

Methods of Monitoring Medical Stop-loss Insurance Business and Estimating Reserves

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Summary

For any insurance risk business to manage it competitively and successfully, there is a need for viable effective, monitoring methods that can be used in a timely manner for pricing, reserving and underwriting practices. Medical stop-loss business is not an exception. However, for this business, existing conventional methods are not applicable due to a long run-out period of more than 20 months for requisite excess-claims data. The excess-claims are not just the first-dollar claims as in usual insurance business, but, in order to occur excess claims, each of them has to exceed certain contractual limits of specific coverage for an individual claim as well as of aggregate coverage for an employer claim. The run-out period is about 23 months for specific coverage claims and about 30 months for aggregate coverage claims. This paper presents an indirect estimation model to analyze actual claim experience with that of standard model experience expected under a set of assumptions.

This paper describes a methodology for designing a standard model for medical stop-loss claims. Then it introduces about standard model and components of model exhibit. It also includes terms and concepts used in the model. After this, this model is applied to the medical stop-loss excess claims occurring over the period 1998-2003. The results from the application of this standard model are compared with outcomes of experience model using observed excess claims data for the same period. Finally, advantages of the standard model are discussed for monitoring profitability of medical stop-loss business and for estimating appropriate reserves for monthly financial statements.

Methodology

This methodology is based on a postulate that under given actuarial assumptions, the observed experience loss ratio and a monitored pre-set loss ratio over a run-out period would provide approximately identical scenario. This model building serves two primary objectives, to monitor the medical stop-loss business and to estimate appropriate reserves periodically. In order to meet first objective of monitoring, a *standard model* is designed using a fixed pre-set loss ratio and compare its results with observed claims data. For second objective of reserving, experience model is developed wherein pre-set loss ratio is continuously monitored and change periodically to correspond with claim experience as develops over a run-out span. This analysis is useful in estimating appropriate reserves for each monthly financial statement.

In medical stop-loss insurance, payment dates of excess claims are available from claim settlement history but precise dates of occurrence of excess claims are not known. Hence, each payment date is recorded and each claim payment is traced back to its underwriting month/year. Thus, for each underwriting month/year, total claim payments are obtained. These payments are used in computing paid loss ratio using annualized premiums for the corresponding underwriting month and year as experience develops over a run-out period. Moreover, the payment dates are used to compute timing of each claim payment since underwriting month/year. The timings are used in developing claim lag factors indicating a pattern of claim payments over a run-out period.

Standard Model

In a medical stop-loss insurance business, the most important element to monitor among others is a series of claim payments over a run-out period, in relation to annualized premium. If this series of claim payments over a period follows closely the pattern of a series of standard model claim payments, then the assumptions underlying the stop-loss business are reasonable and are probably sound. If the values of claim payment series have a consistently running higher, or lower, or crossover with a standard model claim payment series, then there is need to reexamine actuarial assumptions considered in the business. In essence, there is need for designing a standard model of claim payments, incorporating actuarial assumptions expected to be taken place in a business operations. These assumptions are expected loss ratio and a pattern of claim payments in lieu of timings of claim occurrences. The latter one can be designed using ultimate run-out claim payments, a series of cumulative claim payments at each duration-month since the underwriting month/year of policy contracts. This pattern indicates proportion of cumulative claim payments at each month of duration since contracts issued. These proportions are called claim lag factors and are shown in Exhibit 1. A pattern of these lag factors is noted in Graph 1.

The following concepts, definitions, and terms are used in designing the standard model exhibits for stop-loss insurance business:

1. Duration in months is defined as the number of months elapsed at a certain valuation date from the underwriting month/year.
2. Policy month/year is the month/year in which a stop-loss contract policy is issued.
3. Annualized premium is twelve times the monthly premium charged to employer groups.
4. Model paid claims are the estimated paid claims under the standard model assumptions under which a certain medical stop-loss insurance business operates over a given time period. These claims at a certain duration-month for a given underwriting policy month are computed as (annualized premium) x (Model loss ratio) x (Claim lag factor).

Exhibit 1: Assumptions

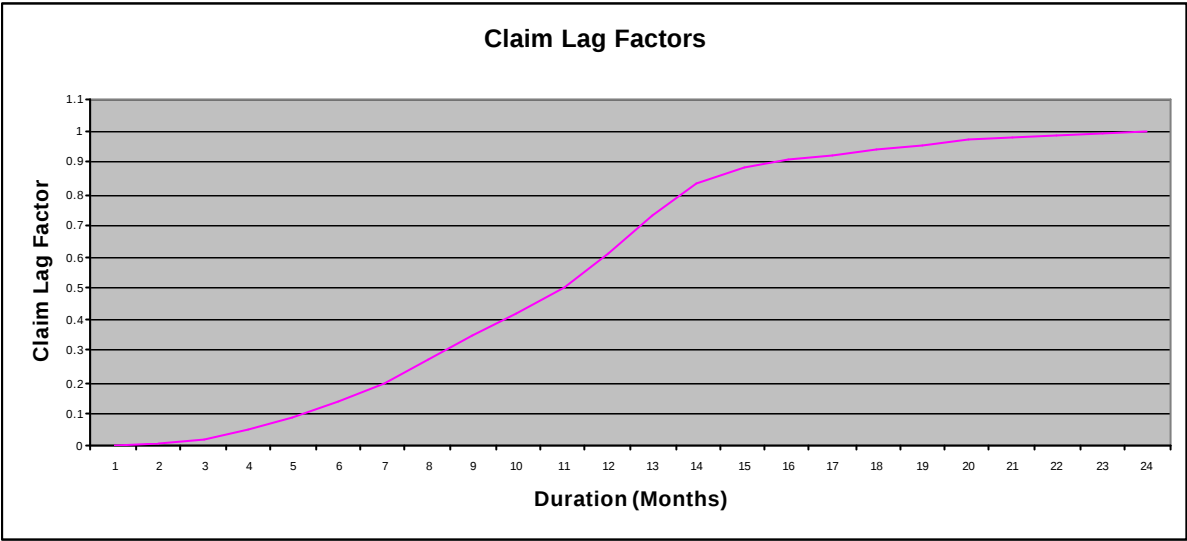
Preliminary Assumptions

TPA commissions:	11.0%
MGU commissions:	9.0%
Fronting Carrier's fee:	4.5%
Taxes:	3.5%
Set-a-side margin for catastrophe:	3.0%
Total expenses:	31.0%
Thus, expected (standard) loss ratio:	69.0%

Stop-loss coverage claims are expected to be paid according to the predetermined pattern of claim lag factors noted in the Exhibit 1.

Claim Lag Factors By Duration (Months)

Duration (Months)	Specific Lag Factors Current Month	Aggregate Lag Factors Current Month	Duration (Months)	Specific Lag Factors Current Month	Aggregate Lag Factors Current Month
30	1.0000	1.0000	0	0.0000	0.0000
29	1.0000	1.0000	1	0.0058	0.0000
28	1.0000	0.9980	2	0.0176	0.0000
27	1.0000	0.9960	3	0.0515	0.0000
26	1.0000	0.9897	4	0.0879	0.0000
25	1.0000	0.9814	5	0.1375	0.0000
24	1.0000	0.9738	6	0.1988	0.0000
23	1.0000	0.9646	7	0.2707	0.0000
22	0.9942	0.9501	8	0.3512	0.0000
21	0.9884	0.9356	9	0.4214	0.0000
20	0.9826	0.9211	10	0.4995	0.0000
19	0.9773	0.9065	11	0.6099	0.0000
18	0.9597	0.8799	12	0.7280	0.0740
17	0.9431	0.8697	13	0.8329	0.2901
16	0.9233	0.7547	14	0.8819	0.4208
15	0.9087	0.6690	15	0.9087	0.6690
14	0.8819	0.4208	16	0.9233	0.7547
13	0.8329	0.2901	17	0.9431	0.8697
12	0.7280	0.0740	18	0.9597	0.8799
11	0.6099	0.0000	19	0.9773	0.9065
10	0.4995	0.0000	20	0.9826	0.9211
9	0.4214	0.0000	21	0.9884	0.9356
8	0.3512	0.0000	22	0.9942	0.9501
7	0.2707	0.0000	23	1.0000	0.9646
6	0.1988	0.0000	24	1.0000	0.9738
5	0.1375	0.0000	25	1.0000	0.9814
4	0.0879	0.0000	26	1.0000	0.9897
3	0.0515	0.0000	27	1.0000	0.9960
2	0.0176	0.0000	28	1.0000	0.9980
1	0.0058	0.0000	29	1.0000	1.0000
0	0.0000	0.0000	30	1.0000	1.0000



5. Paid claims are the actual paid claims until the valuation date from the time of issuance of policy contracts. For this analysis, hypothetical claim payments are shown in Exhibit 2 on 'Input Data and Assumptions.' Paid claims sometimes refer to as experience claims or observed claims to differentiate from the standard model claim payments.
6. Claim lag factors are expressed in a range of 0 to 1, over a run-out time period of about 23 months for specific coverage. These factors depict a completeness pattern of claim payments over a run-out time. Thus, factor 0 in the initial month represents no payments have been done. A factor 1 at 23-month duration indicates that all payments have been made. In other words, a factor of fraction at certain duration-month states that a proportion (may be interpreted sometime in percentage) of ultimate claim payments have been made by that month.
7. Ultimate projected claims in a stop-loss business are computed using actual paid claims, expected pre-set loss ratio and (complement of) claim lag factor. Ultimate projected claims at certain duration month for a given underwriting policy month/year is equal to (Actual paid claim) + (Annualized premium)x(Expected loss ratio)x(1- Claim factor).
8. Model ultimate run-out claims are equal to (annualized premium) x (Model loss ratio). At certain duration-month, these ultimate claims can be divided into two parts: Model paid claims at this duration and remaining model-ultimate-claims to be paid from this duration onwards.
9. Premium offset is the expected portion (or loss ratio percentage) of the annualized premiums to be collected from employer groups over the remaining months of medical stop-loss contract policies in-force.
10. Reserve for the claim payments is computed as (Remaining ultimate claims) minus (Premium off-set) at particular duration.

A hypothetical scenario of annualized premiums and realized claims as of 12/31/2001 are shown in Exhibit 2. The following formulae are used to develop the standard model.

A.1 Ultimate claims at any given valuation date for an underwriting month under standard model

= Sum of paid claims and remaining claims to be paid out by run-out period using standard experience.

= (Annualized premium) x (Model Loss ratio) x (Lag factor) + (Annualized premium) x (Model Loss ratio) x (1- Lag factor)

Lag factor is to be chosen corresponding to the duration of months for the valuation date.

Exhibit 2

		For this analysis purpose, it is assumed that a particular stoploss business of a company has the following volume of annualized premiums and paid claims by underwriting months in years 1998-2003.					
			Annualized	Paid	Paid	Projected	Model
		Year-Month	Premium	Claims	Loss Ratio	Ultimate	Run-out
						Claims	Claims
		Ene-98	8,585,144	7,181,150	83.6%	7,181,150	5,923,749
		Feb-98	1,109,032	1,273,050	114.8%	1,273,050	765,232
		Mar-98	1,303,906	1,713,800	131.4%	1,713,800	899,695
		Abr-98	1,822,816	1,488,500	81.7%	1,488,500	1,257,743
		May-98	1,462,356	1,570,300	107.4%	1,570,300	1,009,026
		Jun-98	1,886,572	1,201,600	63.7%	1,201,600	1,301,735
		Jul-98	2,444,183	2,031,550	83.1%	2,031,550	1,686,486
		Ago-98	1,377,468	805,950	58.5%	805,950	950,453
		Sep-98	1,648,000	1,426,800	86.6%	1,426,800	1,137,120
		Oct-98	1,674,677	902,900	53.9%	902,900	1,155,527
		Nov-98	841,169	348,850	41.5%	348,850	580,407
		Dic-98	844,677	555,550	65.8%	555,550	582,827
		Ene-99	8,928,550	7,013,308	78.5%	7,013,308	6,160,700
		Feb-99	1,153,393	1,243,242	107.8%	1,243,242	795,841
		Mar-99	1,356,062	1,673,672	123.4%	1,673,672	935,683
		Abr-99	1,895,729	1,454,052	76.7%	1,454,052	1,308,053
		May-99	1,520,851	1,533,632	100.8%	1,533,632	1,049,387
		Jun-99	1,962,035	1,173,272	59.8%	1,173,272	1,353,804
		Jul-99	2,541,950	1,983,982	78.0%	1,983,982	1,753,946
		Ago-99	1,432,567	786,886	54.9%	786,886	988,471
		Sep-99	1,713,920	1,394,592	81.4%	1,394,592	1,182,605
		Oct-99	1,741,664	880,380	50.5%	880,380	1,201,748
		Nov-99	874,815	340,340	38.9%	340,340	603,622
		Dic-99	878,464	542,642	61.8%	542,642	606,140
		Ene-00	9,374,977	5,787,338	61.7%	5,787,338	6,468,734
		Feb-00	1,211,063	1,334,543	110.2%	1,339,390	835,633
		Mar-00	1,423,866	951,587	66.8%	962,984	982,468
		Abr-00	1,990,516	1,404,171	70.5%	1,428,069	1,373,456
		May-00	1,596,892	1,243,639	77.9%	1,268,651	1,101,855
		Jun-00	2,060,137	1,821,941	88.4%	1,879,227	1,421,495
		Jul-00	2,669,048	2,264,855	84.9%	2,369,644	1,841,643
		Ago-00	1,504,195	760,109	50.5%	839,716	1,037,895
		Sep-00	1,799,616	1,413,842	78.6%	1,527,212	1,241,735
		Oct-00	1,828,747	1,261,047	69.0%	1,410,070	1,261,835
		Nov-00	918,556	381,022	41.5%	486,931	633,804
		Dic-00	922,387	408,099	44.2%	581,213	636,447
		Ene-01	10,302,172	4,883,587	47.4%	7,656,612	7,108,499
		Feb-01	1,330,839	312,682	23.5%	772,281	918,279
		Mar-01	1,564,687	264,342	16.9%	889,018	1,079,634
		Abr-01	2,187,380	252,715	11.6%	1,231,944	1,509,292
		May-01	1,754,827	196,420	11.2%	1,079,479	1,210,831
		Jun-01	2,263,887	358,574	15.8%	1,610,114	1,562,082
		Jul-01	2,933,020	121,157	4.1%	1,866,671	2,023,784
		Ago-01	1,652,962	62,414	3.8%	1,102,704	1,140,544
		Sep-01	1,977,600	41,609	2.1%	1,335,879	1,364,544
		Oct-01	2,009,612	0	0.0%	1,362,228	1,386,632
		Nov-01	1,009,402	0	0.0%	692,448	696,487
		Dic-01	1,013,612	0	0.0%	699,392	699,392
		Ene-02	11,332,391	Not Yet Available (NYA)			7,819,350
		Feb-02	1,463,922	NYA			1,010,106
		Mar-02	1,721,156	NYA			1,187,598
		Abr-02	2,406,118	NYA			1,660,221
		May-02	1,930,309	NYA			1,331,913
		Jun-02	2,490,275	NYA			1,718,290
		Jul-02	3,226,322	NYA			2,226,162
		Ago-02	1,818,258	NYA			1,254,598
		Sep-02	2,175,360	NYA			1,500,998
		Oct-02	2,210,573	NYA			1,525,295
		Nov-02	1,110,342	NYA			766,136
		Dic-02	1,114,974	NYA			769,332
		Ene-03	12,465,629	NYA			8,601,284
		Feb-03	1,610,315	NYA			1,111,117
		Mar-03	1,893,271	NYA			1,306,357
		Abr-03	2,646,729	NYA			1,826,243
		May-03	2,123,340	NYA			1,465,105
		Jun-03	2,739,303	NYA			1,890,119
		Jul-03	3,548,954	NYA			2,448,778
		Ago-03	2,000,084	NYA			1,380,058
		Sep-03	2,392,896	NYA			1,651,098
		Oct-03	2,131,630	NYA			1,470,825
		Nov-03	1,221,376	NYA			842,749
		Dic-03	1,226,473	NYA			846,266

- A.2 Total ultimate claims for a given underwriting year = Sum of ultimate claims over all underwriting months, under the standard model.
- A.3 Percentage of paid claims is a ratio of paid claims to ultimate (run-out) claims expressed in a percentage, under the standard model.

Using above mathematical formulations, standard models are developed for medical stop-loss experience of excess-claims occurring over the period 1998-2003.

Experience) Model (Observed Claims)

For developing an experience model, claims data from actual experience are used instead of computing claims under standard model. The following formulae are used to develop a dynamic model.

- B.1 Ultimate claims at any given valuation date for an underwriting month under actual experience

= Sum of actual paid claims and remaining claims to be paid out by run-out period using pre-set loss ratio.

= (Paid Claims) + (Annualized premium) x (Pre-set Loss ratio) x (1 - Lag factor)

Lag factor is to be chosen corresponding to the duration of months for the valuation date.

- B.2 Total ultimate claims for a given underwriting year = Sum of ultimate claims over all underwriting months.
- B.3 Percentage of actual paid claims is a ratio of paid claims to ultimate (run-out) claims expressed in a percentage, using the experience data.

Experience model is developed to compare the similar actuarial variables with that of the standard model. These actuarial measures are claim payments, ultimate claim payments, ratios of actual paid claims to model claim payments, ratios of projected ultimate claims to standard model run-out claims, and loss ratio, over a claim run-out period.

Applications of Standard Model

For the claims occurring over the period 1998-2001, a standard model is applied using model loss ratio of 69.0%, annualized premiums, and claim lag factors for specific coverage shown in Exhibits 1 and 2. The results of paid model claims, paid model loss ratios, and percentages of model paid claims to run-out model claims are shown in Exhibit 3. Using the experience data of observed paid claim payments noted in Exhibit 2, an experience model is derived and the outcomes are noted in Exhibit 4. The standard model (exhibit 3) depicts regular patterns of model paid loss ratio, percentage of model paid claims to model run-out claims (projected ultimate claims). For the standard model, model run-out claims and projected ultimate claims are same since both of them are based on model paid claims until valuation date. However, in case of experience model, patterns of actual paid loss ratio, projected ultimate loss ratio, and percentages of paid claims to projected ultimate claims as well as to model run-out claims are very irregular. A comparison of these patterns of both standard and experience models provides a clear picture for conducting an in-depth analysis of the business profitability segments.

Two exhibits 3 and 4 are summarized by policy years 1998-2001 in Exhibit 5. It appears from this Exhibit that, as of 12-31-2001, according to standard model for the 2000 policy year, 95.5% of the model run-out claims to be paid out, but in reality, 101.0% of the claims were paid out. Thus, under the experience scenario, paid claims are 5.5 percentage points (101.0% - 95.5%) higher than the standard model. For 2001 underwriting year, the actual paid claims (31.4%) are 1.9 percentage points lower than model claims paid out (33.3%). It seems that 2001 underwriting year is profitable. The actual claims paid out in 1998 and 1999 are 18.8% and 11.6% percentage points are than the model run-out claims. Those years were not profitable.

Exhibit 6 provides a comparative review of projected ultimate claims and model run-out claims in terms of loss ratios, percentage of paid claims to model ultimate claims and projected ultimate claims. The projected ultimate claims for policy year 2000, under experience model are about one million higher than the model run-out claims. For 2001 policy year, projected ultimate claims are about 0.4 million less than the standard model.

In-depth comparison of the results of standard and experience models helps to monitor the current business at hand and take appropriate strategic actions. In order to continuously monitor the results of the 2000 and 2001 policy years, standard models for these years are shown in Exhibit 7 and 8.

This paper concludes that similar type of comparative analysis of model paid claims, model loss ratios, and percentage of paid claims to ultimate claims under standard model with that of experience model is very help in monitoring a current medical stop-loss business. Moreover, by using appropriate pre-set loss ratio to reflect claims experience would help determine reasonable reserves for monthly financial statements.

Exhibit 3

					Standard Model: Specific Coverage									
					Model Loss Ratio = 69.0%									
					Valuation Date = 12/31/2001									
						Projected		Remaining			Model Ultimate	% of	% of	Difference in
Duration	Policy Month	Annualized	Model	Model		Ultimate	Projected	Projected	Premium		Run-out	Paid Claims	Paid Claims	Run-out Claims
Months	(Last Day)	Premium	Paid Claims	Paid LR	Lag Factor	Claims	Loss Ratio	Claims	Offset	Reserve	Paid Claims	(MUC)	(PUC)	(PUC - MUC)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
47	01/01/98	8,585,144	5,923,749	69.0%	1.0000	5,923,749	69.0%	0	0	0	5,923,749	100.0%	100.0%	0
46	02/01/98	1,109,032	765,232	69.0%	1.0000	765,232	69.0%	0	0	0	765,232	100.0%	100.0%	0
45	03/01/98	1,303,906	899,695	69.0%	1.0000	899,695	69.0%	0	0	0	899,695	100.0%	100.0%	0
44	04/01/98	1,822,816	1,257,743	69.0%	1.0000	1,257,743	69.0%	0	0	0	1,257,743	100.0%	100.0%	0
43	05/01/98	1,462,356	1,009,026	69.0%	1.0000	1,009,026	69.0%	0	0	0	1,009,026	100.0%	100.0%	0
42	06/01/98	1,886,572	1,301,735	69.0%	1.0000	1,301,735	69.0%	0	0	0	1,301,735	100.0%	100.0%	0
41	07/01/98	2,444,183	1,686,486	69.0%	1.0000	1,686,486	69.0%	0	0	0	1,686,486	100.0%	100.0%	0
40	08/01/98	1,377,468	950,453	69.0%	1.0000	950,453	69.0%	0	0	0	950,453	100.0%	100.0%	0
39	09/01/98	1,648,000	1,137,120	69.0%	1.0000	1,137,120	69.0%	0	0	0	1,137,120	100.0%	100.0%	0
38	10/01/98	1,674,677	1,155,527	69.0%	1.0000	1,155,527	69.0%	0	0	0	1,155,527	100.0%	100.0%	0
37	11/01/98	841,169	580,407	69.0%	1.0000	580,407	69.0%	0	0	0	580,407	100.0%	100.0%	0
36	12/01/98	844,677	582,827	69.0%	1.0000	582,827	69.0%	0	0	0	582,827	100.0%	100.0%	0
35	01/01/99	8,928,550	6,160,699	69.0%	1.0000	6,160,699	69.0%	0	0	0	6,160,699	100.0%	100.0%	0
34	02/01/99	1,153,393	795,841	69.0%	1.0000	795,841	69.0%	0	0	0	795,841	100.0%	100.0%	0
33	03/01/99	1,356,062	935,683	69.0%	1.0000	935,683	69.0%	0	0	0	935,683	100.0%	100.0%	0
32	04/01/99	1,895,729	1,308,053	69.0%	1.0000	1,308,053	69.0%	0	0	0	1,308,053	100.0%	100.0%	0
31	05/01/99	1,520,850	1,049,387	69.0%	1.0000	1,049,387	69.0%	0	0	0	1,049,387	100.0%	100.0%	0
30	06/01/99	1,962,035	1,353,804	69.0%	1.0000	1,353,804	69.0%	0	0	0	1,353,804	100.0%	100.0%	0
29	07/01/99	2,541,950	1,753,946	69.0%	1.0000	1,753,946	69.0%	0	0	0	1,753,946	100.0%	100.0%	0
28	08/01/99	1,432,567	988,471	69.0%	1.0000	988,471	69.0%	0	0	0	988,471	100.0%	100.0%	0
27	09/01/99	1,713,920	1,182,605	69.0%	1.0000	1,182,605	69.0%	0	0	0	1,182,605	100.0%	100.0%	0
26	10/01/99	1,741,664	1,201,748	69.0%	1.0000	1,201,748	69.0%	0	0	0	1,201,748	100.0%	100.0%	0
25	11/01/99	874,816	603,623	69.0%	1.0000	603,623	69.0%	0	0	0	603,623	100.		

Exhibit 4

[illegible]

Exhibit 5

				Experience Model: Specific Coverage Claims									
				Expected Loss Ratio = 69.0%									
				Valuation Date: 12/31/2001									
					Projected		Remaining						Difference in
Policy	Annualized	Actual	Paid		Ultimate	Projected	Projected	Premium		Run-out	% of Paid	% of paid	Run-out Claims
Year	Premium	Paid Claims	Loss Ratio	Lag Factor	Claims	Loss Ratio	Claims	Offset	Reserve	Paid Claims	Claims (MUC)	Claims (PUC)	(PUC - MUC)
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1998	25,000,000	20,500,000	82.0%	1.0000	20,500,000	0.8200	0	0	0	17,250,000	118.8%	100.0%	3,250,000
1999	26,000,000	20,020,000	77.0%	1.0000	20,020,000	0.7700	0	0	0	17,940,000	111.6%	100.0%	2,080,000
2000	27,300,000	19,032,193	69.7%	0.9267	19,880,444	0.7282	848,251	0	848,251	18,837,000	101.0%	95.7%	1,043,444
2001	30,000,000	6,493,500	21.6%	0.2210	20,298,769	0.6766	13,805,269	6,536,658	7,268,611	20,700,000	31.4%	32.0%	-401,231
				Standard Model: Specific Coverage									
				Model Loss Ratio = 0.69									
				Valuation Date = 12/31/2001									
					Projected		Remaining			Model Ultimate	% of	% of	Difference in
Policy Year	Annualized	Model	Model		Ultimate	Projected	Projected	Premium		Run-out	Paid Claims	Paid Claims	Run-out Claims
	Premium	Paid Claims	Paid LR	Lag Factor	Claims	Loss Ratio	Claims	Offset	Reserve	Paid Claims	(MUC)	(PUC)	(PUC - MUC)
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1998	25,000,000	17,250,000	69.0%	1.0000	17,250,000	69.0%	0	0	0	17,250,000	100.0%	100.0%	0
1999	26,000,000	17,940,000	69.0%	1.0000	17,940,000	69.0%	0	0	0	17,940,000	100.0%	100.0%	0
2000	27,300,000	17,988,749	65.9%	0.9267	18,837,000	69.0%	848,251	0	848,251	18,837,000	95.5%	95.5%	0
2001	30,000,000	6,894,731	23.0%	0.2210	20,700,000	69.0%	13,805,269	6,536,658	7,268,611	20,700,000	33.3%	33.3%	0
	MUC : Standard Model Ultim				PUC: Projected (Realized) Ultimate Claims.								

Exhibit 6

					Comparison of Standard Model & Experience Models: Specific Coverage										
					Model Loss Ratio = 69.0%										
					Valuation Date = 12/31/2001										
					(Figures in 000's)										
				Projected	Projected	Model	Remaining			Model Ultimate	% of Actual	% of Modal	% of Actual	Difference in	% of difference in
	Duration	Policy Month	Annualized	Ultimate	Ultimate	Run-out	Projected	Premium		Run-out	Paid Claims	Paid Claims	Paid Claims	Run-out Claims	Run-out Claims
	Months	(Last Day)	Premium	Claims	Loss Ratio	Claims	Claims	Offset	Reserve	Paid Claims	(MUC)	(MUC)	(PUC)	(PUC - MUC)	to Ann. Premium
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	23	01/01/00	9,375	5,787	61.7%	6,469	0	0	0	6,469	89.5%	100.0%	100.0%	-681	-7.3%
	22	02/01/00	1,211	1,339	110.6%	836	5	0	5	836	159.7%	99.4%	99.6%	504	41.6%
	21	03/01/00	1,424	963	67.6%	982	11	0	11	982	96.9%	98.8%	98.8%	-19	-1.4%
	20	04/01/00	1,991	1,428	71.7%	1,373	24	0	24	1,373	102.2%	98.3%	98.3%	55	2.7%
	19	05/01/00	1,597	1,269	79.4%	1,102	25	0	25	1,102	112.9%	97.7%	98.0%	167	10.4%
	18	06/01/00	2,060	1,879	91.2%	1,421	57	0	57	1,421	128.2%	96.0%	97.0%	458	22.2%
	17	07/01/00	2,669	2,370	88.8%	1,842	105	0	105	1,842	123.0%	94.3%	95.6%	528	19.8%
	16	08/01/00	1,504	840	55.8%	1,038	80	0	80	1,038	73.2%	92.3%	90.5%	-198	-13.2%
	15	09/01/00	1,800	1,527	84.9%	1,242	113	0	113	1,242	113.9%	90.9%	92.6%	285	15.9%
	14	10/01/00	1,829	1,410	77.1%	1,262	149	0	149	1,262	99.9%	88.2%	89.4%	148	8.1%
	13	11/01/00	919	487	53.0%	634	106	0	106	634	60.1%	83.3%	78.2%	-147	-16.0%
	12	12/01/00	922	581	63.0%	636	173	0	173	636	64.1%	72.8%	70.2%	-55	-6.0%
	11	01/01/01	10,302	7,657	74.3%	7,108	2,773	0	2,773	7,108	68.7%	61.0%	63.8%	548	5.3%
	10	02/01/01	1,331	772	58.0%	918	460	77	383	918	34.1%	50.0%	40.5%	-146	-11.0%
	9	03/01/01	1,565	889	56.8%	1,080	625	180	445	1,080	24.5%	42.1%	29.7%	-191	-12.2%
	8	04/01/01	2,187	1,232	56.3%	1,509	979	377	602	1,509	16.7%	35.1%	20.5%	-277	-12.7%
	7	05/01/01	1,755	1,079	61.5%	1,211	883	404	479	1,211	16.2%	27.1%	18.2%	-131	-7.5%
	6	06/01/01	2,264	1,610	71.1%	1,562	1,252	651	601	1,562	23.0%	19.9%	22.3%	48	2.1%
	5	07/01/01	2,933	1,867	63.6%	2,024	1,746	1,012	734	2,024	6.0%	13.8%	6.5%	-157	-5.4%
	4	08/01/01	1,653	1,103	66.7%	1,141	1,040	665	375	1,141	5.5%	8.8%	5.7%	-38	-2.3%
	3	09/01/01	1,978	1,336	67.6%	1,365	1,294	910	385	1,365	3.0%	5.2%	3.1%	-29	-1.4%
	2	10/01/01	2,010	1,362	67.8%	1,387	1,362	1,040	322	1,387	0.0%	1.8%	0.0%	-24	-1.2%
	1	11/01/01	1,009	692	68.6%	696	692	580	112	696	0.0%	0.6%	0.0%	-4	-0.4%
	0	12/01/01	1,014	699	69.0%	699	699	641	58	699	0.0%	0.0%	0.0%	0	0.0%
													2000 Year	1.043 million	
													2001 Year	-0.401 million	

Note: Remaining projected claims and reserves change only with change in pre-set model loss ratio from time to time.

Exhibit 7

					Specific Coverage: Standard Model Claims								
					Model Loss Ratio = 69.0%								
					2000 Underwriting Year								
													% of Paid
							Projected		Remaining				Claims to
	Valuation	Policy	Annualized	Model	Paid		Ultimate	Projected	Projected	Premium		Run-out	Run-out
	Date	Year	Premium	Paid Claims	Loss Ratio	Lag Factor	Claims	Loss Ratio	Claims	Offset	Reserve	Paid Claims	Claims
	1	2	3	4	5	6	7	8	9	10	11	12	13
	01/31/00	2000 YTD	9,374,977	0	0.0%	0.0000	6,468,734	69%	6,468,734	5,929,673	539,061	6,468,734	0.0%
	02/29/00	2000 YTD	10,586,040	37,519	0.4%	0.0029	7,304,368	69%	7,266,849	6,156,609	1,110,240	7,304,368	0.2%
	03/31/00	2000 YTD	12,009,906	118,696	1.0%	0.0078	8,286,835	69%	8,168,139	6,448,507	1,719,632	8,286,835	0.6%
	04/30/00	2000 YTD	14,000,422	353,545	2.5%	0.0187	9,660,291	69%	9,306,746	7,016,939	2,289,807	9,660,291	1.9%
	05/31/00	2000 YTD	15,597,314	636,894	4.1%	0.0136	10,762,147	69%	10,125,252	7,221,949	2,903,304	10,762,147	3.4%
	06/30/00	2000 YTD	17,657,451	1,044,064	5.9%	0.0501	12,183,641	69%	11,139,577	7,628,140	3,511,438	12,183,641	5.5%
	07/31/00	2000 YTD	20,326,499	1,585,613	7.8%	0.0713	14,025,284	69%	12,439,671	8,301,009	4,138,662	14,025,284	8.4%
	08/31/00	2000 YTD	21,830,694	2,265,472	10.4%	0.0962	15,063,179	69%	12,797,707	8,083,639	4,714,068	15,063,179	12.0%
	09/30/00	2000YTD	23,630,310	3,090,683	13.1%	0.1246	16,304,914	69%	13,214,231	7,966,631	5,247,600	16,304,914	16.4%
	10/31/00	2000 YTD	25,459,057	3,955,164	15.5%	0.1542	17,566,749	69%	13,611,585	7,764,571	5,847,014	17,566,749	21.0%
	11/30/00	2000 YTD	26,377,613	4,959,115	18.8%	0.1856	18,200,553	69%	13,241,438	6,881,662	6,359,776	18,200,553	26.3%
	12/31/00	2000	27,300,000	6,274,205	23.0%	0.2210	18,837,000	69%	12,562,795	5,948,359	6,614,436	18,837,000	33.3%
	01/31/01	2000	27,300,000	7,757,987	28.4%	0.2817	18,837,000	69%	11,079,013	4,917,670	6,161,343	18,837,000	41.2%
	02/28/01	2000	27,300,000	9,275,311	34.0%	0.3506	18,837,000	69%	9,561,689	3,956,617	5,605,071	18,837,000	49.2%
	03/31/01	2000	27,300,000	10,539,668	38.6%	0.4226	18,837,000	69%	8,297,332	3,077,437	5,219,895	18,837,000	56.0%
	04/30/01	2000	27,300,000	11,685,974	42.8%	0.4940	18,837,000	69%	7,151,026	2,312,711	4,838,314	18,837,000	62.0%
	05/31/01	2000	27,300,000	12,759,890	46.7%	0.5637	18,837,000	69%	6,077,110	1,639,807	4,437,304	18,837,000	67.7%
	06/30/01	2000	27,300,000	13,834,973	50.7%	0.6308	18,837,000	69%	5,002,027	1,085,360	3,916,667	18,837,000	73.4%
	07/31/01	2000	27,300,000	14,827,581	54.3%	0.6942	18,837,000	69%	4,009,419	684,384	3,325,035	18,837,000	78.7%
	08/31/01	2000	27,300,000	15,741,118	57.7%	0.7531	18,837,000	69%	3,095,882	369,899	2,725,983	18,837,000	83.6%
	09/30/01	2000	27,300,000	16,467,046	60.3%	0.8057	18,837,000	69%	2,369,954	158,891	2,211,062	18,837,000	87.4%
	10/31/01	2000	27,300,000	17,090,827	62.6%	0.8529	18,837,000	69%	1,746,173	53,037	1,693,136	18,837,000	90.7%
	11/30/01	2000	27,300,000	17,602,040	64.5%	0.8942	18,837,000	69%	1,234,960	0	1,234,960	18,837,000	93.4%
	12/31/01	2000	27,300,000	17,988,749	65.9%	0.9267	18,837,000	69%	848,251	0	848,251	18,837,000	95.5%
	01/31/02	2000	27,300,000	18,239,006	66.8%	0.9493	18,837,000	69%	597,994	0	597,994	18,837,000	96.8%
	02/28/02	2000	27,300,000	18,407,418	67.4%	0.9633	18,837,000	69%	429,582	0	429,582	18,837,000	97.7%
	03/31/02	2000	27,300,000	18,529,954	67.9%	0.9731	18,837,000	69%	307,046	0	307,046	18,837,000	98.4%
	04/30/02	2000	27,300,000	18,625,415	68.2%	0.9807	18,837,000	69%	211,585	0	211,585	18,837,000	98.9%
	05/31/02	2000	27,300,000	18,702,273	68.5%	0.9871	18,837,000	69%	134,727	0	134,727	18,837,000	99.3%
	06/30/02	2000	27,300,000	18,754,584	68.7%	0.9919	18,837,000	69%	82,416	0	82,416	18,837,000	99.6%
	07/31/02	2000	27,300,000	18,789,685	68.8%	0.9952	18,837,000	69%	47,315	0	47,315	18,837,000	99.7%
	08/31/02	2000	27,300,000	18,811,255	68.9%	0.9971	18,837,000	69%	25,745	0	25,745	18,837,000	99.9%
	09/30/02	2000	27,300,000	18,825,941	69.0%	0.9986	18,837,000	69%	11,059	0	11,059	18,837,000	99.9%
	10/31/02	2000	27,300,000	18,833,309	69.0%	0.9995	18,837,000	69%	3,691	0	3,691	18,837,000	100.0%
	11/30/02	2000	27,300,000	18,837,000	69.0%	1.0000	18,837,000	69%	0	0	0	18,837,000	100.0%
	12/31/02	2000	27,300,000	18,837,000	69.0%	1.0000	18,837,000	69%	0	0	0	18,837,000	100.0%

Exhibit 8

					Specific Coverage: Standard Model Claims								
					Scenario : Loss Ratio = 69.0%								
					2001 Underwriting Year								
													% of Paid
							Projected		Remaining				Claims to
	Valuation	Policy	Annualized		Paid		Ultimate	Projected	Projected	Premium		Run-out	Run-out
	Date	Year	Premium	Paid Claims	Loss Ratio	Lag Factor	Claims	Loss Ratio	Claims	Offset	Reserve	Paid Claims	Claims
	1	2	3	4	5	6	7	8	9	10	11	12	13
	01/31/01	2001YTD	10,302,172	0	0.0%	0.0000	7,108,499	69.0%	7,108,499	6,516,124	592,375	7,108,499	0.0%
	02/28/01	2001YTD	11,633,011	41,229	0.4%	0.0029	8,026,778	69.0%	7,985,548	6,765,505	1,220,044	8,026,778	0.2%
	03/31/01	2001YTD	13,197,698	130,436	1.0%	0.0078	9,106,412	69.0%	8,975,976	7,086,271	1,889,705	9,106,412	0.6%
	04/30/01	2001YTD	15,385,078	388,511	2.5%	0.0187	10,615,704	69.0%	10,227,193	7,710,921	2,516,271	10,615,704	1.9%
	05/31/01	2001YTD	17,139,905	699,884	4.1%	0.0326	11,826,534	69.0%	11,126,651	7,936,207	3,190,443	11,826,534	3.4%
	06/30/01	2001YTD	19,403,792	1,147,323	5.9%	0.0501	13,388,616	69.0%	12,241,294	8,382,571	3,858,722	13,388,616	5.5%
	07/31/01	2001YTD	22,336,812	1,742,432	7.8%	0.0713	15,412,400	69.0%	13,669,968	9,121,988	4,547,980	15,412,400	8.4%
	08/31/01	2001YTD	23,989,774	2,489,529	10.4%	0.0962	16,552,944	69.0%	14,063,415	8,883,120	5,180,295	16,552,944	12.0%
	09/30/01	2001YTD	25,967,374	3,396,355	13.1%	0.1246	17,917,488	69.0%	14,521,133	8,754,540	5,766,593	17,917,488	16.4%
	10/31/01	2001YTD	27,976,986	4,346,334	15.5%	0.1542	19,304,120	69.0%	14,957,786	8,532,496	6,425,290	19,304,120	21.0%
	11/30/01	2001YTD	28,986,388	5,449,577	18.8%	0.1856	20,000,608	69.0%	14,551,031	7,562,266	6,988,765	20,000,608	26.3%
	12/31/01	2001	30,000,000	6,894,731	23.0%	0.2210	20,700,000	69.0%	13,805,269	6,536,658	7,268,611	20,700,000	33.3%
	01/31/02	2001	30,000,000	8,525,260	28.4%	0.2817	20,700,000	69.0%	12,174,740	5,404,033	6,770,707	20,700,000	41.2%
	02/28/02	2001	30,000,000	10,192,650	34.0%	0.3506	20,700,000	69.0%	10,507,350	4,347,931	6,159,419	20,700,000	49.2%
	03/31/02	2001	30,000,000	11,582,053	38.6%	0.4226	20,700,000	69.0%	9,117,947	3,381,799	5,736,148	20,700,000	56.0%
	04/30/02	2001	30,000,000	12,841,730	42.8%	0.4940	20,700,000	69.0%	7,858,270	2,541,441	5,316,829	20,700,000	62.0%
	05/31/02	2001	30,000,000	14,021,857	46.7%	0.5637	20,700,000	69.0%	6,678,143	1,801,985	4,876,158	20,700,000	67.7%
	06/30/02	2001	30,000,000	15,203,267	50.7%	0.6308	20,700,000	69.0%	5,496,733	1,192,703	4,304,030	20,700,000	73.4%
	07/31/02	2001	30,000,000	16,294,045	54.3%	0.6942	20,700,000	69.0%	4,405,955	752,070	3,653,885	20,700,000	78.7%
	08/31/02	2001	30,000,000	17,297,932	57.7%	0.7531	20,700,000	69.0%	3,402,068	406,482	2,995,586	20,700,000	83.6%
	09/30/02	2001	30,000,000	18,095,655	60.3%	0.8057	20,700,000	69.0%	2,604,345	174,606	2,429,739	20,700,000	87.4%
	10/31/02	2001	30,000,000	18,781,129	62.6%	0.8529	20,700,000	69.0%	1,918,871	58,283	1,860,589	20,700,000	90.7%
	11/30/02	2001	30,000,000	19,342,901	64.5%	0.8942	20,700,000	69.0%	1,357,099	0	1,357,099	20,700,000	93.4%
	12/31/02	2001	30,000,000	19,767,856	65.9%	0.9267	20,700,000	69.0%	932,144	0	932,144	20,700,000	95.5%
	01/31/03	2001	30,000,000	20,042,864	66.8%	0.9493	20,700,000	69.0%	657,136	0	657,136	20,700,000	96.8%
	02/28/03	2001	30,000,000	20,227,932	67.4%	0.9633	20,700,000	69.0%	472,068	0	472,068	20,700,000	97.7%
	03/31/03	2001	30,000,000	20,362,587	67.9%	0.9731	20,700,000	69.0%	337,413	0	337,413	20,700,000	98.4%
	04/30/03	2001	30,000,000	20,467,489	68.2%	0.9807	20,700,000	69.0%	232,511	0	232,511	20,700,000	98.9%
	05/31/03	2001	30,000,000	20,551,948	68.5%	0.9871	20,700,000	69.0%	148,052	0	148,052	20,700,000	99.3%
	06/30/03	2001	30,000,000	20,609,433	68.7%	0.9919	20,700,000	69.0%	90,567	0	90,567	20,700,000	99.6%
	07/31/03	2001	30,000,000	20,648,006	68.8%	0.9952	20,700,000	69.0%	51,994	0	51,994	20,700,000	99.7%
	08/31/03	2001	30,000,000	20,671,709	68.9%	0.9971	20,700,000	69.0%	28,291	0	28,291	20,700,000	99.9%
	09/30/03	2001	30,000,000	20,687,847	69.0%	0.9986	20,700,000	69.0%	12,153	0	12,153	20,700,000	99.9%
	10/31/03	2001	30,000,000	20,695,944	69.0%	0.9995	20,700,000	69.0%	4,056	0	4,056	20,700,000	100.0%
	11/30/03	2001	30,000,000	20,700,000	69.0%	1.0000	20,700,000	69.0%	0	0	0	20,700,000	100.0%
	12/31/03	2001	30,000,000	20,700,000	69.0%	1.0000	20,700,000	69.0%	0	0	0	20,700,000	100.0%