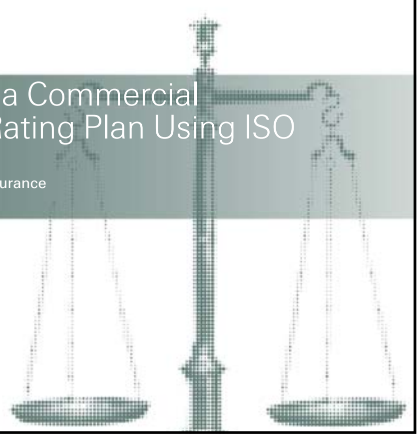
Antitrust Notice

- The Casualty Actuarial Society is committed to adhering strictly to the letter and spirit of the antitrust laws. Seminars conducted under the auspices of the CAS are designed solely to provide a forum for the expression of various points of view on topics described in the programs or agendas for such meetings.
- Under no circumstances shall CAS seminars be used as a means for competing companies or firms to reach any understanding – expressed or implied – that restricts competition or in any way impairs the ability of members to exercise independent business judgment regarding matters affecting competition.
- It is the responsibility of all seminar participants to be aware of antitrust regulations, to prevent any written or verbal discussions that appear to violate these laws, and to adhere in every respect to the CAS antitrust compliance policy.

General Public Release

Evaluating a Commercial Umbrella Rating Plan Using ISO

CAS Seminar on Reinsurance
June 7, 2016



General Public Release

Table of Contents / Agenda

1. Evaluating a Commercial Umbrella Rating Plan Using ISO
2. Caveats
3. Premise of this exposure rating method
4. Starting expected loss ratio (ELR) and CU ELR by state and portfolio CU ELR calculation
5. Incorporating effect of using manual premium on CU ELR

General Public Release

Table of Contents / Agenda

6. Effect of percent of underlying factor on CU ELR
7. Other factors that impact CU ELR
   - ILF edition date
   - Loss cost edition date
   - Proprietary or non-ISO credits
   - Auto rated on unit rates instead of percent of underlying factor
   - Class Plan edition date
   - Minimum premium per million charges
   - Umbrella ILF table
   - CU judgment modification (schedule debit or credit) factors

General Public Release

Caveats

General Public Release

Caveats

- Assumes all commercial umbrella risks are “average” for their ISO classification for both CGL and CAL
- Assumes ISO CGL and CAL rating plans are credible for exposures excess applicable underlying limit
  - Method is much more credible for umbrella excess primary vs. excess another umbrella or excess policy
- Does not take into account restrictive or broadening endorsements to the extent that their impact is not reflected in ISO stat reporting

Caveats

- Does not take into account any other underlying LOB exposures covered by Commercial Umbrella such as Employers Liability
- Is NOT how Swiss Re exposure rates commercial umbrella
  - Swiss Re does incorporate some of the thought process reflected in this presentation
- Doesn't work for CGL and CAL rating plans that are not ISO rating based
  - Thought process or framework may be transferable

Premise of this exposure rating method

Premise of this exposure rating method

- Assume cedent's CGL and CAL rating plans are both based on the most recent ISO edition dates for all rules and all rating factors
- Assume a $1,000,000 per occurrence underlying limit for CGL
  - Difference in premium between a $2,000,000 per occurrence coverage limit and a $1,000,000 per occurrence coverage limit represents CGL premium portion for 1st million of CU coverage of a CU policy

- Assume a $1,000,000 per occurrence underlying limit for CAL
  - Difference in premium between a $2,000,000 per occurrence coverage limit and a $1,000,000 per occurrence coverage limit represents CAL premium portion for 1st million of CU coverage of a CU policy
- Sum of these differences represents premium charge for 1st million of CU coverage
- Such sum is ISO CU Benchmark premium for 1st million of CU coverage for a risk

Starting expected loss ratio (ELR) and CU ELR by state and portfolio CU ELR calculation

Starting expected loss ratio (ELR) and CU ELR by state and portfolio CU ELR calculation

- Starting underlying CU LOB ELR: 1/LCM for each LOB
- If LCMs vary by state for CGL and/or CAL, then have to calculate CGL, CAL and CU underlying LOB ELR separately by state
- CU expected loss ratio is actually sum of:
  - Weighted average percentage of underlying CU CGL ELR by state and weighted average percentage of underlying CU CAL ELR by state
    - Weighted average percentage is based on underlying CGL premium from CU policies and underlying CAL premium from CU policies with each premium amount divided by the sum of those premium amounts
      - This sum is individual state CU ELR
  - Portfolio CU ELR is sum of weighted average amount of individual state CU ELR based on each state's percentage of total CU premium

Starting expected loss ratio (ELR) and CU ELR by state and portfolio CU ELR calculation

Example:

State	LOB	Premium	LCM	ELR
A	CGL	7,000,000	1.65	60.61%
A	CAL	10,000,000	1.30	76.92%
A	CU	850,000		
B	CGL	25,000,000	1.70	58.82%
B	CAL	40,000,000	1.15	86.96%
B	CU	3,250,000		

Starting expected loss ratio (ELR) and CU ELR by state and portfolio CU ELR calculation

Commercial Umbrella Expected Loss Ratio using 1/LCM					
State	**LOB**	Premium	Weight	ELR	CU ELR
A	CGL	7,000,000	41.18%	60.61%	24.96%
A	CAL	10,000,000	58.82%	76.92%	45.24%
		17,000,000	**State A CU ELR:**		**70.20%**
B	CGL	25,000,000	38.46%	58.92%	22.62%
B	CAL	40,000,000	61.54%	86.96%	53.52%
		65,000,000	**State B CU ELR:**		**76.14%**
A	CU	850,000	20.73%	70.20%	14.55%
B	CU	3,250,000	79.27%	76.14%	60.36%
		4,100,000	**Portfolio CU ELR**		**74.91%**

Incorporating effect of using manual premium on CU ELR

Incorporating effect of using manual premium on CU ELR

Commercial Umbrella Portfolio Modification Factors					
State	**LOB**	Schedule Mod	Experience Mod	Package Mod	Fleet Factor
A	CGL	-.11	-.04	-.11	NA
A	CAL	-.04	-.08	NA	+.04
A	CU	-.06	NA	NA	NA
B	CGL	-.13	-.08	-.03	NA
B	CAL	-.02	+.03	NA	+.03
B	CU	-.11	NA	NA	NA

Incorporating effect of using manual premium on CU ELR

- How does cedent define "manual premium" for CU rating purposes?
  - For GL, does cedent back out:
    - Schedule mod (or IRPM) only
    - Schedule and experience mod
    - Schedule, experience and package modification factors (full RMF)
  - For CAL, does cedent back out
    - Schedule mod only
    - Schedule and experience mod
    - Schedule, experience and fleet modification factors (full RMF)

Incorporating effect of using manual premium on CU ELR

- If the applicable modification factor is a portfolio credit and is "backed-out" in the calculation of manual premium, underlying CU LOB ELR should be lowered by multiplying starting underlying CU LOB ELR (using 1/LCM) by (1.00 +/- the portfolio debit or credit in decimal format)
  - Use minus sign for credits because credits decrease the underlying CU LOB ELR.
    - For example, a portfolio schedule credit of 17% would mean underlying CU LOB ELR (using 1/LCM) is multiplied by .83.

Incorporating effect of using manual premium on CU ELR

- If applicable modification factor is not "backed-out" in the calculation of manual premium do NOT reduce the underlying CU LOB ELR if such factor is a credit or do NOT increase the ELR if such factor is a debit
  - *Umbrella reinsurer needs to decide if non-discretionary credits/debits such as package mod, fleet factor mod and experience mod should be backed-out in the calculation of umbrella manual premium*
    - If reinsurer thinks these factors should not be backed out, but cedent does back them out, should the underlying CU LOB ELR be adjusted accordingly?

Incorporating effect of using manual premium on CU ELR

- Assume only schedule modification factors are "backed-out" in calculation of manual premium

Commercial Umbrella By State Expected Loss Ratio							
State	LOB	1/LCM CU ELR*	Weight**	State CU ELR	Sched Mod***	Man. Prem. CU ELR	Man. Prem. LOB ELR
A	CGL	60.61%	41.18%	24.96%	.89	22.21%	53.94%
A	CAL	76.92%	58.82%	45.24%	.96	43.43%	73.84%
				70.20%		**65.64%**	
B	CGL	58.82%	38.46%	22.62%	.87	19.68%	51.17%
B	CAL	86.96%	61.54%	53.52%	.98	52.45%	85.22%
				76.14%		**72.13%**	

* See slide 12 **See slide 13 ***See slide 15

Incorporating effect of using manual premium on CU ELR

Commercial Umbrella Portfolio Expected Loss Ratio					
State	**LOB**	Premium	Weight	Man Prem ELR	CU ELR
A	CGL	7,000,000	41.18%	53.94%	22.21%
A	CAL	10,000,000	58.82%	73.84%	43.43%
		17,000,000		**State A CU ELR:**	**65.64%**
B	CGL	25,000,000	38.46%	51.17%	19.68%
B	CAL	40,000,000	61.54%	85.22%	52.45%
		65,000,000		**State B CU ELR:**	**72.13%**
A	CU	850,000	20.73%	65.64%	13.61%
B	CU	3,250,000	79.27%	72.13%	57.18%
		4,100,000		**Portfolio CU ELR**	**70.79%**

Incorporating effect of using manual premium on CU ELR

- If the underlying modified (or charged) premium is the cedent's commercial umbrella rating base, then umbrella reinsurer needs to decide if underlying CU CGL or CAL ELR should be adjusted by portfolio amount of discretionary credits or debits (schedule modification factor)
  - If reinsurer decides yes, a portfolio credit would increase the underlying CU LOB ELR and a portfolio debit would decrease it

    - Assume a portfolio schedule credit of 17%, underlying CU LOB ELR would be modified by (1/LCM ELR)/(1-.17)
- Non-discretionary factors should not adjust underlying CU LOB ELR except:
  - A valid argument could be made that experience modification factor should adjust underlying CU LOB ELR because the maximum single loss value in ISO's experience mod calculation is often quite low (<$300,000)

Effect of percent of underlying factor on CU ELR

Effect of percent of underlying factor on CGL portion of CU ELR

Assume the following is from ISO's most recent CGL ILF tables for State A						
Limit	Table 1	Table 2	Table 3	Table A	Table B	Table C
2,000,000	1.52	1.72	2.29	1.71	2.07	2.48
1,000,000	1.43	1.54	1.79	1.55	1.75	2.00
% of U/L	6.29%	11.69%	27.93%	10.32%	18.29%	24.00%

Assume the following is from ISO's most recent CGL ILF tables for State B						
Limit	Table 1	Table 2	Table 3	Table A	Table B	Table C
2,000,000	1.35	1.51	2.05	1.71	2.07	2.48
1,000,000	1.23	1.34	1.60	1.55	1.75	2.00
% of U/L	9.76%	12.69%	28.13%	10.32%	18.29%	24.00%

Assume the following is cedent's CGL percent of underlying factors for both states						
	Table 1	Table 2	Table 3	Table A	Table B	Table C
% of U/L	8%	12%	18%	8%	12%	18%

Effect of percent of underlying factor on CGL portion of CU ELR

Assume the following is from ISO's most recent CGL ILF tables for State A						
Limit	Table 1	Table 2	Table 3	Table A	Table B	Table C
2,000,000	1.52	1.72	2.29	1.71	2.07	2.48
1,000,000	1.43	1.54	1.79	1.55	1.75	2.00
% of U/L	6.29%	11.69%	27.93%	10.32%	18.29%	24.00%

Assume the following is cedent's CGL percent of underlying factors for State A						
	Table 1	Table 2	Table 3	Table A	Table B	Table C
% of U/L	8%	12%	18%	8%	12%	18%

Redundancy or deficiency of cedent's CGL % of underlying factors relative to ISO's most recent CGL ILFs for State A						
	Table 1	Table 2	Table 3	Table A	Table B	Table C
ELR effect	78.63%	97.42%	155.17%	129.00%	152.42%	133.33%

CGL portion of CU ELR prior to the effect of the redundancy or deficiency of cedent's CGL percent of underlying factors relative to ISO's CGL ILFs is multiplied by the above percentages. % > 100% increases ELR; % < 100% decreases ELR

Effect of percent of underlying factor on CGL portion of CU ELR

Assume the following is from ISO's most recent CGL ILF tables for State B

Limit	Table 1	Table 2	Table 3	Table A	Table B	Table C
2,000,000	1.35	1.51	2.05	1.71	2.07	2.48
1,000,000	1.23	1.34	1.60	1.55	1.75	2.00
% of U/L	9.76%	12.69%	28.13%	10.32%	18.29%	24.00%

Assume the following is cedent's CGL percent of underlying factors for State B

	Table 1	Table 2	Table 3	Table A	Table B	Table C
% of U/L	8%	12%	18%	8%	12%	18%

Redundancy or deficiency of cedent's CGL % of underlying factors relative to ISO's most recent CGL ILFs for State B

	Table 1	Table 2	Table 3	Table A	Table B	Table C
ELR effect	122.00%	105.75%	156.28%	129.00%	152.42%	133.33%

CGL portion of CU ELR prior to the effect of the redundancy or deficiency of cedent's CGL percent of underlying factors relative to ISO's CGL ILFs is multiplied by the above percentages. % > 100% increases ELR; % < 100% decreases ELR

Effect of percent of underlying factor on CGL portion of CU ELR

Assume the following is cedent's percentage of CGL premium by ISO CGL ILF table by state

State	Table 1	Table 2	Table 3	Table A	Table B	Table C
State A	10%	57%	3%	9%	18%	3%
State B	17%	54%	3%	7%	16%	3%

Redundancy or deficiency of cedent's CGL % of underlying factors relative to ISO's most recent CGL ILFs by state (from slides 24 and 25)

State	Table 1	Table 2	Table 3	Table A	Table B	Table C
State A	78.63%	97.42%	155.17%	129.00%	152.42%	133.33%
State B	122.00%	105.75%	156.28%	129.00%	152.42%	133.33%

Weighted average redundancy or deficiency of cedent's CGL % of underlying factors relative to ISO's most recent CGL ILFs by state

	1	2	3	A	B	C	Total
A	7.86%	55.53%	4.66%	11.61%	27.44%	4.00%	**111.10%**
B	20.74%	57.11%	4.69%	9.03%	24.39%	4.00%	**119.96%**

Effect of percent of underlying factor on CAL portion of CU ELR

Assume the following is from ISO's most recent CAL ILF tables for State A

Limit	Lt & Med	Heavy	X-Heavy	All Other	Zone
2,000,000	1.91	2.15	2.33	1.88	2.53
1,000,000	1.71	1.81	1.88	1.68	2.00
% of U/L	11.70%	18.78%	23.94%	11.90%	26.50%

Assume the following is from ISO's most recent CAL ILF tables for State B

Limit	Lt & Med	Heavy	X-Heavy	All Other	Zone
2,000,000	1.66	1.94	2.14	1.73	2.53
1,000,000	1.48	1.63	1.72	1.54	2.00
% of U/L	12.16%	19.02%	24.42%	12.34%	26.50%

Assume the following is cedent's CAL percent of underlying factors for both states

	Lt & Med	Heavy	X-Heavy	All Other	Zone
% of U/L	10%	20%	27%	10%	35%

Effect of percent of underlying factor on CAL portion of CU ELR

Assume the following is from ISO's most recent CAL ILF tables for State A					
Limit	Lt & Med	Heavy	X-Heavy	All Other	Zone
2,000,000	1.91	2.15	2.33	1.88	2.53
1,000,000	1.71	1.81	1.88	1.68	2.00
% of U/L	11.70%	18.78%	23.94%	11.90%	26.50%

Assume the following is cedent's CAL percent of underlying factors for State A					
	Lt & Med	Heavy	X-Heavy	All Other	Zone
% of U/L	10%	20%	27%	10%	35%

Redundancy or deficiency of cedent's % of underlying factors relative to ISO's most recent CAL ILFs for State A					
	Lt & Med	Heavy	X-Heavy	All Other	Zone
ELR effect	117.00%	93.90%	88.67%	119.00%	75.71%

CAL portion of CU ELR prior to the effect of the redundancy or deficiency of cedent's CAL percent of underlying factors relative to ISO's CAL ILFs is multiplied by the above percentages. % > 100% increases ELR; % < 100% decreases ELR

Effect of percent of underlying factor on CAL portion of CU ELR

Assume the following is from ISO's most recent CAL ILF tables for State B					
Limit	Lt & Med	Heavy	X-Heavy	All Other	Zone
2,000,000	1.66	1.94	2.14	1.73	2.53
1,000,000	1.48	1.63	1.72	1.54	2.00
% of U/L	12.16%	19.02%	24.42%	12.34%	26.50%%

Assume the following is cedent's CAL percent of underlying factors for State B					
	Lt & Med	Heavy	X-Heavy	All Other	Zone
% of U/L	10%	20%	27%	10%	35%

Redundancy or deficiency of cedent's % of underlying factors relative to ISO's most recent CAL ILFs for State B					
	Lt & Med	Heavy	X-Heavy	All Other	Zone
ELR effect	121.60%	95.10%	90.44%	123.40%	75.71%

CAL portion of CU ELR prior to the effect of the redundancy or deficiency of cedent's CAL percent of underlying factors relative to ISO's CAL ILFs is multiplied by the above percentages. % > 100% increases ELR; % < 100% decreases ELR

Effect of percent of underlying factor on CAL portion of CU ELR

Assume the following is cedent's percentage of CAL premium by ISO CGL ILF table by state					
State	Lt & Med	Heavy	X-Heavy	All Other	Zone
State A	46%	11%	4%	39%	0%
State B	43%	9%	5%	43%	0%

Redundancy or deficiency of cedent's CAL % of underlying factors relative to ISO's most recent CAL ILFs by state (from slides 28 and 29)					
State	Lt & Med	Heavy	X-Heavy	All Other	Zone
State A	117.00%	93.90%	88.67%	119.00%	75.71%
State B	121.60%	95.10%	90.44%	123.40%	75.71%

Weighted average redundancy or deficiency of cedent's CGL % of underlying factors relative to ISO's most recent CGL ILFs by state						
State	Lt & Med	Heavy	X-Heavy	All Other	Zone	Total
A	53.82%	10.33%	3.55%	46.41%	0%	**114.11%**
B	52.29%	8.56%	4.52%	53.06%	0%	**118.43%**

General Public Release

Effect of percent of underlying factor on CAL portion of CU ELR

Commercial Umbrella Portfolio Expected Loss Ratio								
State	LOB	Prem	Wt. Avg. LOB Prem	1/LCM ELR	Sched Mod	Man Prem LOB ELR	% UL Factor on LOB ELR	% UL Factor LOB & CU ELR
A	CGL	7,000,000	41.18%	60.61%	.89	53.94%	111.10%	59.93%
A	CAL	10,000,000	58.82%	76.92%	.96	73.84%	114.11%	84.26%
		17,000,000		**70.20%**		**65.64%**		**74.24%**
B	CGL	25,000,000	38.46%	58.82%	.87	51.17%	119.96%	61.38%
B	CAL	40,000,000	61.54%	86.96%	.98	85.22%	118.43%	100.93%
		65,000,000		**76.14%**		**72.12%**		**85.71%**
A	CU	850,000	20.73%	14.55%		13.61%		15.39%
B	CU	3,250,000	79.27%	60.36%		57.17%		67.94%
		4,100,000		**74.91%**		**70.78%**		**83.33%**

CAS Seminar on Reinsurance | June 7, 2016 | Gerald Deneen 31

General Public Release

Other factors that impact CU ELR

CAS Seminar on Reinsurance | June 7, 2016 | Gerald Deneen 32

General Public Release

Other factors that impact CU ELR

- Impact of "outdated" ILF edition date
  - Calculate the percentage difference for each ILF table between current ISO edition date and cedent's ILF edition date
    - Determine weighted average difference based on premium distribution by table
  - Impacts underlying CU LOB ELR
- Impact of "outdated" loss cost edition date
  - Impacts underlying CU LOB ELR
- Impact of a cedent's proprietary or non-ISO credits or debits
  - Example: premium size discount, umbrella ILF discount
  - Impacts underlying CU LOB ELR

CAS Seminar on Reinsurance | June 7, 2016 | Gerald Deneen 33

Other factors that impact CU ELR

- If auto unit rates are used instead of percent of underlying factor determine ISO auto unit charge using method described in slide 9
  - Compare above calculation with cedent's commercial auto unit rates
  - Impacts underlying CU CAL ELR
- Impact of cedent's CLASS PLAN factors if they are different than ISO's most recent CLASS PLAN factors
  - Impacts underlying CU CAL ELR

Other factors that impact CU ELR

- Impact of minimum premium per million charges
- Impact of umbrella ILF factors
  - Create ISO commercial umbrella ILF table using most recent ISO CAL and CGL ILF tables
    - Create weighted average CU ILF table using premium distribution by ISO CAL and CGL ILF table
      - Compare cedent's CU ILF table to the above weighted average CU ILF table
- Impact of commercial umbrella judgment modification (schedule debit or credit) factors
- All of the above bullet points on this slide impact CU ELR after portfolio CU ELR is calculated by applying each state's weighted average CU premium against that state's calculated CU ELR

Q & A

Thank you

General Public Release

General Public Release

Legal notice