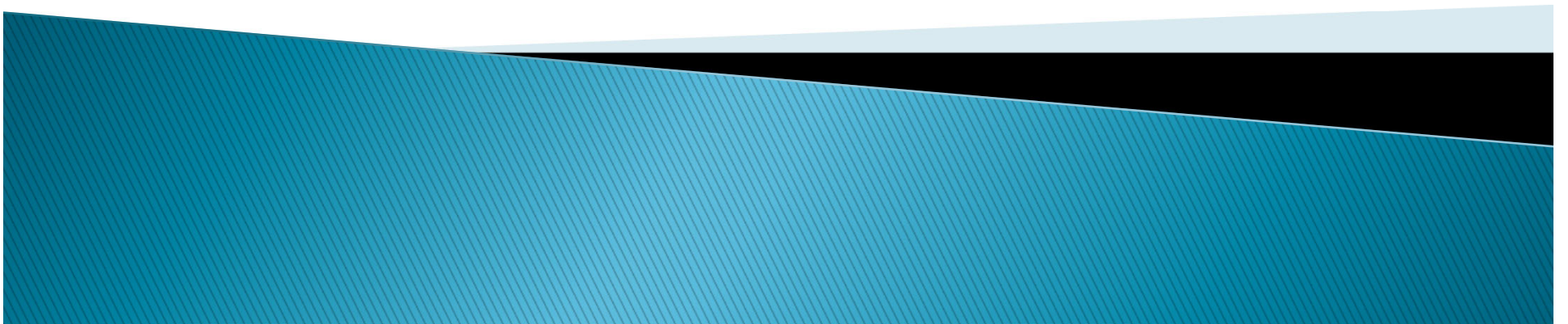


Lies, Damned Lies, and Collateral Calculations

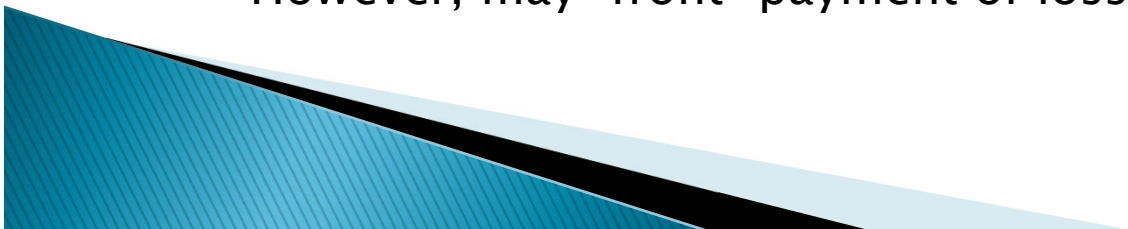
Ron Fowler and Rose Barrett

CLRS 9/19/19



Why do we need collateral?

- ▶ Insurer is required to pay claims, even if client doesn't reimburse
- ▶ Credit risk situations include:
 - Large deductibles
 - Retro programs
 - Captives
- ▶ Self insured programs are different
 - Insurer not required to pay SIR losses
 - However, may “front” payment of losses



Making Collateral Great Again!

- ▶ Data – make sure your data is accurate – avoid reconciliation nightmares
- ▶ Share calculations – part one
- ▶ Test the calculations for reasonableness – YOY compare
- ▶ Validate – sanity checks
- ▶ Share calculations – part two
- ▶ Debate – assumption discussion between actuaries
- ▶ Compromise – there is never a clear winner



A typical first year collateral calculation

- ▶ Actuary projects total loss within client retention
- ▶ Collateral = first year loss pick - paid loss credit + buffer
- ▶ Buffer may be waived for superior credit risk
- ▶ Paid loss credits may reflect credit risk
- ▶ This is where the client's actuary gets involved



Data

- ▶ Pick one source – save hours of reconciliation time
- ▶ Pick a common evaluation date
- ▶ Adjust for self insured states (WC)
- ▶ Limit losses
- ▶ Discontinued operations (forecast)
- ▶ Wrong data example



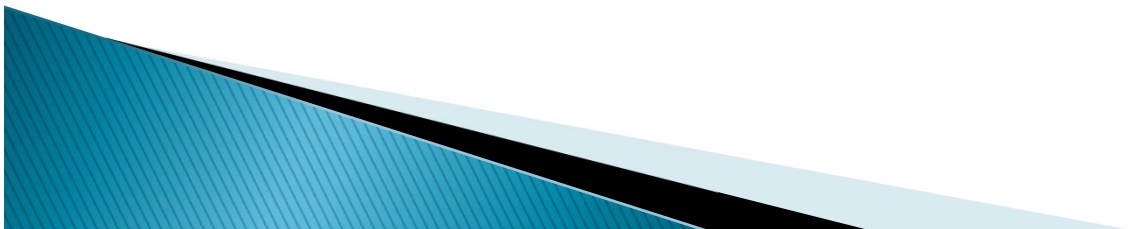
Share Calculations

- ▶ Compare your numbers to the carriers estimates
- ▶ Reconcile the data to yours
- ▶ If carrier is lower – STOP!
- ▶ If carrier is higher, spot areas with biggest differences
- ▶ Years with no open claims, disc ops, etc.



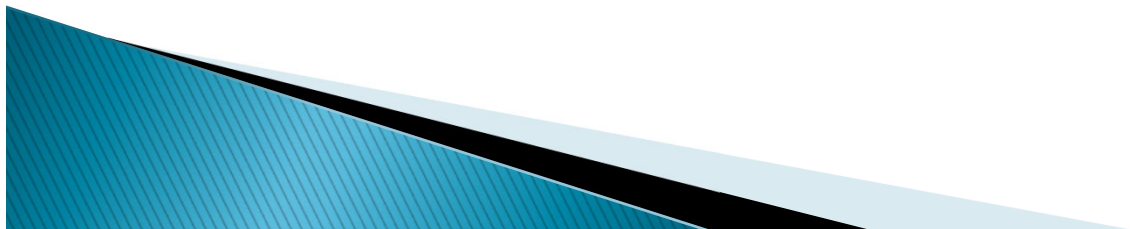
Second and subsequent year collateral

- ▶ As years are added to program, the collateral builds up, but there are efficiencies of scale
- ▶ A new calculation of expected future loss on prior years is added to prospective year loss pick
- ▶ Typically, an added year will not cost a full year's amount of collateral as the old year runoff offsets



Ramp up – The first year

Loss Pick	2,000,000				
	SINGLE POLICY YEAR				
	Cumulative Payout pattern	Losses Emerged	Losses Unemerged	Total Loss	End of Year Collateral
CY 1	28%	560,000	1,440,000	2,000,000	1,440,000
CY 2	62%	1,240,000	760,000	2,000,000	<i>760,000</i>
CY 3	76%	1,520,000	480,000	2,000,000	<i>480,000</i>
CY 4	83%	1,660,000	340,000	2,000,000	<i>340,000</i>
CY 5	93%	1,860,000	140,000	2,000,000	<i>140,000</i>
CY 6	100%	2,000,000		2,000,000	



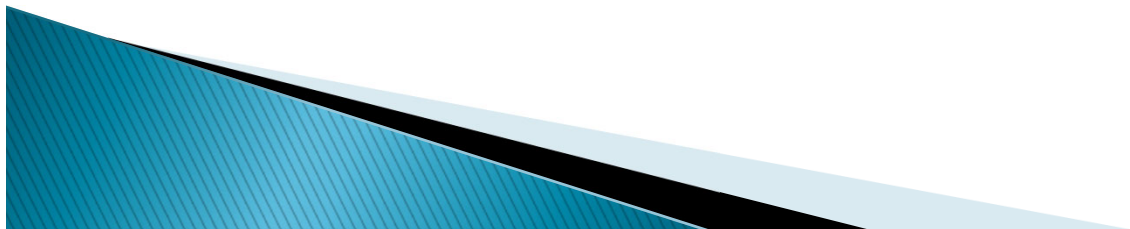
Ramp up – The second year

Loss Pick	2,000,000			
ADD A SECOND POLICY YEAR				
	Losses Emerged	Losses Unemerged	Collateral From PY 1	PY1 + PY2 Total Collateral
CY 2	560,000	1,440,000	760,000	2,200,000
CY 3	1,240,000	760,000	480,000	<i>1,240,000</i>
CY 4	1,520,000	480,000	340,000	<i>820,000</i>
CY 5	1,660,000	340,000	140,000	<i>480,000</i>
CY 6	1,860,000	140,000		<i>140,000</i>
CY 7	2,000,000			



Ramp up – The third year

Loss Pick	2,000,000			
ADD A THIRD POLICY YEAR				
	Losses Emerged	Losses Unemerged	Collateral From PY 1 + PY 2	PY1 + PY2+PY3 Total Collateral
CY 3	560,000	1,440,000	1,240,000	2,680,000
CY 4	1,240,000	760,000	820,000	<i>1,580,000</i>
CY 5	1,520,000	480,000	480,000	<i>960,000</i>
CY 6	1,660,000	340,000	140,000	<i>480,000</i>
CY 7	1,860,000	140,000		<i>140,000</i>
CY 8	2,000,000	-		



Ramp up – The Long Run

program renews at same loss pick every year

	End of Year Collateral	Additional Collateral
CY 1	1,440,000	
CY 2	2,200,000	760,000
CY 3	2,680,000	480,000
CY 4	3,020,000	340,000
CY 5	3,160,000	140,000
CY 6	3,160,000	-
CY 7	3,160,000	-
CY 8	3,160,000	-
CY 9	3,160,000	-

No additional collateral



Test

- ▶ If you have estimated collateral in prior years
 - Actual vs. Expected comparison
 - Loss development factor changes
 - Methodology changes
 - Ultimate loss changes
 - Use the carrier current and prior analyses to raise points



Test

Accident Period Beginning 1/1/xx	6/30/16 - 6/30/15		
	Estimated Ultimate	Incurred A vs. E	Paid A vs. E
2007	(376,179)	(231,407)	281,167
2008	(41,569)	23,093	26,875
2009	(73,619)	(168,009)	385,464
2010	697,697	999,816	214,426
2011	(639,019)	(692,950)	524,217
2012	(238,519)	(827,952)	596,345
2013	(1,081,135)	(988,666)	731,747
2014	618,342	433,875	(14,562)
2015	(28,567)	(1,960,692)	(1,357,534)
2016	619,088	(1,198,479)	(230,310)
Total	(543,480)	(4,611,371)	1,157,835

Do the ultimate loss changes makes sense? 2015 and 2016 changes do not.

You can compare actual incurred loss emergence to the carrier's expected emergence (based on prior year study)



Loss development considerations

- ▶ In portfolio pricing, over-developing one risk's losses offsets under-developing another's
- ▶ Not so in collateral
- ▶ An overage for one client can't be used to fund a shortfall for another



Validate

- ▶ Drop carrier's ultimate losses into your analysis and check
 - Incurred to ultimate loss ratios (triangle)
 - Paid to ultimate loss ratios (triangle)
 - Average IBNR per unpaid claim (triangle)
 - Average unpaid loss per unpaid claim (triangle)
 - Frequency, severity, and loss rate



Validate

Carrier Estimates

Accident Period Beginning 1/1/xx	Manhours (000's)	Ultimate Claims Counts	Ultimate Loss	Claim Severity	Frequency (Per 1M)	Loss Rate (Per 1k)
2007	10,321	1,910	20,114,789	10,531	31.0	326
2008	8,740	1,858	17,319,932	9,322	30.4	283
2009	10,346	1,644	17,977,748	10,935	30.4	332
2010	23,887	720	18,321,939	25,447	25.4	647
2011	25,030	702	19,497,752	27,775	27.3	759
2012	22,196	787	20,850,361	26,493	27.7	733
2013	20,902	756	20,829,053	27,552	25.4	700
2014	21,545	623	19,784,702	31,757	20.6	653
2015	12,775	603	18,111,160	30,035	20.3	609
2016	7,199	600	19,675,494	32,792	20.0	655

Do the implied severities, frequencies, and loss rates make sense?

Frequency is decreasing but ultimate losses are not



Validate

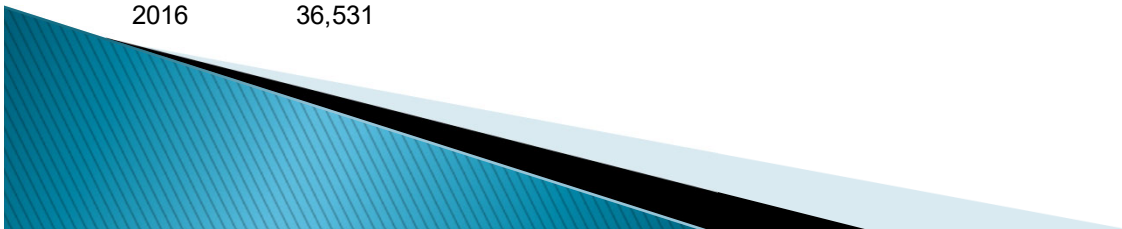
Average Unpaid Loss & ALAE:

Accident Period Beginning 1/1/xx	6	18	30	42	54	66
2007	28,250	47,073	70,471	91,022	111,670	120,112
2008	29,372	48,195	71,593	95,385	98,252	92,897
2009	30,494	49,317	67,003	76,217	86,770	86,424
2010	31,616	66,673	74,671	88,096	97,009	108,232
2011	34,009	67,035	80,136	97,251	86,486	109,000
2012	31,018	58,601	72,027	85,577	99,466	
2013	30,432	60,161	65,302	78,629		
2014	36,588	74,140	83,178			
2015	35,100	76,000				
2016	38,500					

Average IBNR Loss & ALAE:

Accident Period Beginning 1/1/xx	6	18	30	42	54	66
2007	25,316	28,892	37,074	56,899	56,964	50,127
2008	26,438	30,014	38,196	46,393	40,853	36,310
2009	27,560	31,136	44,367	48,162	49,744	47,636
2010	28,682	46,554	51,068	53,215	64,092	56,857
2011	29,633	48,222	48,149	58,911	32,642	54,905
2012	26,662	41,107	46,534	41,277	61,586	
2013	27,884	46,531	36,197	51,014		
2014	34,347	51,131	50,000			
2015	31,619	59,759				
2016	36,531					

- Review the diagnostics to determine if carrier estimates are too conservative
- Based on the information, it appears that 14, 15, and 16 estimates may be conservative
- It is useful to look at paid to ultimate and incurred to ultimate ratios as well

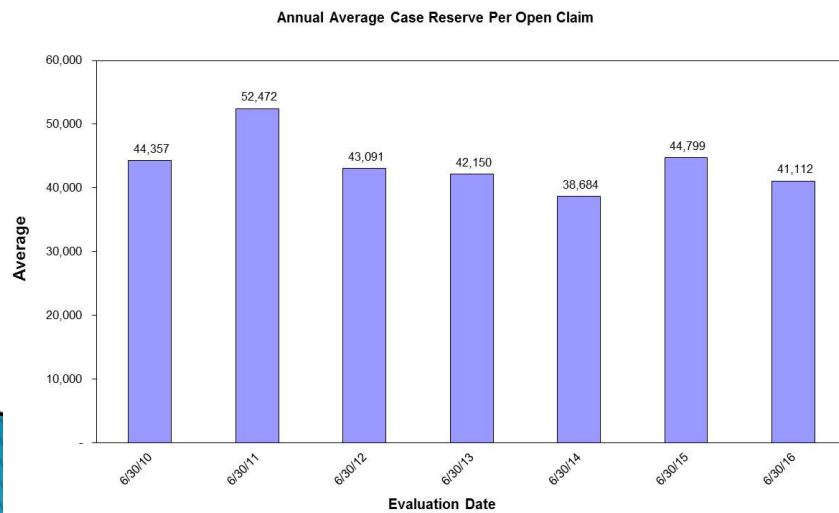
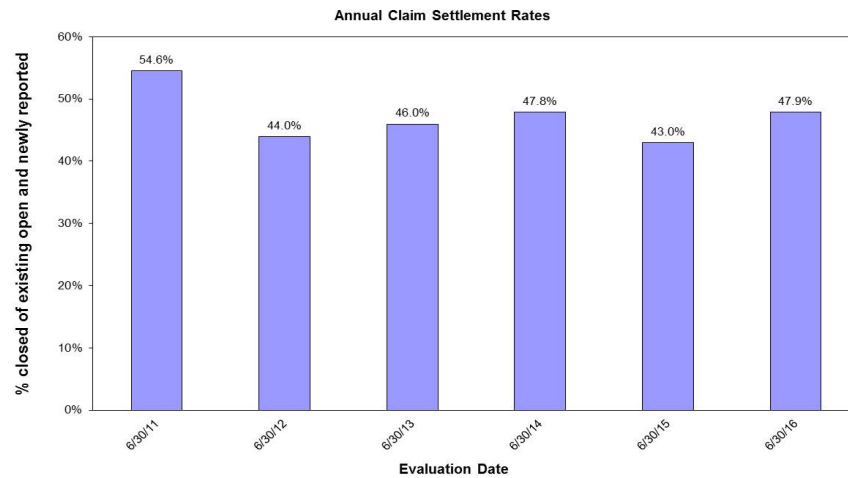


Share (part two)

- ▶ Provide your analysis to the carrier (if you think it will help)
- ▶ Typically don't share method outcomes, just the selected ultimate
- ▶ Loss and claim triangles – LDF compare
- ▶ Claim performance trends
- ▶ Alternate methods – Berquist – Sherman
- ▶ Attempt to get carrier to adjust assumptions



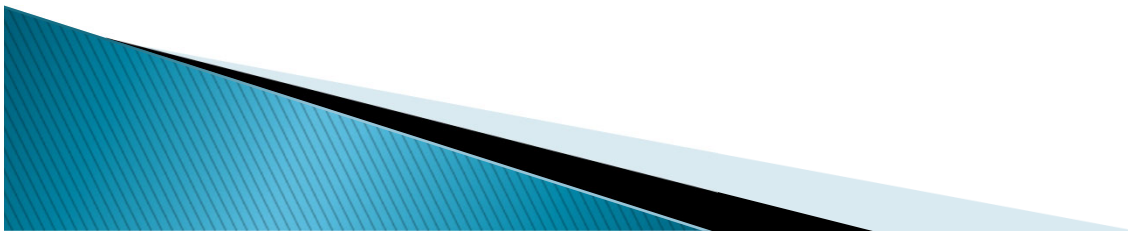
Share



- Review the diagnostics to assess if claim settlement or case reserving trends are changing
- If there is a significant change, additional methods may be warranted
- Use this information to try and convince the carrier to adjust their assumptions

Debate

- ▶ At some point the actuaries are done (usually not in total agreement)
- ▶ Time to discuss how sausage is made... I mean how paid loss credits are determined
- ▶ On second thought, I will let the carrier actuary tackle it
- ▶ Engage in the “relationship” discussion
- ▶ Declare compromise



Typical loss development arguments

- ▶ “Why are you developing all my claims, including the closed ones?”
- ▶ “Can’t you ‘zero out’ historical years where all claims are closed?”
- ▶ “My loss development factors are better than your benchmark factors.”



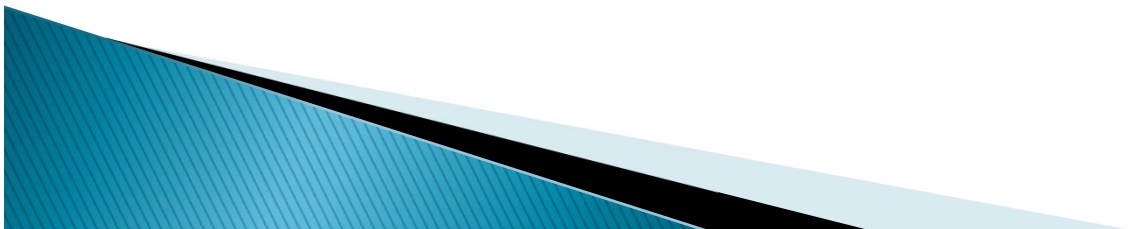
Areas of disagreement

- ▶ *Loss development*
 - ▶ *The timing of runoff*
- Usually actuary vs. actuary
- ▶ Client creditworthiness
 - ▶ Paid loss credits
- Actuaries not always involved



Forms of Collateral

- ▶ Cash
- ▶ Letter of Credit (LOC)
- ▶ Surety Bond
- ▶ Securities
- ▶ Physical assets
- ▶ QUIZ question – is cash collateral or LOC preferable?



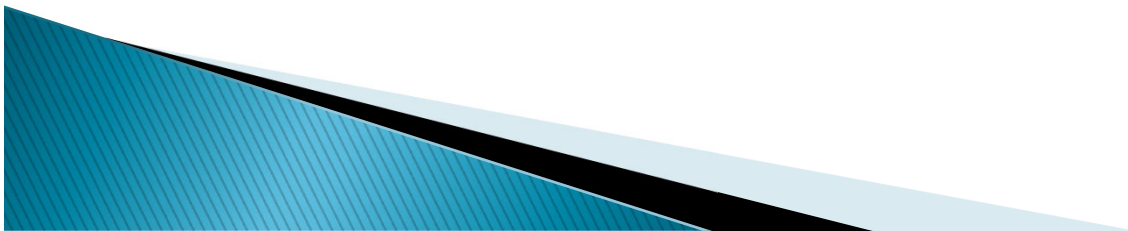
Answer to quiz question

- ▶ If you guessed cash you were wrong
- ▶ Cash depletes with loss, LOC stays at initial funding level
- ▶ Cash is not “bankruptcy remote” & may be surrendered in bankruptcy
- ▶ However, LOC issued by bank can't be withdrawn



Credit Evaluation

- ▶ Most insurers have a credit department
 - Assess creditworthiness & status of clients
 - Keep track of held collateral
 - Negotiate collateral releases
(Good luck with that)



Runoff disputes

- ▶ Off-risk collateral is “sticky”
- ▶ The WC tail is as much as 55 years long
- ▶ Buffer held even if claims are closed
- ▶ One alternative is a close-out



Emerging Issue(s)

- ▶ Regulation of collateral

