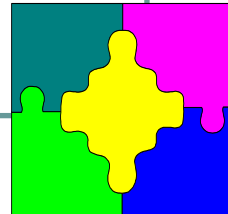


How Statistical Underwriting and Actuarial Pricing can help grow the profits of general insurance companies

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Overview of Presentation

- Introduction
- Experience of Motor Markets in Asia
- Strategic Considerations for General Insurance Companies
- Final Words - Mature Insurance Markets

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Experience of Motor Markets

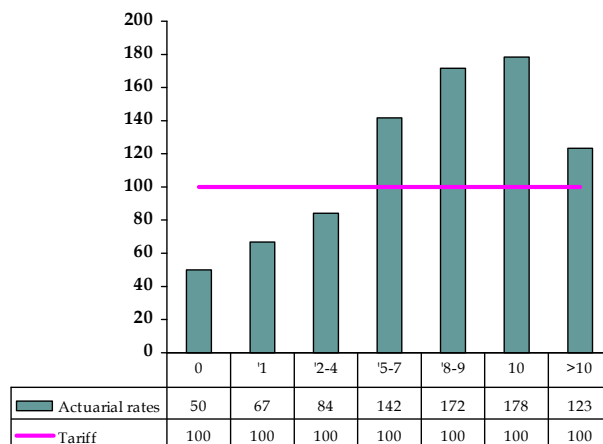
Singapore Market

Definitions

- **Rate Levels:** Average % of tariff
- **Profitability :** Gross loss ratios
- **Competitiveness %:** % of policyholders subject to 40% discount off tariff

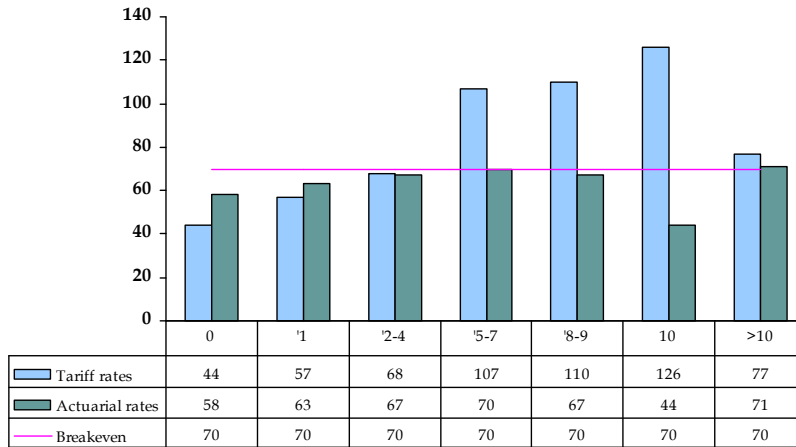
Rate Levels by Vehicle Age

Attractive rates relative to "old tariff" for new (0-4 year old) cars.



Loss Ratio by Vehicle Age

Loss ratio goes up with age of vehicle as tariff not reflective of claims experience.
Opportunity to write relatively new (0-4 year old) cars.

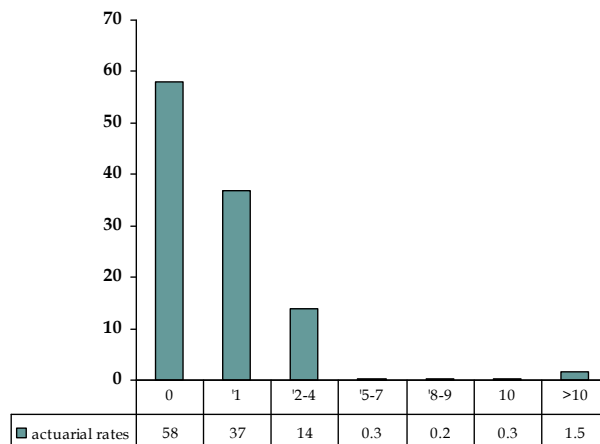


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Competitiveness % by Vehicle Age

Competitive for policyholders with new cars (0-4 years).

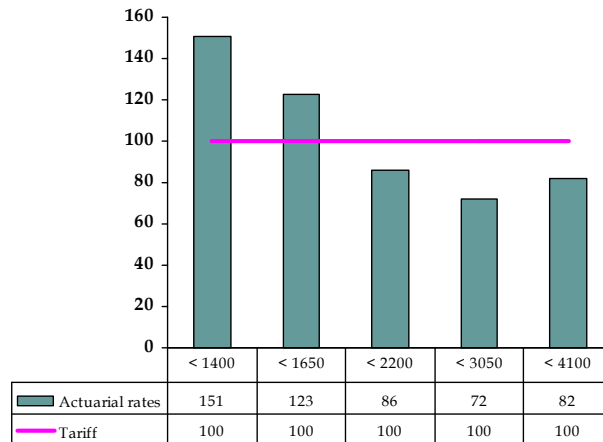


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Rate Levels by Vehicle Capacity

Attractive rate levels for larger cc cars.

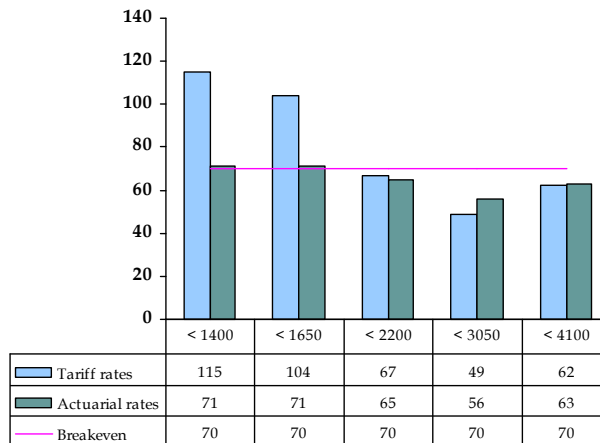


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Loss Ratio by Vehicle Capacity

Poor loss ratios for smaller cc cars and better experience for larger cars.

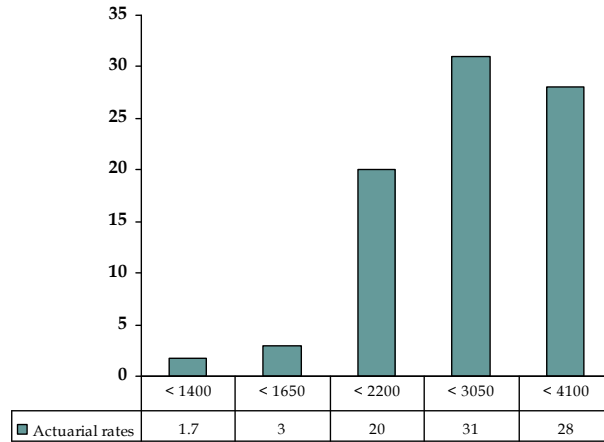


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Competitiveness % by Vehicle Capacity

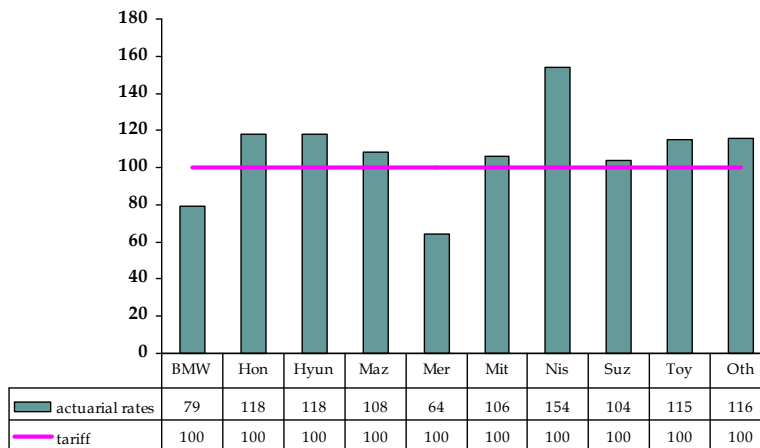
Competitive rates for larger cc cars.



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Rate levels by Vehicle Make

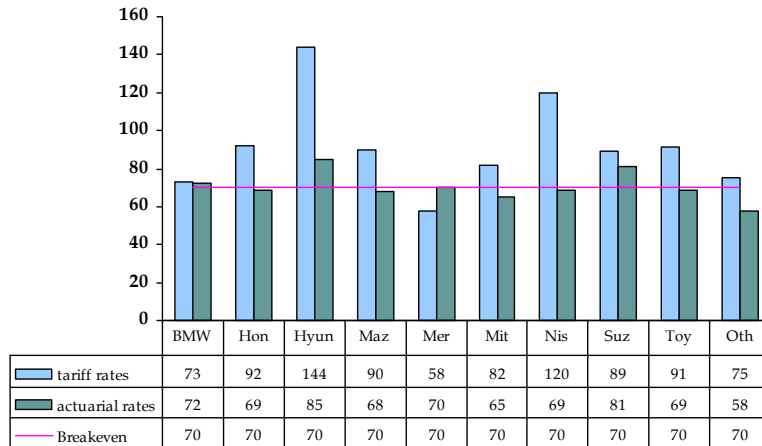
Mix of age and capacity important to understand this chart.



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Loss Ratio by Vehicle Make

Mix of age and capacity important to understand this chart.

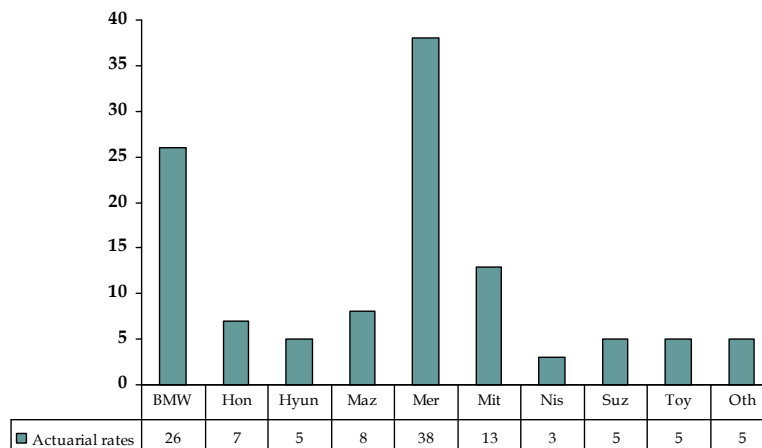


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Competitiveness % by Make

Mix of age and capacity important to understand this chart.



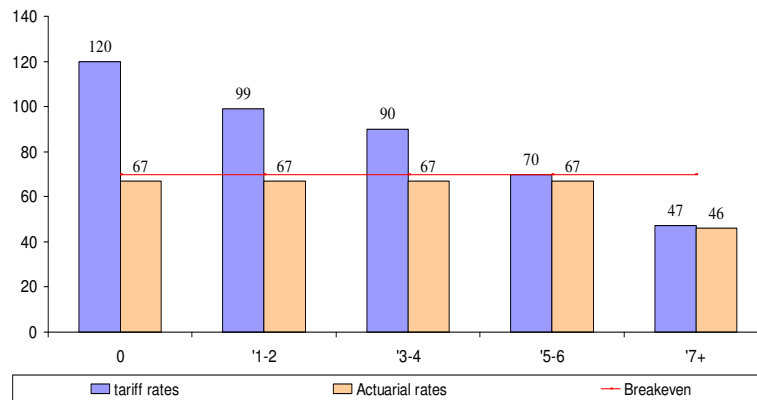
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Hong Kong Market

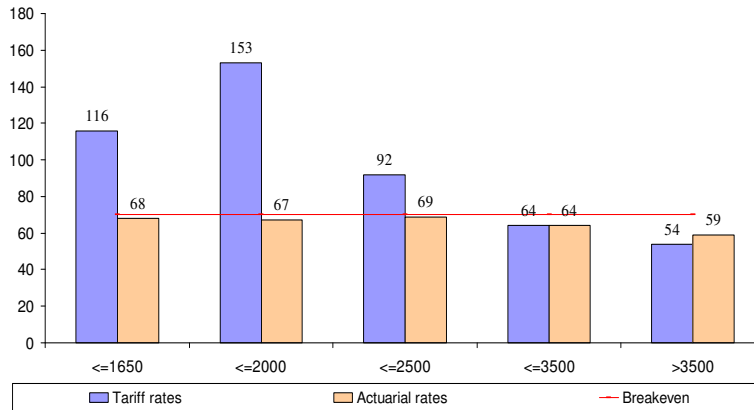
Loss ratio by age of vehicle

Older cars seem to have better claims experience.



Loss Ratio by Capacity

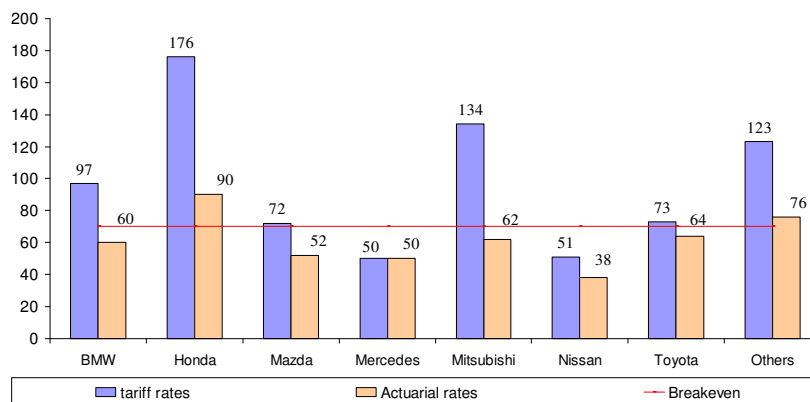
Larger capacity cars seem to have better experience.



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Loss Ratio by Make of Vehicle

Mix by age of car and capacity important to understand these results better.



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Strategic Considerations for General Insurance Organisations

Strategic Considerations for General Insurance Companies

- Underwriting Sophistication
- Strategic Responses in the face of Competition
- Business Intelligence for General Insurance

Underwriting Sophistication

Market practice?

- “Market Practice”. What is that?
 - Tariffs in some territories and lines of business
 - Commercial Considerations
 - Case Underwriting Approach

Spectrum of Underwriting

Premium Rating

Uses results at portfolio level to decide rates

Portfolio Underwriting

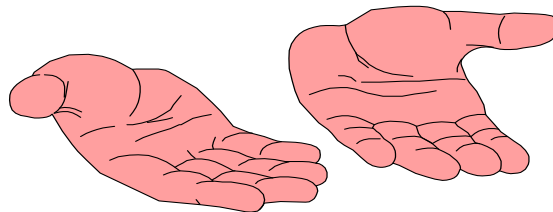
Underwriting by the use of information at portfolio level

Case Underwriting

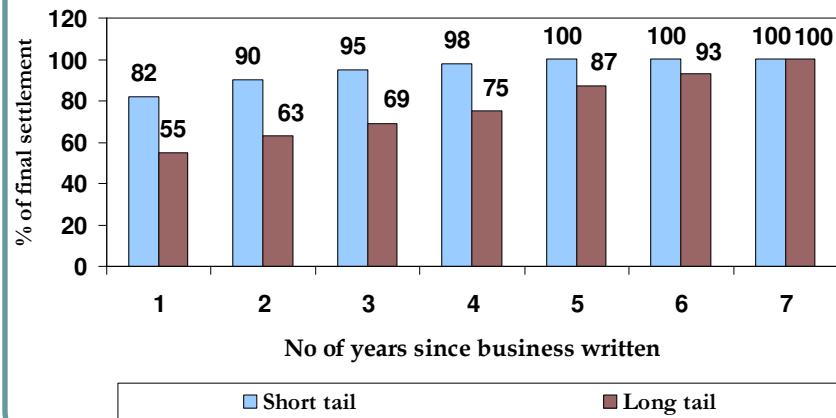
Underwriting on the merits of each risk

Why Price?

- True costs of risk unknown
- Subsidy and anti-selection
- Key element of Business strategy – distribution to profitable segments key to profit



Introduction - True Costs Unknown



Simple Illustration Impact of Rating and Segmentation

Simple Case Studies

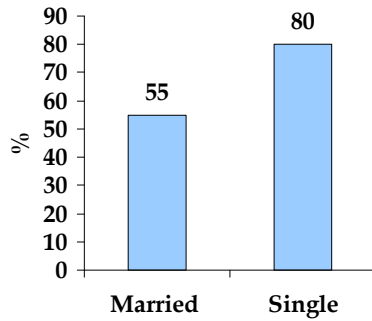
- Current Status
- Tariff Environment – Benefit of Segmentation
- Competitive Environment – benefit of pricing and segmentation
- Anti-selection – what happens when you are left behind

Current Status

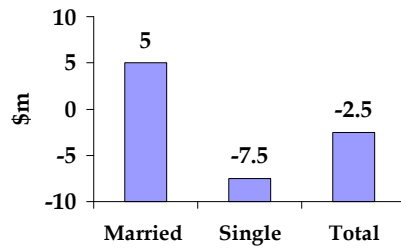


Current Status

Loss Ratio



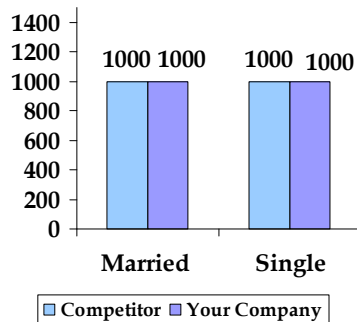
Profit (assume 35% expenses & commission)



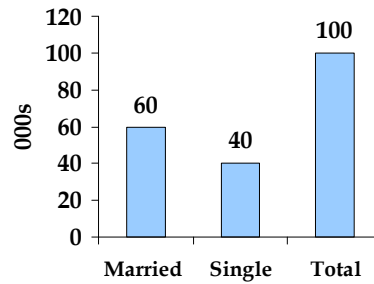
Tariff Environment

Benefits of segmentation

Premium per policy

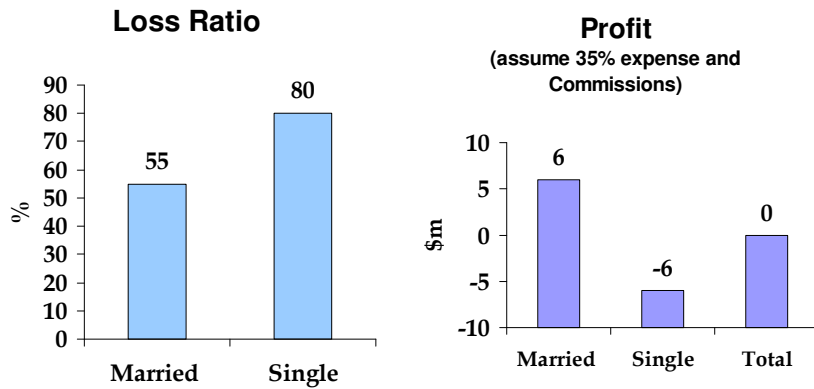


Number of Vehicles Written



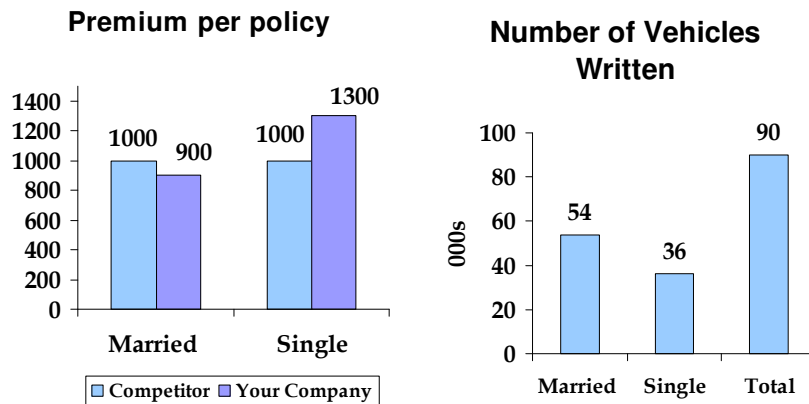
Tariff Environment

Benefits of segmentation



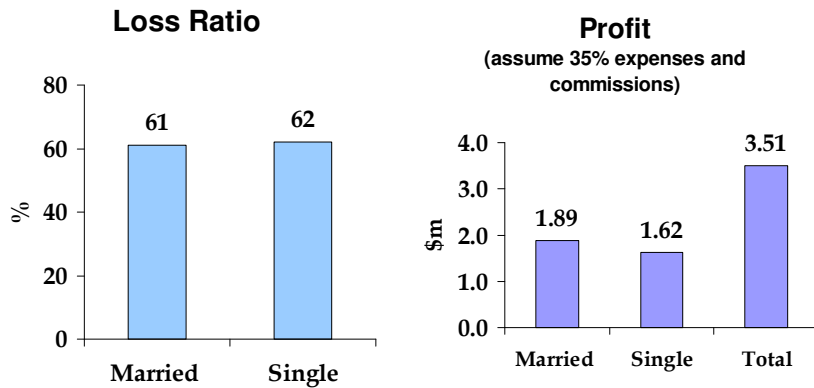
Competitive Environment

Benefits of Pricing and Segmentation



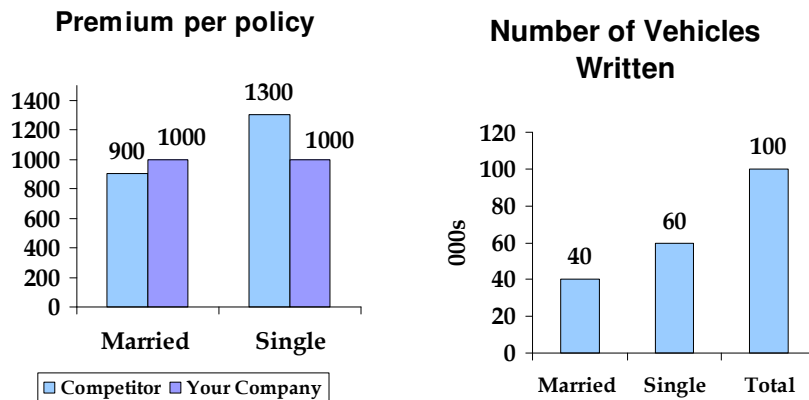
Competitive Environment

Benefits of Pricing and Segmentation



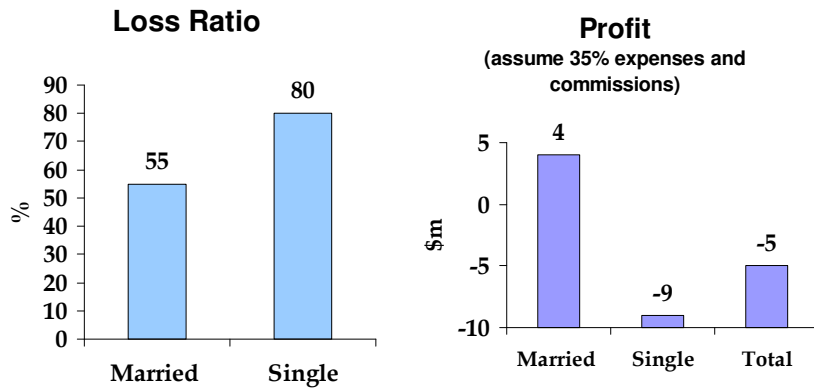
Anti-selection

What happens when you are left behind

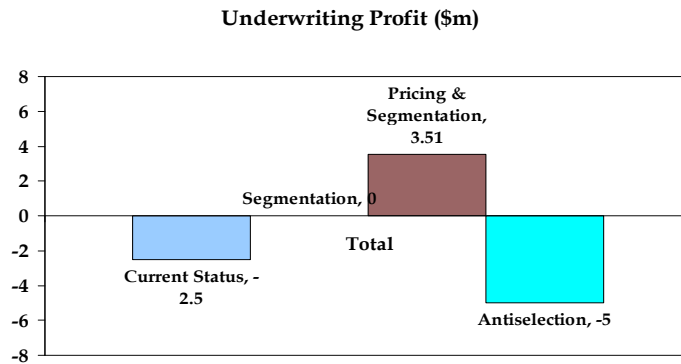


Anti-selection

What happens when you are left behind

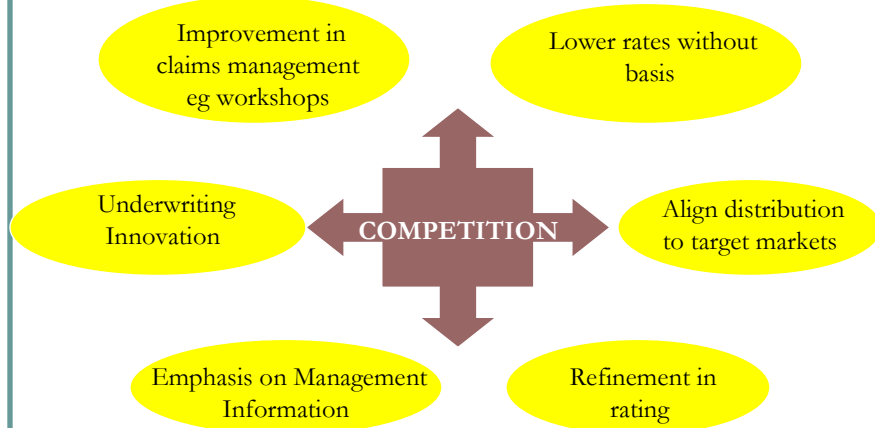


Comparison of Results Across Scenarios

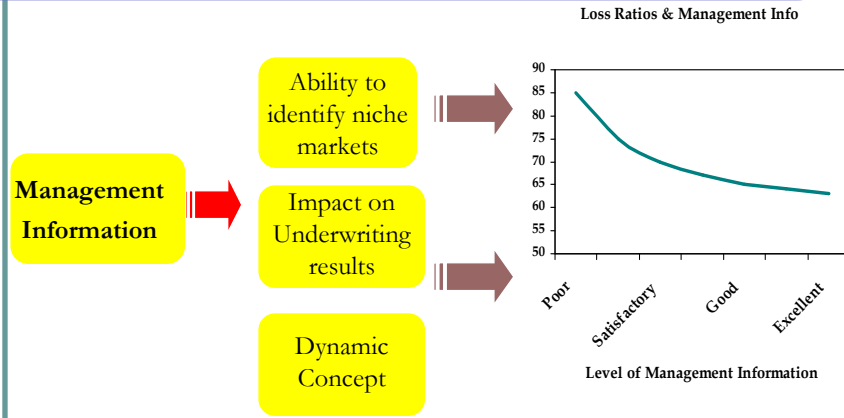


Impact of Competition – Strategic Responses

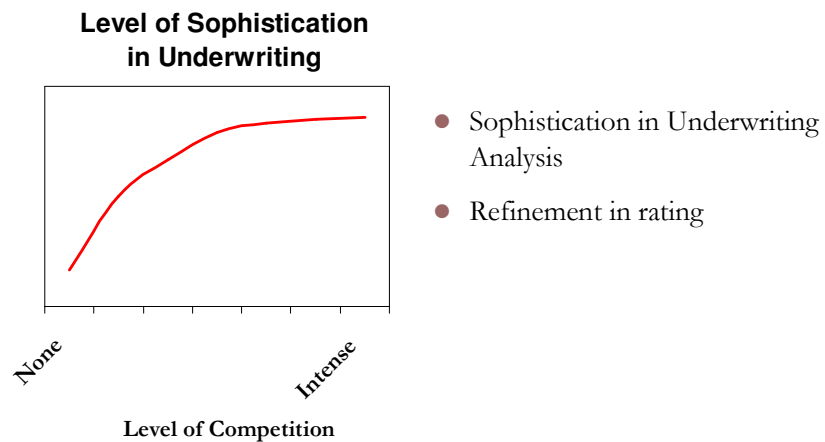
Impact of Competition



Competition & Management Information

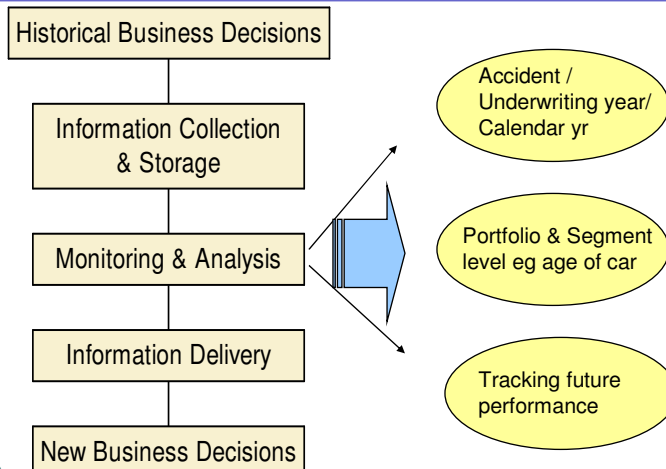


Competition and Underwriting



Business Intelligence for General Insurance

Learning Organisation Information Cycle for Underwriting Decisions



One step further - Tracking “Future Performance”?

- Current performance reports reflect historical business decisions
- Can we develop an indicator of expected future profitability of the business for personal lines business?
- QOB indicator measures current rates against technical rates
- Strong relationship between QOB indicator and future profitability
- Early identification of the business performance
- Effective way to target profitable segments/ avoid value destroyers

Food for Thought

Food for Thought

- Is market segmentation a practice in your organisation?
- Which market segments are profitable within your organisation?
- To what extent is distribution aligned to target profitable segments?
- How does your current management information facilitate the above process?
- As an industry, where are we on the underwriting spectrum?
- What regulatory changes are needed to encourage greater underwriting innovation?

Final Words from Mature Insurance Markets

Post Magazine Articles

- “trend towards segmentation.....discounts to the good risks are available..”
- “as underwriters compete for favourable risks, there will be a greater push to find HIDDEN niches...”
- “There was a short time when pricing gave competitive advantage....now they are really tools of the trade and everybody is using them”
- “... market for insurance is finite, growth is a matter of extracting maximum profits from existing portfolios..”

End of Presentation

Actuarial Assessment of Liabilities for General & Health Insurance

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Focus of this session

- Importance of Reserving
- Claims Liabilities
 - Approach to Reserving
 - Key Considerations in a Reserving exercise
 - Practical problems and possible solutions
- Premium Liabilities

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Why bother about Reserves?

- Largest figure on balance sheet
- More accurate reflection of profitability
- Poor understanding of reserves among co's
- Increasing attention by regulators
- Shorten underwriting cycles

Sound actuarial reserve assessment is key to the financial stability in a liberalised market.

Example of Development Triangles

Actual Cumulative Loss Ratio %

Accident Year	Net Earned Prem (000)	Development year								Actual Loss Ratio
		1	2	3	4	5	6	7	8	
1999	139,093	35%	47%	53%	59%	64%	69%	71%	85%	85%
2000	128,593	41%	56%	74%	70%	74%	78%	81%		81%
2001	155,873	47%	55%	61%	67%	70%	74%			74%
2002	175,746	49%	57%	61%	64%	68%				68%
2003	172,840	49%	57%	61%	66%					66%
2004	161,546	53%	61%	65%						65%
2005	169,640	50%	57%							57%
2006	184,490	51%								51%

Claims Liabilities

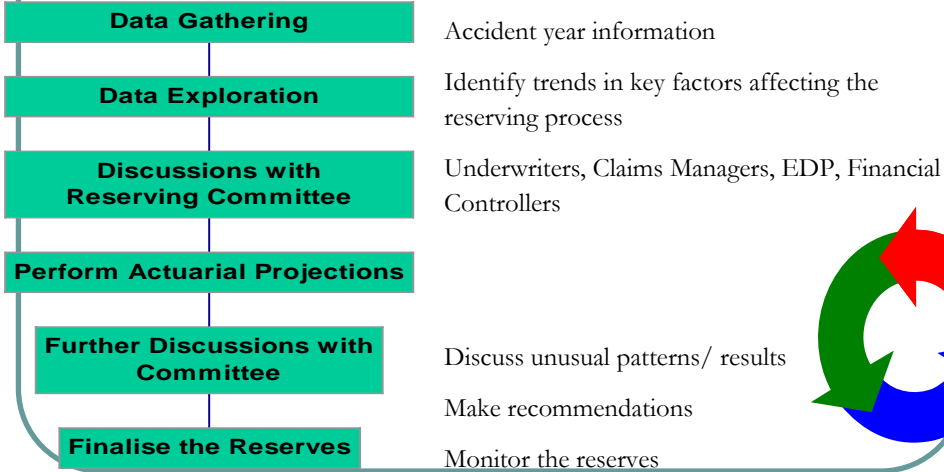
Approach to Claims Reserving

Approach to Actuarial reserving

- **Data Issues**
- **Basis of Analysis**
- **Segmentation**
- **Data Exploration**
- **Available Methods**
- **Reasonableness Checks**

How a technique is used is far more important than the technique in itself.

Process of Actuarial Reserving

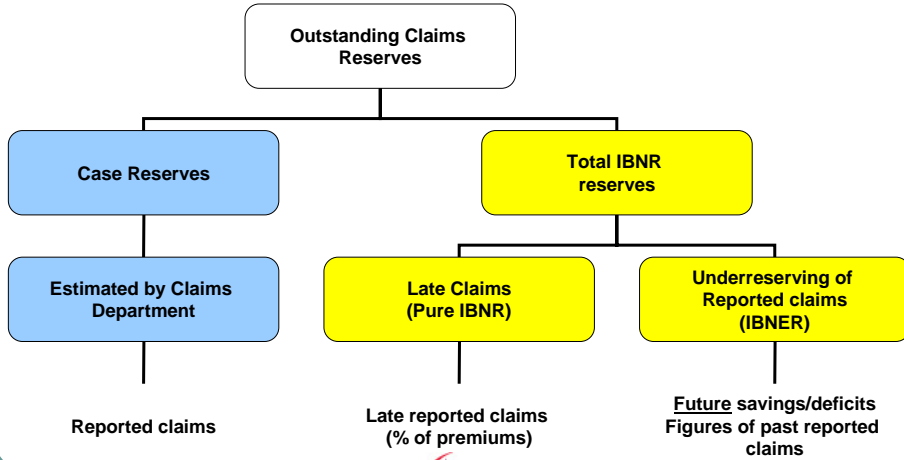


Data Considerations

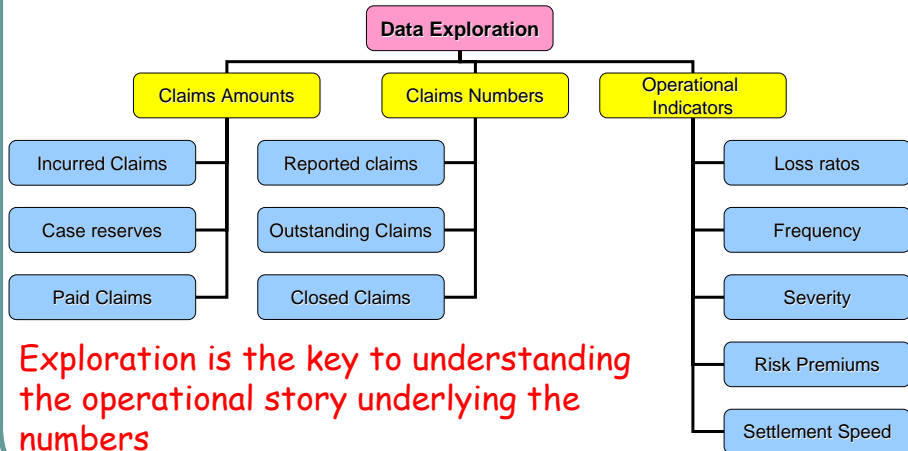
- **Information:**
 - Payments & Outstanding claims movements
 - No of closed and outstanding claims
- **Basis:**
 - Reported year/ Accident year
 - Gross/Net of reinsurance
 - Direct Claims expenses/Third party recoveries
- **Dates:**
 - transaction/reported/accident

Proper understanding of data is crucial to making sound reserve assessments.

Overview of Reserves



Data Exploration



Exploration is the key to understanding the operational story underlying the numbers

Data Exploration

Table 1: Incurred claims (000)

1999	48826	64865	73684	82077	89574	95635	98943	%118268
2000	52969	72648	94814	89732	95791	%100388	%103906	
2001	72558	85345	95057	%103996	%109247	%114938		
2002	85766	99499	%107748	%113117	%120256			
2003	85149	99102	%106214	%113498				
2004	86026	98844	%105785					
2005	84252	97322						
2006	94551							

Table 2: Paid claims (000)

1999	21386	49700	56616	65242	75232	83949	91251	95381
2000	23269	57461	65504	75729	83091	89965	96193	
2001	26901	69037	77420	88672	95889	%104083		
2002	35738	80756	91215	98488	%106114			
2003	31382	78034	87241	95863				
2004	36844	79491	87216					
2005	37849	75342						
2006	37341							

Table 3: Case Reserves (000)

1999	27440	15165	17068	16835	14342	11687	7692	22887
2000	29700	15187	29310	14003	12699	10423	7714	
2001	45657	16308	17637	15324	13358	10855		
2002	50028	18743	16533	14630	14141			
2003	53768	21068	18973	17635				
2004	49182	19353	18569					
2005	46403	21980						
2006	57209							

Table 4: Paid/Incurred Claim %

1999	44	77	77	79	84	88	92	81
2000	44	79	69	84	87	90	93	
2001	37	81	81	85	88	91		
2002	42	81	85	87	88			
2003	37	79	82	84				
2004	43	80	82					
2005	45	77						
2006	39							

Data Exploration

Table 5: Incurred claims as a % of Earned Premium

1999	35	47	53	59	64	69	71	85
2000	41	56	74	70	74	78	81	
2001	47	55	61	67	70	74		
2002	49	57	61	64	68			
2003	49	57	61	66				
2004	53	61	65					
2005	50	57						
2006	51							

Table 6: Paid claims as a % of Earned Premium

1999	15	36	41	47	54	60	66	69
2000	18	45	51	59	65	70	75	
2001	17	44	50	57	62	67		
2002	20	46	52	56	60			
2003	18	45	50	55				
2004	23	49	54					
2005	22	44						
2006	20							

Table 7: Number of Reported Claims

1999	11555	14689	15402	15869	16274	16552	16737	16807
2000	12603	16247	16958	17447	17789	18027	18162	
2001	15819	19844	20506	20996	21295	21511		
2002	18931	23576	24224	24649	24951			
2003	20551	24909	25542	25940				
2004	21721	25985	26526					
2005	22982	27659						
2006	28147							

Table 8: Number of Closed claims

1999	4871	11387	12792	13705	14413	15565	16002	16184
2000	5367	12880	14466	15402	16508	17041	17343	
2001	6540	16330	17805	19144	19891	20264		
2002	8633	19349	21241	22347	22894			
2003	9056	20409	22318	23275				
2004	10468	21787	23525					
2005	11784	23058						
2006	12999							

Data Exploration

Table 9: Number of open claims

1999	6684	3302	2610	2164	1861	987	735	623
2000	7236	3367	2492	2045	1281	986	819	
2001	9279	3514	2701	1852	1404	1247		
2002	10298	4227	2983	2302	2057			
2003	11495	4500	3224	2665				
2004	11253	4198	3001					
2005	11198	4601						
2006	15148							

Table 10: No closed as a % of Reported claims

1999	42	78	83	86	89	94	96	96
2000	43	79	85	88	93	95	95	
2001	41	82	87	91	93	94		
2002	46	82	88	91	92			
2003	44	82	87	90				
2004	48	84	89					
2005	51	83						
2006	46							

Table 11: No closed as a % of Open claims at end of previous period

1999		97	43	35	33	62	44	25
2000		104	47	38	54	42	31	
2001		106	42	50	40	27		
2002		104	45	37	24			
2003		99	42	30				
2004		101	41					
2005		101						
2006		46						

Table 12: Number of Reported Claims as % of Exposure

1999	1	1	2	2	2	2	2	2
2000	1	2	2	2	2	2	2	2
2001	2	2	2	2	2	2	2	2
2002	2	2	2	2	2	2		
2003	2	2	2	2	2			
2004	2	2	2					
2005	1	2						
2006	2							

Data Exploration

Table 13: Number of Closed claims as a % of Exposure

1999	0	1	1	1	1	2	2	2	2
2000	1	1	2	2	2	2	2	2	2
2001	1	2	2	2	2	2	2	2	2
2002	1	2	2	2	2	2			
2003	1	2	2	2	2				
2004	1	2	2						
2005	1	1	2						
2006	1								

Table 14: Average Case Reserves

1999	4105	4593	6540	7780	7707	11841	10465	36736
2000	4104	4511	11762	6848	9914	10571	9418	
2001	4920	4641	6530	8275	9514	8705		
2002	4858	4434	5542	6355	6875			
2003	4677	4682	5885	6617				
2004	4371	4610	6188					
2005	4144	4777						
2006	3777							

Table 15: Average Closed Claims

1999	4390	4365	4426	4760	5220	5393	5702	5894
2000	4336	4461	4528	4917	5033	5279	5546	
2001	4113	4228	4348	4632	4821	5136		
2002	4140	4174	4294	4407	4635			
2003	3465	3824	3909	4119				
2004	3520	3649	3707					
2005	3212	3268						
2006	2873							

Table 16: Average Incurred Claims

1999	4226	4416	4784	5172	5504	5778	5912	7037
2000	4203	4471	5591	5143	5385	5569	5721	
2001	4587	4301	4636	4953	5130	5343		
2002	4530	4220	4448	4589	4820			
2003	4143	3979	4158	4375				
2004	3960	3804	3988					
2005	3666	3519						
2006	3359							

Segmentation Issues

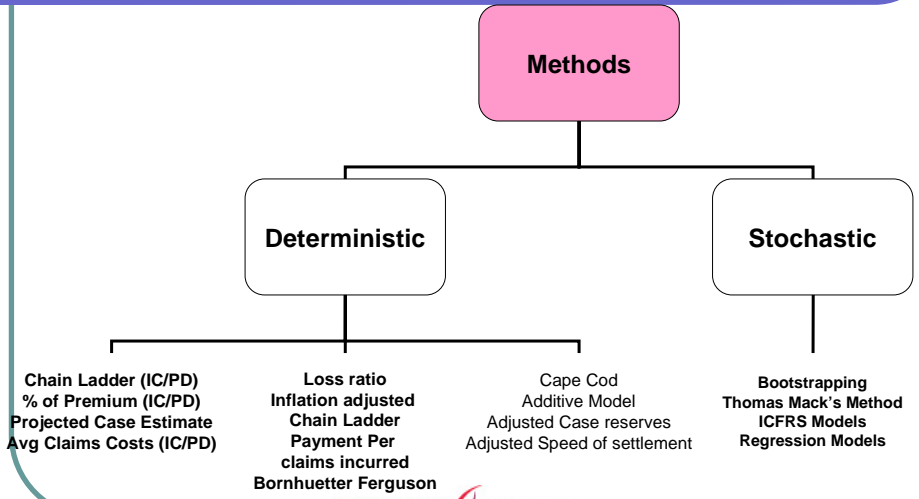
- **Analyse groups with similar development patterns**
- **Typical small-medium size**
 - Fire
 - Motor
 - Marine
 - Workers' Compensation
 - Miscellaneous

Segmentation Issues

- **Larger Companies**
 - Personal Fire
 - Commercial Fire
 - Pte/Comm Motor Property damage
 - Pte/Comm Motor Bodily Injury
 - Workers' Compensation
 - Marine Hull
 - Marine Cargo
 - Miscellaneous

The grouping of claims can have a significant impact on the results of the review.

Methods Available



Methods Available

Example of Deterministic Method – Chain Ladder

Classes: MOTOR Bodily Injury.

Table 1 Incurred Claims (000)

AccYr	0	1	2	3	4	5	6	7
1999	6174	13000	20979	29199	36619	43813	47167	65943
2000	5276	11468	32996	27819	34694	39284	42723	
2001	5034	11557	21423	31054	36566	42233		
2002	6391	13157	22406	29247	35523			
2003	5998	13698	22497	30285				
2004	6217	12988	21125					
2005	6840	13879						
2006	8468							

Table 2 Loss development factors

AccYr	0	1	2	3	4	5	6	7
1999	0.00	2.11	1.61	1.39	1.25	1.20	1.08	1.40
2000	0.00	2.17	2.88	0.84	1.25	1.13	1.09	
2001	0.00	2.30	1.85	1.45	1.18	1.15		
2002	0.00	2.06	1.70	1.31	1.21			
2003	0.00	2.28	1.64	1.35				
2004	0.00	2.09	1.63					
2005	0.00	2.03						
2006	0.00							
Latest year	0.00	2.03	1.63	1.35	1.21	1.15	1.09	1.40
Last 2 yrs	0.00	2.06	1.63	1.33	1.20	1.14	1.08	0.00
Last 3 yrs	0.00	2.13	1.66	1.37	1.21	1.16	0.00	0.00
Last 4 yrs	0.00	2.12	1.71	1.24	1.22	0.00	0.00	0.00
Avg-hi & lo	0.00	2.14	1.71	1.35	1.23	1.15	0.00	0.00
Wted avg	0.00	2.14	1.86	1.23	1.22	1.16	1.08	1.40
Sel LDF	0.00	2.14	1.71	1.23	1.22	1.16	1.08	1.18

Methods Available

Example of Deterministic Method – Chain Ladder

Table 3 Projections to Ultimate Claims

Accident Year	Latest Reported 000	Loss Development Factors	Ultimate Losses <.....'000s.....>	IBNR reserves	Required reserves
1999	65943	1.0000	65943	0	21967
2000	42723	1.1800	50413	7690	14642
2001	42233	1.2744	53821	11589	20719
2002	35523	1.4783	52514	16991	28010
2003	30285	1.8035	54620	24335	37835
2004	21125	2.2183	46862	25737	39282
2005	13879	3.7934	52648	38769	51232
2006	8468	8.1178	68738	60270	68657
All	260179		445560	185381	282344

Table 4 Projections to Ultimate Claims

Accident Year	Ultimate Losses <.....'000s.....>	IBNR reserves	Required reserves
1999	65943	0	21967
2000	50413	7690	14642
2001	53821	11589	20719
2002	52514	16991	28010
2003	54620	24335	37835
2004	46862	25737	39282
2005	52648	38769	51232
2006	68738	60270	68657
All	445560	185381	282344

Table 5 As % of Earned Premium

Accident Year	Earned Premium	Ultimate Losses	IBNR reserves	Required reserves
1999	35030	188	0	63
2000	30058	168	26	49
2001	30866	174	38	67
2002	31280	168	54	90
2003	30863	177	79	123
2004	29764	157	86	132
2005	34498	153	112	149
2006	42539	162	142	161
All	264898	168	70	107

Methods Available

Example of Stochastic Method – Bootstrapping

Cumulative Paid Claims

Accident Year	Development Year							Ult Loss	
	0	1	2	3	4	5	6		7
1992	21,386	49,700	56,616	65,242	75,232	83,949	91,251	95,381	95,381
1993	23,269	57,461	65,504	75,729	83,091	89,965	96,193		100,547
1994	26,901	69,037	77,420	88,672	95,889	104,083			117,258
1995	35,738	80,756	91,215	98,488	106,114				130,731
1996	31,382	78,034	87,241	95,863					129,689
1997	36,844	79,491	87,216						132,350
1998	37,849	75,342							128,325
1999	37,341								146,005
									980,285

Loss Development Factors

1992	2.3240	1.1392	1.1524	1.1531	1.1159	1.0870	1.0453
1993	2.4694	1.1400	1.1561	1.0972	1.0827	1.0692	
1994	2.5663	1.1214	1.1453	1.0814	1.0855		
1995	2.2597	1.1295	1.0797	1.0774			
1996	2.4866	1.1180	1.0988				
1997	2.1575	1.0972					
1998	1.9906						
1999							

Vol Wted

2.2957	1.1224	1.1217	1.0981	1.0936	1.0778	1.0453
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Sel LDFs

2.2957	1.1224	1.1217	1.0981	1.0936	1.0778	1.0453	1.0000
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Cum LDFs

3.9100	1.7032	1.5175	1.3529	1.2320	1.1266	1.0453	1.0000
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Actual Incrementals

Accident Year	Development Year							
	0	1	2	3	4	5	6	7
1992	21,386	28,314	6,916	8,626	9,990	8,717	7,302	4,130
1993	23,269	34,192	8,043	10,225	7,362	6,874	6,228	
1994	26,901	42,136	8,383	11,252	7,217	8,194		
1995	35,738	45,018	10,459	7,273	7,626			
1996	31,382	46,652	9,207	8,622				
1997	36,844	42,647	7,725					
1998	37,849	37,493						
1999	37,341							

Methods Available

Example of Stochastic Method – Bootstrapping

Accident Year	Development Year							Paid to Date
	0	1	2	3	4	5	6	
1992	23,053	56,226	62,269	70,877	76,255	84,317	90,196	93,345
1993	24,789	57,893	65,078	73,874	81,066	87,483	94,426	94,426
1994	26,689	71,017	78,163	89,900	96,715	105,691		105,691
1995	36,600	77,015	89,990	98,523	107,049			107,049
1996	35,462	76,404	84,251	92,833				92,833
1997	35,618	84,516	92,221					92,221
1998	32,954	71,800						71,800
1999	37,341							37,341
								694,706

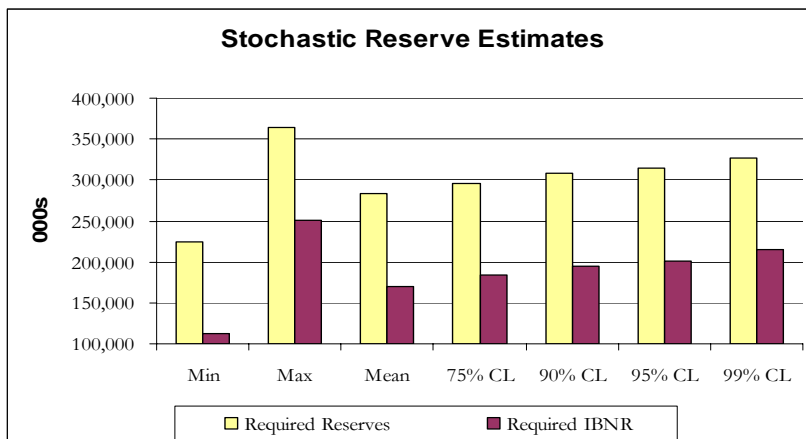
Development Year	1	2	3	4	5	6	7
1992	2.439	1.107	1.138	1.076	1.106	1.070	1.035
1993	2.335	1.124	1.135	1.097	1.079	1.079	
1994	2.661	1.101	1.150	1.076	1.093		
1995	2.104	1.168	1.095	1.087			
1996	2.154	1.103	1.102				
1997	2.373	1.091					
1998	2.179						
1999							
Vol Wtd	2.300	1.116	1.122	1.084	1.092	1.075	1.035
							1.000

Case Reserves	Required Reserves	Accident Year	IBNR
3,514	0	1992	(3,514)
2,596	3,297	1993	701
3,647	11,855	1994	8,208
4,421	22,999	1995	18,578
6,842	29,392	1996	22,550
14,189	43,988	1997	29,799
22,110	46,505	1998	24,395
55,832	104,168	1999	48,336
	262,204	Total	149,053

Stochastic Estimates	Required Reserves	IBNR
Min	225,020	111,869
Max	364,677	251,526
Mean	283,677	170,526
75% CL	296,444	183,293
90% CL	307,936	194,785
95% CL	314,813	201,662
99% CL	327,713	214,562
Std dev	18,929	18,929

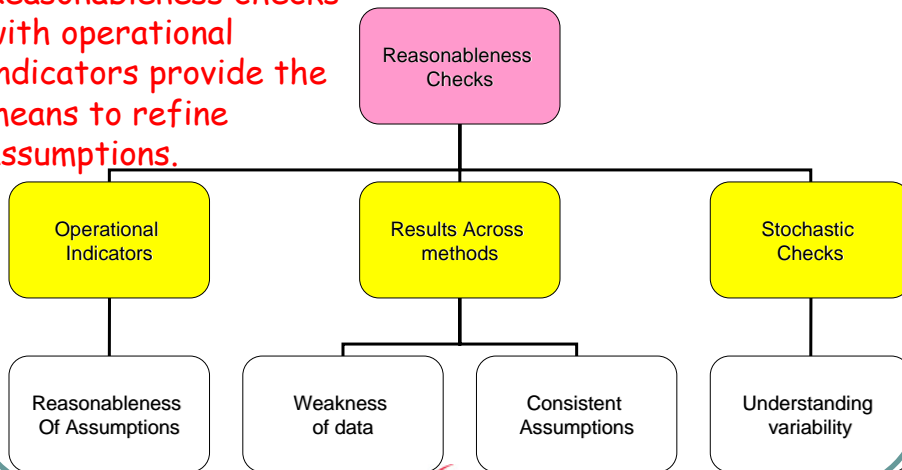
Methods Available

Example of Stochastic Method – Bootstrapping



Reasonableness Checks

Reasonableness checks with operational indicators provide the means to refine assumptions.

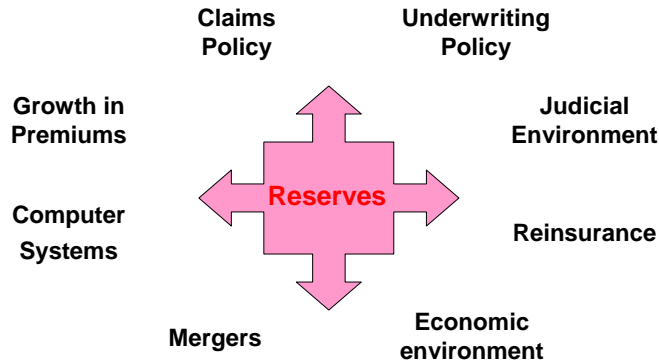


Summary of Approach to Reserving

- Proper understanding of data crucial
- Exploration is the key to understanding operational story
- Grouping of claims can significantly affect results
- Reasonableness checks are needed to refine assumptions

How a technique is used is far more important than the technique in itself.

Key Factors Influencing Reserves



Sound actuarial assessments are based on a good understanding of the story underlying the numbers, and its relevance in the future.

Portfolio Growth & Mix of Business

- Significant changes in book of business (past 5 yrs)
- Sources of growth (new/existing channels)
- Establish link between growth and underwriting

Everything else remaining equal, growth and actuarial reserves are directly related.

Underwriting Policy

- Impact on potential claims experience
- Changes in underwriting policy
 - Changes in underwriting procedures
 - Changes in underwriting authority limits
 - Contract provisions - limits, deductibles, coverage
- Changes in rate levels & rating methodology
- Basis of reasonableness checks

Future performance is directly affected by the Underwriting policy, which forms the basis of reasonableness checks.

Claims Policy

- Crucial factor
- Impact on Case reserving policy
- Impact on Settlement speed
- Impact on Development of late claims
- Affects selection of method

Components of Claims Policy

- Establishment of claims files
- Case reserving policy (frequency and guidelines)
- Guidelines to close claims files
- Use of loss adjusters/solicitors
- Department structure and caseload
- Defence of complex claims eg injury
- Claims authority limits

Claims policy spans the establishment of files to the final settlement, and is key to understanding the data, and the appropriate choice of methods.

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Reinsurance program

- Typical changes
 - increasing retentions on proportional treaties
 - increasing priority points on non-proportional treaties
 - net of reinsurance analysis
- Major restructuring
 - proportional to non-proportional
 - gross of reinsurance analysis and assess quantum of reinsurance recoveries

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Computer systems

- **Impact on claims registration**
- **Impact on settlement speed**

Judicial Environment

- **Impact on case reserves (eg injury claims)**
- **Impact on inflation**
- **Impact on settlement speed**

Economic Environment

- **Inflation (eg court awards)**
- **Currency crisis**

Practical Problems and Possible Solutions

- **Unstable patterns in factors**
- **Large tail factors**
- **Incomplete data**
- **Impact of large claims**
- **Significant increase in settlement speed**
- **Major change in case reserving policy**
- **Mergers and Acquisition**

Example

Classes: MOTOR Bodily Injury.

Table 1 Incurred Claims (000)

AccYr	0	1	2	3	4	5	6	7
1999	6174	13000	20979	29199	36619	43813	47167	65943
2000	5276	11468	32996	27819	34694	39284	42723	
2001	5034	11557	21423	31054	36566	42233		
2002	6391	13157	22406	29247	35523			
2003	5998	13698	22497	30285				
2004	6217	12988	21125					
2005	6840	13879						
2006	8468							

Table 2 Loss development factors

AccYr	0	1	2	3	4	5	6	7
1999	0.00	2.11	1.61	1.39	1.25	1.20	1.08	1.40
2000	0.00	2.17	2.88	0.84	1.25	1.13	1.09	
2001	0.00	2.30	1.85	1.45	1.18	1.15		
2002	0.00	2.06	1.70	1.31	1.21			
2003	0.00	2.28	1.64	1.35				
2004	0.00	2.09	1.63					
2005	0.00	2.03						
2006	0.00							
Latest year	0.00	2.03	1.63	1.35	1.21	1.15	1.09	1.40
Last 2 yrs	0.00	2.06	1.63	1.33	1.20	1.14	1.08	0.00
Last 3 yrs	0.00	2.13	1.66	1.37	1.21	1.16	0.00	0.00
Last 4 yrs	0.00	2.12	1.71	1.24	1.22	0.00	0.00	0.00
Avg-hi & lo	0.00	2.14	1.71	1.35	1.23	1.15	0.00	0.00
Wted avg	0.00	2.14	1.86	1.23	1.22	1.16	1.08	1.40
Sel LDF	0.00	2.14	1.71	1.23	1.22	1.16	1.08	1.18

Practical Problems in Claims Reserving

Unstable Patterns

- Industry patterns
- Consider methods based on incurred claims
- Grouping of classes for stability
- Loss ratio/risk premium method

Tail Factors

- **Industry factors**
- **Use more accident periods**
- **Consider methods based on incurred claims**
- **Check the cause & relevance of late development**

Incomplete Data

- **Industry data**
- **Backward projections**
- **Project case estimates method**
- **Loss ratio/risk premium methods**

Impact of large claims

- **Remove impact of large claims**
- **Use net of reinsurance data**
- **Grouping of classes**
- **Use projection methods based on exposures or premiums**

Settlement Speed

- **Methods based on incurred claims**
- **Adjust paid claims data to reflect new settlement speed**
- **Loss ratio/risk premium methods**

Change in Case Reserving Policy

- **Methods based on paid claims**
- **Adjust incurred claims to reflect revised policy**
- **Loss ratio/risk premium methods**

Mergers & Acquisition

- **Ensure combined data is not corrupted**
- **Operational trends are more difficult to decipher**
- **Reasonableness checks are critical**
- **Loss ratio/risk premium methods**

Overall Summary

Characteristics of Sound Actuarial reserve assessments

- Select methods according to circumstances & constraints
- Consider underlying events and their relevance
- Grouping of claims
- Perform reasonableness checks with operational indicators as a form of reality check

Sound actuarial reserve assessment is key to the financial stability in a liberalised market.

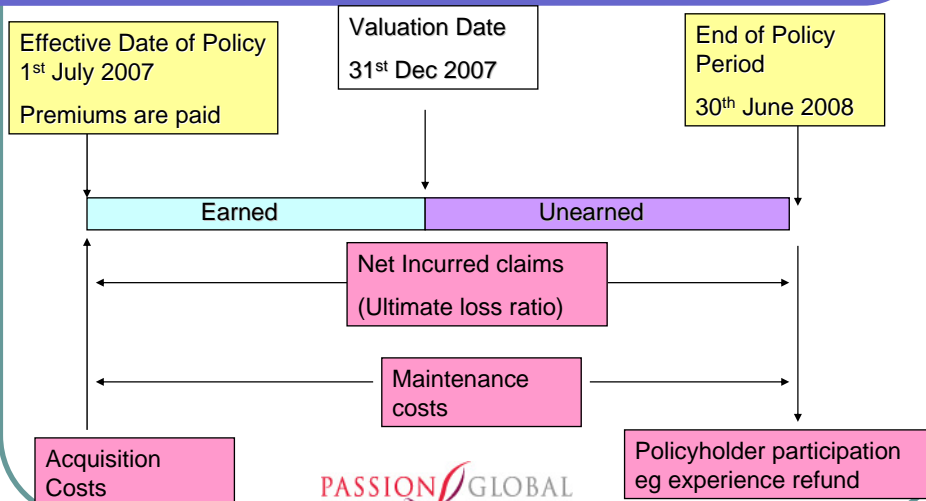
Premium Liabilities

Premium deficiency reserve

Definition of Premium Liability

- Future payments in respect of unexpired risks as at the valuation date, including future
 - benefits, claims & claims expenses
 - maintenance costs
 - policyholder participation
 - taxes
 - other
- Net of reinsurance
- Discounting if material

Overview of Premium Liability



Premium Liability

- Premium liability equals the greater of
 - unearned premium reserve (UPR),
 - unexpired risk reserve (URR) + PAD
- PAD increases probability of adequacy to X% (eg 75%) confidence interval
- UPR formula – Common approach
 - 1/24th method, or
 - 40% method
 - net of commission

Premium Liability

- Premium Deficiency Reserve (or URR)
 - Key Input – Ultimate loss ratios
 - Measure of Premium Deficiency – companies with consistent poor underwriting results to hold larger additional reserves
 - Instills underwriting discipline in non-life market

Premium Liability Assumptions

Class Description	Unearned Premiums	Profit commissions	Initial Expenses % of UPR	Maintenance Costs
Class A	100	30%	20%	5%

Class Description	Ultimate Loss ratio	Interest rate	Claims Runoff						
			1	2	3	4	5	6	7
Class A	60%	5%	30%	30%	10%	10%	10%	10%	0%

Premium Liability Calculations

Analysis & Results

Class Description	Unearned Premiums	Ultimate Losses	Discounted Ultimate Losses	Maintenance Costs	Discounted Maint Costs	Profit commissions	Unexpired risk Reserves
Class A	100.0	60.0	54.1	5.0	4.5	30.0	88.6

End of Presentation

Profitable Health Insurance - a reality?

A Holistic Approach to Profitable Growth

Sebastian Tan FIA FCAS MSc BBA
Managing Director, Passion Global
www.passion-global.com

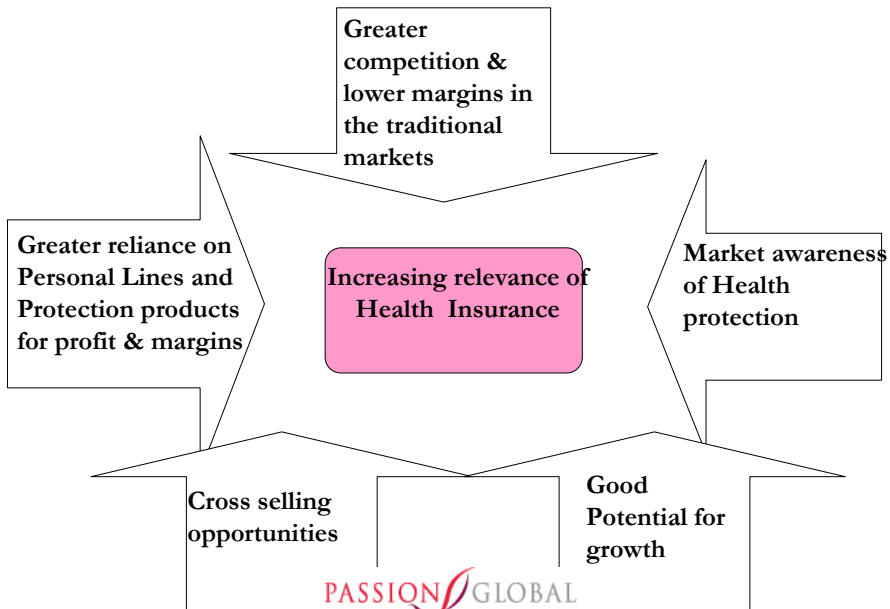
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What we will cover in this presentation

- Strategic Motivations behind Healthcare including Employee benefits
- Key Success Factors for Healthcare including Employee benefits
- Distribution and Product Strategy – Extending reach to achieve growth in target segments
- Medical Management – Route to being lowest cost manufacturer
- Organizational Structure for Health & Employee Benefits
- Employee benefits – Unique Characteristics

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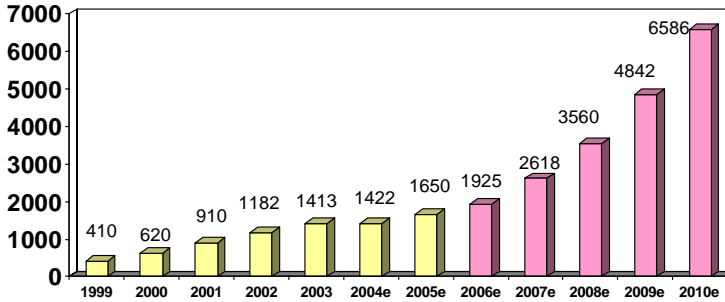
Strategic Motivations for Health insurance



Estimated HEB Market Size

IDR6.6 trillion market size for health and employee benefits

**Health & Employee Benefits
IDR Billion**



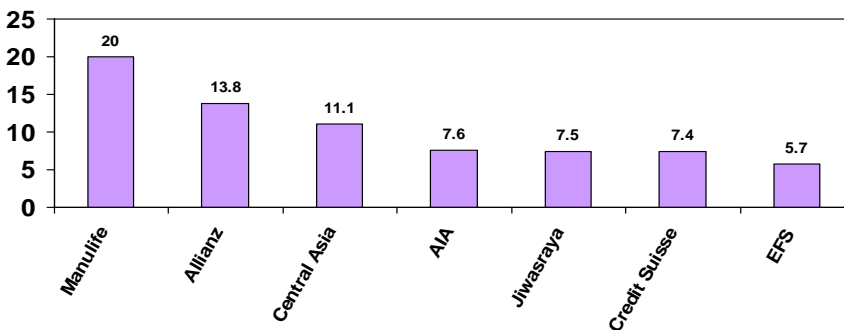
15-20% of population are insured for health

Asuransi Kesehatan Indonesia covers about 16-20 mn public sector employees but minimal coverage

Estimated using AXCO report on health insurance. Estimated 2010 based on average growth rate of 36% between 1999-2003.

Major Health Insurance Players in Indonesia

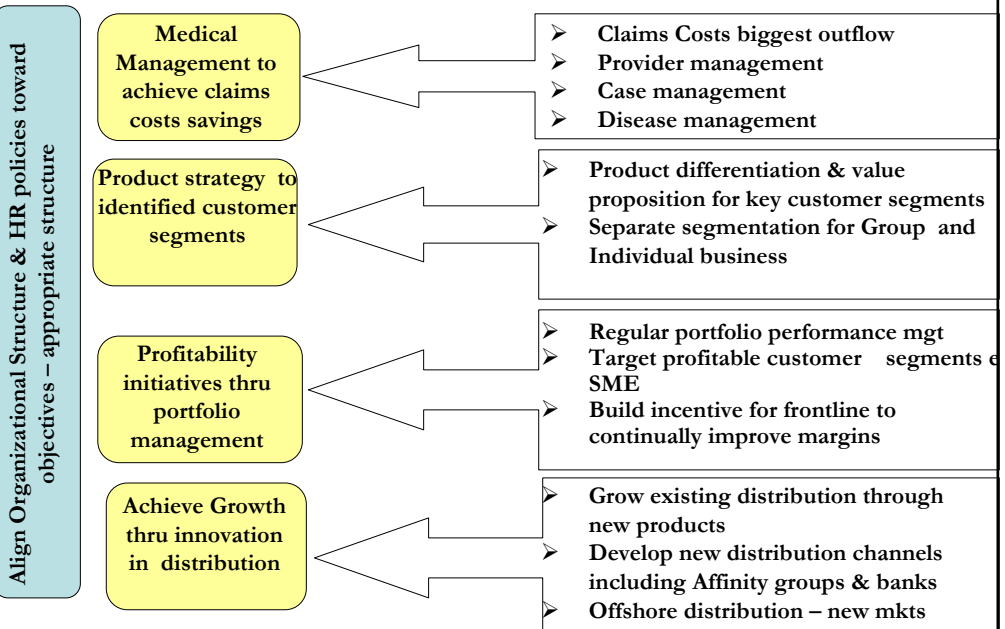
2003 Health Insurance Market Share for Major Life Players



Key Success Factors for Health Business



Key Success Factors for Health portfolio (incl employee benefits)



Distribution & Product Strategy

Extending reach to achieve growth in target segments



Distribution Channels

Agency

- Greater incentives to promote
- Agency Quotas for Health
- New customer segments & needs
- Link with GI products

Direct

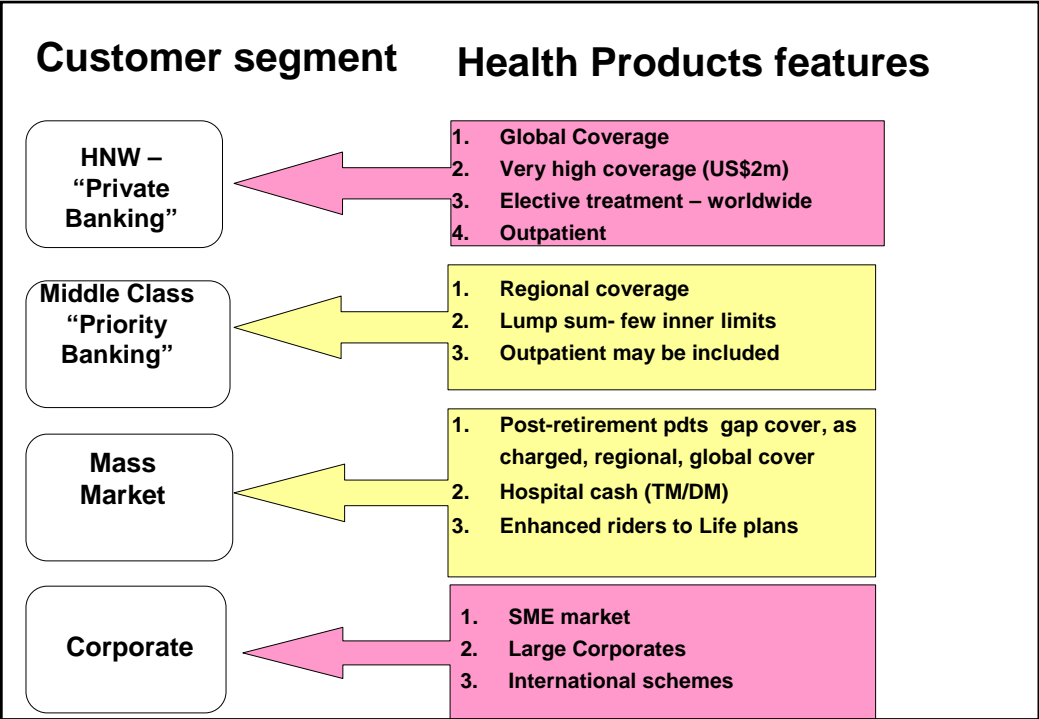
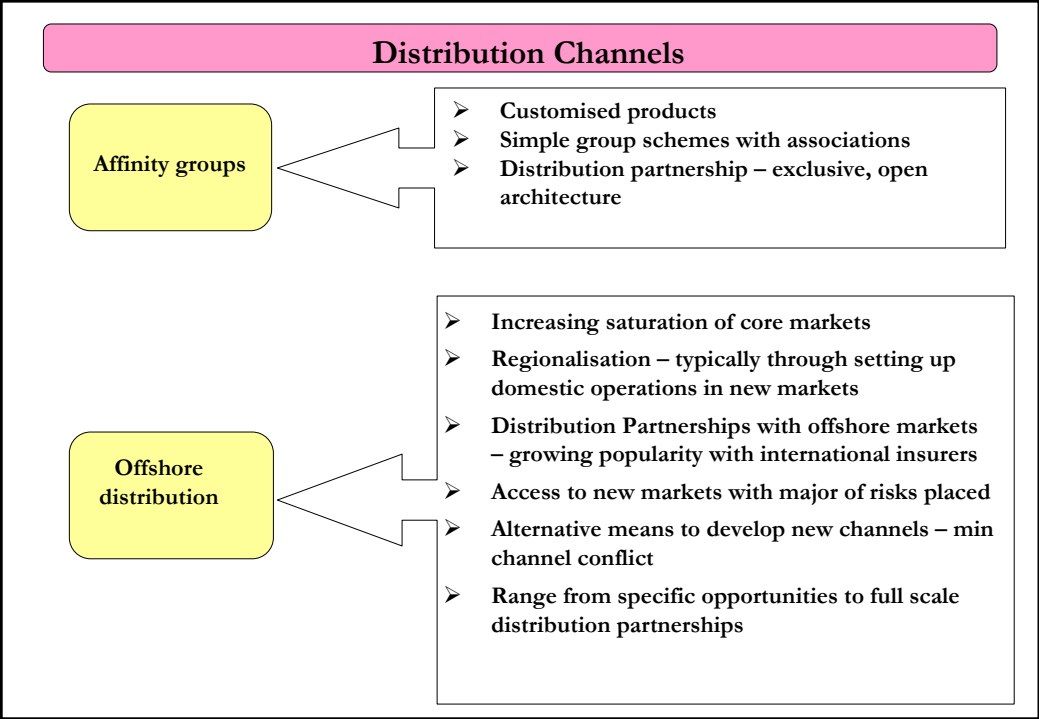
- Availability of DM, TM expertise
- Closely related to affinity groups
- Simple propositions key

Bancassurance

- Bundled products eg HSA
- Retail - Private bank, Priority bank, Mass affluent
- Branch/Corporate banking
- Credit card & Loans

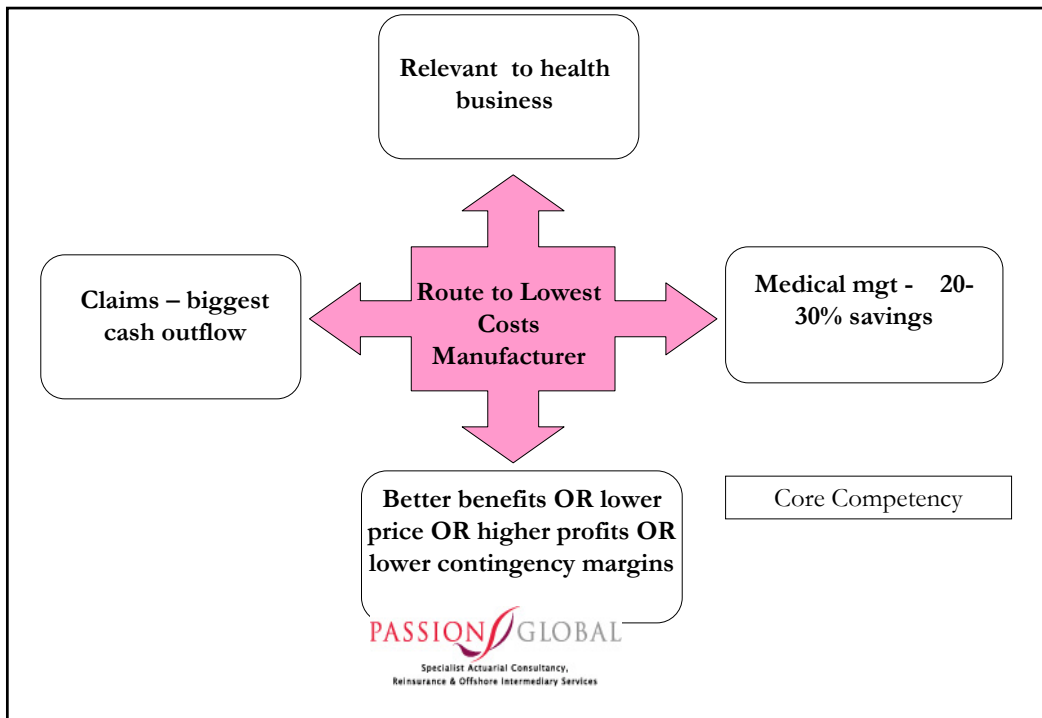
IFAs

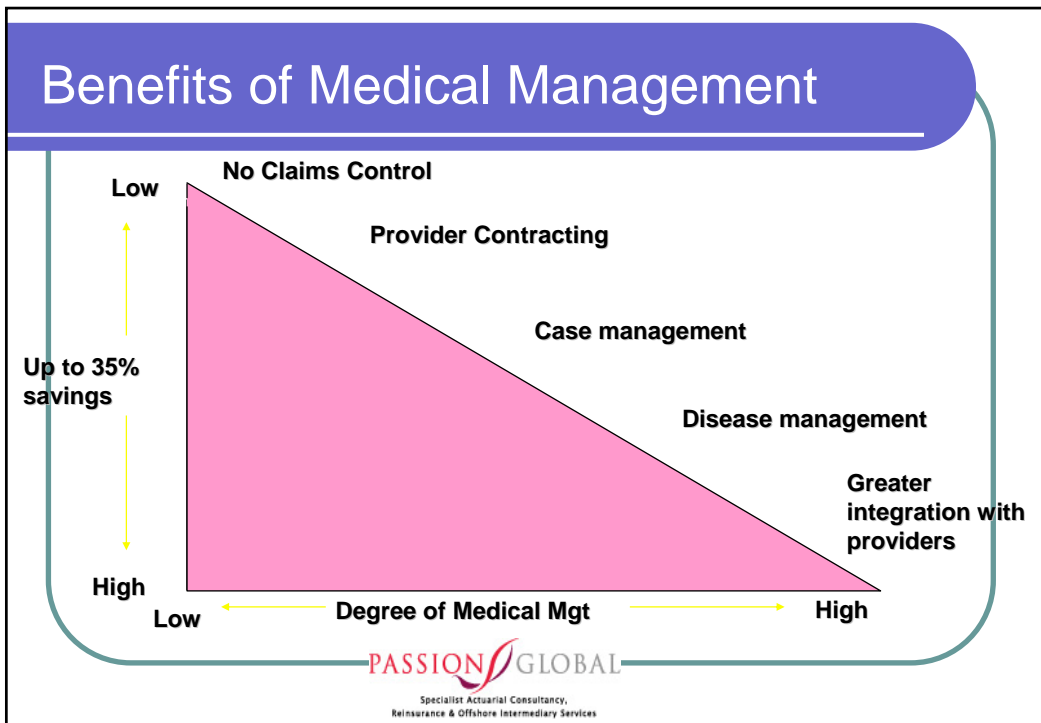
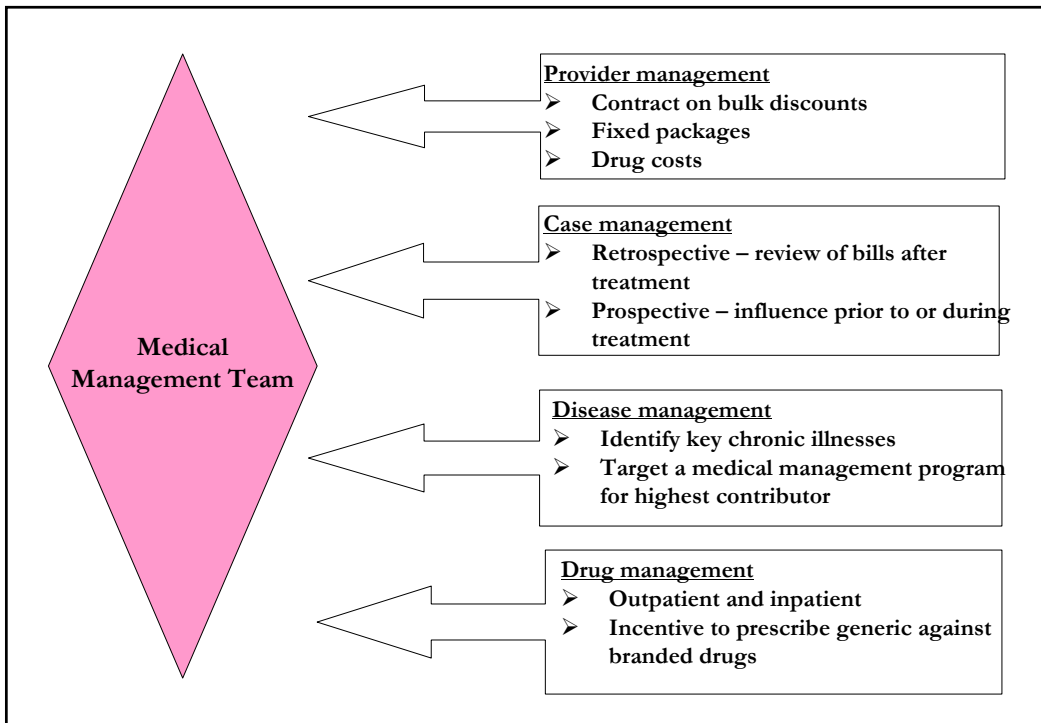
- Movement from successful agency team into IFA
- Repurchase of successful IFAs ?
- Growing channel



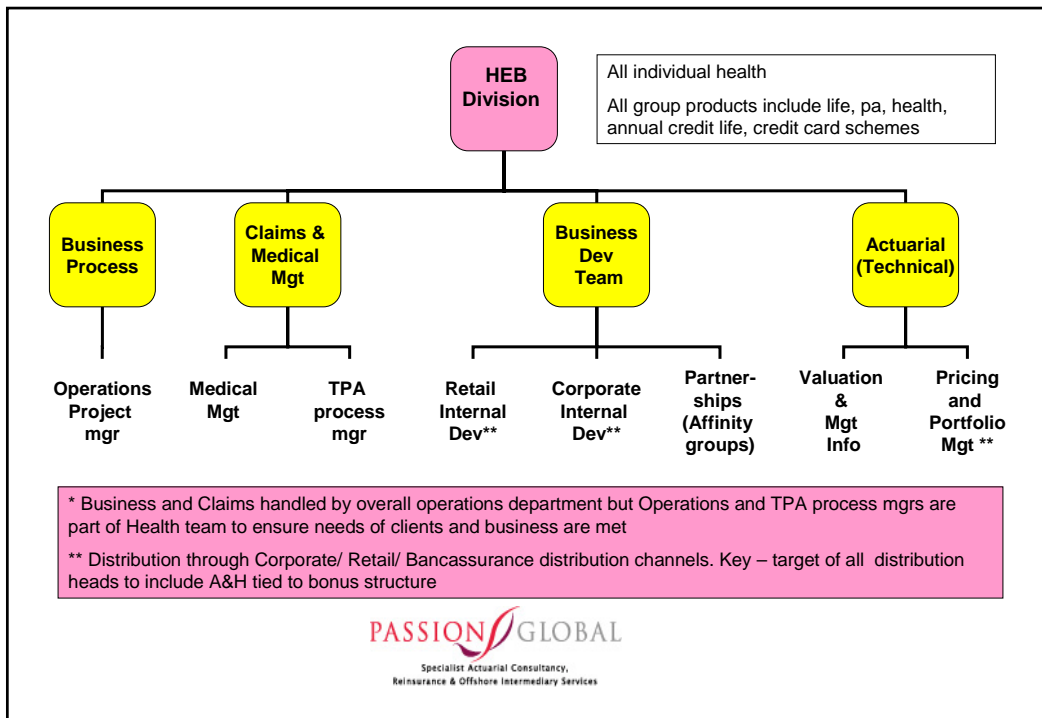
Medical Management

Route to being the Lowest cost Manufacturer



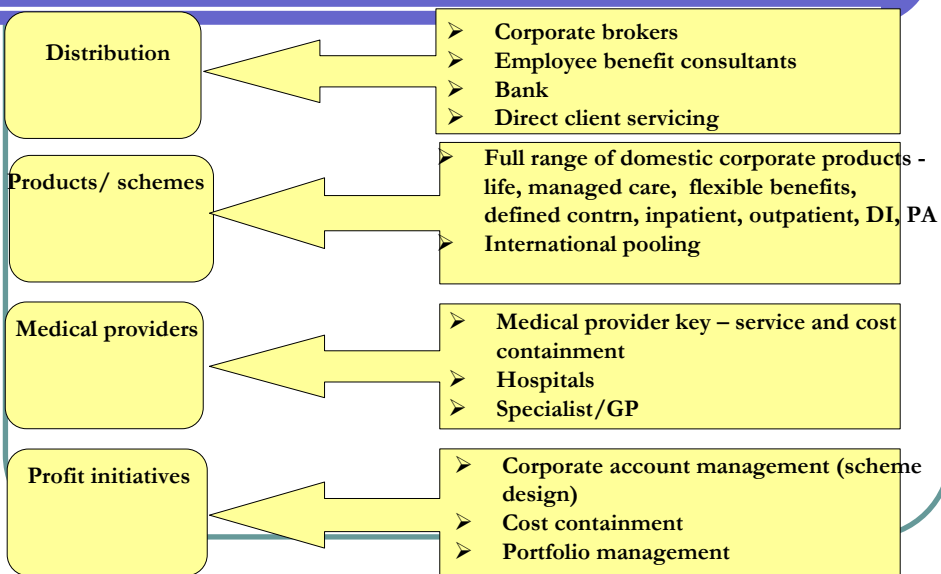


Organizational Structure Health & Employee Benefits Business

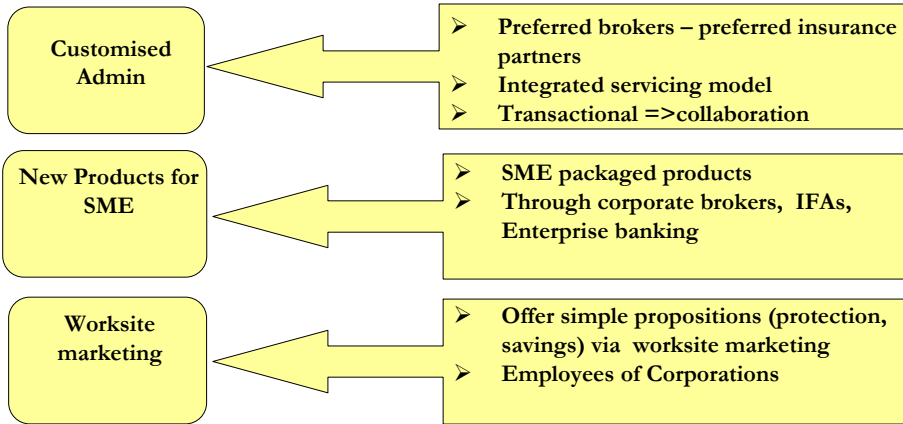


Employee Benefit Programs – Some Unique Characteristics

Employee Benefits



Employee Benefits



End of Presentation