

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 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 2006 vs. 2007 valuations in the tail factor calculation will use policy year 1987 as the earliest separate policy year and an aggregate line of experience for policy years 1986 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	<u>INDEMNITY</u> Tail Factor	<u>MEDICAL</u> Tail Factor
06V07	20TH TO ULT.	1.0009	1.0445
05V06	20TH TO ULT.	1.0045	1.0739
04V05	20TH TO ULT.	1.0089	1.0666
03V04	20TH TO ULT.	1.0014	0.9966
AVERAGE OF LATEST 4 VALUATIONS		1.0039	1.0454

Inputs for Tail Factor Estimation - 2009 Loss Cost Filing

Indemnity: 06v07

Latest 12/31 Prior to 1987 Incurred	5,235,962,221
Next Latest 12/31 Prior to 1987 Incurred	5,235,485,308
CY Development of Prior Yrs	476,913
Next Latest PY 1987 Incurred	841,958,360
# of 1987 Yrs in Prior Data	6.22
Selected Decrement, Development Factor	0.75
Selected Average PY Deflation Factor	0.95

- 1 Policy Yr 1986 Incurred = Average of 1987, 1988, 1989, reduced by PY Deflation ^ 2
- 2 PY 1985 & Prior = Subsequent Yr x PY Deflation
- 3 1986 Development Selected Based on Observed 1987, 1988, 1989
- 4 PY 1985 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.0009 vs 1.0006 476,913
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2009 Loss Cost Filing

INDEMNITY

Policy Year	(*=Estimate)	12/31/07 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/07 Incurred	Prior Year Development	Dollar Development	DF	
1939	*	49,239,267	1.000000	0	1.0000	#	1974	*	296,473,168	1.000007	2,015	1.0000
1940	*	51,830,807	1.000000	0	1.0000	#	1975	*	312,077,019	1.000009	2,828	1.0000
1941	*	54,558,745	1.000000	0	1.0000	#	1976	*	328,502,125	1.000012	3,969	1.0000
1942	*	57,430,257	1.000000	0	1.0000	#	1977	*	345,791,710	1.000016	5,570	1.0001
1943	*	60,452,903	1.000000	0	1.0000	#	1978	*	363,991,274	1.000021	7,818	1.0001
1944	*	63,634,634	1.000000	0	1.0000	#	1979	*	383,148,710	1.000029	10,972	1.0001
1945	*	66,983,826	1.000000	0	1.0000	#	1980	*	403,314,431	1.000038	15,400	1.0002
1946	*	70,509,290	1.000000	0	1.0000	#	1981	*	424,541,506	1.000051	21,613	1.0002
1947	*	74,220,305	1.000000	0	1.0000	#	1982	*	446,885,796	1.000068	30,334	1.0003
1948	*	78,126,637	1.000000	0	1.0000	#	1983	*	470,406,101	1.000091	42,573	1.0004
1949	*	82,238,565	1.000000	0	1.0000	#	1984	*	495,164,317	1.000121	59,749	1.0005
1950	*	86,566,911	1.000000	1	1.0000	#	1985	*	521,225,597	1.000161	88,269	1.0006
1951	*	91,123,064	1.000000	1	1.0000	#	1986	*	548,658,523	1.000214543	180,810	1.0009
1952	*	95,919,015	1.000000	1	1.0000	#	1987		842,950,308	1.0012		
1953	*	100,967,384	1.000000	2	1.0000	#	1988		963,969,035	1.0010	Total	
1954	*	106,281,457	1.000000	2	1.0000	#	1989		1,119,259,447	1.0026	Development:	
1955	*	111,875,218	1.000000	3	1.0000	#	1990		1,155,308,898	1.0081	476,913	
1956	*	117,763,387	1.000000	5	1.0000	#	1991		1,022,701,672	1.0064		
1957	*	123,961,460	1.000000	6	1.0000	#	1992		885,287,437	1.0039		
1958	*	130,485,748	1.000000	9	1.0000	#	1993		768,617,548	1.0000		
1959	*	137,353,419	1.000000	12	1.0000	#	1994		703,864,426	1.0014		
1960	*	144,582,546	1.000000	18	1.0000	#	1995		613,906,940	0.9917		
1961	*	152,192,154	1.000000	25	1.0000	#	1996		527,571,873	1.0006		
1962	*	160,202,267	1.000000	34	1.0000	#	1997		557,946,207	1.0035		
1963	*	168,633,965	1.000000	48	1.0000	#	1998		586,225,438	1.0105		
1964	*	177,509,437	1.000000	68	1.0000	#	1999		665,546,631	0.9976		
1965	*	186,852,039	1.000001	95	1.0000	#	2000		703,313,786	1.0068		
1966	*	196,686,357	1.000001	134	1.0000	#	2001		667,798,387	1.0112		
1967	*	207,038,270	1.000001	188	1.0000	#	2002		655,002,014	1.0338		
1968	*	217,935,021	1.000001	264	1.0000	#	2003		615,581,565	1.0676		
1969	*	229,405,286	1.000002	370	1.0000	#	2004		617,632,028	1.1529		
1970	*	241,479,248	1.000002	519	1.0000	#	2005		553,629,121	1.4596		
1971	*	254,188,682	1.000003	729	1.0000	#	2006		388,182,585	3.3739		
1972	*	267,567,034	1.000004	1,023	1.0000	#	2007		131,256,655			
1973	*	281,649,509	1.000005	1,436	1.0000	#						

Inputs for Tail Factor Estimation - 2009 Loss Cost Filing

Medical 06v07

Latest 12/31 Prior to 1986 Incurred	1,684,375,050
Next Latest 12/31 Prior to 1986 Incurred	1,669,353,618
CY Development of Prior Yrs	15,021,432
Next Latest PY 1986 Incurred	406,074,016
# of 1986 Yrs in Prior Data	4.15
Selected Decrement, Development Factor	0.75
Selected Average PY Deflation Factor	0.93

- 1 Policy Yr 1986 Incurred = Average of 1987, 1988, 1989, reduced by PY Deflation ^ 2
- 2 PY 1985 & Prior = Subsequent Yr x PY Deflation
- 3 1986 Development Selected Based on Observed 1987, 1988, 1989
- 4 PY 1985 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0

TAIL = 1.0445 vs 1.0370 15,021,432
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2009 Loss Cost Filing

MEDICAL

Policy Year	(*=Estimate)	12/31/07 Incurred	Prior Year Development	Dollar Development	DF	Policy Year	(*=Estimate)	12/31/07 Incurred	Prior Year Development	Dollar Development	DF
1938	*	12,706,467	1.000000	0	1.0000 #	1974	*	173,236,213	1.000345	59,782	1.0014
1939	*	13,662,868	1.000000	0	1.0000 #	1975	*	186,275,497	1.000460	85,699	1.0018
1940	*	14,691,256	1.000000	0	1.0000 #	1976	*	200,296,234	1.000614	122,846	1.0025
1941	*	15,797,050	1.000000	0	1.0000 #	1977	*	215,372,294	1.000818	176,088	1.0033
1942	*	16,986,075	1.000000	1	1.0000 #	1978	*	231,583,112	1.001091	252,387	1.0044
1943	*	18,264,597	1.000000	1	1.0000 #	1979	*	249,014,099	1.001455	361,714	1.0058
1944	*	19,639,351	1.000000	1	1.0000 #	1980	*	267,757,096	1.001940	518,335	1.0078
1945	*	21,117,582	1.000000	2	1.0000 #	1981	*	287,910,856	1.002586	742,654	1.0104
1946	*	22,707,077	1.000000	2	1.0000 #	1982	*	309,581,566	1.003448	1,063,822	1.0139
1947	*	24,416,212	1.000000	4	1.0000 #	1983	*	332,883,404	1.004598	1,523,448	1.0185
1948	*	26,253,992	1.000000	5	1.0000 #	1984	*	357,939,144	1.006130	2,180,827	1.0248
1949	*	28,230,099	1.000000	7	1.0000 #	1985	*	384,880,800	1.008173	3,120,297	1.0332
1950	*	30,354,945	1.000000	11	1.0000 #	1986	*	433,717,474	1.010897922	4,675,664	1.0445
1951	*	32,639,725	1.000000	15	1.0000 #	1987		410,189,531	1.0101		20TH TO ULT.
1952	*	35,096,479	1.000001	22	1.0000 #	1988		491,094,035	1.0080		
1953	*	37,738,149	1.000001	31	1.0000 #	1989		603,112,806	1.0094	Total	
1954	*	40,578,655	1.000001	44	1.0000 #	1990		635,094,383	1.0098	Development:	
1955	*	43,632,963	1.000001	64	1.0000 #	1991		605,811,389	1.0133	15,021,432	
1956	*	46,917,164	1.000002	91	1.0000 #	1992		556,125,240	1.0126		
1957	*	50,448,564	1.000003	131	1.0000 #	1993		472,441,578	1.0110		
1958	*	54,245,767	1.000003	188	1.0000 #	1994		439,726,153	1.0105		
1959	*	58,328,782	1.000005	269	1.0000 #	1995		415,146,952	1.0134		
1960	*	62,719,121	1.000006	386	1.0000 #	1996		408,908,879	1.0079		
1961	*	67,439,915	1.000008	553	1.0000 #	1997		437,441,370	1.0107		
1962	*	72,516,037	1.000011	793	1.0000 #	1998		495,814,548	1.0219		
1963	*	77,974,234	1.000015	1,137	1.0001 #	1999		532,295,468	1.0163		
1964	*	83,843,262	1.000019	1,630	1.0001 #	2000		552,116,588	1.0203		
1965	*	90,154,045	1.000026	2,337	1.0001 #	2001		503,052,929	1.0094		
1966	*	96,939,833	1.000035	3,350	1.0001 #	2002		517,536,981	1.0207		
1967	*	104,236,380	1.000046	4,803	1.0002 #	2003		521,805,618	1.0273		
1968	*	112,082,129	1.000061	6,886	1.0002 #	2004		560,760,950	1.0405		
1969	*	120,518,418	1.000082	9,872	1.0003 #	2005		558,758,388	1.0914		
1970	*	129,589,697	1.000109	14,153	1.0004 #	2006		489,968,486	2.2743		
1971	*	139,343,760	1.000146	20,290	1.0006 #	2007		252,608,104			
1972	*	149,832,000	1.000194	29,089	1.0008 #						
1973	*	161,109,678	1.000259	41,701	1.0010 #						

Inputs for Tail Factor Estimation - 2009 Loss Cost Filing

Indemnity: 05v06

Latest 12/31 Prior to 1986 Incurred	4,540,203,598
Next Latest 12/31 Prior to 1986 Incurred	4,537,284,525
CY Development of Prior Yrs	2,919,073
Next Latest PY 1986 Incurred	697,208,437
# of 1986 Yrs in Prior Data	6.51
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 = 1.0045 vs 1.0042 2,919,073
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2009 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	
1939	*	71,078,204	1.000000	0	1.0000	#	1973	*	406,568,630	1.000035	14,374	1.0001
1940	*	74,819,162	1.000000	0	1.0000	#	1974	*	427,966,979	1.000047	20,174	1.0002
1941	*	78,757,013	1.000000	0	1.0000	#	1975	*	450,491,557	1.000063	28,314	1.0003
1942	*	82,902,119	1.000000	0	1.0000	#	1976	*	474,201,639	1.000084	39,738	1.0003
1943	*	87,265,388	1.000000	1	1.0000	#	1977	*	499,159,620	1.000112	55,772	1.0004
1944	*	91,858,303	1.000000	1	1.0000	#	1978	*	525,431,179	1.000149	78,273	1.0006
1945	*	96,692,951	1.000000	1	1.0000	#	1979	*	553,085,451	1.000199	109,851	1.0008
1946	*	101,782,054	1.000000	2	1.0000	#	1980	*	582,195,212	1.000265	154,167	1.0011
1947	*	107,139,004	1.000000	2	1.0000	#	1981	*	612,837,065	1.000353	216,356	1.0014
1948	*	112,777,899	1.000000	3	1.0000	#	1982	*	645,091,647	1.000471	303,621	1.0019
1949	*	118,713,578	1.000000	4	1.0000	#	1983	*	679,043,839	1.000628	426,069	1.0025
1950	*	124,961,661	1.000000	6	1.0000	#	1984	*	714,782,989	1.000837	597,866	1.0034
1951	*	131,538,590	1.000000	8	1.0000	#	1985	*	752,403,146	1.00111617	838,876	1.0045
1952	*	138,461,674	1.000000	12	1.0000	#	1986		695,237,353	0.9972		20TH TO ULT.
1953	*	145,749,130	1.000000	16	1.0000	#	1987		842,349,548	1.0010	Total	
1954	*	153,420,137	1.000000	23	1.0000	#	1988		963,476,188	0.9991	Development:	
1955	*	161,494,881	1.000000	32	1.0000	#	1989		1,117,268,182	1.0009	2,919,073	
1956	*	169,994,612	1.000000	45	1.0000	#	1990		1,146,603,178	1.0015		
1957	*	178,941,697	1.000000	63	1.0000	#	1991		1,016,455,952	0.9993		
1958	*	188,359,681	1.000000	89	1.0000	#	1992		881,816,911	1.0007		
1959	*	198,273,348	1.000001	125	1.0000	#	1993		768,680,423	0.9988		
1960	*	208,708,787	1.000001	175	1.0000	#	1994		702,895,888	0.9991		
1961	*	219,693,460	1.000001	246	1.0000	#	1995		619,067,825	1.0138		
1962	*	231,256,274	1.000001	345	1.0000	#	1996		527,262,064	1.0059		
1963	*	243,427,657	1.000002	485	1.0000	#	1997		556,001,271	1.0061		
1964	*	256,239,639	1.000003	680	1.0000	#	1998		580,107,647	1.0061		
1965	*	269,725,936	1.000004	955	1.0000	#	1999		667,120,254	1.0062		
1966	*	283,922,038	1.000005	1,340	1.0000	#	2000		698,572,354	1.0052		
1967	*	298,865,303	1.000006	1,881	1.0000	#	2001		660,373,911	1.0223		
1968	*	314,595,056	1.000008	2,639	1.0000	#	2002		633,659,281	1.0548		
1969	*	331,152,690	1.000011	3,705	1.0000	#	2003		576,608,613	1.1656		
1970	*	348,581,779	1.000015	5,199	1.0001	#	2004		535,732,411	1.4119		
1971	*	366,928,188	1.000020	7,297	1.0001	#	2005		379,313,306	3.0844		
1972	*	386,240,198	1.000027	10,242	1.0001	#	2006		120,639,505			

Inputs for Tail Factor Estimation - 2009 Loss Cost Filing

Medical 05v06

Latest 12/31 Prior to 1986 Incurred	1,363,971,912
Next Latest 12/31 Prior to 1986 Incurred	1,343,731,732
CY Development of Prior Yrs	20,240,180
Next Latest PY 1986 Incurred	301,204,176
# of 1986 Yrs in Prior Data	4.53
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 = 1.0739 vs 1.0672 20,240,180
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2009 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	
1939	*	12,272,884	1.000000	0	1.0000	#	1973	*	144,719,270	1.000567	82,057	1.0023
1940	*	13,196,649	1.000000	1	1.0000	#	1974	*	155,612,118	1.000756	117,623	1.0030
1941	*	14,189,945	1.000000	1	1.0000	#	1975	*	167,324,858	1.001009	168,592	1.0040
1942	*	15,258,006	1.000000	1	1.0000	#	1976	*	179,919,202	1.001345	241,628	1.0054
1943	*	16,406,458	1.000000	2	1.0000	#	1977	*	193,461,508	1.001793	346,265	1.0072
1944	*	17,641,352	1.000000	2	1.0000	#	1978	*	208,023,127	1.002391	496,141	1.0096
1945	*	18,969,196	1.000000	3	1.0000	#	1979	*	223,680,782	1.003188	710,749	1.0128
1946	*	20,396,985	1.000000	5	1.0000	#	1980	*	240,516,969	1.004250	1,017,916	1.0171
1947	*	21,932,242	1.000000	7	1.0000	#	1981	*	258,620,397	1.005667	1,457,323	1.0229
1948	*	23,583,056	1.000000	10	1.0000	#	1982	*	278,086,449	1.007556	2,085,434	1.0306
1949	*	25,358,124	1.000001	14	1.0000	#	1983	*	299,017,687	1.010075	2,982,415	1.0410
1950	*	27,266,800	1.000001	21	1.0000	#	1984	*	321,524,394	1.013433	4,261,695	1.0550
1951	*	29,319,140	1.000001	30	1.0000	#	1985	*	345,725,155	1.017910	6,083,080	1.0739
1952	*	31,525,957	1.000001	43	1.0000	#	1986		305,487,715	1.0142		20TH TO ULT.
1953	*	33,898,879	1.000002	61	1.0000	#	1987		406,243,874	1.0144	Total	
1954	*	36,450,407	1.000002	87	1.0000	#	1988		487,453,826	1.0086	Development:	
1955	*	39,193,986	1.000003	125	1.0000	#	1989		598,001,103	1.0089	20,240,180	
1956	*	42,144,071	1.000004	180	1.0000	#	1990		629,106,068	1.0115		
1957	*	45,316,206	1.000006	258	1.0000	#	1991		597,918,050	1.0108		
1958	*	48,727,103	1.000008	369	1.0000	#	1992		549,255,270	1.0146		
1959	*	52,394,734	1.000010	530	1.0000	#	1993		467,299,733	1.0106		
1960	*	56,338,424	1.000013	759	1.0001	#	1994		435,175,224	1.0199		
1961	*	60,578,951	1.000018	1,089	1.0001	#	1995		409,668,534	1.0206		
1962	*	65,138,657	1.000024	1,561	1.0001	#	1996		405,697,781	1.0169		
1963	*	70,041,566	1.000032	2,238	1.0001	#	1997		432,810,864	1.0163		
1964	*	75,313,512	1.000043	3,208	1.0002	#	1998		485,182,557	1.0304		
1965	*	80,982,271	1.000057	4,599	1.0002	#	1999		523,763,701	1.0080		
1966	*	87,077,711	1.000076	6,594	1.0003	#	2000		541,121,837	1.0126		
1967	*	93,631,947	1.000101	9,453	1.0004	#	2001		498,350,772	1.0126		
1968	*	100,679,513	1.000135	13,553	1.0005	#	2002		507,163,723	1.0501		
1969	*	108,257,541	1.000180	19,430	1.0007	#	2003		507,944,200	1.0681		
1970	*	116,405,958	1.000239	27,854	1.0010	#	2004		538,938,341	1.1243		
1971	*	125,167,697	1.000319	39,931	1.0013	#	2005		511,941,716	2.3210		
1972	*	134,588,921	1.000425	57,243	1.0017	#	2006		222,410,461			

Inputs for Tail Factor Estimation - 2009 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			1 Policy Yr 1984 Incurred = Average of 1985, 1986, 1987, reduced by PY Deflation ^ 2
CY Development of Prior Yrs	4,566,842			2 PY 1983 & Prior = Subsequent Yr x PY Deflation
Next Latest PY 1985 Incurred	559,645,744			3 1984 Development Selected Based on Observed 1985, 1986, 1987
# of 1985 Yrs in Prior Data	6.81			4 PY 1983 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0
Selected Decrement, Development Factor	0.75			
Selected Average PY Deflation Factor	0.95			
TAIL =	1.0089	vs	1.0082	4,566,842
				0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2009 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			

Inputs for Tail Factor Estimation - 2009 Loss Cost Filing

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	1 Policy Yr 1984 Incurred = Average of 1985, 1986, 1987, reduced by PY Deflation ^ 2
CY Development of Prior Yrs	13,972,260	2 PY 1983 & Prior = Subsequent Yr x PY Deflation
Next Latest PY 1985 Incurred	252,121,883	3 1984 Development Selected Based on Observed 1985, 1986, 1987
# of 1985 Yrs in Prior Data	4.11	4 PY 1983 & Prior Development = (Subsequent Yr - 1.0) x Selected Decrement + 1.0
Selected Decrement, Development Factor	0.75	
Selected Average PY Deflation Factor	0.93	

TAIL = 1.0666 vs 1.0554 13,972,260
0

Pennsylvania Compensation Rating Bureau
Tail Factor Model - 2009 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
1951	*	24,037,981	1.000001	29	1.0000	#	1985	*	256,528,384	1.0175		20TH TO ULT
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 - 2009 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 - 2009 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 - 2009 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 #						