

PENNSYLVANIA COMPENSATION RATING BUREAU

Tail Factors for Loss Development

For a given calendar year, the PCRB collects financial loss development data for the current policy year and the twenty previous individual policy years. A single aggregate line of experience is reported for all older policy years combined.

Thus, the 2002 vs. 2003 valuations in the tail factor calculation will use policy year 1983 as the earliest separate policy year and an aggregate line of experience for policy years 1982 and prior. The 2003 vs. 2004 valuations in the tail factor calculation will use policy year 1984 as the earliest separate policy year and an aggregate line of experience for policy years 1983 and prior. The 2004 vs. 2005 valuations in the tail factor calculation will use policy year 1985 as the earliest separate policy year and an aggregate line of experience for policy years 1984 and prior. The 2005 vs. 2006 valuations in the tail factor calculation will use policy year 1986 as the earliest separate policy year and an aggregate line of experience for policy years 1985 and prior.

The following discussion focuses on data with an earliest available policy year of 1978 for illustrative purposes. The discussion for data starting with later policy years would, however, be analogous.

Prior to 1995, the PCRB has computed incurred loss development for maturities older than policy year 1978 (i.e., the pre-1978 “tail”) by comparing the total amount of dollar development in incurred losses occurring in a given calendar year to the incurred loss reported for policy year 1978 at the beginning of that same calendar period.

As part of the Insurance Department’s examination of the Bureau, the actuarial firm retained to perform portions of that review commented that the PCRB’s approach effectively assumed that each policy year prior to 1978 had the same amount of ultimate losses as did policy year 1978. Since policy year losses have tended to increase from year to year in response to benefit and price changes, changes in employment volume and other features affecting loss trends, this assumption was noted as understating the true tail in the PCRB’s loss development analysis. The contractor recommended that for future filings the PCRB add a growth adjustment to its tail factor calculation.

In response to this recommendation the PCRB changed its derivation of tail factors for its 12/1/95 filing. That approach, used again for this filing, is applied separately for indemnity and medical loss experience and for each calendar year of experience, and outlined as follows:

1. A starting policy year loss amount based on the average reported incurred loss for policy years 1978-1980 was computed.

2. An annual loss inflation factor was selected based on observed changes in incurred losses by policy year for the older policy years having separate experience data reported.
3. A historical series of estimated incurred losses by policy year beginning with policy year 1977 was computed using the starting point from #1 and the selected inflation factor from #2.
4. A calendar year loss development factor was selected for policy year 1977 based on observed developments for the oldest years with actual separate experience available.
5. A rate of decline in calendar year loss development factors by policy year was then computed such that when the resulting series of loss development factors was applied to the historical series of estimated incurred losses in #3, the total implied dollar amount of loss development for the calendar year balanced to the observed amount of development on policy years prior to 1978.
6. The “tail factor” applicable to maturities prior to policy year 1978 based on that calendar year of experience was then computed as the cumulative product of the series of loss development factors constructed in #5.

In general, this approach produced policy year incurred losses and loss development factors such that measurable development terminated for policy years in the mid- to early 1930's. Because the amount of calendar year development observed for policy years prior to 1978 varied considerably from year to year, some variations in the application of the initial selected loss development factor were necessary (i.e., whether the initial selection was applied to 1, 2 or 3 prior policy years before beginning the application of the selected rate of decline in loss development). In addition, the selected rates of decline in loss development factors vary from calendar year to calendar year in order to achieve the desired balance with observed calendar year development.

Recognizing the volatility of observed calendar year development for policy years prior to 1978 in the aggregate, the PCRB elected to use an experience period comprising four calendar years of loss development in computing indicated tail factors for this filing.

A summary exhibit on page 1 presents results of both the previous and revised approaches to the derivation of tail development factors. Following the summary page, eight exhibits presenting the derivation of indicated tail factors using the procedure outlined above are attached (four for indemnity and four for medical). These exhibits are numbered as pages 2 through 9 respectively.

SUMMARY OF LOSS DEVELOPMENT TAIL FACTOR CALCULATIONS

VALUATION	MATURITY	INDEMNITY		MEDICAL	
		Traditional Approach *	Indicated Factor	Traditional Approach *	Indicated Factor
05V06	20TH TO ULT.	1.0056	1.0060	1.0745	1.0858
04V05	20TH TO ULT.	1.0082	1.0089	1.0554	1.0666
03V04	20TH TO ULT.	1.0012	1.0014	0.9969	0.9966
02V03	20TH TO ULT.	1.0005	1.0006	1.0804	1.0887
AVERAGE OF LATEST 4 VALUATIONS		1.0039	1.0042	1.0518	1.0594

* I.e. for 05V06 =
$$\frac{\text{Incurred Loss @ 12/31/06} - \text{Incurred Loss @ 12/31/05 for policy years prior to 1986}}{\text{Incurred Loss @ 12/31/05 for policy year 1986}}$$

Inputs for Tail Factor Estimation - 2008 Loss Cost Filing

Indemnity: 05v06

Latest 12/31 Prior to 1986 Incurred	4,301,573,964
Next Latest 12/31 Prior to 1986 Incurred	4,298,045,064
CY Development of Prior Yrs	3,528,900
Next Latest PY 1986 Incurred	634,744,403
# of 1986 Yrs in Prior Data	6.78
Selected Decrement, Development Factor	0.75
Selected Average PY Deflation Factor	0.95

- 1 Policy Yr 1985 Incurred = Average of 1986, 1987, 1988, reduced by PY Deflation ^ 2
- 2 PY 1984 & Prior = Subsequent Yr x PY Deflation
- 3 1985 Development Selected Based on Observed 1986, 1987, 1988
- 4 PY 1984 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.0060 vs 1.0056 3,528,900
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2008 Loss Cost Filing

INDEMNITY

Policy Year	(*=Estimate)	12/31/06 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/06 Incurred	Prior Year Development	Dollar Development	DF
1938	*	61,242,326	1.000000	0	1.0000 #	1973	*	368,744,450	1.000047	17,381	1.0002
1939	*	64,465,606	1.000000	0	1.0000 #	1974	*	388,152,052	1.000063	24,394	1.0003
1940	*	67,858,533	1.000000	0	1.0000 #	1975	*	408,581,108	1.000084	34,236	1.0003
1941	*	71,430,035	1.000000	0	1.0000 #	1976	*	430,085,376	1.000112	48,050	1.0004
1942	*	75,189,510	1.000000	0	1.0000 #	1977	*	452,721,449	1.000149	67,436	1.0006
1943	*	79,146,853	1.000000	1	1.0000 #	1978	*	476,548,894	1.000199	94,642	1.0008
1944	*	83,312,477	1.000000	1	1.0000 #	1979	*	501,630,414	1.000265	132,822	1.0011
1945	*	87,697,344	1.000000	1	1.0000 #	1980	*	528,032,015	1.000353	186,400	1.0014
1946	*	92,312,994	1.000000	2	1.0000 #	1981	*	555,823,174	1.000471	261,584	1.0019
1947	*	97,171,572	1.000000	3	1.0000 #	1982	*	585,077,025	1.000628	367,078	1.0025
1948	*	102,285,865	1.000000	4	1.0000 #	1983	*	615,870,553	1.000837	515,089	1.0034
1949	*	107,669,332	1.000000	5	1.0000 #	1984	*	648,284,792	1.001116	722,730	1.0045
1950	*	113,336,139	1.000000	7	1.0000 #	1985	*	682,405,044	1.001488105	1,013,981	1.0060 20TH TO ULT.
1951	*	119,301,199	1.000000	10	1.0000 #	1986		632,805,522	0.9969		
1952	*	125,580,209	1.000000	14	1.0000 #	1987		767,416,139	1.0010	Total	
1953	*	132,189,694	1.000000	20	1.0000 #	1988		868,160,758	0.9995	Development:	
1954	*	139,147,046	1.000000	28	1.0000 #	1989		1,004,329,039	1.0011	3,528,900	
1955	*	146,470,575	1.000000	39	1.0000 #	1990		1,051,089,416	1.0014		
1956	*	154,179,553	1.000000	55	1.0000 #	1991		939,654,891	0.9981		
1957	*	162,294,266	1.000000	77	1.0000 #	1992		830,378,186	1.0011		
1958	*	170,836,070	1.000001	108	1.0000 #	1993		718,850,531	0.9984		
1959	*	179,827,442	1.000001	151	1.0000 #	1994		662,350,406	0.9987		
1960	*	189,292,044	1.000001	212	1.0000 #	1995		569,302,822	1.0036		
1961	*	199,254,783	1.000001	298	1.0000 #	1996		498,799,033	1.0052		
1962	*	209,741,877	1.000002	418	1.0000 #	1997		521,822,987	1.0080		
1963	*	220,780,923	1.000003	586	1.0000 #	1998		556,395,801	1.0042		
1964	*	232,400,972	1.000004	823	1.0000 #	1999		641,780,755	1.0064		
1965	*	244,632,602	1.000005	1,154	1.0000 #	2000		673,212,614	1.0053		
1966	*	257,508,002	1.000006	1,620	1.0000 #	2001		627,219,117	1.0212		
1967	*	271,061,055	1.000008	2,274	1.0000 #	2002		594,731,315	1.0551		
1968	*	285,327,426	1.000011	3,192	1.0000 #	2003		537,411,187	1.1613		
1969	*	300,344,659	1.000015	4,479	1.0001 #	2004		503,562,863	1.3963		
1970	*	316,152,272	1.000020	6,287	1.0001 #	2005		351,072,821	3.0144		
1971	*	332,791,866	1.000027	8,824	1.0001 #	2006		113,940,839			
1972	*	350,307,227	1.000035	12,384	1.0001 #						

Inputs for Tail Factor Estimation - 2008 Loss Cost Filing

Medical 05v06

Latest 12/31 Prior to 1986 Incurred	1,293,923,838
Next Latest 12/31 Prior to 1986 Incurred	1,273,037,672
CY Development of Prior Yrs	20,886,166
Next Latest PY 1986 Incurred	280,372,719
# of 1986 Yrs in Prior Data	4.62
Selected Decrement, Development Factor	0.75
Selected Average PY Deflation Factor	0.93

- 1 Policy Yr 1985 Incurred = Average of 1986, 1987, 1988, reduced by PY Deflation ^ 2
- 2 PY 1984 & Prior = Subsequent Yr x PY Deflation
- 3 1985 Development Selected Based on Observed 1986, 1987, 1988
- 4 PY 1984 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.0858 vs 1.0745 20,886,166
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2008 Loss Cost Filing

MEDICAL

Policy Year	(*=Estimate)	12/31/06 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/06 Incurred	Prior Year Development	Dollar Development	DF
1937	*	9,338,444	1.000000	0	1.0000 #	1973	*	127,317,581	1.000656	83,464	1.0026
1938	*	10,041,338	1.000000	0	1.0000 #	1974	*	136,900,625	1.000875	119,636	1.0035
1939	*	10,797,137	1.000000	0	1.0000 #	1975	*	147,204,973	1.001166	171,471	1.0047
1940	*	11,609,825	1.000000	1	1.0000 #	1976	*	158,284,917	1.001555	245,741	1.0062
1941	*	12,483,683	1.000000	1	1.0000 #	1977	*	170,198,836	1.002073	352,134	1.0083
1942	*	13,423,315	1.000000	1	1.0000 #	1978	*	183,009,501	1.002764	504,504	1.0111
1943	*	14,433,672	1.000000	2	1.0000 #	1979	*	196,784,409	1.003686	722,640	1.0148
1944	*	15,520,078	1.000000	2	1.0000 #	1980	*	211,596,139	1.004914	1,034,776	1.0198
1945	*	16,688,255	1.000000	3	1.0000 #	1981	*	227,522,730	1.006552	1,481,135	1.0265
1946	*	17,944,361	1.000000	5	1.0000 #	1982	*	244,648,097	1.008737	2,118,893	1.0355
1947	*	19,295,011	1.000000	7	1.0000 #	1983	*	263,062,470	1.011649	3,029,095	1.0475
1948	*	20,747,324	1.000000	10	1.0000 #	1984	*	282,862,871	1.015532	4,326,184	1.0638
1949	*	22,308,951	1.000001	15	1.0000 #	1985	*	320,567,779	1.020709102	6,503,979	1.0858 20TH TO ULT.
1950	*	23,988,119	1.000001	21	1.0000 #	1986		284,648,538	1.0153		
1951	*	25,793,676	1.000001	30	1.0000 #	1987		375,924,407	1.0153		
1952	*	27,735,136	1.000002	43	1.0000 #	1988		451,351,367	1.0078	Total	
1953	*	29,822,727	1.000002	62	1.0000 #	1989		547,127,475	1.0093	Development:	
1954	*	32,067,448	1.000003	89	1.0000 #	1990		584,019,368	1.0121	20,886,166	
1955	*	34,481,127	1.000004	128	1.0000 #	1991		557,235,630	1.0110		
1956	*	37,076,481	1.000005	183	1.0000 #	1992		523,790,118	1.0151		
1957	*	39,867,184	1.000007	262	1.0000 #	1993		439,699,927	1.0115		
1958	*	42,867,939	1.000009	376	1.0000 #	1994		414,396,587	1.0213		
1959	*	46,094,558	1.000012	539	1.0000 #	1995		383,943,581	1.0124		
1960	*	49,564,041	1.000016	772	1.0001 #	1996		381,411,954	1.0084		
1961	*	53,294,668	1.000021	1,107	1.0001 #	1997		408,379,622	1.0158		
1962	*	57,306,095	1.000028	1,588	1.0001 #	1998		465,961,495	1.0260		
1963	*	61,619,457	1.000037	2,276	1.0001 #	1999		508,950,503	1.0082		
1964	*	66,257,480	1.000049	3,263	1.0002 #	2000		524,528,724	1.0134		
1965	*	71,244,602	1.000066	4,679	1.0003 #	2001		473,637,430	1.0140		
1966	*	76,607,099	1.000088	6,707	1.0004 #	2002		479,954,740	1.0495		
1967	*	82,373,225	1.000117	9,616	1.0005 #	2003		472,730,667	1.0693		
1968	*	88,573,360	1.000156	13,786	1.0006 #	2004		513,763,024	1.1233		
1969	*	95,240,172	1.000208	19,764	1.0008 #	2005		481,964,596	2.3023		
1970	*	102,408,788	1.000277	28,333	1.0011 #	2006		208,810,238			
1971	*	110,116,976	1.000369	40,617	1.0015 #						
1972	*	118,405,350	1.000492	58,226	1.0020 #						

Inputs for Tail Factor Estimation - 2008 Loss Cost Filing

Indemnity: 04v05

Latest 12/31 Prior to 1985 Incurred	3,809,476,184
Next Latest 12/31 Prior to 1985 Incurred	3,804,909,342
CY Development of Prior Yrs	4,566,842
Next Latest PY 1985 Incurred	559,645,744
# of 1985 Yrs in Prior Data	6.81
Selected Decrement, Development Factor	0.75
Selected Average PY Deflation Factor	0.95

- 1 Policy Yr 1984 Incurred = Average of 1985, 1986, 1987, reduced by PY Deflation ^ 2
- 2 PY 1983 & Prior = Subsequent Yr x PY Deflation
- 3 1984 Development Selected Based on Observed 1985, 1986, 1987
- 4 PY 1983 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.0089 vs 1.0082 4,566,842
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2008 Loss Cost Filing

INDEMNITY

Policy Year	(*=Estimate)	12/31/05 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/05 Incurred	Prior Year Development	Dollar Development	DF	
1938	*	56,220,076	1.000000	0	1.0000	#	1972	*	321,579,866	1.000070	22,503	1.0003
1939	*	59,179,028	1.000000	0	1.0000	#	1973	*	338,505,122	1.000093	31,582	1.0004
1940	*	62,293,713	1.000000	0	1.0000	#	1974	*	356,321,182	1.000124	44,324	1.0005
1941	*	65,572,330	1.000000	1	1.0000	#	1975	*	375,074,928	1.000166	62,207	1.0007
1942	*	69,023,505	1.000000	1	1.0000	#	1976	*	394,815,714	1.000221	87,303	1.0009
1943	*	72,656,321	1.000000	1	1.0000	#	1977	*	415,595,488	1.000295	122,521	1.0012
1944	*	76,480,338	1.000000	2	1.0000	#	1978	*	437,468,935	1.000393	171,943	1.0016
1945	*	80,505,619	1.000000	2	1.0000	#	1979	*	460,493,616	1.000524	241,292	1.0021
1946	*	84,742,757	1.000000	3	1.0000	#	1980	*	484,730,122	1.000699	338,596	1.0028
1947	*	89,202,902	1.000000	5	1.0000	#	1981	*	510,242,233	1.000932	475,112	1.0037
1948	*	93,897,791	1.000000	7	1.0000	#	1982	*	537,097,088	1.001243	666,616	1.0050
1949	*	98,839,780	1.000000	9	1.0000	#	1983	*	565,365,355	1.001657	935,215	1.0066
1950	*	104,041,874	1.000000	13	1.0000	#	1984	*	595,121,427	1.00220923	1,311,859	1.0089
1951	*	109,517,762	1.000000	18	1.0000	#	1985		560,619,701	1.0017		20TH TO ULT.
1952	*	115,281,855	1.000000	26	1.0000	#	1986		642,795,665	1.0023	Total	
1953	*	121,349,321	1.000000	36	1.0000	#	1987		774,827,604	1.0015	Development:	
1954	*	127,736,127	1.000000	50	1.0000	#	1988		875,704,591	1.0032	4,566,842	
1955	*	134,459,082	1.000001	71	1.0000	#	1989		1,014,938,011	1.0019		
1956	*	141,535,875	1.000001	99	1.0000	#	1990		1,064,066,970	1.0021		
1957	*	148,985,132	1.000001	139	1.0000	#	1991		954,813,525	1.0037		
1958	*	156,826,455	1.000001	196	1.0000	#	1992		838,848,429	1.0039		
1959	*	165,080,479	1.000002	274	1.0000	#	1993		724,665,760	1.0024		
1960	*	173,768,925	1.000002	385	1.0000	#	1994		667,904,596	1.0036		
1961	*	182,914,658	1.000003	541	1.0000	#	1995		570,279,863	1.0037		
1962	*	192,541,745	1.000004	759	1.0000	#	1996		498,251,986	1.0077		
1963	*	202,675,521	1.000005	1,065	1.0000	#	1997		519,883,532	1.0057		
1964	*	213,342,654	1.000007	1,495	1.0000	#	1998		557,411,578	1.0118		
1965	*	224,571,214	1.000009	2,098	1.0000	#	1999		641,609,533	1.0113		
1966	*	236,390,752	1.000012	2,944	1.0000	#	2000		674,312,377	1.0234		
1967	*	248,832,370	1.000017	4,132	1.0001	#	2001		618,777,509	1.0481		
1968	*	261,928,811	1.000022	5,800	1.0001	#	2002		567,433,905	1.1486		
1969	*	275,714,538	1.000030	8,140	1.0001	#	2003		465,612,742	1.3972		
1970	*	290,225,829	1.000039	11,424	1.0002	#	2004		363,047,043	2.9740		
1971	*	305,500,873	1.000052	16,033	1.0002	#	2005		119,797,473			

Medical 04v05

Latest 12/31 Prior to 1985 Incurred	1,037,205,249
Next Latest 12/31 Prior to 1985 Incurred	1,023,232,989
CY Development of Prior Yrs	13,972,260
Next Latest PY 1985 Incurred	252,121,883
# of 1985 Yrs in Prior Data	4.11
Selected Decrement, Development Factor	0.75
Selected Average PY Deflation Factor	0.93

- 1 Policy Yr 1984 Incurred = Average of 1985, 1986, 1987, reduced by PY Deflation ^ 2
- 2 PY 1983 & Prior = Subsequent Yr x PY Deflation
- 3 1984 Development Selected Based on Observed 1985, 1986, 1987
- 4 PY 1983 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.0666 vs 1.0554 13,972,260
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2008 Loss Cost Filing

MEDICAL

Policy Year	(*=Estimate)	12/31/05 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/05 Incurred	Prior Year Development	Dollar Development	DF
1939	*	10,062,210	1.000000	0	1.0000 #	1973	*	118,651,470	1.000684	81,117	1.0027
1940	*	10,819,581	1.000000	1	1.0000 #	1974	*	127,582,226	1.000912	116,270	1.0037
1941	*	11,633,958	1.000000	1	1.0000 #	1975	*	137,185,189	1.001216	166,645	1.0049
1942	*	12,509,632	1.000000	1	1.0000 #	1976	*	147,510,956	1.001622	238,820	1.0065
1943	*	13,451,217	1.000000	2	1.0000 #	1977	*	158,613,931	1.002162	342,210	1.0087
1944	*	14,463,674	1.000000	2	1.0000 #	1978	*	170,552,614	1.002883	490,271	1.0116
1945	*	15,552,338	1.000000	3	1.0000 #	1979	*	183,389,908	1.003844	702,224	1.0155
1946	*	16,722,944	1.000000	5	1.0000 #	1980	*	197,193,449	1.005125	1,005,490	1.0207
1947	*	17,981,660	1.000000	7	1.0000 #	1981	*	212,035,967	1.006834	1,439,117	1.0277
1948	*	19,335,118	1.000001	10	1.0000 #	1982	*	227,995,663	1.009111	2,058,592	1.0370
1949	*	20,790,450	1.000001	14	1.0000 #	1983	*	245,156,627	1.012148	2,942,530	1.0496
1950	*	22,355,323	1.000001	20	1.0000 #	1984	*	263,609,276	1.016197959	4,201,870	1.0666 20TH TO ULT
1951	*	24,037,981	1.000001	29	1.0000 #	1985		256,528,384	1.0175		
1952	*	25,847,292	1.000002	42	1.0000 #	1986		283,007,501	1.0174		
1953	*	27,792,787	1.000002	60	1.0000 #	1987		374,821,647	1.0180	Total	
1954	*	29,884,717	1.000003	86	1.0000 #	1988		451,023,649	1.0078	Development:	
1955	*	32,134,104	1.000004	124	1.0000 #	1989		547,525,955	1.0139	13,972,260	
1956	*	34,552,800	1.000005	178	1.0000 #	1990		583,973,112	1.0102		
1957	*	37,153,549	1.000007	255	1.0000 #	1991		557,835,742	1.0183		
1958	*	39,950,052	1.000009	365	1.0000 #	1992		520,531,768	1.0155		
1959	*	42,957,045	1.000012	524	1.0000 #	1993		437,565,564	1.0153		
1960	*	46,190,371	1.000016	751	1.0001 #	1994		408,219,045	1.0114		
1961	*	49,667,066	1.000022	1,076	1.0001 #	1995		381,578,031	1.0169		
1962	*	53,405,447	1.000029	1,543	1.0001 #	1996		380,138,756	1.0198		
1963	*	57,425,212	1.000039	2,212	1.0002 #	1997		403,519,455	1.0206		
1964	*	61,747,540	1.000051	3,172	1.0002 #	1998		457,268,696	1.0184		
1965	*	66,395,204	1.000068	4,547	1.0003 #	1999		507,458,242	1.0227		
1966	*	71,392,693	1.000091	6,519	1.0004 #	2000		521,696,471	1.0252		
1967	*	76,766,336	1.000122	9,346	1.0005 #	2001		471,070,279	1.0205		
1968	*	82,544,448	1.000162	13,399	1.0006 #	2002		460,370,470	1.0456		
1969	*	88,757,471	1.000216	19,208	1.0009 #	2003		446,807,003	1.1072		
1970	*	95,438,140	1.000289	27,537	1.0012 #	2004		460,469,261	2.3906		
1971	*	102,621,656	1.000385	39,476	1.0015 #	2005		213,337,922			
1972	*	110,345,867	1.000513	56,589	1.0021 #						

Indemnity: 03v04

Latest 12/31 Prior to 1984 Incurred	3,094,857,443
Next Latest 12/31 Prior to 1984 Incurred	3,094,315,297
CY Development of Prior Yrs	542,146
Next Latest PY 1984 Incurred	446,601,595
# of 1984 Yrs in Prior Data	6.93
Selected Decrement, Development Factor	0.75
Selected Average PY Deflation Factor	0.95

- 1 Policy Yr 1983 Incurred = Average of 1984, 1985, 1986, reduced by PY Deflation ^ 2
- 2 PY 1982 & Prior = Subsequent Yr x PY Deflation
- 3 1983 Development Selected Based on Observed 1984, 1985, 1986
- 4 PY 1982 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.0014 vs 1.0012 542,146
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2007 Loss Cost Filing

INDEMNITY

Policy Year	(*=Estimate)	12/31/04 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/04 Incurred	Prior Year Development	Dollar Development	DF
1937	*	43,642,821	1.000000	0	1.0000 #	1971	*	249,637,734	1.000011	2,668	1.0000
1938	*	45,939,811	1.000000	0	1.0000 #	1972	*	262,776,562	1.000014	3,745	1.0001
1939	*	48,357,696	1.000000	0	1.0000 #	1973	*	276,606,908	1.000019	5,256	1.0001
1940	*	50,902,838	1.000000	0	1.0000 #	1974	*	291,165,166	1.000025	7,377	1.0001
1941	*	53,581,935	1.000000	0	1.0000 #	1975	*	306,489,649	1.000034	10,354	1.0001
1942	*	56,402,037	1.000000	0	1.0000 #	1976	*	322,620,683	1.000045	14,532	1.0002
1943	*	59,370,565	1.000000	0	1.0000 #	1977	*	339,600,719	1.000060	20,395	1.0002
1944	*	62,495,331	1.000000	0	1.0000 #	1978	*	357,474,441	1.000080	28,624	1.0003
1945	*	65,784,559	1.000000	0	1.0000 #	1979	*	376,288,885	1.000107	40,173	1.0004
1946	*	69,246,905	1.000000	1	1.0000 #	1980	*	396,093,563	1.000142	56,382	1.0006
1947	*	72,891,478	1.000000	1	1.0000 #	1981	*	416,940,593	1.000190	79,129	1.0008
1948	*	76,727,872	1.000000	1	1.0000 #	1982	*	438,884,834	1.000253	111,051	1.0010
1949	*	80,766,181	1.000000	2	1.0000 #	1983	*	461,984,036	1.00033746	155,847	1.0014 20TH TO ULT.
1950	*	85,017,033	1.000000	2	1.0000 #	1984	*	446,836,582	1.0005		
1951	*	89,491,613	1.000000	3	1.0000 #	1985	*	504,409,788	0.9997	Total	
1952	*	94,201,698	1.000000	4	1.0000 #	1986	*	584,434,637	1.0003	Development:	
1953	*	99,159,683	1.000000	6	1.0000 #	1987	*	699,300,730	0.9985	542,146	
1954	*	104,378,613	1.000000	8	1.0000 #	1988	*	782,317,750	0.9995		
1955	*	109,872,224	1.000000	12	1.0000 #	1989	*	914,033,482	0.9981		
1956	*	115,654,973	1.000000	17	1.0000 #	1990	*	964,374,041	0.9987		
1957	*	121,742,077	1.000000	23	1.0000 #	1991	*	867,535,077	0.9993		
1958	*	128,149,555	1.000000	33	1.0000 #	1992	*	779,177,029	0.9986		
1959	*	134,894,268	1.000000	46	1.0000 #	1993	*	681,529,933	1.0003		
1960	*	141,993,966	1.000000	64	1.0000 #	1994	*	622,881,958	0.9927		
1961	*	149,467,333	1.000001	90	1.0000 #	1995	*	529,062,599	0.9991		
1962	*	157,334,035	1.000001	126	1.0000 #	1996	*	460,432,979	1.0026		
1963	*	165,614,773	1.000001	177	1.0000 #	1997	*	463,645,175	1.0121		
1964	*	174,331,340	1.000001	249	1.0000 #	1998	*	488,035,730	1.0270		
1965	*	183,506,674	1.000002	349	1.0000 #	1999	*	590,662,276	1.0297		
1966	*	193,164,920	1.000003	490	1.0000 #	2000	*	625,243,934	1.0635		
1967	*	203,331,495	1.000003	688	1.0000 #	2001	*	563,688,058	1.1363		
1968	*	214,033,152	1.000005	965	1.0000 #	2002	*	480,815,291	1.4256		
1969	*	225,298,055	1.000006	1,355	1.0000 #	2003	*	324,978,784	3.0782		
1970	*	237,155,848	1.000008	1,901	1.0000 #	2004	*	119,592,005			

Inputs for Tail Factor Estimation - 2007 Loss Cost Filing

Medical 03v04

Latest 12/31 Prior to 1984 Incurred 776,604,799
 Next Latest 12/31 Prior to 1984 Incurred 777,152,161
 CY Development of Prior Yrs -547,362
 Next Latest PY 1984 Incurred 177,039,954
 # of 1984 Yrs in Prior Data 4.39
 Selected Decrement, Development Factor 0.75
 Selected Average PY Deflation Factor 0.93

- 1 Policy Yr 1983 Incurred = Average of 1984, 1985, 1986, reduced by PY Deflation ^ 2
- 2 PY 1982 & Prior = Subsequent Yr x PY Deflation
- 3 1983 Development Selected Based on Observed 1984, 1985, 1986
- 4 PY 1982 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = .9966 vs .9969 -547,362
 0

Pennsylvania Compensation Rating Bureau
 Tail Factor Model - 2007 Loss Cost Filing

MEDICAL

Policy Year	(*=Estimate)	12/31/04 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/04 Incurred	Prior Year Development	Dollar Development	DF
1938	*	7,342,328	1.000000	0	1.0000 #	1972	*	86,579,190	.999964	-3,146	.9999
1939	*	7,894,976	1.000000	0	1.0000 #	1973	*	93,095,903	.999952	-4,511	.9998
1940	*	8,489,222	1.000000	0	1.0000 #	1974	*	100,103,122	.999935	-6,467	.9997
1941	*	9,128,195	1.000000	0	1.0000 #	1975	*	107,637,766	.999914	-9,272	.9997
1942	*	9,815,264	1.000000	0	1.0000 #	1976	*	115,739,533	.999885	-13,293	.9995
1943	*	10,554,047	1.000000	0	1.0000 #	1977	*	124,451,111	.999847	-19,059	.9994
1944	*	11,348,438	1.000000	0	1.0000 #	1978	*	133,818,399	.999796	-27,326	.9992
1945	*	12,202,621	1.000000	0	1.0000 #	1979	*	143,890,751	.999728	-39,179	.9989
1946	*	13,121,098	1.000000	0	1.0000 #	1980	*	154,721,238	.999637	-56,176	.9985
1947	*	14,108,708	1.000000	0	1.0000 #	1981	*	166,366,922	.999516	-80,549	.9981
1948	*	15,170,653	1.000000	-1	1.0000 #	1982	*	178,889,164	.999355	-115,501	.9974
1949	*	16,312,530	1.000000	-1	1.0000 #	1983	*	192,353,940	0.999139677	-165,629	.9966
1950	*	17,540,355	1.000000	-1	1.0000 #	1984	*	179,859,533	1.0159		
1951	*	18,860,597	1.000000	-2	1.0000 #	1985	*	232,070,301	1.0141		
1952	*	20,280,212	1.000000	-2	1.0000 #	1986	*	255,270,789	1.0094	Total	
1953	*	21,806,680	1.000000	-3	1.0000 #	1987	*	338,708,724	1.0111	Development:	
1954	*	23,448,043	1.000000	-5	1.0000 #	1988	*	400,864,014	1.0136	-547,362	
1955	*	25,212,949	1.000000	-7	1.0000 #	1989	*	486,182,240	1.0109		
1956	*	27,110,698	1.000000	-10	1.0000 #	1990	*	528,310,574	1.0087		
1957	*	29,151,288	1.000000	-14	1.0000 #	1991	*	500,305,973	1.0076		
1958	*	31,345,471	.999999	-20	1.0000 #	1992	*	479,072,517	1.0176		
1959	*	33,704,807	.999999	-29	1.0000 #	1993	*	405,238,680	1.0160		
1960	*	36,241,728	.999999	-42	1.0000 #	1994	*	378,616,935	1.0254		
1961	*	38,969,601	.999998	-60	1.0000 #	1995	*	349,485,683	1.0221		
1962	*	41,902,796	.999998	-86	1.0000 #	1996	*	347,432,405	1.0212		
1963	*	45,056,770	.999997	-123	1.0000 #	1997	*	355,049,961	1.0106		
1964	*	48,448,140	.999996	-176	1.0000 #	1998	*	397,637,147	1.0301		
1965	*	52,094,774	.999995	-253	1.0000 #	1999	*	459,782,125	1.0306		
1966	*	56,015,886	.999994	-362	1.0000 #	2000	*	484,079,451	1.0309		
1967	*	60,232,136	.999991	-519	1.0000 #	2001	*	440,983,184	1.0502		
1968	*	64,765,737	.999989	-745	1.0000 #	2002	*	425,108,865	1.1134		
1969	*	69,640,578	.999985	-1,068	.9999 #	2003	*	396,378,492	2.3013		
1970	*	74,882,342	.999980	-1,531	.9999 #	2004	*	188,888,226			
1971	*	80,518,647	.999973	-2,194	.9999 #						

Inputs for Tail Factor Estimation - 2007 Loss Cost Filing

Indemnity: 02v03

Latest 12/31 Prior to 1983 Incurred	2,967,847,667
Next Latest 12/31 Prior to 1983 Incurred	2,967,633,001
CY Development of Prior Yrs	214,666
Next Latest PY 1983 Incurred	391,162,883
# of 1983 Yrs in Prior Data	7.59
Selected Decrement, Development Factor	0.75
Selected Average PY Deflation Factor	0.95

- 1 Policy Yr 1982 Incurred = Average of 1983, 1984, 1985, reduced by PY Deflation ^ 2
- 2 PY 1981 & Prior = Subsequent Yr x PY Deflation
- 3 1982 Development Selected Based on Observed 1983, 1984, 1985
- 4 PY 1981 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.0006 vs 1.0005 214,666
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2007 Loss Cost Filing

INDEMNITY

Policy Year	(*=Estimate)	12/31/03 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/03 Incurred	Prior Year Development	Dollar Development	DF
1936	*	40,191,691	1.000000	0	1.0000 #	1970	*	229,897,209	1.000005	1,056	1.0000
1937	*	42,307,043	1.000000	0	1.0000 #	1971	*	241,997,062	1.000006	1,483	1.0000
1938	*	44,533,730	1.000000	0	1.0000 #	1972	*	254,733,749	1.000008	2,081	1.0000
1939	*	46,877,610	1.000000	0	1.0000 #	1973	*	268,140,789	1.000011	2,921	1.0000
1940	*	49,344,853	1.000000	0	1.0000 #	1974	*	282,253,462	1.000015	4,099	1.0001
1941	*	51,941,950	1.000000	0	1.0000 #	1975	*	297,108,907	1.000019	5,754	1.0001
1942	*	54,675,737	1.000000	0	1.0000 #	1976	*	312,746,218	1.000026	8,075	1.0001
1943	*	57,553,407	1.000000	0	1.0000 #	1977	*	329,206,545	1.000034	11,333	1.0001
1944	*	60,582,534	1.000000	0	1.0000 #	1978	*	346,533,206	1.000046	15,906	1.0002
1945	*	63,771,089	1.000000	0	1.0000 #	1979	*	364,771,795	1.000061	22,324	1.0002
1946	*	67,127,462	1.000000	0	1.0000 #	1980	*	383,970,311	1.000082	31,331	1.0003
1947	*	70,660,486	1.000000	0	1.0000 #	1981	*	404,179,275	1.000109	43,973	1.0004
1948	*	74,379,459	1.000000	1	1.0000 #	1982	*	425,451,868	1.00014508	61,714	1.0006 20TH TO ULT.
1949	*	78,294,167	1.000000	1	1.0000 #	1983	*	389,987,738	0.9970		
1950	*	82,414,913	1.000000	1	1.0000 #	1984	*	478,646,535	0.9998	Total	
1951	*	86,752,540	1.000000	2	1.0000 #	1985	*	545,610,164	1.0019	Development:	
1952	*	91,318,463	1.000000	2	1.0000 #	1986	*	640,715,570	1.0021	214,666	
1953	*	96,124,698	1.000000	3	1.0000 #	1987	*	776,693,885	1.0007		
1954	*	101,183,893	1.000000	5	1.0000 #	1988	*	873,813,261	0.9989		
1955	*	106,509,361	1.000000	7	1.0000 #	1989	*	1,024,763,991	1.0002		
1956	*	112,115,116	1.000000	9	1.0000 #	1990	*	1,061,470,384	0.9989		
1957	*	118,015,912	1.000000	13	1.0000 #	1991	*	945,195,749	1.0038		
1958	*	124,227,276	1.000000	18	1.0000 #	1992	*	819,461,749	1.0013		
1959	*	130,765,554	1.000000	25	1.0000 #	1993	*	705,909,803	1.0003		
1960	*	137,647,951	1.000000	36	1.0000 #	1994	*	648,918,349	0.9983		
1961	*	144,892,580	1.000000	50	1.0000 #	1995	*	549,781,669	0.9965		
1962	*	152,518,505	1.000000	70	1.0000 #	1996	*	489,578,546	1.0151		
1963	*	160,545,795	1.000001	98	1.0000 #	1997	*	503,839,366	1.0128		
1964	*	168,995,574	1.000001	138	1.0000 #	1998	*	522,894,170	1.0208		
1965	*	177,890,078	1.000001	194	1.0000 #	1999	*	593,569,230	1.0711		
1966	*	187,252,713	1.000001	272	1.0000 #	2000	*	609,017,440	1.1682		
1967	*	197,108,119	1.000002	382	1.0000 #	2001	*	512,529,705	1.4381		
1968	*	207,482,231	1.000003	536	1.0000 #	2002	*	342,845,222	3.0367		
1969	*	218,402,348	1.000003	753	1.0000 #	2003	*	106,525,140			

Inputs for Tail Factor Estimation - 2007 Loss Cost Filing

Medical **02v03**

Latest 12/31 Prior to 1983 Incurred	713,272,113
Next Latest 12/31 Prior to 1983 Incurred	701,627,833
CY Development of Prior Yrs	11,644,280
Next Latest PY 1983 Incurred	144,814,768
# of 1983 Yrs in Prior Data	4.93
Selected Decrement, Development Factor	0.75
Selected Average PY Deflation Factor	0.93

- 1 Policy Yr 1982 Incurred = Average of 1983, 1984, 1985, reduced by PY Deflation ^ 2
- 2 PY 1981 & Prior = Subsequent Yr x PY Deflation
- 3 1982 Development Selected Based on Observed 1983, 1984, 1985
- 4 PY 1981 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.0887 vs 1.0804 11,644,280
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2007 Loss Cost Filing

MEDICAL

Policy Year	(*=Estimate)	12/31/03 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/03 Incurred	Prior Year Development	Dollar Development	DF	
1937	*	6,377,286	1.000000	0	1.0000	#	1971	*	75,199,615	1.000902	67,805	1.0036
1938	*	6,857,296	1.000000	0	1.0000	#	1972	*	80,859,801	1.001203	97,182	1.0048
1939	*	7,373,437	1.000000	1	1.0000	#	1973	*	86,946,022	1.001604	139,273	1.0064
1940	*	7,928,427	1.000000	1	1.0000	#	1974	*	93,490,346	1.002139	199,569	1.0086
1941	*	8,525,190	1.000000	1	1.0000	#	1975	*	100,527,254	1.002852	285,916	1.0115
1942	*	9,166,871	1.000000	2	1.0000	#	1976	*	108,093,822	1.003803	409,528	1.0153
1943	*	9,856,851	1.000000	3	1.0000	#	1977	*	116,229,916	1.005071	586,396	1.0205
1944	*	10,598,764	1.000000	4	1.0000	#	1978	*	124,978,404	1.006761	839,300	1.0274
1945	*	11,396,521	1.000001	6	1.0000	#	1979	*	134,385,381	1.009015	1,200,610	1.0366
1946	*	12,254,323	1.000001	8	1.0000	#	1980	*	144,500,409	1.012019	1,716,193	1.0491
1947	*	13,176,692	1.000001	12	1.0000	#	1981	*	155,376,784	1.016026	2,450,789	1.0659
1948	*	14,168,486	1.000001	17	1.0000	#	1982	*	167,071,811	1.021367978	3,495,299	1.0887
1949	*	15,234,931	1.000002	25	1.0000	#	1983		146,198,868	1.0096		20TH TO ULT
1950	*	16,381,646	1.000002	35	1.0000	#	1984		187,900,786	1.0185		
1951	*	17,614,673	1.000003	50	1.0000	#	1985		245,407,148	1.0154	Total	
1952	*	18,940,509	1.000004	72	1.0000	#	1986		277,378,984	1.0282	Development:	
1953	*	20,366,138	1.000005	104	1.0000	#	1987		367,708,787	1.0180	11,644,280	
1954	*	21,899,073	1.000007	149	1.0000	#	1988		440,848,307	1.0126		
1955	*	23,547,391	1.000009	213	1.0000	#	1989		539,195,973	1.0125		
1956	*	25,319,775	1.000012	305	1.0000	#	1990		576,764,232	1.0136		
1957	*	27,225,565	1.000016	438	1.0001	#	1991		545,185,805	1.0172		
1958	*	29,274,801	1.000021	628	1.0001	#	1992		495,590,271	1.0090		
1959	*	31,478,280	1.000029	900	1.0001	#	1993		416,663,157	1.0103		
1960	*	33,847,613	1.000038	1,290	1.0002	#	1994		385,248,779	1.0173		
1961	*	36,395,283	1.000051	1,850	1.0002	#	1995		360,777,701	1.0101		
1962	*	39,134,713	1.000068	2,652	1.0003	#	1996		362,935,122	1.0258		
1963	*	42,080,336	1.000090	3,802	1.0004	#	1997		384,683,644	1.0043		
1964	*	45,247,674	1.000120	5,450	1.0005	#	1998		430,991,464	1.0137		
1965	*	48,653,412	1.000161	7,814	1.0006	#	1999		460,672,152	1.0192		
1966	*	52,315,497	1.000214	11,202	1.0009	#	2000		488,078,628	1.0363		
1967	*	56,253,223	1.000286	16,059	1.0011	#	2001		435,572,930	1.1152		
1968	*	60,487,336	1.000381	23,021	1.0015	#	2002		390,167,515	2.3547		
1969	*	65,040,147	1.000508	33,001	1.0020	#	2003		174,650,484			
1970	*	69,935,642	1.000677	47,305	1.0027	#						