

# OLIVER WYMAN

Oliver Wyman Actuarial Consulting, Inc.

May 22, 2008

## **Experience Rating Plan Continued—Stakeholder's Session**

William Hansen, FCAS, MAAA  
Columbus, Ohio



# Contents

<b>1. Objectives</b>	<b>2</b>
<b>2. Impact of Credibility Table Changes</b>	<b>4</b>
<b>3. Premium Impact Estimates</b>	<b>8</b>
<b>4. Split Plan Incentives for Safety</b>	<b>12</b>
<b>5. Medical Only Claims</b>	<b>16</b>
<b>6. Risk Bearing and Risk Sharing</b>	<b>22</b>
<b>7. Recap</b>	<b>25</b>



## Objectives of this Session



## Objectives Session outline

- Relate credibility table changes to the rate level imbalance between group and non group
- Review a sample of premium levels and impacts of a moving towards a split plan
- Realize the incentives for safety embedded in the split plan
- Research the treatment of medical only claims within a split plan
- Rediscover a few risk bearing and risk sharing concepts

## Impact of Credibility Table Changes

## Impact of credibility table changes \$10,000 Split Point example

### Loss Ratios by Group Status

Policy Status	Policy Year 2003		Policy Year 2004		Policy Year 2005	
	Current	Plan 10N	Current	Plan 10N	Current	Plan 10N
Group	145.1%	89.0%	131.7%	77.8%	117.7%	75.7%
Non Group	63.8%	79.7%	53.4%	67.7%	56.1%	69.2%
Base Rated	80.2%	106.8%	73.7%	90.0%	83.0%	96.1%
Total	87.5%	87.5%	75.0%	75.0%	75.5%	75.5%

### Premium Distribution by Group Status

Policy Status	Policy Year 2003		Policy Year 2004		Policy Year 2005	
	Current	Plan 10N	Current	Plan 10N	Current	Plan 10N
Group	408,225,707	665,258,810	394,258,436	667,095,381	395,388,376	614,350,985
Non Group	897,396,952	718,754,681	1,011,954,561	798,274,973	962,351,017	779,917,369
Base Rated	314,620,176	236,229,343	327,356,187	268,198,830	267,036,124	230,507,163
Total	\$ 1,620,242,835	\$ 1,620,242,835	\$ 1,733,569,184	\$ 1,733,569,184	\$ 1,624,775,517	\$ 1,624,775,517

Notes: The premiums shown are gross of all discount programs, and exclude ACF and DWRF charges;

## Impact of credibility table changes \$10,000 Split Point example

The table below shows the premium changes resulting from adopting a 10k split plan relative to the rating plan used in each respective policy year.

The resulting premium changes tell us:

- The rate level imbalance between group and non group improved from 2004 to 2005 with the change in credibility tables from 100% to 95%
- The rate level imbalance is near zero with these policy years modeled on a 10k split plan. This is an approximation only, which excludes the impact of all discount programs, and the annual reconstitution of group membership

Policy Status	Policy Year 2003 Credibility Max of 100%		Policy Year 2004 Credibility Max of 100%		Policy Year 2005 Credibility Max of 95%	
	Group	Non Group	Group	Non Group	Group	Non Group
Current	408,225,707	1,212,017,128	394,258,436	1,339,310,748	395,388,376	1,229,387,141
Plan 10N	665,258,810	954,984,025	667,095,381	1,066,473,803	614,350,985	1,010,424,532
Dollar Change	257,033,103	(257,033,103)	272,836,945	(272,836,945)	218,962,609	(218,962,609)
Percent Change	63.0%	-21.2%	69.2%	-20.4%	55.4%	-17.8%

### CAVEATS:

The premiums shown are gross of all discount programs, and exclude ACF and DWRF charges, therefore these percentages and dollar amounts are illustrative in magnitude only, and are not consistent with the full premium calculation.

A rate imbalance would likely still result under a 10k split plan with the current group rules that allow for annual changes in membership. The premiums calculated are estimates, with the assumption of static group membership.



## Impact of credibility table changes MIRA II

- **Potential credibility impacts of new reserving system**
  - Risk level credibility: if ELR's change, then expected losses will change as well
  - Expected losses are the basis for measuring credibility
  - Expected losses can be compared under MIRA I and MIRA II to measure differences and make appropriate adjustments
- **Potential impacts on classification experience of new reserving system**
  - Manual Class level impacts may occur if distribution of claim types varies greatly by class
  - Group and non Group experience will likely have loss experience changes that are either very small or insignificant on a relative scale
  - Experience Mods overall should not change much, assuming both the actual and expected losses are computed with the new reserves.
  - Experience Mod changes at the risk level will likely vary, with more variation experienced by the smaller, non group risks.

## Premium Impact Estimates



## Premium Impact Estimates Base Rates

### Base rates will decrease if the average experience rating mod increases

- For example, the average experience mod changed from 0.58 to 0.79 for policy year 2005 in the scenario modeling a 10k split plan. After accounting for base rated business, this results in a 23% decrease to the base rate. This measures the change from a 95% credibility table to a full split plan.
- In modeling the premium impact of moving from the July 2008 85% table to a full split plan, the base rate decrease is 10.6%.
- National comparisons of Ohio WC premiums will benefit as the base rates move towards a more neutral, “base” level. The typical base rate offset for other states is typically 1% to 2%, whereas Ohio could still have an offset in excess of 25%.

CAVEAT: These examples assume a static group program—the actual results will be less of a decrease with group reconstitution)

## Premium Impact Estimates Typical Policy Examples

### Scenario—Policy Impact examples of moving from current 85% table to a 75% table-Group only

- Captures change in experience rating credibility table only
- Allow premium changes to reach \$500, with a 20% cap for increases over \$500

Premium Size Range	Average Premium with 85% Table	Average Premium with 75% Table	Average Premium with 75% Table after Capping	Percent Change after Capping
\$0-\$500 Approx 30,000 risks	\$241	\$319	\$319	32%
\$501-\$999 Approx 15,000 risks	\$721	\$980	\$980	36%
\$1,000-\$2,499 Approx 19,000 risks	\$1,613	\$2,145	\$2,018	25%
\$2,500-\$4,999 Approx 11,000 risks	\$3,552	\$4,539	\$4,129	16%
\$5,000-\$9,999 Approx 8,000 risks	\$7,077	\$8,617	\$8,064	14%
\$10,000+ Approx 12,000 risks	\$45,335	\$48,591	\$47,786	5%

## Premium Impact Estimates Typical Policy Examples

### Scenario—Policy Impact examples of moving from current 85% table to a 75% table-Non Group only

- Captures change in experience rating credibility table only
- No caps are applied to decreases in these examples

Premium Size Range	Average Premium with 85% Table	Average Premium with 75% Table	Average Premium with 75% Table after Capping	Percent Change after Capping
\$0-\$500 Approx 58,000 risks	\$212	\$203	\$203	-4%
\$501-\$999 Approx 21,000 risks	\$721	\$681	\$681	-6%
\$1,000-\$2,499 Approx 24,000 risks	\$1,605	\$1,507	\$1,507	-6%
\$2,500-\$4,999 Approx 13,000 risks	\$3,525	\$3,302	\$3,302	-6%
\$5,000-\$9,999 Approx 9,000 risks	\$7,031	\$6,586	\$6,585	-6%
\$10,000+ Approx 15,000 risks	\$73,496	\$69,056	\$69,047	-6%

## Split Plan Incentives for Safety



## Split Plan Incentives for Safety Key Points

**The two primary goals of experience rating are incentives for safety and predictive accuracy (aka equity)**

- The primary portion of the loss gets more weight under the split plan, as it is a surrogate for claim frequency
- The experience mods should reflect the relative effectiveness or ineffectiveness of safety practices—financial incentive is low premiums for reduced claim frequency
- The plan should balance risk sharing and risk bearing—stability is still important, especially for smaller risks
- Reflect risk experience to the extent it is credible

## Split Plan Incentives for Safety Rating Examples

Comparison of Plans for a \$27,000 expected loss risk; assumes all claims are lost time to simplify process, \$175,000 maximum single loss for split plan; \$10,000 primary split point; \$25,000 maximum single loss for Ohio

Parameters	Total	Primary	Excess
Expected Losses	27,000	8,100	18,900
Credibility No Split[85%]	13%		
Credibility Split Plan		61%	4%

Experience Modification Factors by Plan				
Claim Count	Amount	Ohio 85% No Split	Example Split Plan	
1	\$ 500	0.87	0.80	
1	\$ 1,500	0.88	0.83	
1	\$ 1,500	0.89	0.87	
1	\$ 5,000	0.91	0.98	
1	\$ 7,500	0.95	1.15	
1	\$ 5,000	0.97	1.26	
1	\$ 6,000	1.00	1.40	
7	\$ 27,000			

Example with only small claims to illustrate the impact of claim frequency

Experience Mods for each plan include the current claim and all prior claims

# Split Plan Incentives for Safety Rating Examples

Comparison of Plans for a \$27,000 expected loss risk; assumes all claims are lost time to simplify process, \$175,000 maximum single loss for split plan; \$10,000 primary split point; \$25,000 maximum single loss for Ohio

Parameters	Total	Primary	Excess
Expected Losses	27,000	8,100	18,900
Credibility No Split[85%]	13%		
Credibility Split Plan		61%	4%

Experience Modification Factors by Plan				
Claim Count	Amount	Ohio 85% No Split	Example Split Plan	
1	\$ 500	0.87	0.80	
1	\$ 1,500	0.88	0.83	
1	\$ 1,500	0.89	0.87	
1	\$ 25,000	1.01	1.12	
1	\$ 1,000	1.01	1.14	
1	\$ 1,000	1.02	1.16	
1	\$ 1,000	1.02	1.18	
7	\$ 31,500			

Example with a large loss along with small claims to illustrate the impact of claim frequency and severity

Experience Mods for each plan include the current claim and all prior claims

Medical Only Claims

## Medical Only Claims Example

Sample calculations of actual primary and actual excess loss with a \$250,000 accident limitation (algorithm is different for medical only claims)

- Lost time claim of \$275,000
  - Total loss limited to \$250,000
  - Primary loss = \$5,000
  - Excess loss = \$245,000
- Medical only claim of \$7,000
  - Primary loss = \$5,000 x 30% = \$1,500
  - Excess loss = \$2,000 x 30% = \$600



## Medical Only Claims Origins of the 30% ratable loss

### History of the plan change

- Revision from 100% to 30% made in 1998
- Key issue was perceived financial incentive to pay these claims and not report the injury
- Lowering the ratable portion of medical only claims reduced the perceived incentive to not report the injury
- Hiding injuries may have taken claimants out of a system that would have provided better management of the claim

### Reporting and performance Issues

- Plan is designed for full reporting of claims
- Reporting degradation also causes plan performance to decline
- Rating plan testing done at the time of the change indicated the change to a 30% level of ratable losses had a minimal impact on plan equity, while also encouraging full reporting of all claims.

## Medical Only Claims Distribution of payments

Calendar Year	Med-Only Paid (\$000's)	Lost Time Paid (\$000's)	Total Paid (\$000's)	% Medical Only
2003	\$125,531	\$1,464,653	\$1,590,185	7.9%
2004	119,740	1,466,346	1,586,086	7.5%
2005	120,118	1,479,966	1,600,084	7.5%

Looking at policy year or calendar year data, the percentage of loss dollars from medical only claims is approximately 8%

Note that medical only claims make up roughly 80% of the claim counts, even though they are a small percentage of the loss dollars.

Policy Year	Med-Only Incurred (\$000's)	Lost Time Incurred (\$000's)	Total Incurred (\$000's)	% Medical Only
2003	\$87,569	\$1,026,108	\$1,113,677	7.9%
2004	87,391	896,861	984,252	8.9%
2005	83,323	793,765	877,088	9.5%

## Medical Only Claims Large claim distribution

Policy Year	Claim Count Losses >\$10K	Total Claims	% Claims >\$10K	% Claims >\$10K Med-Only
2003	13,559	153,837	8.8%	4.2%
2004	12,778	144,702	8.8%	4.6%
2005	12,186	135,402	9.0%	4.0%

These tables show how many claims exceed the \$10k and \$20k levels, and of those claims what percentage are medical only.

At the \$10k level, approximately 0.4% (4% of 9%) of all claims are medical only. At the \$20k level, less than 0.1% (1% of 5.9%) of all claims are medical only

Policy Year	Claim Count Losses >\$20K	Total Claims	% Claims >\$20K	% Claims >\$20K Med-Only
2003	8,632	153,837	5.6%	1.1%
2004	8,278	144,702	5.7%	1.1%
2005	8,004	135,402	5.9%	0.9%



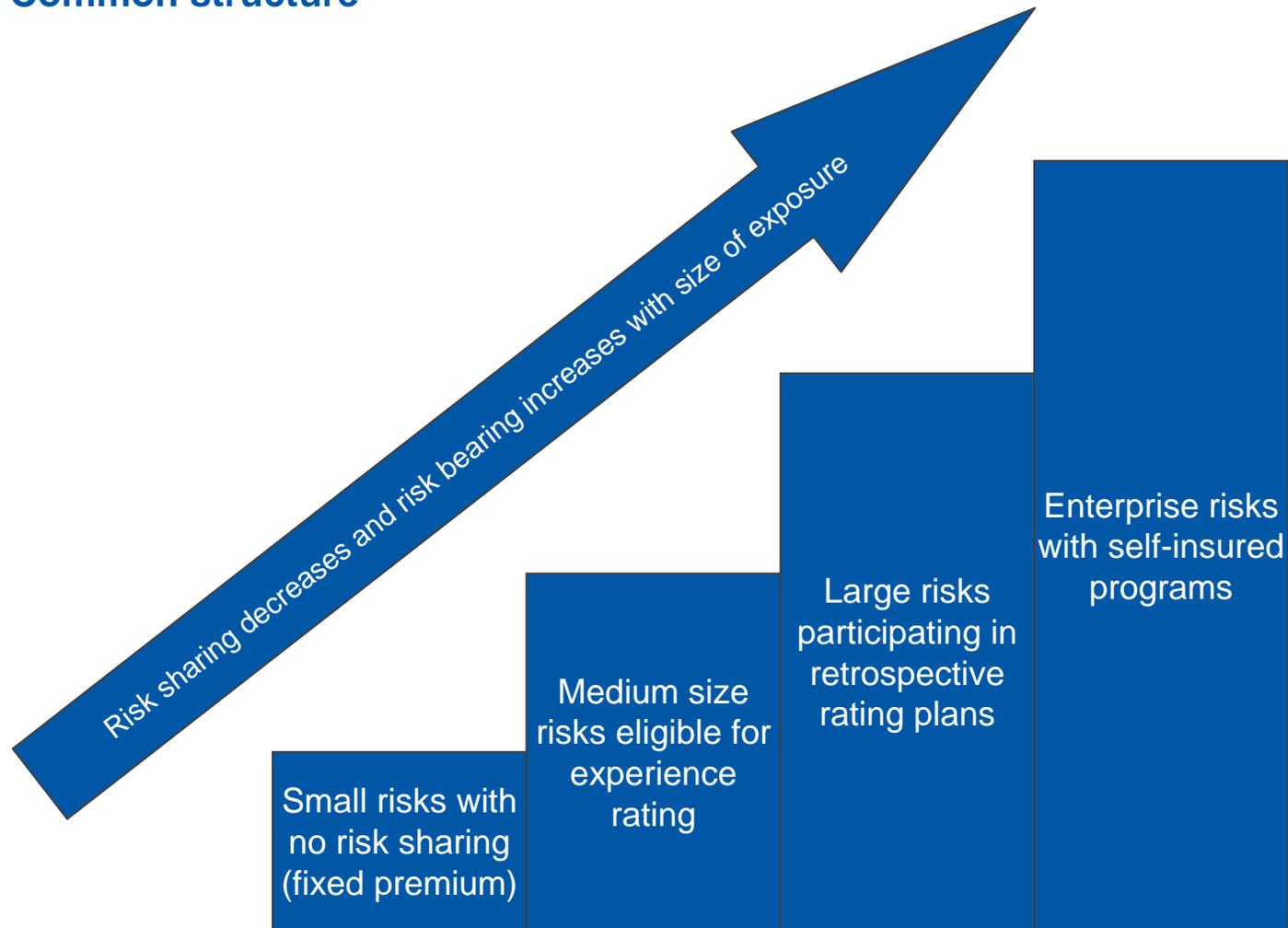
## Medical Only Claims Large claim distribution

This is the same loss distribution data at the \$10k level showing the distribution of losses associated to the claim counts on the prior slide.

Policy Year	Losses >\$10K (\$000's)	Total Losses (\$000's)	% Losses >\$10K	% Losses >\$10K Med-Only
2003	\$973,117	\$1,113,677	87.4%	0.9%
2004	853,432	984,252	86.7%	1.1%
2005	759,220	877,088	86.6%	1.0%

# Risk Bearing and Risk Sharing

## Risk sharing and risk bearing Common structure





## Risk sharing and risk bearing Experience rating plan elements

1. Maximum Single Loss: ranges from \$12,500 to \$250,00 in current plan; \$175,000 is the benchmark level for the split plan. Both result in risk sharing of excess losses, although the current plan results in more risk sharing for smaller risks, and more risk bearing for the larger risks. (current plan has and MSL of \$175k at \$490,000 of expected loss)
2. Medical Only ratable losses: This is a risk sharing feature as well, however this is a small minority of loss dollars. In addition, when combined with the credibility table changes, the outcome is less risk sharing for some premium size segments than the current plan.
3. Base rated business will continue to pay a fixed premium.

Recap



## Recap Summary

- Credibility table changes improve the group and non group rate level imbalance, however plan equity will not be achieved with the current group membership rules
- Premium impacts are more stable with a gradual transition to split plan, and a majority of the risks pay less than \$2500 per year
- The split plan provides more financial incentive for safety--period
- Medical only claims are scaled by a percentage to encourage claim reporting. From a rating perspective they are a small portion of the total losses paid, however from a reporting perspective they are an important source of information
- The balance of risk bearing and risk sharing is fundamental aspect of any insurance mechanism

# OLIVER WYMAN



MARSH MERCER KROLL  
GUY CARPENTER OLIVER WYMAN