Based upon our review of this situation, we estimate that making the assumptions consistent results in an additional decrease of roughly 0.1%, all else equal.

Thus, reflection of our assumptions would impact the NCCI's experience change of -3.1% by increasing the indication by 0.1% due to the reflection of our selected LDFs, but also would decrease the indication by 0.1% due to our efforts to recognize consistent writings assumptions. Therefore, our experience change is equal to the NCCI's decrease of 3.1%.

2. Trend

With respect to trend, we selected -1.8% as compared to the NCCI's selected annual indemnity loss ratio trend of -2.0%; additionally, we selected an annual medical loss ratio trend of -1.5% as compared to the

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[1] As a result of SB1, a substantial portion of losses previously covered by the Second Injury Fund (SIF) were shifted to the insurance system. The estimated effect of SB1 is also reflected in the NCCI's January 1, 2014, January 1, 2015 and January 1, 2016 loss cost filings.

NCCI's selection of -1.0%. The impact of changing the annual trend factors is a decrease from the NCCI'S loss cost indication of 0.6% (from -0.4% to -1.0%), all else equal.

3. LAE Provision

The NCCI's selected Missouri provision for LAE is slightly larger than the LAE provision we are recommending. More specifically, the NCCI's selections result in a Missouri LAE provision of 18.5%; we support the use of a Missouri LAE provision of 18.2%. Moving from 18.5% to 18.2% causes the indicated change due to the LAE factor to decrease by 0.3% (from -0.8% to -1.1%), all else equal.

Taking into consideration all elements reviewed, as discussed herein, we recommend an indicated Missouri voluntary market advisory loss cost change of -4.6% effective January 1, 2017 as compared to the NCCI's filed change of -3.7%.

Additionally, we would like to note the following observations which do not impact our recommended Missouri voluntary market-advisory loss cost change:

1. The NCCI determined that excluding data for the assigned risk market from the experience component would decrease the indicated loss cost change to -4.9%. However, we believe it is appropriate to include the assigned risk data and, therefore, would not recommend modifying the NCCI's January 1, 2017 Missouri filing to exclude the impact of the assigned risk market.

2. A year ago, in its presentation to the Department, the NCCI indicated that the large loss experience for the half-policy year 2014 as of December 31, 2014 was much higher than that observed for each of the five previous policy years at the same maturity. While this data did not directly impact the January 1, 2016 indication, it was recognized that it could be indicative of worsening severity for Missouri large claims, which would be quantified in future filings. The January 1, 2017 indication is based on the loss experience of policy years 2013 and 2014 and thus, we were aware that this observation might manifest itself in the indication contained in this 2017 filing. However, we note that despite the higher large loss experience for policy year 2014 as of December 31, 2014, policy year 2014's loss cost is virtually equal to policy year 2013's projected loss cost. Moreover, both years are exhibiting good loss experience as the experience portion of the overall loss cost change is a decrease of 3.1%.

STATE OF MISSOURI
WORKERS COMPENSATION INSURANCE

ACTUARIAL REVIEW OF
NCCI VOLUNTARY MARKET ADVISORY LOSS COST FILING
EFFECTIVE JANUARY 1, 2017

REPORT

I. INTRODUCTION

Annually, the National Council on Compensation Insurance (NCCI) files workers compensation voluntary market advisory loss costs in Missouri to be effective January 1 of the upcoming year. These loss costs are available for use by carriers writing workers compensation policies with Missouri exposure under Missouri's file-and-use statute. Actuarial & Technical Solutions, Inc. (Actuarial Solutions) has been retained by the Missouri Department of Insurance, Financial Institutions and Professional Registration (the "Department") to review the Missouri workers compensation loss cost filing submitted by the NCCI to be effective on January 1, 2017.

This report serves as documentation of that review. Where appropriate, we have recommended changes and have calculated the impact of such recommendations on the loss cost indication. Additionally, as requested by the Department, we have expressed our opinion on whether it is appropriate to include data for the assigned risk market in determining the filed indication.

II. OVERVIEW OF FILING

The NCCI filed a -3.7% overall change in advisory loss costs to be effective January 1, 2017. The indicated change by industry group is as follows:

			Table 1
	Loss Cost Change by Industry Group		
Industry Group	Loss Cost Change	Missouri Premium Distribution*	Missouri Exposure Distribution**
Manufacturing	-1.5%	20.2%	10.5%
Contracting	-4.9%	21.1%	5.7%
Office & Clerical	-6.9%	11.9%	59.7%
Goods & Services	-3.8%	28.1%	19.1%
Miscellaneous	-2.3%	18.7%	5.0%
TOTAL	-3.7%	100.0%	100.0%

 * Premium distribution based on 7/1/13-14 payroll exluding F-classes x 1/1/17 proposed loss costs.
 ** Exposure distribution based on 7/1/13-14 payroll exluding F-classes.

The largest changes in loss costs among the top twenty classifications (based on premium) are:

			Table 2
	Largest Classes with an Increase in Loss Cost		
Class	Class Description	Size Rank Based on Premium*	Loss Cost Change
7228	TRUCKING-LOCAL HAULING ONLY-& DRIVERS	3	1.6%
7380	DRIVERS, CHAUFFEURS, MESSENGERS AND THEIR HELPERS NOC-COMMERCIAL	6	4.7%
3076	SHEET METAL PRODUCTS MFG.	14	8.2%
5190	ELECTRICAL WIRING-WITHIN BUILDINGS & DRIVERS	15	5.7%

* Rank based on 7/1/13-14 payroll x 1/1/2017 proposed loss cost.

			Table 3
	Largest Classes with a Decrease in Loss Cost of at least 5%		
Class	Class Description	Size Rank Based on Premium*	Loss Cost Change
8810	CLERICAL OFFICE EMPLOYEES NOC	2	-6.3%
8742	SALESPERSONS OR COLLECTORS-OUTSIDE	7	-11.1%
9082	RESTAURANT NOC	8	-6.2%
8391	AUTOMOBILE REPAIR SHOP & PARTS DEPARTMENT EMPLOYEES, DRIVERS	10	-6.3%
8232	LUMBERYARD NEW MATERIALS ONLY: ALL OTHER EMPLOYEES & YARD, WAREHOUSE,	11	-7.3%
5403	CARPENTRY NOC	12	-7.4%
5183	PLUMBING NOC & DRIVERS	17	-13.8%
5551	ROOFING-ALL KINDS & DRIVERS	18	-8.5%
5537	HEATING, VENTILATION, AIR-CONDITIONING AND REFRIGERATION	20	-5.7%

* Rank based on 7/1/13-14 payroll x 1/1/2017 proposed loss cost.

As shown in Graph 1, the proposed loss cost changes result in decreases between -10% and -5% for 30.82% of statewide premium[2], decreases between -5% and 0% for 32.42% of statewide premium, and increases between 0% and 5% for 16.02% of statewide premium. 73.40% of statewide premium will see a decrease, and 3.48% of statewide premium will experience an increase in excess of 10%.

Graph 1

Missouri 2016 to 2017 Loss Cost Changes
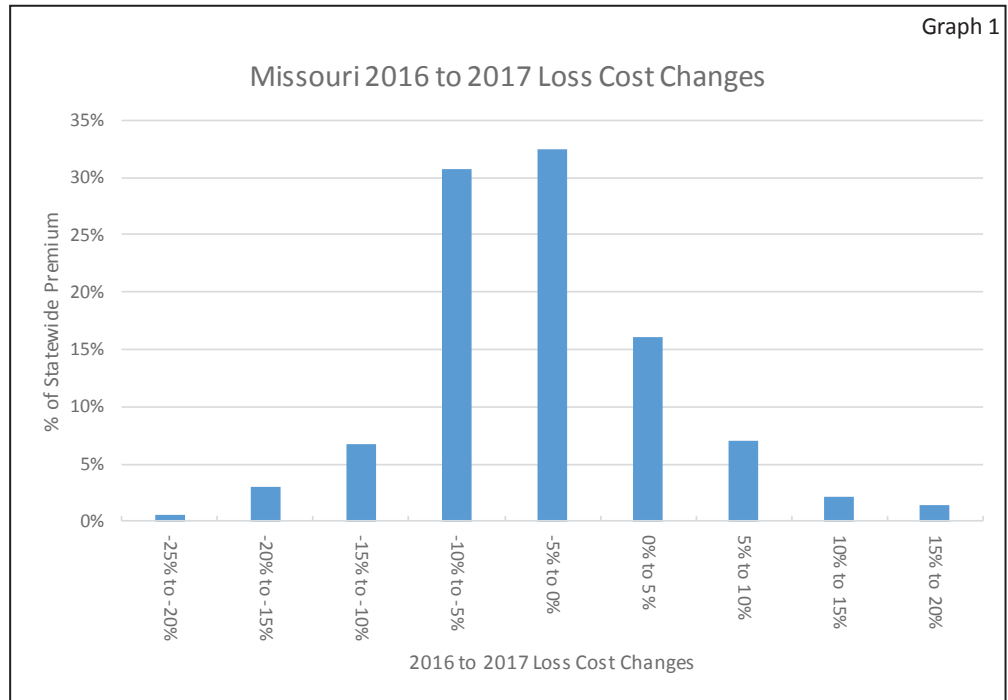
The key factors selected by the NCCI in the determination of the advisory loss costs are shown in the tables below. There are no major changes from the January 1, 2016 filing to the January 1, 2017 filing. It should also be noted that there were no major changes from January 1, 2015 to January 1, 2016 and thus across the three filings which became effective January 1, 2015, January 1, 2016 and January 1, 2017, there have been no major changes.   Tables 4 and 5 allow for a comparison of the key factors from the January 1, 2017 to the January 1, 2016 and January 1, 2015 filings.

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[2]   Premium equals July 1, 2013-2014 payroll x January 1, 2017 proposed loss cost.

				% Change From
				Table 4

NCCI Factors Applied to Most Recent Policy Year

	1/1/15 Filing	1/1/16 Filing	1/1/17 Filing	% Change From '16 to '17 Filing
Premium Development Factor	1.003	1.006	1.006	0.0%
Paid LDF - Indemnity	3.665	3.631 *	3.633 *	0.1%
Incurred LDF - Indemnity	1.288	1.316 *	1.342 *	2.0%
Paid LDF - Medical	1.613	1.619	1.609	-0.6%
Incurred LDF - Medical	1.101	1.116	1.083	-3.0%
Indemnity Trend Factor	0.913	0.913	0.941	3.1%
Medical Trend Factor	1.015	1.000	0.970	-3.0%
Excess Loss Loading	1.013	1.011	1.010	-0.1%
Loss Adjustment Expense Factor	1.197	1.194	1.185	-0.8%

* In the 1/1/16 and 1/1/17 filings, the indemnity LDFs for the most recent policy years, 2013 and 2014, respectively, were adjusted by the NCCI to reflect the anticipated impact of SB1 which became effective on 1/1/14. Since policy years 2013 and 2014 have different proportions of accidents occuring on or after 1/1/2014, the adjustment factor for these policy years is not equal. Additionally, this adjustment was not reflected in the 1/1/15 filing as the most recent policy year whose loss experience was reflected in that filing, 2012, did not have accidents occuring after 1/1/14. The indemnity LDFs above remove the SB1 adjustment so that the LDFs are comparable across the three filings.

				Table 5

NCCI Factors Applied to Prior Policy Year

	1/1/15 Filing	1/1/16 Filing	1/1/17 Filing	% Change From '16 to '17 Filing
Premium Development Factor	0.999	0.999	0.999	0.0%
Paid LDF - Indemnity	2.003	2.024	2.048 *	1.2%
Incurred LDF - Indemnity	1.156	1.177	1.197 *	1.7%
Paid LDF - Medical	1.311	1.325	1.316	-0.7%
Incurred LDF - Medical	1.054	1.069	1.049	-1.9%
Indemnity Trend Factor	0.885	0.885	0.922	4.2%
Medical Trend Factor	1.020	1.000	0.961	-3.9%
Excess Loss Loading	1.013	1.011	1.010	-0.1%
Loss Adjustment Expense Factor	1.197	1.194	1.185	-0.8%

* The indemnity LDFs for policy year 2013 were adjusted by the NCCI to reflect the anticipated impact of SB1 which became effective on 1/1/14. The indemnity LDFs above do not reflect the SB1 adjustment in order to make them comparable to the 1/1/15 and 1/1/16 filings.

III. REVIEW OF THE NCCI FILING

The following presents a synopsis of the key components underlying the overall indicated loss cost level change filed by the NCCI effective January 1, 2017. We have reviewed the NCCI's general methodology as well as the calculations contained in the filing. The NCCI's approach to preparing state filings includes the incorporation of items which are state-specific (such as loss development and trend), as well as items which are based upon countrywide information and included in filings submitted in numerous states (such as adjusting and other expense). The NCCI generally reflects a consistent methodology across all states, with judgment applied more by the manner in which elements are selected rather than in the selection of each individual item. We discuss below how the NCCI's judgment comes into play within each of the following elements.

A. Development Factors

The NCCI bases its experience indication upon loss and premium for policy years 2013 and 2014 evaluated as of December 31, 2015. Ultimate losses for Missouri are estimated by averaging the results of a paid loss development method and a paid plus case loss development method. With the exception of the January 1, 2014 filing,[3] the NCCI's approach to selecting loss development factors (LDFs) in recent years has been to use an average of the latest two observed paid LDFs when preparing the paid loss projection, and to utilize an average of the latest five paid plus case LDFs when projecting paid plus case loss to ultimate. Thus, the NCCI's judgment comes into play in the selection of the rules which are applied to LDFs at all maturities. We generally prefer to apply judgment in selecting LDFs by reviewing the available historical LDFs at each maturity and making a selection based upon our observations of factors within the given age-to-age period. In our analysis of the NCCI's January 1, 2017 Missouri filing, we reviewed the paid and the paid plus case age-to-age LDFs for each of indemnity loss and medical loss; we also reviewed the premium development factors. For each set of factors, we applied our actuarial judgment to select a development factor for each age-to-age period; some selected LDFs were higher than those used by the NCCI, while others were lower.[4] We then replaced the NCCI's rule-based LDFs with our LDF selections to test the impact on the loss cost indication. The indication produced by our selected LDFs, all other elements unchanged, is 0.1% larger than the indicated loss cost change filed by the NCCI (see Exhibit 1).

Regarding the LDFs utilized in this filing, we should also note that both the paid and paid plus case indemnity LDFs have been adjusted to reflect the anticipated impact of SB1 which became effective January 1, 2014. Specifically, for the 2nd to ultimate LDFs which are applied to policy year 2013, an adjustment factor is needed for accidents expected to occur on or after January 1, 2014. Therefore, this policy year 2013 adjustment factor relies on a ratio of accidents expected to occur on or after January 1, 2014 as compared to all accidents for that policy

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[3]   The NCCI's approach for selecting paid LDFs in the January 1, 2014 filing differs in that it utilizes an average of the latest three observed LDFs.

[4]   There were no differences between our premium development factors and those selected by the NCCI.

year. To calculate this ratio, the NCCI has assumed that policies are written uniformly throughout a given month and therefore, the average policy for a given month becomes effective at the midpoint of the month. This assumption is not consistent with the assumptions made by the NCCI when calculating the on-level factors used in this filing; in the on-level calculation the NCCI made the assumption that policies for a given month become effective on the first day of the month. It is our understanding that a sizeable portion of policies written in a given month are written on the first day of the month, while the balance of the writings are distributed uniformly over the remainder of the month. Thus, the actual situation lies somewhere between these two assumptions. We believe that if an assumption is appropriate for use in one calculation, that assumption should be utilized in all calculations. To reflect an indication which maintains consistency of assumptions with respect to when policies become effective on average within a month, we have performed two calculations of revised indications: 1) an indication in which the adjustment made to the 2nd to ultimate LDFs assumes policies become effective on the first of each month; and 2) an indication which determines the on-level factors based on the assumption that policies become effective at the midpoint of the month. These assumptions yield an average decrease of 0.1% and 0.2%, respectively, compared to the indication contained in the NCCI filing.

We have modified the adjustment made to the 2nd to ultimate paid and paid plus case indemnity LDFs so that the LDFs reflect a weighting of accidents for policy year 2013 occurring on or after January 1, 2014 consistent with the on-level calculations. Thus, our indication as a result of modifying the 2nd to ultimate LDF assumptions is 0.1% lower than the NCCI's indication, all else equal. This effect can be seen through a comparison of Exhibit 1 and Exhibit 2, as the latter incorporates both of our experience changes while the former only incorporates the LDF selection changes.

Overall, the result of reflecting both of these experience changes results in an indication which is equal to the indication in the NCCI's January 1, 2017 filing.

B. Trend Analysis

In selecting indemnity and medical loss ratio trends, the NCCI reviewed Missouri-specific frequency, indemnity severity and medical severity information, as well as ultimate indemnity and medical loss ratios, for policy years 2000-2014. For the January 1, 2016 Missouri filing, the NCCI selected minimum and maximum trend factors for frequency, indemnity severity and medical severity. The NCCI then selected a single frequency within their selected range, and calculated implied minimum and maximum indemnity and medical loss ratio trend factors by multiplying the selected frequency with respective severity components. Finally, in the 2016 filing, the NCCI selected an annual indemnity loss ratio trend factor and an annual medical loss ratio trend factor within the respective indicated ranges. For the January 1, 2017 Missouri filing, the NCCI directly selected annual loss ratio trends for each of indemnity and medical loss instead of utilizing the procedure as described for the 2016 filing. The NCCI indicated that this change was made to simplify its trend analysis in Missouri, making it more consistent with that of other states. In response to one of the questions we posed on trend, the NCCI provided what it

described as "a reasonable breakdown of these loss ratio trend factors into frequency and severity components." We reviewed both the frequency and severity trend components as well as the NCCI's selected loss ratio trends. Furthermore, Appendix C presents our review of various combinations of policy years for frequency trend as well as both severity and loss ratio trends for indemnity and medical loss separately.

The NCCI's filing presents historical claims frequency for policy years 2000-2014; as a response to a question asked of the NCCI, it selected a frequency trend factor of 0.975 (an annual frequency trend of -2.5%). Graph 2 presents the frequency over the experience period presented by the NCCI in its 2017 filing.

Graph 2

Frequency

* Frequency figures are based on wage adjusted on-level premium in milliions.
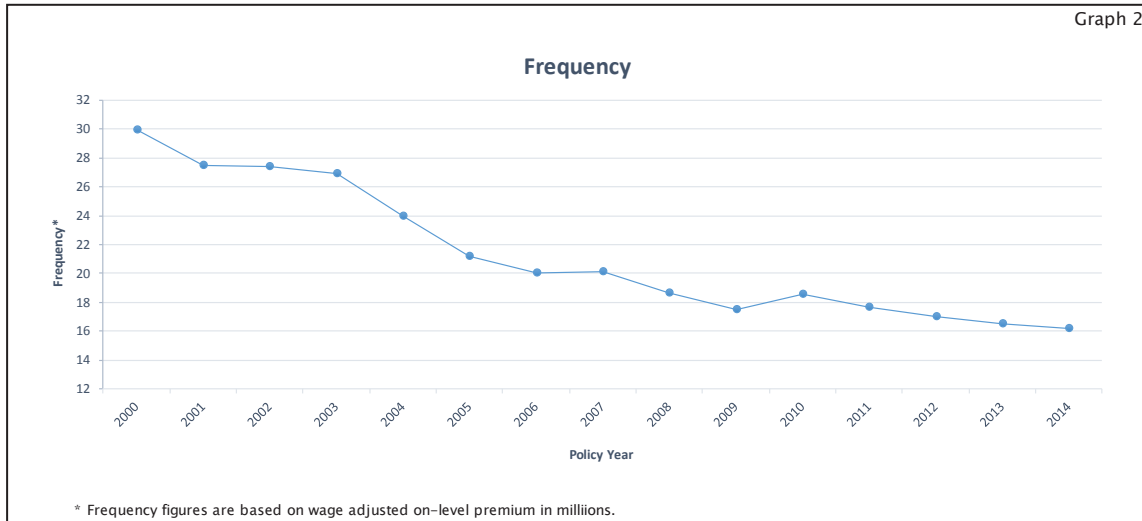
In reviewing the data presented by the NCCI, we observe that the frequency for the more recent policy years displays a trend which is less negative than that seen for the older years. We concur with the NCCI that an annual frequency trend of -2.5% is appropriate in the determination of the January 1, 2017 loss costs.

For indemnity severity, the NCCI calculated the ultimate cost per claim for each of policy years 2000 through 2014 based upon ultimate loss (which equals an average of the ultimate loss produced via the paid development and the paid plus case development projections) divided by projected ultimate claim counts. Graph 3 presents the indemnity severities which were considered by the NCCI.

Graph 3

Indemnity Severity

* Severity figures are based on wage-adjusted on-level ultimate losses.
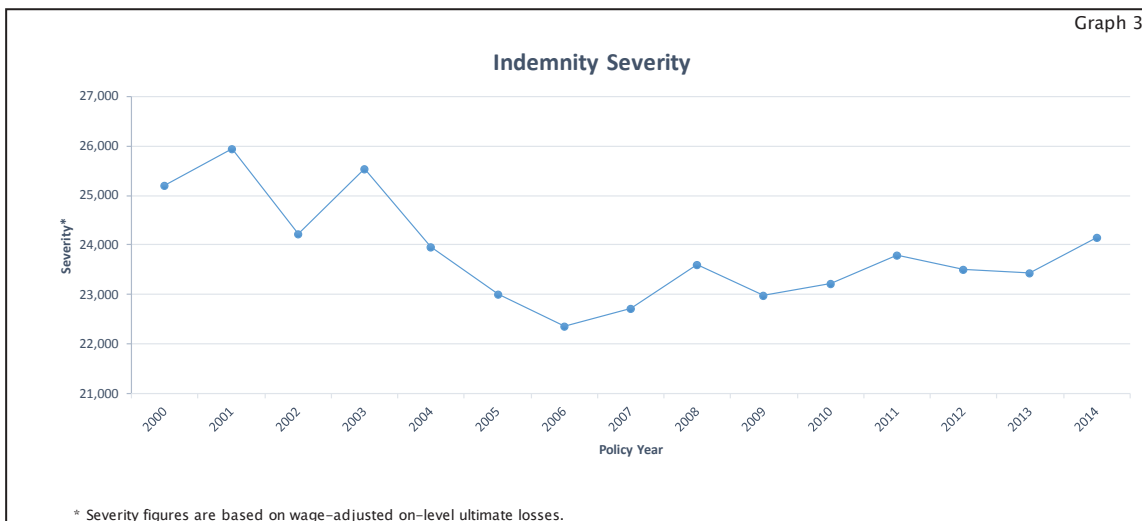
After reviewing these historical severities, we would not consider the indemnity severities prior to 2006 when forming an opinion on the needed severity trend. After fitting exponential curves to the severities[5] for various combinations of policy years, we believe the indemnity severity trend factor falls within a range of 1.006 to 1.008 and have selected an annual indemnity severity trend of 1.007 (i.e., +0.7%). Combining an average indemnity severity trend factor of 1.007 with a selected 0.975 frequency trend factor yields an indicated annual indemnity loss ratio trend of 0.982 (an annual implied indemnity loss ratio trend of -1.8%).

We then looked directly at indemnity loss ratios. The NCCI selected an annual indemnity loss ratio trend factor of 0.980 (-2.0%) for 2017, which is slightly less negative than the 0.970 (-3.0%) factor selected in the 2016 filing. In reviewing the historical indemnity loss ratios for policy years 2000-2014 (refer to Graph 4), we can see that while the loss ratios have continued to decrease over time, such annual decreases have slowed considerably. Over the shorter term, the year to year indemnity loss ratio changes fall within a much narrower range, indicating a smaller average annual decrease.

Graph 4

Indemnity Loss Ratio

Loss ratio figures are based on wage adjusted on-level losses and premium.
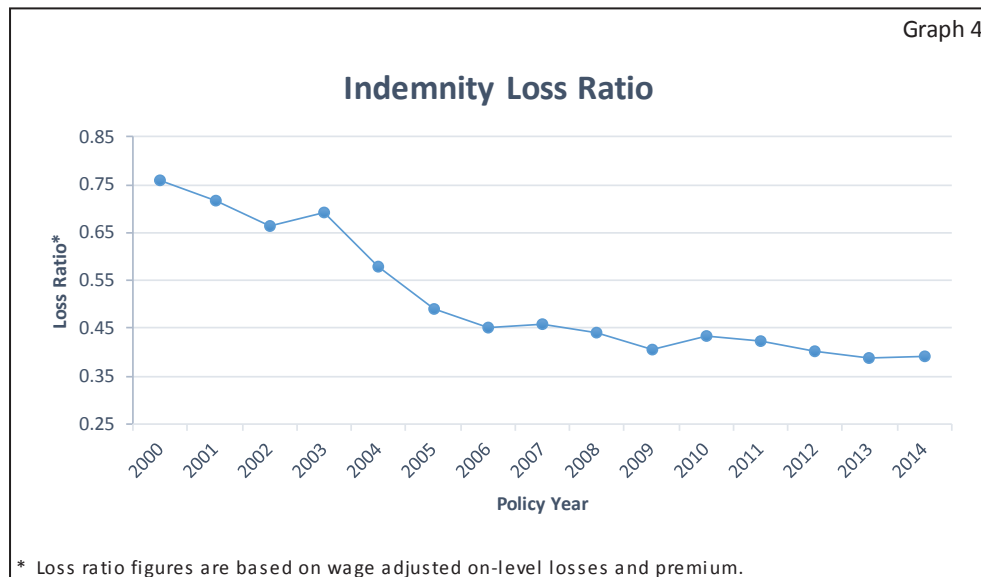
As noted above, the NCCI selected an annual indemnity loss ratio trend of -2.0%. Based upon a direct review of indemnity loss ratio trends,[6] we believe the 2006 and subsequent years to be most indicative of the indemnity loss ratio trend for 2017. Given these indemnity loss ratios, we believe the -1.8% indemnity loss ratio trend derived by combining the individually selected frequency and indemnity severity trends is further supported. Thus, we would recommend an annual indemnity loss ratio trend of -1.8%. Thus, our selection is slightly less negative than the NCCI's selected annual indemnity trend of 0.980 (-1.8% vs -2.0%).

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[5]   Actuarial Solutions fit curves to indemnity severities which were calculated based upon ultimate indemnity loss which substitutes our judgment-based LDFs for the rule-based LDFs used by the NCCI.

[6]   Actuarial Solutions fit curves to indemnity loss ratios which were calculated based upon ultimate indemnity loss which substituted our judgmentally-selected LDFs for the rule-based LDFs selected and utilized by the NCCI.

A similar analysis was conducted for medical loss. The NCCI calculated ultimate medical severities based upon ultimate medical loss produced by using an average of the paid and the paid plus case LDF projection methods, divided by ultimate claim counts. Graph 5 presents the historical medical severities for policy years 2000 through 2014.

Medical Severity

* Severity figures are based on wage-adjusted on-level ultimate losses.
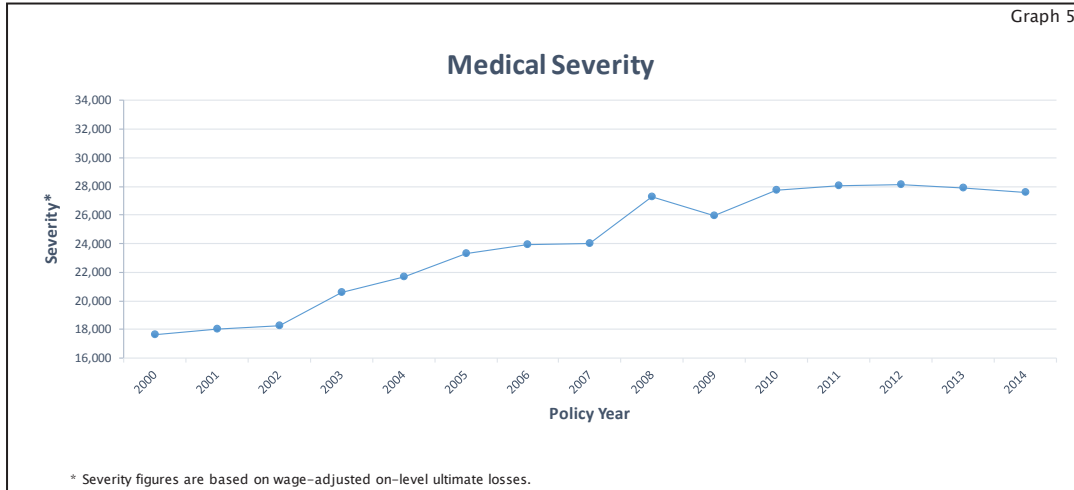
Graph 5 shows that over the past two years, the medical severity has actually experienced small decreases dropping from $28,176 in 2012 to $27,892 in 2013 and then to $27,544 in 2014. Since 2010, medical severities have been relatively flat. Prior to 2010, medical severities experienced annual growth of nearly 5%. The NCCI selected an annual medical severity trend of +1.5%. To better understand this selection, we requested additional insight, specifically regarding the periods reviewed to make this selection. In response to our request, the NCCI indicated that it had reviewed various trends involving medical severities for the latest 6 to 10 years, with +1.5% being the mean of the five annual trend scenarios produced from the review. We understand the NCCI's desire to rely more heavily on longer term trends given that over the last five years the trend has been counterintuitive in light of economic conditions. More specifically, over the last five years, the medical severity trend has been fairly flat, while over the same period of time the medical component of the consumer price index (CPI) has consistently increased. Since the medical component of workers compensation coverage is first-dollar, unlimited, without coinsurance, we would expect the workers compensation medical severity trend to be larger than the trend of the medical portion of the CPI. Despite the above mentioned points, we believe some consideration should be given to the short term annual trend observed from 2010 to 2014. In light of consideration of both longer term and shorter term trends, we believe an annual medical severity trend of +1.0% is supported.

With regard to medical loss ratio trends, the NCCI selected an annual medical loss ratio trend factor of 0.990 (-1.0%). Graph 6 presents the medical loss ratios for policy years 2000 through 2014. As can be seen in Graph 6, the historical medical loss ratios are somewhat volatile from year to year. Over the period from 2000 to 2010, the

medical loss ratios display a number of highs and lows, but are relatively unchanged over this period. We further observe that since 2010, the medical loss ratio has decreased annually by approximately 3.6% through 2014.

Graph 6

Medical Loss Ratio

* Loss ratio figures are based on wage adjusted on-level ultimate losses and premium.

We reviewed the indicated medical trend results produced by fitting exponential curves directly to the medical loss ratios[7] as well as a review of the frequency and medical severity components. Based upon our review, we recommend an annual medical loss ratio trend factor of 0.985 (-1.5%) which reflects the consideration of the individually selected frequency and medical loss severity components; this is slightly lower than the NCCI's selected trend factor of 0.990.

Replacing the NCCI's filed trend factors with an annual 0.982 indemnity loss ratio trend factor and an annual medical loss ratio trend factor of 0.985 produces a -1.0% impact due to a change in trend as seen on Exhibit 3, as compared to the change in trend reflected in the NCCI's January 1, 2017 filing of -0.4%. Thus, our review of the trend components produces an indicated loss cost change that is 0.6% lower than the NCCI filing, all else equal.

C. LAE Provision

The Missouri loss costs include a provision for LAE. LAE has two components: Defense and Cost Containment Expense (DCCE) and Adjusting and Other Expense (AOE). DCCE includes items such as legal/defense expenses and medical exam costs. AOE encompasses general claims administration expenses such as salaries for claim adjusters. The NCCI analyzes the DCCE ratio to loss separately from the AOE ratio to loss. For DCCE, the NCCI develops each of countrywide ultimate loss and countrywide ultimate DCCE on an accident year basis; for each accident year, dividing the projected ultimate DCCE dollars by the dollars of projected ultimate loss produces

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7   Actuarial Solutions fit curves to medical loss ratios which were calculated based upon ultimate medical loss which substituted our judgmentally selected LDFs for the rule-based LDFs used by the NCCI.

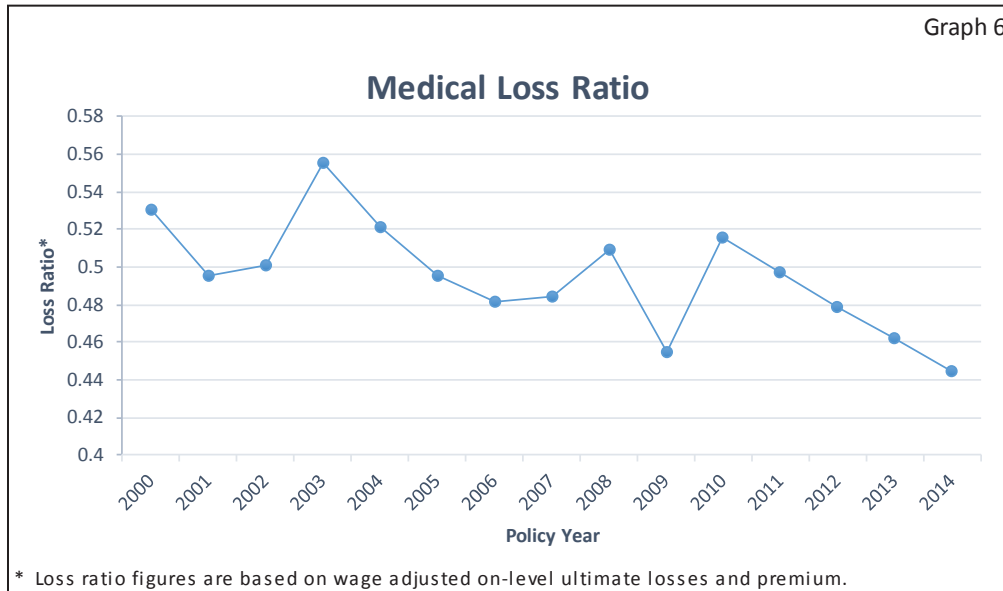ratios of ultimate DCCE to loss. Similarly, ultimate AOE to loss ratios are determined by dividing projected countrywide ultimate AOE by projected countrywide ultimate loss. Beginning with the 2015 filing, the NCCI selected the countrywide DCCE (and AOE) provision to be equal to the average ultimate DCCE (and AOE) ratio for the three latest accident years; recent prior filings reflected two-year averages. The NCCI continues to base its countrywide DCCE (and AOE) selection on the average of the three latest accident years in the 2017 filing.

To determine the LAE provision for a given state's filing, the NCCI considers each of the DCCE and AOE components separately. For AOE, for which collected data is countrywide in nature, the NCCI has historically selected the countrywide AOE provision as the Missouri AOE provision. However, in the current filing, the NCCI has modified its approach; specifically, the NCCI now takes an approach which blends its countrywide AOE ratio with Missouri-specific AOE ratio of Missouri Employers Mutual Insurance Company (MEM)[8]. For private carriers, the NCCI selects the countrywide AOE ratio of 7.4% as the Missouri AOE ratio. The AOE ratio for MEM is identified to be 10.1%. Based upon a 78% Missouri private carrier market share, these AOE ratios are weighted together to produce a weighted AOE ratio to loss of 8.0% (8.0% = 0.78 x 7.4% + 0.22 x 10.1%). The NCCI selects this weighted 8.0% as the Missouri AOE ratio (prior to the reflection of the impact of SB1).

For DCCE, the NCCI has historically first selected a countrywide DCCE ratio (currently 13.2%) and then applied a state relativity[9] to generate a state-specific DCCE ratio. In Missouri, the relativity for the January 1, 2016 filing was based upon data collected by the NCCI which excluded MEM experience; the resulting Missouri DCCE provision was selected by the NCCI. For the January 1, 2017 Missouri filing, the Missouri DCCE relativity calculated in a manner analogous to the previous filing is 0.984. Application of this relativity to the countrywide DCCE ratio of 13.2% results in a Missouri DCCE ratio of 13.0% which was selected by the NCCI as the DCCE ratio for private carriers (13.0% = 13.2% x 0.984). The NCCI then takes an approach analogous to that discussed above for AOE in order to determine the 2017 Missouri DCCE provision. The NCCI weights together the MEM DCCE ratio of 6.2% and the private carrier DCCE ratio of 13.0%. Based upon a weighting of 78.0% for private carriers and 22.0% for MEM, a Missouri DCCE ratio of 11.5% is produced (11.5% = 0.78 x 13.0% + 0.22 x 6.2%). The NCCI then selects this weighted DCCE ratio of 11.5% as the proposed Missouri DCCE ratio (prior to the recognition of the impact of SB1). The total indicated LAE provision for Missouri prior to the impact of SB1 is thus 19.5%.[10] SB1, which took effect on January 1, 2014, is expected by the NCCI to reduce the LAE ratio by a factor of 0.992 (-0.8%). Application of this adjustment factor produces the LAE provision of 18.5%[11] filed by the

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[8]   MEM is the competitive state fund in Missouri.

[9]   The DCCE state relativity has historically been based upon a comparison of that state's calendar year paid DCCE to paid loss ratio to an analogous countrywide DCCE ratio. Three calendar years of data have historically been used to determine the state relativity for Missouri.

[10]   19.5% = 8.0%+11.5%.

[11]   18.5% = (1.0+19.5%) x 0.992-1.0.

NCCI in Missouri to be effective January 1, 2017. The NCCI's proposed LAE provision is 0.8% less than the 2016 LAE provision of 19.4%.[12]

In reviewing the countrywide LAE information produced by the NCCI, we observed that the NCCI's estimates of the ultimate LAE ratio for a given accident year have decreased over time in a fairly consistently manner. For example, as presented in Graph 7, the NCCI's countrywide estimated ultimate LAE ratio for accident year 2009 referenced in the Missouri filing effective January 1, 2011 was 21.3%; the projected countrywide accident year 2009 LAE ratio contained in the Missouri filing effective January 1, 2012 was 19.6%. The projected countrywide accident year 2009 ultimate LAE ratio continued to decrease in each subsequent filing year, and currently is estimated to be 18.4%.

Graph 7

Accident Year 2009 Ultimate Countrywide LAE Ratio

(LAE Ratio vs. Maturity in Months*)

* Represents the maturity of the actual LAE experience at the time the projection was made.
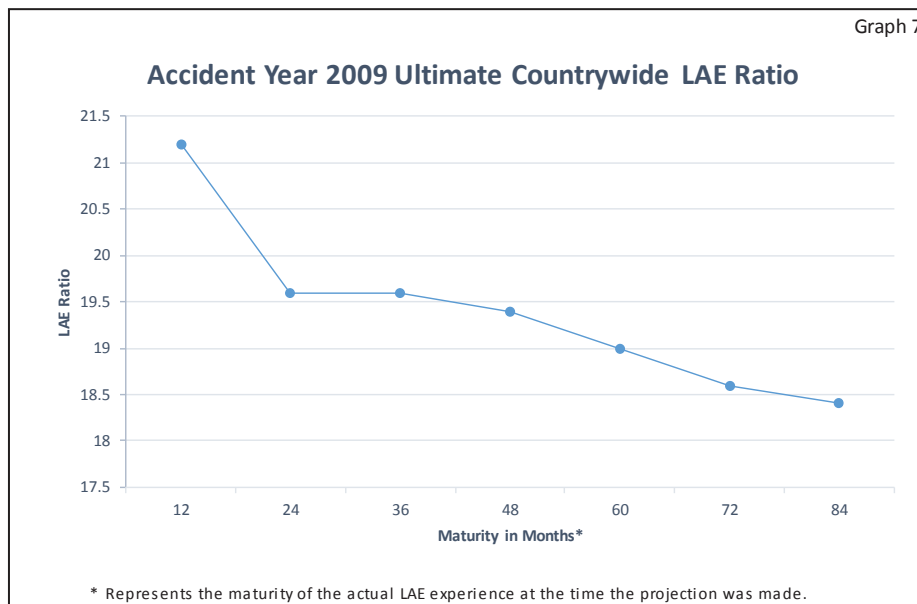
Each filing contains data accumulated through a particular evaluation date; as each subsequent filing is prepared, information stated at a more recent evaluation date is available and incorporated, thus reflecting more mature data which inherently reduces uncertainty regarding a given year's ultimate LAE ratio. The accident year 2009 ultimate LAE ratio of 21.3% was produced in the 2011 filing by projecting actual LAE experience through December 31, 2009 to an ultimate basis. For the accident year 2009 ultimate LAE ratio determined in the 2012 filing (19.6%), actual LAE experience as of December 31, 2010 is projected to ultimate. Thus, with each passing year, the LAE projection for accident year 2009 reflects an ever-increasing amount of actual LAE experience, and decreases the time period for which projection to ultimate is required. Graph 7 demonstrates that the process used by the NCCI has historically over-projected the ultimate LAE ratio for accident year 2009, as the ultimate LAE ratio decreases as more actual LAE experience is reflected. Similarly, as seen in Graph 8, the decreasing projection of the ultimate LAE ratio for accident year 2009 is not an isolated occurrence, as other accident years display a comparable pattern.

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[12]   The current 2016 LAE provision of 19.4% also includes a -0.8% adjustment for SB1.

Graph 8

Accident Year Ultimate Countrywide LAE Ratios

* Represents the maturity of the actual LAE experience at the time the projection was made.
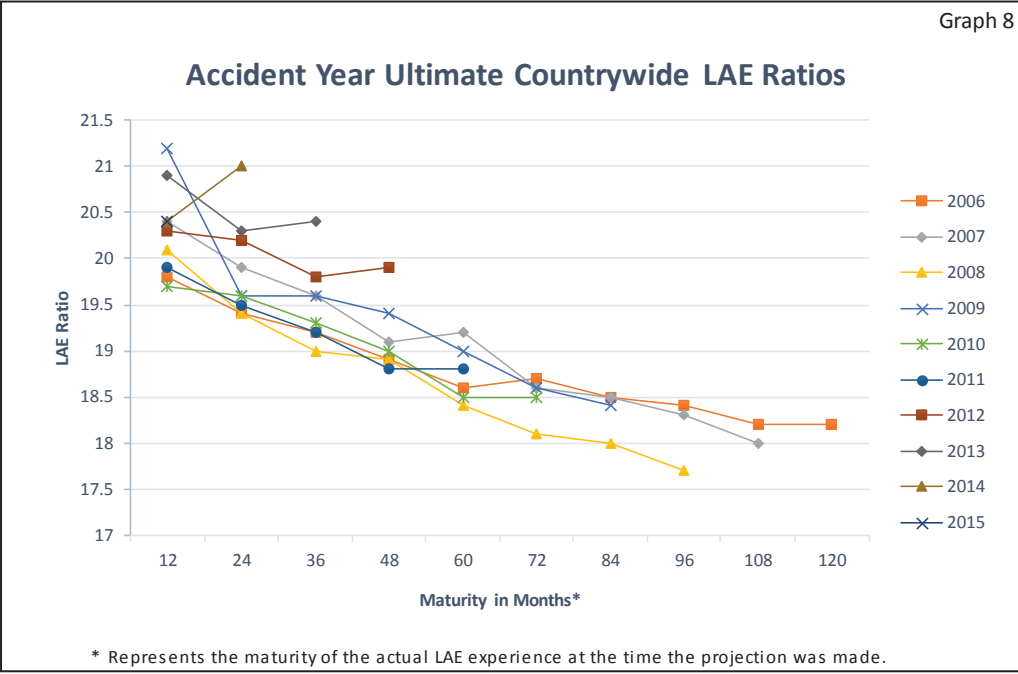
We raised our concern about the generally decreasing LAE ratios to the NCCI during our review of the NCCI's January 1, 2016 Missouri filing. Their response acknowledged that the ultimate LAE for given accident years decreases over time, but also pointed out that ultimate LAE ratios increase from accident year to accident year; we had noted this during our review of last year's filing. Although this second observation provides some mitigating effect, the NCCI's methodology seems to result in proposed countrywide LAE ratios that appear to be too large. Last year, the NCCI indicated that two changes had been recently implemented to help address this issue. First, during the 2015 filing cycle, the NCCI changed its methodology from using an average of the two latest accident years as the selected ultimate DCCE (and AOE) ratio, to reflecting a three-year average ultimate ratio as the selected countrywide DCCE (and AOE) provision. The NCCI has continued to use this methodology for selecting the countrywide DCCE (and AOE) provision.

We requested historical projections of countrywide DCCE and AOE ratios (to loss) from the NCCI. Table 6 presents the ultimate DCCE ratios for each of accident years 1996 through 2015 as presented in each of the January 1, 2007 through January 1, 2017 filings. Comparable information for AOE is contained in Table 7.

Accident Year					Projected Ultimate Countrywide DCCE Ratios Filing Effective ...						Table 6
	1/1/07	1/1/08	1/1/09	1/1/10	1/1/11	1/1/12	1/1/13	1/1/14	1/1/15	1/1/16	1/1/17
1996	8.1										
1997	8.9	8.9									
1998	8.9	9.2	9.2								
1999	8.8	9.1	9.1	9.2							
2000	9.2	9.7	9.7	9.6	9.7						
2001	9.4	9.9	10.1	10.0	10.1	10.0					
2002	9.8	10.5	10.6	10.6	10.5	10.4	10.3				
2003	10.0	10.7	10.8	10.7	10.6	10.5	10.4	10.0			
2004	10.0	10.6	10.8	10.7	10.7	10.5	10.3	10.0	9.9		
2005	10.3	11.5	11.1	10.9	10.8	10.5	10.4	10.3	10.2	10.1	
2006		11.9	11.3	11.1	10.8	10.6	10.4	10.7	10.6	10.5	10.5
2007			12.2	11.8	11.5	11.1	10.9	10.8	10.7	10.6	10.5
2008				12.5	11.9	11.6	11.3	11.3	11.1	11.1	11.0
2009					13.1	12.0	11.8	11.7	11.5	11.3	11.2
2010						12.3	12.1	12.0	11.8	11.5	11.6
2011							12.9	12.5	12.3	12.1	12.2
2012								12.9	12.9	12.8	13.0
2013									13.3	12.9	13.0
2014										13.4	13.5
2015											13.2

Concentrating first on DCCE, we see in Table 6 that, like LAE in total, while it is true that the projected ultimate

Accident Year					Projected Ultimate Countrywide AOE Ratios Filing Effective ...						Table 7
	1/1/07	1/1/08	1/1/09	1/1/10	1/1/11	1/1/12	1/1/13	1/1/14	1/1/15	1/1/16	1/1/17
1996	7.6										
1997	7.4	7.1									
1998	6.8	6.7	6.7								
1999	6.4	6.3	6.2	6.2							
2000	6.3	6.2	6.1	6.1	6.3						
2001	6.6	6.5	6.4	6.4	6.5	6.3					
2002	6.7	6.6	6.5	6.6	6.7	6.5	6.6				
2003	7.4	7.5	7.4	7.4	7.5	7.3	7.5	7.5			
2004	6.7	7.0	6.9	7.0	7.1	6.9	7.1	7.0	7.1		
2005	7.3	7.8	7.7	7.8	7.9	7.7	7.9	7.5	7.5	7.4	
2006		7.9	8.1	8.1	8.1	8.0	8.3	7.8	7.8	7.7	7.7
2007			8.2	8.1	8.1	8.0	8.3	7.8	7.8	7.7	7.5
2008				7.6	7.5	7.4	7.6	7.1	7.0	6.9	6.7
2009					8.1	7.6	7.8	7.7	7.5	7.3	7.2
2010						7.4	7.5	7.3	7.2	7.0	6.9
2011							7.0	7.0	6.9	6.7	6.6
2012								7.4	7.3	7.0	6.9
2013									7.6	7.4	7.4
2014										7.0	7.5
2015											7.2

DCCE ratios increase from accident year to accident year, it is also true that the ultimate DCCE ratio for a given accident year decreases over time. Considering the DCCE information included in the filing effective on January 1, 2011, we can see, for example, that the accident year 2000 DCCE ratio was 9.7% and the DCCE ratio projected for each subsequent accident year in the same filing is greater than or equal to the prior accident year's ratio. We can also consider the changes in DCCE ratio for each given accident year by reviewing Table 6. As was the case for total LAE discussed above, we note the DCCE ratio decreases over time as additional experience is reflected; using accident year 2009 for the purpose of illustration, the projected DCCE ratio is initially equal to

13.1% in the January 1, 2011 filing (containing data evaluated as of December 31, 2009), decreases from filing to filing and is currently projected to be 11.2% in the January 1, 2017 filing.

We have reviewed the historical changes in ultimate DCCE ratios for each accident year as it matures and have utilized this information to project adjusted ultimate countrywide DCCE ratios for individual accident years. We have estimated the future downward development of the DCCE ratios and have also considered the impact of the NCCI's recent methodology change which utilizes a three-year average to produce the selected DCCE ratio. This information, found in Exhibit 4, leads us to believe that a countrywide DCCE ratio in the range of 12.7% to 13.6% would be reasonable for the 2017 filing. For clarification, we should note that the high-end of our range relies upon the information shown in Line (3) of Exhibit 4, Page 3. Application of the Missouri DCCE relativity of 0.984 produces a range for the Missouri DCCE ratio of private carriers of 12.5% to 13.4%.

We have similarly reviewed the NCCI's countrywide AOE ratios (Exhibit 5). The AOE ratios also decrease over time for a given accident year, but do not increase from accident year to accident year to the same degree as the DCCE ratios. After considering the anticipated future decreases in the ultimate AOE ratios and the NCCI's approach of selecting an average of the latest three observed ratios, as well as the impact in the current filing of the NCCI's judgmental selection of the 10th report to ultimate development factor, we feel that a ratio in the 6.8% to 7.2% range would be a reasonable estimate for the countrywide AOE provision, and represents an appropriate AOE provision for private carriers in Missouri, for the 2017 filing.

Thus, our range for LAE for Missouri private carriers is 19.3% (12.5% + 6.8%) to 20.6% (13.4% + 7.2%). We have selected 20.0% as the Missouri private carrier LAE ratio. Recognition of MEM's LAE ratio of 16.3% (6.2% DCCE + 10.1% AOE) produces a weighted average Missouri LAE ratio of 19.2%[13], as compared to the NCCI's 19.5%. Reflecting the NCCI's SB1 adjustment factor of 0.992 causes our final LAE ratio to be 18.2%[14] as compared to the NCCI's provision of 18.5%. Thus, substitution of our selected Missouri LAE provision for the LAE ratio included in the NCCI January 1, 2017 filing causes the indicated loss cost change to decrease by an additional 0.3% (i.e., our LAE ratio produces a 1.1% decrease whereas the NCCI's LAE ratio produces an 0.8% decrease).

D. Overall Findings

Sections A through C detail the specific recommendations we have regarding the NCCI's January 1, 2017 filing as well as the individual impact of each recommendation. The combined impact of utilizing all of these recommendations is a decrease of -4.6% as shown in Exhibit 6; thus, our overall voluntary market loss cost change is 0.9% lower as compared to the NCCI's indication.

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[13] 19.2% = 0.78 x 20.0% + 0.22 x 10.39%
[14] 18.2% = (1.0+19.2%) x 0.992-1.0

E. Allocation of Loss Costs to Individual Classes

The NCCI's methodology for distributing the overall indication among the various classes is well documented and well supported. We do not take exception to the methodology used by the NCCI. Loss cost changes in this filing for individual classes (excluding F-classes) range from -24.8% to +19.0%.[15]

We did not review the NCCI's calculation of the effect of changes to the U.S. Longshore and Harbor Workers' Compensation Act.

F. Exclusion of Assigned Risk Experience

At our request, the NCCI calculated that exclusion of assigned risk data from the experience used in the filing would cause the indicated loss cost change to be a decrease of -4.9%. Given the current small market share of the Missouri assigned risk market, as well as the fact that risks shift between the voluntary and assigned risk market over time, we feel that it is not inappropriate to base the indicated loss costs upon combined voluntary and assigned risk experience at this time.

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[15] This range reflects the actual loss cost changes proposed by the NCCI in their January 1, 2017 filing. However, as also indicated in the filing, the range of possible changes is -27.0% to +19.0%.

IV. LIMITATIONS AND DISTRIBUTION

This report has been prepared solely for the use of and reliance by the Missouri Department of Insurance, Financial Institutions and Professional Registration in its review of the NCCI's Missouri advisory loss cost filing effective January 1, 2017. This report should be distributed only in its entirety. It is recommended that any party receiving a copy of this report request its own actuary to review the report to ensure an understanding of all assumptions, data, limitations and conclusions reached by the NCCI in its January 1, 2017 filing and by Actuarial Solutions in the review of the filing.

In our review, we relied solely upon information provided by the Department and by the NCCI. Appendix D of this report presents information supplied by the NCCI in response to interrogatories which assisted in our review. Although we have not audited this information, the NCCI's calculations have been reviewed for reasonability. If the underlying data or information is inaccurate or incomplete, then our observations and conclusions may likewise be inaccurate or incomplete.
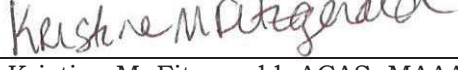
V. SIGNATURE PAGE

This review was prepared by Steve Lattanzio and Kristine Fitzgerald. Mr. Lattanzio is a Fellow of the Casualty Actuarial Society and a Member of the American Academy of Actuaries (MAAA). Ms. Fitzgerald is an Associate of the Casualty Actuarial Society and MAAA. Both individuals meet the Qualification Standards of the American Academy of Actuaries to render property/casualty actuarial opinions.

Date: November 28, 2016

Signature: *Steven P. Lattanzio*

Steven P. Lattanzio, FCAS, MAAA, FCA
Consulting Actuary

Date: November 28, 2016

Signature: *Kristine M Fitzgerald*

Kristine M. Fitzgerald, ACAS, MAAA, FCA
Consulting Actuary

VI. GLOSSARY OF TERMS

The following definitions are provided to give context to the terms used within this report and are tailored to the specifics of the filing under review.

Accident Year

A 12-month period of time for which dollars of loss are aggregated based upon those accidents occurring during the given time period. At a given moment in time the amount paid as well as the established reserves are known; the final value of all claims is not known until that time at which all such claims are closed. Loss is analyzed by accident year within some of the NCCI's calculations.

Policy Year

A policy year is comprised of all of the policies written during a particular calendar year; loss and premium is aggregated for all such policies. Since a policy written on January 1 expires December 31 of the same year, but a policy written on December 31 does not expire until the end of the following year, accidents associated with a single policy year occur over the course of two calendar years. Experience from the two most recent complete policy years (2012 and 2013) makes up the bulk of the NCCI's calculation of the indicated loss cost change for this filing.

Ultimate Loss

The estimated amount that will eventually be paid when all claims are closed.

Paid Loss

The dollars of indemnity and medical benefits paid to the injured worker or his/her dependents.

Case Reserve

An estimate made by the claims administrator of the amount which remains to be paid for each particular claim.

Incurred Loss

The sum of paid loss plus case reserves.

Loss Development

The observed change over time in the paid or incurred loss for a particular year.

Actuarial Central Estimate

An estimate that represents an expected value over a range of reasonably possible outcomes, not all conceivable outcomes.

NCCI – Missouri January 1, 2017 Filing
Indication Using Actuarial Solutions' Selected Development Factors
Policy Year 2014

Exhibit 1
Page 1

	[A]	[B]	[C]
Premium	Paid	Paid + Case	Combined
(1) Standard Earned Premium Valued as of 12/31/15	$630,454,417	$630,454,417	$630,454,417
(2) Factor to Develop Standard Earned Premium	1.006	1.006	1.006
(3) Developed Standard Earned Premium = (1) x (2)	$634,237,144	$634,237,144	$634,237,144
(4) Factor to Adjust Premium to Current Level	0.941	0.941	0.941
(5) Premium Adjusted to Current Level = (3) x (4)	$596,817,153	$596,817,153	$596,817,153
Indemnity Benefit Cost			
(6) Indemnity Benefit Cost Valued as of 12/31/15 (First Report)	$57,173,592	$150,059,810	
(7) Factor to Develop Indemnity Benefit Cost	4.091	1.526	
(8) Developed Indemnity Benefit Cost = (6) x (7)	$233,897,165	$228,991,270	$231,444,218
(9) Factor to Adjusted Indemnity Benefit Cost to Current Benefit Level	1.013	1.013	1.013
(10) Factor to Include Loss Based Expenses	1.194	1.194	1.194
(11) Composite Adjustment Factor = (9) x (10)	1.210	1.210	1.210
(12) Adjusted Indemnity Cost = (8) x (11)	$283,015,570	$277,079,437	$280,047,504
(13) Indemnity Cost Ratio = (12) / (5)	0.474	0.464	0.469
(14) Trend Length	3.001	3.001	3.001
(15) Application of Proposed Indemnity Trend Factor = .980 ^ (14)	0.941	0.941	0.941
(16) Projected Limited Indemnity Cost Ratio = (13) x (15)	0.446	0.437	0.441
(17) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis	1.010	1.010	1.010
(18) Projected Indemnity Cost Ratio = (16) x (17)	0.450	0.441	0.445
(19) Proposed Change in Indemnity Benefits	1.013	1.013	1.013
(20) Projected Indemnity Cost Ratio Including Benefit Change = (18) x (19)	0.456	0.447	0.451
Medical Benefit Cost			
(21) Medical Benefit Cost Valued as of 12/31/15 (First Report)	$168,325,621	$241,182,526	
(22) Factor to Develop Medical Benefit Cost	1.608	1.080	
(23) Developed Medical Benefit Cost = (21) x (22)	$270,667,599	$260,477,128	$265,572,364
(24) Factor to Adjusted Medical Benefit Cost to Current Benefit Level	1.000	1.000	1.000
(25) Factor to Include Loss Based Expenses	1.194	1.194	1.194
(26) Composite Adjustment Factor = (24) x (25)	1.194	1.194	1.194
(27) Adjusted Medical Cost = (23) x (26)	$323,177,113	$311,009,691	$317,093,403
(28) Medical Cost Ratio = (27) / (5)	0.542	0.521	0.531
(29) Trend Length	3.001	3.001	3.001
(30) Application of Proposed Medical Trend Factor = .990 ^ (29)	0.970	0.970	0.970
(31) Projected Limited Medical Cost Ratio = (28) x (30)	0.526	0.505	0.515
(32) Factor to Adjust Medical Cost Ratio to an Unlimited Basis	1.010	1.010	1.010
(33) Projected Medical Cost Ratio = (31) x (32)	0.531	0.510	0.520
(34) Proposed Change in Medical Benefits	1.000	1.000	1.000
(35) Projected Medical Cost Ratio Including Benefit Change = (33) x (34)	0.531	0.510	0.520
Total Benefit Cost			
(36) Adjusted Cost Ratio of Policy Year 2014 = (20) + (35)	0.987	0.957	0.971

Notes: Row (2) has been selected by Actuarial Solutions.
   Row (7), Column [A] is taken from Row (1), Column [A] of Appendix A, Page 2.
   Row (7), Column [B] is taken from Row (1), Column [A] of Appendix A, Page 1.
   The trend factor reflected in Row (15) has been taken from the Technical Supplement of the Missouri 1/1/17 Voluntary Market
       Loss Cost Filing.
   Row (22), Column [A] is taken from Row (1), Column [B] of Appendix A, Page 2.
   Row (22), Column [B] is taken from Row (1), Column [B] of Appendix A, Page 1.
   The trend factor reflected in Row (30) has been taken from the Technical Supplement of the Missouri 1/1/17 Voluntary Market
       Loss Cost Filing.
   Rows (1), (4), (6), (9), (10), (14), (17), (19), (21), (24), (25), (29), (32), and (34) have been taken from the Technical Supplement
       of the Missouri 1/1/17 Voluntary Market Loss Cost Filing.

NCCI – Missouri January 1, 2017 Filing
Indication Using Actuarial Solutions' Selected Development Factors
Policy Year 2013

Exhibit 1
Page 2

	[A]	[B]	[C]
Premium	Paid	Paid + Case	Combined
(1) Standard Earned Premium Valued as of 12/31/15	$547,427,409	$547,427,409	$547,427,409
(2) Factor to Develop Standard Earned Premium	0.999	0.999	0.999
(3) Developed Standard Earned Premium = (1) x (2)	$546,879,982	$546,879,982	$546,879,982
(4) Factor to Adjust Premium to Current Level	1.046	1.046	1.046
(5) Premium Adjusted to Current Level = (3) x (4)	$572,036,461	$572,036,461	$572,036,461
Indemnity Benefit Cost			
(6) Indemnity Benefit Cost Valued as of 12/31/15 (Second Report)	$97,088,094	$156,209,087	
(7) Factor to Develop Indemnity Benefit Cost	2.143	1.272	
(8) Developed Indemnity Benefit Cost = (6) x (7)	$208,059,785	$198,697,959	$203,378,872
(9) Factor to Adjusted Indemnity Benefit Cost to Current Benefit Level	1.092	1.092	1.092
(10) Factor to Include Loss Based Expenses	1.194	1.194	1.194
(11) Composite Adjustment Factor = (9) x (10)	1.304	1.304	1.304
(12) Adjusted Indemnity Cost = (8) x (11)	$271,309,960	$259,102,139	$265,206,049
(13) Indemnity Cost Ratio = (12) / (5)	0.474	0.453	0.464
(14) Trend Length	4.001	4.001	4.001
(15) Application of Proposed Indemnity Trend Factor = .980 ^ (14)	0.922	0.922	0.922
(16) Projected Limited Indemnity Cost Ratio = (13) x (15)	0.437	0.418	0.428
(17) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis	1.010	1.010	1.010
(18) Projected Indemnity Cost Ratio = (16) x (17)	0.441	0.422	0.432
(19) Proposed Change in Indemnity Benefits	1.013	1.013	1.013
(20) Projected Indemnity Cost Ratio Including Benefit Change = (18) x (19)	0.447	0.427	0.438
Medical Benefit Cost			
(21) Medical Benefit Cost Valued as of 12/31/15 (Second Report)	$203,161,764	$248,889,051	
(22) Factor to Develop Medical Benefit Cost	1.315	1.048	
(23) Developed Medical Benefit Cost = (21) x (22)	$267,157,720	$260,835,725	$263,996,723
(24) Factor to Adjusted Medical Benefit Cost to Current Benefit Level	1.000	1.000	1.000
(25) Factor to Include Loss Based Expenses	1.194	1.194	1.194
(26) Composite Adjustment Factor = (24) x (25)	1.194	1.194	1.194
(27) Adjusted Medical Cost = (23) x (26)	$318,986,318	$311,437,856	$315,212,087
(28) Medical Cost Ratio = (27) / (5)	0.558	0.544	0.551
(29) Trend Length	4.001	4.001	4.001
(30) Application of Proposed Medical Trend Factor = .990 ^ (29)	0.961	0.961	0.961
(31) Projected Limited Medical Cost Ratio = (28) x (30)	0.536	0.523	0.530
(32) Factor to Adjust Medical Cost Ratio to an Unlimited Basis	1.010	1.010	1.010
(33) Projected Medical Cost Ratio = (31) x (32)	0.541	0.528	0.535
(34) Proposed Change in Medical Benefits	1.000	1.000	1.000
(35) Projected Medical Cost Ratio Including Benefit Change = (33) x (34)	0.541	0.528	0.535
Total Benefit Cost			
(36) Adjusted Cost Ratio of Policy Year 2013 = (20) + (35)	0.988	0.955	0.973

Notes: Row (2) has been selected by Actuarial Solutions.
Row (7), Column [A] is taken from Row (2), Column [A] of Appendix A, Page 2.
Row (7), Column [B] is taken from Row (2), Column [A] of Appendix A, Page 1.
The trend factor reflected in Row (15) has been taken from the Technical Supplement of the Missouri 1/1/17 Voluntary Market Loss Cost Filing.
Row (22), Column [A] is taken from Row (2), Column [B] of Appendix A, Page 2.
Row (22), Column [B] is taken from Row (2), Column [B] of Appendix A, Page 1.
The trend factor reflected in Row (30) has been taken from the Technical Supplement of the Missouri 1/1/17 Voluntary Market Loss Cost Filing.
Rows (1), (4), (6), (9), (10), (14), (17), (19), (21), (24), (25), (29), (32), and (34) have been taken from the Technical Supplement of the Missouri 1/1/17 Voluntary Market Loss Cost Filing.

Average Cost Ratio

(1) Change in Experience, Trend and Benefits	0.972	(−2.8%)
(2) Change In Loss Adjustment Expense	0.992	(−0.8%)
(3) Overall Loss Cost Level Change = (1) x (2)	0.964	(−3.6%)

Notes: Row (1) is the average of Row (36), Column [C] of Exhibit 1, Pages 1 and 2.
Row (2) is taken from the Technical Supplement of the Missouri 1/1/17 Voluntary Market Loss Cost Filing

	[A]	[B]	[C]
Premium	Paid	Paid + Case	Combined
(1) Standard Earned Premium Valued as of 12/31/15	$630,454,417	$630,454,417	$630,454,417
(2) Factor to Develop Standard Earned Premium	1.006	1.006	1.006
(3) Developed Standard Earned Premium = (1) x (2)	$634,237,144	$634,237,144	$634,237,144
(4) Factor to Adjust Premium to Current Level	0.941	0.941	0.941
(5) Premium Adjusted to Current Level = (3) x (4)	$596,817,153	$596,817,153	$596,817,153
Indemnity Benefit Cost			
(6) Indemnity Benefit Cost Valued as of 12/31/15 (First Report)	$57,173,592	$150,059,810	
(7) Factor to Develop Indemnity Benefit Cost	4.091	1.526	
(8) Developed Indemnity Benefit Cost = (6) x (7)	$233,897,165	$228,991,270	$231,444,218
(9) Factor to Adjusted Indemnity Benefit Cost to Current Benefit Level	1.013	1.013	1.013
(10) Factor to Include Loss Based Expenses	1.194	1.194	1.194
(11) Composite Adjustment Factor = (9) x (10)	1.210	1.210	1.210
(12) Adjusted Indemnity Cost = (8) x (11)	$283,015,570	$277,079,437	$280,047,504
(13) Indemnity Cost Ratio = (12) / (5)	0.474	0.464	0.469
(14) Trend Length	3.001	3.001	3.001
(15) Application of Proposed Indemnity Trend Factor = .980 ^ (14)	0.941	0.941	0.941
(16) Projected Limited Indemnity Cost Ratio = (13) x (15)	0.446	0.437	0.441
(17) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis	1.010	1.010	1.010
(18) Projected Indemnity Cost Ratio = (16) x (17)	0.450	0.441	0.445
(19) Proposed Change in Indemnity Benefits	1.013	1.013	1.013
(20) Projected Indemnity Cost Ratio Including Benefit Change = (18) x (19)	0.456	0.447	0.451
Medical Benefit Cost			
(21) Medical Benefit Cost Valued as of 12/31/15 (First Report)	$168,325,621	$241,182,526	
(22) Factor to Develop Medical Benefit Cost	1.608	1.080	
(23) Developed Medical Benefit Cost = (21) x (22)	$270,667,599	$260,477,128	$265,572,364
(24) Factor to Adjusted Medical Benefit Cost to Current Benefit Level	1.000	1.000	1.000
(25) Factor to Include Loss Based Expenses	1.194	1.194	1.194
(26) Composite Adjustment Factor = (24) x (25)	1.194	1.194	1.194
(27) Adjusted Medical Cost = (23) x (26)	$323,177,113	$311,009,691	$317,093,403
(28) Medical Cost Ratio = (27) / (5)	0.542	0.521	0.531
(29) Trend Length	3.001	3.001	3.001
(30) Application of Proposed Medical Trend Factor = .990 ^ (29)	0.970	0.970	0.970
(31) Projected Limited Medical Cost Ratio = (28) x (30)	0.526	0.505	0.515
(32) Factor to Adjust Medical Cost Ratio to an Unlimited Basis	1.010	1.010	1.010
(33) Projected Medical Cost Ratio = (31) x (32)	0.531	0.510	0.520
(34) Proposed Change in Medical Benefits	1.000	1.000	1.000
(35) Projected Medical Cost Ratio Including Benefit Change = (33) x (34)	0.531	0.510	0.520
Total Benefit Cost			
(36) Adjusted Cost Ratio of Policy Year 2014 = (20) + (35)	0.987	0.957	0.971

Notes: Row (2) has been selected by Actuarial Solutions.
Row (7), Column [A] is taken from Row (1), Column [A] of Appendix B, Page 2.
Row (7), Column [B] is taken from Row (1), Column [A] of Appendix B, Page 1.
The trend factor reflected in Row (15) has been taken from the Technical Supplement of the Missouri 1/1/17 Voluntary Market
        Loss Cost Filing.
Row (22), Column [A] is taken from Row (1), Column [B] of Appendix B, Page 2.
Row (22), Column [B] is taken from Row (1), Column [B] of Appendix B, Page 1.
The trend factor reflected in Row (30) has been taken from the Technical Supplement of the Missouri 1/1/17 Voluntary Market
        Loss Cost Filing.
Rows (1), (4), (6), (9), (10), (14), (17), (19), (21), (24), (25), (29), (32), and (34) have been taken from the Technical Supplement
        of the Missouri 1/1/17 Voluntary Market Loss Cost Filing.

	[A]	[B]	[C]
Premium	Paid	Paid + Case	Combined
(1) Standard Earned Premium Valued as of 12/31/15	$547,427,409	$547,427,409	$547,427,409
(2) Factor to Develop Standard Earned Premium	0.999	0.999	0.999
(3) Developed Standard Earned Premium = (1) x (2)	$546,879,982	$546,879,982	$546,879,982
(4) Factor to Adjust Premium to Current Level	1.046	1.046	1.046
(5) Premium Adjusted to Current Level = (3) x (4)	$572,036,461	$572,036,461	$572,036,461
Indemnity Benefit Cost			
(6) Indemnity Benefit Cost Valued as of 12/31/15 (Second Report)	$97,088,094	$156,209,087	
(7) Factor to Develop Indemnity Benefit Cost	2.133	1.267	
(8) Developed Indemnity Benefit Cost = (6) x (7)	$207,088,905	$197,916,913	$202,502,909
(9) Factor to Adjusted Indemnity Benefit Cost to Current Benefit Level	1.092	1.092	1.092
(10) Factor to Include Loss Based Expenses	1.194	1.194	1.194
(11) Composite Adjustment Factor = (9) x (10)	1.304	1.304	1.304
(12) Adjusted Indemnity Cost = (8) x (11)	$270,043,932	$258,083,655	$264,063,793
(13) Indemnity Cost Ratio = (12) / (5)	0.472	0.451	0.462
(14) Trend Length	4.001	4.001	4.001
(15) Application of Proposed Indemnity Trend Factor = .980 ^ (14)	0.922	0.922	0.922
(16) Projected Limited Indemnity Cost Ratio = (13) x (15)	0.435	0.416	0.426
(17) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis	1.010	1.010	1.010
(18) Projected Indemnity Cost Ratio = (16) x (17)	0.439	0.420	0.430
(19) Proposed Change in Indemnity Benefits	1.013	1.013	1.013
(20) Projected Indemnity Cost Ratio Including Benefit Change = (18) x (19)	0.445	0.425	0.436
Medical Benefit Cost			
(21) Medical Benefit Cost Valued as of 12/31/15 (Second Report)	$203,161,764	$248,889,051	
(22) Factor to Develop Medical Benefit Cost	1.315	1.048	
(23) Developed Medical Benefit Cost = (21) x (22)	$267,157,720	$260,835,725	$263,996,723
(24) Factor to Adjusted Medical Benefit Cost to Current Benefit Level	1.000	1.000	1.000
(25) Factor to Include Loss Based Expenses	1.194	1.194	1.194
(26) Composite Adjustment Factor = (24) x (25)	1.194	1.194	1.194
(27) Adjusted Medical Cost = (23) x (26)	$318,986,318	$311,437,856	$315,212,087
(28) Medical Cost Ratio = (27) / (5)	0.558	0.544	0.551
(29) Trend Length	4.001	4.001	4.001
(30) Application of Proposed Medical Trend Factor = .990 ^ (29)	0.961	0.961	0.961
(31) Projected Limited Medical Cost Ratio = (28) x (30)	0.536	0.523	0.530
(32) Factor to Adjust Medical Cost Ratio to an Unlimited Basis	1.010	1.010	1.010
(33) Projected Medical Cost Ratio = (31) x (32)	0.541	0.528	0.535
(34) Proposed Change in Medical Benefits	1.000	1.000	1.000
(35) Projected Medical Cost Ratio Including Benefit Change = (33) x (34)	0.541	0.528	0.535
Total Benefit Cost			
(36) Adjusted Cost Ratio of Policy Year 2013 = (20) + (35)	0.986	0.953	0.971

Notes: Row (2) has been selected by Actuarial Solutions.
 Row (7), Column [A] is taken from Row (2), Column [A] of Appendix B, Page 2.
 Row (7), Column [B] is taken from Row (2), Column [A] of Appendix B, Page 1.
 The trend factor reflected in Row (15) has been taken from the Technical Supplement of the Missouri 1/1/17 Voluntary Market
  Loss Cost Filing.
 Row (22), Column [A] is taken from Row (2), Column [B] of Appendix B, Page 2.
 Row (22), Column [B] is taken from Row (2), Column [B] of Appendix B, Page 1.
 The trend factor reflected in Row (30) has been taken from the Technical Supplement of the Missouri 1/1/17 Voluntary Market
  Loss Cost Filing.
 Rows (1), (4), (6), (9), (10), (14), (17), (19), (21), (24), (25), (29), (32), and (34) have been taken from the Technical Supplement
  of the Missouri 1/1/17 Voluntary Market Loss Cost Filing.

Average Cost Ratio

(1) Change in Experience, Trend and Benefits		0.971	(−2.9%)
(2) Change In Loss Adjustment Expense		0.992	(−0.8%)
(3) Overall Loss Cost Level Change = (1) x (2)		0.963	(−3.7%)

Notes: Row (1) is the average of Row (36), Column [C] of Exhibit 2, Pages 1 and 2.
Row (2) is taken from the Technical Supplement of the Missouri 1/1/17 Voluntary Market Loss Cost Filing

	[A]	[B]	[C]
Premium	Paid	Paid + Case	Combined
(1) Standard Earned Premium Valued as of 12/31/15	$630,454,417	$630,454,417	$630,454,417
(2) Factor to Develop Standard Earned Premium	1.006	1.006	1.006
(3) Developed Standard Earned Premium = (1) x (2)	$634,237,144	$634,237,144	$634,237,144
(4) Factor to Adjust Premium to Current Level	0.941	0.941	0.941
(5) Premium Adjusted to Current Level = (3) x (4)	$596,817,153	$596,817,153	$596,817,153
Indemnity Benefit Cost			
(6) Indemnity Benefit Cost Valued as of 12/31/15 (First Report)	$57,173,592	$150,059,810	
(7) Factor to Develop Indemnity Benefit Cost	4.083	1.508	
(8) Developed Indemnity Benefit Cost = (6) x (7)	$233,439,776	$226,290,193	$229,864,985
(9) Factor to Adjusted Indemnity Benefit Cost to Current Benefit Level	1.013	1.013	1.013
(10) Factor to Include Loss Based Expenses	1.194	1.194	1.194
(11) Composite Adjustment Factor = (9) x (10)	1.210	1.210	1.210
(12) Adjusted Indemnity Cost = (8) x (11)	$282,462,129	$273,811,134	$278,136,632
(13) Indemnity Cost Ratio = (12) / (5)	0.473	0.459	0.466
(14) Trend Length	3.001	3.001	3.001
(15) Application of Proposed Indemnity Trend Factor = .982 ^ (14)	0.947	0.947	0.947
(16) Projected Limited Indemnity Cost Ratio = (13) x (15)	0.448	0.435	0.441
(17) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis	1.010	1.010	1.010
(18) Projected Indemnity Cost Ratio = (16) x (17)	0.452	0.439	0.445
(19) Proposed Change in Indemnity Benefits	1.013	1.013	1.013
(20) Projected Indemnity Cost Ratio Including Benefit Change = (18) x (19)	0.458	0.445	0.451
Medical Benefit Cost			
(21) Medical Benefit Cost Valued as of 12/31/15 (First Report)	$168,325,621	$241,182,526	
(22) Factor to Develop Medical Benefit Cost	1.609	1.083	
(23) Developed Medical Benefit Cost = (21) x (22)	$270,835,924	$261,200,676	$266,018,300
(24) Factor to Adjusted Medical Benefit Cost to Current Benefit Level	1.000	1.000	1.000
(25) Factor to Include Loss Based Expenses	1.194	1.194	1.194
(26) Composite Adjustment Factor = (24) x (25)	1.194	1.194	1.194
(27) Adjusted Medical Cost = (23) x (26)	$323,378,093	$311,873,607	$317,625,850
(28) Medical Cost Ratio = (27) / (5)	0.542	0.523	0.532
(29) Trend Length	3.001	3.001	3.001
(30) Application of Proposed Medical Trend Factor = .985 ^ (29)	0.956	0.956	0.956
(31) Projected Limited Medical Cost Ratio = (28) x (30)	0.518	0.500	0.509
(32) Factor to Adjust Medical Cost Ratio to an Unlimited Basis	1.010	1.010	1.010
(33) Projected Medical Cost Ratio = (31) x (32)	0.523	0.505	0.514
(34) Proposed Change in Medical Benefits	1.000	1.000	1.000
(35) Projected Medical Cost Ratio Including Benefit Change = (33) x (34)	0.523	0.505	0.514
Total Benefit Cost			
(36) Adjusted Cost Ratio of Policy Year 2014 = (20) + (35)	0.981	0.950	0.965

Notes: Row (2) has been selected by Actuarial Solutions.
      The trend factor reflected in Row (15) has been selected by Actuarial Solutions.
      The trend factor reflected in Row (30) has been selected by Actuarial Solutions.
      Rows (1), (4), (6), (7), (9), (10), (14), (17), (19), (21), (22), (24), (25), (29), (32), and (34) have been taken from the Technical Supplement
          of the Missouri 1/1/17 Voluntary Market Loss Cost Filing.

	[A]	[B]	[C]
Premium	Paid	Paid + Case	Combined
(1) Standard Earned Premium Valued as of 12/31/15	$547,427,409	$547,427,409	$547,427,409
(2) Factor to Develop Standard Earned Premium	0.999	0.999	0.999
(3) Developed Standard Earned Premium = (1) x (2)	$546,879,982	$546,879,982	$546,879,982
(4) Factor to Adjust Premium to Current Level	1.046	1.046	1.046
(5) Premium Adjusted to Current Level = (3) x (4)	$572,036,461	$572,036,461	$572,036,461
Indemnity Benefit Cost			
(6) Indemnity Benefit Cost Valued as of 12/31/15 (Second Report)	$97,088,094	$156,209,087	
(7) Factor to Develop Indemnity Benefit Cost	2.159	1.258	
(8) Developed Indemnity Benefit Cost = (6) x (7)	$209,613,195	$196,511,031	$203,062,113
(9) Factor to Adjusted Indemnity Benefit Cost to Current Benefit Level	1.092	1.092	1.092
(10) Factor to Include Loss Based Expenses	1.194	1.194	1.194
(11) Composite Adjustment Factor = (9) x (10)	1.304	1.304	1.304
(12) Adjusted Indemnity Cost = (8) x (11)	$273,335,606	$256,250,384	$264,792,995
(13) Indemnity Cost Ratio = (12) / (5)	0.478	0.448	0.463
(14) Trend Length	4.001	4.001	4.001
(15) Application of Proposed Indemnity Trend Factor = .982 ^ (14)	0.930	0.930	0.930
(16) Projected Limited Indemnity Cost Ratio = (13) x (15)	0.445	0.417	0.431
(17) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis	1.010	1.010	1.010
(18) Projected Indemnity Cost Ratio = (16) x (17)	0.449	0.421	0.435
(19) Proposed Change in Indemnity Benefits	1.013	1.013	1.013
(20) Projected Indemnity Cost Ratio Including Benefit Change = (18) x (19)	0.455	0.426	0.441
Medical Benefit Cost			
(21) Medical Benefit Cost Valued as of 12/31/15 (Second Report)	$203,161,764	$248,889,051	
(22) Factor to Develop Medical Benefit Cost	1.316	1.049	
(23) Developed Medical Benefit Cost = (21) x (22)	$267,360,881	$261,084,614	$264,222,748
(24) Factor to Adjusted Medical Benefit Cost to Current Benefit Level	1.000	1.000	1.000
(25) Factor to Include Loss Based Expenses	1.194	1.194	1.194
(26) Composite Adjustment Factor = (24) x (25)	1.194	1.194	1.194
(27) Adjusted Medical Cost = (23) x (26)	$319,228,892	$311,735,029	$315,481,961
(28) Medical Cost Ratio = (27) / (5)	0.558	0.545	0.552
(29) Trend Length	4.001	4.001	4.001
(30) Application of Proposed Medical Trend Factor = .985 ^ (29)	0.941	0.941	0.941
(31) Projected Limited Medical Cost Ratio = (28) x (30)	0.525	0.513	0.519
(32) Factor to Adjust Medical Cost Ratio to an Unlimited Basis	1.010	1.010	1.010
(33) Projected Medical Cost Ratio = (31) x (32)	0.530	0.518	0.524
(34) Proposed Change in Medical Benefits	1.000	1.000	1.000
(35) Projected Medical Cost Ratio Including Benefit Change = (33) x (34)	0.530	0.518	0.524
Total Benefit Cost			
(36) Adjusted Cost Ratio of Policy Year 2013 = (20) + (35)	0.985	0.944	0.965

Notes: Row (2) has been selected by Actuarial Solutions.
The trend factor reflected in Row (15) has been selected by Actuarial Solutions.
The trend factor reflected in Row (30) has been selected by Actuarial Solutions.
Rows (1), (4), (6), (7), (9), (10), (14), (17), (19), (21), (22), (24), (25), (29), (32), and (34) have been taken from the Technical Supplement
of the Missouri 1/1/17 Voluntary Market Loss Cost Filing.

Average Cost Ratio

   (1) Change in Experience, Trend and Benefits   0.965   (−3.5%)

   (2) Change In Loss Adjustment Expense   0.992   (−0.8%)

   (3) Overall Loss Cost Level Change = (1) x (2)   0.957   (−4.3%)

      Notes: Row (1) is the average of Row (36), Column [C], Exhibit 3, Pages 1 and 2.
              Row (2) has been taken from the Technical Supplement of the Missouri 1/1/17 Voluntary Market Loss Cost Filing

Historical Development of Ultimate Countrywide DCCE Ratios

Section I: Historical Accident Year Countrywide Ultimate DCCE Ratios from NCCI filings

Accident Year				Evaluated as of…						
	12 Months	24 Months	36 Months	48 Months	60 Months	72 Months	84 Months	96 Months	108 Months	120 Months
1994										
1995										
1996										8.1
1997									8.9	8.9
1998								8.9	9.2	9.2
1999							8.8	9.1	9.1	9.2
2000						9.2	9.7	9.7	9.6	9.7
2001					9.4	9.9	10.1	10.0	10.1	10.0
2002				9.8	10.5	10.6	10.6	10.5	10.4	10.3
2003			10.0	10.7	10.8	10.7	10.6	10.5	10.4	10.0
2004		10.0	10.6	10.8	10.7	10.7	10.5	10.3	10.0	9.9
2005	10.3	11.5	11.1	10.9	10.8	10.5	10.4	10.3	10.2	10.1
2006	11.9	11.3	11.1	10.8	10.6	10.4	10.7	10.6	10.5	10.5
2007	12.2	11.8	11.5	11.1	10.9	10.8	10.7	10.6	10.5	
2008	12.5	11.9	11.6	11.3	11.3	11.1	11.1	11.0		
2009	13.1	12.0	11.8	11.7	11.5	11.3	11.2			
2010	12.3	12.1	12.0	11.8	11.5	11.6				
2011	12.9	12.5	12.3	12.1	12.2					
2012	12.9	12.9	12.8	13.0						
2013	13.3	12.9	13.0							
2014	13.4	13.5								
2015	13.2									

Section II: Development of Ultimate DCCE Ratios

Accident Year	12 – 24	24 – 36	36 – 48	48 – 60	60 – 72	72 – 84	84 – 96	96 – 108	108 – 120	120 – Ult
1994										
1995										
1996										
1997									1.000	
1998								1.034	1.000	
1999							1.034	1.000	1.011	
2000						1.054	1.000	0.990	1.010	
2001					1.053	1.020	0.990	1.010	0.990	
2002				1.071	1.010	1.000	0.991	0.990	0.990	
2003			1.070	1.009	0.991	0.991	0.991	0.990	0.962	
2004		1.060	1.019	0.991	1.000	0.981	0.981	0.971	0.990	
2005	1.117	0.965	0.982	0.991	0.972	0.990	0.990	0.990	0.990	
2006	0.950	0.982	0.973	0.981	0.981	1.029	0.991	0.991	1.000	
2007	0.967	0.975	0.965	0.982	0.991	0.991	0.991	0.991		
2008	0.952	0.975	0.974	1.000	0.982	1.000	0.991			
2009	0.916	0.983	0.992	0.983	0.983	0.991				
2010	0.984	0.992	0.983	0.975	1.009					
2011	0.969	0.984	0.984	1.008						
2012	1.000	0.992	1.016							
2013	0.970	1.008								
2014	1.007									
All Years	0.983	0.992	0.996	0.999	0.997	1.005	0.995	0.996	0.994	
Latest 7	0.971	0.987	0.984	0.989	0.988	0.996	0.989	0.990	0.990	
Latest 4	0.987	0.994	0.994	0.992	0.991	1.003	0.991	0.986	0.986	
Latest 2	0.989	1.000	1.000	0.992	0.996	0.996	0.991	0.991	0.995	
Mid 3/5	0.985	0.989	0.986	0.988	0.985	0.994	0.991	0.990	0.990	
Selected	0.989	1.000	1.000	0.990	0.990	0.995	0.991	0.991	0.995	1.000
Cumulative Selected	0.942	0.953	0.953	0.953	0.963	0.972	0.977	0.986	0.995	1.000

Adjusted Ultimate DCCE Ratios

Accident Year	(1) Ultimate DCCE Ratio from 1/1/17 Filing	(2) DCCE Ratio Development Factor	(3) Adjusted Ultimate DCCE Ratio (1) x (2)
2006	10.5	1.000	10.5
2007	10.5	0.995	10.4
2008	11.0	0.986	10.8
2009	11.2	0.977	10.9
2010	11.6	0.972	11.3
2011	12.2	0.963	11.7
2012	13.0	0.953	12.4
2013	13.0	0.953	12.4
2014	13.5	0.953	12.9
2015	13.2	0.942	12.4
		Average, All Years	11.6
		Average, Latest 6	12.2
		Average, Latest 3	12.6
		Average, Latest 2	12.7

Notes: Columns (1) and (2) are taken from Exhibit 4, Page 1,
Sections I and II, respectively.

Ultimate Countrywide DCCE Ratios

Accident Year	NCCI Filing Effective…										
	1/1/07	1/1/08	1/1/09	1/1/10	1/1/11	1/1/12	1/1/13	1/1/14	1/1/15	1/1/16	1/1/17
1994											
1995											
1996	8.1										
1997	8.9	8.9									
1998	8.9	9.2	9.2								
1999	8.8	9.1	9.1	9.2							
2000	9.2	9.7	9.7	9.6	9.7						
2001	9.4	9.9	10.1	10.0	10.1	10.0					
2002	9.8	10.5	10.6	10.6	10.5	10.4	10.3				
2003	10.0	10.7	10.8	10.7	10.6	10.5	10.4	10.0			
2004	10.0	10.6	10.8	10.7	10.7	10.5	10.3	10.0	9.9		
2005	10.3	11.5	11.1	10.9	10.8	10.5	10.4	10.3	10.2	10.1	
2006		11.9	11.3	11.1	10.8	10.6	10.4	10.7	10.6	10.5	10.5
2007			12.2	11.8	11.5	11.1	10.9	10.8	10.7	10.6	10.5
2008				12.5	11.9	11.6	11.3	11.3	11.1	11.1	11.0
2009					13.1	12.0	11.8	11.7	11.5	11.3	11.2
2010						12.3	12.1	12.0	11.8	11.5	11.6
2011							12.9	12.5	12.3	12.1	12.2
2012								12.9	12.9	12.8	13.0
2013									13.3	12.9	13.0
2014										13.4	13.5
2015											13.2
Average, Latest 5 Years	9.9	11.0	11.2	11.4	11.6	11.5	11.8	12.1	12.4	12.5	13.0
Average, Latest 3 Years	10.1	11.3	11.5	11.8	12.2	12.0	12.3	12.5	12.8	13.0	13.2
Average, Latest 2 Years	10.2	11.7	11.8	12.2	12.5	12.2	12.5	12.7	13.1	13.2	13.4
(1) NCCI Current Estimate	10.5	11.0	11.2	11.6	12.2	13.0	13.0	13.5	13.2		
(2) Adjusted Ultimate DCCE Ratio	10.4	10.8	10.9	11.3	11.7	12.4	12.4	12.9	12.4		
(3) Ratio of Adjusted Ultimate to Latest 3 Year Average	1.030	0.956	0.948	0.958	0.959	1.033	1.008	1.032	0.969		

Notes: Line (1) reflects NCCI's estimates of Ultimate DCCE Ratios for years 2007–2015.
Line (2) reflects Actuarial Solutions' estimates of Ultimate DCCE Ratios for years 2007–2015.
Line (3) is equal to Line (2) divided by the average of the latest 3 years.

Historical Development of Ultimate Countrywide AOE Ratios

Section I: Historical Accident Year Countrywide Ultimate AOE Ratios from NCCI filings

Accident Year	Evaluated as of...									
	12 Months	24 Months	36 Months	48 Months	60 Months	72 Months	84 Months	96 Months	108 Months	120 Months
1994										
1995										
1996										7.6
1997									7.4	7.1
1998								6.8	6.7	6.7
1999							6.4	6.3	6.2	6.2
2000						6.3	6.2	6.1	6.1	6.3
2001					6.6	6.5	6.4	6.4	6.5	6.3
2002				6.7	6.6	6.5	6.6	6.7	6.5	6.6
2003			7.4	7.5	7.4	7.4	7.5	7.3	7.5	7.5
2004		6.7	7.0	6.9	7.0	7.1	6.9	7.1	7.0	7.1
2005	7.3	7.8	7.7	7.8	7.9	7.7	7.9	7.5	7.5	7.4
2006	7.9	8.1	8.1	8.1	8.0	8.3	7.8	7.8	7.7	7.7
2007	8.2	8.1	8.1	8.0	8.3	7.8	7.8	7.7	7.5	
2008	7.6	7.5	7.4	7.6	7.1	7.0	6.9	6.7		
2009	8.1	7.6	7.8	7.7	7.5	7.3	7.2			
2010	7.4	7.5	7.3	7.2	7.0	6.9				
2011	7.0	7.0	6.9	6.7	6.6					
2012	7.4	7.3	7.0	6.9						
2013	7.6	7.4	7.4							
2014	7.0	7.5								
2015	7.2									

Section II: Development of Ultimate AOE Ratios

Accident Year	12 – 24	24 – 36	36 – 48	48 – 60	60 – 72	72 – 84	84 – 96	96 – 108	108 – 120	120 – Ult
1994										
1995										
1996										
1997									0.959	
1998								0.985	1.000	
1999							0.984	0.984	1.000	
2000						0.984	0.984	1.000	1.033	
2001					0.985	0.985	1.000	1.016	0.969	
2002				0.985	0.985	1.015	1.015	0.970	1.015	
2003			1.014	0.987	1.000	1.014	0.973	1.027	1.000	
2004		1.045	0.986	1.014	1.014	0.972	1.029	0.986	1.014	
2005	1.068	0.987	1.013	1.013	0.975	1.026	0.949	1.000	0.987	
2006	1.025	1.000	1.000	0.988	1.038	0.940	1.000	0.987	1.000	
2007	0.988	1.000	0.988	1.038	0.940	1.000	0.987	0.974		
2008	0.987	0.987	1.027	0.934	0.986	0.986	0.971			
2009	0.938	1.026	0.987	0.974	0.973	0.986				
2010	1.014	0.973	0.986	0.972	0.986					
2011	1.000	0.986	0.971	0.985						
2012	0.986	0.959	0.986							
2013	0.974	1.000								
2014	1.071									
All Years	1.005	0.996	0.996	0.989	0.988	0.991	0.989	0.993	0.998	
Latest 7	0.996	0.990	0.992	0.986	0.987	0.989	0.989	0.994	1.003	
Latest 5	1.009	0.989	0.991	0.981	0.985	0.988	0.987	0.995	1.003	
Latest 2	1.023	0.980	0.979	0.979	0.980	0.986	0.979	0.981	0.994	
Mid 3/5	1.000	0.986	0.986	0.977	0.982	0.991	0.986	0.991	1.005	
Selected	1.000	0.990	0.987	0.980	0.985	0.994	0.985	0.991	1.000	1.000
Cumulative Selected	0.915	0.915	0.924	0.937	0.956	0.970	0.976	0.991	1.000	1.000

Adjusted Ultimate AOE Ratios

	(1)	(2)	(3)
Accident Year	Ultimate AOE Ratio from 1/1/17 Filing	AOE Ratio Development Factor	Adjusted Ultimate AOE Ratio (1) x (2)
2006	7.7	1.000	7.7
2007	7.5	1.000	7.5
2008	6.7	0.991	6.6
2009	7.2	0.976	7.0
2010	6.9	0.970	6.7
2011	6.6	0.956	6.3
2012	6.9	0.937	6.5
2013	7.4	0.924	6.8
2014	7.5	0.915	6.9
2015	7.2	0.915	6.6
		Average, All Years	6.9
		Average, Latest 7	6.7
		Average, Latest 3	6.8
		Average, Latest 2	6.8

Notes: Columns (1) and (2) are taken from Exhibit 5, Page 1,
Sections I and II, respectively.

Ultimate Countrywide AOE Ratios

Accident Year	NCCI Filing Effective...										
	1/1/07	1/1/08	1/1/09	1/1/10	1/1/11	1/1/12	1/1/13	1/1/14	1/1/15	1/1/16	1/1/17
1994											
1995											
1996	7.6										
1997	7.4	7.1									
1998	6.8	6.7	6.7								
1999	6.4	6.3	6.2	6.2							
2000	6.3	6.2	6.1	6.1	6.3						
2001	6.6	6.5	6.4	6.4	6.5	6.3					
2002	6.7	6.6	6.5	6.6	6.7	6.5	6.6				
2003	7.4	7.5	7.4	7.4	7.5	7.3	7.5	7.5			
2004	6.7	7.0	6.9	7.0	7.1	6.9	7.1	7.0	7.1		
2005	7.3	7.8	7.7	7.8	7.9	7.7	7.9	7.5	7.5	7.4	
2006		7.9	8.1	8.1	8.1	8.0	8.3	7.8	7.8	7.7	7.7
2007			8.2	8.1	8.1	8.0	8.3	7.8	7.8	7.7	7.5
2008				7.6	7.5	7.4	7.6	7.1	7.0	6.9	6.7
2009					8.1	7.6	7.8	7.7	7.5	7.3	7.2
2010						7.4	7.5	7.3	7.2	7.0	6.9
2011							7.0	7.0	6.9	6.7	6.6
2012								7.4	7.3	7.0	6.9
2013									7.6	7.4	7.4
2014										7.0	7.5
2015											7.2
Average, Latest 5 Years	6.9	7.4	7.7	7.7	7.9	7.7	7.6	7.3	7.3	7.0	7.1
Average, Latest 3 Years	7.1	7.6	8.0	7.9	7.9	7.5	7.4	7.2	7.3	7.1	7.4
Average, Latest 2 Years	7.0	7.9	8.2	7.9	7.8	7.5	7.3	7.2	7.5	7.2	7.4
(1) NCCI Current Estimate	7.5	6.7	7.2	6.9	6.6	6.9	7.4	7.5	7.2		
(2) Adjusted Ultimate DCCE Ratio	7.5	6.6	7.0	6.7	6.3	6.5	6.8	6.9	6.6		
(3) Ratio of Adjusted Ultimate to Latest 3 Year	1.056	0.868	0.875	0.848	0.797	0.867	0.919	0.958			

Notes: Line (1) reflects NCCI's estimates of Ultimate AOE Ratios for years 2007–2015.
Line (2) reflects Actuarial Solutions' estimates of Ultimate AOE Ratios for years 2007–2015.
Line (3) is equal to Line (2) divided by the average of the latest 3 years.

NCCI – Missouri January 1, 2017 Filing
Indication Using Actuarial Solutions' Experience, Trend, and LAE Provision Changes
Policy Year 2014

Exhibit 6
Page 1

	[A]	[B]	[C]
Premium	Paid	Paid + Case	Combined
(1) Standard Earned Premium Valued as of 12/31/15	$630,454,417	$630,454,417	$630,454,417
(2) Factor to Develop Standard Earned Premium	1.006	1.006	1.006
(3) Developed Standard Earned Premium = (1) x (2)	$634,237,144	$634,237,144	$634,237,144
(4) Factor to Adjust Premium to Current Level	0.941	0.941	0.941
(5) Premium Adjusted to Current Level = (3) x (4)	$596,817,153	$596,817,153	$596,817,153
Indemnity Benefit Cost			
(6) Indemnity Benefit Cost Valued as of 12/31/15 (First Report)	$57,173,592	$150,059,810	
(7) Factor to Develop Indemnity Benefit Cost	4.091	1.526	
(8) Developed Indemnity Benefit Cost = (6) x (7)	$233,897,165	$228,991,270	$231,444,218
(9) Factor to Adjusted Indemnity Benefit Cost to Current Benefit Level	1.013	1.013	1.013
(10) Factor to Include Loss Based Expenses	1.194	1.194	1.194
(11) Composite Adjustment Factor = (9) x (10)	1.210	1.210	1.210
(12) Adjusted Indemnity Cost = (8) x (11)	$283,015,570	$277,079,437	$280,047,504
(13) Indemnity Cost Ratio = (12) / (5)	0.474	0.464	0.469
(14) Trend Length	3.001	3.001	3.001
(15) Application of Proposed Indemnity Trend Factor = .982 ^ (14)	0.947	0.947	0.947
(16) Projected Limited Indemnity Cost Ratio = (13) x (15)	0.449	0.439	0.444
(17) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis	1.010	1.010	1.010
(18) Projected Indemnity Cost Ratio = (16) x (17)	0.453	0.443	0.448
(19) Proposed Change in Indemnity Benefits	1.013	1.013	1.013
(20) Projected Indemnity Cost Ratio Including Benefit Change = (18) x (19)	0.459	0.449	0.454
Medical Benefit Cost			
(21) Medical Benefit Cost Valued as of 12/31/15 (First Report)	$168,325,621	$241,182,526	
(22) Factor to Develop Medical Benefit Cost	1.608	1.080	
(23) Developed Medical Benefit Cost = (21) x (22)	$270,667,599	$260,477,128	$265,572,364
(24) Factor to Adjusted Medical Benefit Cost to Current Benefit Level	1.000	1.000	1.000
(25) Factor to Include Loss Based Expenses	1.194	1.194	1.194
(26) Composite Adjustment Factor = (24) x (25)	1.194	1.194	1.194
(27) Adjusted Medical Cost = (23) x (26)	$323,177,113	$311,009,691	$317,093,403
(28) Medical Cost Ratio = (27) / (5)	0.542	0.521	0.531
(29) Trend Length	3.001	3.001	3.001
(30) Application of Proposed Medical Trend Factor = .985 ^ (29)	0.956	0.956	0.956
(31) Projected Limited Medical Cost Ratio = (28) x (30)	0.518	0.498	0.508
(32) Factor to Adjust Medical Cost Ratio to an Unlimited Basis	1.010	1.010	1.010
(33) Projected Medical Cost Ratio = (31) x (32)	0.523	0.503	0.513
(34) Proposed Change in Medical Benefits	1.000	1.000	1.000
(35) Projected Medical Cost Ratio Including Benefit Change = (33) x (34)	0.523	0.503	0.513
Total Benefit Cost			
(36) Adjusted Cost Ratio of Policy Year 2014 = (20) + (35)	0.982	0.952	0.967

Notes: Row (2) has been selected by Actuarial Solutions.
Row (7), Column [A] is taken from Row (1), Column [A] of Appendix B, Page 2.
Row (7), Column [B] is taken from Row (1), Column [A] of Appendix B, Page 1.
The trend factor reflected in Row (15) has been selected by Actuarial Solutions.
Row (22), Column [A] is taken from Row (1), Column [B] of Appendix B, Page 2.
Row (22), Column [B] is taken from Row (1), Column [B] of Appendix B, Page 1.
The trend factor reflected in Row (30) has been selected by Actuarial Solutions.
Rows (1), (4), (6), (9), (10), (14), (17), (19), (21), (24), (25), (29), (32), and (34) have been taken from the Technical Supplement
of the Missouri 1/1/17 Voluntary Market Loss Cost Filing.

	[A]	[B]	[C]
Premium	Paid	Paid + Case	Combined
(1) Standard Earned Premium Valued as of 12/31/15	$547,427,409	$547,427,409	$547,427,409
(2) Factor to Develop Standard Earned Premium	0.999	0.999	0.999
(3) Developed Standard Earned Premium = (1) x (2)	$546,879,982	$546,879,982	$546,879,982
(4) Factor to Adjust Premium to Current Level	1.046	1.046	1.046
(5) Premium Adjusted to Current Level = (3) x (4)	$572,036,461	$572,036,461	$572,036,461
Indemnity Benefit Cost			
(6) Indemnity Benefit Cost Valued as of 12/31/15 (Second Report)	$97,088,094	$156,209,087	
(7) Factor to Develop Indemnity Benefit Cost	2.133	1.267	
(8) Developed Indemnity Benefit Cost = (6) x (7)	$207,088,905	$197,916,913	$202,502,909
(9) Factor to Adjusted Indemnity Benefit Cost to Current Benefit Level	1.092	1.092	1.092
(10) Factor to Include Loss Based Expenses	1.194	1.194	1.194
(11) Composite Adjustment Factor = (9) x (10)	1.304	1.304	1.304
(12) Adjusted Indemnity Cost = (8) x (11)	$270,043,932	$258,083,655	$264,063,793
(13) Indemnity Cost Ratio = (12) / (5)	0.472	0.451	0.462
(14) Trend Length	4.001	4.001	4.001
(15) Application of Proposed Indemnity Trend Factor = .982 ^ (14)	0.930	0.930	0.930
(16) Projected Limited Indemnity Cost Ratio = (13) x (15)	0.439	0.419	0.430
(17) Factor to Adjust Indemnity Cost Ratio to an Unlimited Basis	1.010	1.010	1.010
(18) Projected Indemnity Cost Ratio = (16) x (17)	0.443	0.423	0.434
(19) Proposed Change in Indemnity Benefits	1.013	1.013	1.013
(20) Projected Indemnity Cost Ratio Including Benefit Change = (18) x (19)	0.449	0.428	0.440
Medical Benefit Cost			
(21) Medical Benefit Cost Valued as of 12/31/15 (Second Report)	$203,161,764	$248,889,051	
(22) Factor to Develop Medical Benefit Cost	1.315	1.048	
(23) Developed Medical Benefit Cost = (21) x (22)	$267,157,720	$260,835,725	$263,996,723
(24) Factor to Adjusted Medical Benefit Cost to Current Benefit Level	1.000	1.000	1.000
(25) Factor to Include Loss Based Expenses	1.194	1.194	1.194
(26) Composite Adjustment Factor = (24) x (25)	1.194	1.194	1.194
(27) Adjusted Medical Cost = (23) x (26)	$318,986,318	$311,437,856	$315,212,087
(28) Medical Cost Ratio = (27) / (5)	0.558	0.544	0.551
(29) Trend Length	4.001	4.001	4.001
(30) Application of Proposed Medical Trend Factor = .985 ^ (29)	0.941	0.941	0.941
(31) Projected Limited Medical Cost Ratio = (28) x (30)	0.525	0.512	0.518
(32) Factor to Adjust Medical Cost Ratio to an Unlimited Basis	1.010	1.010	1.010
(33) Projected Medical Cost Ratio = (31) x (32)	0.530	0.517	0.523
(34) Proposed Change in Medical Benefits	1.000	1.000	1.000
(35) Projected Medical Cost Ratio Including Benefit Change = (33) x (34)	0.530	0.517	0.523
Total Benefit Cost			
(36) Adjusted Cost Ratio of Policy Year 2013 = (20) + (35)	0.979	0.945	0.963

Notes: Row (2) has been selected by Actuarial Solutions.
Row (7), Column [A] is taken from Row (2), Column [A] of Appendix B, Page 2.
Row (7), Column [B] is taken from Row (2), Column [A] of Appendix B, Page 1.
The trend factor reflected in Row (15) has been selected by Actuarial Solutions.
Row (22), Column [A] is taken from Row (2), Column [B] of Appendix B, Page 2.
Row (22), Column [B] is taken from Row (2), Column [B] of Appendix B, Page 1.
The trend factor reflected in Row (30) has been selected by Actuarial Solutions.
Rows (1), (4), (6), (9), (10), (14), (17), (19), (21), (24), (25), (29), (32), and (34) have been taken from the Technical Supplement
       of the Missouri 1/1/17 Voluntary Market Loss Cost Filing.

NCCI – Missouri January 1, 2017 Filing
Indication Using Actuarial Solutions' Experience, Trend, and LAE Provision Changes

Exhibit 6
Page 3

Average Cost Ratio

(1) Change in Experience, Trend and Benefits	0.965	(−3.5%)
(2) Change In Loss Adjustment Expense	0.989	(−1.1%)
(3) Overall Loss Cost Level Change = (1) x (2)	0.954	(−4.6%)

Notes: Row (1) is the average of Row (36), Column [C] of Exhibit 6, Pages 1 and 2.
Row (2) has been selected by Actuarial Solutions.

Paid Plus Case Reserve
Selected Loss Development Factors

			[A]	[B]
	Age–to–Age Period	Type of Factor	Indemnity	Medical
(a)	1st – 2nd	Paid Plus Case LDF	1.122	1.031
(b)	2nd – 3rd	Paid Plus Case LDF	1.063	1.006
(c)	3rd – 4th	Paid Plus Case LDF	1.044	0.995
(d)	4th – 5th	Paid Plus Case LDF	1.028	0.995
(e)	5th – 6th	Paid Plus Case LDF	1.018	0.999
(f)	6th – 7th	Paid Plus Case LDF	1.005	1.000
(g)	7th – 8th	Paid Plus Case LDF	1.006	1.003
(h)	8th – 9th	Paid Plus Case LDF	1.002	1.005
(i)	9th – 10th	Paid Plus Case LDF	1.007	1.007
(j)	10th – 11th	Paid Plus Case LDF	1.001	1.004
(k)	11th – 12th	Paid Plus Case LDF	1.000	1.001
(l)	12th – 13th	Paid Plus Case LDF	1.002	1.004
(m)	13th – 14th	Paid Plus Case LDF	1.001	1.002
(n)	14th – 15th	Paid Plus Case LDF	1.001	0.998
(o)	15th – 16th	Paid Plus Case LDF	1.000	1.001
(p)	16th – 17th	Paid Plus Case LDF	1.001	1.003
(q)	17th – 18th	Paid Plus Case LDF	1.002	1.002
(r)	18th – 19th	Paid Plus Case LDF	1.002	1.002
(s) 19th Report Paid Plus Case to Ultimate LDF			1.011	1.020
(1) 1st to Ultimate LDF*			1.526	1.080
(2) 2nd to Ultimate LDF*			1.272	1.048

Notes: Line (1) is produced by multiplying the factors in Lines (a) through (s).
     Line (2) is produced by multiplying the factors in Lines (b) through (s).
* The indemnity 1st to ultimate and 2nd to ultimate development factors include adjustments to account
  for the impact of Missouri Senate Bill (SB) 1, applicable to accidents occurring on or after 1/1/14.
  The 1st to ultimate factor includes a 12.4% adjustment to modify Policy Year 2014, and the 2nd to ultimate
  factor includes a 5.1% adjustment to modify the second half of Policy Year 2013. The historical development
  factors are adjusted to account for expected future developoment from claims in Policy Years 2013 and
  2014 impacted by SB1.

Paid Loss
Selected Loss Development Factors

	Age-to-Age Period	Type of Factor	[A] Indemnity	[B] Medical
(a)	1st – 2nd	Paid LDF	1.790	1.223
(b)	2nd – 3rd	Paid LDF	1.295	1.061
(c)	3rd – 4th	Paid LDF	1.153	1.036
(d)	4th – 5th	Paid LDF	1.091	1.017
(e)	5th – 6th	Paid LDF	1.051	1.016
(f)	6th – 7th	Paid LDF	1.036	1.015
(g)	7th – 8th	Paid LDF	1.022	1.013
(h)	8th – 9th	Paid LDF	1.016	1.008
(i)	9th – 10th	Paid LDF	1.014	1.008
(j)	10th – 11th	Paid LDF	1.010	1.007
(k)	11th – 12th	Paid LDF	1.007	1.006
(l)	12th – 13th	Paid LDF	1.007	1.006
(m)	13th – 14th	Paid LDF	1.008	1.006
(n)	14th – 15th	Paid LDF	1.006	1.006
(o)	15th – 16th	Paid LDF	1.003	1.003
(p)	16th – 17th	Paid LDF	1.005	1.003
(q)	17th – 18th	Paid LDF	1.003	1.004
(r)	18th – 19th	Paid LDF	1.002	1.003
(r')	Paid to Paid Plus Case Ratio at 19th Report		0.977	0.962
(s)	19th Report Paid Plus Case to Ultimate LDF		1.011	1.020
(1)	1st to Ultimate LDF*		4.091	1.608
(2)	2nd to Ultimate LDF*		2.143	1.315

Notes: Line (1) is produced by multiplying the factors in Lines (a) through (r), dividing by Line (r') and multiplying
by Line (s).
Line (2) is produced by multiplying the factors in Lines (b) through (r), dividing by Line (r') and multiplying
by Line (s).
* The indemnity 1st to ultimate and 2nd to ultimate development factors include adjustments to account
for the impact of Missouri Senate Bill (SB) 1, applicable to accidents occurring on or after 1/1/14.
The 1st to ultimate factor includes a 12.4% adjustment to modify Policy Year 2014, and the 2nd to ultimate
factor includes a 5.4% adjustment to modify the second half of Policy Year 2013. The historical development
factors are adjusted to account for expected future developoment from claims in Policy Years 2013 and
2014 impacted by SB1.

Paid Plus Case Reserve
Selected Loss Development Factors

	Age-to-Age Period	Type of Factor	[A] Indemnity	[B] Medical
(a)	1st – 2nd	Paid Plus Case LDF	1.122	1.031
(b)	2nd – 3rd	Paid Plus Case LDF	1.063	1.006
(c)	3rd – 4th	Paid Plus Case LDF	1.044	0.995
(d)	4th – 5th	Paid Plus Case LDF	1.028	0.995
(e)	5th – 6th	Paid Plus Case LDF	1.018	0.999
(f)	6th – 7th	Paid Plus Case LDF	1.005	1.000
(g)	7th – 8th	Paid Plus Case LDF	1.006	1.003
(h)	8th – 9th	Paid Plus Case LDF	1.002	1.005
(i)	9th – 10th	Paid Plus Case LDF	1.007	1.007
(j)	10th – 11th	Paid Plus Case LDF	1.001	1.004
(k)	11th – 12th	Paid Plus Case LDF	1.000	1.001
(l)	12th – 13th	Paid Plus Case LDF	1.002	1.004
(m)	13th – 14th	Paid Plus Case LDF	1.001	1.002
(n)	14th – 15th	Paid Plus Case LDF	1.001	0.998
(o)	15th – 16th	Paid Plus Case LDF	1.000	1.001
(p)	16th – 17th	Paid Plus Case LDF	1.001	1.003
(q)	17th – 18th	Paid Plus Case LDF	1.002	1.002
(r)	18th – 19th	Paid Plus Case LDF	1.002	1.002
(s) 19th Report Paid Plus Case to Ultimate LDF			1.011	1.020
(1) 1st to Ultimate LDF *			1.526	1.080
(2) 2nd to Ultimate LDF*			1.267	1.048

Notes: Line (1) is produced by multiplying the factors in Lines (a) through (s).
Line (2) is produced by multiplying the factors in Lines (b) through (s).
* The indemnity 1st to ultimate and 2nd to ultimate development factors include adjustments to account
for the impact of Missouri Senate Bill (SB) 1, applicable to accidents occurring on or after 1/1/14.
The 1st to ultimate factor includes a 12.4% adjustment to modify Policy Year 2014, and the 2nd to ultimate
factor includes a 4.7% adjustment to modify the second half of Policy Year 2013. The historical development
factors are adjusted to account for expected future developoment from claims in Policy Years 2013 and
2014 impacted by SB1.

Paid Loss
Selected Loss Development Factors

			[A]	[B]
	Age–to–Age Period	Type of Factor	Indemnity	Medical
(a)	1st – 2nd	Paid LDF	1.790	1.223
(b)	2nd – 3rd	Paid LDF	1.295	1.061
(c)	3rd – 4th	Paid LDF	1.153	1.036
(d)	4th – 5th	Paid LDF	1.091	1.017
(e)	5th – 6th	Paid LDF	1.051	1.016
(f)	6th – 7th	Paid LDF	1.036	1.015
(g)	7th – 8th	Paid LDF	1.022	1.013
(h)	8th – 9th	Paid LDF	1.016	1.008
(i)	9th – 10th	Paid LDF	1.014	1.008
(j)	10th – 11th	Paid LDF	1.010	1.007
(k)	11th – 12th	Paid LDF	1.007	1.006
(l)	12th – 13th	Paid LDF	1.007	1.006
(m)	13th – 14th	Paid LDF	1.008	1.006
(n)	14th – 15th	Paid LDF	1.006	1.006
(o)	15th – 16th	Paid LDF	1.003	1.003
(p)	16th – 17th	Paid LDF	1.005	1.003
(q)	17th – 18th	Paid LDF	1.003	1.004
(r)	18th – 19th	Paid LDF	1.002	1.003
(r')	Paid to Paid Plus Case Ratio at 19th Report		0.977	0.962
(s)	19th Report Paid Plus Case to Ultimate LDF		1.011	1.020
(1)	1st to Ultimate LDF*		4.091	1.608
(2)	2nd to Ultimate LDF*		2.133	1.315

Notes: Line (1) is produced by multiplying the factors in Lines (a) through (r), dividing by Line (r') and multiplying
       by Line (s).
       Line (2) is produced by multiplying the factors in Lines (b) through (r), dividing by Line (r') and multiplying
       by Line (s).
    * The indemnity 1st to ultimate and 2nd to ultimate development factors include adjustments to account
      for the impact of Missouri Senate Bill (SB) 1, applicable to accidents occurring on or after 1/1/14.
      The 1st to ultimate factor includes a 12.4% adjustment to modify Policy Year 2014, and the 2nd to ultimate
      factor includes a 4.9% adjustment to modify the second half of Policy Year 2013. The historical development
      factors are adjusted to account for expected future developoment from claims in Policy Years 2013 and
      2014 impacted by SB1.
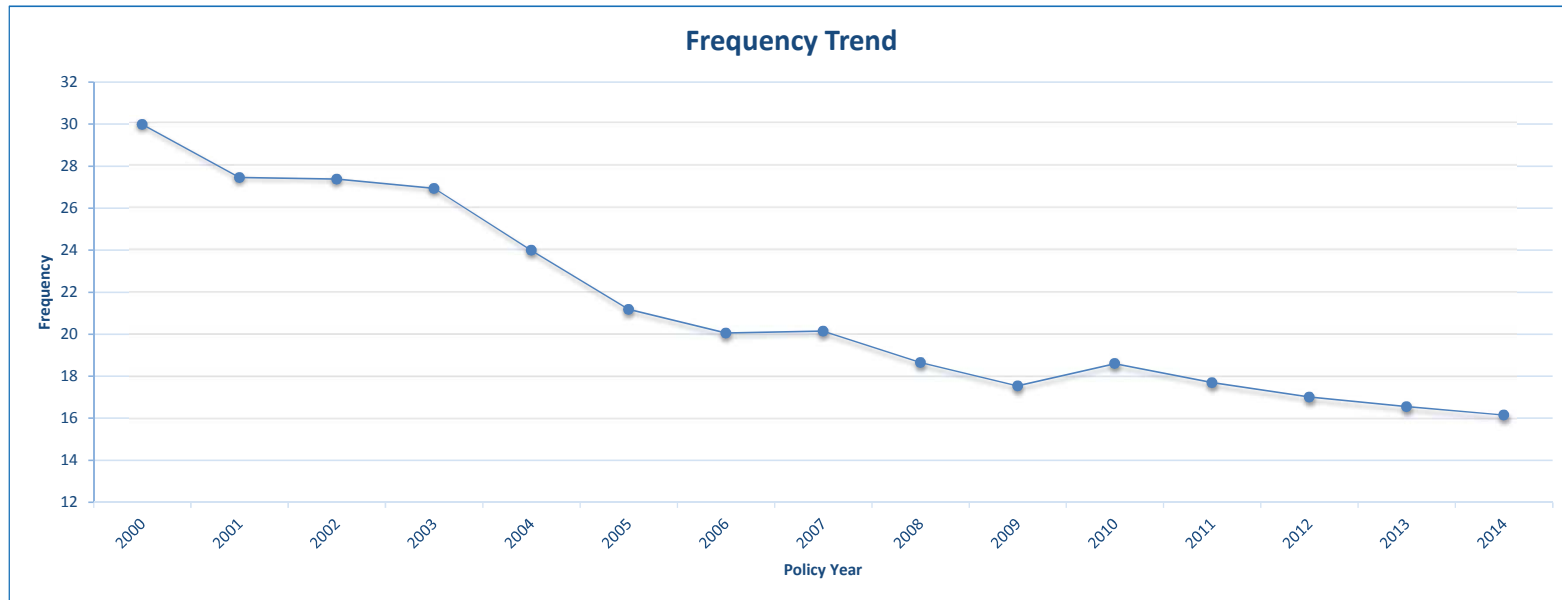
Frequency Trend

Policy Year	Frequency	Percent Change	Years Reviewed		Exclude	Exponential	
						R–Squared	Trend
2000	29.978		2000 – 2014			0.932	−4.4%
2001	27.461	−8.4%	2006 – 2014			0.893	−2.7%
2002	27.381	−0.3%	2006 – 2014		2009	0.957	−2.8%
2003	26.942	−1.6%	2006 – 2014		2010	0.915	−2.7%
2004	23.992	−10.9%	2008 – 2014			0.799	−2.2%
2005	21.179	−11.7%	2008 – 2014		2010	0.886	−2.1%
2006	20.059	−5.3%	2009 – 2014			0.715	−2.3%
2007	20.146	0.4%	2009 – 2014		2010	0.797	−1.8%
2008	18.657	−7.4%	2010 – 2014			0.976	−3.4%
2009	17.539	−6.0%	2007 – 2014			0.854	−2.7%
2010	18.599	6.0%	2007 – 2014		2009	0.947	−2.9%
2011	17.696	−4.9%	2008 – 2014		2009	0.920	−2.6%
2012	17.007	−3.9%	2009 – 2014			0.715	−2.3%
2013	16.552	−2.7%					
2014	16.156	−2.4%					

Notes: Frequency figures reflect information provided by NCCI with adjustments to recognize Actuarial Solutions' selected premium development factors.

Indemnity Severity Trend
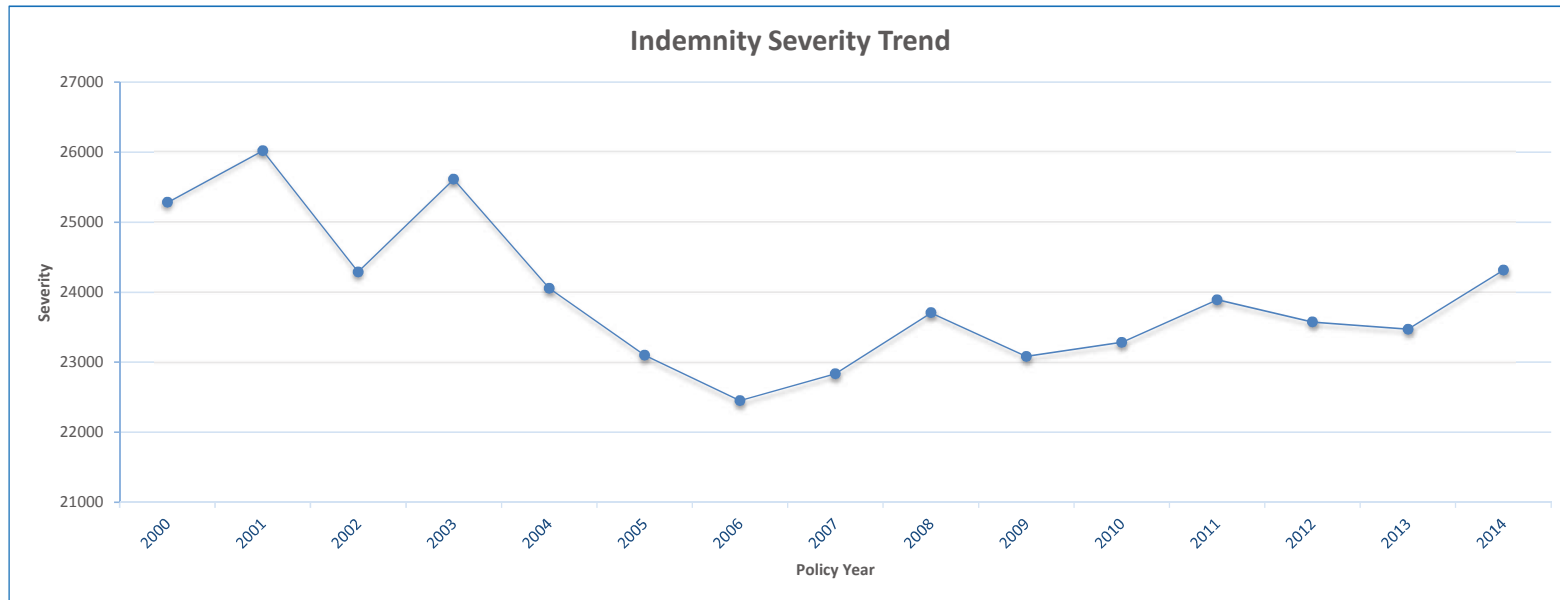
Policy Year	Severity	Percent Change		Years Reviewed		Exclude	Exponential R-Squared	Trend
2000	25,283		2006	–	2013		0.502	0.6%
2001	26,022	2.9%	2006	–	2013	2008	0.771	0.7%
2002	24,289	−6.7%	2008	–	2013		0.028	0.1%
2003	25,613	5.5%	2009	–	2013		0.310	0.5%
2004	24,058	−6.1%	2006	–	2014		0.645	0.7%
2005	23,100	−4.0%	2006	–	2014	2008	0.833	0.8%
2006	22,451	−2.8%	2008	–	2014		0.300	0.4%
2007	22,837	1.7%	2009	–	2014		0.600	0.8%
2008	23,707	3.8%						
2009	23,082	−2.6%						
2010	23,283	0.9%						
2011	23,891	2.6%						
2012	23,575	−1.3%						
2013	23,470	−0.4%						
2014	24,316	3.6%						

Notes: Severity figures reflect information provided by NCCI with adjustments to recognize Actuarial Solutions' selected loss development factors.

Indemnity Loss Ratio Trend
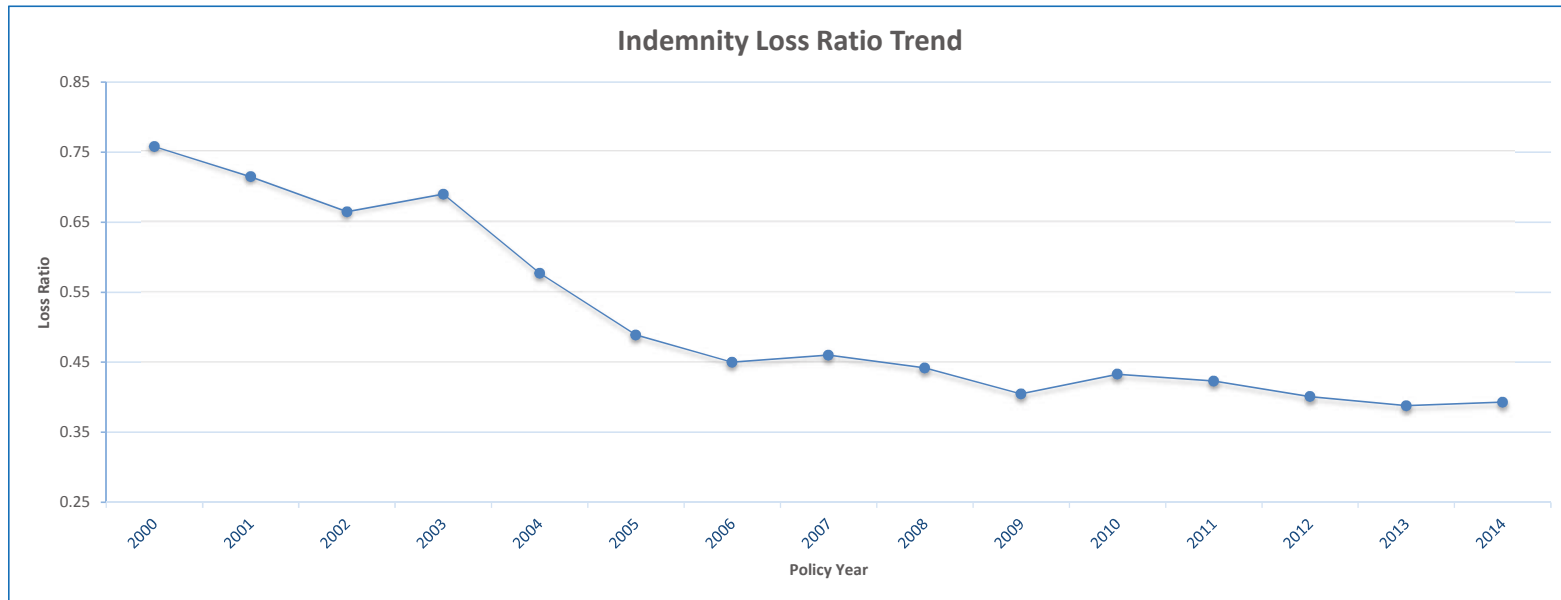
Policy Year	Loss Ratio	Percent Change		Years Reviewed			Exclude	Exponential	
								R–Squared	Trend
2000	0.758			2006	–	2013		0.749	–2.1%
2001	0.715	–5.7%		2006	–	2013	2009	0.890	–2.2%
2002	0.665	–7.0%		2008	–	2013		0.570	–2.0%
2003	0.690	3.8%		2008	–	2013	2009	0.902	–2.6%
2004	0.577	–16.4%		2006	–	2014		0.786	–2.0%
2005	0.489	–15.3%		2006	–	2014	2009	0.909	–2.1%
2006	0.450	–8.0%		2008	–	2014		0.633	–1.8%
2007	0.460	2.2%		2008	–	2014	2009	0.896	–2.3%
2008	0.442	–3.9%		2010	–	2014		0.868	–2.8%
2009	0.405	–8.4%							
2010	0.433	6.9%							
2011	0.423	–2.3%							
2012	0.401	–5.2%							
2013	0.388	–3.2%							
2014	0.393	1.3%							

Notes: Loss ratio figures reflect information provided by NCCI with adjustments to recognize Actuarial Solutions' selected premium and loss development factors.

Medical Severity Trend

Policy Year	Severity	Percent Change
2000	17,681	
2001	18,034	2.0%
2002	18,295	1.4%
2003	20,606	12.6%
2004	21,726	5.4%
2005	23,372	7.6%
2006	23,983	2.6%
2007	24,045	0.3%
2008	27,261	13.4%
2009	25,966	−4.8%
2010	27,739	6.8%
2011	28,105	1.3%
2012	28,176	0.3%
2013	27,892	−1.0%
2014	27,544	−1.2%
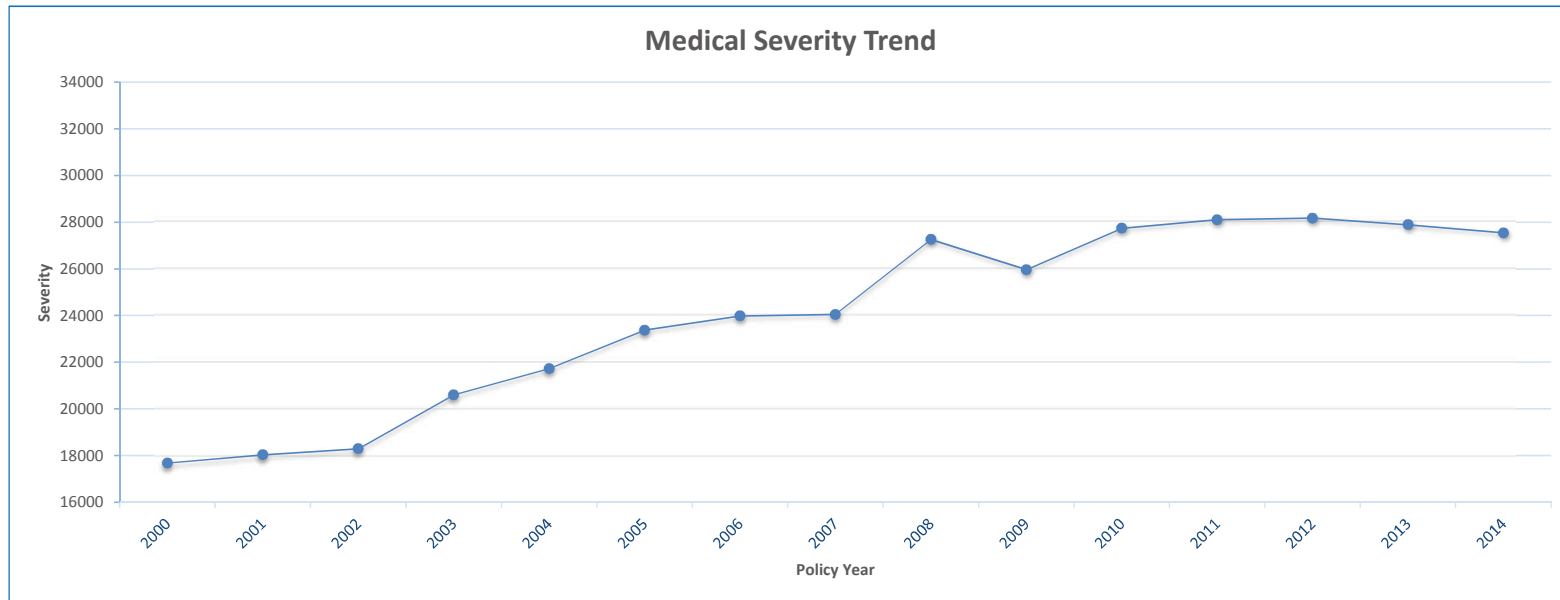
Years Reviewed		Exclude	Exponential	
			R–Squared	Trend
2000 – 2010			0.953	4.9%
2000 – 2014			0.892	3.7%
2000 – 2014		2008	0.915	3.7%
2002 – 2014			0.839	3.3%
2007 – 2014		2008	0.651	2.0%
2008 – 2014			0.273	0.7%
2009 – 2014			0.306	0.9%
2010 – 2014			0.135	−0.2%

Notes: Severity figures reflect information provided by NCCI with adjustments to recognize Actuarial Solutions' selected loss development factors.

Medical Loss Ratio Trend
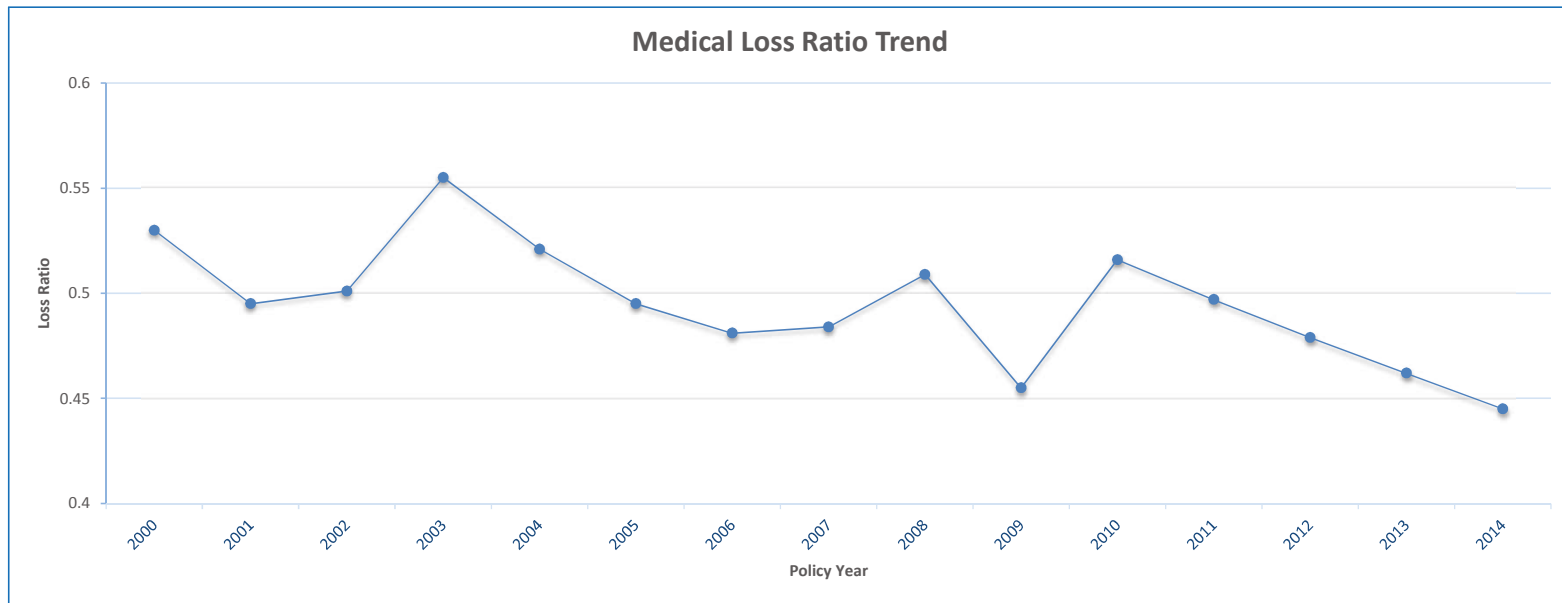
Policy Year	Loss Ratio	Percent Change	Years Reviewed		Exclude		Exponential R-Squared	Trend
2000	0.530		2000 – 2010				0.193	-0.7%
2001	0.495	-6.6%	2000 – 2014				0.439	-0.9%
2002	0.501	1.2%	2000 – 2014		2003		0.422	-0.7%
2003	0.555	10.8%	2000 – 2014		2009		0.452	-0.8%
2004	0.521	-6.1%	2000 – 2014		2003	2009	0.447	-0.7%
2005	0.495	-5.0%	2003 – 2014				0.498	-1.2%
2006	0.481	-2.8%	2003 – 2014		2009		0.557	-1.2%
2007	0.484	0.6%	2005 – 2014				0.223	-0.7%
2008	0.509	5.2%	2005 – 2014		2009		0.300	-0.8%
2009	0.455	-10.6%	2006 – 2014				0.195	-0.8%
2010	0.516	13.4%	2006 – 2014		2009		0.302	-0.9%
2011	0.497	-3.7%	2008 – 2014				0.358	-1.6%
2012	0.479	-3.6%	2008 – 2014		2009		0.837	-2.4%
2013	0.462	-3.5%	2010 – 2014				1.000	-3.6%
2014	0.445	-3.7%						

Notes: Loss ratio figures reflect information provided by NCCI with adjustments to recognize Actuarial Solutions' selected premium and loss development factors.

Appendix D

NCCI Interrogatories

Request 1:

For total experience (voluntary plus ARM as reflected in the filed indication), please provide extended triangles which present 10 diagonals of loss data for each of indemnity loss and medical loss (i.e., policy year paid and paid plus case reserve loss development from a first through a 19th report for indemnity vs. medical).

Response:

Attachment 1 contains the requested triangles. Please note that the development factors provided do not contain any adjustment to account for the impact of Missouri Senate Bill 1, applicable to accidents occurring on or after 1/1/2014.

MISSOURI
Policy Year - Private Carrier + State Fund - Limited Statewide
Indemnity Paid Development Factors

PY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
1987																		1.002
1988																	1.002	1.002
1989																1.004	1.002	1.001
1990															1.002	1.003	1.002	1.001
1991														1.002	1.003	1.003	1.002	1.003
1992													1.003	1.003	1.003	1.003	1.004	1.004
1993												1.004	1.003	1.003	1.005	1.005	1.002	1.004
1994											1.007	1.003	1.006	1.004	1.005	1.004	1.004	1.001
1995										1.008	1.006	1.006	1.005	1.008	1.004	1.007	1.004	1.002
1996									1.011	1.007	1.006	1.008	1.005	1.004	1.005	1.005	1.004	1.002
1997								1.009	1.008	1.007	1.005	1.006	1.004	1.004	1.002	1.003	1.002	
1998							1.022	1.013	1.011	1.007	1.007	1.007	1.005	1.005	1.004	1.005		
1999						1.028	1.028	1.019	1.013	1.015	1.006	1.006	1.008	1.007	1.001			
2000					1.047	1.039	1.020	1.011	1.008	1.008	1.003	1.013	1.006	1.006				
2001				1.061	1.052	1.034	1.024	1.010	1.010	1.010	1.007	1.004	1.012					
2002			1.104	1.073	1.044	1.027	1.028	1.018	1.008	1.009	1.008	1.007						
2003		1.263	1.120	1.069	1.057	1.034	1.024	1.016	1.016	1.005	1.006							
2004	1.769	1.254	1.132	1.071	1.050	1.032	1.021	1.020	1.014	1.014								
2005	1.757	1.286	1.141	1.081	1.046	1.036	1.022	1.012	1.014									
2006	1.792	1.268	1.117	1.068	1.040	1.032	1.026	1.016										
2007	1.825	1.271	1.125	1.077	1.054	1.036	1.018											
2008	1.793	1.248	1.159	1.092	1.047	1.041												
2009	1.799	1.292	1.142	1.091	1.059													
2010	1.873	1.292	1.150	1.092														
2011	1.789	1.295	1.161															
2012	1.800	1.308																
2013	1.748																	

MISSOURI
Policy Year - Private Carrier + State Fund - Limited Statewide
Medical Paid Development Factors

PY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
1987																		1.006
1988																	1.002	1.004
1989																1.003	1.002	1.002
1990															1.003	0.999	1.001	1.001
1991														1.001	1.001	1.002	1.002	1.002
1992													1.001	1.001	1.004	1.001	1.002	1.001
1993												1.003	1.003	1.006	1.004	1.003	1.004	1.003
1994											1.005	1.004	1.004	1.004	1.004	1.008	1.004	1.004
1995										1.003	1.003	1.002	1.003	1.005	1.005	1.003	1.004	1.003
1996									1.007	1.001	1.003	1.002	1.006	1.004	1.000	1.002	1.003	1.001
1997								1.008	1.013	1.010	1.004	1.007	1.005	1.006	1.004	1.006	1.005	
1998							1.011	1.007	1.008	1.005	1.011	1.012	1.010	1.003	1.003	1.001		
1999						1.011	1.009	1.008	1.012	1.007	1.008	1.007	1.010	1.006	1.003			
2000					1.016	1.011	1.007	1.008	1.012	1.006	1.007	1.007	1.004	1.018				
2001				1.011	1.011	1.012	1.007	1.004	1.007	1.009	1.007	1.004	1.002					
2002			1.025	1.018	1.014	1.009	1.012	1.011	1.006	1.007	1.005	1.005						
2003		1.062	1.027	1.023	1.014	1.015	1.014	1.008	1.009	1.005	1.005							
2004	1.226	1.066	1.033	1.023	1.010	1.015	1.012	1.007	1.012	1.009								
2005	1.222	1.067	1.041	1.028	1.026	1.022	1.016	1.006	1.006									
2006	1.235	1.055	1.032	1.017	1.014	1.009	1.015	1.008										
2007	1.233	1.062	1.036	1.009	1.012	1.011	1.009											
2008	1.221	1.064	1.033	1.023	1.022	1.019												
2009	1.226	1.059	1.036	1.016	1.013													
2010	1.243	1.060	1.036	1.016														
2011	1.218	1.058	1.036															
2012	1.226	1.066																
2013	1.219																	

MISSOURI
Policy Year - Private Carrier + State Fund - Limited Statewide
Indemnity Paid+Case Development Factors

PY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
1987																		0.999
1988																	1.001	0.999
1989																1.001	0.999	1.000
1990															1.001	1.002	1.001	1.000
1991														0.999	1.000	1.001	1.001	1.002
1992													0.999	1.002	1.001	1.002	1.002	1.002
1993												1.003	1.001	0.999	0.999	1.001	1.002	1.003
1994											0.998	1.002	0.999	1.000	1.001	1.000	1.000	1.001
1995										1.002	0.999	1.000	1.001	0.998	1.000	1.000	1.000	1.001
1996									1.001	1.000	1.001	1.005	0.996	1.000	1.001	1.002	1.001	1.002
1997								0.998	1.001	1.002	1.005	1.001	0.999	0.999	0.998	0.998	1.005	
1998							0.995	1.000	1.001	1.000	1.002	1.005	1.001	1.006	0.999	1.003		
1999						1.015	0.993	0.998	0.995	1.001	0.999	1.002	1.003	0.999	1.001			
2000					1.005	1.004	0.995	1.004	0.998	1.003	1.003	1.004	1.001	1.001				
2001				1.004	1.010	1.006	1.008	1.002	1.007	0.997	1.004	1.001	1.002					
2002			1.026	0.997	1.002	0.997	1.004	1.006	1.005	1.002	0.995	0.999						
2003		1.026	1.034	1.013	1.001	1.016	1.006	1.005	1.007	1.000	1.000							
2004	1.084	1.035	1.026	1.019	1.014	0.997	1.001	1.001	1.008	1.003								
2005	1.087	1.049	1.039	1.016	1.017	1.005	1.005	1.000	1.006									
2006	1.098	1.022	1.027	1.013	1.017	1.004	1.009	1.002										
2007	1.117	1.045	1.024	1.009	1.021	1.001	1.007											
2008	1.116	1.041	1.055	1.028	1.028	1.013												
2009	1.119	1.063	1.028	1.041	1.005													
2010	1.125	1.060	1.042	1.029														
2011	1.095	1.051	1.072															
2012	1.136	1.079																
2013	1.129																	

MISSOURI
Policy Year - Private Carrier + State Fund - Limited Statewide
Medical Paid+Case Development Factors

PY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
1987																		1.009
1988																	1.006	1.012
1989																1.006	0.998	1.003
1990															1.000	1.002	1.002	1.001
1991														0.999	1.000	1.000	1.000	0.997
1992													1.000	0.998	1.003	1.002	1.003	1.002
1993												1.004	1.007	1.004	1.003	1.001	1.002	1.002
1994											1.007	1.002	1.001	0.997	0.996	1.001	0.996	1.006
1995										1.004	1.000	1.003	1.001	1.001	1.004	1.003	0.999	1.001
1996									1.002	1.002	1.005	1.001	0.999	0.991	1.004	1.009	1.001	1.002
1997								0.998	1.015	1.002	1.000	1.002	0.993	1.002	0.990	0.999	1.014	
1998							0.993	1.001	1.008	0.986	1.014	1.010	1.004	0.989	1.008	1.004		
1999						1.003	1.003	1.001	1.002	1.000	1.002	1.000	1.005	1.003	1.000			
2000					1.011	1.005	0.997	1.006	1.011	1.003	1.011	1.005	1.003	0.989				
2001				0.992	1.009	0.989	1.001	1.009	1.001	1.017	1.007	1.002	0.999					
2002			0.997	1.012	1.013	0.997	1.002	1.001	1.008	1.002	0.999	1.005						
2003		1.008	0.990	1.017	1.005	1.009	1.001	0.999	0.995	1.004	0.992							
2004	1.032	1.007	1.010	0.996	0.995	1.005	1.001	1.036	1.005	0.998								
2005	1.025	1.019	1.010	1.008	0.989	1.002	1.004	1.001	1.023									
2006	1.030	0.972	0.996	0.997	1.002	0.985	1.006	0.998										
2007	1.039	1.010	1.001	1.000	0.997	0.998	1.003											
2008	1.071	1.025	1.010	0.983	1.010	1.007												
2009	1.043	1.013	0.999	1.002	0.999													
2010	1.050	1.002	0.993	0.993														
2011	1.022	0.998	0.972															
2012	1.031	1.005																
2013	1.013																	

Request 2:

For the 1/1/15 and 1/1/16 Missouri voluntary loss cost filings, you based the selected LDFs on the latest two LDFs (versus three LDFs in the 1/1/14 filing). Please identify whether your reasoning for continuing to use two diagonals of development in the 1/1/17 filing is consistent with the explanation given in Request 5 associated with the 1/1/15 filing and Request 7 associated with the 1/1/16 filing; if not, please provide additional information explaining your rationale for doing so.

Response:

Our reasoning with continuing to use two diagonals of development in the 1/1/17 filing is consistent with the response given for the 1/1/16 filing.

While NCCI strives for consistency, from one filing to the next we may change the number of years used in deriving the LDF averages if conditions warrant. In general, for the paid + case method, NCCI prefers a longer term average LDF since paid + case LDFs tend to be cyclical (e.g. 5 year average). For the paid method, NCCI prefers a shorter term LDF in order to emphasize responsiveness to current conditions (e.g. 2 year average).

Request 3:

Did you consider any other basis for selecting loss development factors than those shown in the filing?

Response:

For each filing, NCCI reviews the various alternatives for selecting loss development factors for paid and paid + case losses, including 2-year, 3-year, 5-year, and 5-year-ex-high-low averages. Ultimately, there were no compelling reasons for deviating from the selections used in the 1/1/2016 filing. Therefore, we elected to maintain a 2-year average for paid losses and a 5-year average for paid + case losses.

Request 4:

Related to the patterns, or shifts of experience in loss development, please provide ratios of policy year paid to paid plus case data at all available evaluations for indemnity vs. medical, for as many calendar years as possible. If available, open and closed claim counts with corresponding paid (on closed claims) and case reserves would be helpful to review; policy year data alone is fine

Response:

Attachment 4a contains ratios of paid to paid plus case data for indemnity and medical, for both policy year and accident year. NCCI collects losses on a policy year and accident year basis but does not have the information by calendar year.

Attachment 4b contains a triangle with open claims to total claims by policy year. NCCI collects paid and case reserves data on all claims and no longer collects paid or case reserves on closed claims; therefore, we are unable to provide open and closed claim counts with corresponding paid (on closed claims) and case reserves.

MISSOURI
Policy Year - Private Carrier + State Fund - Limited Statewide
Indemnity Paid to Paid+Case Ratios

PY	Half	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1984															0.960	0.966	0.972	0.974	0.978	0.980
1985														0.969	0.970	0.971	0.971	0.969	0.974	0.975
1986													0.954	0.955	0.960	0.965	0.965	0.965	0.969	0.970
1987												0.960	0.965	0.969	0.973	0.977	0.977	0.977	0.978	0.981
1988											0.956	0.962	0.967	0.967	0.966	0.968	0.971	0.972	0.973	0.975
1989										0.948	0.955	0.961	0.965	0.969	0.971	0.971	0.973	0.976	0.978	0.979
1990									0.955	0.958	0.964	0.966	0.971	0.972	0.977	0.978	0.979	0.980	0.981	0.982
1991								0.934	0.943	0.946	0.956	0.961	0.965	0.966	0.968	0.971	0.974	0.976	0.977	0.977
1992							0.920	0.931	0.940	0.947	0.958	0.956	0.966	0.969	0.973	0.974	0.976	0.977	0.978	0.980
1993						0.891	0.916	0.940	0.951	0.947	0.951	0.956	0.963	0.963	0.964	0.968	0.973	0.977	0.977	0.979
1994					0.845	0.877	0.908	0.927	0.934	0.936	0.939	0.945	0.954	0.954	0.961	0.965	0.969	0.973	0.977	0.977
1995				0.767	0.837	0.878	0.898	0.903	0.918	0.924	0.931	0.937	0.944	0.950	0.954	0.962	0.966	0.972	0.976	0.977
1996			0.620	0.736	0.821	0.873	0.894	0.910	0.919	0.926	0.935	0.942	0.946	0.948	0.955	0.959	0.964	0.968	0.971	0.972
1997		0.413	0.635	0.767	0.837	0.879	0.905	0.924	0.936	0.946	0.952	0.956	0.956	0.959	0.964	0.969	0.972	0.976	0.974	
1998	0.215	0.401	0.619	0.736	0.804	0.852	0.877	0.897	0.921	0.932	0.942	0.948	0.955	0.956	0.959	0.959	0.963	0.966		
1999	0.199	0.382	0.597	0.714	0.789	0.825	0.856	0.867	0.896	0.917	0.931	0.941	0.948	0.951	0.956	0.963	0.962			
2000	0.205	0.380	0.594	0.734	0.801	0.849	0.884	0.914	0.938	0.944	0.952	0.957	0.958	0.967	0.972	0.976				
2001	0.161	0.355	0.589	0.720	0.796	0.842	0.878	0.904	0.917	0.922	0.924	0.940	0.943	0.946	0.956					
2002	0.181	0.361	0.600	0.726	0.784	0.843	0.879	0.905	0.923	0.934	0.935	0.942	0.953	0.960						
2003	0.151	0.358	0.593	0.731	0.792	0.835	0.882	0.897	0.913	0.922	0.931	0.936	0.941							
2004	0.161	0.360	0.586	0.710	0.784	0.824	0.854	0.884	0.899	0.916	0.921	0.931								
2005	0.175	0.367	0.593	0.729	0.801	0.852	0.877	0.902	0.917	0.929	0.936									
2006	0.185	0.367	0.600	0.744	0.809	0.852	0.874	0.899	0.914	0.927										
2007	0.167	0.366	0.598	0.728	0.799	0.854	0.881	0.912	0.921											
2008	0.196	0.380	0.610	0.731	0.803	0.853	0.869	0.893												
2009	0.177	0.376	0.604	0.734	0.816	0.855	0.901													
2010	0.179	0.363	0.603	0.735	0.811	0.861														
2011	0.171	0.369	0.602	0.742	0.803															
2012	0.177	0.383	0.607	0.736																
2013	0.173	0.401	0.622																	
2014	0.163	0.381																		
2015	0.183																			

MISSOURI
Policy Year - Private Carrier + State Fund - Limited Statewide
Medical Paid to Paid+Case Ratios

PY	Half	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1984															0.956	0.957	0.958	0.965	0.967	0.968
1985														0.984	0.984	0.984	0.983	0.980	0.981	0.978
1986													0.986	0.987	0.986	0.987	0.980	0.981	0.978	0.978
1987												0.915	0.922	0.948	0.951	0.950	0.950	0.960	0.967	0.964
1988											0.962	0.958	0.960	0.958	0.956	0.955	0.961	0.963	0.959	0.950
1989										0.985	0.986	0.988	0.982	0.969	0.969	0.971	0.969	0.965	0.969	0.968
1990									0.979	0.982	0.988	0.986	0.985	0.975	0.979	0.980	0.984	0.980	0.981	0.979
1991								0.939	0.967	0.971	0.971	0.975	0.976	0.976	0.967	0.968	0.969	0.970	0.972	0.976
1992							0.970	0.975	0.980	0.979	0.976	0.976	0.977	0.977	0.978	0.980	0.980	0.980	0.979	0.978
1993						0.943	0.953	0.960	0.970	0.958	0.957	0.960	0.962	0.961	0.957	0.959	0.956	0.957	0.958	0.960
1994					0.927	0.925	0.937	0.927	0.927	0.915	0.925	0.929	0.928	0.929	0.933	0.936	0.942	0.948	0.955	0.953
1995				0.925	0.893	0.895	0.899	0.920	0.945	0.945	0.953	0.952	0.955	0.954	0.955	0.958	0.958	0.958	0.963	0.965
1996			0.811	0.861	0.924	0.947	0.934	0.945	0.939	0.942	0.946	0.945	0.943	0.944	0.949	0.962	0.958	0.951	0.953	0.953
1997		0.719	0.815	0.882	0.899	0.904	0.913	0.917	0.913	0.923	0.921	0.928	0.931	0.934	0.945	0.947	0.961	0.968	0.959	
1998	0.437	0.692	0.818	0.870	0.894	0.926	0.915	0.920	0.937	0.942	0.942	0.963	0.959	0.961	0.966	0.979	0.975	0.972		
1999	0.388	0.694	0.810	0.847	0.875	0.902	0.918	0.926	0.932	0.940	0.951	0.957	0.962	0.969	0.974	0.976	0.979			
2000	0.411	0.720	0.860	0.882	0.890	0.909	0.914	0.920	0.929	0.929	0.927	0.931	0.925	0.927	0.927	0.954				
2001	0.408	0.716	0.832	0.878	0.907	0.925	0.927	0.946	0.952	0.945	0.951	0.944	0.944	0.946	0.949					
2002	0.447	0.712	0.839	0.884	0.909	0.915	0.917	0.927	0.933	0.942	0.938	0.942	0.947	0.947						
2003	0.386	0.694	0.824	0.868	0.901	0.906	0.913	0.917	0.930	0.937	0.950	0.951	0.963							
2004	0.404	0.678	0.807	0.854	0.874	0.898	0.914	0.923	0.932	0.906	0.912	0.922								
2005	0.438	0.659	0.786	0.823	0.848	0.864	0.897	0.914	0.926	0.931	0.915									
2006	0.408	0.656	0.786	0.852	0.884	0.901	0.912	0.934	0.943	0.953										
2007	0.438	0.702	0.834	0.876	0.906	0.915	0.928	0.940	0.946											
2008	0.411	0.678	0.773	0.802	0.820	0.854	0.864	0.874												
2009	0.451	0.719	0.845	0.883	0.916	0.929	0.943													
2010	0.446	0.690	0.816	0.863	0.900	0.921														
2011	0.437	0.661	0.788	0.835	0.890															
2012	0.441	0.672	0.798	0.847																
2013	0.418	0.678	0.816																	
2014	0.403	0.698																		
2015	0.412																			

MISSOURI
Policy Year - Private Carrier + State Fund - Limited Statewide
Open Claims to Total Indemnity Incurred Claims

PY	Half	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1984															0.002	0.002	0.001	0.002	0.001	0.001
1985														0.002	0.002	0.001	0.001	0.001	0.001	0.001
1986													0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
1987												0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1988											0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
1989										0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.001
1990									0.005	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001
1991								0.008	0.005	0.004	0.003	0.002	0.002	0.002	0.002	0.002	0.001	0.002	0.002	0.002
1992							0.014	0.008	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
1993						0.034	0.015	0.010	0.007	0.006	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
1994					0.059	0.029	0.018	0.011	0.007	0.005	0.004	0.004	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
1995				0.118	0.057	0.036	0.022	0.015	0.009	0.006	0.006	0.004	0.004	0.003	0.003	0.003	0.003	0.002	0.002	0.002
1996			0.231	0.119	0.067	0.038	0.022	0.013	0.009	0.007	0.006	0.005	0.005	0.004	0.003	0.003	0.003	0.002	0.002	0.002
1997		0.450	0.230	0.124	0.065	0.036	0.020	0.013	0.010	0.007	0.006	0.005	0.004	0.003	0.003	0.003	0.002	0.002	0.002	
1998	0.699	0.471	0.255	0.134	0.074	0.038	0.024	0.017	0.012	0.008	0.007	0.006	0.004	0.004	0.003	0.003	0.002	0.002		
1999	0.739	0.519	0.260	0.132	0.067	0.043	0.026	0.018	0.012	0.009	0.007	0.006	0.005	0.004	0.003	0.003	0.003			
2000	0.763	0.512	0.254	0.127	0.07	0.04	0.025	0.015	0.01	0.008	0.007	0.006	0.005	0.004	0.004	0.004				
2001	0.784	0.510	0.243	0.129	0.072	0.042	0.027	0.016	0.010	0.008	0.008	0.006	0.005	0.005	0.004					
2002	0.768	0.508	0.244	0.127	0.069	0.041	0.025	0.016	0.012	0.009	0.008	0.007	0.005	0.004						
2003	0.793	0.524	0.256	0.127	0.070	0.041	0.028	0.018	0.013	0.011	0.009	0.007	0.007							
2004	0.801	0.514	0.246	0.125	0.067	0.040	0.026	0.020	0.016	0.012	0.010	0.009								
2005	0.794	0.501	0.238	0.12	0.067	0.04	0.027	0.019	0.015	0.011	0.01									
2006	0.787	0.504	0.236	0.118	0.064	0.041	0.028	0.020	0.015	0.012										
2007	0.803	0.501	0.235	0.114	0.068	0.041	0.027	0.020	0.015											
2008	0.793	0.486	0.227	0.120	0.067	0.039	0.027	0.019												
2009	0.771	0.499	0.241	0.128	0.068	0.043	0.026													
2010	0.773	0.498	0.234	0.123	0.07	0.047														
2011	0.783	0.493	0.227	0.118	0.072															
2012	0.786	0.496	0.234	0.124																
2013	0.810	0.502	0.234																	
2014	0.803	0.506																		
2015	0.803																			

<u>Request 5:</u>

For policy year data, please forward as many calendar years of tail development (19th to ultimate) as possible, separately for indemnity vs. medical loss. Please also provide the NCCI's rationale for the selections made in this filing.

<u>Response:</u>

Appendix A-II, Section G in the technical supplement contains ten years of tail development, for indemnity and medical losses separately.

NCCI believes it is appropriate to base the tail factor on several years in order to add stability and eliminate unnecessary swings in rates/loss costs. Medical development in particular is often unforeseen. The injured worker's condition may severely worsen, 24 hour care may become necessary or new technology may significantly increase the cost of treatment. Such events, though certain to occur over an extended period, cannot be predicted with accuracy from year to year. Hence, the use of many years (e.g., 10) to spread the impact of such occurrences is warranted.

Request 6

Please supply payroll by class so that we may complete the tables required for our report.

Response:

We are in the process of compiling the requested information and will be providing it as soon as possible.

Missouri
1/1/2017 Loss Cost Filing

Payroll by Industrial Class Code

Class Code	Payroll for 7/1/2013 - 6/30/2014
0005	14,189,872
0008	5,608,035
0016	2,258,527
0034	33,540,263
0035	17,511,553
0036	7,155,219
0037	51,087,051
0042	58,686,160
0050	13,970,305
0059	-
0065	-
0066	-
0067	-
0079	1,901,102
0083	42,559,813
0106	62,111,198
0113	1,093,200
0170	-
0251	770,499
0401	6,942,485
0771	-
0790	-
0908	2,301
0913	2,776
0917	12,230,941
1005	1,896,915
1016	-
1164	69,094,899
1165	624,541
1320	1,258,652
1322	1,771
1430	26,696,921
1438	59,498,393
1452	2,143,513
1463	9,869,741
1472	17,525,189
1624	69,495,919
1642	23,952,887
1654	3,811,722
1655	9,301,405
1699	3,067,860

Missouri
1/1/2017 Loss Cost Filing

Payroll by Industrial Class Code

Class Code	Payroll for 7/1/2013 - 6/30/2014
1701	54,310,201
1710	950,845
1741	1,887,533
1747	11,419,729
1748	-
1803	12,140,060
1853	-
1860	3,151,103
1924	13,090,653
1925	18,319,487
2002	23,339,535
2003	69,504,943
2014	70,777,480
2016	14,411,695
2021	8,736,894
2039	48,641,083
2041	6,661,736
2065	405,926
2070	43,417,155
2081	2,489,697
2089	127,811,650
2095	104,189,484
2105	993,250
2110	-
2111	28,575,285
2112	260,346
2114	-
2121	77,883,861
2130	12,191,335
2131	8,927,695
2143	10,375,301
2157	61,474,088
2172	338,646
2174	-
2211	12,142
2220	996,151
2286	-
2288	6,230,765
2302	-
2305	3,462,800
2361	295,220
2362	223,948

Missouri
1/1/2017 Loss Cost Filing

Payroll by Industrial Class Code

Class Code	Payroll for 7/1/2013 - 6/30/2014
2380	884
2388	7,622,788
2402	1,181,293
2413	288,563
2416	34,470
2417	1,286,135
2501	90,505,962
2503	2,098,679
2534	1,678,448
2570	1,593,199
2585	86,864,750
2586	5,790,749
2587	2,784,776
2589	21,494,305
2600	-
2623	6,704,654
2651	8,864,087
2660	25,682,777
2670	2,777,379
2683	1,559,976
2688	8,501,468
2701	344,345
2702	1,909,667
2709	214,761
2710	12,646,043
2714	-
2731	37,605,471
2735	3,530,456
2759	28,813,910
2790	3,860,429
2791	613,197
2797	1,093,340
2799	2,434,776
2802	23,520,984
2835	1,436,680
2836	461,420
2841	2,607,392
2881	14,700,415
2883	105,222,828
2915	74,808
2916	1,236,195
2923	813,360

Missouri
1/1/2017 Loss Cost Filing

Payroll by Industrial Class Code

Class Code	Payroll for 7/1/2013 - 6/30/2014
2960	2,036,186
3004	10,279,306
3018	3,014,421
3022	10,828,458
3027	896,398
3028	39,791,700
3030	68,636,411
3040	23,566,015
3041	1,348,694
3042	277,117
3064	10,141,414
3076	446,469,264
3081	12,857,718
3082	5,593,430
3085	9,413,444
3110	6,632,751
3111	369,910
3113	134,220,040
3114	3,777,095
3118	1,046,088
3119	1,287,430
3122	108,976
3126	5,538,001
3131	25,060
3132	1,053,298
3145	12,671,813
3146	33,317,973
3169	6,906,206
3175	76,475
3179	165,759,567
3180	13,479,717
3188	19,869,711
3220	27,358,849
3223	8,976,560
3224	53,573
3227	9,684,111
3240	451,557
3241	26,316,471
3255	-
3257	30,696,627
3270	10,812,981
3300	28,764,150

Missouri
1/1/2017 Loss Cost Filing

Payroll by Industrial Class Code

Class Code	Payroll for 7/1/2013 - 6/30/2014
3303	19,255,985
3307	6,712,663
3315	1,272,875
3334	9,214,115
3336	7,511,632
3365	22,642,784
3372	21,793,657
3373	4,932,322
3383	3,037,043
3385	1,321,697
3400	73,923,655
3507	87,816,826
3515	693,989
3548	3,551,789
3559	2,836,038
3574	140,684,158
3581	8,217,849
3612	74,011,300
3620	57,583,628
3629	96,036,508
3632	314,018,740
3634	57,825,928
3635	4,586,130
3638	23,688,542
3642	13,273,126
3643	142,818,847
3647	93,984,614
3648	9,832,893
3681	206,219,465
3685	89,545,122
3719	1,418,892
3724	204,293,095
3726	43,053,472
3803	18,212,833
3807	22,378,687
3808	41,716,819
3821	21,861,219
3822	742,701
3824	88,976,135
3826	13,357,014
3827	1,064,052
3830	1,030,021,440

Missouri
1/1/2017 Loss Cost Filing

Payroll by Industrial Class Code

Class Code	Payroll for 7/1/2013 - 6/30/2014
3851	37,888,065
3865	3,419,256
3881	20,659,592
4000	7,663,200
4018	13,442,620
4021	861,788
4034	31,842,226
4036	3,734,790
4038	1,419,807
4053	264,863
4061	7,605
4062	910,147
4101	3,428,825
4109	27,566,717
4110	357,056
4111	8,785,217
4113	232,679
4114	26,706,408
4130	13,206,359
4131	253,442
4133	629,376
4149	22,038,903
4206	267,810
4207	-
4239	8,100,548
4240	6,286,156
4243	65,502,886
4244	57,385,980
4250	46,976,390
4251	19,633,313
4263	3,110,167
4273	45,050,999
4279	23,479,725
4282	65,564
4283	16,612,516
4299	252,099,808
4304	18,964,154
4307	5,127,979
4351	2,913,166
4352	4,820,643
4360	3,435,465
4361	72,701,457

Missouri
1/1/2017 Loss Cost Filing

Payroll by Industrial Class Code

Class Code	Payroll for 7/1/2013 - 6/30/2014
4410	159,256,934
4420	423,362
4431	1,330,624
4432	-
4439	8,954,801
4452	31,729,039
4459	33,127,496
4470	373,573
4484	301,147,319
4493	713,775
4511	315,167,157
4557	18,434,277
4558	24,896,166
4568	2,646,242
4581	1,305,093
4583	26,950,186
4597	169,962
4611	251,890,753
4635	29,649,724
4653	416,262
4665	2,608,677
4670	16,499
4683	692,964
4686	8,192,839
4692	26,625,108
4693	18,598,994
4703	14,572,099
4717	6,285,323
4720	79,945,337
4740	3,781,703
4741	8,412,946
4751	-
4771	27,741,751
4777	873,593
4825	110,218,996
4828	60,748,657
4829	152,613,683
4902	9,312,267
4923	23,038,873
5020	7,578,637
5022	106,972,075
5037	2,006,392

Missouri
1/1/2017 Loss Cost Filing

Payroll by Industrial Class Code

Class Code	Payroll for 7/1/2013 - 6/30/2014
5040	9,308,020
5057	26,141,126
5059	2,275,566
5067	282,724
5069	-
5102	33,649,011
5146	32,769,877
5160	35,566,286
5183	362,024,860
5188	39,472,855
5190	416,269,153
5191	340,414,556
5192	47,104,031
5213	107,871,221
5215	41,819,534
5221	200,240,973
5222	20,363,131
5223	10,374,536
5348	42,748,887
5402	707,535
5403	226,050,541
5437	89,094,165
5443	440,623
5445	138,336,930
5462	25,902,030
5472	9,016,949
5473	8,543,695
5474	154,418,301
5478	51,212,606
5479	11,566,298
5480	4,640,220
5491	1,661,893
5505	1,550,927
5506	141,040,978
5507	-
5508	-
5535	87,339,163
5537	273,915,832
5551	72,712,100
5606	392,403,167
5610	6,138,401
5645	205,843,465

Missouri
1/1/2017 Loss Cost Filing

Payroll by Industrial Class Code

Class Code	Payroll for 7/1/2013 - 6/30/2014
5703	42,803
5705	34,074
5951	6,893,772
6003	1,721,933
6005	73,484
6045	1,251,232
6204	9,785,784
6206	164,921
6213	736,264
6214	-
6216	927,949
6217	177,473,294
6229	6,885,519
6233	49,367,866
6235	150,157
6236	39,323
6237	-
6251	2,428,180
6252	1,642,760
6306	32,486,052
6319	46,769,165
6325	47,596,434
6400	14,500,835
6503	2,887,219
6504	319,881,723
6702	-
6703	-
6704	-
6834	57,261,827
6835	2,625
6836	13,748,485
6882	39,923
6884	-
7016	-
7024	1,741,849
7038	-
7046	-
7047	-
7050	-
7090	54,530
7098	-
7099	-

Missouri
1/1/2017 Loss Cost Filing

Payroll by Industrial Class Code

Class Code	Payroll for 7/1/2013 - 6/30/2014
7133	10,184,628
7151	-
7152	-
7153	-
7222	39,118
7228	453,522,363
7229	596,085,121
7230	22,486,855
7231	31,774,901
7232	23,736,233
7250	7,396,856
7333	-
7335	317,459
7337	-
7360	19,141,596
7370	13,019,019
7380	431,479,697
7382	114,619,867
7390	22,207,564
7394	-
7395	141,303
7398	-
7402	1,050,188
7403	180,166,252
7405	224,642,001
7420	408,203
7421	34,567,570
7422	6,976,372
7425	21,895,915
7431	13,946,835
7445	-
7453	-
7502	10,762,061
7515	31,808,211
7520	88,396,413
7538	40,509,649
7539	64,189,421
7540	232,738
7580	31,626,014
7590	8,306,607
7600	222,229,987
7605	84,616,497

Missouri
1/1/2017 Loss Cost Filing

Payroll by Industrial Class Code

Class Code	Payroll for 7/1/2013 - 6/30/2014
7610	243,605,889
7705	93,721,038
7710	96,597,298
7711	15,980,990
7720	326,185,725
7855	16,098,103
8001	36,045,749
8002	56,696,176
8006	211,338,674
8008	359,949,153
8010	239,369,268
8013	118,343,219
8015	33,744,972
8017	1,645,367,584
8018	462,707,107
8021	38,162,466
8031	14,033,255
8032	22,481,209
8033	527,426,579
8034	15,926,837
8037	3,689,551
8039	125,408,223
8044	144,010,933
8045	352,913,046
8046	193,714,833
8047	36,014,377
8058	145,686,199
8061	170,042,086
8072	34,264,582
8102	12,503,919
8103	2,576,077
8106	36,487,773
8107	147,558,827
8111	65,461,882
8116	77,707,400
8203	6,136,843
8204	2,488,531
8209	98,460
8215	89,137,414
8227	92,284,720
8232	235,210,923
8233	1,927,034

Missouri
1/1/2017 Loss Cost Filing

Payroll by Industrial Class Code

Class Code	Payroll for 7/1/2013 - 6/30/2014
8235	11,393,369
8263	3,610,362
8264	19,460,877
8265	31,958,318
8279	3,719,971
8288	15,001,083
8291	16,499,116
8292	105,498,966
8293	81,562,927
8304	24,899,086
8350	64,532,817
8353	27,285,642
8370	40,512,240
8381	36,908,121
8385	48,703,630
8387	152,871,370
8391	674,731,189
8392	38,089,886
8393	151,145,720
8500	10,270,710
8601	913,416,854
8602	28,987,289
8603	396,242,192
8606	117,060
8719	-
8720	84,232,584
8721	23,749,733
8723	1,534,200,845
8725	514,403
8728	70,379,453
8734	-
8737	-
8738	-
8742	5,261,257,283
8745	1,589,317
8748	266,482,272
8755	59,961,126
8799	5,399,714
8800	27,231,820
8803	1,397,476,111
8805	-
8810	22,467,273,502

Missouri
1/1/2017 Loss Cost Filing

Payroll by Industrial Class Code

Class Code	Payroll for 7/1/2013 - 6/30/2014
8814	-
8815	-
8820	1,134,617,159
8824	81,078,852
8825	33,052,040
8826	54,464,575
8829	605,570,416
8831	200,290,606
8832	3,287,224,283
8833	1,499,565,893
8835	495,537,628
8855	2,552,480,659
8856	25,437,808
8861	470,458,330
8868	3,343,219,252
8869	292,737,188
8871	145,356,698
8901	494,810,717
9012	385,678,689
9014	386,600,670
9015	334,591,660
9016	30,223,535
9019	258,964
9033	30,578,167
9040	88,298,803
9044	329,091,636
9052	362,779,622
9058	100,633,915
9060	126,411,509
9061	29,791,241
9062	7,521,364
9063	172,968,561
9082	1,353,015,237
9083	957,252,561
9084	57,097,678
9089	319,241
9093	20,553,007
9101	253,886,009
9102	183,285,792
9110	73,645,519
9154	83,541,272
9156	37,308,658

Missouri
1/1/2017 Loss Cost Filing

Payroll by Industrial Class Code

Class Code	Payroll for 7/1/2013 - 6/30/2014
9170	5,239,123
9178	8,019,461
9179	12,502,206
9180	16,343,697
9182	38,157,128
9186	2,247,940
9220	13,003,353
9402	30,869,333
9403	109,076,156
9410	17,870,475
9501	19,558,247
9505	2,869,258
9516	57,463,471
9519	38,641,846
9521	13,630,194
9522	31,508,939
9534	13,212,568
9554	15,804,315
9586	143,588,287
9600	332,259
9620	52,194,379

Missouri
1/1/2017 Loss Cost Filing

Payroll by Federal Class Code

Class Code	Payroll for 1/1/2013 - 12/31/2013
6824	214,379
6825	28,170,239
6826	71,386
6872	846,945
6874	-
7309	414,341
7313	1,041,069
7317	2,453,114
7327	-
7350	160,960
8709	72,600
8726	523,158
9077	-

Request 7:

On Exhibit II of the Technical Supplement, please provide the accident year developed LAE ratios for 2006-2010.

Response:

Attachment 7 contains the requested ratios.

MISSOURI

EXHIBIT II

Workers Compensation Loss-based Expense Provision

Section A - Determination of Loss Adjustment Expense Provision

NCCI has computed the loss adjustment expense allowance on an accident year basis using data obtained from the NCCI Call for Loss Adjustment Expense. For this filing, NCCI proposes a 18.5% loss adjustment expense allowance as a percentage of incurred losses.

Accident Year	Accident Year Developed LAE Ratio	Accident Year Developed DCCE Ratio	Accident Year Developed AOE Ratio
2006	18.2%	10.5%	7.7%
2007	18.0%	10.5%	7.5%
2008	17.7%	11.0%	6.7%
2009	18.4%	11.2%	7.2%
2010	18.5%	11.6%	6.9%
2011	18.8%	12.2%	6.6%
2012	19.9%	13.0%	6.9%
2013	20.4%	13.0%	7.4%
2014	21.0%	13.5%	7.5%
2015	20.4%	13.2%	7.2%
Countrywide selected:	20.6%	13.2%	7.4%

Request 8:

What is the 1/1/17 indication if you exclude all assigned risk experience?

Response:

Excluding the assigned risk experience from the indication but utilizing the same development factors and trend selections results in a voluntary-only indication of -4.9%.

Request 9:

Please provide supporting work papers which reflect voluntary-only data and document the underlying components of the excluding-ARM indication, such as premium development, loss development, on-level factors, LAE and trend.

Response:

NCCI's analysis is based on statewide data. Attachment 9 contains premium development triangles calculated using voluntary-only data, and Attachment 1 contains loss development triangles calculated using voluntary-only data.

The on-level factors applied in the statewide filing are calculated based on historical voluntary loss cost level changes, hence no change was made to the on-level factors for the voluntary-only indication.

NCCI's methodology is to calculate a loss adjustment expense (LAE) provision using its countrywide (CW) LAE analysis. The defense and cost containment expense (DCCE) is adjusted via the Missouri DCCE relativity while the adjusting and other expense (AOE) component is the calculated CW value (for private carriers). Since the reported data utilized for the LAE analysis is based on the CW data, NCCI is unable to quantify the impact of excluding assigned risk experience on the LAE provision.

NCCI selects loss ratio trends based on the statewide loss ratio data. Given the small size of the assigned risk market share in Missouri, the impact of excluding assigned risk experience on the selected loss ratio trends is expected to be negligible.

Missouri

Premium Development Factors - Voluntary Only Data

PY	1/2	2/3	3/4	4/5
2008				1.000
2009			1.000	1.000
2010		0.999	1.000	1.000
2011	1.012	1.000	1.000	
2012	1.006	0.999		
2013	1.003			

Request 10:

For voluntary-only experience, please provide extended triangles which present 10 diagonals of loss data for each of indemnity loss and medical loss.

Response:

Attachment 10 contains voluntary-only development factor triangles with 10 diagonals, out to a 19th report, for limited indemnity and medical paid and paid + case losses. Please note that the development factors provided do not contain any adjustment to account for the impact of Missouri Senate Bill 1, applicable to accidents occurring on or after 1/1/2014.

Missouri

Indemnity Paid Development Factors
Voluntary Losses Only

PY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
1987																		1.002
1988																	1.001	1.002
1989																1.005	1.000	1.000
1990															1.002	1.003	1.003	1.000
1991														1.002	1.002	1.002	1.002	1.002
1992													1.004	1.003	1.001	1.001	1.005	1.004
1993												1.004	1.002	1.003	1.002	1.007	1.003	1.005
1994											1.006	1.003	1.006	1.003	1.007	1.006	1.005	1.002
1995										1.008	1.005	1.005	1.004	1.008	1.004	1.007	1.003	1.002
1996									1.011	1.006	1.006	1.008	1.005	1.004	1.004	1.004	1.003	1.002
1997								1.009	1.008	1.007	1.006	1.006	1.005	1.004	1.002	1.003	1.002	
1998							1.023	1.011	1.011	1.007	1.007	1.007	1.005	1.005	1.004	1.005		
1999						1.028	1.028	1.019	1.013	1.015	1.006	1.005	1.008	1.007	1.001			
2000					1.046	1.037	1.020	1.011	1.008	1.008	1.003	1.013	1.006	1.006				
2001				1.062	1.052	1.033	1.023	1.010	1.008	1.011	1.007	1.004	1.012					
2002			1.103	1.072	1.043	1.029	1.029	1.019	1.008	1.010	1.008	1.006						
2003		1.268	1.119	1.070	1.059	1.035	1.024	1.017	1.016	1.005	1.006							
2004	1.762	1.254	1.137	1.072	1.052	1.033	1.021	1.020	1.013	1.014								
2005	1.764	1.287	1.146	1.080	1.047	1.036	1.021	1.013	1.015									
2006	1.794	1.269	1.118	1.068	1.040	1.033	1.027	1.016										
2007	1.831	1.274	1.125	1.079	1.054	1.036	1.017											
2008	1.793	1.249	1.157	1.092	1.048	1.041												
2009	1.797	1.291	1.142	1.092	1.060													
2010	1.871	1.290	1.151	1.092														
2011	1.787	1.293	1.162															
2012	1.801	1.307																
2013	1.743																	

Missouri

Medical Paid Development Factors
Voluntary Losses Only

PY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
1987																		1.008
1988																	1.002	1.001
1989																1.001	1.002	1.001
1990															1.001	1.001	1.001	1.001
1991														1.001	1.000	1.000	1.000	1.000
1992													1.002	1.001	1.005	1.000	1.004	1.002
1993												1.002	1.002	1.001	1.002	1.002	1.001	1.001
1994											1.007	1.006	1.006	1.005	1.005	1.010	1.004	1.005
1995										1.002	1.000	1.001	1.001	1.004	1.004	1.002	1.002	1.002
1996									1.006	1.001	1.001	1.001	1.005	1.001	1.000	1.002	1.001	1.001
1997								1.009	1.013	1.010	1.005	1.008	1.005	1.007	1.004	1.007	1.005	
1998							1.011	1.007	1.008	1.005	1.011	1.013	1.010	1.003	1.003	1.001		
1999						1.011	1.010	1.008	1.012	1.007	1.008	1.007	1.010	1.006	1.003			
2000					1.016	1.013	1.012	1.008	1.012	1.006	1.007	1.007	1.004	1.018				
2001				1.011	1.011	1.011	1.007	1.004	1.007	1.009	1.007	1.004	1.003					
2002			1.026	1.019	1.014	1.008	1.013	1.011	1.006	1.004	1.005	1.005						
2003		1.062	1.026	1.023	1.014	1.014	1.014	1.008	1.007	1.004	1.004							
2004	1.229	1.065	1.034	1.023	1.010	1.015	1.012	1.007	1.012	1.009								
2005	1.224	1.064	1.040	1.025	1.025	1.019	1.014	1.006	1.006									
2006	1.235	1.052	1.033	1.017	1.014	1.009	1.016	1.009										
2007	1.237	1.063	1.036	1.009	1.011	1.011	1.009											
2008	1.224	1.064	1.033	1.023	1.021	1.017												
2009	1.225	1.059	1.036	1.016	1.013													
2010	1.243	1.060	1.036	1.016														
2011	1.220	1.059	1.036															
2012	1.228	1.066																
2013	1.220																	

Missouri

Indemnity Paid+Case Development Factors
Voluntary Losses Only

PY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
1987																		1.000
1988																	1.001	1.002
1989																1.001	0.998	1.000
1990															1.002	1.004	1.001	1.000
1991														0.999	1.001	1.001	1.001	1.001
1992													0.997	1.003	1.001	1.001	1.005	1.003
1993												1.004	1.002	1.003	1.002	1.001	1.004	1.005
1994											1.001	1.002	0.998	1.000	1.007	0.999	0.999	1.001
1995										1.003	0.997	1.000	1.001	0.997	1.000	1.000	1.001	1.001
1996									1.002	1.000	1.000	1.006	0.995	0.999	1.000	1.001	1.000	1.001
1997								0.998	1.001	1.003	1.005	1.001	0.999	0.998	0.998	0.998	1.005	
1998								0.994	1.000	1.000	0.999	1.002	1.005	1.001	1.006	1.000	1.002	
1999							1.015	0.993	0.998	0.995	1.001	0.998	1.002	1.003	0.999	1.002		
2000						1.005	1.002	0.998	1.004	0.998	1.003	1.004	1.004	1.001	1.001			
2001					1.003	1.011	1.005	1.008	1.001	1.006	0.997	1.004	1.001	1.001				
2002				1.021	0.999	1.001	0.997	1.005	1.006	1.005	1.002	0.997	0.999					
2003			1.022	1.036	1.016	0.999	1.016	1.008	1.006	1.007	1.001	1.001						
2004	1.084	1.035	1.025	1.021	1.015	0.995	1.002	1.001	1.007	1.002								
2005	1.091	1.047	1.040	1.014	1.017	1.005	1.005	0.999	1.006									
2006	1.099	1.022	1.024	1.013	1.017	1.005	1.008	1.001										
2007	1.117	1.044	1.024	1.008	1.020	1.002	1.008											
2008	1.120	1.037	1.055	1.030	1.029	1.013												
2009	1.119	1.064	1.027	1.042	1.006													
2010	1.125	1.061	1.042	1.029														
2011	1.094	1.050	1.074															
2012	1.135	1.078																
2013	1.123																	

Missouri

Medical Paid+Case Development Factors
Voluntary Losses Only

PY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19
1987																		1.010
1988																	1.015	1.017
1989																1.003	1.004	1.005
1990															1.001	1.002	1.000	1.001
1991														1.000	1.000	1.001	0.999	0.997
1992													1.000	1.000	1.002	1.003	1.004	1.004
1993												1.002	1.006	1.003	1.002	1.000	1.001	1.001
1994											1.004	1.001	1.002	1.000	0.994	1.002	0.999	1.010
1995										0.997	0.996	1.002	1.000	1.001	1.004	1.003	0.999	1.001
1996									0.999	1.000	1.001	1.000	0.999	0.997	1.006	1.001	1.000	1.003
1997								0.998	1.015	1.002	1.000	1.002	0.993	1.002	0.990	0.999	1.015	
1998							0.992	1.001	1.008	0.986	1.013	1.009	1.005	0.989	1.008	1.005		
1999						1.002	1.003	1.001	1.002	1.000	1.002	0.999	1.005	1.004	1.000			
2000					1.011	1.006	1.007	1.006	1.012	1.003	1.012	1.005	1.003	0.989				
2001				0.990	1.010	0.991	1.001	1.010	1.001	1.017	1.007	1.002	0.999					
2002			0.995	1.010	1.013	0.999	1.004	1.001	1.008	1.003	0.999	1.006						
2003		1.006	0.989	1.020	1.006	1.009	1.001	0.997	0.996	1.005	1.004							
2004	1.027	1.004	1.009	1.000	0.994	1.005	1.000	1.038	0.999	0.998								
2005	1.020	1.016	1.011	1.009	0.987	1.002	1.004	1.001	1.015									
2006	1.032	0.985	0.996	0.998	1.002	0.984	1.007	0.998										
2007	1.040	1.011	1.002	1.000	0.996	0.998	1.002											
2008	1.076	1.026	1.009	0.982	1.010	1.007												
2009	1.043	1.013	0.999	1.002	0.999													
2010	1.050	1.001	0.993	0.993														
2011	1.024	0.998	0.975															
2012	1.027	1.003																
2013	1.012																	

Request 11:

Were countrywide trends considered in the selection of the trend factors for Missouri for the 1/1/17 filing?

Response:

The selection of trend factors in Missouri focused exclusively on Missouri data. While NCCI is mindful of countrywide trends, we believe that the data in Missouri is sufficiently credible and provides a more appropriate trend estimate for the state than a countrywide trend.

Request 12:

Please supply the derivation of the factor of 0.817 used to adjust the 19th to ultimate LDF to a limited basis as presented in Appendix A-II of the technical supplement.

Response:

Attached is an exhibit which shows the calculations for the standard (nearest million dollar) thresholds, along with the interpolated figure for Missouri's $9,695,342 threshold. The final factor FT = 0.817 is derived from the countrywide factors ULDF and CLDFT, the latter which is calculated from ULDF, ELDFT, and (Missouri-specific) ELFT.

ULDF –19th-ultimate factor selected from 5 years of unlimited countrywide paid+case data.

ELDFT – Countrywide factor for a particular threshold based on the "Large Loss and Catastrophe" Financial Data Call.

ELFT – Excess ratio for a particular threshold that uses countrywide per claim excess ratio curves with entry ratios based on Missouri severities and weights by injury type (Fatal, Permanent Total, Permanent Partial, Temporary Total, and Medical Only).

Missouri Request #12 -- For Filing Available for Use Effective 1/1/2017

Calculation of Tail Adjustment Factors (FT) by Threshold
Rate Filing Season 2016 - 2017
ULDF = 1.038

Threshold	ELF_T	$ELDF_T$	$CLDF_T$	F_T
9,000,000	0.01274	2.44937	1.03034	0.798
10,000,000	0.01079	2.51103	1.03140	0.826
9,695,342				**0.817**

Notes:

(1) ULDF = Uncapped 19th to ultimate tail factor (weighted average of state ULDFs)

(2) ELF_T = Excess ratio for threshold T

(3) $ELDF_T$ = Excess paid+case tail factor, 19th to ultimate, for threshold T

(4) $CLDF_T$ = Capped paid+case tail factor = ULDF((1-ELF)/(1-(ULDF/ELDF)ELF))

(5) F_T = Factor to apply to state-specific ULDF = (CLDF-1)/(ULDF-1)

Request 13:

NCCI has indicated that in Appendix A-II, Sections I and J, there are adjustments made to the first to ultimate and second to ultimate indemnity loss development factors, of 12.4% and 5.4% respectively, to reflect the impact of Missouri Senate Bill (SB) 1 on accidents occurring on or after 1/1/14; please provide derivation for each of these factors.

Response:

As indicated in Appendix A-II Section I, the first and second to ultimate indemnity paid loss development factors (LDFs) are adjusted by 12.4% and 5.4%, respectively. The first and second to ultimate indemnity paid + case LDFs are adjusted as well. The footnote in Appendix A-II Section J contains a typo. It states that the adjustment for the second to ultimate indemnity paid + case development factor is 5.4%, when it should be 5.1%. All calculations use the correct figure of 5.1%. The 12.4% adjustment for the first to ultimate indemnity paid + case development factor is correct as stated.

Attachment 13 (a) and Attachment 13 (b) contain tables that demonstrate the derivation of the adjustment factors for indemnity paid (a) and paid + case (b) loss development factors.

Attachment 13 (a) displays the expected cumulative payment patterns for Pre Senate Bill 1 (SB1) losses, Second Injury Fund (SIF) losses impacted by SB1, and Total (Pre SB1 + SIF). The dollar amounts shown ("Cumulative Loss Index") are indexed to an ultimate Pre SB1 indemnity loss amount of $1000. Since the estimated impact of Senate Bill 1 on indemnity losses is 12.5%, the corresponding amount of SIF losses is $125 (= $1000 x 12.5%).

The exhibit shows age to ultimate LDFs for Policy Year (PY) 2014 evaluated as of the 1st report (2015), 2nd report (2016), etc. The 1.124 adjustment factor derived in the exhibit is used for PY 2014 which is at a 1st report in this year's filing.

Without loss of generality, we can apply the LDF adjustment factor shown in the exhibit for PY 2014 @ 2016 (1.119) to PY 2013 for this year's filing, since PY 2013 is at a 2nd report. However, because only a portion (45.1%) of PY 2013 losses are expected to occur on or after 1/1/2014 (the effective date of Senate Bill 1), the adjustment factor must be prorated to reflect this: 11.9% x 0.451 = 5.4%.

Attachment 13 (b) is similar to Attachment 13 (a) with the exception that it is applicable to paid + case (rather than paid) indemnity losses. The derivation of the 12.4% (PY 2014) and 11.4% (PY 2013) adjustment factors are shown. After being prorated, the PY 2013 adjustment factor is 5.1% (= 11.4% x 0.451).

Missouri

Policy Year 2014 Paid Losses

Pol Year 2014 @	2015	2016	2017	2018		ULT
Pre SB1						
LDF to Ultimate	3.633	2.048	1.573	1.361		
1 / LDF (% paid)	28%	49%	64%	73%		
Cumulative Loss Index	$275.3	$488.3	$635.7	$734.8	...	$1,000.0

Pol Year 2014 @	2015	2016	2017	2018		ULT
SIF						
LDF to Ultimate^	430	49	15	7		
1 / LDF (% paid)	0.2%	2.1%	6.8%	13.4%		
Cumulative Loss Index	$0.3	$2.6	$8.4	$16.7	...	$125.0

Pol Year 2014 @	2015	2016	2017	2018		ULT
Total						
Cumulative Loss Index	$275.5	$490.9	$644.2	$751.4	...	$1,125.0
LDF to Ultimate	4.083	2.292	1.746	1.497		
LDF Adjustment Factor*	**1.124**	**1.119**	1.110	1.100		

^ Based on historical SIF payment data

* = Total LDF / Pre SB1 LDF

Note: The PY 2013 Adjustment factor (1.054) is based on the 1.119 factor adjusted to reflect the portion of
PY 2013 accidents expected to occur on or after 1/1/2014.

Missouri
Policy Year 2014 Paid+Case Losses

Pol Year 2014 @	2015	2016	2017	2018		ULT
Pre SB1						
LDF to Ultimate	1.342	1.197	1.130	1.082		
1 / LDF	75%	84%	88%	92%		
Cumulative Loss Index	$745.2	$835.4	$885.0	$924.2	...	$1,000.0

Pol Year 2014 @	2015	2016	2017	2018		ULT
SIF						
LDF to Ultimate^	131	15	5	2		
1 / LDF	0.8%	6.7%	21.3%	40.1%		
Cumulative Loss Index	$1.0	$8.4	$26.6	$50.1	...	$125.0

Pol Year 2014 @	2015	2016	2017	2018		ULT
Total						
Cumulative Loss Index	$746.1	$843.8	$911.5	$974.3	...	$1,125.0
LDF to Ultimate	1.508	1.333	1.234	1.155		
LDF Adjustment Factor*	**1.124**	**1.114**	1.092	1.067		

^ Based on historical SIF claim count emergence

* = Total LDF / Pre SB1 LDF

Note: The PY 2013 Adjustment factor (1.051) is based on the 1.114 factor adjusted to reflect the portion of PY 2013 accidents expected to occur on or after 1/1/2014.

Request 14:

Regarding the adjustment to the second to ultimate indemnity loss development factor in Appendix A-II, Section J, could you provide clarification as to how the 5.4% is applied? (Although we could replicate NCCI's adjusted second to ultimate paid indemnity loss development factor, we could not replicate the NCCI's adjusted second to ultimate paid plus case indemnity loss development factor.)

Response:

Please see the response to Request 13. As noted, the correct adjustment applied for the second to ultimate indemnity paid + case loss development factor is 5.1% (not 5.4%). Using this value should allow you to replicate the 1.258 factor displayed in Appendix A-II Section J. We apologize for any inconvenience this may have caused you.

Request 15:

In Exhibit II, how did NCCI arrive at the Selected Missouri Statewide DCCE and AOE ratios? Please provide any relevant support used to arrive at these ratios as well.

Response:

The Missouri statewide DCCE and AOE ratios were calculated based on a weighted average of private carrier and state fund DCCE and AOE ratios.

Each year NCCI selects countrywide private carrier DCCE and AOE ratios based upon (paid and incurred) accident year ratios developed to ultimate.

AOE - Private Carrier

As in previous filings, the selected countrywide AOE ratio is used for all NCCI states in the given filing cycle. As seen in Exhibit II, the selected private carrier AOE ratio is 7.4%.

DCCE - Private Carrier

The private carrier DCCE ratio for Missouri is determined by multiplying the countrywide private carrier DCCE ratio by a Missouri relativity. The Missouri DCCE relativity was selected by comparing Missouri's paid DCCE to paid loss ratios to the corresponding countrywide ratios:

Determination of Missouri Private Carrier DCCE Relativity based on the last 3 years of calendar year data (source: Annual Statement data)

Missouri paid losses (in '000s)	1,167,633
Missouri paid DCCE (in '000s)	142,064
Ratio (paid DCCE / paid losses)	12.2%
Countrywide paid losses (in '000s)	70,961,833
Countrywide paid DCCE (in '000s)	8,737,925
Ratio (paid DCCE / paid losses)	12.4%
Relativity (Missouri / Countrywide)	0.984

The countrywide DCCE ratio of 13.2% can be found in Exhibit II of the Technical Supplement. Multiplying this value by the Missouri DCCE relativity of .984 results in a private carrier DCCE ratio of 13.0%.

DCCE - State Fund

The state fund DCCE ratio is calculated based on Financial Call data reported to NCCI by the state fund. DCCE ratios are developed to ultimate, resulting in a selected state fund DCCE ratio of 6.2%.

AOE - State Fund

Similar to our calculation of the state fund DCCE ratio, the state fund AOE ratio is calculated based on Financial Call data. Missouri's state fund AOE ratios are developed to ultimate, resulting in a selected state fund AOE ratio of 10.1%

Statewide DCCE and AOE Ratios

Finally, statewide DCCE and AOE ratios are calculated by averaging the private carrier and state fund ratios using weights based on their respective market shares. The market shares used were obtained by comparing the private carrier and state fund PY 2013 and PY 2014 total losses developed to ultimate, resulting in a private carriers' market share of 78.0% and a state fund's market share of 22.0%.

Statewide DCCE: 0.780*0.130 + 0.220*0.062 = **11.5%**

Statewide AOE: 0.780*0.074 + 0.220*0.101 = **8.0%**

<u>Request 16:</u>

Why did NCCI decide to explicitly recognize the Missouri state fund in calculating the Missouri loss adjustment expense provision (as indicated in the "Methodology and Assumptions" section of the filing)? How specifically does the inclusion of the Missouri state fund impact the loss adjustment expense provision? Please provide any relevant support.

<u>Response:</u>

NCCI began explicitly incorporating state fund data in our calculations of the loss adjustment expense provision in Missouri due to the large deviances between the state fund and private carrier DCCE and AOE ratios. The filed loss adjustment expense provision should be reflective of the average provision for the entire state (both private carriers and the state fund).

The inclusion of the state fund data results in a slightly lower loss adjustment expense provision in Missouri. As seen in Request 15, the private carrier DCCE and AOE ratios were calculated to be 13.0% and 7.4%, respectively, combining for a total of 20.4% (prior to the adjustment for Senate Bill 1). With the inclusion of the state fund, the selected statewide DCCE and AOE ratios were calculated to be 11.5% and 8.0%, combining for a statewide LAE of 19.5%.

NATIONAL COUNCIL ON COMPENSATION INSURANCE
MISSOURI VOLUNTARY LOSS COST FILING
AVAILABLE FOR USE EFFECTIVE 1/1/2017
REQUEST FROM SELECT ACTUARIAL SERVICES
DATED OCTOBER 5, 2016

Request 17:

Why did NCCI elect to change the manner in which it selected annual indemnity and medical trend factors? If possible, please break these trend factors into indemnity severity, medical severity, and frequency components.

Response:

Each year, NCCI weighs a variety of considerations when selecting annual trend factors – including trend ranges based on historical changes in frequency, severity and loss ratios. The considerations underlying the Missouri 1/1/2017 filing's trend selections are no different in that respect.

In Missouri filings from prior years, Appendix A-III Section B has contained additional information on indemnity and medical loss ratio trends (e.g. frequency and severity trend ranges). This year NCCI elected to simplify Appendix A-III in the Missouri filing to be more consistent with that of other states.

The selected annual loss ratio trend factors for the Missouri 1/1/2017 filing are 0.980 (-2.0%) and 0.990 (-1.0%) for indemnity and medical, respectively. One reasonable breakdown of these loss ratio trend factors into frequency and severity components is shown below:

	Indemnity	Medical
Frequency	-2.5%	-2.5%
Severity	0.5%	1.5%
Loss Ratio	-2.0%	-1.0%

Request 18:

For last year's filing the NCCI selected a 19th to ultimate paid plus case reserve loss development factor for both indemnity and medical loss separately based on the review of the five policy years from 1990 to 1994. Why did NCCI elect to present the factors for ten policy years to select these factors for this filing instead of five?

Response:

Though historically Appendix A-II Section G has displayed 5 policy years of data, NCCI does not limit itself to reviewing only these five years when selecting indemnity and medical 19th to ultimate development factors.

NCCI believes it is appropriate to base the tail factor on several years in order to add stability and eliminate unnecessary swings in rates/loss costs. Medical development in particular is often unforeseen. The injured worker's condition may severely worsen, 24 hour care may become necessary or new technology may significantly increase the cost of treatment. Such events, though certain to occur over an extended period, cannot be predicted with accuracy from year to year. Hence, the use of many years to spread the impact of such occurrences is warranted.

This year, NCCI elected to display 10 years of data in Appendix A-II Section G. Displaying 10 years of data in this section provides a more comprehensive picture of the data underlying our selected development factors. Additionally, reviewing many years of data prevents the selected factors from being unduly influenced by potential outliers in any given year.

Request 19:

Please provide support for the developed DCCE and AOE ratios provided in response to interrogatory 7.

Response:

Attachment 19 contains the requested support in the form of a presentation from NCCI's August 24th, 2016 Actuarial Committee Web Teleconference.

The DCCE and AOE values provided in response to interrogatory 7 can be seen in columns (1) and (2) on page 7 of the attachment. Additional details and support for these ratios are contained throughout the document.

2016 ANNUAL LOSS ADJUSTMENT EXPENSE REVIEW

Presented by:

Rocky Latronica
Actuarial Consultant

NCCI Actuarial Committee Meeting
August 24, 2016
Web Teleconference

2016 Loss Adjustment Expense Review

- This year's selected Countrywide LAE provision increased by 0.5% from 20.1% to 20.6%

- Similar to last year, the LAE methodology incorporates the selection of tail factors which are used to develop the ratios of DCCE-to-loss and AOE-to-loss. (See the August 26, 2015 Actuarial Committee Minutes, Exhibit 8-2 for additional information.)

- NCCI reviewed various LAE indications based on NCCI's current dollar development approach as well as alternate indications based on a ratio development approach

Committee members and meeting participants are prohibited from discussing any matter pertaining specifically and directly to rates or loss costs in any particular state or states.

2016 Loss Adjustment Expense Review—Data Source

- NCCI's Countrywide Financial Data Call #19

- Countrywide accident year losses, DCCE, and AOE are reported for paid and unpaid (outstanding + IBNR)

- Losses and DCCE are reported for all policies as well as for large deductible policies only

- AOE is adjusted to a full coverage basis to account for the effect of large deductible polices

- State funds and self-insureds are not included in the LAE analysis

2016 Loss Adjustment Expense Review—Current Methodology

Dollar Development Approach:

- Expenses and losses are developed separately to a 10th report and then ratioed

- A selected 10th-to-ultimate expense-to-loss ratio is then applied to develop the expense ratios to an ultimate report

AY	(1) Paid DCCE	(2) Cumulative Paid DCCE Development Factors	(3)=(1)x(2) Estimated Paid DCCE Developed to a 10th Report	(4) Paid Losses	(5) Cumulative Paid Loss Development Factors	(6)=(4)x(5) Estimated Paid Losses Developed to a 10th Report	(7)=(3)/(6)x10th/Ult. Estimated Ultimate DCCE Ratio
2006	1,721,302,351	NA	1,721,302,351	16,069,984,236	NA	16,069,984,236	10.5%
2007	1,854,352,535	1.017	1,885,876,528	17,409,877,584	1.016	17,688,435,625	10.5%
2008	2,027,282,923	1.038	2,104,319,674	17,933,082,101	1.037	18,596,606,139	11.1%
2009	1,851,141,291	1.066	1,973,316,616	16,138,297,986	1.064	17,171,149,057	11.3%
2010	1,893,835,664	1.109	2,100,263,751	16,211,722,083	1.102	17,865,317,735	11.6%
2011	1,937,858,719	1.174	2,275,046,136	15,701,081,762	1.159	18,197,553,762	12.3%
2012	1,788,791,765	1.286	2,300,386,210	13,991,348,400	1.255	17,559,142,242	12.9%
2013	1,569,588,875	1.501	2,355,952,901	12,460,302,447	1.433	17,855,613,407	13.0%
2014	1,193,251,703	2.059	2,456,905,256	9,603,226,892	1.863	17,890,811,700	13.5%
2015	446,725,887	5.454	2,436,442,988	4,368,013,325	4.082	17,830,230,393	13.5%

2016 Loss Adjustment Expense Review—Alternative Indications

Ratio Development Approach:

- Expense and loss dollars are ratioed

- The ratios are then developed to a 10th report utilizing either multiplicative or additive development factors

- A selected 10th-to-ultimate expense-to-loss ratio is then applied to develop the expense ratios to an ultimate report

AY	(1) Paid DCCE	(2) Paid Losses	(3) = (2) / (1) Paid DCCE Ratio	(4) Cumulative Paid DCCE-to-Loss Multiplicative Dev't Factors	(5)=(3)x(4) Estimated Paid DCCE Ratio Developed to a 10th Report	(6)=(5)x10th/Ult. Estimated Ultimate DCCE Ratio
2006	1,721,302,351	16,069,984,236	10.7%	NA	10.7%	10.5%
2007	1,854,352,535	17,409,877,584	10.7%	1.000	10.7%	10.5%
2008	2,027,282,923	17,933,082,101	11.3%	1.005	11.4%	11.2%
2009	1,851,141,291	16,138,297,986	11.5%	1.005	11.6%	11.4%
2010	1,893,835,664	16,211,722,083	11.7%	1.014	11.9%	11.7%
2011	1,937,858,719	15,701,081,762	12.3%	1.019	12.5%	12.3%
2012	1,788,791,765	13,991,348,400	12.8%	1.032	13.2%	13.0%
2013	1,569,588,875	12,460,302,447	12.6%	1.054	13.3%	13.1%
2014	1,193,251,703	9,603,226,892	12.4%	1.107	13.7%	13.5%
2015	446,725,887	4,368,013,325	10.2%	1.336	13.6%	13.4%

NATIONAL COUNCIL ON COMPENSATION INSURANCE
2016 COUNTRYWIDE ANNUAL LOSS ADJUSTMENT EXPENSE REVIEW

Analysis Based on Private Carrier Data
Summary of Indications by Accident Year

AY	Ultimate DCCE-to-Loss Ratios by Method—Projected as of @12/31/2015:					
	Paid Dollar Development	Paid Ratio Additive	Paid Ratio Multiplicative	Incurred Dollar Development	Incurred Ratio Additive	Incurred Ratio Multiplicative
2006	10.5%	10.5%	10.5%	10.4%	10.4%	10.4%
2007	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%
2008	11.1%	11.2%	11.2%	10.8%	10.8%	10.8%
2009	11.3%	11.4%	11.4%	11.1%	11.1%	11.1%
2010	11.6%	11.7%	11.7%	11.6%	11.6%	11.5%
2011	12.3%	12.4%	12.3%	12.1%	12.0%	12.0%
2012	12.9%	13.1%	13.0%	13.1%	13.0%	13.0%
2013	13.0%	13.2%	13.1%	12.9%	12.9%	12.8%
2014	13.5%	13.6%	13.5%	13.4%	13.5%	13.4%
2015	13.5%	13.5%	13.4%	12.9%	12.9%	12.8%
Avgs						
2-yr	13.5%	13.6%	13.5%	13.2%	13.2%	13.1%
3-yr	**13.3%**	**13.4%**	**13.3%**	**13.1%**	**13.1%**	**13.0%**
4-yr	13.2%	13.4%	13.3%	13.1%	13.1%	13.0%
5-yr	13.0%	13.2%	13.1%	12.9%	12.9%	12.8%

AY	Ultimate AOE-to-Loss Ratios by Method—Projected as of @12/31/2015:					
	Paid Dollar Development	Paid Ratio Additive	Paid Ratio Multiplicative	Incurred Dollar Development	Incurred Ratio Additive	Incurred Ratio Multiplicative
2006	7.9%	7.9%	7.9%	7.4%	7.4%	7.4%
2007	7.6%	7.6%	7.6%	7.4%	7.4%	7.4%
2008	6.8%	6.8%	6.8%	6.6%	6.6%	6.6%
2009	7.3%	7.2%	7.3%	7.0%	7.1%	7.0%
2010	7.0%	6.9%	7.0%	6.8%	6.9%	6.8%
2011	6.6%	6.4%	6.6%	6.6%	6.6%	6.6%
2012	6.9%	6.7%	6.9%	6.8%	6.9%	6.7%
2013	7.4%	7.1%	7.3%	7.3%	7.4%	7.3%
2014	7.5%	6.9%	7.3%	7.4%	7.4%	7.4%
2015	7.2%	6.0%	7.1%	7.1%	7.3%	7.2%
Avgs						
2-yr	7.4%	6.5%	7.2%	7.3%	7.4%	7.3%
3-yr	**7.4%**	**6.7%**	**7.2%**	**7.3%**	**7.4%**	**7.3%**
4-yr	7.3%	6.7%	7.2%	7.2%	7.3%	7.2%
5-yr	7.1%	6.6%	7.0%	7.0%	7.1%	7.0%

LOSS ADJUSTMENT EXPENSE SUMMARY
Analysis Based on Private Carrier Data

Year	(1) Selected Ultimate DCCE Ratio (Avg. of Paid and Incurred Indications) [1,2]	(2) Selected Ultimate AOE Ratio (Avg. of Paid and Incurred Indications) [1,3,4]	(3)=(1)+(2) Call #19 LAE Ratio	(4) Calendar Year Incurred DCCE Ratio From IEE [5]	(5) Calendar Year Incurred AOE Ratio From IEE [4,5]	(6)=(4)+(5) Incurred LAE Ratio IEE [4]	(7)=(3)-(6) Difference
2006	10.5%	7.7%	18.2%	12.6%	7.2%	19.8%	-1.6%
2007	10.5%	7.5%	18.0%	10.1%	7.3%	17.4%	0.6%
2008	11.0%	6.7%	17.7%	11.9%	7.1%	19.0%	-1.3%
2009	11.2%	7.2%	18.4%	11.3%	7.3%	18.6%	-0.2%
2010	11.6%	6.9%	18.5%	11.9%	7.2%	19.1%	-0.6%
2011	12.2%	6.6%	18.8%	11.4%	6.7%	18.1%	0.7%
2012	13.0%	6.9%	19.9%	12.2%	6.2%	18.4%	1.5%
2013	13.0%	7.4%	20.4%	12.1%	7.0%	19.1%	1.3%
2014	13.5%	7.5%	21.0%	13.0%	6.7%	19.7%	1.3%
2015	13.2%	7.2%	20.4%	13.9%	6.9%	20.8%	-0.4%
Proposed LAE	13.2%	7.4%	20.6%				
Current LAE	13.0%	7.1%	20.1%				

Notes:

Loss adjustment expense indications are displayed as a percentage of loss.

[1] Data Source: NCCI's Financial Data Collection Call 19—Countrywide Loss Adjustment Expense Information using private carrier only data.

[2] Details underlying ult. DCCE paid ratio data are found on Page 9 of 29, and ult. DCCE incurred (paid+unpaid) ratio data are found on Page 11 of 29.

[3] Details underlying ult. AOE paid ratio data are found on Page 19 of 29, and ult. DCCE incurred (paid+unpaid) ratio data are found on Page 21 of 29.

[4] Adjusted for impact of large deductibles.

[5] Data Source: Insurance Expense Exhibit, direct of reinsurance excluding state fund data.

2016 COUNTRYWIDE ANNUAL LOSS ADJUSTMENT EXPENSE REVIEW

Analysis Based on Private Carrier Data—Excluding Large Deductible Policies
Current and Historical Selected Ultimate DCCE-to-Loss Ratios by Accident Year

	Ultimate Paid DCCE-to-Loss Ratios—Selected Based on Projections as of:					
AY	**@12/31/2010**	**@12/31/2011**	**@12/31/2012**	**@12/31/2013**	**@12/31/2014**	**@12/31/2015**
2006	10.2%	10.2%	10.6%	10.6%	10.5%	10.5%
2007	10.6%	10.6%	10.6%	10.6%	10.5%	10.5%
2008	11.0%	11.0%	11.3%	11.2%	11.1%	11.1%
2009	11.4%	11.6%	11.6%	11.5%	11.3%	11.3%
2010	11.9%	12.0%	11.9%	11.8%	11.6%	11.6%
2011		12.9%	12.7%	12.5%	12.3%	12.3%
2012			13.1%	13.0%	12.9%	12.9%
2013				13.6%	13.1%	13.0%
2014					13.4%	13.5%
2015						13.5%

	Ultimate Incurred DCCE-to-Loss Ratios—Selected Based on Projections as of:					
AY	**@12/31/2010**	**@12/31/2011**	**@12/31/2012**	**@12/31/2013**	**@12/31/2014**	**@12/31/2015**
2006	10.9%	10.6%	10.8%	10.6%	10.5%	10.4%
2007	11.6%	11.1%	11.0%	10.8%	10.6%	10.5%
2008	12.2%	11.6%	11.2%	11.0%	11.0%	10.8%
2009	12.5%	12.0%	11.7%	11.4%	11.2%	11.1%
2010	12.7%	12.2%	12.0%	11.7%	11.4%	11.6%
2011		12.9%	12.3%	12.1%	11.9%	12.1%
2012			12.7%	12.7%	12.6%	13.1%
2013				13.0%	12.6%	12.9%
2014					13.3%	13.4%
2015						12.9%

	Average of Ultimate Paid and Incurred DCCE-to-Loss Ratios—Selected Based on Projections as of:					
AY	**@12/31/2010**	**@12/31/2011**	**@12/31/2012**	**@12/31/2013**	**@12/31/2014**	**@12/31/2015**
2006	10.6%	10.4%	10.7%	10.6%	10.5%	10.5%
2007	11.1%	10.9%	10.8%	10.7%	10.6%	10.5%
2008	11.6%	11.3%	11.3%	11.1%	11.1%	11.0%
2009	12.0%	11.8%	11.7%	11.5%	11.3%	11.2%
2010	12.3%	12.1%	12.0%	11.8%	11.5%	11.6%
2011		12.9%	12.5%	12.3%	12.1%	12.2%
2012			12.9%	12.9%	12.8%	13.0%
2013				13.3%	12.9%	13.0%
2014					13.4%	13.5%
2015						13.2%

Data Source: NCCI's Financial Data Collection Call 19—Countrywide Loss Adjustment Expense Information using private carrier only data.

This exhibit should not be used to calculate development. The ultimate estimates for the accident years above change across valuations due to actual emergence, modified development selections, and data corrections.

NATIONAL COUNCIL ON COMPENSATION INSURANCE

2016 COUNTRYWIDE LOSS ADJUSTMENT EXPENSE REVIEW—EVALUATED AS OF 12/31/2015

Analysis Based on Private Carrier Data
DCCE—PAID DOLLAR ANALYSIS—Excluding Large Deductible Policies

AY	(1) Paid DCCE [1]	(2) Cumulative Paid DCCE Development Factors [2]	(3)=(1)x(2) Estimated Paid DCCE Developed to a 10th Report	(4) Paid Losses [1]	(5) Cumulative Paid Loss Development Factors [2]	(6)=(4)x(5) Estimated Paid Losses Developed to a 10th Report	(7)=(3)/(6)x10th/Ult. Estimated Ultimate DCCE Ratio [2]
2006	1,721,302,351	NA	1,721,302,351	16,069,984,236	NA	16,069,984,236	10.5%
2007	1,854,352,535	1.017	1,885,876,528	17,409,877,584	1.016	17,688,435,625	10.5%
2008	2,027,282,923	1.038	2,104,319,674	17,933,082,101	1.037	18,596,606,139	11.1%
2009	1,851,141,291	1.066	1,973,316,616	16,138,297,986	1.064	17,171,149,057	11.3%
2010	1,893,835,664	1.109	2,100,263,751	16,211,722,083	1.102	17,865,317,735	11.6%
2011	1,937,858,719	1.174	2,275,046,136	15,701,081,762	1.159	18,197,553,762	12.3%
2012	1,788,791,765	1.286	2,300,386,210	13,991,348,400	1.255	17,559,142,242	12.9%
2013	1,569,588,875	1.501	2,355,952,901	12,460,302,447	1.433	17,855,613,407	13.0%
2014	1,193,251,703	2.059	2,456,905,256	9,603,226,892	1.863	17,890,811,700	13.5%
2015	446,725,887	5.454	2,436,442,988	4,368,013,325	4.082	17,830,230,393	13.5%

[1] Data Source: NCCI's Financial Data Collection Call 19—Countrywide Loss Adjustment Expense Information using private carrier only data.
[2] Underlying link ratio detail is found on Page 10 of 29.

Paid DCCE

AY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
1996	-	-	1.205	1.096	1.125	1.040	1.032	1.024	1.017
1997	-	1.419	1.173	1.091	1.061	1.047	1.030	1.023	1.019
1998	2.863	1.444	1.185	1.109	1.071	1.048	1.032	1.027	1.019
1999	2.863	1.652	1.203	1.117	1.072	1.047	1.036	1.026	1.019
2000	2.820	1.485	1.228	1.120	1.074	1.053	1.033	1.025	1.018
2001	2.858	1.498	1.214	1.116	1.074	1.046	1.032	1.022	1.017
2002	2.873	1.438	1.202	1.112	1.065	1.042	1.027	1.021	1.017
2003	2.717	1.422	1.197	1.104	1.062	1.038	1.026	1.021	1.017
2004	2.790	1.422	1.188	1.100	1.056	1.037	1.029	1.022	1.017
2005	2.662	1.393	1.180	1.091	1.057	1.041	1.028	1.022	1.017
2006	2.673	1.400	1.170	1.095	1.058	1.038	1.029	1.020	1.016
2007	2.669	1.377	1.172	1.101	1.060	1.042	1.028	1.021	-
2008	2.565	1.377	1.174	1.094	1.058	1.039	1.026	-	-
2009	2.620	1.391	1.175	1.099	1.059	1.040	-	-	-
2010	2.695	1.382	1.180	1.096	1.059	-	-	-	-
2011	2.647	1.379	1.168	1.093	-	-	-	-	-
2012	2.637	1.370	1.165	-	-	-	-	-	-
2013	2.642	1.373	-	-	-	-	-	-	-
2014	2.655	-	-	-	-	-	-	-	-

Avgs	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
2yr.	2.649	1.372	1.167	1.095	1.059	1.040	1.027	1.021	1.017
3yr.	2.645	1.374	1.171	1.096	1.059	1.040	1.028	1.021	1.017
4yr.	2.645	1.376	1.172	1.096	1.059	1.040	1.028	1.021	1.017
5yr.	2.655	1.379	1.172	1.097	1.059	1.040	1.028	1.021	1.017
Sel.	2.649	1.372	1.167	1.095	1.059	1.040	1.027	1.021	1.017

Valuation	Paid	10th/Ult.	10th/Ult. Factor
Date	DCCE	Loss	DCCE-to-Loss
12/31/06	1.173	1.201	0.977
12/31/07	1.175	1.210	0.971
12/31/08	1.193	1.194	0.999
12/31/09	1.165	1.167	0.998
12/31/10	1.163	1.167	0.997
12/31/11	1.178	1.208	0.975
12/31/12	1.137	1.171	0.971
12/31/13	1.169	1.198	0.976
12/31/14	1.198	1.187	1.009
12/31/15	1.198	1.183	1.013
		Selected	0.985

Paid Losses (for use with DCCE)

AY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
1996	-	-	1.146	1.072	1.045	1.031	1.022	1.018	1.015
1997	-	1.302	1.135	1.074	1.047	1.033	1.023	1.019	1.014
1998	2.255	1.302	1.153	1.081	1.053	1.035	1.026	1.020	1.019
1999	2.347	1.379	1.153	1.086	1.054	1.036	1.028	1.021	1.017
2000	2.341	1.332	1.155	1.084	1.053	1.035	1.026	1.021	1.016
2001	2.273	1.336	1.153	1.083	1.053	1.037	1.027	1.020	1.016
2002	2.212	1.313	1.143	1.078	1.051	1.033	1.025	1.018	1.016
2003	2.172	1.304	1.138	1.081	1.050	1.034	1.025	1.021	1.016
2004	2.112	1.287	1.136	1.075	1.048	1.033	1.025	1.020	1.018
2005	2.076	1.288	1.136	1.076	1.047	1.035	1.026	1.022	1.015
2006	2.116	1.292	1.138	1.075	1.052	1.037	1.029	1.021	1.017
2007	2.176	1.303	1.142	1.082	1.056	1.039	1.027	1.020	-
2008	2.152	1.305	1.148	1.088	1.056	1.036	1.025	-	-
2009	2.177	1.317	1.156	1.091	1.054	1.035	-	-	-
2010	2.184	1.315	1.154	1.087	1.050	-	-	-	-
2011	2.192	1.312	1.147	1.079	-	-	-	-	-
2012	2.196	1.305	1.137	-	-	-	-	-	-
2013	2.204	1.295	-	-	-	-	-	-	-
2014	2.178	-	-	-	-	-	-	-	-

Avgs	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
2yr.	2.191	1.300	1.142	1.083	1.052	1.036	1.026	1.021	1.016
3yr.	2.193	1.304	1.146	1.086	1.053	1.037	1.027	1.021	1.017
4yr.	2.193	1.307	1.149	1.086	1.054	1.037	1.027	1.021	1.017
5yr.	2.191	1.309	1.148	1.085	1.054	1.036	1.026	1.021	1.016
Sel.	2.191	1.300	1.142	1.083	1.052	1.036	1.026	1.021	1.016

Data Source: NCCI's Financial Data Collection Call 19—Countrywide Loss Adjustment Expense Information using private carrier only data.

NATIONAL COUNCIL ON COMPENSATION INSURANCE

2016 COUNTRYWIDE LOSS ADJUSTMENT EXPENSE REVIEW—EVALUATED AS OF 12/31/2015

Analysis Based on Private Carrier Data
DCCE—INCURRED DOLLAR ANALYSIS—Excluding Large Deductible Policies

AY	(1) Incurred DCCE [1]	(2) Cumulative Incurred DCCE Development Factors [2]	(3)=(1)x(2) Estimated Incurred DCCE Developed to a 10th Report	(4) Incurred Losses [1]	(5) Cumulative Incurred Loss Development Factors [2]	(6)=(4)x(5) Estimated Incurred Losses Developed to a 10th Report	(7)=(3)/(6)x10th/Ult. Estimated Ultimate DCCE Ratio [2]
2006	1,956,163,469	NA	1,956,163,469	18,735,552,848	NA	18,735,552,848	10.4%
2007	2,132,841,058	1.000	2,132,841,058	20,351,592,093	1.000	20,351,592,093	10.5%
2008	2,308,358,817	1.000	2,308,358,817	21,303,544,564	0.999	21,282,241,019	10.8%
2009	2,188,609,682	1.001	2,190,798,292	19,702,331,708	0.999	19,682,629,376	11.1%
2010	2,351,351,741	1.007	2,367,811,203	20,414,268,897	0.998	20,373,440,359	11.6%
2011	2,494,685,574	1.011	2,522,127,115	20,892,454,238	0.997	20,829,776,875	12.1%
2012	2,667,821,326	1.001	2,670,489,147	20,695,172,686	0.988	20,446,830,614	13.1%
2013	2,723,909,763	1.004	2,734,805,402	21,366,020,786	0.989	21,130,994,557	12.9%
2014	2,882,663,523	1.011	2,914,372,822	22,068,374,359	0.983	21,693,211,995	13.4%
2015	2,861,863,159	1.023	2,927,686,012	23,203,322,115	0.975	22,623,239,062	12.9%

[1] Data Source: NCCI's Financial Data Collection Call 19—Countrywide Loss Adjustment Expense Information using private carrier only data.
[2] Underlying link ratio detail is found on Page 12 of 29.

2016 COUNTRYWIDE LOSS ADJUSTMENT EXPENSE REVIEW—EVALUATED AS OF 12/31/2015

SUMMARY OF DEVELOPMENT FACTORS
DCCE—INCURRED DEVELOPMENT

Incurred DCCE

AY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
1996	-	-	1.037	0.968	1.028	0.996	0.998	1.010	1.015
1997	-	1.057	0.985	1.003	1.006	1.009	1.025	1.014	1.012
1998	1.037	1.049	1.025	1.012	1.032	1.015	1.015	1.029	1.014
1999	1.109	1.041	1.003	1.049	1.019	1.016	1.037	1.025	1.005
2000	1.069	0.999	1.047	1.026	1.025	1.025	1.023	1.008	1.008
2001	0.984	1.024	1.047	1.007	1.045	1.050	1.006	1.013	0.999
2002	0.973	1.028	1.029	1.043	1.024	1.009	0.998	1.002	0.999
2003	0.960	1.013	1.024	1.033	0.989	0.999	1.004	0.991	0.996
2004	0.982	0.972	1.015	0.994	1.004	0.993	0.987	1.000	0.995
2005	0.961	0.951	0.983	0.999	0.986	0.993	1.007	1.000	1.005
2006	0.982	0.972	0.978	0.983	0.986	1.006	0.998	1.003	1.003
2007	1.008	0.993	0.992	0.979	1.008	0.999	1.005	1.005	-
2008	1.020	1.013	0.997	0.981	0.994	1.018	1.006	-	-
2009	1.047	1.020	0.990	0.993	1.005	1.016	-	-	-
2010	1.020	0.989	1.006	0.992	1.027	-	-	-	-
2011	1.031	1.012	1.009	1.007	-	-	-	-	-
2012	1.018	1.005	1.012	-	-	-	-	-	-
2013	1.000	1.009	-	-	-	-	-	-	-
2014	0.992	-	-	-	-	-	-	-	-

Avgs	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
2yr.	0.996	1.007	1.011	1.000	1.016	1.017	1.006	1.004	1.004
3yr.	1.003	1.009	1.009	0.997	1.009	1.011	1.003	1.003	1.001
4yr.	1.010	1.004	1.004	0.993	1.009	1.010	1.004	1.002	1.000
5yr.	1.012	1.007	1.003	0.990	1.004	1.006	1.001	1.000	1.000
Sel.	1.012	1.007	1.003	0.990	1.004	1.006	1.001	1.000	1.000

Incurred Losses (for use with DCCE)

AY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
1996	-	-	0.996	0.997	0.991	1.003	1.002	1.010	1.006
1997	-	1.031	0.992	1.010	1.008	0.997	1.011	1.011	1.003
1998	1.081	1.020	1.019	1.019	1.011	1.013	1.013	1.010	1.009
1999	1.081	1.065	1.028	1.022	1.013	1.014	1.010	1.014	1.001
2000	1.101	1.040	1.030	1.022	1.013	1.012	1.010	1.005	0.996
2001	1.047	1.021	1.018	1.010	1.018	1.015	1.004	0.998	1.002
2002	1.004	1.003	1.005	1.005	1.008	1.004	0.994	1.003	1.000
2003	0.982	0.977	0.988	0.995	0.998	0.991	0.998	0.997	1.000
2004	0.940	0.958	0.972	0.977	0.995	0.994	0.998	0.997	1.002
2005	0.922	0.949	0.966	0.983	0.994	0.994	0.996	1.001	0.998
2006	0.940	0.964	0.983	0.983	0.992	0.994	1.001	0.999	1.002
2007	0.971	0.991	0.991	0.983	0.998	1.003	1.000	1.002	-
2008	1.003	1.000	1.000	0.994	1.001	1.002	1.005	-	-
2009	1.003	1.002	1.007	0.996	1.002	1.003	-	-	-
2010	1.017	1.001	1.010	0.994	1.000	-	-	-	-
2011	1.011	0.999	1.003	0.990	-	-	-	-	-
2012	0.977	0.989	0.987	-	-	-	-	-	-
2013	0.977	0.980	-	-	-	-	-	-	-
2014	0.977	-	-	-	-	-	-	-	-

Avgs	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
2yr.	0.977	0.985	0.995	0.992	1.001	1.003	1.003	1.001	1.000
3yr.	0.977	0.989	1.000	0.993	1.001	1.003	1.002	1.001	1.001
4yr.	0.986	0.992	1.002	0.994	1.000	1.001	1.001	1.000	1.001
5yr.	0.992	0.994	1.001	0.991	0.999	0.999	1.000	0.999	1.000
Sel.	0.992	0.994	1.001	0.991	0.999	0.999	1.000	0.999	1.000

Valuation Date	Incurred DCCE	10th/Ult. Loss	10th/Ult. Factor DCCE-to-Loss
12/31/06	1.094	1.054	1.038
12/31/07	1.142	1.094	1.044
12/31/08	1.129	1.058	1.067
12/31/09	1.049	1.026	1.022
12/31/10	1.051	1.033	1.017
12/31/11	1.035	1.042	0.993
12/31/12	1.013	1.016	0.997
12/31/13	1.044	1.026	1.018
12/31/14	1.034	1.029	1.005
12/31/15	1.037	1.026	1.011
		Selected	1.000

Data Source: NCCI's Financial Data Collection Call 19—Countrywide Loss Adjustment Expense Information using private carrier only data.

NATIONAL COUNCIL ON COMPENSATION INSURANCE

2016 COUNTRYWIDE LOSS ADJUSTMENT EXPENSE REVIEW—EVALUATED AS OF 12/31/2015

Analysis Based on Private Carrier Data
DCCE—MULTIPLICATIVE PAID RATIO ANALYSIS—Excluding Large Deductible Policies

AY	(1) Paid DCCE [1]	(2) Paid Losses [1]	(3) = (2) / (1) Paid DCCE Ratio	(4) Cumulative Paid DCCE-to-Loss Multiplicative Dev't Factors [2]	(5)=(3)x(4) Estimated Paid DCCE Ratio Developed to a 10th Report	(6)=(5)x10th/Ult. Estimated Ultimate DCCE Ratio [2]
2006	1,721,302,351	16,069,984,236	10.7%	NA	10.7%	10.5%
2007	1,854,352,535	17,409,877,584	10.7%	1.000	10.7%	10.5%
2008	2,027,282,923	17,933,082,101	11.3%	1.005	11.4%	11.2%
2009	1,851,141,291	16,138,297,986	11.5%	1.005	11.6%	11.4%
2010	1,893,835,664	16,211,722,083	11.7%	1.014	11.9%	11.7%
2011	1,937,858,719	15,701,081,762	12.3%	1.019	12.5%	12.3%
2012	1,788,791,765	13,991,348,400	12.8%	1.032	13.2%	13.0%
2013	1,569,588,875	12,460,302,447	12.6%	1.054	13.3%	13.1%
2014	1,193,251,703	9,603,226,892	12.4%	1.107	13.7%	13.5%
2015	446,725,887	4,368,013,325	10.2%	1.336	13.6%	13.4%

Analysis Based on Private Carrier Data
DCCE—ADDITIVE PAID RATIO ANALYSIS—Excluding Large Deductible Policies

AY	(1) Paid DCCE [1]	(2) Paid Losses [1]	(3) = (2) / (1) Paid DCCE Ratio	(4) Cumulative Paid DCCE-to-Loss Additive Dev't Factors [2]	(5)=(3)+(4) Estimated Paid DCCE Ratio Developed to a 10th Report	(6)=(5)x10th/Ult. Estimated Ultimate DCCE Ratio [2]
2006	1,721,302,351	16,069,984,236	10.7%	NA	10.7%	10.5%
2007	1,854,352,535	17,409,877,584	10.7%	0.0%	10.7%	10.5%
2008	2,027,282,923	17,933,082,101	11.3%	0.1%	11.4%	11.2%
2009	1,851,141,291	16,138,297,986	11.5%	0.1%	11.6%	11.4%
2010	1,893,835,664	16,211,722,083	11.7%	0.2%	11.9%	11.7%
2011	1,937,858,719	15,701,081,762	12.3%	0.3%	12.6%	12.4%
2012	1,788,791,765	13,991,348,400	12.8%	0.5%	13.3%	13.1%
2013	1,569,588,875	12,460,302,447	12.6%	0.8%	13.4%	13.2%
2014	1,193,251,703	9,603,226,892	12.4%	1.4%	13.8%	13.6%
2015	446,725,887	4,368,013,325	10.2%	3.5%	13.7%	13.5%

[1] Data Source: NCCI's Financial Data Collection Call 19—Countrywide Loss Adjustment Expense Information using private carrier only data.
[2] Underlying paid DCCE-to-Loss development detail is found on Page 14 of 29.

2016 COUNTRYWIDE LOSS ADJUSTMENT EXPENSE REVIEW—EVALUATED AS OF 12/31/2015

SUMMARY OF DEVELOPMENT FACTORS
DCCE-to-LOSS—PAID DEVELOPMENT

Multiplicative-DCCE-Paid Development

AY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
1996	-	-	1.053	1.025	1.013	1.000	1.000	1.012	1.000
1997	-	1.093	1.036	1.024	1.012	1.012	1.000	1.000	1.000
1998	1.241	1.096	1.012	1.024	1.024	1.012	1.011	1.011	1.000
1999	1.263	1.068	1.051	1.012	1.012	1.012	1.012	1.000	1.012
2000	1.241	1.127	1.063	1.035	1.023	1.011	1.011	1.000	1.000
2001	1.305	1.118	1.059	1.034	1.022	1.011	1.000	1.000	1.000
2002	1.328	1.111	1.056	1.031	1.010	1.010	1.000	1.010	1.000
2003	1.294	1.080	1.042	1.020	1.010	1.000	1.000	1.000	1.000
2004	1.308	1.094	1.054	1.021	1.000	1.000	1.011	1.000	1.000
2005	1.286	1.090	1.031	1.010	1.010	1.010	1.010	1.000	1.000
2006	1.268	1.078	1.021	1.020	1.010	1.000	1.000	1.000	1.000
2007	1.231	1.053	1.030	1.020	1.009	1.000	1.000	1.009	-
2008	1.179	1.051	1.028	1.009	1.000	1.009	1.000	-	-
2009	1.198	1.049	1.018	1.009	1.000	1.009	-	-	-
2010	1.238	1.047	1.018	1.009	1.009	-	-	-	-
2011	1.213	1.053	1.017	1.016	-	-	-	-	-
2012	1.202	1.050	1.024	-	-	-	-	-	-
2013	1.200	1.050	-	-	-	-	-	-	-
2014	1.214	-	-	-	-	-	-	-	-

Avgs	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
2yr.	1.207	1.050	1.021	1.013	1.005	1.009	1.000	1.005	1.000
3yr.	1.205	1.051	1.020	1.011	1.003	1.006	1.000	1.003	1.000
4yr.	1.207	1.050	1.019	1.011	1.005	1.005	1.003	1.002	1.000
5yr.	1.213	1.050	1.021	1.013	1.006	1.006	1.004	1.002	1.000
Sel.	1.207	1.050	1.021	1.013	1.005	1.009	1.000	1.005	1.000

Valuation Date	Paid DCCE	10th/Ult. Loss	10th/Ult. Factor DCCE-to-Loss
12/31/06	1.173	1.201	0.977
12/31/07	1.175	1.210	0.971
12/31/08	1.193	1.194	0.999
12/31/09	1.165	1.167	0.998
12/31/10	1.163	1.167	0.997
12/31/11	1.178	1.208	0.975
12/31/12	1.137	1.171	0.971
12/31/13	1.169	1.198	0.976
12/31/14	1.198	1.187	1.009
12/31/15	1.198	1.183	1.013
		Selected	0.985

Additive-DCCE-Paid Development

AY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
1996	-	-	0.004	0.002	0.001	0.000	0.000	0.001	0.000
1997	-	0.007	0.003	0.002	0.001	0.001	0.000	0.000	0.000
1998	0.014	0.007	0.001	0.002	0.002	0.001	0.001	0.001	0.000
1999	0.015	0.005	0.004	0.001	0.001	0.001	0.001	0.000	0.001
2000	0.014	0.009	0.005	0.003	0.002	0.001	0.001	0.000	0.000
2001	0.018	0.009	0.005	0.003	0.002	0.001	0.000	0.000	0.000
2002	0.020	0.009	0.005	0.003	0.001	0.001	0.000	0.001	0.000
2003	0.020	0.007	0.004	0.002	0.001	0.000	0.000	0.000	0.000
2004	0.020	0.008	0.005	0.002	0.000	0.000	0.001	0.000	0.000
2005	0.020	0.008	0.003	0.001	0.001	0.001	0.001	0.000	0.000
2006	0.019	0.007	0.002	0.002	0.001	0.000	0.000	0.000	0.000
2007	0.018	0.005	0.003	0.002	0.001	0.000	0.000	0.001	-
2008	0.015	0.005	0.003	0.001	0.000	0.001	0.000	-	-
2009	0.017	0.005	0.002	0.001	0.000	0.001	-	-	-
2010	0.020	0.005	0.002	0.001	0.001	-	-	-	-
2011	0.020	0.006	0.002	0.002	-	-	-	-	-
2012	0.020	0.006	0.003	-	-	-	-	-	-
2013	0.020	0.006	-	-	-	-	-	-	-
2014	0.022	-	-	-	-	-	-	-	-

Avgs	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
2yr.	0.021	0.006	0.003	0.002	0.001	0.001	0.000	0.001	0.000
3yr.	0.021	0.006	0.002	0.001	0.000	0.001	0.000	0.000	0.000
4yr.	0.021	0.006	0.002	0.001	0.001	0.001	0.000	0.000	0.000
5yr.	0.020	0.006	0.002	0.001	0.001	0.001	0.000	0.000	0.000
Sel.	0.021	0.006	0.003	0.002	0.001	0.001	0.000	0.001	0.000

Data Source: NCCI's Financial Data Collection Call 19—Countrywide Loss Adjustment Expense Information using private carrier only data.

NATIONAL COUNCIL ON COMPENSATION INSURANCE

2016 COUNTRYWIDE LOSS ADJUSTMENT EXPENSE REVIEW—EVALUATED AS OF 12/31/2015

Analysis Based on Private Carrier Data
DCCE—MULTIPLICATIVE INCURRED RATIO ANALYSIS—Excluding Large Deductible Policies

AY	(1) Incurred DCCE [1]	(2) Incurred Losses [1]	(3) = (2) / (1) Incurred DCCE Ratio	(4) Cumulative Incurred DCCE-to-Loss Multiplicative Dev't Factors [2]	(5)=(3)x(4) Estimated Incurred DCCE Ratio Developed to a 10th Report	(6)=(5)x10th/Ult. Estimated Ultimate DCCE Ratio [2]
2006	1,956,163,469	18,735,552,848	10.4%	NA	10.4%	10.4%
2007	2,132,841,058	20,351,592,093	10.5%	0.998	10.5%	10.5%
2008	2,308,358,817	21,303,544,564	10.8%	0.998	10.8%	10.8%
2009	2,188,609,682	19,702,331,708	11.1%	0.998	11.1%	11.1%
2010	2,351,351,741	20,414,268,897	11.5%	1.004	11.5%	11.5%
2011	2,494,685,574	20,892,454,238	11.9%	1.006	12.0%	12.0%
2012	2,667,821,326	20,695,172,686	12.9%	1.006	13.0%	13.0%
2013	2,723,909,763	21,366,020,786	12.7%	1.011	12.8%	12.8%
2014	2,882,663,523	22,068,374,359	13.1%	1.024	13.4%	13.4%
2015	2,861,863,159	23,203,322,115	12.3%	1.044	12.8%	12.8%

Analysis Based on Private Carrier Data
DCCE—ADDITIVE INCURRED RATIO ANALYSIS—Excluding Large Deductible Policies

AY	(1) Incurred DCCE [1]	(2) Incurred Losses [1]	(3) = (2) / (1) Incurred DCCE Ratio	(4) Cumulative Incurred DCCE-to-Loss Additive Dev't Factors [2]	(5)=(3)+(4) Estimated Incurred DCCE Ratio Developed to a 10th Report	(6)=(5)x10th/Ult. Estimated Ultimate DCCE Ratio [2]
2006	1,956,163,469	18,735,552,848	10.4%	NA	10.4%	10.4%
2007	2,132,841,058	20,351,592,093	10.5%	0.0%	10.5%	10.5%
2008	2,308,358,817	21,303,544,564	10.8%	0.0%	10.8%	10.8%
2009	2,188,609,682	19,702,331,708	11.1%	0.0%	11.1%	11.1%
2010	2,351,351,741	20,414,268,897	11.5%	0.1%	11.6%	11.6%
2011	2,494,685,574	20,892,454,238	11.9%	0.1%	12.0%	12.0%
2012	2,667,821,326	20,695,172,686	12.9%	0.1%	13.0%	13.0%
2013	2,723,909,763	21,366,020,786	12.7%	0.2%	12.9%	12.9%
2014	2,882,663,523	22,068,374,359	13.1%	0.4%	13.5%	13.5%
2015	2,861,863,159	23,203,322,115	12.3%	0.6%	12.9%	12.9%

[1] Data Source: NCCI's Financial Data Collection Call 19—Countrywide Loss Adjustment Expense Information using private carrier only data.
[2] Underlying incurred DCCE-to-Loss development detail is found on Page 16 of 29.

2016 COUNTRYWIDE LOSS ADJUSTMENT EXPENSE REVIEW—EVALUATED AS OF 12/31/2015

SUMMARY OF DEVELOPMENT FACTORS
DCCE-to-LOSS—INCURRED DEVELOPMENT

Multiplicative-DCCE-Incurred Development

AY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
1996	-	-	1.024	0.977	0.988	0.976	0.988	1.013	1.000
1997	-	1.034	0.989	0.977	0.988	1.012	1.024	0.988	1.012
1998	0.966	1.024	0.976	0.988	1.012	1.000	1.012	1.024	1.012
1999	1.023	0.988	0.976	1.025	0.988	1.012	1.024	1.012	1.000
2000	0.977	0.977	1.024	1.000	1.000	1.023	1.023	1.000	1.011
2001	0.977	1.012	1.035	1.000	1.022	1.033	1.000	1.000	1.000
2002	1.000	1.011	1.022	1.032	1.021	1.000	1.000	1.000	1.000
2003	0.989	1.033	1.032	1.030	0.990	1.010	1.000	0.990	1.000
2004	1.033	1.011	1.042	1.010	1.010	1.000	0.990	1.000	0.990
2005	1.042	1.000	1.010	1.010	0.990	1.000	1.010	1.000	1.000
2006	1.053	1.010	0.990	1.000	0.990	1.010	1.000	1.010	1.000
2007	1.051	1.000	1.000	0.990	1.009	0.991	1.010	1.000	-
2008	1.010	1.019	1.000	0.991	0.991	1.019	0.991	-	-
2009	1.038	1.009	0.982	0.991	1.000	1.009	-	-	-
2010	1.000	0.991	1.000	1.009	1.018	-	-	-	-
2011	1.018	1.017	1.009	1.017	-	-	-	-	-
2012	1.042	1.024	1.032	-	-	-	-	-	-
2013	1.025	1.024	-	-	-	-	-	-	-
2014	1.016	-	-	-	-	-	-	-	-

Avgs	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
2yr.	1.021	1.024	1.021	1.013	1.009	1.014	1.001	1.005	1.000
3yr.	1.028	1.022	1.014	1.006	1.003	1.006	1.000	1.003	0.997
4yr.	1.025	1.014	1.006	1.002	1.005	1.007	1.003	1.003	0.998
5yr.	1.020	1.013	1.005	1.000	1.002	1.006	1.000	1.000	0.998
Sel.	1.020	1.013	1.005	1.000	1.002	1.006	1.000	1.000	0.998

Valuation Date	Incurred DCCE	10th/Ult. Loss	10th/Ult. Factor DCCE-to-Loss
12/31/06	1.094	1.054	1.038
12/31/07	1.142	1.094	1.044
12/31/08	1.129	1.058	1.067
12/31/09	1.049	1.026	1.022
12/31/10	1.051	1.033	1.017
12/31/11	1.035	1.042	0.993
12/31/12	1.013	1.016	0.997
12/31/13	1.044	1.026	1.018
12/31/14	1.034	1.029	1.005
12/31/15	1.037	1.026	1.011
		Selected	1.000

Additive-DCCE-Incurred Development

AY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
1996	-	-	0.002	-0.002	-0.001	-0.002	-0.001	0.001	0.000
1997	-	0.003	-0.001	-0.002	-0.001	0.001	0.002	-0.001	0.001
1998	-0.003	0.002	-0.002	-0.001	0.001	0.000	0.001	0.002	0.001
1999	0.002	-0.001	-0.002	0.002	-0.001	0.001	0.002	0.001	0.000
2000	-0.002	-0.002	0.002	0.000	0.000	0.002	0.002	0.000	0.001
2001	-0.002	0.001	0.003	0.000	0.002	0.003	0.000	0.000	0.000
2002	0.000	0.001	0.002	0.003	0.002	0.000	0.000	0.000	0.000
2003	-0.001	0.003	0.003	0.003	-0.001	0.001	0.000	-0.001	0.000
2004	0.003	0.001	0.004	0.001	0.001	0.000	-0.001	0.000	-0.001
2005	0.004	0.000	0.001	0.001	-0.001	0.000	0.001	0.000	0.000
2006	0.005	0.001	-0.001	0.000	-0.001	0.001	0.000	0.001	0.000
2007	0.005	0.000	0.000	-0.001	0.001	-0.001	0.001	0.000	-
2008	0.001	0.002	0.000	-0.001	-0.001	0.002	-0.001	-	-
2009	0.004	0.001	-0.002	-0.001	0.000	0.001	-	-	-
2010	0.000	-0.001	0.000	0.001	0.002	-	-	-	-
2011	0.002	0.002	0.001	0.002	-	-	-	-	-
2012	0.005	0.003	0.004	-	-	-	-	-	-
2013	0.003	0.003	-	-	-	-	-	-	-
2014	0.002	-	-	-	-	-	-	-	-

Avgs	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
2yr.	0.003	0.003	0.003	0.002	0.001	0.002	0.000	0.001	0.000
3yr.	0.003	0.003	0.002	0.001	0.000	0.001	0.000	0.000	0.000
4yr.	0.003	0.002	0.001	0.000	0.001	0.001	0.000	0.000	0.000
5yr.	0.002	0.002	0.001	0.000	0.000	0.001	0.000	0.000	0.000
Sel.	0.002	0.002	0.001	0.000	0.000	0.001	0.000	0.000	0.000

Data Source: NCCI's Financial Data Collection Call 19—Countrywide Loss Adjustment Expense Information using private carrier only data.

NATIONAL COUNCIL ON COMPENSATION INSURANCE
2016 COUNTRYWIDE ANNUAL LOSS ADJUSTMENT EXPENSE REVIEW
Calendar Year 2015 DCCE Ratios and Relativities by State
Excluding State Funds

State	(1) CY 2015 Paid Losses (000s)	(2) CY 2015 Paid DCCE (000s)	(3) DCCE Ratio (2) / (1)	(4) DCCE Relativity [1]
Alabama	168,671	19,734	11.7%	0.914
Alaska	133,592	12,009	9.0%	0.703
Arizona	422,579	44,496	10.5%	0.820
Arkansas	105,979	11,831	11.2%	0.875
California	4,409,396	873,244	19.8%	1.547
Colorado	207,071	24,080	11.6%	0.906
Connecticut	495,618	47,279	9.5%	0.742
Delaware	111,109	15,473	13.9%	1.086
DC	71,302	7,277	10.2%	0.797
Florida	1,287,847	166,112	12.9%	1.008
Georgia	685,653	82,256	12.0%	0.938
Hawaii	101,586	10,321	10.2%	0.797
Idaho	72,708	5,570	7.7%	0.602
Illinois	1,433,978	163,826	11.4%	0.891
Indiana	395,351	36,688	9.3%	0.727
Iowa	383,640	30,807	8.0%	0.625
Kansas	205,878	22,288	10.8%	0.844
Kentucky	257,988	30,671	11.9%	0.930
Louisiana	336,861	43,720	13.0%	1.016
Maine	133,386	7,896	5.9%	0.461
Maryland	386,338	39,990	10.4%	0.813
Massachusetts	643,986	72,333	11.2%	0.875
Michigan	498,497	53,851	10.8%	0.844
Minnesota	473,075	52,945	11.2%	0.875
Mississippi	173,105	23,463	13.6%	1.063
Missouri	381,421	47,656	12.5%	0.977
Montana	62,641	3,888	6.2%	0.484
Nebraska	192,112	15,530	8.1%	0.633
Nevada	177,508	14,706	8.3%	0.648
New Hampshire	122,432	9,978	8.1%	0.633
New Jersey	1,114,044	173,802	15.6%	1.219
New Mexico	89,986	9,474	10.5%	0.820
New York	1,629,560	164,511	10.1%	0.789
North Carolina	717,096	70,149	9.8%	0.766
Oklahoma	254,714	33,797	13.3%	1.039
Oregon	123,000	14,265	11.6%	0.906
Pennsylvania	1,351,694	155,013	11.5%	0.898
Rhode Island	40,078	4,568	11.4%	0.891
South Carolina	370,700	44,280	11.9%	0.930
South Dakota	86,389	6,289	7.3%	0.570
Tennessee	406,915	48,933	12.0%	0.938
Texas	654,965	95,845	14.6%	1.141
Utah	78,282	9,421	12.0%	0.938
Vermont	114,360	7,574	6.6%	0.516
Virginia	546,765	49,227	9.0%	0.703
West Virginia	127,029	19,415	15.3%	1.195
Wisconsin	1,025,413	81,643	8.0%	0.625
Countrywide	23,262,298	2,978,124	12.8%	1.000

Source: 2015 NAIC Annual Statement Data

[1] State-specific ratio from column (3) divided by the Countrywide ratio from column (3).

2016 COUNTRYWIDE ANNUAL LOSS ADJUSTMENT EXPENSE REVIEW

Analysis Based on Private Carrier Data—Adjusted for Large Deductible Policies
Current and Historical Selected Ultimate AOE-to-Loss Ratios by Accident Year

AY	Ultimate Paid AOE-to-Loss Ratios—Selected Based on Projections as of:					
	@12/31/2010	@12/31/2011	@12/31/2012	@12/31/2013	@12/31/2014	@12/31/2015
2006	8.3%	8.6%	7.9%	7.9%	7.9%	7.9%
2007	8.2%	8.5%	7.9%	7.8%	7.8%	7.6%
2008	7.4%	7.7%	7.1%	7.0%	7.0%	6.8%
2009	7.5%	7.8%	7.6%	7.4%	7.3%	7.3%
2010	6.7%	7.3%	7.1%	7.0%	7.0%	7.0%
2011		6.5%	6.6%	6.6%	6.6%	6.6%
2012			7.1%	7.2%	6.9%	6.9%
2013				7.4%	7.4%	7.4%
2014					6.9%	7.5%
2015						7.2%

AY	Ultimate Incurred AOE-to-Loss Ratios—Selected Based on Projections as of:					
	@12/31/2010	@12/31/2011	@12/31/2012	@12/31/2013	@12/31/2014	@12/31/2015
2006	7.7%	8.0%	7.7%	7.7%	7.5%	7.4%
2007	7.7%	8.0%	7.7%	7.7%	7.5%	7.4%
2008	7.4%	7.5%	7.1%	7.0%	6.8%	6.6%
2009	7.7%	7.8%	7.7%	7.5%	7.2%	7.0%
2010	8.1%	7.7%	7.5%	7.3%	6.9%	6.8%
2011		7.4%	7.3%	7.1%	6.7%	6.6%
2012			7.6%	7.4%	7.0%	6.8%
2013				7.8%	7.4%	7.3%
2014					7.1%	7.4%
2015						7.1%

AY	Average Ultimate Paid and Incurred AOE-to-Loss Ratios—Selected Based on Projections as of:					
	@12/31/2010	@12/31/2011	@12/31/2012	@12/31/2013	@12/31/2014	@12/31/2015
2006	8.0%	8.3%	7.8%	7.8%	7.7%	7.7%
2007	8.0%	8.3%	7.8%	7.8%	7.7%	7.5%
2008	7.4%	7.6%	7.1%	7.0%	6.9%	6.7%
2009	7.6%	7.8%	7.7%	7.5%	7.3%	7.2%
2010	7.4%	7.5%	7.3%	7.2%	7.0%	6.9%
2011		7.0%	7.0%	6.9%	6.7%	6.6%
2012			7.4%	7.3%	7.0%	6.9%
2013				7.6%	7.4%	7.4%
2014					7.0%	7.5%
2015						7.2%

Data Source: NCCI's Financial Data Collection Call 19—Countrywide Loss Adjustment Expense Information using private carrier only data.

This exhibit should not be used to calculate development. The ultimate estimates for the accident years above change across valuations due to actual emergence, modified development selections, and data corrections.

NATIONAL COUNCIL ON COMPENSATION INSURANCE

2016 COUNTRYWIDE LOSS ADJUSTMENT EXPENSE REVIEW—EVALUATED AS OF 12/31/2015

Analysis Based on Private Carrier Data
AOE—PAID DOLLAR ANALYSIS—Adjusted for Large Deductible Policies

	(1)	(2) Cumulative Paid AOE Development Factors [2]	(3)=(1)x(2) Estimated Paid AOE Developed to a 10th Report	(4)	(5) Cumulative Paid Loss Development Factors [2]	(6) Estimated Paid Losses Developed to a 10th Report	(7)=(3)/(6)x10th/Ult. Estimated Ultimate AOE Ratio [2]
AY	Paid AOE [1]			Paid Losses [1]			
2006	2,046,798,573	NA	2,046,798,573	16,681,992,728	NA	16,681,992,728	7.9% (a)
2007	2,067,234,470	1.014	2,096,175,753	17,942,605,670	1.018	18,265,572,572	7.6% (b)
2008	1,923,719,890	1.032	1,985,278,926	18,511,839,002	1.040	19,252,312,562	6.8% (c)
2009	1,817,056,082	1.055	1,916,994,167	16,512,844,527	1.069	17,652,230,799	7.3% (d)
2010	1,748,437,542	1.089	1,904,048,483	16,487,158,893	1.111	18,317,233,530	7.0% (e)
2011	1,635,385,943	1.134	1,854,527,659	15,992,789,918	1.172	18,743,549,784	6.6% (f)
2012	1,565,023,065	1.192	1,865,507,493	14,224,817,169	1.274	18,122,417,073	6.9% (g)
2013	1,575,532,977	1.297	2,043,466,271	12,649,758,572	1.464	18,519,246,549	7.4% (h)
2014	1,372,266,462	1.495	2,051,538,361	9,720,050,150	1.909	18,555,575,736	7.5% (i)
2015	884,103,762	2.256	1,994,538,087	4,407,917,806	4.219	18,597,005,224	7.2% (j)

[1] Data Source: NCCI's Financial Data Collection Call 19—Countrywide Loss Adjustment Expense Information using private carrier only data.

[2] Underlying link ratio detail is found on Page 20 of 29.

Adjusted for Impact of Large Deductibles

(a) (Col.3/Col.6 x (10th/Ult.) + 0.008) x 0.65
(b) (Col.3/Col.6 x (10th/Ult.) + 0.009) x 0.67
(c) (Col.3/Col.6 x (10th/Ult.) + 0.008) x 0.67
(d) (Col.3/Col.6 x (10th/Ult.) + 0.008) x 0.68
(e) (Col.3/Col.6 x (10th/Ult.) + 0.007) x 0.69
(f) (Col.3/Col.6 x (10th/Ult.) + 0.005) x 0.69
(g) (Col.3/Col.6 x (10th/Ult.) + 0.005) x 0.70
(h) (Col.3/Col.6 x (10th/Ult.) + 0.004) x 0.70
(i) (Col.3/Col.6 x (10th/Ult.) + 0.005) x 0.70
(j) (Col.3/Col.6 x (10th/Ult.) + 0.005) x 0.70

2016 COUNTRYWIDE LOSS ADJUSTMENT EXPENSE REVIEW—EVALUATED AS OF 12/31/2015

SUMMARY OF DEVELOPMENT FACTORS
AOE—PAID DEVELOPMENT

Paid AOE

AY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
1996	-	-	1.073	1.041	1.033	1.015	1.018	1.015	1.015
1997	-	1.107	1.081	1.035	1.026	1.026	1.024	1.016	1.016
1998	1.345	1.127	1.028	1.048	1.042	1.029	1.028	1.020	1.017
1999	1.461	1.163	1.050	1.068	1.044	1.030	1.026	1.019	1.013
2000	1.593	1.140	1.101	1.070	1.039	1.032	1.025	1.017	1.011
2001	1.428	1.182	1.092	1.068	1.049	1.035	1.023	1.017	1.017
2002	1.453	1.145	1.099	1.051	1.040	1.027	1.020	1.017	1.014
2003	1.441	1.136	1.078	1.053	1.031	1.023	1.017	1.012	1.011
2004	1.365	1.148	1.081	1.047	1.031	1.022	1.019	1.012	1.010
2005	1.383	1.160	1.072	1.045	1.030	1.029	1.021	1.013	1.013
2006	1.487	1.131	1.062	1.050	1.042	1.027	1.020	1.018	1.015
2007	1.460	1.137	1.073	1.057	1.038	1.025	1.023	1.018	-
2008	1.425	1.150	1.085	1.056	1.043	1.029	1.020	-	-
2009	1.402	1.158	1.092	1.051	1.037	1.034	-	-	-
2010	1.461	1.135	1.089	1.051	1.045	-	-	-	-
2011	1.450	1.152	1.085	1.050	-	-	-	-	-
2012	1.487	1.150	1.090	-	-	-	-	-	-
2013	1.481	1.156	-	-	-	-	-	-	-
2014	1.537	-	-	-	-	-	-	-	-

Avgs	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
2 yr.	1.509	1.153	1.088	1.051	1.041	1.032	1.022	1.018	1.014
3 yr.	1.502	1.153	1.088	1.051	1.042	1.029	1.021	1.016	1.013
4 yr.	1.489	1.148	1.089	1.052	1.041	1.029	1.021	1.015	1.012
5 yr.	1.483	1.150	1.088	1.053	1.041	1.029	1.021	1.015	1.013
Sel.	1.509	1.153	1.088	1.051	1.041	1.032	1.022	1.018	1.014

Valuation Date	Paid AOE	10th/Ult. Loss	10th/Ult. Factor AOE-to-Loss
12/31/06	1.053	1.239	0.850
12/31/07	1.118	1.242	0.900
12/31/08	1.100	1.214	0.906
12/31/09	1.044	1.204	0.867
12/31/10	1.134	1.169	0.970
12/31/11	1.170	1.245	0.940
12/31/12	1.167	1.221	0.956
12/31/13	1.110	1.252	0.887
12/31/14	1.087	1.231	0.883
12/31/15	1.071	1.214	0.882
		Selected	0.915

Paid Losses (for use with AOE)

AY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
1996	-	-	1.152	1.089	1.039	1.036	1.023	1.019	1.018
1997	-	1.317	1.154	1.068	1.049	1.036	1.026	1.020	1.016
1998	2.286	1.317	1.133	1.078	1.057	1.040	1.030	1.022	1.021
1999	2.276	1.321	1.156	1.094	1.059	1.041	1.032	1.024	1.020
2000	2.337	1.351	1.164	1.093	1.060	1.038	1.032	1.025	1.019
2001	2.239	1.344	1.162	1.092	1.060	1.048	1.032	1.024	1.020
2002	2.202	1.318	1.150	1.083	1.060	1.039	1.031	1.021	1.020
2003	2.141	1.306	1.143	1.087	1.054	1.039	1.029	1.024	1.019
2004	2.080	1.287	1.132	1.079	1.050	1.034	1.027	1.022	1.018
2005	2.065	1.291	1.139	1.080	1.050	1.038	1.030	1.023	1.017
2006	2.071	1.294	1.141	1.079	1.056	1.041	1.032	1.020	1.019
2007	2.183	1.308	1.146	1.086	1.060	1.044	1.028	1.023	-
2008	2.156	1.308	1.152	1.093	1.057	1.040	1.027	-	-
2009	2.184	1.321	1.160	1.092	1.057	1.037	-	-	-
2010	2.184	1.320	1.156	1.090	1.052	-	-	-	-
2011	2.194	1.310	1.153	1.084	-	-	-	-	-
2012	2.198	1.309	1.144	-	-	-	-	-	-
2013	2.215	1.298	-	-	-	-	-	-	-
2014	2.205	-	-	-	-	-	-	-	-

Avgs	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
2 yr.	2.210	1.304	1.149	1.087	1.055	1.039	1.028	1.022	1.018
3 yr.	2.206	1.306	1.151	1.089	1.055	1.040	1.029	1.022	1.018
4 yr.	2.203	1.309	1.153	1.090	1.057	1.041	1.029	1.022	1.018
5 yr.	2.199	1.312	1.153	1.089	1.056	1.040	1.029	1.022	1.019
Sel.	2.210	1.304	1.149	1.087	1.055	1.039	1.028	1.022	1.018

Data Source: NCCI's Financial Data Collection Call 19—Countrywide Loss Adjustment Expense Information using private carrier only data.

NATIONAL COUNCIL ON COMPENSATION INSURANCE

2016 COUNTRYWIDE LOSS ADJUSTMENT EXPENSE REVIEW—EVALUATED AS OF 12/31/2015

Analysis Based on Private Carrier Only Data

AOE—INCURRED DOLLAR ANALYSIS—Adjusted for Large Deductible Policies

AY	(1) Incurred AOE [1]	(2) Cumulative Incurred AOE Development Factors [2]	(3)=(1)x(2) Estimated Incurred AOE Developed to a 10th Report	(4) Incurred Losses [1]	(5) Cumulative Incurred Loss Development Factors [2]	(6) Estimated Incurred Losses Developed to a 10th Report	(7)=(3)/(6)x10th/Ult. Estimated Ultimate AOE Ratio [2]	
2006	2,147,847,049	NA	2,147,847,049	20,211,774,473	NA	20,211,774,473	7.4%	(a)
2007	2,182,124,984	1.006	2,195,217,734	21,826,409,498	1.000	21,826,409,498	7.4%	(b)
2008	2,051,407,452	1.014	2,080,127,156	23,014,216,150	0.999	22,991,201,934	6.6%	(c)
2009	1,970,041,961	1.023	2,015,352,926	21,135,011,989	1.002	21,177,282,013	7.0%	(d)
2010	1,949,678,379	1.033	2,014,017,766	21,801,520,969	1.002	21,845,124,011	6.8%	(e)
2011	1,930,201,409	1.045	2,017,060,472	22,453,784,399	1.001	22,476,238,183	6.6%	(f)
2012	1,948,010,849	1.046	2,037,619,348	22,401,478,432	0.989	22,155,062,169	6.8%	(g)
2013	2,187,618,148	1.053	2,303,561,910	23,355,252,299	0.989	23,098,344,524	7.3%	(h)
2014	2,279,243,815	1.044	2,379,530,543	24,167,908,892	0.980	23,684,550,714	7.4%	(i)
2015	2,398,583,967	0.988	2,369,800,959	25,581,177,104	0.964	24,660,254,728	7.1%	(j)

[1] Data Source: NCCI's Financial Data Collection Call 19—Countrywide Loss Adjustment Expense Information using private carrier only data.

[2] Underlying link ratio detail is found on Page 22 of 29.

Adjusted for Impact of Large Deductibles

(a) (Col.3/Col.6 x (10th/Ult.) + 0.008) x 0.65
(b) (Col.3/Col.6 x (10th/Ult.) + 0.009) x 0.67
(c) (Col.3/Col.6 x (10th/Ult.) + 0.008) x 0.67
(d) (Col.3/Col.6 x (10th/Ult.) + 0.008) x 0.68
(e) (Col.3/Col.6 x (10th/Ult.) + 0.007) x 0.69
(f) (Col.3/Col.6 x (10th/Ult.) + 0.005) x 0.69
(g) (Col.3/Col.6 x (10th/Ult.) + 0.005) x 0.70
(h) (Col.3/Col.6 x (10th/Ult.) + 0.004) x 0.70
(i) (Col.3/Col.6 x (10th/Ult.) + 0.005) x 0.70
(j) (Col.3/Col.6 x (10th/Ult.) + 0.005) x 0.70

NATIONAL COUNCIL ON COMPENSATION INSURANCE

2016 COUNTRYWIDE LOSS ADJUSTMENT EXPENSE REVIEW—EVALUATED AS OF 12/31/2015

SUMMARY OF DEVELOPMENT FACTORS
AOE—INCURRED DEVELOPMENT

Incurred AOE

AY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
1996	-	-	1.020	0.993	1.013	1.009	1.006	1.011	1.013
1997	-	1.012	1.011	1.007	1.010	1.013	1.017	1.014	1.014
1998	1.035	0.998	0.981	1.003	1.018	1.026	1.024	1.028	1.008
1999	1.010	1.045	1.013	1.032	1.030	1.021	1.021	1.016	1.001
2000	1.097	1.034	1.030	1.047	1.028	1.018	1.020	1.005	1.004
2001	1.060	1.027	1.044	1.043	1.038	1.021	1.006	1.009	1.002
2002	0.987	1.031	1.049	1.023	1.014	1.011	1.006	1.002	1.008
2003	1.014	1.008	1.040	1.014	1.011	1.006	1.004	1.004	1.012
2004	0.930	1.014	1.013	1.010	1.010	1.001	1.009	1.017	1.003
2005	0.973	0.999	1.007	1.014	1.004	1.012	1.017	1.003	1.004
2006	0.933	1.006	1.008	1.005	1.017	1.017	1.005	1.008	1.005
2007	0.986	0.983	1.006	1.009	1.025	1.008	1.006	1.006	-
2008	0.986	1.007	1.005	1.004	1.008	1.006	1.006	-	-
2009	0.970	1.005	1.022	1.000	1.004	1.005	-	-	-
2010	0.930	0.987	1.008	0.995	1.005	-	-	-	-
2011	0.966	0.987	0.999	0.995	-	-	-	-	-
2012	0.931	0.983	1.000	-	-	-	-	-	-
2013	0.951	0.994	-	-	-	-	-	-	-
2014	0.950	-	-	-	-	-	-	-	-

Avgs	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
2 yr.	0.951	0.989	1.000	0.995	1.005	1.006	1.006	1.007	1.005
3 yr.	0.944	0.988	1.002	0.997	1.006	1.006	1.006	1.006	1.004
4 yr.	0.950	0.988	1.007	0.999	1.011	1.009	1.009	1.009	1.006
5 yr	0.946	0.991	1.007	1.001	1.012	1.010	1.009	1.008	1.006
Sel.	0.946	0.991	1.007	1.001	1.012	1.010	1.009	1.008	1.006

Incurred Losses (for use with AOE)

AY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
1996	-	-	0.983	0.995	0.986	1.003	1.006	1.009	1.007
1997	-	1.026	0.996	0.989	1.001	1.003	1.015	1.014	1.006
1998	1.081	1.034	0.994	1.017	1.015	1.020	1.015	1.012	1.013
1999	1.085	1.038	1.035	1.031	1.018	1.019	1.012	1.018	1.003
2000	1.095	1.045	1.054	1.026	1.021	1.011	1.019	1.007	1.001
2001	1.050	1.033	1.027	1.018	1.024	1.023	1.009	1.000	1.007
2002	1.011	1.007	1.015	1.013	1.008	1.005	1.000	1.006	1.001
2003	0.976	0.976	1.005	1.001	0.994	0.997	1.003	0.998	1.002
2004	0.949	0.972	0.984	0.982	0.988	0.994	1.000	0.999	1.001
2005	0.917	0.965	0.971	0.987	0.992	0.996	0.999	1.001	0.999
2006	0.940	0.966	0.984	0.984	0.993	0.995	1.001	0.997	0.998
2007	0.973	0.991	0.993	0.983	0.999	1.003	0.999	0.999	-
2008	1.008	1.002	0.998	0.992	0.998	1.003	1.014	-	-
2009	1.006	0.999	1.008	0.989	1.004	1.004	-	-	-
2010	1.004	1.000	1.006	0.991	1.002	-	-	-	-
2011	1.014	0.988	1.003	0.986	-	-	-	-	-
2012	0.964	0.985	0.987	-	-	-	-	-	-
2013	0.970	0.984	-	-	-	-	-	-	-
2014	0.970	-	-	-	-	-	-	-	-

Avgs	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
2 yr.	0.970	0.985	0.995	0.989	1.003	1.004	1.007	0.998	0.999
3 yr.	0.968	0.986	0.999	0.989	1.001	1.003	1.005	0.999	0.999
4 yr.	0.980	0.989	1.001	0.990	1.001	1.001	1.003	0.999	1.000
5 yr	0.984	0.991	1.000	0.988	0.999	1.000	1.003	0.999	1.000
Sel.	0.984	0.991	1.000	0.988	0.999	1.000	1.003	0.999	1.000

Valuation Date	Incurred AOE	10th/Ult. Loss	10th/Ult. Factor AOE-to-Loss
12/31/06	1.017	1.085	0.937
12/31/07	1.077	1.096	0.983
12/31/08	1.051	1.056	0.995
12/31/09	1.021	1.061	0.962
12/31/10	1.109	1.043	1.063
12/31/11	1.112	1.047	1.062
12/31/12	1.113	1.026	1.085
12/31/13	1.045	1.038	1.007
12/31/14	1.026	1.032	0.994
12/31/15	1.013	1.018	0.995
		Selected	1.000

Data Source: NCCI's Financial Data Collection Call 19—Countrywide Loss Adjustment Expense Information using private carrier only data.

NATIONAL COUNCIL ON COMPENSATION INSURANCE

2016 COUNTRYWIDE LOSS ADJUSTMENT EXPENSE REVIEW—EVALUATED AS OF 12/31/2015

Analysis Based on Private Carrier Data
AOE—MULTIPLICATIVE PAID RATIO ANALYSIS—Adjusted for Large Deductible Policies

| | (1) | (2) | (3) = (2) / (1) | (4) Cumulative Paid AOE-to-Loss Multiplicative Dev't | (5)=(3)x(4) Estimated Paid AOE Ratio Developed | (6)=(5)x10th/Ult. Estimated Ultimate AOE | |
AY	Paid AOE [1]	Paid Losses [1]	Paid AOE Ratio	Factors [2]	to a 10th Report	Ratio	
2006	2,046,798,573	16,681,992,728	12.3%	NA	12.3%	7.9%	(a)
2007	2,067,234,470	17,942,605,670	11.5%	0.992	11.4%	7.6%	(b)
2008	1,923,719,890	18,511,839,002	10.4%	0.988	10.3%	6.8%	(c)
2009	1,817,056,082	16,512,844,527	11.0%	0.980	10.8%	7.3%	(d)
2010	1,748,437,542	16,487,158,893	10.6%	0.976	10.3%	7.0%	(e)
2011	1,635,385,943	15,992,789,918	10.2%	0.960	9.8%	6.6%	(f)
2012	1,565,023,065	14,224,817,169	11.0%	0.924	10.2%	6.9%	(g)
2013	1,575,532,977	12,649,758,572	12.5%	0.871	10.9%	7.3%	(h)
2014	1,372,266,462	9,720,050,150	14.1%	0.766	10.8%	7.3%	(i)
2015	884,103,762	4,407,917,806	20.1%	0.528	10.6%	7.1%	(j)

Analysis Based on Private Carrier Data
AOE—ADDITIVE PAID RATIO ANALYSIS—Adjusted for Large Deductible Policies

| | (1) | (2) | (3) = (2) / (1) | (4) Cumulative Paid AOE-to-Loss Additive Dev't | (5)=(3)+(4) Estimated Paid AOE Ratio Developed | (6)=(5)x10th/Ult. Estimated Ultimate AOE | |
AY	Paid AOE [1]	Paid Losses [1]	Paid AOE Ratio	Factors [2]	to a 10th Report	Ratio	
2006	2,046,798,573	16,681,992,728	12.3%	NA	12.3%	7.9%	(a)
2007	2,067,234,470	17,942,605,670	11.5%	-0.1%	11.4%	7.6%	(b)
2008	1,923,719,890	18,511,839,002	10.4%	-0.2%	10.2%	6.8%	(c)
2009	1,817,056,082	16,512,844,527	11.0%	-0.3%	10.7%	7.2%	(d)
2010	1,748,437,542	16,487,158,893	10.6%	-0.4%	10.2%	6.9%	(e)
2011	1,635,385,943	15,992,789,918	10.2%	-0.6%	9.6%	6.4%	(f)
2012	1,565,023,065	14,224,817,169	11.0%	-1.1%	9.9%	6.7%	(g)
2013	1,575,532,977	12,649,758,572	12.5%	-1.9%	10.6%	7.1%	(h)
2014	1,372,266,462	9,720,050,150	14.1%	-3.8%	10.3%	6.9%	(i)
2015	884,103,762	4,407,917,806	20.1%	-11.2%	8.9%	6.0%	(j)

[1] Data Source: NCCI's Financial Data Collection Call 19—Countrywide Loss Adjustment Expense Information using private carrier only data.

[2] Underlying paid AOE-to-Loss development detail is found on Page 24 of 29.

Adjusted for Impact of Large Deductibles

(a) (Col.5 x (10th/Ult.) + 0.008) x 0.65
(b) (Col.5 x (10th/Ult.) + 0.009) x 0.67
(c) (Col.5 x (10th/Ult.) + 0.008) x 0.67
(d) (Col.5 x (10th/Ult.) + 0.008) x 0.68
(e) (Col.5 x (10th/Ult.) + 0.007) x 0.69
(f) (Col.5 x (10th/Ult.) + 0.005) x 0.69
(g) (Col.5 x (10th/Ult.) + 0.005) x 0.70
(h) (Col.5 x (10th/Ult.) + 0.004) x 0.70
(i) (Col.5 x (10th/Ult.) + 0.005) x 0.70
(j) (Col.5 x (10th/Ult.) + 0.005) x 0.70

NATIONAL COUNCIL ON COMPENSATION INSURANCE

2016 COUNTRYWIDE LOSS ADJUSTMENT EXPENSE REVIEW—EVALUATED AS OF 12/31/2015

SUMMARY OF DEVELOPMENT FACTORS
AOE-to-LOSS—PAID DEVELOPMENT

Multiplicative-AOE-Paid-Development

AY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
1996	-	-	0.950	0.955	0.992	0.984	1.023	0.992	1.000
1997	-	0.874	0.920	0.937	0.968	1.016	1.000	1.000	1.000
1998	0.649	0.896	0.928	0.967	1.017	0.992	1.000	1.000	0.992
1999	0.677	0.855	0.930	0.983	0.991	0.991	0.991	1.000	0.991
2000	0.629	0.853	0.960	0.992	0.983	1.000	0.991	0.991	0.991
2001	0.657	0.910	0.954	0.984	0.992	0.992	0.983	0.992	0.992
2002	0.661	0.861	0.951	0.964	0.977	0.992	0.992	0.992	0.992
2003	0.675	0.868	0.951	0.968	0.974	0.980	0.986	0.986	0.993
2004	0.667	0.898	0.957	0.968	0.980	0.980	0.985	1.000	0.992
2005	0.697	0.905	0.945	0.968	0.980	0.985	0.992	0.992	0.992
2006	0.703	0.880	0.930	0.975	0.978	0.985	0.993	1.000	0.992
2007	0.694	0.872	0.938	0.978	0.985	0.984	0.992	0.992	-
2008	0.677	0.881	0.946	0.967	0.983	0.991	0.991	-	-
2009	0.686	0.893	0.942	0.961	0.976	1.000	-	-	-
2010	0.702	0.871	0.938	0.959	0.992	-	-	-	-
2011	0.668	0.887	0.938	0.967	-	-	-	-	-
2012	0.690	0.874	0.947	-	-	-	-	-	-
2013	0.682	0.883	-	-	-	-	-	-	-
2014	0.695	-	-	-	-	-	-	-	-

Avgs	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
2yr.	0.689	0.879	0.943	0.963	0.984	0.996	0.992	0.996	0.992
3yr.	0.689	0.881	0.941	0.962	0.984	0.992	0.992	0.995	0.992
4yr.	0.684	0.879	0.941	0.964	0.984	0.990	0.992	0.996	0.992
5yr.	0.687	0.882	0.942	0.966	0.983	0.989	0.991	0.994	0.992
Sel.	0.689	0.879	0.943	0.963	0.984	0.996	0.992	0.996	0.992

Additive-AOE-Paid-Development

AY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
1996	-	-	-0.007	-0.006	-0.001	-0.002	0.003	-0.001	0.000
1997	-	-0.020	-0.011	-0.008	-0.004	0.002	0.000	0.000	0.000
1998	-0.073	-0.014	-0.009	-0.004	0.002	-0.001	0.000	0.000	-0.001
1999	-0.072	-0.021	-0.009	-0.002	-0.001	-0.001	-0.001	0.000	-0.001
2000	-0.083	-0.022	-0.005	-0.001	-0.002	0.000	-0.001	-0.001	-0.001
2001	-0.079	-0.013	-0.006	-0.002	-0.001	-0.001	-0.002	-0.001	-0.001
2002	-0.083	-0.023	-0.007	-0.005	-0.003	-0.001	-0.001	-0.001	-0.001
2003	-0.091	-0.025	-0.008	-0.005	-0.004	-0.003	-0.002	-0.002	-0.001
2004	-0.087	-0.018	-0.007	-0.005	-0.003	-0.003	-0.002	0.000	-0.001
2005	-0.077	-0.017	-0.009	-0.005	-0.003	-0.002	-0.001	-0.001	-0.001
2006	-0.080	-0.023	-0.012	-0.004	-0.003	-0.002	-0.001	0.000	-0.001
2007	-0.078	-0.023	-0.010	-0.003	-0.002	-0.002	-0.001	-0.001	-
2008	-0.075	-0.019	-0.007	-0.004	-0.002	-0.001	-0.001	-	-
2009	-0.071	-0.016	-0.008	-0.005	-0.003	0.000	-	-	-
2010	-0.062	-0.019	-0.008	-0.005	-0.001	-	-	-	-
2011	-0.070	-0.016	-0.008	-0.004	-	-	-	-	-
2012	-0.067	-0.019	-0.007	-	-	-	-	-	-
2013	-0.076	-0.019	-	-	-	-	-	-	-
2014	-0.071	-	-	-	-	-	-	-	-

Avgs	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
2yr.	-0.074	-0.019	-0.008	-0.005	-0.002	-0.001	-0.001	-0.001	-0.001
3yr.	-0.071	-0.018	-0.008	-0.005	-0.002	-0.001	-0.001	-0.001	-0.001
4yr.	-0.071	-0.018	-0.008	-0.005	-0.002	-0.001	-0.001	-0.001	-0.001
5yr.	-0.069	-0.018	-0.008	-0.004	-0.002	-0.001	-0.001	-0.001	-0.001
Sel.	-0.074	-0.019	-0.008	-0.005	-0.002	-0.001	-0.001	-0.001	-0.001

Valuation Date	Paid AOE	10th/Ult. Loss	10th/Ult. Factor AOE-to-Loss
12/31/06	1.053	1.239	0.850
12/31/07	1.118	1.242	0.900
12/31/08	1.100	1.214	0.906
12/31/09	1.044	1.204	0.867
12/31/10	1.134	1.169	0.970
12/31/11	1.170	1.245	0.940
12/31/12	1.167	1.221	0.956
12/31/13	1.110	1.252	0.887
12/31/14	1.087	1.231	0.883
12/31/15	1.071	1.214	0.882
		Selected	0.915

Data Source: NCCI's Financial Data Collection Call 19—Countrywide Loss Adjustment Expense Information using private carrier only data.

NATIONAL COUNCIL ON COMPENSATION INSURANCE

2016 COUNTRYWIDE LOSS ADJUSTMENT EXPENSE REVIEW—EVALUATED AS OF 12/31/2015

Analysis Based on Private Carrier Data
AOE—MULTIPLICATIVE INCURRED RATIO ANALYSIS—Adjusted for Large Deductible Policies

	(1)	(2)	(3) = (2) / (1)	(4) Cumulative Incurred AOE-to-Loss Multiplicative Dev't	(5)=(3)x(4) Estimated Incurred AOE Ratio Developed	(6)=(5)x10th/Ult. Estimated Ultimate AOE	
AY	Incurred AOE [1]	Incurred Losses [1]	Incurred AOE Ratio	Factors [2]	to a 10th Report	Ratio	
2006	2,147,847,049	20,211,774,473	10.6%	NA	10.6%	7.4%	(a)
2007	2,182,124,984	21,826,409,498	10.0%	1.005	10.1%	7.4%	(b)
2008	2,051,407,452	23,014,216,150	8.9%	1.012	9.0%	6.6%	(c)
2009	1,970,041,961	21,135,011,989	9.3%	1.017	9.5%	7.0%	(d)
2010	1,949,678,379	21,801,520,969	8.9%	1.028	9.1%	6.8%	(e)
2011	1,930,201,409	22,453,784,399	8.6%	1.041	9.0%	6.6%	(f)
2012	1,948,010,849	22,401,478,432	8.7%	1.051	9.1%	6.7%	(g)
2013	2,187,618,148	23,355,252,299	9.4%	1.059	10.0%	7.3%	(h)
2014	2,279,243,815	24,167,908,892	9.4%	1.063	10.0%	7.4%	(i)
2015	2,398,583,967	25,581,177,104	9.4%	1.044	9.8%	7.2%	(j)

Analysis Based on Private Carrier Data
AOE—ADDITIVE INCURRED RATIO ANALYSIS—Adjusted for Large Deductible Policies

	(1)	(2)	(3) = (2) / (1)	(4) Cumulative Incurred AOE-to-Loss Additive Dev't	(5)=(3)+(4) Estimated Incurred AOE Ratio Developed	(6)=(5)x10th/Ult. Estimated Ultimate AOE	
AY	Incurred AOE [1]	Incurred Losses [1]	Incurred AOE Ratio	Factors [2]	to a 10th Report	Ratio	
2006	2,147,847,049	20,211,774,473	10.6%	NA	10.6%	7.4%	(a)
2007	2,182,124,984	21,826,409,498	10.0%	0.1%	10.1%	7.4%	(b)
2008	2,051,407,452	23,014,216,150	8.9%	0.2%	9.1%	6.6%	(c)
2009	1,970,041,961	21,135,011,989	9.3%	0.3%	9.6%	7.1%	(d)
2010	1,949,678,379	21,801,520,969	8.9%	0.4%	9.3%	6.9%	(e)
2011	1,930,201,409	22,453,784,399	8.6%	0.5%	9.1%	6.6%	(f)
2012	1,948,010,849	22,401,478,432	8.7%	0.6%	9.3%	6.9%	(g)
2013	2,187,618,148	23,355,252,299	9.4%	0.7%	10.1%	7.4%	(h)
2014	2,279,243,815	24,167,908,892	9.4%	0.7%	10.1%	7.4%	(i)
2015	2,398,583,967	25,581,177,104	9.4%	0.5%	9.9%	7.3%	(j)

[1] Data Source: NCCI's Financial Data Collection Call 19—Countrywide Loss Adjustment Expense Information using private carrier only data.

[2] Underlying incurred AOE-to-Loss development detail is found on Page 26 of 29.

Adjusted for Impact of Large Deductibles
- (a) (Col.5 x (10th/Ult.) + 0.008) x 0.65
- (b) (Col.5 x (10th/Ult.) + 0.009) x 0.67
- (c) (Col.5 x (10th/Ult.) + 0.008) x 0.67
- (d) (Col.5 x (10th/Ult.) + 0.008) x 0.68
- (e) (Col.5 x (10th/Ult.) + 0.007) x 0.69
- (f) (Col.5 x (10th/Ult.) + 0.005) x 0.69
- (g) (Col.5 x (10th/Ult.) + 0.005) x 0.70
- (h) (Col.5 x (10th/Ult.) + 0.004) x 0.70
- (i) (Col.5 x (10th/Ult.) + 0.005) x 0.70
- (j) (Col.5 x (10th/Ult.) + 0.005) x 0.70

2016 COUNTRYWIDE LOSS ADJUSTMENT EXPENSE REVIEW—EVALUATED AS OF 12/31/2015

SUMMARY OF DEVELOPMENT FACTORS
AOE-to-LOSS—INCURRED DEVELOPMENT

Multiplicative-AOE-Incurred Development

AY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
1996	-	-	1.009	1.000	1.028	0.991	1.035	1.000	0.957
1997	-	1.009	0.972	0.962	0.991	1.036	1.000	1.000	1.009
1998	0.932	1.000	1.011	1.000	1.029	1.010	1.000	1.019	0.991
1999	0.969	1.022	0.990	0.990	1.021	1.000	1.010	1.000	1.000
2000	0.941	0.980	0.990	1.031	1.000	1.010	0.990	1.000	1.000
2001	0.990	1.021	1.032	1.020	1.010	1.000	0.990	1.010	0.990
2002	0.962	1.030	1.029	1.009	1.009	1.009	1.000	1.000	1.000
2003	1.036	1.009	1.035	1.017	1.017	1.008	0.992	1.000	1.017
2004	0.981	1.038	1.036	1.035	1.017	1.008	1.000	1.018	1.000
2005	1.039	1.037	1.045	1.026	1.008	1.009	1.018	1.009	1.009
2006	1.028	1.045	1.017	1.017	1.018	1.027	1.009	1.009	1.000
2007	1.019	1.019	1.018	1.019	1.029	1.009	1.009	1.000	-
2008	0.990	1.010	1.011	1.021	1.010	1.010	0.990	-	-
2009	0.954	1.010	1.020	1.010	1.000	1.000	-	-	-
2010	0.951	0.990	1.000	1.000	1.010	-	-	-	-
2011	0.960	1.000	1.000	1.000	-	-	-	-	-
2012	0.990	1.010	1.010	-	-	-	-	-	-
2013	1.000	1.010	-	-	-	-	-	-	-
2014	1.010	-	-	-	-	-	-	-	-

Avgs	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
2yr.	1.005	1.010	1.005	1.000	1.005	1.005	1.000	1.005	1.005
3yr.	1.000	1.007	1.003	1.003	1.007	1.006	1.003	1.006	1.003
4yr.	0.990	1.003	1.008	1.008	1.012	1.012	1.007	1.009	1.007
5yr.	0.982	1.004	1.008	1.010	1.013	1.011	1.005	1.007	1.005
Sel.	0.982	1.004	1.008	1.010	1.013	1.011	1.005	1.007	1.005

Valuation Date	Incurred AOE	10th/Ult. Loss	10th/Ult. Factor AOE-to-Loss
12/31/06	1.017	1.085	0.937
12/31/07	1.077	1.096	0.983
12/31/08	1.051	1.056	0.995
12/31/09	1.021	1.061	0.962
12/31/10	1.109	1.043	1.063
12/31/11	1.112	1.047	1.062
12/31/12	1.113	1.026	1.085
12/31/13	1.045	1.038	1.007
12/31/14	1.026	1.032	0.994
12/31/15	1.013	1.018	0.995
		Selected	1.000

Additive-AOE-Incurred Development

AY	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
1996	-	-	0.001	0.000	0.003	-0.001	0.004	0.000	-0.005
1997	-	0.001	-0.003	-0.004	-0.001	0.004	0.000	0.000	0.001
1998	-0.007	0.000	0.001	0.000	0.003	0.001	0.000	0.002	-0.001
1999	-0.003	0.002	-0.001	-0.001	0.002	0.000	0.001	0.000	0.000
2000	-0.006	-0.002	-0.001	0.003	0.000	0.001	-0.001	0.000	0.000
2001	-0.001	0.002	0.003	0.002	0.001	0.000	-0.001	0.001	-0.001
2002	-0.004	0.003	0.003	0.001	0.001	0.001	0.000	0.000	0.000
2003	0.004	0.001	0.004	0.002	0.002	0.001	-0.001	0.000	0.002
2004	-0.002	0.004	0.004	0.004	0.002	0.001	0.000	0.002	0.000
2005	0.004	0.004	0.005	0.003	0.001	0.001	0.002	0.001	0.001
2006	0.003	0.005	0.002	0.002	0.002	0.003	0.001	0.001	0.000
2007	0.002	0.002	0.002	0.002	0.003	0.001	0.001	0.000	-
2008	-0.001	0.001	0.001	0.002	0.001	0.001	-0.001	-	-
2009	-0.005	0.001	0.002	0.001	0.000	0.000	-	-	-
2010	-0.005	-0.001	0.000	0.000	0.001	-	-	-	-
2011	-0.004	0.000	0.000	0.000	-	-	-	-	-
2012	-0.001	0.001	0.001	-	-	-	-	-	-
2013	0.000	0.001	-	-	-	-	-	-	-
2014	0.001	-	-	-	-	-	-	-	-

Avgs	1/2	2/3	3/4	4/5	5/6	6/7	7/8	8/9	9/10
2yr.	0.001	0.001	0.001	0.000	0.001	0.001	0.000	0.001	0.001
3yr.	0.000	0.001	0.000	0.000	0.001	0.001	0.000	0.001	0.000
4yr.	-0.001	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001
5yr.	-0.002	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Sel.	-0.002	0.000	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Data Source: NCCI's Financial Data Collection Call 19—Countrywide Loss Adjustment Expense Information using private carrier only data.

2016 Loss Adjustment Expense Review—Large Deductible Adjustment for AOE

- AOE data from the IEE and Call #19 includes experience from large deductible policies

- NCCI calculates premium level indications excluding large deductible policy experience

- Starting in 1992, the ultimate AOE ratio was adjusted for the effect of large deductible policies by adjusting the expense provision to a full coverage basis, derivation on Page 28 of 29

- Additional AOE adjustments also include:
  - Carriers that require employers to reimburse for any AOE amounts below the large deductible threshold
  - Carriers that require employers who elect large deductible coverage to pay for a third party administrators to perform duties considered AOE on the IEE
  - Derivation on Page 29 of 29

NATIONAL COUNCIL ON COMPENSATION INSURANCE
2016 COUNTRYWIDE ANNUAL LOSS ADJUSTMENT EXPENSE REVIEW

Development of Factor for Adjusting and Other Expense (AOE)
Provision for Effect of Large Deductibles—Calendar Year 2015

A. PY 2014 STD Earned Premium Excluding Large Deductible Credits (000's)   31,673,072

B. PY 2014 STD Earned Premium Including Large Deductible Credits (000's)   23,589,071

C. Factor to Adjust for Impact of Large Deductibles   0.74
   [B / A]

D. General Expenses as a % of Standard Premium [1]   5.5%

E. Production Expense as a % of Standard Premium [1]   17.8%

F. Taxes as a % of Standard Premium [2]   2.9%

G. Profit and Contingency Provision as a % of Standard Premium [3]   2.9%

H. AOE as a % of Losses [4]   7.1%

I. DCCE as a % of Losses [4]   13.0%

J. Permissible Loss Ratio   0.590
   [(1-D-E-F-G) / (1+H+I)]

K. Permissible Loss Ratio Including DCCE and Loss Based Assessments   0.667
   [J x (1+I)]

L. AOE as a % of STD Premium   4.2%
   [H x J]

M. Factor to Adjust AOE for Impact of Large Deductibles   **0.70**
   [(1-E-F-G) x C - (D+L)] / K

Notes

[1] From 2015 Countrywide Expense Review with data evaluated as of 12/31/2014.

[2] Review of 2015 Countrywide Tax and Assessment Directory.

[3] Average approved P&C provision for all NCCI rate states (AZ, FL, ID, IA, IL, and IN) based on data @12/31/2014.

[4] From 2015 Countrywide LAE Review with data evaluated as of 12/31/2014.

NATIONAL COUNCIL ON COMPENSATION INSURANCE
2016 COUNTRYWIDE ANNUAL LOSS ADJUSTMENT EXPENSE REVIEW — EVALUATED AS OF 12/31/2015

IMPACT OF LARGE DEDUCTIBLE POLICIES ON AOE

Carrier Response to Financial Data Collection Call #19 Questions	(1) AOE Large Deductible Adjustment Based on Call #19 Responses	(2) CY 2015 Total Incurred Losses	(3)=(1)/(2) AOE Large Deductible Adjustment	(4)=(2)/(2)Total CY 2015 Losses as a % of Total Incurred Losses	(5)=(3)x(4) Results	Notes
AOE amount prior to reimbursement for large deductible policies and reported in IEE as a negative number	115,572,268	4,054,718,073	2.9%	16.2%	0.5%	(a)
AOE amount paid by employer's TPA for large deductible policies	2,610,956	62,666,261	4.2%	0.3%	0.0%	(b)
Not Applicable	-	20,932,748,764	0.0%	83.5%	0.0%	(c)
Total CY Incurred Losses 2015	25,050,133,098	---	100.0%	---	---	

2015 Selected Large Deductible Adjustment	0.5%	(a)+(b)+(c)

Request 20:

In response to interrogatory 13 NCCI has indicated that they PY 2013 adjustment factor on both a paid and paid plus case basis had been prorated to reflect the portion of accidents expected to occur on or after 1/1/2014. Please provide support for the ratio of PY 2013 accidents expected to occur on or after 1/1/2014 of 45.1%.

Response:

Attachment 20 contains the derivation of the 45.1% adjustment factor.

	(1)	(2)	(3) = (2) / 12
Month	% of Premium	Months Earned After 1/1/2014*	% of Accidents After 1/1/2014^
JAN	16.6%	0.5	4.2%
FEB	5.1%	1.5	12.5%
MAR	8.4%	2.5	20.8%
APR	10.5%	3.5	29.2%
MAY	7.0%	4.5	37.5%
JUN	7.5%	5.5	45.8%
JUL	10.9%	6.5	54.2%
AUG	6.6%	7.5	62.5%
SEP	6.1%	8.5	70.8%
OCT	7.9%	9.5	79.2%
NOV	6.1%	10.5	87.5%
DEC	7.3%	11.5	95.8%
		Average~	**45.1%**

* Assumes policies become effective at midpoint of month
^ Assumes accidents occur uniformly throughout each policy
~ Average is calculated using weights in column (1)

Request 1:

With regard to the trend analysis, please provide NCCI's thoughts in relation to why an annual indemnity loss ratio trend of -2.0% was selected. Please include information on what period of time was focused on in making this selection. Please provide analogous information on the following:

a)   The selection of an annual medical loss ratio trend of -1.0%.

b)   The selection of an annual frequency trend of -2.5%.

c)   The selection of an annual indemnity severity trend of 0.5%.

d)   The selection of an annual medical severity trend of 1.5%.

Response:

In selecting trend factors, we typically review 15 years of historical data. However, SB 1, enacted on 1/1/2005, addressed compensability by requiring that work be the prevailing factor, limiting occupational disease, making normal wear and tear injuries due to aging non-compensable, etc. SB 1 may have contributed to the very sharp decline in claim frequency observed between Policy Year (PY) 2003 and PY 2005 of more than 21% shown in the chart below. For this reason we did not rely on fits of more than the latest 10 policy years.
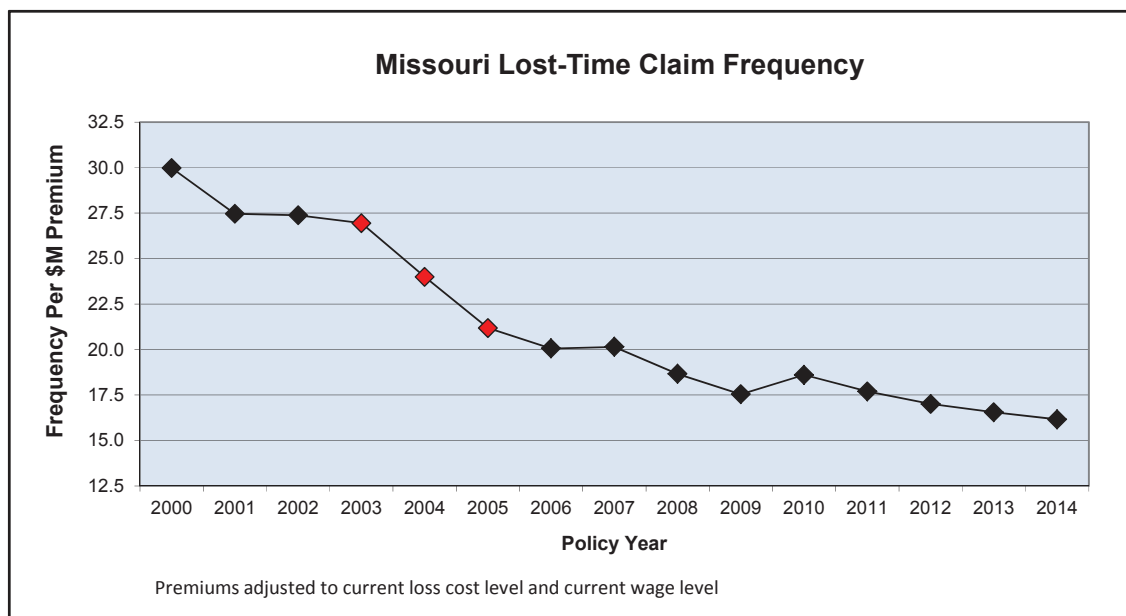
Missouri Lost-Time Claim Frequency

Premiums adjusted to current loss cost level and current wage level

In addition, we observed an uptick in frequency in 2010. This was a phenomenon observed on a countrywide basis which NCCI attributes to the Great Recession. The uptick was due to an influx of smaller lost-time claims. One theory is that workers, fearful of losing their jobs, may have postponed filing workers compensation claims in 2009 for less severe injuries, but became less hesitant to file claims in 2010 as the economy began to show signs of modest improvement. While the extent to which this phenomenon occurred cannot be confirmed by NCCI, it may have contributed to the observed frequency uptick in 2010, both countrywide and in Missouri. As a result, we gave little consideration to the 5-point frequency and loss ratio trends which we feel are understated.

In view of the above observations, we gave consideration primarily to the following annual trends (based upon exponential fits):

Policy Years	Points	Loss Ratio		Lost-Time Severity		Frequency
		Indemnity	Medical	Indemnity	Medical	
2005 to 2014	10	-2.3%	-0.7%	0.6%	2.2%	-2.8%
2006 to 2014	9	-2.0%	-0.8%	0.7%	2.0%	-2.7%
2007 to 2014	8	-2.1%	-1.1%	0.6%	1.6%	-2.7%
2008 to 2014	7	-1.8%	-1.5%	0.4%	0.7%	-2.2%
2009 to 2014	6	-1.5%	-1.3%	0.7%	1.0%	-2.3%
Average		-1.9%	-1.1%	0.6%	1.5%	-2.5%
Selected		-2.0%	-1.0%	0.5%	1.5%	-2.5%

In the interest of stability, we also gave consideration to the trends in the prior filing.

Request 2:

Initially, we anticipated the weight of policy year 2013 accidents occurring on or after January 1, 2014 would be the same for both the determination of the on-level factors for loss for policy year 2013 and the adjustment to the 2nd to ultimate indemnity LDFs. Could you provide us with some insight as to why these are not equal?

Response:

The 45.1% weight applied to the development adjustment factor is based on the assumption that policies become effective at the midpoint of the month. Alternatively, one could arrive at a similar result under the assumption that policy effective dates are distributed uniformly throughout any given month.

The weights used for determination of on-level factors are based on the assumption that all policies within a month become effective on the first day of the month.