

2)

Assignment

2005	9512	7216	9563
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2006	2889	6723	
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2007	3826		
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Benchmark

Ratio

2

2.1766

1.32635

Benchmark

factor

~~2.88693~~

2.88693

1.32635

Reverse

1.32635

2.88693

 $\frac{1}{6}$ $\frac{1}{1.32635} = 0.753$ $\frac{1}{2.88693} = 0.3463$ $\frac{1-1}{1}$ $= 0.2460511$

0.653611

loss ratio = 87%

loss incurred

2005 11041

9563

2006 11314

9843.18

2007 12549

10915.63

Emerging

Liability = 9563

$$9843.18 \times 0.296051$$

$$= 2921.17$$

$$- 90915.63 \times 0.653611$$

$$= 7134.5787$$

	1	2	3	Ultimate
2005			9563	9563
2006			$6723 \times 2921.18 =$	9144
2007			$7134.5787 \times =$	
			3876	11011

Reserve = Total Ultimate - Claims Paid

$$9563 + 9144 - 2920103$$

$$+ 12549$$

$$= 29717 - 20103$$

$$= 9614000$$

in the amount =

3)

	0	1	2	3
6	124	34	71	13
7	95	28	23	
8	127	35		
9	139	149		

Deflation
129x

	0	1	2	3
6	138	36	32	13
7	101	29	23	
8	139	35		
9	149			

	0	1	2	3
6	138	174	206	219
7	101	130	153	
8	129	164		
9	149			

1.2717

1.1809

1.0631

Cumulative -

	0	1	2	3
6	101	174	206	219
7	129	136	153	163
8	149	164	193	206
9	149	189	224	238

for interest

	0	1	2	3
6				
7				
8			29812.0	13
9		40	35	14

future int 7%

	0	1	2	3
6				
7				
8			29.87	13.79
9		41.2	37.13	15.29

Reserve = 147.58

4) Claims
 runs
 claim m

	0	221 89	2
2005	531	721	831
2006	491	716	
2007	754		

	ACPC	1	2	Ultimate
	0			
2005	531	221	831	831
	0.6389	0.8676	100%	
2006	491	716	100%	825
	0.59751	0.8676		
2007	754			1219.66
	0.61820			

~~ACPC~~ →

claim runs

	0	1	2	
	82	121	186	
	0.5256	0.7756	100%	
	128	163		
	0.6043	0.7236		
	98			
	0.5675			

Capital was 20

56A 5 31-4 P 25x 210

12164 = 173x 1219-65

6/12/10/11

251 30503-45

27-10-5001

$$v(x)$$

$$E$$

$$E(Z_i) = E(Y_i + 100X)$$

$$= E(Y_i) + E(100X)$$

$$= 0.3 \times 200 + 100 \times E(X)$$

$$60 + 100 \times \left[\frac{5 \times 6x^3 - x^4}{3} \right]_0^1$$

$$260 + 100 \times \left[\frac{36}{2} \right] = 260 + 1800 = 2060$$

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$$E(Z_i) = 2060$$

$$E(Y_i) = E(X_i + 2) \times E(n)$$

$$E(360 \times 50) = 18000$$

$$V(Z_i) = V(Y_i + 100X)$$

$$= V(Y_i) + 100^2 V(X)$$

$$= 0.3 \times 200^2$$

$$= 60^2 + 100^2 \times \left[\frac{5 \times 6x^3 - x^4}{3} \right]_0^1$$

$$= 60^2 + 100^2 \times \left[\frac{36}{2} \right] = 60^2 + 180000 = 180360$$

$$= 180360$$

$$= 400 + 100^2 \left[\frac{5 \times 6x^3 - x^4}{3} \right]_0^1$$

$$= 8400 + 7848000 + 16400$$

$$N(S) = E(n)V(z) + E(z)V(z)$$

$$250 \times 1639.75 + 50 \times 860$$

$$= (7299437.5)$$

9)

$$x_i \sim \text{Poi}(\lambda)$$

$$x \sim \text{Poi}(\lambda)$$

$$E(d_i) = \sum_j x \cdot 0.1 + \frac{1}{2} \cdot 0.3 + \frac{1}{2} \cdot x \cdot 0.9 = 0.3$$

$$V(d_i) = E(d_i^2) - [E(d_i)]^2 = \sum_j (0.1^2 + 1 \cdot 0.3 + \frac{1}{2} \cdot x \cdot 0.9^2) - 0.09$$

$$E(S)$$

$$E(S) = \sum_i x_i$$

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$$E\left(\frac{S}{n}\right) = E(x_i)$$

$$V\left(\frac{S}{n}\right) = E(x_i)$$

$$E\left[E\left(\frac{S}{n}\right)\right] = E(x_i)$$

$$= E(x_i)$$

$$= 0.3 \times 100$$

$$= 0.3 \times 250 = 75$$

iii) aggregate

$$E\left(\frac{S}{n}\right) = E(x_i)$$

$$E(S_i) = n E(x_i)$$

$$= n E(x_i)$$

$$= 100 \times 0.3 \times 250 = 7500$$

$$V(d_i) = \frac{1}{2} [0.27 + 0.01] - 0.3^2 = 0.01$$

$$V(S_i) = 1.00 \in [V(S_i)]$$

$$+ V \cdot [E(S_i)]$$

$$= E(d_i \times m_2)$$

$$+ V(d_i \times m_1)$$

$$= E(d_i) \times 0.2$$

$$+ 0.1^2 \times 8V(d_i)$$

$$= 0.3 \times 1.00$$

$$= 0.3$$

$$+ 0.01 \times 8 \times 0.01$$

$$= 0.3008$$

$$= 26256000$$

$$(0.3008) \cdot (2.7) = 0.81216$$

$$(1.8) \cdot (2.7) = 4.86$$

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