Intermediate Track III GL Case Study

2010 CLRS September 20-21, 2010 Lake Buena Vista, FL

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Background Information

GL Insurance Company is a small, stock insurance company that has been insuring businesses against General Liability exposures for over 20 years. The company has insured a stable book of business over the years (essentially the same group of insureds). The company has been well managed and has a healthy balance sheet.

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Background Information

- GL Insurance Company has a small actuarial staff headed by an actuarial student.
- •The department calculated year-end reserves using both the paid and incurred loss development methods.
- •The staff supplements this analysis with the use of expected loss techniques, if needed.

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Background Information

- In previous years, the paid and incurred loss projections were almost identical.
- Recently, differences between the two estimates are emerging.
- GLIC has employed you, a consulting actuary, to complete its current reserve certification and to critique the actuarial work done by GLIC's actuarial department.
- You begin by examining the work done by GLIC's actuarial department.

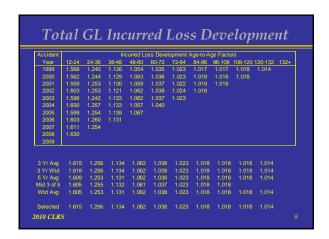
Total GL Paid Loss Development

						.osses (\$					
Accident					Evaluation	n Age in I	Months				
Year	12	24	36	48	60	72	84	96	108	120	132
1999	1,340	3,188	5,072	6,973	8,677	10,008	11,802	12,606	13,174	13,596	14,03
2000	1,857	4,297	6,864	9,438	11,820	13,594	14,783	15,710	16,439	16,972	
2001	2,024	4,891	7,790	10,733	13,792	16,071	17,695	18,886	19,735		
2002	2,781	6,655	10,671	14,738	18,022	20,795	23,179	24,597			
2003	3,439	8,272	13,325	18,551	23,386	26,861	29,409				
2004	3,714	9,039	14,638	20,326	26,117	30,643					
2005	4,652	11,236	18,109	25,239	31,250						
2006	5,292	12,974	21,106	29,611							
2007	6,818	16,984	27,677								
2008	9,337	23,263									
2009	15,073										

Accident			F	Paid Loss	Develop	ment Age	-to-Age	Factors			
Year	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	132
1999	2.379	1.591	1.375	1.244	1.153	1.179	1.068	1.045	1.032	1.032	
2000		1.597	1.375	1.252		1.087	1.063	1.046	1.032		
2001	2.417	1.593	1.378	1.285	1.165		1.067	1.045			
2002	2.393	1.603	1.381	1.223	1.154		1.061				
2003	2.405		1.392	1.261	1.149	1.095					
2004	2.434	1.619	1.389	1.285							
2005	2.415	1.612	1.394	1.238							
2006	2.452	1.627	1.403								
2007	2.491	1.630									
2008	2.491										
2009											
3 Yr Avg	2.478		1.395	1.261		1.104	1.064	1.045		1.032	
3 Yr Wtd	2.482	1.624	1.396	1.259			1.064	1.045		1.032	
5 Yr Avg	2.457		1.392	1.258			1.065	1.045		1.032	
Mid 3 of 5	2.459		1.391	1.261			1.065	1.045			
C IO C DIIVI	2.443		1.390	1.255			1.064	1.045			
Wtd Avg											

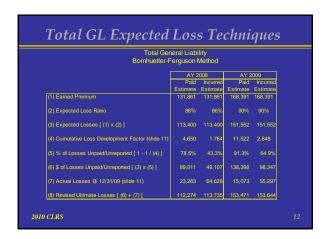












				Total Gene evised Ulti					
		Actual	Losses	Estin	nated	Estin	nated	Estimat	Ultimate
Accident	Earned	@ 12/	31/09	Ultimate	Losses	Require	d IBNR	Loss	Ratio
Year	Premium	Paid	Incurred	Paid	Incurred	Paid	Incurred	Paid	Incurred
(1)	(2)	(3) slide 5	(4) slide 8	(5) slide 11	(6) slide 11	(7)=(5)-(4)	(8)=(6)-(4)	(9)=(7)/(2)	(10)=(8)/(2
				(latest 2 AY f	rom slide 12)				
1999	22,122	14,033	14,778	15,085	15,147	307	369	68.2%	68.5%
2000	26,474	16,972	18,208	18,831	18,926	623		71.1%	
2001	30,286	19,735	21,465	22,603	22,715	1,138	1,250	74.6%	75.0%
2002	37,741	24,597	27,550	29,452	29,675	1,902	2,125	78.0%	78.6%
2003	45,691	29,409	34,584	37,458	37,936	2,874	3,352	82.0%	83.0%
2004	50,562	30,643	38,965	43,070	43,727	4,105	4,762	85.2%	86.5%
2005	60,349	31,250	44,488	50,889	51,846	6,401	7,358	84.3%	85.9%
2006	75,972	29,611	50,322	60,817	62,294	10,495	11,972	80.1%	82.0%
2007	97,616	27,677	58,061	79,303	81,537	21,242	23,476	81.2%	83.5%
2008	131,861	23,263	64,628	112,274	113,735	47,646	49,107	85.1%	86.3%
2009	168,391	15,073	55,297	153,471	153,644	98,174	98,347	91.1%	91.2%
Total	747,065	262,263	428,346	623,255	631,182	194,909	202,836	83.4%	84.5%

Summary of IBNR Estimates	
Total General Liability Paid Estimate (slide 13)	194,909
Total General Liability Incurred Estimate (slide 13)	202,836
GLIC Actuary Selection (average)	198,872
GLIC Carried IBNR Reserves	198,304
Indicated Redundancy/(Deficiency)	-568

Additional Research Next you interview the vice president of each of the following departments: • Claims • Marketing • Underwriting

Vice 1	Presid	lent o	f Cl	laims
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- Staff and procedures have remained the same for as long as anyone can remember.
- Systems have not changed, and there have been no accounting or other changes that would have impacted year-end processing.

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Vice President of Marketing

- The client base is extremely stable.
- Growth has come primarily from increase in business from existing clients, as opposed to new clients.
- GLIC's clients represent almost all US distributors of Widgets.
- These clients are expanding into other areas, generating the growth in premium.
- Given the company's understanding of the product and their sensible approach to pricing (small annual increases), they have captured and retained their niche market.

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Vice President of Underwriting

- The VP is concerned about the 10% loss ratio (including DCC) deterioration over the last four accident years.
- They attribute at least part of the problem to the heavier GL exposures being accepted from their long-term clients.

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Accident		Earned Pre	mium (\$000)	
Year	Total	Heavy	Light	% Heavy
(1)	(2)	(3)	(4)	(5)
1999	22,122	192	21.930	0.9%
2000	26,474	822	25,652	3.1%
2001	30,286	2,499	27,787	8.3%
2002	37,741	5,101	32,640	13.5%
2003	45,691	9,987	35,704	21.9%
2004	50,562	12,065	38,497	23.9%
2005	60,349	15,174	45,175	25.1%
2006	75,972	22,537	53,435	29.7%
2007	97,616	35,455	62,161	36.3%
2008	131,861	59,999	71,862	45.5%
2009	168,391	86,337	82,054	51.3%
Total	747,065	250,168	496,897	33.5%

Vice President of Underwriting

- The underwriting department, with the help of the actuarial staff, will be conducting separate rate analyses for Heavy GL versus Light GL later in the year.
- Although the analysis has not yet been completed, the underwriting department suspects that Heavy GL rates need to increase by more than the traditional 5% annual increase taken in previous years for Total GL.
- Loss development triangles by class of business have just been provided via an ad hoc request to the data processing department.

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Light GL

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Accident						Losses (\$					
Accident Year		24	36	48	Evalual 60	tion Age in 72	ivioniths 84	96	108	120	132
1999	1,329	3,159	5,023	6,902	8,586	9,900	11,682	12,476	13,037	13,454	13,885
2000	1,812	4,177	6,654	9,129	11,420	13,122	14,250	15,134	15,830	16,337	
2001	1,886		7,150	9,838	12,543	14,575	16,018	17,075	17,826		
2002	2,463	5,810	9,220	12,631	15,359	17,647	19,606	20,763			
2003	2,795	6,565	10,399	14,288	17,831	20,345	22,176				
2004	2,956	7,012	11,149	15,263	19,384	22,563					
2005	3,643	8,561	13,535	18,584	22,765						
2006		9,331	14,836	20,444							
2007	4,661	11,154	17,679								
2008	5,544	13,128									
2009	10,484										

Accident				Paid L	oss Develo	pment Age	-to-Age Fai	ctors			
Year		24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120-132	
1999	2.377	1.590	1.374	1.244	1.153	1.180	1.068	1.045	1.032	1.032	
2000								1.046			
2001											
2002	2.359	1.587					1.059				
2003	2.349	1.584		1.248		1.090					
2004	2.372	1.590									
2005	2.350	1.581									
2006	2.373	1.590									
2007	2.393	1.585									
2008 2009	2.368										
3 Yr Wtd	2.378	1.585		1.246			1.062	1.045		1.032	
5 Yr Avg	2.371	1.586	1.373	1.247	1.153		1.064	1.045		1.032	
Mid 3 of 5	2.371	1.586	1.372	1.248	1.153	1.100	1.064	1.045			
Wtd Avg	2.367	1.587		1.245			1.063	1.045			
Selected	2.378	1,585	1.373	1,248		1,100	1.062	1.045	1.032	1.032	



Accident						ed Losses ion Age in					
Year					60	72	84				
1999	5,612	8,794	10,896	12,269	12,932	13,385	13,693	13,926	14,163	14,418	14,620
2000	6,752	10,520	13,066	14,738	15,666	16,230	16,603	16,902	17,206	17,516	
2001	7,642		14,773	16,649		18,249	18,650	19,004	19,346		
2002		14,561	18,128	20,249	21,464	22,258	22,770				
2003	10,611	16,569	20,491	23,073	24,434	25,289	25,845				
2004	11,775	18,475	22,964	25,857	27,253	28,289					
2005	13,600	21,311	26,404	29,863	31,744						
2006	15,388	24,082	29,934	33,586							
2007		28,394	35,038								
2008	21,383	33,614									
2009	29,195										

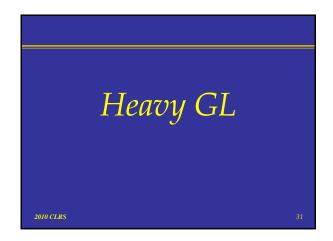


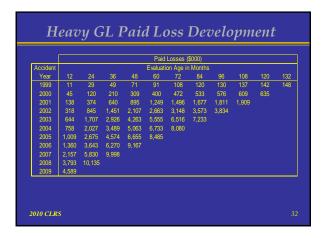


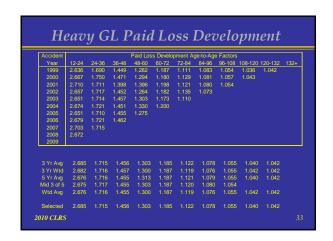
		s	ummaryo	f Loss Dev	velopment	Projection	ns		
			Losses	Cumi		Estim		Estimate	e Ultimate
Accident	Earned	@ 12	/31/09	11		Ultimate			Ratio
Year	Premium	Paid	Incurred	Paid	Incurred	Paid	Incurred	Paid	Incurred
(1)	(2)	(3) slide 22	(4) slide 25	(5) slide 24	(6) slide 27	(7)=(3)x(5)	(8)=(4)x(6)	(9)=(7)/(2)	(10)=(8)/(2)
1999	21,930	13.885	14.620	1.075	1.025	14.926	14.986	68.1%	68.3%
2000	25,652		17.516		1.039	18,125	18,205	70.7%	71.0%
2001	27,787	17,826	19,346	1.145	1.058	20,410	20,470	73.5%	73.7%
2002	32,640	20.763	23,157	1.196	1.077	24,842	24.935	76.1%	76.4%
2003	35,704	22,176	25,845	1.271	1.096	28,187	28,330	78.9%	79.3%
2004	38,497	22,563	28,289	1.398	1.121	31,546	31,701	81.9%	82.3%
2005	45,175	22,765	31,744	1.610	1.162	36,645	36,877	81.1%	81.6%
2006	53,435	20,444	33,586	2.008	1.230	41,059	41,306	76.8%	77.3%
2007	62,161		35,038		1.385	48,762	48,535		78.1%
2008	71,862		33,614		1.716	57,403	57,675		80.3%
2009	82,054	10,484	29,195		2.689	109,015	78,512	132.9%	95.7%
Total	496,897	198,050	291,950			430,920	401,531	86.7%	80.8%

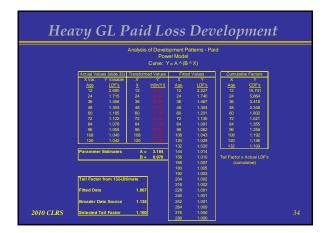
Lig	ht GL Expected Loss	Tec	hniq	ues
	Bornhuetter-Ferguson Meth	nod		
		AY 2	1009	
		Paid	Incurred	
	(1) Earned Premium (slide 28)	Estimate 82.054	82.054	
	(2) Expected Loss Ratio	83.5%	83.5%	
	(3) Expected Losses [(1) x (2)]	68,515	68,515	
	(4) Cumulative Loss Development Factor (slide 28)	10.398	2.689	
	(5) % of Losses Unpaid/Unreported [1 - 1 / (4)]	90.4%	62.8%	
	(6) \$ of Losses Unpaid/Unreported [(3) x (5)]	61,926	43,038	
	(7) Actual Losses @ 12/31/09 (slide 28)	10,484	29,195	
	(8) Revised Ultimate Losses [(6) + (7)]	72,410	72,233	
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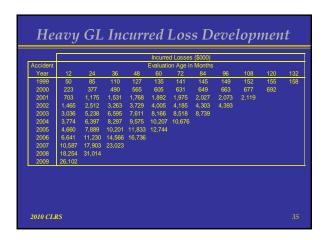
				Light Gene					
		Actual	Losses	Fstin		Estin	notod	Entimet	e Ultimate
Accident Famed		@ 12/31/09		Ultimate Losses		Required IBNR		Loss Ratio	
Year	Premium	Paid	Incurred	Paid	Incurred	Paid	Incurred	Paid	Incurred
(1)	(2)	(3) slide 22	(4) slide 25	(5) slide 28		(7)=(5)-(4)	(8)=(6)-(4)	(9)=(7)/(2)	(10)=(8)/(2
				(latest AY fr	om slide 29)				
1999	21,930	13,885	14,620	14,926	14,986	306	365	68.1%	68.3%
2000	25,652	16,337	17,516	18,125	18,205	609	689	70.7%	71.0%
2001	27,787	17,826	19,346	20,410	20,470	1,064	1,124	73.5%	73.7%
2002	32,640	20,763	23,157	24,842	24,935	1,685	1,778	76.1%	76.4%
2003	35,704	22,176	25,845	28,187	28,330	2,342	2,485	78.9%	79.3%
2004	38,497	22,563	28,289	31,546	31,701	3,257	3,412	81.9%	82.3%
2005	45,175	22,765	31,744	36,645	36,877	4,901	5,133	81.1%	81.6%
2006	53,435	20,444	33,586	41,059	41,306	7,473	7,720	76.8%	77.3%
2007	62,161	17,679	35,038	48,762	48,535	13,724	13,497	78.4%	78.1%
2008	71,862	13,128	33,614	57,403	57,675	23,789	24,061	79.9%	80.3%
2009	82,054	10,484	29,195	72,410	72,233	43,215	43,038		88.0%
Total	496,897	198,050	291,950	394,315	395,252	102,365	103,302	79.4%	79.5%

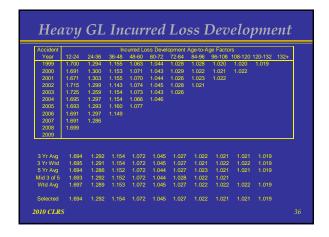


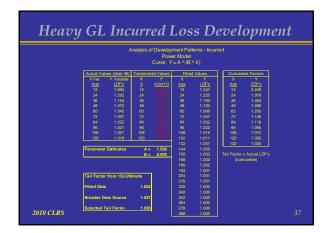




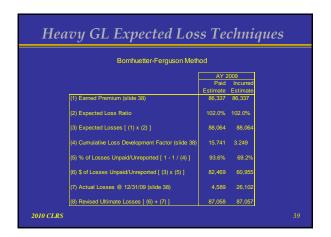








		ich e [, GL	LUS	s De		P IIIC		
		Si	ummary of	Loss De	velopment	Projectio	ns		
		Actual		Cumulative		Estimated		Estimate Ultimate	
Accident	Earned	@ 12/			DF	Ultimate			Ratio
Year	Premium	Paid	Incurred	Paid	Incurred	Paid	Incurred	Paid	Incurred
	(2)	(3) slide 32	(4) slide 35	(5) slide 34	(6) slide 37	(7)=(3)x(5)	(8)=(4)x(6)	(9)=(7)/(2)	(10)=(8)/(2)
1999	192	148	158	1.100		163	163	84.8%	84.8%
2000	822	635	692	1.146	1.050	728	727	88.6%	88.4%
2001	2,499	1,909	2,119	1.192		2,275	2,271	91.0%	90.9%
2002	5,101	3,834	4,393	1.258	1.095	4,821	4,809	94.5%	94.3%
2003	9,987	7,233	8,739	1.355		9,804	9,774	98.2%	97.9%
2004	12,065	8,080	10,676	1.521	1.148	12,288	12,260	101.9%	101.6%
2005	15,174	8,485	12,744	1.802	1.200	15,292	15,289	100.8%	100.8%
2006	22,537	9,167	16,736	2.348	1.286	21,522	21,523	95.5%	95.5%
2007	35,455	9,998	23,023	3.418	1.484	34,177	34,177	96.4%	96.4%
2008	59,999	10,135	31,014		1.918	59,428	59,485	99.0%	99.1%
2009	86,337	4,589	26,102	15.741	3.249	72,235	84,793	83.7%	98.2%
Total	250,168	64,213	136,396			232,733	245,269	93.0%	98.0%



				leavy General Series of Ultime					
		Actual	Losses	Estin	nated	Estin	nated	Estimate	e Ultimate
Accident	Earned	@ 12	/31/09	Ultimate	Losses	Require	d IBNR	Loss	Ratio
Year	Premium	Paid	Incurred	Paid	Incurred	Paid	Incurred	Paid	Incurred
(1)	(2)	(3) slide 32	(4) slide 35	(5) slide 38	(6) slide 38	(7)=(5)-(4)	(8)=(6)-(4)	(9)=(7)/(2)	(10)=(8)/(2
				(latest AY fi	rom slide 39)				
1999	192	148	158	163	163	5	5	84.8%	84.8%
2000	822	635	692	728	727	36	35	88.6%	88.4%
2001	2,499	1,909		2,275	2,271	156	152	91.0%	90.9%
2002	5,101	3,834	4,393	4,821	4,809	428	416	94.5%	94.3%
2003	9,987	7,233	8,739	9,804	9,774	1,065	1,035	98.2%	97.9%
2004	12,065	8,080	10,676	12,288	12,260	1,612	1,584	101.9%	101.6%
2005	15,174	8,485	12,744	15,292		2,548	2,545	100.8%	100.8%
2006	22,537	9,167	16,736	21,522	21,523	4,786	4,787	95.5%	95.5%
2007	35,455	9,998	23,023	34,177	34,177	11,154	11,154	96.4%	96.4%
2008	59,999	10,135	31,014	59,428	59,485	28,414	28,471	99.0%	99.1%
2009	86,337	4,589	26,102	87,058	87,057	60,956	60,955	100.8%	100.8%
Total	250,168	64,213	136,396	247,556	247,533	111,160	111,137	99.0%	98.9%



	Summary of IBNR E	stimates		
Tota	l General Liability (slide 14)	Paid Estimates 194,909	Estimates	
GLIC	Actuary Selection (average)	198	,872	
Sum	of Components Light GL (slide 30) Heavy GL (slide 40) Total GL		103,302 111,137 214,439	
Sele	cted by Consulting Actuary (average)	213	,982	
GLIC	Carried IBNR Reserves	198	,304	
Indic	ated Redundancy/(Deficiency)			