

Designated Statistical Reporting Level (DSR) Premium—Part 2

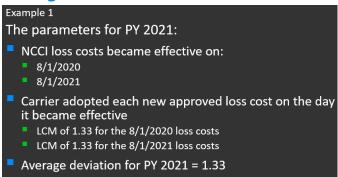
Average Deviation Method

When to Calculate an Average Deviation

Calculating an average deviation may be preferred when:

- The carrier has one loss cost multiplier (LCM) in effect
- The carrier's filing effective date is the same as NCCI's filing effective date
- Classification code and statistical code level detail are difficult to obtain

Average Deviation Calculation



Example 1—Timeline



Example 1—Calculating DSR Premium

	Policy Period	1/1/2021 Through 12/31/2021	
E	Net Premium	\$4,250,000	
<u>.</u>	Schedule Rating	-\$450,000	
Premium	Premium Discount	-\$300,000	
	Company Standard Premium	\$5,000,000	Net Premium – Schedule Rating – Premium Discount \$4,250,000 – (–\$450,000) – (–\$300,000)
2021	Expense Constant (EC)	\$240,000	\$ 1,230,000 (\$ 130,000) (\$ \$300,000)
Policy Year	Balance to Minimum Premium (BTMP)	\$105,000	
Policy	Company Standard Premium used to calculate DSR Premium	\$4,655,000	Co Std Premium – EC – BTMP \$5,000,000 – \$240,000 – \$105,000
	Deviation/LCM	1.33	
	DSR Premium	\$3,500,000	Co Std Premium Subject to DSR/LCM \$4,655,000/1.33



Designated Statistical Reporting Level (DSR) Premium—Part 2

Average Deviation Calculation

Example 2—Change in LCM

The parameters for PY 2021:

- NCCI loss costs became effective on:
 - 8/1/2020
 - 8/1/2021
- Carrier adopted each new approved loss cost on the day it became effective
 - LCM of 1.33 for the 8/1/2020 loss costs
 - LCM of 1.40 for the 8/1/2021 loss costs

Example 2—Timeline



Example 2—Calculating DSR Premium

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	Policy Period	1/1/2021 Through 7/31/2021	8/1/2021 Through 12/31/2021	PY 2021 Total
Ε	Net Premium	\$1,000,000	\$3,250,000	\$4,250,000
ijĒ	Schedule Rating	-\$100,000	-\$200,000	
Premium	Premium Discount	-\$150,000	-\$300,000	
	Company Standard Premium	\$1,250,000	\$3,750,000	\$5,000,000
2021	Expense Constant	\$80,000	\$160,500	
Policy Year	Balance to Minimum Premium	\$40,000	\$65,000	
Policy	Company Standard Premium Used to Calculate DSR Premium	\$1,130,000	\$3,524,500	
	Deviation/LCM	1.33	1.40	
	DSR Premium	\$849,624	\$2,517,500	\$3,367,124



Designated Statistical Reporting Level (DSR) Premium—Part 2

Average Deviation Calculation

Example 3—Company Expense Constant

The parameters for PY 2021:

- NCCI rates became effective on:
 - 8/1/2020
 - 8/1/2021
- Carrier adopted both approved rate filings on the day they became effective
 - Rate deviation of +10% for the 8/1/2020 rates
 - Rate deviation of -5% for the 8/1/2021 rates
- Expense Constants
 - Carrier Expense Constant is \$300
 - NCCI Expense Constant is \$150

Example 3—Timeline



Example 3

Calculating Net and Company Standard Premium

٤	Policy Period	1/1/2021 Through 7/31/2021	8/1/2021 Through 12/31/2021	PY 2021 Total	
Premium	Net Premium	\$3,400,000	\$1,350,000	\$4,750,000	
Pre	Schedule Rating	-\$300,000	-\$150,000		
	Premium Discount	-\$200,000	-\$100,000		
2021	Company Standard Premium	\$3,900,000	\$1,600,000	\$5,500,000	
Year	Company Expense Constant	\$150,000	\$60,000	1/1/2021 - 7/31/202 8/1/2021 - 12/31/20	
	Balance to Minimum Premium	\$71,000	\$34,000		· ·
Policy	Consent to Rate Premium	\$400,000	\$100,000		
_	Company Standard Premium Used to Calculate DSR Premium	\$3,279,000	\$1,406,000		



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Example 3—Calculating DSR Premium

En:	Policy Period	1/1/2021 Through 7/31/2021	8/1/2021 Through 12/31/2021	PY 2021 Total
Premium	Company Standard Premium Used to Calculate DSR Premium	\$3,279,000	\$1,406,000	
2021	Rate Deviation	1.10	0.95	
	DSR Premium Without EC and BTMP	\$2,980,909	\$1,480,000	
× ×	NCCI Expense Constant	\$75,000	\$30,000	1/1/2021 – 7/31/2021: 500 policies 8/1/2021 – 12/31/2021: 200 policies
Policy Year	Balance to Minimum Premium	\$71,000	\$34,000	
<u>a.</u>	DSR Premium	\$3,126,909	\$1,544,000	\$4,670,909

Average Deviation Calculation

Example 4—Delayed Adoption

The parameters for PY 2021:

- NCCI loss costs became effective on:
 - 8/1/2020
 - 8/1/2021
- But the carrier adopted the loss costs as follows:
 - 8/1/2020 loss costs on the day they became effective, with an LCM of 1.33
 - 8/1/2021 loss costs on 10/1/2021, with an LCM of 1.4
- This means there are now three different time periods to consider

Average Deviation Calculation

Example 4—Time Periods Affecting the Calculation

- January through July—Carrier is using the 8/1/2020 loss costs, which are the same as the DSR level
- August through September—Carrier is using the 8/1/2020 loss costs, which are *not* the same as the DSR level; the DSR Level is 8/1/2021
- October through December—Carrier is using the 8/1/2021 loss costs, which are the same as the DSR level



Designated Statistical Reporting Level (DSR) Premium—Part 2

Example 4—Timeline



Example 4—Timeline

- For August through September, we must determine what implied LCM—applied to the company standard premium for that period—would result in the DSR premium that reflects the DSR level in effect
- If the 8/1/2021 loss costs decreased by 8% on average, then the LCM, in effect, would need to be adjusted by the factor of 1 – 0.08 = 0.92
- Therefore, the implied LCM factor is 1.33 / 0.92 = 1.45
- This factor is sometimes referred to as a passive deviation or implied LCM and is the result of a carrier not taking action the same day as the NCCI filing effective date

Example 4—Implied LCM

- To calculate an implied LCM, divide the carrier LCM by the value that represents the change in loss costs for your book of business.
- For some carriers, the appropriate value may be the same as the overall change filed by NCCI (e.g., 0.92)

Company Standard Premium* Using Loss Costs Effective 8/1/2020	LCM	NCCI DSR Level 8/1/2020
\$400,200	1.33	\$300,902
		8/1/2021 change is -8%
Company Standard Premium* Using Loss Costs Effective 8/1/2020	Implied LCM	NCCI DSR Level 8/1/2021
\$400.200	???	\$276,000
Ş -100,200		



Designated Statistical Reporting Level (DSR) Premium—Part 2

Example 4—Calculating DSR Premium

_					
	Policy Period	1/1/2021 Through 7/31/2021	8/1/2021 Through 9/30/2021	10/1/2021 Through 12/31/2021	PY 2021 Total
틆	Net Premium	\$900,000	\$3,650,000	\$450,000	\$5,000,000
Premium	Schedule Rating	-\$50,000	-\$250,000	-\$100,000	
	Premium Discount	-\$25,000	-\$100,000	-\$65,000	
2021	Company Standard Premium	\$975,000	\$4,000,000	\$615,000	\$5,590,000
r 2(Expense Constant	\$70,500	\$225,500	\$44,500	
Policy Year	Balance to Minimum Premium	\$21,000	\$126,300	\$18,700	
Polic	Company Standard Premium Used to Calculate DSR Premium	\$883,500	\$3,648,200	\$551,800	
	Deviation/LCM	1.33	1.45	1.40	
	DSR Premium	\$664,286	\$2,516,000	\$394,143	\$3,574,429

Carrier-Specific Loss Cost Level Change Effect

Last Active LCM Is 1.33

Statewide Change Is –8% Class Codes You Wrote Changed ??

Change in Loss Costs

Class Code	8/1/2020 Loss Costs Adopted by Carrier	8/1/2021 Loss Costs Adopted by Carrier on 10/1/2021	Change
8000	\$2.05	\$1.88	-8.3%
2735	\$3.85	\$3.27	-15.1%
2759	\$5.25	\$5.78	+9.9%
		Carrier's Change Betwo	een -15.1%

Calculating Change in Loss Costs

Class Code	Policy Year Earned Exposure 8/1/2021– 9/31/2021	8/1/2020 Loss Cost Adopted by Carrier	8/1/2021- 9/31/2021 DSR Premium Using 8/1/2020 Loss Costs	8/1/2021 Loss Cost Not Adopted by Carrier Until 10/1/2021	8/1/2021- 9/31/2021 DSR Premium Using 8/1/2021 Loss Costs	Change in Loss Costs
0008	\$9,000,000	\$2.05	\$184,500	\$1.88	\$169,200	-8.3%
2735	\$2,500,000	\$3.85	\$96,250	\$3.27	\$81,750	-15.1%
2759	\$32,500,000	\$5.25	\$1,706,250	\$5.78	\$1,878,500	+9.9%
		Total	\$1,987,000		\$2,129,450	+7.2%



Designated Statistical Reporting Level (DSR) Premium—Part 2

Carrier-Specific Loss Cost Level Change Effect

- Statewide Change Factor
 - **1.000 0.080 = 0.920**
- Implied LCM Using Statewide Change
 - **1.330 / 0.920 = 1.45**
- Carrier-specific Change Factor
 - **1.000 + 0.072 = 1.072**
- Carrier-specific Implied LCM
 - 1.330 / 1.072 = 1.24

Average Deviation Calculation

Example 5—Delayed Adoption Using Carrier Change in Loss Costs

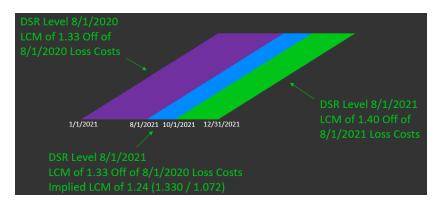
The parameters for PY 2021:

- January Through July
 - 8/1/2020 loss cost with LCM of 1.33
- August Through September
 - Did not adopt the 8/1/2021 loss costs that reflected a statewide decrease of 8%
 - Determined that the effect of these new loss costs on the carrier's book of business was a 7.2% increase
 - Therefore, the implied LCM is 1.330 / 1.072 = 1.24
- October Through December
 - 8/1/2021 loss costs on 10/1/2021 with LCM of 1.40



Designated Statistical Reporting Level (DSR) Premium—Part 2

Example 5—Parallelogram Diagram



Example 5—Calculating DSR Premium

	Policy Period	1/1/2021 Through 7/31/2021	8/1/2021 Through 9/30/2021	10/1/2021 Through 12/31/2021	PY 2021 Total
E	Net Premium	\$900,000	\$3,650,000	\$450,000	\$5,000,000
Premium	Schedule Rating	-\$50,000	-\$250,000	-\$100,000	
	Premium Discount	-\$25,000	-\$100,000	-\$65,000	
2021	Company Standard Premium	\$975,000	\$4,000,000	\$615,000	\$5,590,000
ır 2(Expense Constant	\$70,500	\$225,500	\$44,500	
y Year	Balance to Minimum Premium	\$21,000	\$126,300	\$18,700	
Policy '	Company Standard Premium Used to Calculate DSR Premium	\$883,500	\$3,648,200	\$551,800	
	Deviation/LCM	1.33	1.24	1.40	
	DSR Premium	\$664,286	\$2,941,935	\$394,143	\$4,000,364

Example 5—Using DSR Weights

Policy Year 2021 Premium								
Time Period (1)	Company Standard Premium (2)	Expense Constant (3)	Balance to Minimum Premium (4)	Company Standard Premium Used to Calculate DSR (5) = (2) - (3) - (4)	Deviation (6)	DSR Premium (7) = (5) / (6)	% of DSR Premium (8) = (7) / (7) total	
1/1/2021- 7/31/2021	\$975,000	\$70,500	\$21,000	\$883,500	1.33	\$664,286	16.6%	
8/1/2021- 9/30/2021	4,000,000	225,500	126,300	3,648,200	1.24	2,941,935	73.5%	
10/1/2021- 12/31/2021	615,000	44,500	18,700	551,800	1.40	394,143	9.9%	
PY 2021 Total \$5,590,000 \$340,500 \$166,000 \$5,083,500 1.271* \$4,000,364 100%								
*\$5,083,500 / \$4,000,364 = 1.271								
(1.33 x 16.6%)	+ (1.24 x 73.5%) + (1.40 x 9.9%	6) = 1.271					



Designated Statistical Reporting Level (DSR) Premium—Part 2

Recap

Average Deviation Method

- NCCI DSR Level
- Carrier Deviation/LCM Filings
- Passive Deviation/Implied LCM
- DSR Level is Rates
 - Company and NCCI Expense Constants
 - Assigned Risk Policies

Extending Exposures/Hybrid Method

When to Extend Exposures

Acceptable when:

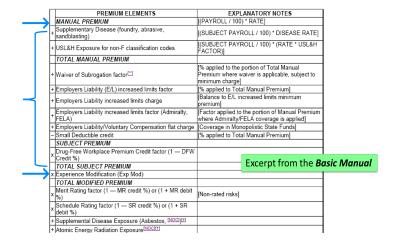
- The average deviation calculation is challenging:
 - Delayed adoption of NCCI filings
 - Multiple loss cost multipliers (LCM) in effect
- Class code and statistical code level detail is available to accurately report the Financial Call data

Methods of Extending Exposures

Policy Level	Each policy rerated using the DSR Level loss costs or rates
Class Code Level	Data should be grouped (across policies) to capture all carrier rate changes and NCCI loss cost/rate changes
	Need to obtain an average experience modification factor for the policy year

Sample Premium Algorithm—Alabama

To apply premium adjustments in the correct order, follow the state-specific premium algorithm for units and the guidelines in both the *Basic Manual* and *Financial Call Reporting Guidebook*.





Designated Statistical Reporting Level (DSR) Premium—Part 2

Premium Calculations

Follow guidelines in the *Financial Call Reporting Guidebook*. Policies may contain both included and excluded class codes.

Examples of excluded class codes:

- Federal Employers Liability Act (FELA) and Maritime
- Underground Coal Mine

Examples of **excluded** policies:

- Large Deductible
- Excess Policies

Statistical code premium amounts should reflect only amounts associated with the **included** experience.

Examples:

- Expense Constants—Exclude or include 100% depending on applicable DSR Level
- Multiplicative Factors—Prorated based on the experience included in the Financial Calls
 - Employers Liability Increased Limits
 - o Drug-Free Workplace credit

Extending Exposures—Policy Level—Example 1

	•	-			
Р	olicy Number				
E	xposure State		Alabama		
Р	olicy Effective Date		3/1/2020		
Р	Policy Expiration Date				
E	Employers Liability Increased Limits			3.0%	
D	Drug-Free Workplace Credit			-5.0%	
E	xperience Modifica	ntion Factor			
E	xpense Constant			\$200	
Class Code	Class Code Payroll Company Rat			NCCI Loss Cost	
2065	1,000,000	,000,000 4.05 (2.53 x 1.6		2.53	
8810	40,000,000	0.24 (0.15 x 1.60)		0.15	



Designated Statistical Reporting Level (DSR) Premium—Part 2

Premium Calculations for PY 2020—Example 1

Premium	Company Standard	DSR Level
Manual	136,500 ([1,000,000 / 100] x 4.05) + ([40,000,000 / 100] x 0.24)	85,300 [[1,000,000 / 100] x 2.53) + ([40,000,000 / 100] x 0.15)
Increased Limits	4,095 136,500 x 0.030	E V 2,559
Drug-Free Credit	−7,030 (136,500 + 4,095) x −0.05	-4,393 T (85,300 + 2,559) x -0.05
Subtotal	133,565 136,500 + 4,095 – 7,030	83,466 85,300 + 2,559 – 4,393
Subtotal With Exp. Mod	160,278 133,565 x 1.20	N 100,159
Expense Constant	200	0
Total	\$160,478 (160,278 + 200)	\$100,159

Extending Exposures—Policy Level—Example 2

Р	olicy Number	W	C123457	7	
E	xposure State				
P	olicy Effective Date		1/2021		
P	olicy Expiration Dat	te 2/	28/2022		
E	mployers Liability I	ncreased Limits			
D	rug-Free Workplac	e Credit			
E	xperience Modifica	tion Factor			
E	xpense Constant			\$200	
Class Code	Payroll	Company Rate	;	NCCI Loss Cost	
2065	1,000,000	4.05 (2.53 x 1.6	0)	2.23	
8810	40,000,000	0.24 (0.15 x 1.6	0)	0.13	



Designated Statistical Reporting Level (DSR) Premium—Part 2

Premium Calculations for PY 2021—Example 2

Premium	Company Standard	DSR Level
Manual	136,500 ([1,000,000 / 100] x 4.05) +([40,000,000 / 100] x 0.24)	74,300 D ([1,000,000 / 100] x 2.23) + ([40,000,000 / 100] x 0.13)
Increased Limits	4,095 136,500 x 0.030	E 2,229 V 74,300 x 0.030
Drug-Free Credit	-7,030 (136,500 + 4,095) x -0.05	-3,826 A (74,300 + 2,229) x -0.05
Subtotal	133,565 136,500 + 4,095 – 7,030	72,703 74,300 + 2,229 – 3,826
Subtotal With Exp. Mod	160,278 133,565 x 1.20	O N 87,244
Expense Constant	200	0
Total	\$160,478 (160,278+200)	587,244

Recap—Extending Exposures—Policy Level

- Follow premium algorithm from the Basic Manual and calculate the Manual Premium
- Apply appropriate premium adjustments in the order set out by the premium algorithm
- Sum up the premium components and manual premium to arrive at total subject premium and apply the experience modification factor
- Add NCCI expense constant if DSR Level is rates
- Sum results for all policies
- Total DSR premium—Success!

Extending Exposures—Class Code Method Example

Parameters for PY 2021:

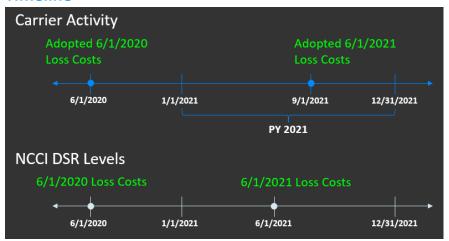
- NCCI loss costs became effective on:
 - 6/1/2020
 - 6/1/2021
- But the carrier adopted these loss costs:
 - 6/1/2020 loss costs on the day they became effective
 - 6/1/2021 loss costs on 9/1/2021

There are three time periods to consider.



Designated Statistical Reporting Level (DSR) Premium—Part 2

Timeline



Extending Exposures—Class Code Method Example

Policy Year 2021 as of 12/31/2022

Organization of Data

Class Code (1)	First PED (2)	Last PED	Earned Payroll (4)	Carrier Rate (5)	NCCI Loss Cost (6)	Avg. Exp Mod (7)	Company Standard Premium (8) = [(4) / 100] x (5) x (7)	DSR Level Premium (9) = [(4) / 100] x (6) x (7)
1642	1/1/21	5/31/21	5,000,000	8.55	6.58	1.1	470,250	361,900
2065	1/1/21	5/31/21	3,000,000	3.12	2.40	1.1	102,960	79,200
2362	1/1/21	5/31/21	0	5.50	4.18	1.1		
1642	6/1/21	8/31/21	8,000,000	8.55	7.02	1.1	752,400	617,760
2065	6/1/21	8/31/21	0	3.12	2.45	1.1		
2362	6/1/21	8/31/21	0	5.50	5.00	1.1		
1642	9/1/21	12/31/21	0	8.75	7.02	1.1		
2065	9/1/21	12/31/21	0	3.30	2.45	1.1		
2362	9/1/21	12/31/21	10,000,000	6.00	5.00	1.1	660,000	550,000
PED = Policy Effective Date							1,985,610	1,608,860



Designated Statistical Reporting Level (DSR) Premium—Part 2

Extending Exposures—Class Code Method Example

Calculate an average LCM, ratio of the Company Standard and DSR Level premium, to arrive at the average LCM for PY 2021 of 1.234

Policy Year 2021 as of 12/31/2022

Class Code (1)	First PED (2)	Last PED (3)	Earned Payroll (4)	Carrier Rate (5)	NCCI Loss Cost (6)	Avg. Exp Mod (7)	Company Standard Premium (8) = [(4) / 100] x (5) x (7)	DSR Level Premium (9) = [(4) / 100] x (6) x (7)
1642	1/1/21	5/31/21	5,000,000	8.55	6.58	1.1	470,250	361,900
2065	1/1/21	5/31/21	3,000,000	3.12	2.40	1.1	102,960	79,200
1642	6/1/21	8/31/21	8,000,000	8.55	7.02	1.1	752,400	617,760
2362	9/1/21	12/31/21	10,000,000	6.00	5.00	1.1	660,000	550,000
	Totals 1,985,610 1,608,860							
	Average Loss Cost Multiplier = 1,985,610 / 1,608,860 = 1.234							

Extending Exposures—Class Code Method Example

Policy Year 2021 as of 12/31/2022

Stat Code (1)	Description (2)	Premium (3)	Avg. Exp Mod (4)	Company Standard Premium (5) = (3) x (4)	Average Deviation (6)	DSR Level Premium (7) = (5) / (6)
0900	Expense Constant	6,000	_	6,000	_	_
9812	Increased Limits	75,000	1.1	82,500	1.234	66,856
			Totals	88,500		66,856

Policy Year 2021 as of 12/31/2022

	Company Standard Premium	DSR Level Premium
Class Codes	1,985,610	1,608,860
Statistical Codes	88,500	66,856
Totals	2,074,110	1,675,716

Add the class code and statistical code totals to arrive at a Company Standard premium of \$2,074,110 and DSR Level premium of \$1,675,716



Designated Statistical Reporting Level (DSR) Premium—Part 2

Extending Exposures—Hybrid Method

With the hybrid method, calculate the average deviation using the class code method of extending exposures. Take this average loss cost multiplier of 1.234 and apply it to the average deviation method calculation.

Policy Year 2021 as of 12/31/2022

Class Code (1)	First PED (2)	Last PED (3)	Earned Payroll (4)	Carrier Rate (5)	NCCI Loss Cost (6)	Avg. Exp Mod (7)	Company Standard Premium (8) = [(4) / 100] x (5) x (7)	DSR Level Premium (9) = [(4) / 100] x (6) x (7)
1642	1/1/21	5/31/21	5,000,000	8.55	6.58	1.1	470,250	361,900
2065	1/1/21	5/31/21	3,000,000	3.12	2.40	1.1	102,960	79,200
1642	6/1/21	8/31/21	8,000,000	8.55	7.02	1.1	752,400	617,760
2362	9/1/21	12/31/21	10,000,000	6.00	5.00	1.1	660,000	550,000
						Totals	1,985,610	1,608,860
Average Loss Cost Multiplier = 1,985,610 / 1,608,860 = 1.234								

Group the data as if using the average deviation method.

- Take Net Premium, then derive Company Standard premium by removing components that are not in Company Standard but are in Net Premium.
- Remove the components that are in Company Standard Premium that are not in DSR Level Premium (e.g., Expense Constant)
- Apply the average loss cost multiplier for PY 2021, calculated using the class code method of extending exposures, which yields DSR Level Premium of \$1,675,940

	<u> </u>	•							
_	Policy Period	1/1/2021 Through 12/31/2021							
<u>i</u> .	Net Premium	\$1,709,110							
Premium	Schedule Rating	-\$257,000							
	Premium Discount	-\$108,000	Net Premium – Schedule Rating – Premium Discount						
2021	Company Standard Premium	\$2,074,110	\$1,709,110 – (–\$257,000) – (– \$108,000)						
ar 2	Expense Constant (EC)	\$6,000	Co Std Premium – EC						
icy Year	Company Standard Premium used to calculate DSR Premium	\$2,068,110	\$2,074,110 – \$6,000						
Policy	Deviation/LCM	1.234	Co Std Premium Subject to DSR /LCM						
	DSR Premium	\$1,675,940	\$2,068,110 / 1.234						
	Class Code Method = \$1,675,716								

Comparing these results with the class code method's results, difference is minimal



Designated Statistical Reporting Level (DSR) Premium—Part 2

Recap—Extending Exposure—Class Code Method

- 1. Group up each class code across all policies and policy effective dates
- 2. Establish the time periods to group up policies, creating a new time period in the policy year whenever there is a company rate change or approved NCCI filed loss cost/rate change
- 3. With the exposures for each class code, use the company rates and DSR Level loss costs/rates to calculate premium at the Company Standard level and DSR premium level.
- 4. Summarize the class code premium and determine an average loss cost multiplier or rate deviation by taking the ratio of the total company standard premium to the total DSR Level premium
- 5. Calculate statistical code premium and use the average LCM/deviation as necessary to calculate statistical code premium at the DSR Level
- 6. Sum up the class code premium and statistical code premium to arrive at our total company standard and DSR Level premiums

Resources—ncci.com

- Financial Call Reporting Guidebook
- Financial Data Collection Tool
- Basic Manual
- Circulars/FYI Plus
- Reporting Season Web Article
- · Webinars on Demand
- Data Now Program Materials
- NCCI Financial Data—Assigned Validator

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