
Intermediate Track III

WC Case Study

2013 CLRS

September 15-17, 2013

Boston, MA

Background Information

WC Insurance Company is a small, stock insurance company that has been insuring businesses against Workers' Compensation exposures for over 15 years. Management of the company has been relatively stable over the years and the company has seen moderate, prudent growth.

Background Information

The insurance department of the company's state of domicile arrived at the company in June 2013 in order to perform its review of statutory financial condition as of December 31, 2012. Its financial examiners began their review of loss reserves by requesting actuarial data triangles of incurred and paid losses as of December 31, 2012. These were provided by the Chief Financial Officer, after being prepared by the company's financial reporting department.

Background Information

You are a recent Associate in the Casualty Actuarial Society and were hired by the Chief Financial Officer in late July to create a small actuarial department at WCIC. The company has been using actuarial consultants for the past few years to fulfill reserve certification requirements; but the CFO has decided that this approach has become too expensive.

Background Information

Your first assignment at WCIC is to follow the progress of the insurance department's review, answer questions and provide any additional data they request, as well as compile additional data and information you think will be necessary to your department in order to estimate reserves in the future.

The insurance department examiners presented you with the results of their review in early August. Their analysis indicated that the company booked a rather large reserve deficiency (15%) in this coverage.

WC Insurance Company

Workers Compensation - Loss Data (\$000)

	Paid Losses									
	Evaluation Age in Months									
	12	24	36	48	60	72	84	96	108	120
2003	580	1,423	1,635	1,764	1,813	1,873	1,908	1,937	1,969	1,991
2004	743	1,656	1,907	2,045	2,100	2,171	2,214	2,246	2,279	
2005	967	2,087	2,398	2,610	2,680	2,756	2,816	2,854		
2006	1,121	2,600	3,041	3,299	3,398	3,506	3,575			
2007	1,531	3,306	3,892	4,197	4,337	4,456				
2008	1,958	4,200	4,892	5,325	5,499					
2009	2,266	4,872	5,697	6,171						
2010	2,608	5,618	6,604							
2011	3,270	7,238								
2012	4,001									

Accident Year	Incurred Losses									
	Evaluation Age in Months									
	12	24	36	48	60	72	84	96	108	120
2003	1,222	1,847	1,959	2,023	2,061	2,081	2,097	2,112	2,167	2,174
2004	1,278	2,128	2,263	2,331	2,378	2,403	2,423	2,497	2,504	
2005	1,682	2,709	2,879	2,961	3,022	3,054	3,158	3,175		
2006	2,213	3,484	3,669	3,767	3,843	3,999	4,017			
2007	2,859	4,390	4,645	4,799	5,060	5,083				
2008	3,524	5,591	5,912	6,316	6,430					
2009	4,232	6,497	7,197	7,305						
2010	4,529	8,023	8,293							
2011	6,794	10,151								
2012	8,590									

WC Insurance Company

Workers Compensation - Loss Development Method Insurance Department Analysis

Accident Year	Paid Loss Development									
	Evaluation Interval in Months									
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120+
2003	2.453	1.149	1.079	1.028	1.033	1.019	1.015	1.017	1.011	
2004	2.229	1.152	1.072	1.027	1.034	1.020	1.014	1.015		
2005	2.158	1.149	1.088	1.027	1.028	1.022	1.013			
2006	2.319	1.170	1.085	1.030	1.032	1.020				
2007	2.159	1.177	1.078	1.033	1.027					
2008	2.145	1.165	1.089	1.033						
2009	2.150	1.169	1.083							
2010	2.154	1.176								
2011	2.213									
2012										
3 Yr Avg	2.173	1.170	1.083	1.032	1.029	1.020	1.014	1.016	1.011	
3 Yr Wtd	2.177	1.170	1.084	1.032	1.029	1.020	1.014	1.016	1.011	
Average	2.220	1.163	1.082	1.030	1.031	1.020	1.014	1.016	1.011	
Wtd Avg	2.194	1.167	1.083	1.031	1.030	1.020	1.014	1.016	1.011	
Select	2.195	1.170	1.085	1.033	1.030	1.020	1.015	1.015	1.010	1.125
Cumulative	3.540	1.613	1.378	1.270	1.230	1.194	1.171	1.153	1.136	1.125

WC Insurance Company

Workers Compensation - Loss Development Method Insurance Department Analysis

Accident Year	Incurred Loss Development									
	Evaluation Interval in Months									
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120+
2003	1.511	1.061	1.033	1.019	1.010	1.008	1.007	1.026	1.003	
2004	1.665	1.063	1.030	1.020	1.011	1.008	1.031	1.003		
2005	1.611	1.063	1.028	1.021	1.011	1.034	1.005			
2006	1.574	1.053	1.027	1.020	1.041	1.005				
2007	1.536	1.058	1.033	1.054	1.005					
2008	1.587	1.057	1.068	1.018						
2009	1.535	1.108	1.015							
2010	1.771	1.034								
2011	1.494									
2012										

3 Yr Avg	1.600	1.066	1.039	1.031	1.019	1.016	1.014	1.014	1.003	
3 Yr Wtd	1.586	1.064	1.038	1.030	1.018	1.015	1.014	1.013	1.003	
Average	1.587	1.062	1.033	1.025	1.015	1.014	1.014	1.014	1.003	
Wtd Avg	1.582	1.062	1.034	1.027	1.016	1.014	1.014	1.013	1.003	
Select	1.600	1.065	1.035	1.030	1.015	1.015	1.015	1.010	1.005	1.030
Cumulative	1.986	1.241	1.165	1.126	1.093	1.077	1.061	1.046	1.035	1.030

WC Insurance Company

Workers Compensation - Ultimate Losses Results of Insurance Department Analysis

(Dollars in Thousands)

Accident Year (1)	Earned Premium (2)	Paid Losses @ 12/31/12 (3) slide 6	Incurred Losses @ 12/31/12 (4) slide 6	Cumulative LDF's		Est. Ultimate Losses		Ultimate Loss Ratio	
				Paid LDM (5) slide 7	Incurred LDM (6) slide 8	Paid LDM (7)=(3)x(5)	Incurred LDM (8)=(4)x(6)	Paid LDM (9)=(7)/(2)	Incurred LDM (10)=(8)/(2)
2003	2,698	1,991	2,174	1.125	1.030	2,240	2,239	83.0%	83.0%
2004	3,029	2,279	2,504	1.136	1.035	2,590	2,592	85.5%	85.6%
2005	3,821	2,854	3,175	1.153	1.046	3,292	3,319	86.1%	86.9%
2006	4,883	3,575	4,017	1.171	1.061	4,185	4,263	85.7%	87.3%
2007	5,981	4,456	5,083	1.194	1.077	5,320	5,475	89.0%	91.5%
2008	7,588	5,499	6,430	1.230	1.093	6,763	7,030	89.1%	92.6%
2009	8,981	6,171	7,305	1.270	1.126	7,840	8,226	87.3%	91.6%
2010	10,725	6,604	8,293	1.378	1.165	9,103	9,665	84.9%	90.1%
2011	14,171	7,238	10,151	1.613	1.241	11,673	12,600	82.4%	88.9%
2012	17,881	4,001	8,590	3.540	1.986	14,163	17,059	79.2%	95.4%
Total	79,758	44,668	57,722			67,168	72,468	84.2%	90.9%

(11)	Insurance Department Selected Ultimate Losses (average of (7)&(8))	69,818	
(12)	Indicated Loss Reserve Need at 12/31/12 ((11) - (3))	25,150	
(13)	Company Booked Reserves at 12/31/12	21,389	
(14)	Insurance Department Indicated Redundancy/(Deficiency) ((13) - (12))	-3,761	-15.0%

Background Information

You know that this large difference will necessitate that you do your own actuarial review, so you begin immediately. You decide to meet with the actuarial consulting firm which signed the current Statement of Actuarial Opinion and then immediately follow up with some interviews of key people in the underwriting and claims departments. Finally, you decide to take a look at the data yourself. You hope that the data processing department will be able to quickly compile some additional information on claim counts and exposures that you think will be helpful....

Actuarial Consultants

1. The company has very qualified management and has been fairly stable over time.
2. Except for the last couple of years, estimating reserves has always been relatively straightforward. Recently, the incurred and paid loss development methods have begun to diverge.
3. The consultants have moved more toward believing the paid loss development estimates, because they suspect a change in case reserve adequacy. The company's booked reserves at year-end were based on the consultant's recommendations.

Claims Vice President

1. Claims management has been relatively stable over the past several years. Staffing has been able to keep up with claim volumes.
2. No specific problems come to mind in the handling of claims. Claim sizes continue to go “through the roof,” especially in medical coverages. Historically, it has been difficult to keep up with the increasing claim sizes.
3. The VP implemented a claim training program in late 2010. It focuses on pension-type (long-term) cases. The main thrust of training was to be better able to take inflation into account when setting case reserves for long-term cases. Both indemnity, but especially medical, reserves have been chronically under-reserved in the past.

Underwriting Vice President

1. The volume of the company's business has grown, but nothing too dramatic. It made a "mild" marketing push in the late 1990's, and started another one about 18 months ago. Most of the effort was geared toward referrals from existing customers, so she finds it unlikely that the character of the overall business has changed very much.
2. Underwriting guidelines and training have remained relatively stable over the last several years. She would characterize the underwriting philosophy as "conservative".
3. Rates have been changed every year to keep up with inflation. Inflation in medical coverage has been atrocious, however, and sometimes hard to keep up with. The company generally follows the rating bureau's rating plan, but has actuarial consultants look over the plan changes every year to make sure the company is following a reasonable path.

WC Insurance Company

Workers Compensation - Claim Count Data

Accident Year	Reported Claim Counts									
	Evaluation Age in Months									
	12	24	36	48	60	72	84	96	108	120
2003	4,233	4,874	4,940	4,979	5,002	5,017	5,026	5,035	5,044	5,050
2004	4,208	4,880	4,958	4,995	5,023	5,039	5,049	5,059	5,070	
2005	4,728	5,405	5,487	5,530	5,554	5,570	5,581	5,593		
2006	5,223	5,983	6,063	6,109	6,138	6,158	6,171			
2007	5,777	6,604	6,696	6,751	6,787	6,809				
2008	6,249	7,282	7,402	7,463	7,505					
2009	6,378	7,324	7,447	7,505						
2010	6,358	7,364	7,482							
2011	7,067	8,149								
2012	7,834									

	Closed Claim Counts									
	Evaluation Age in Months									
	12	24	36	48	60	72	84	96	108	120
2003	2,623	4,126	4,467	4,665	4,742	4,818	4,864	4,906	4,942	4,965
2004	2,646	4,195	4,531	4,701	4,768	4,843	4,888	4,927	4,965	
2005	2,866	4,640	4,993	5,191	5,264	5,352	5,404	5,445		
2006	3,219	5,147	5,522	5,757	5,836	5,917	5,972			
2007	3,447	5,644	6,113	6,337	6,439	6,537				
2008	3,901	6,229	6,752	7,023	7,119					
2009	3,943	6,342	6,807	7,049						
2010	3,714	6,355	6,812							
2011	4,087	6,973								
2012	4,672									

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Workers Compensation - Reported Claim Counts Your Analysis

Accident Year	Reported Claim Count Development									
	Evaluation Interval in Months									
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120+
2003	1.151	1.014	1.008	1.005	1.003	1.002	1.002	1.002	1.001	
2004	1.160	1.016	1.007	1.006	1.003	1.002	1.002	1.002		
2005	1.143	1.015	1.008	1.004	1.003	1.002	1.002			
2006	1.146	1.013	1.008	1.005	1.003	1.002				
2007	1.143	1.014	1.008	1.005	1.003					
2008	1.165	1.016	1.008	1.006						
2009	1.148	1.017	1.008							
2010	1.158	1.016								
2011	1.153									
2012										

3 Yr Avg	1.153	1.016	1.008	1.005	1.003	1.002	1.002	1.002	1.001	
3 Yr Wtd	1.153	1.016	1.008	1.005	1.003	1.002	1.002	1.002	1.001	
Average	1.152	1.015	1.008	1.005	1.003	1.002	1.002	1.002	1.001	
Wtd Avg	1.152	1.015	1.008	1.005	1.003	1.002	1.002	1.002	1.001	
Select	1.153	1.015	1.008	1.005	1.003	1.002	1.002	1.002	1.001	1.005
Cumulative	1.203	1.044	1.028	1.020	1.015	1.012	1.010	1.008	1.006	1.005

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Workers Compensation - Ultimate Claims Your Analysis

Accident Year (1)	Reported Claims @ 12/31/12 (2) slide 14	Cumulative Reported Dev. Factor (3) slide 15	Claims Developed to Ultimate (4)=(2)x(3)	Estimated Exposures (\$100 Payroll) (5)	Est. Ult. Claim Frequency (6)=(4)/(5)
2003	5,050	1.005	5,075	1,859,000	0.273%
2004	5,070	1.006	5,100	1,865,000	0.273%
2005	5,593	1.008	5,638	2,046,000	0.276%
2006	6,171	1.010	6,233	2,232,000	0.279%
2007	6,809	1.012	6,891	2,436,000	0.283%
2008	7,505	1.015	7,618	2,667,000	0.286%
2009	7,505	1.020	7,656	2,647,000	0.289%
2010	7,482	1.028	7,694	2,648,000	0.291%
2011	8,149	1.044	8,506	2,912,000	0.292%
2012	7,834	1.203	9,428	3,220,000	0.293%

Note: Column (5) may be adjusted for wage trend to the current level.

WC Insurance Company

Workers Compensation - Diagnostics Claim Closing Pattern

Accident Year	Evaluation Age in Months									
	12	24	36	48	60	72	84	96	108	120
2003	51.7%	81.3%	88.0%	91.9%	93.4%	94.9%	95.8%	96.7%	97.4%	97.8%
2004	51.9%	82.2%	88.8%	92.2%	93.5%	95.0%	95.8%	96.6%	97.3%	
2005	50.8%	82.3%	88.6%	92.1%	93.4%	94.9%	95.9%	96.6%		
2006	51.6%	82.6%	88.6%	92.4%	93.6%	94.9%	95.8%			
2007	50.0%	81.9%	88.7%	92.0%	93.4%	94.9%				
2008	51.2%	81.8%	88.6%	92.2%	93.4%					
2009	51.5%	82.8%	88.9%	92.1%						
2010	48.3%	82.6%	88.5%							
2011	48.1%	82.0%								
2012	49.6%									
Average	50.5%	82.2%	88.6%	92.1%	93.5%	94.9%	95.8%	96.6%	97.4%	97.8%

Closed Claims (slide 14) / Ultimate Claims (slide 16)

WC Insurance Company

Workers Compensation - Diagnostics Paid Loss to Incurred Loss Ratio

Accident Year	Evaluation Age in Months									
	12	24	36	48	60	72	84	96	108	120
2003	47.5%	77.0%	83.5%	87.2%	88.0%	90.0%	91.0%	91.7%	90.9%	91.6%
2004	58.1%	77.8%	84.3%	87.7%	88.3%	90.3%	91.4%	89.9%	91.0%	
2005	57.5%	77.0%	83.3%	88.1%	88.7%	90.2%	89.2%	89.9%		
2006	50.7%	74.6%	82.9%	87.6%	88.4%	87.7%	89.0%			
2007	53.6%	75.3%	83.8%	87.5%	85.7%	87.7%				
2008	55.6%	75.1%	82.7%	84.3%	85.5%					
2009	53.5%	75.0%	79.2%	84.5%						
2010	57.6%	70.0%	79.6%							
2011	48.1%	71.3%								
2012	46.6%									

Paid Loss (slide 6) / Incurred Loss (slide 6)

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Workers Compensation - Diagnostics Average Claim Size

Accident Year	Average Incurred Claim Size [Incurred Loss (slide 6) / Reported Claims (slide 14) * 1000]									
	Evaluation Age in Months									
	12	24	36	48	60	72	84	96	108	120
2003	289	379	397	406	412	415	417	419	430	430
2004	304	436	456	467	473	477	480	494	494	
2005	356	501	525	535	544	548	566	568		
2006	424	582	605	617	626	649	651			
2007	495	665	694	711	746	747				
2008	564	768	799	846	857					
2009	664	887	966	973						
2010	712	1,089	1,108							
2011	961	1,246								
2012	1,097									

	Average Paid Claim Size [Paid Loss (slide 6) / Closed Claims (slide 14) * 1000]									
	Evaluation Age in Months									
	12	24	36	48	60	72	84	96	108	120
2003	221	345	366	378	382	389	392	395	398	401
2004	281	395	421	435	440	448	453	456	459	
2005	337	450	480	503	509	515	521	524		
2006	348	505	551	573	582	593	599			
2007	444	586	637	662	674	682				
2008	502	674	725	758	772					
2009	575	768	837	875						
2010	702	884	969							
2011	800	1,038								
2012	856									

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Workers Compensation - Diagnostics Average Claim Size

Accident Year	Average Case Reserve (Case Reserves / Open Claims)									
	Evaluation Age in Months									
	12	24	36	48	60	72	84	96	108	120
2003	399	567	685	825	954	1,045	1,167	1,357	1,941	2,153
2004	343	689	834	973	1,090	1,184	1,298	1,902	2,143	
2005	384	813	974	1,035	1,179	1,367	1,932	2,169		
2006	545	1,057	1,161	1,330	1,474	2,046	2,221			
2007	570	1,129	1,292	1,454	2,078	2,305				
2008	667	1,321	1,569	2,252	2,412					
2009	807	1,655	2,344	2,487						
2010	727	2,384	2,521							
2011	1,183	2,477								
2012	1,451									

Average Case Reserve = (Incurred Loss - Paid Loss) / (Reported Claims - Closed Claims)

(slide 6)

(slide 14)

WC Insurance Company

Workers Compensation - Your Analysis Berquist/Sherman Adjustment for Case Reserve Strengthening

Change over prior AY	Average Case Reserve Trend (slide 20 year over year)									
	Evaluation Age in Months									
	12	24	36	48	60	72	84	96	108	120
2004	-14%	22%	22%	18%	14%	13%	11%	40%	10%	
2005	12%	18%	17%	6%	8%	15%	49%	14%		
2006	42%	30%	19%	28%	25%	50%	15%			
2007	5%	7%	11%	9%	41%	13%				
2008	17%	17%	21%	55%	16%					
2009	21%	25%	49%	10%						
2010	-10%	44%	8%							
2011	63%	4%								
2012	23%									
Selected	15%	15%	15%	15%	15%	15%	15%	15%	15%	15%

Accident Year	Adjusted Average Case Reserve (2000 Actual Average Case Reserve (slide 20) Detrended by 15%)									
	Evaluation Age in Months									
	12	24	36	48	60	72	84	96	108	120
2003	413	810	948	1,075	1,199	1,318	1,460	1,640	1,863	2,153
2004	474	931	1,090	1,236	1,379	1,516	1,679	1,886	2,143	
2005	546	1,071	1,253	1,422	1,586	1,743	1,931	2,169		
2006	627	1,232	1,441	1,635	1,824	2,004	2,221			
2007	722	1,416	1,658	1,880	2,097	2,305				
2008	830	1,629	1,906	2,162	2,412					
2009	954	1,873	2,192	2,487						
2010	1,097	2,154	2,521							
2011	1,262	2,477								
2012	1,451									

1873 =
2,477 x (1.15)⁻²

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Workers Compensation - Your Analysis Berquist/Sherman Adjustment for Case Reserve Strengthening

Accident Year	Adjusted Case Reserves [Adjusted Average Case Reserve (slide 21) * Open Claims (slide 14)] (000's)									
	Evaluation Age in Months									
	12	24	36	48	60	72	84	96	108	120
2003	664	606	448	338	312	262	237	212	190	183
2004	741	638	465	364	352	297	270	249	225	
2005	1,016	819	619	482	460	380	342	321		
2006	1,257	1,030	780	576	551	483	442			
2007	1,681	1,360	966	778	730	627				
2008	1,948	1,715	1,239	951	931					
2009	2,324	1,839	1,403	1,134						
2010	2,901	2,173	1,689							
2011	3,761	2,913								
2012	4,589									

Example: $1,839 = 1,873 \times (7,324 - 6,342) / 1,000$

	Adjusted Incurred Losses [Actual Paid Losses (slide 6) + Adjusted Case Reserves] (000's)									
	Evaluation Age in Months									
	12	24	36	48	60	72	84	96	108	120
2003	1,244	2,029	2,083	2,102	2,125	2,135	2,145	2,149	2,159	2,174
2004	1,484	2,294	2,372	2,409	2,452	2,468	2,484	2,495	2,504	
2005	1,983	2,906	3,017	3,092	3,140	3,136	3,158	3,175		
2006	2,378	3,630	3,821	3,875	3,949	3,989	4,017			
2007	3,212	4,666	4,858	4,975	5,067	5,083				
2008	3,906	5,915	6,131	6,276	6,430					
2009	4,590	6,711	7,100	7,305						
2010	5,509	7,791	8,293							
2011	7,031	10,151								
2012	8,590									

Example: $6,711 = 4,872 + 1,839$

WC Insurance Company

Workers Compensation - Your Analysis Adjusted Incurred Loss Development

Accident Year	Adjusted Incurred Loss Development (slide 22)									
	Evaluation Interval in Months									
	12-24	24-36	36-48	48-60	60-72	72-84	84-96	96-108	108-120	120+
2003	1.631	1.027	1.009	1.011	1.005	1.004	1.002	1.005	1.007	
2004	1.546	1.034	1.015	1.018	1.007	1.007	1.004	1.004		
2005	1.466	1.038	1.025	1.015	0.999	1.007	1.005			
2006	1.526	1.053	1.014	1.019	1.010	1.007				
2007	1.452	1.041	1.024	1.018	1.003					
2008	1.514	1.037	1.024	1.024						
2009	1.462	1.058	1.029							
2010	1.414	1.064								
2011	1.444									
2012										

3 Yr Avg	1.440	1.053	1.026	1.021	1.004	1.007	1.004	1.004	1.007	
3 Yr Wtd	1.439	1.054	1.026	1.021	1.004	1.007	1.004	1.004	1.007	
Average	1.495	1.044	1.020	1.018	1.005	1.006	1.004	1.004	1.007	
Wtd Avg	1.471	1.048	1.022	1.019	1.005	1.006	1.004	1.004	1.007	
Select	1.455	1.050	1.025	1.020	1.005	1.005	1.005	1.005	1.005	1.012
Cumulative	1.657	1.139	1.085	1.058	1.038	1.032	1.027	1.022	1.017	1.012

WC Insurance Company

Workers Compensation - Ultimate Losses Results of Your Analysis (Dollars in Thousands)

Accident Year (1)	Earned Premium (2)	Paid Losses @ 12/31/12 (3) slide 6	Incurred Losses @ 12/31/12 (4) slide 6	Cumulative LDF's		Est. Ultimate Losses		Ultimate Loss Ratio	
				Paid LDM (5) slide 7	Incurred LDM (6) slide 23	Paid LDM (7)=(3)x(5)	Incurred LDM (8)=(4)x(6)	Paid LDM (9)=(7)/(2)	Incurred LDM (10)=(8)/(2)
2003	2,698	1,991	2,174	1.125	1.012	2,240	2,200	83.0%	81.5%
2004	3,029	2,279	2,504	1.136	1.017	2,590	2,547	85.5%	84.1%
2005	3,821	2,854	3,175	1.153	1.022	3,292	3,245	86.1%	84.9%
2006	4,883	3,575	4,017	1.171	1.027	4,185	4,126	85.7%	84.5%
2007	5,981	4,456	5,083	1.194	1.032	5,320	5,248	89.0%	87.7%
2008	7,588	5,499	6,430	1.230	1.038	6,763	6,671	89.1%	87.9%
2009	8,981	6,171	7,305	1.270	1.058	7,840	7,731	87.3%	86.1%
2010	10,725	6,604	8,293	1.378	1.085	9,103	8,996	84.9%	83.9%
2011	14,171	7,238	10,151	1.613	1.139	11,673	11,562	82.4%	81.6%
2012	17,881	4,001	8,590	3.540	1.657	14,163	14,236	79.2%	79.6%
Total	79,758	44,668	57,722			67,168	66,562	84.2%	83.5%

The totals of columns (7) and (8) are much closer now

You decide to try the Bornhuetter-Ferguson Technique on all accident years as an alternative projection method.

WC Insurance Company

Workers Compensation - Ultimate Losses Results of Your Analysis - Paid Bornhuetter-Ferguson

(Dollars in Thousands)

Accident Year (1)	Earned Premium (2)	Initial Expected Loss Ratio (3)	Expected Losses (4)=(2)x(3)	Cumulative Paid LDF (5) slide 7	% Unpaid (6)=1-1/(5)	\$ Unpaid (7)=(4)x(6)	Actual Paid @ 12/31/12 (8) slide 6	Estimated Ultimate Losses (9)=(7)+(8)	Ultimate Losses Ratio (10)=(9)/(2)
2003	2,698	84.0%	2,266	1.125	11.1%	252	1,991	2,243	83.1%
2004	3,029	84.0%	2,544	1.136	12.0%	305	2,279	2,584	85.3%
2005	3,821	84.0%	3,210	1.153	13.3%	427	2,854	3,281	85.9%
2006	4,883	84.0%	4,102	1.171	14.6%	598	3,575	4,173	85.5%
2007	5,981	84.0%	5,024	1.194	16.2%	816	4,456	5,272	88.2%
2008	7,588	84.0%	6,374	1.230	18.7%	1,191	5,499	6,690	88.2%
2009	8,981	84.0%	7,544	1.270	21.3%	1,606	6,171	7,777	86.6%
2010	10,725	84.0%	9,009	1.378	27.5%	2,473	6,604	9,077	84.6%
2011	14,171	84.0%	11,904	1.613	38.0%	4,523	7,238	11,761	83.0%
2012	17,881	84.0%	15,020	3.540	71.8%	10,777	4,001	14,778	82.6%
Total	79,758		66,997			22,967	44,668	67,635	

WC Insurance Company

Workers Compensation - Ultimate Losses Results of Your Analysis - Incurred Bornhuetter-Ferguson (Dollars in Thousands)

Accident Year (1)	Earned Premium (2)	Initial Expected Loss Ratio (3)	Expected Losses (4)=(2)x(3)	Cumulative Incurred LDF (5) slide 23	% Unreported (6)=1-1/(5)	\$ Unreported (7)=(4)x(6)	Actual Incurred @ 12/31/12 (8) slide 6	Estimated Ultimate Losses (9)=(7)+(8)	Ultimate Losses Ratio (10)=(9)/(2)
2003	2,698	84.0%	2,266	1.012	1.2%	27	2,174	2,201	81.6%
2004	3,029	84.0%	2,544	1.017	1.7%	43	2,504	2,547	84.1%
2005	3,821	84.0%	3,210	1.022	2.2%	70	3,175	3,245	84.9%
2006	4,883	84.0%	4,102	1.027	2.7%	109	4,017	4,126	84.5%
2007	5,981	84.0%	5,024	1.032	3.1%	158	5,083	5,241	87.6%
2008	7,588	84.0%	6,374	1.038	3.6%	231	6,430	6,661	87.8%
2009	8,981	84.0%	7,544	1.058	5.5%	416	7,305	7,721	86.0%
2010	10,725	84.0%	9,009	1.085	7.8%	704	8,293	8,997	83.9%
2011	14,171	84.0%	11,904	1.139	12.2%	1,453	10,151	11,604	81.9%
2012	17,881	84.0%	15,020	1.657	39.7%	5,957	8,590	14,547	81.4%
Total	79,758		66,997			9,165	57,722	66,887	

WC Insurance Company

Workers Compensation - Ultimate Losses

Results of Your Analysis

(Dollars in Thousands)

Accident Year (1)	Earned Premium (2)	Paid Losses @ 12/31/12 (3) slide 6	Incurred Losses @ 12/31/12 (4) slide 6	Paid Loss Dev. Method (5) slide 24	Incurred Berquist-Sherman (6) slide 24	Paid Bornhuetter-Ferguson (7) slide 25	Incurred Bornhuetter-Ferguson (8) slide 26	Selected Ultimate (9)=average
2003	2,698	1,991	2,174	2,240	2,200	2,243	2,201	2,221
2004	3,029	2,279	2,504	2,590	2,547	2,584	2,547	2,567
2005	3,821	2,854	3,175	3,292	3,245	3,281	3,245	3,265
2006	4,883	3,575	4,017	4,185	4,126	4,173	4,126	4,152
2007	5,981	4,456	5,083	5,320	5,248	5,272	5,241	5,270
2008	7,588	5,499	6,430	6,763	6,671	6,690	6,661	6,696
2009	8,981	6,171	7,305	7,840	7,731	7,777	7,721	7,767
2010	10,725	6,604	8,293	9,103	8,996	9,077	8,997	9,043
2011	14,171	7,238	10,151	11,673	11,562	11,761	11,604	11,650
2012	17,881	4,001	8,590	14,163	14,236	14,778	14,547	14,431
Total	79,758	44,668	57,722	67,168	66,562	67,635	66,887	67,063

➤ (10)	Your Selected Ultimate Loss Amount	67,063	
➤ (11)	Indicated Loss Reserve Need ((10) - (3))	22,395	
➤ (12)	Company Booked Reserves	21,389	
➤ (13)	Your Indicated Redundancy/(Deficiency) ((12) - (11))	(1,006)	-4.5%

Summary

- | Don't just do it - think about it!
- | Don't just crank out the numbers - talk to the people who are involved in producing the numbers.
- | Better analysis is the product of communication among multiple operating units.