

PENNSYLVANIA COMPENSATION RATING BUREAU  
F CLASS FILING

INTERNAL RATE OF RETURN MODEL

The attached pages present exhibits and a description of the internal rate of return model used in deriving the Bureau's loss ratio (including loss adjustment expenses and loss based assessments) and provision for profit and contingencies.

## **PENNSYLVANIA COMPENSATION RATING BUREAU**

### **PENNSYLVANIA “F” CLASS FILING**

#### **Internal Rate of Return Analysis**

The following pages present results of an economic analysis establishing the following items:

- The appropriate rate of return for writing workers compensation business, and
- The loss ratio (including loss adjustment expenses and loss-based assessments) which will allow the realization of that target rate of return in current economic conditions, based on current expense needs for stock carriers and cash flows for losses and expenses attendant with Pennsylvania workers compensation insurance.

Internal Rate of Return Table I shows Inputs, Assumptions and Outputs underlying the analysis.

Internal Rate of Return Tables II - VII show the various cash flows projected for the underwriting of Pennsylvania workers compensation “F” class business based on the inputs to the Internal Rate of Return model, assuming a base standard premium at Bureau level of \$1 million.

Exhibits titled “Pennsylvania Pre & Post Tax Returns” and “Pennsylvania Cost of Capital” present the derivation of the appropriate current target rate of return, which is 10.02 percent. Both Capital Asset Pricing Model (“CAPM”) and Discounted Cash Flow (“DCF”) analyses have been applied to the derivation of this target rate, producing results of 9.66 and 10.39 percent respectively. The selected target rate of return, 10.02 percent, is the average of these two separate indications.

INTERNAL RATE OF RETURN ANALYSIS  
PENNSYLVANIA "F" CLASS - 2009  
TABLE I: INPUTS, ASSUMPTIONS & OUTPUTS

Section 1: Inputs & Assumptions		
(1)	Commissions *	4.53
(2)	Other Expenses	4.64
(2A)	Other Acquisitions *	1.86
(2B)	General Expenses *	2.42
(2C)	Other Tax **	0.36
(3)	State Premium Taxes & Uncollectible Premium	
(3A)	Tax1 - Premium Tax **	2.00
(3B)	Uncollectible Premium **	1.00
(3C)	Tax3 - Security Fund **	0.00
(4)	Premium Discount ***	7.90
(5)	Deviations	0.00
(6)	Dividends to Policyholders	0.00
(7)	Premium Written	1,000,000
Investment Income		
(8A)	Pre-Tax Return on Assets	5.39
(8B)	Investment Income Tax Rate	1.21
(8C)	Post-Tax Return on Assets	4.17
(10)	Reserve to Surplus Ratio	2.45
(11)	Internal Rate of Return (Cost of Capital)	10.02
* Applies to standard premium at Bureau level (before premium discount)		
** Applies to net premium at company level ( after deviations and premium discounts)		
*** Applies to standard premium at company level (after deviations)		

Section 2: Outputs		
(1)	Loss Ratio - including loss adjustment expense & loss based assessments	83.19
(2)	Profit & Contingencies	-3.26

**INTERNAL RATE OF RETURN ANALYSIS  
EXPLANATORY NOTES**

**TABLE II: CASH FLOW PATTERNS**

- Column (1) Premium Collection pattern provided by PCRB based on Pennsylvania workers compensation data.
- Column (2) Policy Year Loss Payout pattern provided by PCRB based on Pennsylvania workers compensation data.
- Column (3) Other Expense payout pattern as follows: All expenses except Commission and 1/2 General Expense flowing with earned premium. Commission flows with collected premium, and 1/2 General Expense flows with written premium.
- Column (4) Tax 1 flow assumes even quarterly payment of state premium taxes.
- Column (5) Uncollectible premium flow is consistent with premium collection pattern (col (1)).
- Column (6) Tax 3, Security Fund assessments are due in the first quarter following the policy period.
- Column (7) No dividend provision is included in this IRR model.



**INTERNAL RATE OF RETURN ANALYSIS  
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**TABLE III: CASH FLOW FOR LOSS AND UNEARNED PREMIUM RESERVES**

- Column (1) Premium Collected based on collection pattern from Table II, Column (1).  
Example:  $\$921,000 \times .0019 = \$1,749.90$
- Column (2) Agents' Balances reflects the difference between Written Premium and Collected Premium. Written Premium pattern provided by PCRB for Pennsylvania workers compensation insurance.  
Example: Written Premium, First Quarter =  $.25 \times \$921,000 = \$230,250.00$   
Collected Premium =  $(.0019 + .0450) \times \$921,000 = \$43,194.90$   
Written - Collected =  $\$187,055.10$
- Column (3) Overdue Agent's Balances are all Agents' Balances due after the end of the 24-month period in which earnings of policy year premium occurs.
- Column (4) Admitted Agents' Balances reflect all Agents' Balances due prior to the end of the 24-month period in which earnings of policy year premium occurs.
- Column (5) Losses Incurred is computed by applying the loss ratio for the business to earned premiums at Bureau level (i.e., before premium discounts). Premium earning pattern provided by PCRB for Pennsylvania workers compensation insurance.  
Example:  $.8319 \times \$1,000,000 \times .0317 = \$26,371.23$  (round)
- Column (6) Unearned Premiums is computed as Collected Premiums plus Agents' Balances (either Admitted or Unadmitted) less Premium Earned.  
Example:  $\$43,194.90 + \$187,055.10 - (\$921,000 \times .0317) = \$201,054.30$
- Column (7) Total Premium Net of Reserves is computed as Collected Premium plus Admitted Agents' Balances less Losses Incurred less Unearned Premium Reserves.  
Example:  $\$41,937.98 + 181,612.02 - 22,547.78 - 184,831.14 = \$16,171.08$  (round)
- Column (8) Premium Net of Reserves is the periodic change in Column (7).  
Example:  $\$8,156.98 - 16,171.08 = -\$8,014.10$

**INTERNAL RATE OF RETURN ANALYSIS  
EXPLANATORY NOTES**

**TABLE III: CASH FLOW FOR LOSS AND UNEARNED PREMIUM RESERVES**

Column (9) Cumulative Written Premium is total written premium times the cumulative written premium distribution (Table II, column (9))

Example:  $\$921,000 \times .0289 = \$25,842.38$

Column (10) Cumulative Earned Premium is total written premium times the cumulative earned premium distribution (Table II, column (9))

Example:  $\$894,300 \times .2356 = \$210,673.52$

F CLASS  
INTERNAL RATE OF RETURN ANALYSIS  
PENNSYLVANIA 2009  
TABLE III: CASH FLOW FOR LOSS AND UNEARNED PREMIUM RESERVES

TIME FROM	INTERVAL TO	(1) PREMIUM COLLECTED	(2) AGENTS BALANCES	(3) OVERDUE AGENTS BALANCE	(4) ADMITTED AGENTS BALANCES	(5) LOSSES INCURRED	TEST EARNED PREMIUMS	(6) UNEARNED PREMIUMS	(7) TOTAL PREM NET OF RESERVES	(8) PREMIUM NET OF RESERVES
-1.00	-0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.75	-0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.50	-0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
-0.25	0.00	1749.90	-1749.90	0.00	-1749.90	0.00	0.00	0.00	0.00	0.00
0.00	0.25	43194.90	187055.10	0.00	187055.10	26370.60	29195.70	201330.60	2548.80	2548.80
0.25	0.50	140820.90	319679.10	0.00	319679.10	106064.70	117427.50	343440.90	10994.40	8445.60
0.50	0.75	284404.80	406345.20	0.00	406345.20	233092.78	258064.20	380096.70	77560.52	66566.12
0.75	1.00	469894.20	451105.80	0.00	451105.80	419433.90	464368.20	456631.80	44934.30	-32626.22
1.00	1.25	646081.50	274918.50	0.00	274918.50	593296.82	656857.20	264142.80	63560.38	18626.08
1.25	1.50	776218.80	144781.20	0.00	144781.20	719243.45	796296.60	124703.40	77053.15	13492.77
1.50	1.75	862700.70	58299.30	0.00	58299.30	800934.06	886738.80	34261.20	85804.74	8751.58
1.75	2.00	903132.60	17867.40	0.00	17867.40	831880.00	921000.00	0.00	89120.00	3315.26
2.00	2.25	912342.60	8657.40	8657.40	0.00	831880.00	921000.00	0.00	80462.60	-8657.40
2.25	2.50	912895.20	8104.80	8104.80	0.00	831880.00	921000.00	0.00	81015.20	552.60
2.50	2.75	911790.00	9210.00	9210.00	0.00	831880.00	921000.00	0.00	79910.00	-1105.20
2.75	3.00	912711.00	8289.00	8289.00	0.00	831880.00	921000.00	0.00	80831.00	921.00
3.00	3.25	913908.30	7091.70	7091.70	0.00	831880.00	921000.00	0.00	82028.30	1197.30
3.25	3.50	913724.10	7275.90	7275.90	0.00	831880.00	921000.00	0.00	81844.10	-184.20
3.50	3.75	913447.80	7552.20	7552.20	0.00	831880.00	921000.00	0.00	81567.80	-276.30
3.75	4.00	914460.90	6539.10	6539.10	0.00	831880.00	921000.00	0.00	82580.90	1013.10
4.00	4.25	916579.20	4420.80	4420.80	0.00	831880.00	921000.00	0.00	84699.20	2118.30
4.25	4.50	918605.40	2394.60	2394.60	0.00	831880.00	921000.00	0.00	86725.40	2026.20
4.50	4.75	920171.10	828.90	828.90	0.00	831880.00	921000.00	0.00	88291.10	1565.70
4.75	5.00	920907.90	92.10	92.10	0.00	831880.00	921000.00	0.00	89027.90	736.80
5.00	6.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	92.10
6.00	7.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
7.00	8.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
8.00	9.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
9.00	10.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
10.00	11.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
11.00	12.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
12.00	13.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
13.00	14.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
14.00	15.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
15.00	16.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
16.00	17.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
17.00	18.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
18.00	19.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
19.00	20.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
20.00	21.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
21.00	22.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
22.00	23.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
23.00	24.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
24.00	25.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
25.00	26.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
26.00	27.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
27.00	28.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
28.00	29.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
29.00	30.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
30.00	31.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
31.00	32.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
32.00	33.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
33.00	34.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
34.00	35.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
35.00	36.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
36.00	37.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
37.00	38.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
38.00	39.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00
39.00	40.00	921000.00	0.00	0.00	0.00	831880.00	921000.00	0.00	89120.00	0.00



**INTERNAL RATE OF RETURN ANALYSIS  
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**TABLE IV: TAX CREDITS AVAILABLE FROM UNDERWRITING OPERATIONS  
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Column (1) The net written premium underlying the model, i.e., \$1 million less premium discounts, or \$921,000.

Column (2) The periodic change in the Unearned Premium Reserve shown in Table III, Column (6).

Example:  $\$456,631.80 - 0 = \$456,631.80$

Column (3) The sum of the products of the expense flows shown in Table II and their associated expense provisions as shown on Table I, multiplied times the premium base.

Example:

Item	Provision (%)	Year 1 Expense Flow	Year 1 Expense Ratio %	Premium Base	Year 1 Expense \$
	(a)	(b)	(c)=(a)*(b)	(d)	(e)=(c)*(d)
Commission	4.53	0.5083	2.3026	1,000,000	23,025.99
General Expense	2.42	0.7500	1.8150	1,000,000	18,150.00
Other Acquisition	1.86	1.0000	1.8600	1,000,000	18,600.00
Other Tax	0.36	1.0000	0.3600	921,000	3,315.60
Tax 1:	2.00	1.0000	2.0000	921,000	18,420.00
Tax 3:	0.00	0.0000	0.0000	921,000	0.00
Uncollectible Prem	1.00	0.5083	0.5083	921,000	4,681.44
Total					86,193.03

Column (4) & Column (5) The Losses Paid for Accident Years 1 and 2, respectively, are based on payout patterns provided by the PCRB for Pennsylvania workers compensation insurance. Each Accident Year is assigned one-half the total policy year payout.

Example: Accident Year 1, Year 2 Payout

$$.1000 \times .8319 \times \$1,000,000 / 2 = \$41,594.00 \text{ (round)}$$

**INTERNAL RATE OF RETURN ANALYSIS  
EXPLANATORY NOTES**

**TABLE IV: TAX CREDITS AVAILABLE FROM UNDERWRITING OPERATIONS  
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Column (6) The IRS Discount Factors are a tabulation of discount factors published for carriers by the Internal Revenue Service.

Column (7) & Column (8) The Losses Discounted for Accident Years 1 and 2, respectively, are the change in discounted reserves for each accident year implied by the loss ratio, premium earnings pattern and IRS discount factors incorporated into the model.

Example: Accident Year 1, Year 2 Losses Discounted

Accident Year 1 incurred at End of Year 2: \$419,517.08

Accident Year 1 Paid Through Year 2:

$\$41,594.00 + 90,591.73 = \$132,185.73$

Accident Year 1 Undiscounted Reserve, Year 2:

$\$419,517.08 - 132,185.73 = \$287,331.35$

IRS Discount Factor: .8535

Accident Year 1 Discounted Reserve, Year 2:

$\$287,331.35 \times .8535 = \$245,237.31$

Accident Year 1 Incurred at End of Year: \$419,517.08

Accident Year 1 Paid Through Year 1: \$41,594.00

Accident Year 1 Undiscounted Reserve, Year 1:

$\$419,517.08 - 41,594.00 = \$377,923.08$

IRS Discount Factor: .8628

Accident Year 1 Discounted Reserve, Year 1:

$\$377,923.08 \times .8628 = \$326,072.03$

Change in Discounted Reserves, Year 1 to 2:

$\$245,237.31 - 326,072.03 = (\$80,834.72)$  (round)

Column (9) Tax Credits are computed as follows:

Underwriting Tax Rate x

( - Written Premium  
+ 0.8 x Change in Unearned Premium  
+ Expenses Paid  
+ Losses Paid  
+ Change in Discounted Loss Reserve )

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INTERNAL RATE OF RETURN ANALYSIS  
PENNSYLVANIA - 2009  
TABLE IV: TAX CREDITS AVAILABLE FROM UNDERWRITING OPERATIONS

YEAR	(1) PREMIUM WRITTEN (POST-DEV)	(2) CHANGE IN UNEARN PREPENSES RESERVE	(3) LOSSES PAID ACCIDENT YEAR 1	(4) LOSSES PAID ACCIDENT YEAR 2	(5) IRS DISCOUNT FACTOR	(6)	(7) LOSSES DISCOUNTED ACCIDENT YEAR 1	(8) ACCIDENT YEAR 2	(9) TAX CREDITS
-1	0.00	0.00	103.57	0.00	0.00	0	0.00	0.00	36.25
1	921000.00	456631.80	86193.03	41594.00	0.00	0.8628	326058.81	0.00	-35647.05
2	0.00	-456631.80	31691.50	90591.73	87014.65	0.8535	-80821.50	280699.10	15354.51
3	0.00	0.00	566.90	85808.42	87555.37	0.8352	-76925.76	-77742.86	6741.73
4	0.00	0.00	103.57	51950.91	59188.26	0.8179	-45971.21	-53786.00	4019.93
5	0.00	0.00	381.57	23958.14	33441.58	0.7973	-22192.29	-30436.14	1803.50
6	0.00	0.00	5.45	16512.82	23750.17	0.7850	-14500.66	-21935.36	1341.35
7	0.00	0.00	0.00	13975.58	17136.73	0.7926	-10252.17	-14939.03	2072.39
8	0.00	0.00	0.00	11563.13	13476.46	0.7962	-8863.88	-9893.04	2198.93
9	0.00	0.00	0.00	9566.62	10980.82	0.8130	-6371.04	-8415.82	2016.20
10	0.00	0.00	0.00	8152.42	9150.68	0.8356	-5144.14	-6095.89	2122.08
11	0.00	0.00	0.00	6863.01	7694.89	0.8598	-4304.61	-4836.84	1895.76
12	0.00	0.00	0.00	5947.94	6613.45	0.8860	-3723.14	-4159.61	1637.52
13	0.00	0.00	0.00	5199.25	5698.38	0.9146	-3240.12	-3570.74	1430.37
14	0.00	0.00	0.00	4533.75	4949.69	0.9460	-2788.49	-3079.60	1265.37
15	0.00	0.00	0.00	4034.62	4367.37	0.9807	-2452.01	-2697.64	1138.32
16	0.00	0.00	0.00	3618.68	3868.24	0.9807	-3548.92	-2356.79	553.43
17	0.00	0.00	0.00	3244.33	3493.90	0.9807	-3181.79	-3426.54	45.46
18	0.00	0.00	0.00	2869.99	3119.55	0.9807	-2814.66	-3059.41	40.41
19	0.00	0.00	0.00	2620.42	2786.80	0.9807	-2569.91	-2733.07	36.48
20	0.00	0.00	0.00	2370.86	2537.23	0.9807	-2325.15	-2488.32	33.12
21	0.00	0.00	0.00	2162.89	2329.26	0.9807	-2121.19	-2284.36	30.31
22	0.00	0.00	0.00	2038.11	2121.29	0.9807	-1998.82	-2080.40	28.06
23	0.00	0.00	0.00	1830.14	1913.32	0.9807	-1794.85	-1876.44	25.26
24	0.00	0.00	0.00	1705.35	1788.54	0.9807	-1672.48	-1754.06	23.57
25	0.00	0.00	0.00	1580.57	1663.76	0.9807	-1550.10	-1631.69	21.89
26	0.00	0.00	0.00	1455.79	1538.98	0.9807	-1427.73	-1509.31	20.21
27	0.00	0.00	0.00	1372.60	1455.79	0.9807	-1346.14	-1427.73	19.08
28	0.00	0.00	0.00	1247.82	1331.01	0.9807	-1223.76	-1305.35	17.40
29	0.00	0.00	0.00	1206.23	1289.41	0.9807	-1182.97	-1264.56	16.84
30	0.00	0.00	0.00	1081.44	1164.63	0.9807	-1060.60	-1142.18	15.15
31	0.00	0.00	0.00	1039.85	1123.04	0.9807	-1019.80	-1101.39	14.59
32	0.00	0.00	0.00	998.26	998.26	0.9807	-979.01	-979.01	13.47
33	0.00	0.00	0.00	956.66	956.66	0.9807	-938.22	-938.22	12.91
34	0.00	0.00	0.00	873.47	873.47	0.9807	-856.64	-856.64	11.79
35	0.00	0.00	0.00	873.47	873.47	0.9807	-856.64	-856.64	11.79
36	0.00	0.00	0.00	790.29	790.29	0.9807	-775.05	-775.05	10.66
37	0.00	0.00	0.00	748.69	748.69	0.9807	-734.26	-734.26	10.10
38	0.00	0.00	0.00	707.10	707.10	0.9807	-693.47	-693.47	9.54
39	0.00	0.00	0.00	707.10	707.10	0.9807	-693.47	-693.47	9.54
40	0.00	0.00	0.00	1164.63	1164.63	0.9807	-1142.18	-1142.18	15.72
	921000.00		119045.60	419517.08	412362.92				

SOURCES: COL. 1: TABLE IV

COL. 2: COL. 1

COL. 3: COLS. 3, 4, 5, 6 & 7, TABLE III; AND TABLE IV

COLS. 4 & 5: WEIGHTS FOR ACCIDENT YEAR DISTRIBUTION:  
SEE ACCIDENT YEAR DISTRIBUTION

COL. 6: U. S. INTERNAL REVENUE SERVICE DISCOUNT FACTORS

COLS. 7 & 8: CHANGE IN DISCOUNTED OUTSTANDING USING IRS FACTORS

COL. 9: .35 x (COL. 1 - (.8 x COL. 2)) - COL. 4 - COL. 5 - COL. 7 - COL. 8)

**INTERNAL RATE OF RETURN ANALYSIS  
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**TABLE V: NET CASH FLOWS FROM UNDERWRITING**

- Column (1) The Premium Flow Net of Reserves is Column (8) of Table III.
- Column (2) Tax Credits from Underwriting is a quarterly flow of those credits in Column (9) in Table IV.
- Column (3) Expenses show a quarterly flow of Expenses prepared in the same fashion as the annual flows in Column (3) of Table IV.
- Column (4) Dividends are not used in this model as no provision has been made for dividends in this analysis.
- Column (5) Net Cash Flow from Underwriting is computed by adding Column (1) and Column (2) and subtracting Column (3)

F CLASS  
INTERNAL RATE OF RETURN ANALYSIS  
PENNSYLVANIA - 2009  
TABLE V: NET CASH FLOWS FROM UNDERWRITING

TIME FROM	INTERVAL TO	(1) PREMIUM FLOW NET OF RESERVES	(2) TAX CREDITS FROM UNDERWRITING	(3) EXPENSES	(4) DIVIDENDS	(5) NET CASH FLOW FROM UNDERWRITING
-1.00	-0.75	0.00	9.06	0.00	0.00	9.06
-0.75	-0.50	0.00	9.06	0.00	0.00	9.06
-0.50	-0.25	0.00	9.06	0.00	0.00	9.06
-0.25	0.00	0.00	9.06	103.57	0.00	-94.51
0.00	0.25	2548.80	-8911.76	15950.18	0.00	-22313.14
0.25	0.50	8445.60	-8911.76	20028.14	0.00	-20494.30
0.50	0.75	66566.12	-8911.76	21541.74	0.00	36112.62
0.75	1.00	-32626.22	-8911.76	28672.98	0.00	-70210.96
1.00	1.25	18626.08	3838.63	13074.64	0.00	9390.07
1.25	1.50	13492.77	3838.63	9592.89	0.00	7738.51
1.50	1.75	8751.58	3838.63	6252.86	0.00	6337.35
1.75	2.00	3315.26	3838.63	2771.11	0.00	4382.78
2.00	2.25	-8657.40	1685.43	545.10	0.00	-7517.07
2.25	2.50	552.60	1685.43	32.71	0.00	2205.33
2.50	2.75	-1105.20	1685.43	-65.41	0.00	645.64
2.75	3.00	921.00	1685.43	54.51	0.00	2551.92
3.00	3.25	1197.30	1004.98	70.86	0.00	2131.42
3.25	3.50	-184.20	1004.98	-10.90	0.00	831.69
3.50	3.75	-276.30	1004.98	-16.35	0.00	745.04
3.75	4.00	1013.10	1004.98	59.96	0.00	1958.12
4.00	4.25	2118.30	450.88	125.37	0.00	2443.80
4.25	4.50	2026.20	450.88	119.92	0.00	2357.15
4.50	4.75	1565.70	450.88	92.67	0.00	1923.91
4.75	5.00	736.80	450.88	43.61	0.00	1144.07
5.00	6.00	92.10	1341.35	5.45	0.00	1427.99
6.00	7.00	0.00	2072.39	0.00	0.00	2072.39
7.00	8.00	0.00	2198.93	0.00	0.00	2198.93
8.00	9.00	0.00	2016.20	0.00	0.00	2016.20
9.00	10.00	0.00	2122.08	0.00	0.00	2122.08
10.00	11.00	0.00	1895.76	0.00	0.00	1895.76
11.00	12.00	0.00	1637.52	0.00	0.00	1637.52
12.00	13.00	0.00	1430.37	0.00	0.00	1430.37
13.00	14.00	0.00	1265.37	0.00	0.00	1265.37
14.00	15.00	0.00	1138.32	0.00	0.00	1138.32
15.00	16.00	0.00	553.43	0.00	0.00	553.43
16.00	17.00	0.00	45.46	0.00	0.00	45.46
17.00	18.00	0.00	40.41	0.00	0.00	40.41
18.00	19.00	0.00	36.48	0.00	0.00	36.48
19.00	20.00	0.00	33.12	0.00	0.00	33.12
20.00	21.00	0.00	30.31	0.00	0.00	30.31
21.00	22.00	0.00	28.06	0.00	0.00	28.06
22.00	23.00	0.00	25.26	0.00	0.00	25.26
23.00	24.00	0.00	23.57	0.00	0.00	23.57
24.00	25.00	0.00	21.89	0.00	0.00	21.89
25.00	26.00	0.00	20.21	0.00	0.00	20.21
26.00	27.00	0.00	19.08	0.00	0.00	19.08
27.00	28.00	0.00	17.40	0.00	0.00	17.40
28.00	29.00	0.00	16.84	0.00	0.00	16.84
29.00	30.00	0.00	15.15	0.00	0.00	15.15
30.00	31.00	0.00	14.59	0.00	0.00	14.59
31.00	32.00	0.00	13.47	0.00	0.00	13.47
32.00	33.00	0.00	12.91	0.00	0.00	12.91
33.00	34.00	0.00	11.79	0.00	0.00	11.79
34.00	35.00	0.00	11.79	0.00	0.00	11.79
35.00	36.00	0.00	10.66	0.00	0.00	10.66
36.00	37.00	0.00	10.10	0.00	0.00	10.10
37.00	38.00	0.00	9.54	0.00	0.00	9.54
38.00	39.00	0.00	9.54	0.00	0.00	9.54
39.00	40.00	0.00	15.72	0.00	0.00	15.72

**INTERNAL RATE OF RETURN ANALYSIS  
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**TABLE VI: DERIVATION OF FUNDS IN SURPLUS ACCOUNT**

Column (1) Loss and Loss Adjustment Reserves is the difference between Losses Incurred (Column (5), Table III) and Losses Paid (Columns (4) and (5), Table IV).

$$\text{Example: } \$419,433.90 - 41,594.00 = \$377,839.90$$

Column (2) Unearned Premium Reserves is Column (6) of Table III.

Column (3) Admitted Agents Balances is Column (4) of Table III.

Column (4) Cash Level is computed by adding Columns (1) and (2) and subtracting Column (3).

$$\text{Example: } \$377,839.90 + 456,631.80 - 451,105.80 = \$383,365.90$$

Column (5) Funds in Surplus Account is derived by adding Columns (1) and (2) and dividing that total by the reserve-to-surplus ratio used in the model, in this case 2.45.

$$\text{Example: } (\$377,839.90 + 456,631.80) / 2.45 = \$340,600.69$$

F CLASS  
INTERNAL RATE OF RETURN ANALYSIS  
PENNSYLVANIA - 2009  
TABLE VI: DERIVATION OF FUNDS IN SURPLUS ACCOUNT

TIME FROM	INTERVAL TO	(1) LOSS AND LOSS ADJ. RESERVES	(2) UNEARNED PREMIUM RESERVES	(3) ADMITTED AGENTS BALANCES	(4) CASH LEVEL	(5) FUNDS IN SURPLUS ACCOUNT
-1.00	-0.75	0.00	0.00	0.00	0.00	0.00
-0.75	-0.50	0.00	0.00	0.00	0.00	0.00
-0.50	-0.25	0.00	0.00	0.00	0.00	0.00
-0.25	0.00	0.00	0.00	-1749.90	1749.90	0.00
0.00	0.25	22211.20	201330.60	187055.10	36486.70	91241.55
0.25	0.50	93586.50	343440.90	319679.10	117348.30	178378.53
0.50	0.75	208136.38	380096.70	406345.20	181887.88	240095.13
0.75	1.00	377839.90	456631.80	451105.80	383365.90	340600.69
1.00	1.25	507301.22	264142.80	274918.50	496525.52	314875.11
1.25	1.50	588846.26	124703.40	144781.20	568768.46	291244.76
1.50	1.75	626135.28	34261.20	58299.30	602097.18	269549.58
1.75	2.00	612679.62	0.00	17867.40	594812.22	250073.31
2.00	2.25	569338.67	0.00	0.00	569338.67	232383.13
2.25	2.50	525997.72	0.00	0.00	525997.72	214692.95
2.50	2.75	482656.78	0.00	0.00	482656.78	197002.77
2.75	3.00	439315.83	0.00	0.00	439315.83	179312.58
3.00	3.25	411531.04	0.00	0.00	411531.04	167971.85
3.25	3.50	383746.24	0.00	0.00	383746.24	156631.12
3.50	3.75	355961.45	0.00	0.00	355961.45	145290.39
3.75	4.00	328176.66	0.00	0.00	328176.66	133949.66
4.00	4.25	313826.73	0.00	0.00	313826.73	128092.54
4.25	4.50	299476.80	0.00	0.00	299476.80	122235.43
4.50	4.75	285126.87	0.00	0.00	285126.87	116378.31
4.75	5.00	270776.94	0.00	0.00	270776.94	110521.20
5.00	6.00	230513.95	0.00	0.00	230513.95	94087.33
6.00	7.00	199401.64	0.00	0.00	199401.64	81388.42
7.00	8.00	174362.05	0.00	0.00	174362.05	71168.18
8.00	9.00	153814.61	0.00	0.00	153814.61	62781.47
9.00	10.00	136511.51	0.00	0.00	136511.51	55718.98
10.00	11.00	121953.61	0.00	0.00	121953.61	49776.98
11.00	12.00	109392.22	0.00	0.00	109392.22	44649.89
12.00	13.00	98494.59	0.00	0.00	98494.59	40201.87
13.00	14.00	89011.16	0.00	0.00	89011.16	36331.09
14.00	15.00	80609.17	0.00	0.00	80609.17	32901.70
15.00	16.00	73122.25	0.00	0.00	73122.25	29845.82
16.00	17.00	66384.02	0.00	0.00	66384.02	27095.52
17.00	18.00	60394.49	0.00	0.00	60394.49	24650.81
18.00	19.00	54987.27	0.00	0.00	54987.27	22443.78
19.00	20.00	50079.18	0.00	0.00	50079.18	20440.48
20.00	21.00	45587.02	0.00	0.00	45587.02	18606.95
21.00	22.00	41427.62	0.00	0.00	41427.62	16909.23
22.00	23.00	37684.16	0.00	0.00	37684.16	15381.29
23.00	24.00	34190.27	0.00	0.00	34190.27	13955.21
24.00	25.00	30945.94	0.00	0.00	30945.94	12630.99
25.00	26.00	27951.17	0.00	0.00	27951.17	11408.64
26.00	27.00	25122.78	0.00	0.00	25122.78	10254.19
27.00	28.00	22543.95	0.00	0.00	22543.95	9201.61
28.00	29.00	20048.31	0.00	0.00	20048.31	8182.98
29.00	30.00	17802.23	0.00	0.00	17802.23	7266.22
30.00	31.00	15639.34	0.00	0.00	15639.34	6383.41
31.00	32.00	13642.83	0.00	0.00	13642.83	5568.50
32.00	33.00	11729.51	0.00	0.00	11729.51	4787.55
33.00	34.00	9982.56	0.00	0.00	9982.56	4074.51
34.00	35.00	8235.61	0.00	0.00	8235.61	3361.47
35.00	36.00	6655.04	0.00	0.00	6655.04	2716.34
36.00	37.00	5157.66	0.00	0.00	5157.66	2105.17
37.00	38.00	3743.46	0.00	0.00	3743.46	1527.94
38.00	39.00	2329.26	0.00	0.00	2329.26	950.72
39.00	40.00	0.00	0.00	0.00	0.00	0.00

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**TABLE VII: NOMINAL CASH FLOWS TO INVESTORS**

- Column (1) Net Cash Flow Underwriting is Column (5) of Table V.
- Column (2) Cash Pre-Tax Income is computed by multiplying the pre-tax investment yield rate times the periodic average Cash Level from Column (4), Table VI.
- Example:  $(\$181,887.88 + 383,365.90) / 2 = \$282,626.89$   
 $\$282,626.89 \times .053856 / 4 = \$3,805.29$
- Column (3) Cash Income Taxes is computed by multiplying the investment income tax rate times the periodic average Cash Level from Column (4), Table VI.
- Example:  $(\$181,887.88 + 383,365.90) / 2 = \$282,626.89$   
 $\$282,626.89 \times .012132 / 4 = \$857.15$  (round)
- Column (4) Net Flow from Surplus is the periodic change in Surplus Balance posted in Column (5) of Table VI.
- Example:  $\$240,095.13 - 340,600.69 = (\$100,505.56)$
- Column (5) Surplus Pre-Tax Income is computed by applying the pre-tax investment yield to average periodic surplus balance computed from Column (5) of Table VI.
- Example:  $(\$240,095.13 + 340,600.69) / 2 = \$290,347.91$   
 $\$290,347.91 \times .053856 / 4 = \$3,909.24$
- Column (6) Surplus Income Taxes is the product of the investment income tax rate and the average periodic surplus balance computed from Column (5) of Table VI.
- Example:  $(\$240,095.13 + 340,600.69) / 2 = \$290,347.91$   
 $\$290,347.91 \times .012132 / 4 = \$880.63$  (round)
- Column (7) Net Cash Flow is the sum of Columns (1) through (6) and represents the net flows to investors which result in a rate of return of 12.06 percent to investors in the insurance company as required by the Internal Rate of Return Model.
- Example:  $-\$70,210.96 + 3,805.29 - 857.18 - 100,505.56 + 3,909.25 - 880.59 = -164,739.76$



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INTERNAL RATE OF RETURN ANALYSIS  
PENNSYLVANIA - 2009  
TABLE VII: NOMINAL CASH FLOWS TO INVESTORS

TIME FROM	INTERVAL TO	(1) NET CASH FLOW FROM UNDERWRITING	(2) CASH PRE-TAX INCOME	(3) CASH INCOME TAXES	(4) NET FLOW FOR SURPLUS ACCOUNT	(5) SURPLUS PRE-TAX INCOME	(6) SURPLUS INCOME TAXES	(7) NET CASH FLOW
-1.00	-0.75	9.06	0.00	0.00	0.00	0.00	0.00	9.06
-0.75	-0.50	9.06	0.00	0.00	0.00	0.00	0.00	9.06
-0.50	-0.25	9.06	0.00	0.00	0.00	0.00	0.00	9.06
-0.25	0.00	-94.51	11.78	-2.65	0.00	0.00	0.00	-85.38
0.00	0.25	-22313.14	257.41	-57.98	-91241.55	614.24	-138.36	-112879.39
0.25	0.50	-20494.30	1035.62	-233.28	-87136.98	1815.08	-408.86	-105422.73
0.50	0.75	36112.62	2014.46	-453.78	-61716.60	2817.17	-634.59	-21860.72
0.75	1.00	-70210.96	3805.29	-857.18	-100505.56	3909.25	-880.59	-164739.76
1.00	1.25	9390.07	5923.43	-1334.31	25725.58	4412.66	-993.99	43123.45
1.25	1.50	7738.51	7171.56	-1615.46	23630.35	4080.40	-919.15	40086.21
1.50	1.75	6337.35	7882.27	-1775.56	21695.18	3775.27	-850.41	37064.09
1.75	2.00	4382.78	8057.60	-1815.05	19476.27	3498.10	-787.98	32811.72
2.00	2.25	-7517.07	7837.07	-1765.37	17690.18	3247.90	-731.62	18761.09
2.25	2.50	2205.33	7373.81	-1661.02	17690.18	3009.72	-677.97	27940.05
2.50	2.75	645.64	6790.26	-1529.57	17690.18	2771.54	-624.31	25743.74
2.75	3.00	2551.92	6206.72	-1398.12	17690.18	2533.36	-570.66	27013.40
3.00	3.25	2131.42	5727.90	-1290.26	11340.73	2337.92	-526.64	19721.07
3.25	3.50	831.69	5353.81	-1206.00	11340.73	2185.23	-492.24	18013.22
3.50	3.75	745.04	4979.71	-1121.73	11340.73	2032.54	-457.85	17518.44
3.75	4.00	1958.12	4605.62	-1037.46	11340.73	1879.84	-423.45	18323.41
4.00	4.25	2443.80	4321.97	-973.56	5857.11	1764.07	-397.37	13016.02
4.25	4.50	2357.15	4128.76	-930.04	5857.11	1685.21	-379.61	12718.59
4.50	4.75	1923.91	3935.55	-886.52	5857.11	1606.35	-361.84	12074.56
4.75	5.00	1144.07	3742.35	-843.00	5857.11	1527.49	-344.08	11083.94
5.00	6.00	1427.99	13498.77	-3040.72	16433.87	5509.70	-1241.11	32588.50
6.00	7.00	2072.39	11576.77	-2607.78	12698.90	4725.21	-1064.40	27401.10
7.00	8.00	2198.93	10064.71	-2267.17	10220.24	4108.05	-925.38	23399.39
8.00	9.00	2016.20	8837.14	-1990.65	8386.71	3607.00	-812.51	20043.89
9.00	10.00	2122.08	7817.91	-1761.06	7062.49	3190.98	-718.80	17713.60
10.00	11.00	1895.76	6959.95	-1567.79	5942.00	2840.80	-639.92	15430.80
11.00	12.00	1637.52	6229.68	-1403.29	5127.10	2542.73	-572.77	13560.96
12.00	13.00	1430.37	5597.98	-1261.00	4448.01	2284.89	-514.69	11985.56
13.00	14.00	1265.37	5049.16	-1137.37	3870.79	2060.88	-464.23	10644.59
14.00	15.00	1138.32	4567.54	-1028.88	3429.38	1864.30	-419.95	9550.71
15.00	16.00	553.43	4139.68	-932.50	3055.89	1689.67	-380.61	8125.54
16.00	17.00	45.46	3756.63	-846.22	2750.30	1533.32	-345.39	6894.10
17.00	18.00	40.41	3413.89	-769.01	2444.71	1393.43	-313.88	6209.55
18.00	19.00	36.48	3107.00	-699.88	2207.03	1268.16	-285.67	5633.13
19.00	20.00	33.12	2829.23	-637.31	2003.30	1154.79	-260.13	5123.00
20.00	21.00	30.31	2576.10	-580.29	1833.53	1051.47	-236.85	4674.27
21.00	22.00	28.06	2343.13	-527.81	1697.71	956.38	-215.43	4282.04
22.00	23.00	25.26	2130.32	-479.88	1527.94	869.52	-195.87	3877.30
23.00	24.00	23.57	1935.44	-435.97	1426.08	789.97	-177.95	3561.14
24.00	25.00	21.89	1753.99	-395.10	1324.22	715.91	-161.27	3259.64
25.00	26.00	20.21	1585.98	-357.26	1222.35	647.34	-145.82	2972.81
26.00	27.00	19.08	1429.18	-321.94	1154.45	583.34	-131.40	2732.71
27.00	28.00	17.40	1283.57	-289.14	1052.58	523.91	-118.01	2470.31
28.00	29.00	16.84	1146.92	-258.36	1018.63	468.13	-105.45	2286.72
29.00	30.00	15.15	1019.24	-229.59	916.77	416.02	-93.71	2043.87
30.00	31.00	14.59	900.52	-202.85	882.81	367.56	-82.80	1879.83
31.00	32.00	13.47	788.51	-177.62	814.90	321.84	-72.50	1688.61
32.00	33.00	12.91	683.23	-153.90	780.95	278.87	-62.82	1539.23
33.00	34.00	11.79	584.66	-131.70	713.04	238.64	-53.76	1362.67
34.00	35.00	11.79	490.58	-110.51	713.04	200.24	-45.11	1260.03
35.00	36.00	10.66	400.98	-90.32	645.13	163.66	-36.87	1093.24
36.00	37.00	10.10	318.09	-71.65	611.18	129.83	-29.25	968.31
37.00	38.00	9.54	239.69	-53.99	577.22	97.83	-22.04	848.26
38.00	39.00	9.54	163.53	-36.84	577.22	66.75	-15.04	765.17
39.00	40.00	15.72	62.72	-14.13	950.72	25.60	-5.77	1034.86

**INTERNAL RATE OF RETURN ANALYSIS  
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**PENNSYLVANIA PRE & POST TAX RETURNS  
PAGE 1**

- Column (1) Invested Assets  
Categories taken from 2007 Best's Aggregates and Averages with values as of December 31, 2006.
- Column (2) 12/31/06 Market Values  
Treasuries, Exempt Bonds, Bonds for Unaffiliated and Affiliated Companies, Preferred Stock for Unaffiliated and Affiliated Companies and Common Stock for Unaffiliated and Affiliated Companies all taken from 2007 Best's Aggregates and Averages, Industry Total Schedule D.
- Column (3) Pre-Tax Return  
Treasuries based on yields published in Federal Reserve Statistical Release (July 14, 2008) H. 15 (519), weighted by loss payout pattern provided by PCRB for Pennsylvania workers compensation insurance.
- Exempt Bonds based on yields published in Federal Reserve Statistical Release (July 14, 2008) H. 15 (519).
- Bonds based on yields published in Federal Reserve Statistical Release (July 14, 2008) H. 15 (519).
- Preferred stock yields based on Moody's Bond Record (June 2008 Book), Vol. 75, No. 6, p. 70.
- Common Stock Yield based on three month Treasury Bill rate (from Federal Reserve) plus Ibbotson Differential (from 2008 Ibbotson Yearbook).
- Mortgages & Real Estate Yield based on three month Treasury Bill rate (from Federal Reserve) plus Ibbotson Differential (from Ibbotson & Seigel, AREUA Journal, Vol 12, No. 3, 1984).
- Cash & Short Term Investment yield based on short-term treasury yield as published in Federal Reserve (July 14, 2008) M. 15 (519).
- Column (4) Investment Gain  
Product of 12/31/06 Market Value times Pre-Tax Return expressed as a decimal value by asset type.

**INTERNAL RATE OF RETURN ANALYSIS  
EXPLANATORY NOTES**

**PENNSYLVANIA PRE & POST TAX RETURNS  
PAGE 2**

Column (5)    Percent Taxable  
Treasuries, Unaffiliated Bonds, Mortgages & Real Estate and Cash & Short Term Investments all assumed to be 100 percent taxable.

Exempt Bonds, Bonds in Affiliated Companies and Preferred Stock in Affiliated Companies all assumed to be tax-free.

Preferred Stock in Unaffiliated Companies: 30 percent of dividend income taxable per Tax Reform Act of 1986; all income attributed to dividends for preferred stock.

Common Stock of Unaffiliated Companies: Capital gains are taxed at the full rate, 30 percent of dividends are taxed at the full rate, and 15 percent of the remaining dividends (70 percent) are subject to tax.  $(0.6500 \times 0.35) + (0.30 \times 0.35 \times 0.3500) + (0.70 \times 0.3500 \times 0.15 \times 0.35) = 0.2771$ . Portions of common stock income attributable to dividend and capital gains from Ibbotson Associates: *Stocks, Bonds, Bills and Inflation: Red Book*, 2006 Edition, Table 6-7 (arithmetic mean), p. 119.

Common Stock of Affiliated Companies: 100 percent of capital gains in affiliated companies subject to income tax per Tax Reform Act of 1986. Portion of common stock income (.6446) attributed to capital gains from A. M. Best's data.

Column (6)    Tax Rate  
 $(\text{Percent Taxable} \times .35) + ((1.0 - \text{Percent Taxable}) \times .15 \times .35)$

Column (7)    Post Tax Return  
 $\text{Pre-Tax Return} \times (1.0 - \text{Tax Rate})$

INTERNAL RATE OF RETURN ANALYSIS  
PENNSYLVANIA "F" CLASS - 2009  
PRE & POST TAX RETURNS

Invested Assets (1)	Assets (2)	Pre Tax Return (3)	Investment Gain (4)	Portion Taxable (5)	Tax Rate (6)	Post Tax Return (7)
Treasuries	148575753	0.41	4952397	1.00000	0.35000	2.166610
Exempt Bonds	440751560	1.66	20098271	0.00000	0.05250	4.320600
Bonds (Unaffil)	264000707	1.31	15892843	1.00000	0.35000	3.913000
Bonds (Affiliated)	6614306	0.03	398181	0.00000	0.05250	5.703950
Prefer Stk (Unaff)	13612413	0.07	860305	0.30000	0.14175	5.424140
Prefer Stk (Affil)	2718685	0.01	171821	0.00000	0.05250	5.988200
Common Stk (Unaff)	175063601	1.48	17944019	0.75122	0.27710	7.409725
Common Stock (Affil)	47935976	0.41	4913438	0.64460	0.24590	7.729525
Mortgage Loans	3652418	0.02	232659	1.00000	0.35000	4.140500
Real Estate	10051814	0.05	573959	1.00000	0.35000	3.711500
Cash and ST Invest	99814310	0.16	1946379	1.00000	0.35000	1.267500
Average or Total	1212791543		67984270			4.315445

1. Assets are from the latest (2007) Best's A&A, Market Value Dec 31, 2006

2. Yields are from:

- a) Treasuries, Exempt Bonds, Other Bonds, Cash & Short Term Invest are from: Federal Reserve H.15(519), July 14, 2008
- b) Preferred Stocks are from: Moody's Bond Record, June 2008, Vol. 75, No. 6, p. 70.
- c) Common Stock: 3 month Treasury (1.77) + Ibbotson Differential (8.48%)  
Bill rate from Fed Reserve; Differential from 2008 Ibbotson Yearbook
- d) Real Estate: 3 month Treasury + Ibbotson Differential (3.94)  
Differential from: Ibbotson & Seigel, AREUA Journal, Vol 12, No. 3, 1984

PRETAX WEIGHTED PORTFOLIO YIELD - INVEST EXPENSE = 5.385602269

POST TAX WEIGHTED YIELD - POST TAX EXPENSE = 4.172445099

## INTERNAL RATE OF RETURN ANALYSIS EXPLANATORY NOTES

### PENNSYLVANIA COST OF CAPITAL

- All data taken from Value Line Investment Survey of June 20, 2008.
- All Property/Casualty Companies Selected with limited exceptions such as reinsurers and carriers without any workers compensation insurance writings
- Individual carrier inclusions/exclusions from selected list noted as having limited effect on indicated results.
- DCF FORECAST COST OF CAPITAL
  - =  $.0275 \times (1.0 + 0.5 \times .0754) + .0754$
  - =  $.0285 + .0754 = .1039$
- DCF HISTORICAL COST OF CAPITAL
  - =  $.0275 \times (1.0 + 0.5 \times .1823) + .1823$
  - =  $.0197 + .0947 = .1144$
- DCF DIVIDENDS ONLY COST OF CAPITAL
  - =  $.0275 \times (1.0 + 0.5 \times .0710) + .0710$
  - =  $.0189 + .0710 = .0905$
  - Note:  $.0710 = \text{Average } (.0829, .0591)$

2009  
PENNSYLVANIA  
COST OF CAPITAL

COMPANY	BETA	YIELD	DIVIDEND EARNINGS		EARNINGS FORECAST	DIVIDEND FORECAST	RETAINED TO EQUITY FORECAST
			PAST 5 YEARS	PAST 5 YEARS			
Ace Ltd	1.05	1.9	11.0	39.5	7.0	7.0	9.0
Allstate	0.90	3.3	12.5	12.5	9.0	8.0	10.0
Amer Fnl	1.00	1.7	-8.0	31.0	12.5	6.5	12.0
Berkley	0.95	0.9	8.5	76.5	7.0	11.5	16.0
Chubb	0.90	2.5	8.0	40.5	2.0	8.0	8.0
Cinc Fnl	0.85	4.7	12.0	23.0	0.5	5.5	4.0
Merc Gen	0.85	4.4	12.0	15.5	5.5	4.5	7.5
Old Rep	1.00	4.7	13.0	1.5	2.5	7.5	5.0
Progressive	0.80	0.7	-3.5	32.5	1.0	0.0	18.0
RLI Corp	0.80	1.9	18.5	25.0	3.5	10.5	8.5
Safeco	0.80	2.4	2.0	50.5	3.0	9.0	7.5
Travelers	1.00	2.5	-2.0	30.5	10.0	5.0	9.0
Select	0.95	2.4	8.0	31.0	6.5	6.0	9.5
XL Cap	1.20	4.5	-2.0	11.0	22.0	0.0	11.5
	0.93	2.75	6.43	30.04	6.57	6.36	9.68

SOURCE: VALUE LINE INVESTMENT SURVEY, JUNE 20, 2008

DCF COST OF CAPITAL

FORECAST

A. EARNINGS	6.57
B. DIVIDEND	6.36
C. FUNDAMENT	9.68

FORECAST = (A+B+C)/3 7.54

FORECAST COST OF CAPITAL = 10.39 PERCENT

HISTORICAL

A. EARNINGS	30.04
B. DIVIDEND	6.43

HISTORICAL = (A+B)/2 18.23

HISTORICAL COST OF CAPITAL = 21.23 PERCENT

DIVIDENDS ONLY (GROWTH & HISTORICAL)  
9.23 PERCENT

2009  
PENNSYLVANIA  
COST OF CAPITAL

A) CAPM COST OF CAPITAL	$1.77 + 0.93(8.48)$	=	9.66 PERCENT
B) FORECAST COST OF CAPITAL		=	10.39 PERCENT
C) COST OF CAPITAL	$(A + B)/2$	=	10.02 PERCENT

SOURCES:

A: CAPM: BETA - VALUE LINE INVESTMENT SURVEY JUNE 20, 2008

RF - 3 MONTH BILL RATE WEEK ENDED JULY 11. FEDERAL RESERVE H. 15 (JULY 14, 2008)  
(1.77%)

RM - RF = IBBOTSON DIFFERENTIAL (STOCK MARKET TO 3 MONTH BILL  
RATE, 1926 TO 2007 AVERAGE) = 8.48 VALUATION EDITION, 2008 VALUATION EDITION, TABLE 5-1.

B: DCF:  $K = Y (1+0.5G) + G$

Y IS THE CURRENT DIVIDEND YIELD (FROM VALUE LINE)

G IS THE DIVIDEND GROWTH RATE (FROM VALUE LINE)

**INTERNAL RATE OF RETURN ANALYSIS  
EXPLANATORY NOTES**

**PENNSYLVANIA RESERVE-TO-SURPLUS RATIOS**

Columns (1) – (4) Reserves and policyholder surplus for commercial casualty predomination carriers all taken from Best's Aggregates and Averages with values as of December 31, 2006.

Column (5) Reserve-to-Surplus ratio is the sum of the reserves in columns (1) through (3) divided by the policyholder surplus in column (4)

$$1,605,391,021 + 339,403,602 + 548,982,753 = 2,493,777,376$$
$$2,493,777,376 / 1,017,731,540 = 2.45$$



STATE OF PENNSYLVANIA - 2009

INTERNAL RATE OF RETURN ANALYSIS  
RESERVE-TO-SURPLUS RATIO

Year	Reserves				Policyholder Surplus (5)	Reserve to Surplus Ratio (6) =(4)/(5)
	Unpaid Losses (1)	Unpaid LAE (2)	Unearned Premium (3)	Total (4) =(1)+(2)+(3)		
2006	217,836,561	45,218,400	79,120,650	342,175,611	160,813,287	2.13
2005	211,197,600	43,168,355	76,882,176	331,248,131	138,553,614	2.39
2004	186,078,584	38,187,562	71,937,436	296,203,582	123,435,772	2.40
2003	160,453,930	32,206,961	64,613,301	257,274,192	103,587,210	2.48
2002	139,574,754	27,979,630	52,712,587	220,266,971	77,496,222	2.84
2001	134,206,500	28,050,529	45,850,118	208,107,147	76,059,683	2.74
2000	130,686,933	29,119,080	42,033,438	201,839,451	82,264,557	2.45
1999	132,744,525	29,788,017	37,316,069	199,848,611	82,902,575	2.41
1998	145,071,595	32,449,224	39,512,433	217,033,252	88,468,350	2.45
1997	147,540,039	33,235,844	39,004,545	219,780,428	84,150,270	2.61
Total	1,605,391,021	339,403,602	548,982,753	2,493,777,376	1,017,731,540	2.45

Source: AM Best's Aggregates & Averages - Property & Casualty  
Commercial Casualty Composite