

A wide-angle, high-altitude photograph of the Grand Canyon. The canyon's layered rock formations are visible in various shades of red, orange, and brown, extending far into the distance under a bright blue sky with scattered white clouds. The foreground shows a rocky, sparsely vegetated ridge.

# Product Pricing in **RBC World**

12 September 2007

# Agenda

- Background
- Changes needed in RBC Pricing
- Product 1: Loss Ratio, LR with SM, Cash Flow Projections
- Product 2: Stat with SM, RBC
- Other Adjustments
- Summary



# Background

- BNM issued Risk-Based Capital (RBC) Framework for Insurers in April 2007
- In quarterly meeting with appointed actuaries, BNM's senior actuary advised AAs to consider pricing products allowing for RBC

# Changes Needed

Surplus Arising

= Premium – Commission – Expenses –  
Death Benefit – Surrender Benefit –  
Maturity Benefit – Cash Bonus + Investment  
Return – Tax – Increase in Reserve –  
Increase in Solvency Margin

# 1<sup>st</sup> Product to be Priced

- TAS-3D obtains gambling license to run 3D business –  $TAS_{3D}$
- A 3-digit number is to be drawn at end of 12 months
- Payout is RM1,000 if number is drawn
- All bets are to be placed on day 1

# Pricing of $TAS_{3D}$ – 1<sup>st</sup> Attempt

- Probability of winning = 0.001
- Payout = RM1,000
- Expected payment =  $1,000 * 0.001 = RM1$
- Hence, each bet will cost RM1

# Pricing of $TAS_{3D}$ – 2<sup>nd</sup> Attempt

- Commission = 10%
- Expense = 10% (incurred on day 1)
- Profit margin = 10%

$$Price = \frac{\textit{Expected Claim}}{1 - \textit{Expense} - \textit{Commission} - \textit{PM}} = RM1.429$$

# Pricing of $TAS_{3D}$ – 3<sup>rd</sup> Attempt

- Allowing for reserve and solvency margin
- UPR = 90% Premium =  $0.9P$
- Solvency margin
  - 0.1% SAR =  $0.1\% * (1000 - 0.9P) = 1 - 0.0009P$
  - 25% net premium =  $25\% * 0.9P = 0.225P$
- Total =  $1 + 1.1241P$
- Cost of capital = 12%, investment return = 3%, Tax=8%
- $P = 1/1.12 + 0.3P + (1 + 1.1241P) * (1 - 1/1.12 - .03*.92)$
- $P = 1.592$  (i.e. 11.4% higher)



# Pricing of $TAS_{3D}$ – 4<sup>th</sup> Attempt

- Monthly cash flow projection
- Reserve basis:
  - UPR: 90% P
- Solvency margin:
  - 25% net premium
  - 0.1% SAR
- Cost of capital: 12%
- Investment return: 3%, Tax: 8%

# Monthly Cash Flow Pricing

	100.00%	10.00%	10.00%	56.37%			17.16%	4.66%	0.37%	10.00%
0.949%	1.584	0.158	0.158	0.893	14.823	14.090	0.272	0.074	0.006	0.158
	boy	boy	boy	eoy			eoy	0.247%	8.0%	eoy
Mth	Premium	Comm	Expenses	Death Benefit	Reserve	Solvency Margin	Increase Resv, SM	Investment Return	Tax	Transfer to Estate
1	1.584	0.158	0.158	-	1.425	1.355	2.780	0.0031	0.0002	- 1.510
2	-	-	-	-	1.425	1.355	-	0.0069	0.0005	0.006
3	-	-	-	-	1.425	1.355	-	0.0069	0.0005	0.006
4	-	-	-	-	1.425	1.355	-	0.0069	0.0005	0.006
5	-	-	-	-	1.425	1.355	-	0.0069	0.0005	0.006
6	-	-	-	-	1.425	1.355	-	0.0069	0.0005	0.006
7	-	-	-	-	1.425	1.355	-	0.0069	0.0005	0.006
8	-	-	-	-	1.425	1.355	-	0.0069	0.0005	0.006
9	-	-	-	-	1.425	1.355	-	0.0069	0.0005	0.006
10	-	-	-	-	1.425	1.355	-	0.0069	0.0005	0.006
11	-	-	-	-	1.425	1.355	-	0.0069	0.0005	0.006
12	-	-	-	1.000	-	-	- 2.780	0.0069	0.0005	1.787





# Setting RBC Reserve

# RBC Reserve – 75% CL

- Probability of claim = 0.001
- Number of players = 1000
- Mean =  $np = 1000 * 0.001 = 1$
- Variance =  $npq = 1000 * 0.001 * 0.999$
- Standard deviation =  $\text{sqrt}(0.999) = 0.9995$
- CLT if  $np$  and  $npq > 10$
- 75% CL = 1.674
- 99.5% CL = 3.575



# Comparing Reserves & Capitals

	<b>75%</b>	<b>99.5%</b>
Statutory	1.425	2.780
RBC	1.674	3.575
Difference	0.249	0.794
% Difference	17.4%	28.6%

<b>PRAD</b>	<b>75%</b>	<b>99.5%</b>	<b>Ratio</b>
Statutory	42.5%	178.0%	4.185
RBC	67.4%	257.5%	3.819

# RBC Reserve varies by Portfolio

Probability of Claim Confidence Level	0.001 75.0%	0.001 99.5%	0.002 75.0%	0.002 99.5%	0.010 75.0%	0.010 99.5%	0.100 75.0%	0.100 99.5%	0.250 75.0%	0.250 99.5%
100	213.186%	814.143%	150.670%	575.398%	67.111%	256.292%	20.235%	77.275%	11.683%	44.615%
1,000	67.415%	257.455%	47.646%	181.957%	21.222%	81.047%	6.399%	24.437%	3.694%	14.108%
2,000	47.670%	182.048%	33.691%	128.663%	15.006%	57.309%	4.525%	17.279%	2.612%	9.976%
5,000	30.149%	115.137%	21.308%	81.374%	9.491%	36.245%	2.862%	10.928%	1.652%	6.309%
10,000	21.319%	81.414%	15.067%	57.540%	6.711%	25.629%	2.023%	7.728%	1.168%	4.461%
30,000	12.308%	47.005%	8.699%	33.221%	3.875%	14.797%	1.168%	4.461%	0.674%	2.576%
100,000	6.742%	25.745%	4.765%	18.196%	2.122%	8.105%	0.640%	2.444%	0.369%	1.411%
1,000,000	2.132%	8.141%	1.507%	5.754%	0.671%	2.563%	0.202%	0.773%	0.117%	0.446%

- Conclusions

- Size  $\uparrow$   $PRAD_{750}$  &  $PRAD_{995}$   $\downarrow$

- $q_x$   $\uparrow$   $PRAD_{750}$  &  $PRAD_{995}$   $\downarrow$

- 3.819 magic factor for normal distribution

# PM under RBC

	100.00%	10.00%	10.00%	56.37%			22.06%	5.93%	0.47%	6.27%	
	0.949%	1.584	0.158	0.158	0.893	17.409	19.762	0.349	0.094	0.008	0.099
	boy	boy	boy	eoy			eoy	0.247%	8.0%	eoy	
Mth	Premium	Comm	Expenses	Death Benefit	Reserve	Solvency Margin	Increase Resv, SM	Investment Return	Tax	Transfer to Estate	
1	1.584	0.158	0.158	-	1.674	1.900	3.575	0.0031	0.0002	-	2.305
2	-	-	-	-	1.674	1.900	-	0.0088	0.0007		0.008
3	-	-	-	-	1.674	1.900	-	0.0088	0.0007		0.008
4	-	-	-	-	1.674	1.900	-	0.0088	0.0007		0.008
5	-	-	-	-	1.674	1.900	-	0.0088	0.0007		0.008
6	-	-	-	-	1.674	1.900	-	0.0088	0.0007		0.008
7	-	-	-	-	1.674	1.900	-	0.0088	0.0007		0.008
8	-	-	-	-	1.674	1.900	-	0.0088	0.0007		0.008
9	-	-	-	-	1.674	1.900	-	0.0088	0.0007		0.008
10	-	-	-	-	1.674	1.900	-	0.0088	0.0007		0.008
11	-	-	-	-	1.674	1.900	-	0.0088	0.0007		0.008
12	-	-	-	1.000	-	-	-	3.575	0.0088	0.0007	2.583

# Premium under RBC

	100.00%	10.00%	10.00%	53.50%			20.93%	5.64%	0.45%	10.00%	
	0.949%	1.669	0.167	0.167	0.893	17.409	19.762	0.349	0.094	0.008	0.167
	boy	boy	boy	eoy			eoy	0.247%	8.0%	eoy	
Mth	Premium	Comm	Expenses	Death Benefit	Reserve	Solvency Margin	Increase Resv, SM	Investment Return	Tax	Transfer to Estate	
1	1.669	0.167	0.167	-	1.674	1.900	3.575	0.0033	0.0003	-	2.236
2	-	-	-	-	1.674	1.900	-	0.0088	0.0007		0.008
3	-	-	-	-	1.674	1.900	-	0.0088	0.0007		0.008
4	-	-	-	-	1.674	1.900	-	0.0088	0.0007		0.008
5	-	-	-	-	1.674	1.900	-	0.0088	0.0007		0.008
6	-	-	-	-	1.674	1.900	-	0.0088	0.0007		0.008
7	-	-	-	-	1.674	1.900	-	0.0088	0.0007		0.008
8	-	-	-	-	1.674	1.900	-	0.0088	0.0007		0.008
9	-	-	-	-	1.674	1.900	-	0.0088	0.0007		0.008
10	-	-	-	-	1.674	1.900	-	0.0088	0.0007		0.008
11	-	-	-	-	1.674	1.900	-	0.0088	0.0007		0.008
12	-	-	-	1.000	-	-	-	3.575	0.0088	0.0007	2.583



# Summary of Pricing

Method	Premium	Profit Margin
Loss Ratio	1.429	10.0%
LR with SM	1.592	10.0%
CF with SM	1.584	10.0%
CF with RBC	1.584	6.3%
CF with RBC	1.669	10.0%

# Enhanced TAS<sub>3D</sub>

- End of year 1, 1 number is drawn
- 2<sup>nd</sup> chance for non-winning bets, 2 numbers are drawn end of 2<sup>nd</sup> year
- Prize for each winning number – RM1000

# Pricing – Statutory Reserve

- Monthly cash flow projection
- Reserve basis:
  - 3% valuation interest rate
  - 150%  $q_x$
- Solvency margin:
  - 4% reserve
  - 0.1% SAR
- Cost of capital: 12%
- Investment return: 3%, Tax: 8%

	100.00%	10.00%	10.00%	54.08%			20.17%	5.44%	0.44%	10.00%
	0.949%	4.596	0.460	2.486	75.159	23.497	0.927	0.250	0.020	0.460
	boy	boy	boy	eoy			eoy	0.247%	8.0%	eoy
Mth	Premium	Comm	Expenses	Death Benefit	Reserve	Solvency Margin	Increase Resv, SM	Investment Return	Tax	Transfer to Estate
1	4.596	0.460	0.460	-	4.290	1.167	5.458	0.009	0.001	- 1.772
2	-	-	-	-	4.301	1.168	0.011	0.013	0.001	0.001
3	-	-	-	-	4.312	1.168	0.011	0.013	0.001	0.001
4	-	-	-	-	4.322	1.169	0.011	0.014	0.001	0.001
5	-	-	-	-	4.333	1.169	0.011	0.014	0.001	0.001
6	-	-	-	-	4.344	1.169	0.011	0.014	0.001	0.001
7	-	-	-	-	4.354	1.170	0.011	0.014	0.001	0.001
8	-	-	-	-	4.365	1.170	0.011	0.014	0.001	0.001
9	-	-	-	-	4.376	1.171	0.011	0.014	0.001	0.001
10	-	-	-	-	4.387	1.171	0.011	0.014	0.001	0.001
11	-	-	-	-	4.393	1.171	0.007	0.014	0.001	0.006
12	-	-	-	1.000	2.910	1.112	- 1.542	0.014	0.001	0.555
13	-	-	-	-	2.917	1.113	0.007	0.010	0.001	0.002
14	-	-	-	-	2.924	1.113	0.007	0.010	0.001	0.002
15	-	-	-	-	2.931	1.113	0.007	0.010	0.001	0.002
16	-	-	-	-	2.939	1.114	0.008	0.010	0.001	0.002
17	-	-	-	-	2.946	1.114	0.008	0.010	0.001	0.002
18	-	-	-	-	2.953	1.114	0.008	0.010	0.001	0.002
19	-	-	-	-	2.960	1.114	0.008	0.010	0.001	0.002
20	-	-	-	-	2.968	1.115	0.008	0.010	0.001	0.002
21	-	-	-	-	2.975	1.115	0.008	0.010	0.001	0.002
22	-	-	-	-	2.982	1.115	0.008	0.010	0.001	0.002
23	-	-	-	-	2.984	1.115	0.001	0.010	0.001	0.008
24	-	-	-	1.998	-	-	- 4.099	0.010	0.001	2.110



# RBC Reserve

- Reserve basis:
  - 3% valuation interest rate
  - 75% confidence level
  - Assuming 5,000 bets

# In-Force Reserve at 75% CL

Mth	SvvSA	$A_{x+t:n-t}^1$	Reserve pp	In-Force	Reserve IF
1	-	0.003550	3.550	1.00000	3.550
2	-	0.003559	3.559	1.00000	3.559
3	-	0.003568	3.568	1.00000	3.568
4	-	0.003577	3.577	1.00000	3.577
5	-	0.003586	3.586	1.00000	3.586
6	-	0.003594	3.594	1.00000	3.594
7	-	0.003603	3.603	1.00000	3.603
8	-	0.003612	3.612	1.00000	3.612
9	-	0.003621	3.621	1.00000	3.621
10	-	0.003630	3.630	1.00000	3.630
11	-	0.003639	3.639	1.00000	3.639
12	0.00130	0.003648	3.648	0.99900	3.644
13	-	0.002355	2.355	0.99900	2.353
14	-	0.002361	2.361	0.99900	2.359
15	-	0.002367	2.367	0.99900	2.365
16	-	0.002373	2.373	0.99900	2.371
17	-	0.002379	2.379	0.99900	2.376
18	-	0.002385	2.385	0.99900	2.382
19	-	0.002391	2.391	0.99900	2.388
20	-	0.002396	2.396	0.99900	2.394
21	-	0.002402	2.402	0.99900	2.400
22	-	0.002408	2.408	0.99900	2.406
23	-	0.002414	2.414	0.99900	2.412
24	0.00243	0.002420	2.420	0.99700	2.413

# RBC - LCC

- Basis:
  - 3% valuation interest rate
  - 99.5% confidence level
  - Assuming 5,000 bets

# In-Force Reserve at 99.5% CL

Mth	SvvSA	$A_{x+t:n-t}^1$	Reserve pp	In-Force	Reserve IF
1	-	0.005508	5.508	1.00000	5.508
2	-	0.005522	5.522	1.00000	5.522
3	-	0.005535	5.535	1.00000	5.535
4	-	0.005549	5.549	1.00000	5.549
5	-	0.005562	5.562	1.00000	5.562
6	-	0.005576	5.576	1.00000	5.576
7	-	0.005590	5.590	1.00000	5.590
8	-	0.005604	5.604	1.00000	5.604
9	-	0.005618	5.618	1.00000	5.618
10	-	0.005631	5.631	1.00000	5.631
11	-	0.005645	5.645	1.00000	5.645
12	0.00215	0.005659	5.659	0.99900	5.654
13	-	0.003522	3.522	0.99900	3.518
14	-	0.003531	3.531	0.99900	3.527
15	-	0.003539	3.539	0.99900	3.536
16	-	0.003548	3.548	0.99900	3.544
17	-	0.003557	3.557	0.99900	3.553
18	-	0.003565	3.565	0.99900	3.562
19	-	0.003574	3.574	0.99900	3.571
20	-	0.003583	3.583	0.99900	3.579
21	-	0.003592	3.592	0.99900	3.588
22	-	0.003601	3.601	0.99900	3.597
23	-	0.003610	3.610	0.99900	3.606
24	0.00363	0.003619	3.619	0.99700	3.608



# RBC Pricing

- Monthly cash flow projection
- Investment return: 3%
- Tax 8%
- Cost of capital: 12%
- 1% operational risk charge
- 100% investment in low risk assets
- Assume no interest rate mismatch risk
- Internal CAR target of 140%

# RBC – 100% LRA

**0.949%**    **100.00%**    **10.00%**    **10.00%**    **54.08%**    **61.725**    **32.667**       **22.29%**    **5.21%**    **0.42%**    **7.68%**  
**4.596**    **0.460**    **0.460**    **2.486**                      **1.024**    **0.240**    **0.019**    **0.353**  
 boy    boy    boy    eoy                      eoy                eoy

0.0%    1.0%    140.0%       0.247%    8.0%

Mth	Premium	Comm	Expenses	Death Benefit	Reserve	LCC	Mkt Risk Charge	Ops Risk Charge	Internal Target	Increase Resv, CC	Investment Return	Tax	Transfer to Estate
1	4.596	0.460	0.460	-	3.559	1.962	-	0.06396	2.837	6.396	0.009	0.001	- 2.710
2	-	-	-	-	3.568	1.967	-	0.06412	2.844	0.016	0.014	0.001	- 0.003
3	-	-	-	-	3.577	1.972	-	0.06428	2.851	0.016	0.014	0.001	- 0.003
4	-	-	-	-	3.586	1.977	-	0.06443	2.858	0.016	0.014	0.001	- 0.003
5	-	-	-	-	3.594	1.982	-	0.06459	2.865	0.016	0.014	0.001	- 0.003
6	-	-	-	-	3.603	1.987	-	0.06475	2.872	0.016	0.014	0.001	- 0.003
7	-	-	-	-	3.612	1.992	-	0.06491	2.879	0.016	0.014	0.001	- 0.003
8	-	-	-	-	3.621	1.996	-	0.06507	2.886	0.016	0.014	0.001	- 0.003
9	-	-	-	-	3.630	2.001	-	0.06523	2.893	0.016	0.014	0.001	- 0.003
10	-	-	-	-	3.639	2.006	-	0.06539	2.900	0.016	0.014	0.001	- 0.003
11	-	-	-	-	3.644	2.009	-	0.06549	2.905	0.010	0.014	0.001	- 0.003
12	-	-	-	1.000	2.353	1.165	-	0.04041	1.688	- 2.508	0.014	0.001	- 1.521
13	-	-	-	-	2.359	1.168	-	0.04051	1.692	0.010	0.009	0.001	- 0.002
14	-	-	-	-	2.365	1.171	-	0.04061	1.696	0.010	0.009	0.001	- 0.002
15	-	-	-	-	2.371	1.174	-	0.04071	1.700	0.010	0.009	0.001	- 0.002
16	-	-	-	-	2.376	1.177	-	0.04081	1.705	0.010	0.009	0.001	- 0.002
17	-	-	-	-	2.382	1.180	-	0.04091	1.709	0.010	0.009	0.001	- 0.002
18	-	-	-	-	2.388	1.183	-	0.04101	1.713	0.010	0.009	0.001	- 0.002
19	-	-	-	-	2.394	1.185	-	0.04111	1.717	0.010	0.009	0.001	- 0.002
20	-	-	-	-	2.400	1.188	-	0.04121	1.721	0.010	0.009	0.001	- 0.002
21	-	-	-	-	2.406	1.191	-	0.04132	1.726	0.010	0.009	0.001	- 0.002
22	-	-	-	-	2.412	1.194	-	0.04142	1.730	0.010	0.009	0.001	- 0.002
23	-	-	-	-	2.413	1.195	-	0.04144	1.731	0.002	0.009	0.001	- 0.006
24	-	-	-	1.998	-	-	-	-	-	- 4.144	0.009	0.001	- 2.154

# RBC Premium

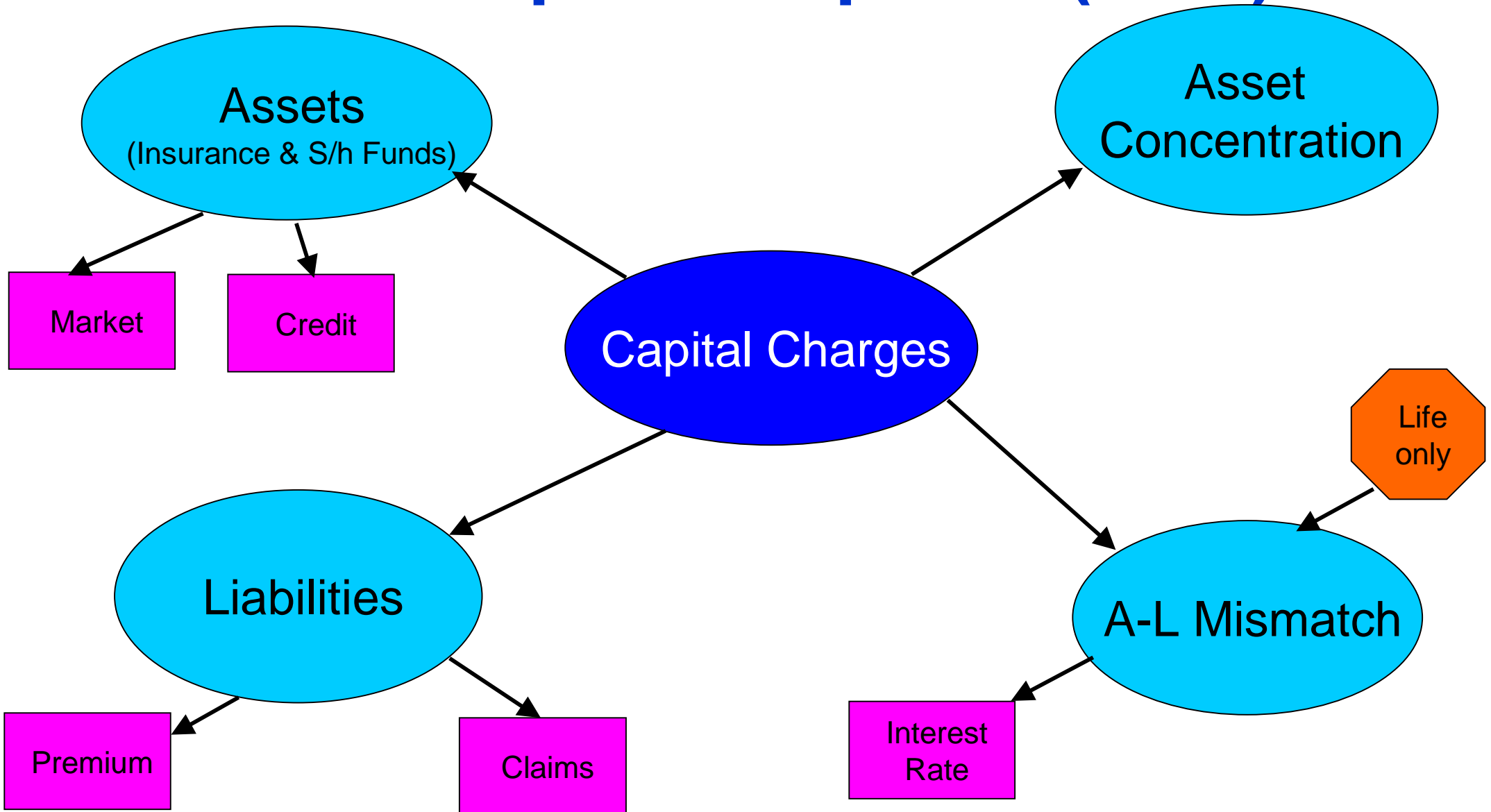
- Solving for 10% profit margin
- New premium = 4.750
- Old premium = 4.596
- Increase = 3.4%
- Premium increase depends on portfolio size

# RBC – 100% LRA – New Premium

	100.00%	10.00%	10.00%	52.33%						21.57%	5.05%	0.40%	10.00%
	0.949%	4.750	0.475	0.475	2.486	61.725	32.667			1.024	0.240	0.019	0.475
	boy	boy	boy	boy	boy			0.0%	1.0%	140.0%	0.247%	8.0%	boy
Mth	Premium	Comm	Expenses	Death Benefit	Reserve	LCC	Mkt Risk Charge	Ops Risk Charge	Internal Target	Increase Resv, CC	Investment Return	Tax	Transfer to Estate
1	4.750	0.475	0.475	-	3.559	1.962	-	0.06396	2.837	6.396	0.009	0.001	2.587
2	-	-	-	-	3.568	1.967	-	0.06412	2.844	0.016	0.014	0.001	0.003
3	-	-	-	-	3.577	1.972	-	0.06428	2.851	0.016	0.014	0.001	0.003
4	-	-	-	-	3.586	1.977	-	0.06443	2.858	0.016	0.014	0.001	0.003
5	-	-	-	-	3.594	1.982	-	0.06459	2.865	0.016	0.014	0.001	0.003
6	-	-	-	-	3.603	1.987	-	0.06475	2.872	0.016	0.014	0.001	0.003
7	-	-	-	-	3.612	1.992	-	0.06491	2.879	0.016	0.014	0.001	0.003
8	-	-	-	-	3.621	1.996	-	0.06507	2.886	0.016	0.014	0.001	0.003
9	-	-	-	-	3.630	2.001	-	0.06523	2.893	0.016	0.014	0.001	0.003
10	-	-	-	-	3.639	2.006	-	0.06539	2.900	0.016	0.014	0.001	0.003
11	-	-	-	-	3.644	2.009	-	0.06549	2.905	0.010	0.014	0.001	0.003
12	-	-	-	1.000	2.353	1.165	-	0.04041	1.688	2.508	0.014	0.001	1.521
13	-	-	-	-	2.359	1.168	-	0.04051	1.692	0.010	0.009	0.001	0.002
14	-	-	-	-	2.365	1.171	-	0.04061	1.696	0.010	0.009	0.001	0.002
15	-	-	-	-	2.371	1.174	-	0.04071	1.700	0.010	0.009	0.001	0.002
16	-	-	-	-	2.376	1.177	-	0.04081	1.705	0.010	0.009	0.001	0.002
17	-	-	-	-	2.382	1.180	-	0.04091	1.709	0.010	0.009	0.001	0.002
18	-	-	-	-	2.388	1.183	-	0.04101	1.713	0.010	0.009	0.001	0.002
19	-	-	-	-	2.394	1.185	-	0.04111	1.717	0.010	0.009	0.001	0.002
20	-	-	-	-	2.400	1.188	-	0.04121	1.721	0.010	0.009	0.001	0.002
21	-	-	-	-	2.406	1.191	-	0.04132	1.726	0.010	0.009	0.001	0.002
22	-	-	-	-	2.412	1.194	-	0.04142	1.730	0.010	0.009	0.001	0.002
23	-	-	-	-	2.413	1.195	-	0.04144	1.731	0.002	0.009	0.001	0.006
24	-	-	-	1.998	-	-	-	-	-	4.144	0.009	0.001	2.154

$$CAR = \frac{\text{Total Capital Fund Available (TCFA)}}{\text{Total Capital required (TCR)}} \times 100\%$$

# Total Capital Required (TCR)





# Change Asset Mix

- 70% LRA, 30% equities
- Equities: 10% return
- Weighted investment return = 5.1%
- Market risk charge =  $20\% * 30\% = 6\%$

# RBC – 70% LRA, 30% Equities

	100.00%	10.00%	10.00%	53.22%						23.98%	8.65%	0.69%	10.00%
	0.949%	4.670	0.467	0.467	2.486	61.725	32.667			1.120	0.404	0.032	0.467
	boy	boy	boy	boy	boy			6.0%	1.0%	140.0%	0.415%	8.0%	boy
Mth	Premium	Comm	Expenses	Death Benefit	Reserve	LCC	Mkt Risk Charge	Ops Risk Charge	Internal Target	Increase Resv, CC	Investment Return	Tax	Transfer to Estate
1	4.670	0.467	0.467	-	3.559	1.962	0.41950	0.06992	3.432	6.992	0.016	0.001	- 3.241
2	-	-	-	-	3.568	1.967	0.42053	0.07009	3.441	0.017	0.023	0.002	0.004
3	-	-	-	-	3.577	1.972	0.42157	0.07026	3.449	0.017	0.023	0.002	0.004
4	-	-	-	-	3.586	1.977	0.42261	0.07043	3.458	0.017	0.023	0.002	0.004
5	-	-	-	-	3.594	1.982	0.42365	0.07061	3.466	0.017	0.023	0.002	0.004
6	-	-	-	-	3.603	1.987	0.42470	0.07078	3.475	0.017	0.023	0.002	0.004
7	-	-	-	-	3.612	1.992	0.42574	0.07096	3.484	0.017	0.023	0.002	0.004
8	-	-	-	-	3.621	1.996	0.42679	0.07113	3.492	0.018	0.023	0.002	0.004
9	-	-	-	-	3.630	2.001	0.42785	0.07131	3.501	0.018	0.023	0.002	0.004
10	-	-	-	-	3.639	2.006	0.42890	0.07148	3.509	0.018	0.023	0.002	0.004
11	-	-	-	-	3.644	2.009	0.42953	0.07159	3.514	0.010	0.023	0.002	0.011
12	-	-	-	1.000	2.353	1.165	0.26503	0.04417	2.064	- 2.742	0.023	0.002	1.763
13	-	-	-	-	2.359	1.168	0.26569	0.04428	2.069	0.011	0.015	0.001	0.003
14	-	-	-	-	2.365	1.171	0.26634	0.04439	2.074	0.011	0.015	0.001	0.003
15	-	-	-	-	2.371	1.174	0.26700	0.04450	2.079	0.011	0.015	0.001	0.003
16	-	-	-	-	2.376	1.177	0.26766	0.04461	2.085	0.011	0.015	0.001	0.003
17	-	-	-	-	2.382	1.180	0.26832	0.04472	2.090	0.011	0.015	0.001	0.003
18	-	-	-	-	2.388	1.183	0.26898	0.04483	2.095	0.011	0.015	0.001	0.003
19	-	-	-	-	2.394	1.185	0.26964	0.04494	2.100	0.011	0.015	0.001	0.003
20	-	-	-	-	2.400	1.188	0.27031	0.04505	2.105	0.011	0.015	0.001	0.003
21	-	-	-	-	2.406	1.191	0.27098	0.04516	2.110	0.011	0.015	0.001	0.003
22	-	-	-	-	2.412	1.194	0.27164	0.04527	2.116	0.011	0.015	0.001	0.003
23	-	-	-	-	2.413	1.195	0.27177	0.04529	2.117	0.002	0.015	0.001	0.012
24	-	-	-	1.998	-	-	-	-	-	- 4.529	0.015	0.001	2.545

# Summary / Observations

- RBC pricing can be as complicated as you like, suggest to keep it simple
- More assumptions to be made
- More ways to decide how to manage a product
- New products can be effective capital management tool
- Re-pricing likely to be more frequent





**Thank You!**

**Terima kasih!**

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