

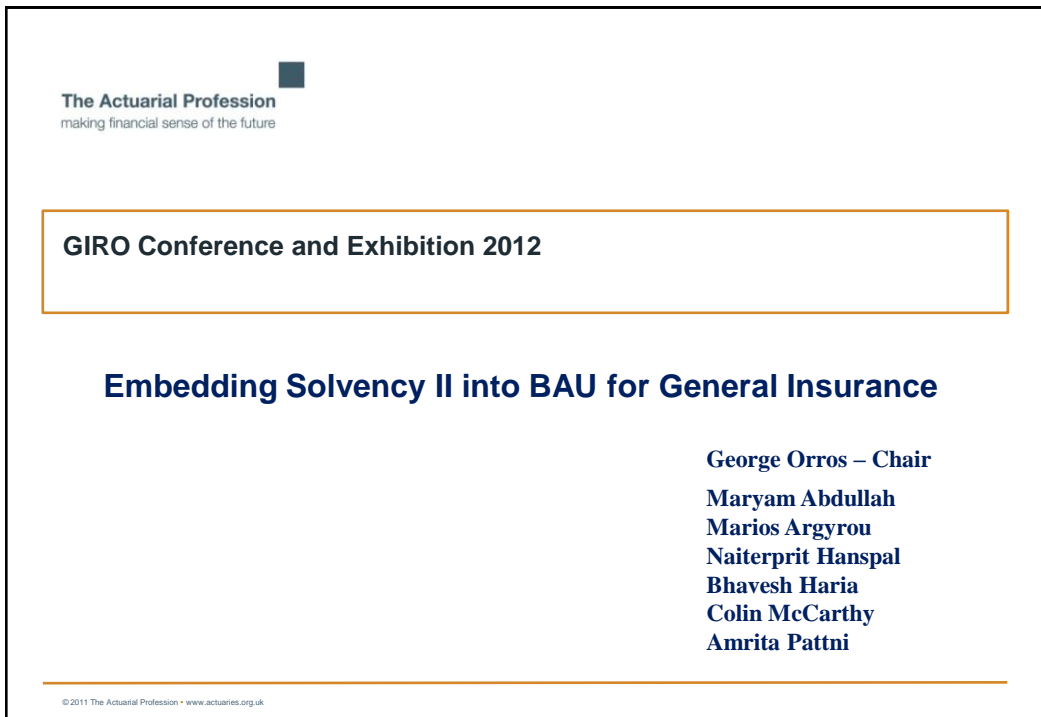


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GIRO Conference and Exhibition 2012
Juggling uncertainty the actuary's part to play

20th September 2012

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GIRO Conference and Exhibition 2012

Embedding Solvency II into BAU for General Insurance

George Orros – Chair
Maryam Abdullah
Marios Argyrou
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Solvency II into BAU for General Insurance

Embedding Solvency II into Business as Usual Working Party

These slides are based on our GIRO Conference 2012 paper ...

“Embedding Solvency II into Business as Usual for General Insurance”

... which has been taken as read.

Solvency II into BAU

- Solvency II for ERM and Governance
- Case Study – Company A
- Case Study – Company B
- Case Study – Company C
- Conclusions

Solvency II into BAU

Solvency II for ERM and Governance

Speaker - George Orros

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4

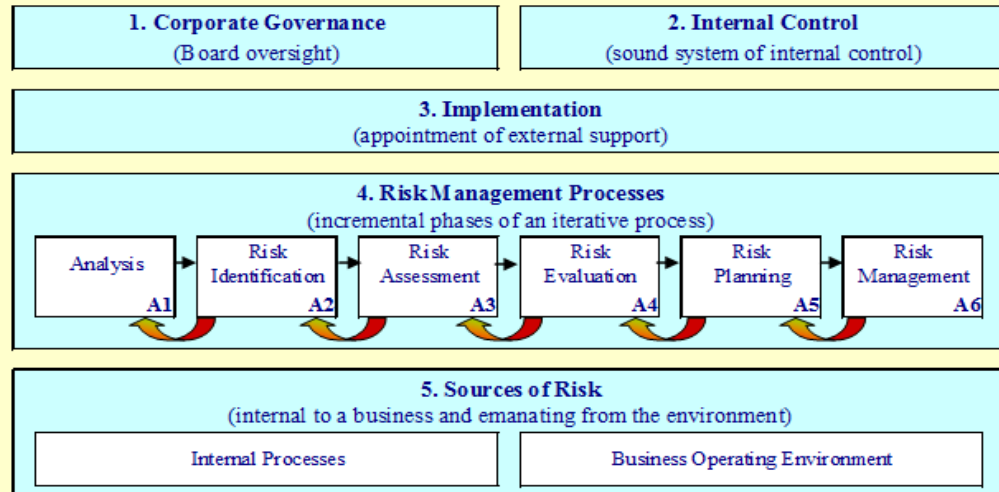
Solvency II into BAU – ERM framework



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5

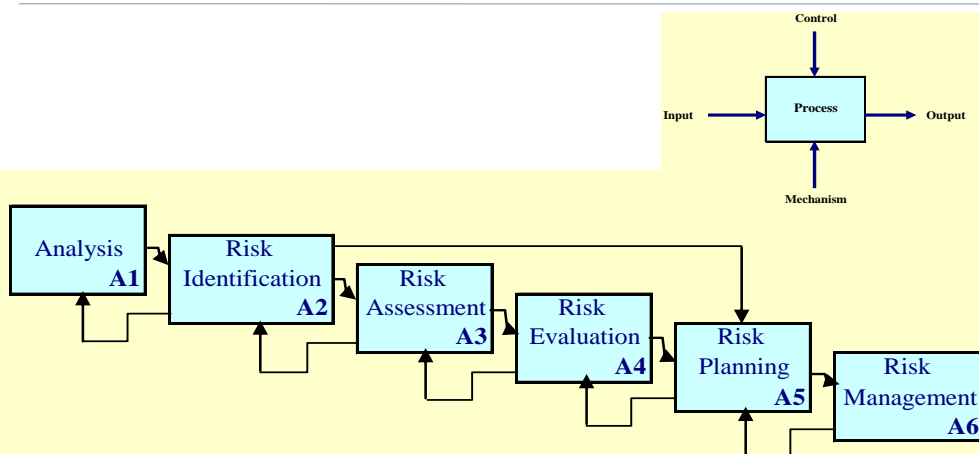
Solvency II into BAU – Corporate Governance



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6

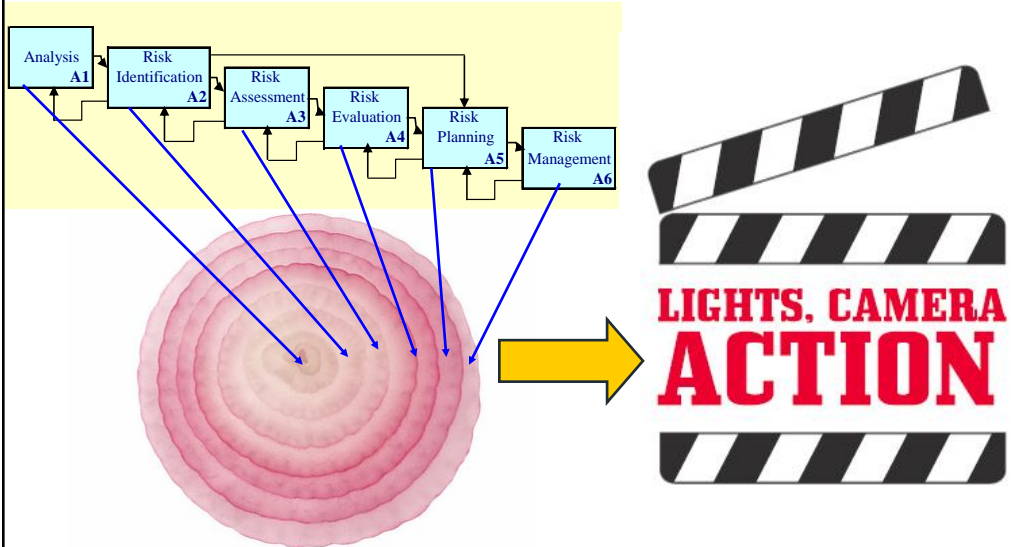
Solvency II into BAU – ERM Processes



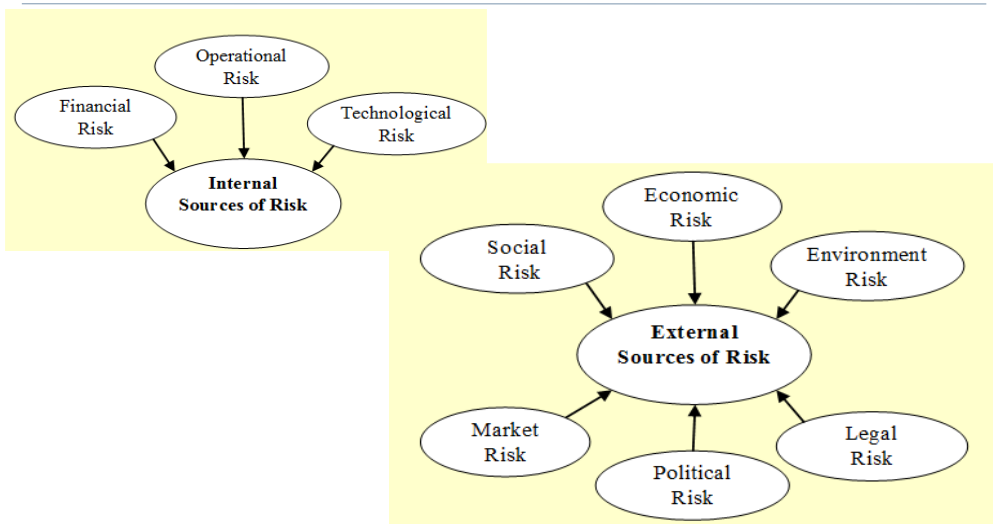
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7

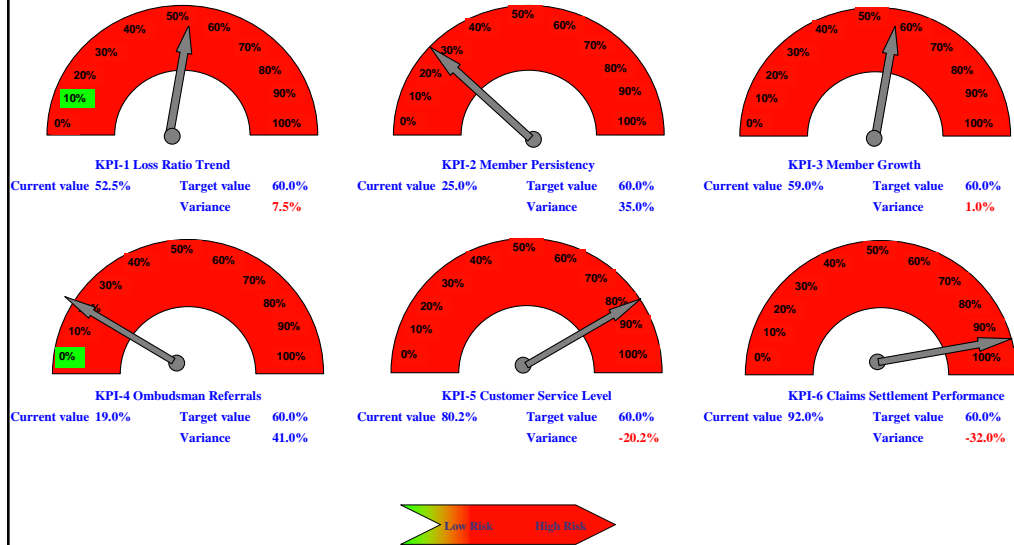
ERM models are only as good as their foundations



Internal and External Sources of Risk



Real Time Risk Dashboard



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Solvency II into BAU

Case Study – Company A

Speaker - Maryam Abdullah

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11

Case Study - Company A

1. Constructing Company A

- BMCA Plc is a well established Large multi-line commercial insurer/reinsurer
- Well capitalised, due the capital backing from parent
- Has an A+ credit rating issued by Standard and Poor's
- International diversified portfolio of Property and Casualty lines
- Asset Mix: cash & equivalents 15%, fixed income 75%, equities & high yielding assets 10%
- **Full Internal Model for SII**

2. Apply Varied Stress Scenarios

- Macroeconomic shock
- Binary risk
- Mass lapse scenario

3. Quantitative Analysis – financial statements pre & post stress

4. Qualitative Analysis – possible consequences and management action

5. Conclusions

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12

Case Study – Constructing Company A



Rational for Constructing Company A was based on S&P "Excellent" ERM Score

S&P Definition – Most Explicit ERM Criteria

Summarised:

"Excellent Insurer has, in our opinion, extremely strong capabilities to consistently identify, measure, and manage risk exposures and losses within the company's predetermined tolerance guidelines. Risk control processes are leading edge, applied consistently, and executed effectively. The company continues to develop its risk control processes to integrate new technologies and adapt to the changing environment. There is consistent evidence of the enterprise's practice of optimizing risk-adjusted returns, resulting in an overall stronger financial strength than peers. Risk and risk management heavily influence the insurer's corporate decision-making."

From Insurers in EMEA See the Value of Enterprise Risk Management by S&P

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13

Company A – Excellent ERM

Practical Interpretations – Integrated Systems & Processes

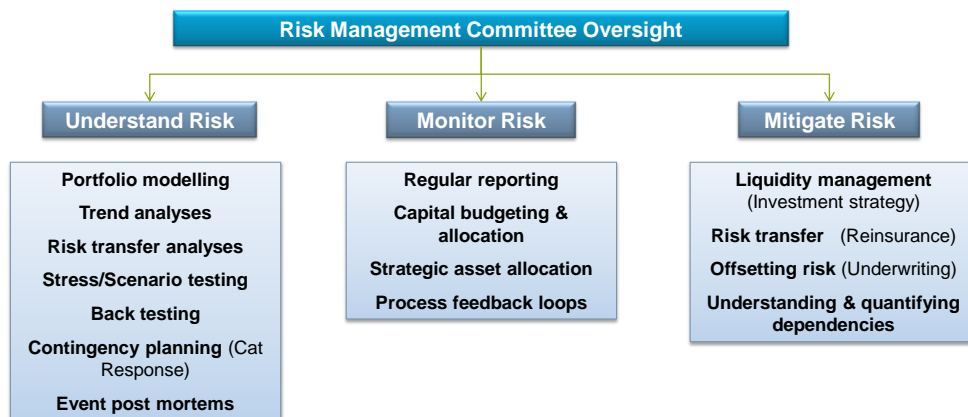


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14

Company A – Excellent ERM

Practical Interpretations – Risk Management Function



The Internal Model should be used by management for risk, strategy and decision making
Hence the ECM is central to all the processes above and its outputs must be understood by management

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15

Company A – Stress Scenarios

1. Eurozone Currency Collapse

Euro depreciates by 50% due to a fall in consumer confidence 'Euro collapse' or 'Eurozone country hit'. Euro denominated assets fall by 50%

2. Mass Lapse Scenario

50% of reinsurance policyholders lapse their policies due to court ruling against the company - conflict regarding the number of losses following a very large hurricane (dispute around the hours' clause)

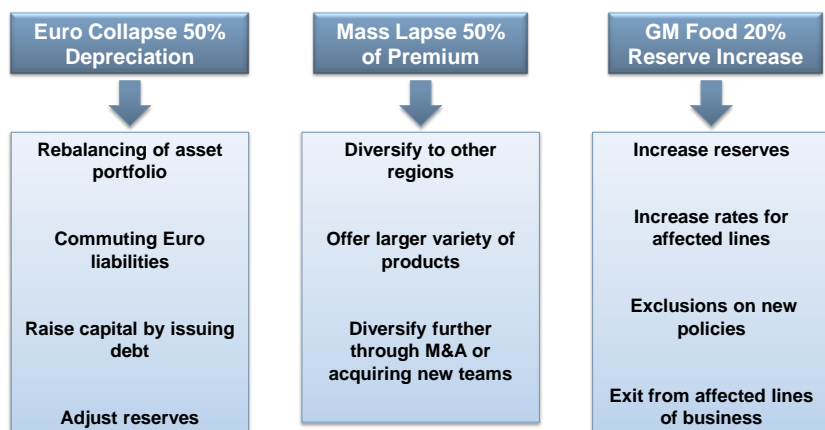
3. Binary GM Food Event

A recent scientific discovery led to court ruling against wheat products industry. It was found that chemicals in wheat cause a life threatening side effects in cases of prolonged consumptions.

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16

Company A – Possible Management Action



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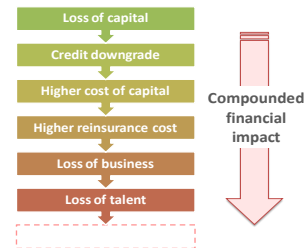
17

Company A – Financials Under Stress

	Current Snapshot		EUR Collapse 50% Depreciation		Mass lapse 50% of Premium		GM Food 20% Reserve Increase	
	Reduction	Current Snapshot	Reduction	Current Snapshot	Reduction	Current Snapshot	Reduction	Current Snapshot
Balance Sheet (Billions)								
Assets	25.00	10%	22.13	0%	23.85			24.80
Invested Assets	20.00	10%	18.00	0%	20.00			20.00
Fixed Income	15.00	10%	13.50	0%	15.00			15.00
Cash & Cash Equivalents	3.00	10%	2.70	0%	3.00			3.00
Stock & Other	2.00	10%	1.80	0%	2.00			2.00
RI Recoverables	1.00	10%	.90	10%	.81	20%		.80
Premium Held inc DAC	2.50	25%	1.88	10%	1.69			2.50
Other Assets	1.50	10%	1.35	0%	1.35			1.50
Liabilities	19.50		19.70		19.18			19.50
Reserves	17.50		17.50		16.98	-20%		17.50
Loss & LAE Reserves	12.25		12.25		12.25	-20%		12.25
UPR	3.50		3.50	15%	2.98	-20%		3.50
Other Tech reserves	1.75		1.75		1.75	-20%		1.75
Debt	2.00	10%	2.20	10%	2.20			2.00
Profit	.19	-197%	-.20	-127%	-.71	-154%		-.35
Surplus	5.69	155%	2.23	44%	3.96	15%		4.95
Income Statement (Billions)								
Gross Income	2.00	25%	1.50	50%	1.00			2.00
RI Income	.30	10%	.27	10%	.27			.30
Net Income	1.70		1.23		.73			1.70
Incurred Claims	1.40		1.40		1.40	-40%		1.96
Expenses	.20		.20	3%	.19	-20%		.24
Net Underwriting result	.10		-.37		-.86			-.50
Net Investment income	.15	25%	.11		.15			.15
Pre tax income	.25	tax	-.26		-.71			-.35
Tax	.06	24%	-.06	no tax	.00	no tax		.00
Post tax income	.19	-197%	-.20		-.71			-.35

Company A – Conclusions

- ERM framework maybe too complex
- Difficulty in constructing scenario impact
- Snapshot financials could be misleading – especially in binary scenario
- Same scenarios should be run in the ECM (Stochastically)
- Need to maintain a multi-year ERM framework – project financial impact of scenarios
- Look at range of financial impact of scenarios
- Consider high level management action at different capital deficits thresholds
- Consider implications of management actions under stress (M&A, asset disposal, difficulty in raising capital/reinsurance)
- Look at historical stress events (e.g. WTC)
- How much to spend on Cat Response and its role
- More focus on operational risk and internal resourcing
- Compounded effects of stress scenario?



Solvency II into BAU

Case Study – Company B

Speaker – Naiterprit Hanspal

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20

Case Study - Company B

Background

- Medium sized company (£400m annual premium) writing home insurance business through affinity groups and some direct sales.
- Set up in 2003 and consequently its IT systems and risk governance framework doesn't have any legacy issues.
- No parent group.
- Well capitalised and has an A+ credit rating issued by Standard and Poor's rating agency.
- Modest growth plans and there are no immediate concerns over the premium volume falling.
- No overseas exposure.
- Significant reinsurance programmes in place for extreme events.

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21

Case Study - Company B

Corporate Governance

- Administered by a Board of Directors (BoD), comprised of 10 members. Key role of the BoD is to determine the orientation of the company's activities and ensure their implementation.
- BoD has appointed a Vice-Chairman to act as a Lead Independent Director who has a number of specific powers.
- BoD benefits from the work of two special Committees that review specific matters and report to the Board. These are the Audit Committee and the Finance Committee.
- The Executive Management comprises the Chairman and CEO and a Deputy CEO.

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22

Case Study - Company B

Key Stress tests

- **Collapse of Euro**
- **Binary GM food event**
- **Mass lapse**

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23

Major Shocks Balance Sheet: Company B - Scenario 1

Scenario 1

	Base Snapshot 31/12/2014	31/12/2015	EUR Collapse Reduction 31/12/2014	50% Depreciation 31/12/2015	Snapshot 31/12/2014	31/12/2015
Balance Sheet						
Assets	900	935			875	851
Invested Assets	500	535			475	463
Fixed Income	350	350	7%	20%	325	280
Cash & Cash Equivalents	125	160			125	158
Stock & Other	25	25			25	25
RI Recoverables	50	50		25%	50	38
Premium Held inc DAC	150	150			150	150
Other Assets	200	200			200	200
Liabilities	550	550			550	482
Reserves	375	375			375	307
Claim Reserves	90	90		15%	90	77
Best estimate Liability	275	275		20%	275	220
Other Tech reserves	10	10			10	10
Other Liabilities	175	175			175	175
Surplus	350	385			325	369
Income Statement	Year 2015					
Gross Income	400				400	
RI Income	50				50	
Net Income	350				350	
Incurred Claims	140				140	
Expenses	175				175	
Net Underwriting result	35				35	
Net Investment income	15		15%		13	
Pre tax income	50				48	
Tax	15				14	
Post tax income	35				33	

24

Major Shocks Balance Sheet: Company B - Scenario 2

Scenario 2

	Base Snapshot 31/12/2014	31/12/2015	Binary GM Food Event Reduction 31/12/2014	31/12/2015	Snapshot 31/12/2014	31/12/2015
Balance Sheet						
Assets	900	935			893	923
Invested Assets	500	535			500	530
Fixed Income	350	350			350	350
Cash & Cash Equivalents	125	160			125	155
Stock & Other	25	25			25	25
RI Recoverables	50	50	15%	15%	43	43
Premium Held inc DAC	150	150			150	150
Other Assets	200	200			200	200
Liabilities	550	550			550	569
Reserves	375	375			375	394
Claim Reserves	90	90		-5%	90	95
Best estimate Liability	275	275		-5%	275	289
Other Tech reserves	10	10		-0.05	10	11
Other Liabilities	175	175			175	175
Surplus	350	385			343	354
Income Statement	Year 2015					
Gross Income	400				400	
RI Income	50				50	
Net Income	350				350	
Incurred Claims	140		-0.05	-0.05	147	
Expenses	175				175	
Net Underwriting result	35				28	
Net Investment income	15				15	
Pre tax income	50				43	
Tax	15				13	
Post tax income	35				30	

25

Major Shocks Balance Sheet: Company B - Scenario 3

Scenario 3

	Base		Mass lapse 50% of Premium		Snapshot	
	Snapshot 31/12/2014	31/12/2015	Reduction 31/12/2014	31/12/2015	31/12/2014	31/12/2015
Balance Sheet						
Assets	900	935			900	816
Invested Assets	500	535			500	498
Fixed Income	350	350	0%	0%	350	350
Cash & Cash Equivalents	125	160	0%	0%	125	123
Stock & Other	25	25	0%	0%	25	25
RI Recoverables	50	50	0%	15%	50	43
Premium Held Inc DAC	150	150	0%	50%	150	75
Other Assets	200	200	0%	0%	200	200
Liabilities	550	550			550	431
Reserves	375	375			375	256
Claim Reserves	90	90	0%	25%	90	68
Best estimate Liability	275	275	0	35%	275	179
Other Tech reserves	10	10			10	10
Other Liabilities	175	175			175	175
Surplus	350	385			350	385
Income Statement	Year 2015					
Gross Income	400		25%		300	
RI Income	50		15%		43	
Net Income	350				258	
Incurred Claims	140		0.25		105	
Expenses	175		0.03		170	
Net Underwriting result	35				-17	
Net Investment income	15				15	
Pre tax income	50				-2	
Tax	15				-1	
Post tax income	35				-2	

26

Case Study - Company B

Conclusion

- Stress Tests:
 - Change in counterparty attitudes
 - Extent to which management actions are integrated across business determines resilience to shocks
 - Nature of management actions
- Need for Internal model
- Strong Risk Management framework is key

27

Solvency II into BAU

Case Study – Company C

Speaker - Marios Argyrou

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28

Case Study - Company C

Company C has its origins in the UK, since the 1950s when it started as a small non-life and brokerage office. Its primary business was motor and home insurance lines of business.

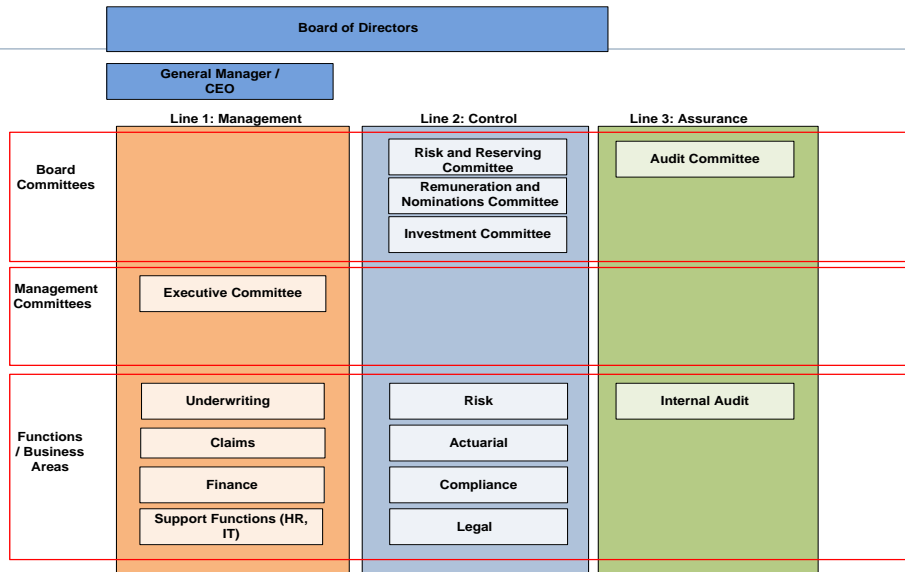
In the 1990s it was merged with another life and non-life insurer strengthening its market share and diversified to both personal and commercial lines as well as to smaller health and medical lines. In early 2000, the Company has become the target of a takeover bid and as a result has become the UK subsidiary of its parent CentralBAU Insurance Group based in Germany.

As a subsidiary of a medium size European parent with mixed fortunes, it has a modest level of capitalisation. It has a **BBB** credit rating issued by Standard and Poor's rating agency. [Note: An obligor rated 'BBB' has adequate capacity to meet its financial commitments. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity of the obligor to meet its financial commitments.]

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29

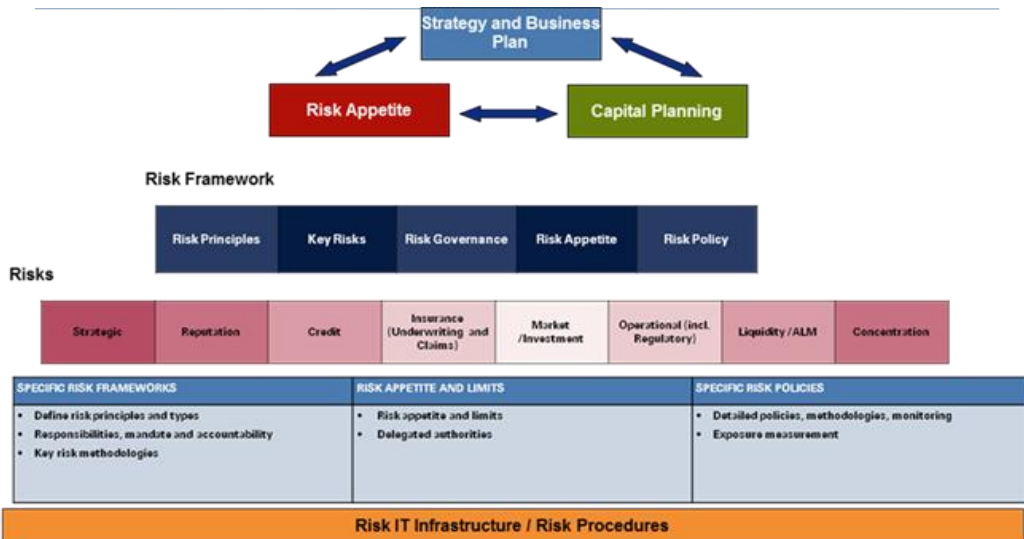
Case Study - Company C



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30

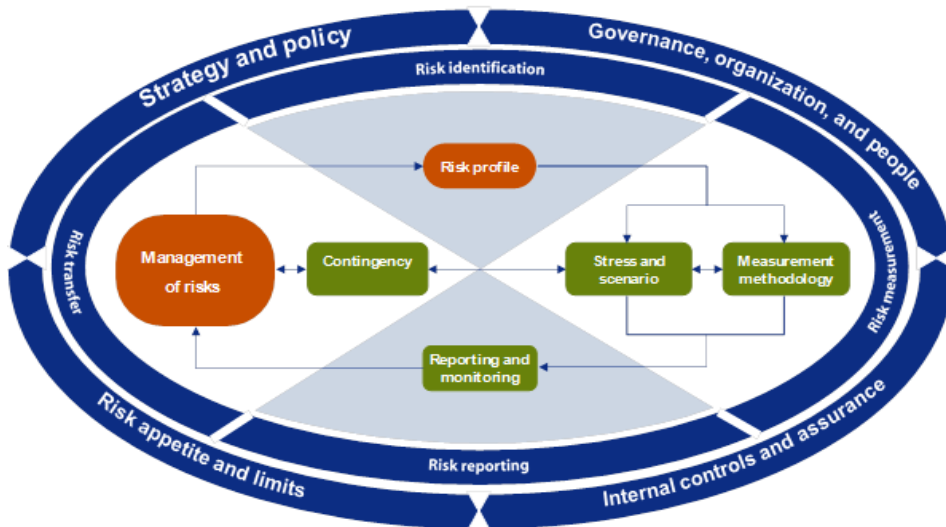
Case Study - Company C



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31

Case Study - Company C



32

Case Study - Company C – Stress Tests

Reserve Inadequacy: Consider the financial impact of 10% overall reserve inadequacy

Aggressive Pricing: Consider the financial impact of increasing the “aggressively priced” risk groups to the “market average”. By “aggressively priced”, we mean pricing that it at least 15% below the market average.

Mass Lapses: Consider the financial impact of a mass lapse shock of 25% in personal lines, perhaps as a result of uncompetitive pricing in a “crisis economic environment” as competitors promote loss leading products (e.g. personal motor) to gain market share.

Reinsurance Failure: Consider the financial impact of reinsurance failure amounting to 20% of the overall amounts ceded to reinsurers.

Binary Events: Consider the financial of potential “binary events”, perhaps via a (say) 15% increase in the technical provisions, over and above those for other purposes.

Market Risk Shock: Consider the financial impact of (say) **rating deterioration** to a credit rating level below **BBB**. Under this ‘shock’ stress test scenario, the capital requirements for (at least) concentration risk and spread risk would be adversely affected.

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33

Major Shocks Balance Sheet – Company C

	Snapshot		Reduction	EUR Collapse 50% Depreciation		Reduction	Mass lapse 50% of Premium		Reduction	GM Food 20% Reserve Increase	
	31/12/2014	31/12/2015		Snapshot	31/12/2015		Snapshot	31/12/2015		Snapshot	31/12/2015
Balance Sheet											
Assets	1,800	1,870		1,538	1,469		1,760	1,481		1,780	1,698
Invested Assets	1,000	1,070	10%	900	794	0%	1,000	721		1,000	918
Fixed Income	350	350	15%	298	298	0%	350	350		350	350
Cash & Cash Equivalents	250	320	10%	225	157	0%	250	-30		250	168
Stock & Other	400	400	15%	340	340	0%	400	400		400	400
RI Recoverables	100	100	10%	90	90	10%	90	90	20%	80	80
Premium Held inc DAC	300	300	25%	225	225	10%	270	270		300	300
Other Assets	400	400	10%	360	360	0%	400	400		400	400
Liabilities	1,100	1,100		1,064	1,064		1,018	1,018		1,250	1,250
Reserves	750	750		714	714		668	668		900	900
Loss & LAE Reserves	180	180	20%	144	144		180	180	-20%	216	216
UPR	550	550		550	550	15%	468	468	-20%	660	660
Other Tech reserves	20	20		20	20		20	20	-20%	24	24
Other Liabilities	350	350		350	350		350	350		350	350
Debt	0	0	10%	0	0	10%	0	0		0	0
Surplus	700	770		474	405		743	463		530	448
Check		70		-227	-68	#	43	-280	#	-170	-82
Income Statement	Year 2015										
Gross Income	800		25%	600		50%	400			800	
RI Income	100		10%	90		10%	90			100	
Net Income	700			510			310			700	
Incurred Claims	280			280			280		-40%	392	
Expenses	350			350		3%	340		-20%	420	
Net Underwriting result	70			120			310			112	
Net Investment income	30		25%	23			30			30	
Pre tax income	100	tax		98			280			82	
Tax	30	30%		29		no tax	-		no tax	-	
Post tax income	70		-203%	68			280			82	

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34

Company C – Conclusions

- It has a partial internal model that performs well and the Board of Directors is satisfied that its partial internal model has many advantages over its previous full internal model.
- It well capitalised, understands its business well, has an advanced and embedded ERM framework. It has excellent corporate governance and decision making processes.
- It relies upon ERM for its decision making. Having carried out stress tests and shock scenarios, it is comfortable that it would be able to survive and thrive as the future unfolds.

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35

Solvency II into BAU

Conclusions

Speaker - George Orros

Case Studies - Conclusions

1. Solvency II is essentially about the embedding of qualitative and quantitative) ERM into the insurance industry, which includes all general insurance undertakings.
2. General insurance undertakings that do not adequately invest in ensuring effective ERM and an internal model may sometimes find themselves at a competitive disadvantage.
3. However, there will always be scope and room for innovative and enterprising general insurance undertakings that have effective ERM but have only a partial internal model.
4. Solvency II was embedded differently for the 3 case studies; this resulted in different structures and management decisions under similar stress tests and shock scenarios.

Case Studies - Conclusions

5. Company A has invested a full internal model that performs well and the Board of Directors is satisfied that its internal model will help it to survive and thrive. However, the jury is out on the realism and the breadth of its stress tests.
6. Company B does not have an internal model, but performs well and the Board of Directors is satisfied that its approach. It is well capitalised, understands its business well and has a relatively advanced risk management framework.
7. Company C has a partial internal model that performs well and has many business model advantages over its previous full internal model. It is well capitalised, understands its business well and has fully embedded ERM.

38

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Case Studies - Conclusions

8. Embedding Solvency II and ERM into BAU is a continuous learning process; the organisational learning required is on-going and there is always scope for improvement.
9. The journey towards Solvency II and ERM requires a road map and sensors that can monitor/measure progress en route, using tools such as peer group comparisons, ERM maturity profiles and the appropriate use of “expert judgement”.
10. The more effective the embedding of ERM principles within the general insurance undertaking, the better off it will tend to be in managing BAU in a post-Solvency II world.

39

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Questions or comments?

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