



Risk and Capital Management: Creating a Competitive Advantage

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Contents

UK developments in
context

Sources of advantage

HBOS experience

ERM – the way forward

The UK insurance industry has gone through a period of massive regulatory change

Recent focus of activity



- IAS
- IFRS
- PSB
- EEV
- _____
- SOX
- ICAS
- RBS
- Solvency II
- _____
- Basel II
- Asset mix
- Hedging
- Bonus rates
- Closing to new business

Where are companies now?

Recent focus of activity



- | | | |
|--------------|---------------|---------------------------|
| ▪ IAS | ▪ ICAS | ▪ Asset mix |
| ▪ IFRS | ▪ RBS | ▪ Hedging |
| ▪ PSB | ▪ Solvency II | ▪ Bonus rates |
| ▪ EEV | — | ▪ Closing to new business |
| ▪ SOX | ▪ Basel II | |

Companies' experience

- embedding risk management?

- A change in organisational structure to focus on risk
 - More awareness of risk – 90% of UK companies have a Risk Committee*
 - Increased ownership of risk – 45 of UK companies have a CRO*
 - But, ...
 - New structures do not always work smoothly
 - Colleagues may take time to embrace new insights and approaches
- 75% of UK companies not satisfied with how risk is incorporated in targets, performance measures, etc*
 - Yet, making the business case for more investment can be a challenge

*Source: Tillinghast Biannual ERM Survey

Companies' experience

- risk measurement – the RBS

- A much better understanding of risk, but ...
 - A painful exercise each half year
 - Which absorbs a huge amount of resources
- Issues around models:
 - Difficult to predict the results before they are available
 - Little time to perform a value adding analysis and to deal with any 'nasty surprises'
 - Difficult to check the final figures

- Companies would like to spend more time on interpretation of results

Companies' experience

- risk measurement – the ~~RBS~~ ICA?

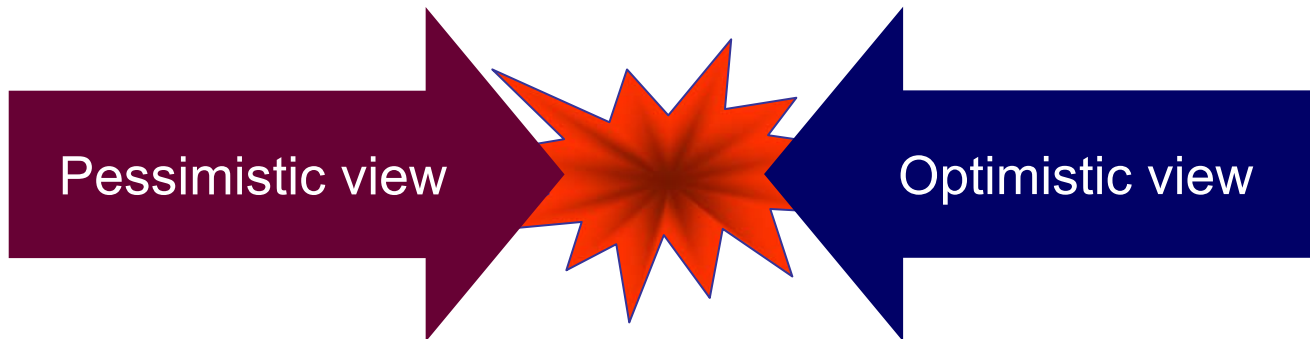
- A much better understanding of risk, but ...
 - A painful exercise each ~~half~~ year
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 - Issues around models:
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Companies' experience

- value measurement - EV?

- Weaknesses of traditional EV metrics now widely accepted
 - MCEV emerging as the new standard
 - Market-consistent approaches provide new insights on value creation and risk exposures
 - Challenges to address:
 - Methodology
 - Standards
- How should MCEV develop – a reporting methodology, a risk and value management tool, or both

Industry feedback – what is the verdict?

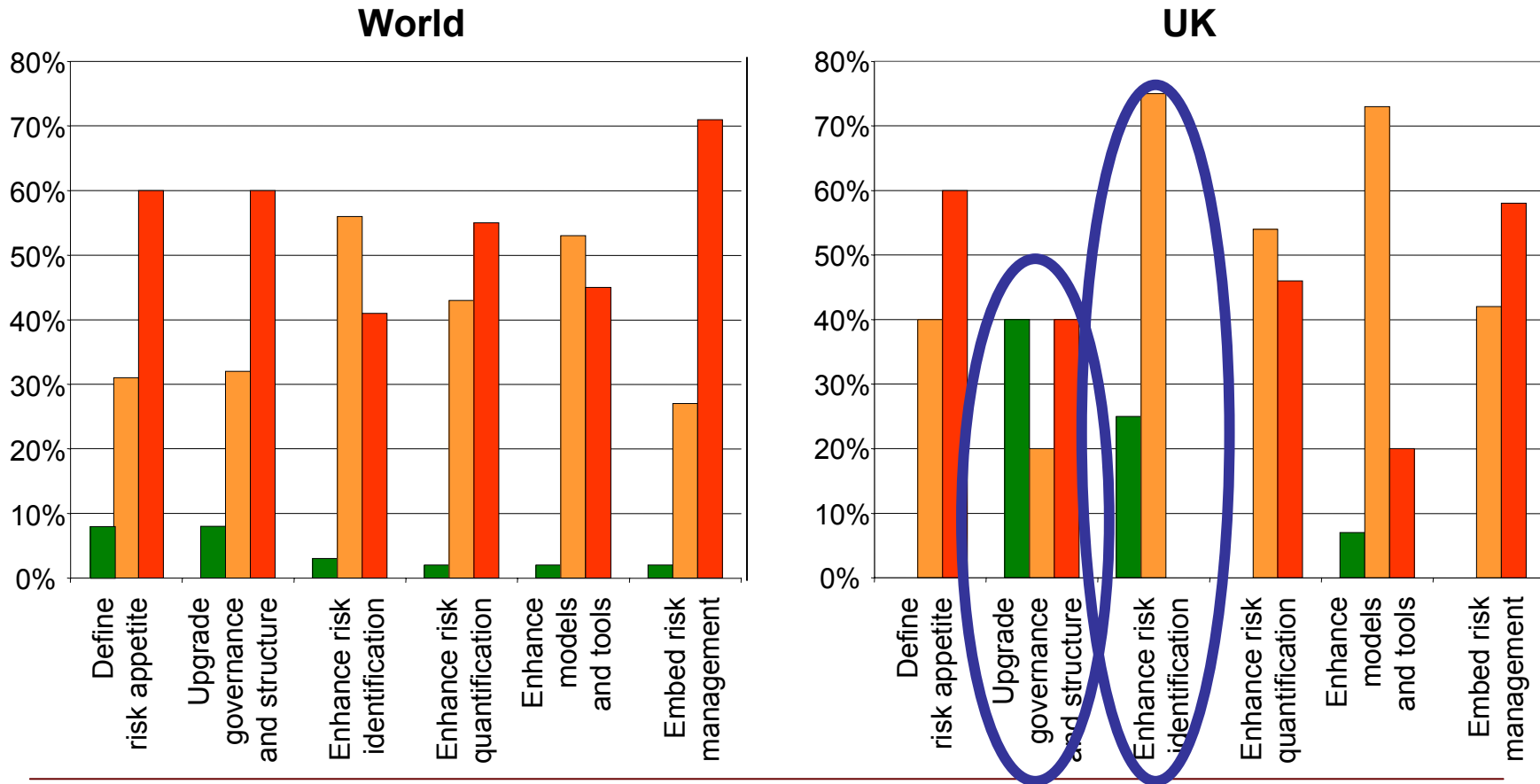


- Bureaucratic
- Complex
- Expensive
- Slow
- Divorced from reality

- Robust governance
- Improved understanding
- Valuable insights
- Time to review systems and business processes

On framework and model development, UK insurance companies are ahead of others

Q: What level of priority does your organisation place on the following areas?

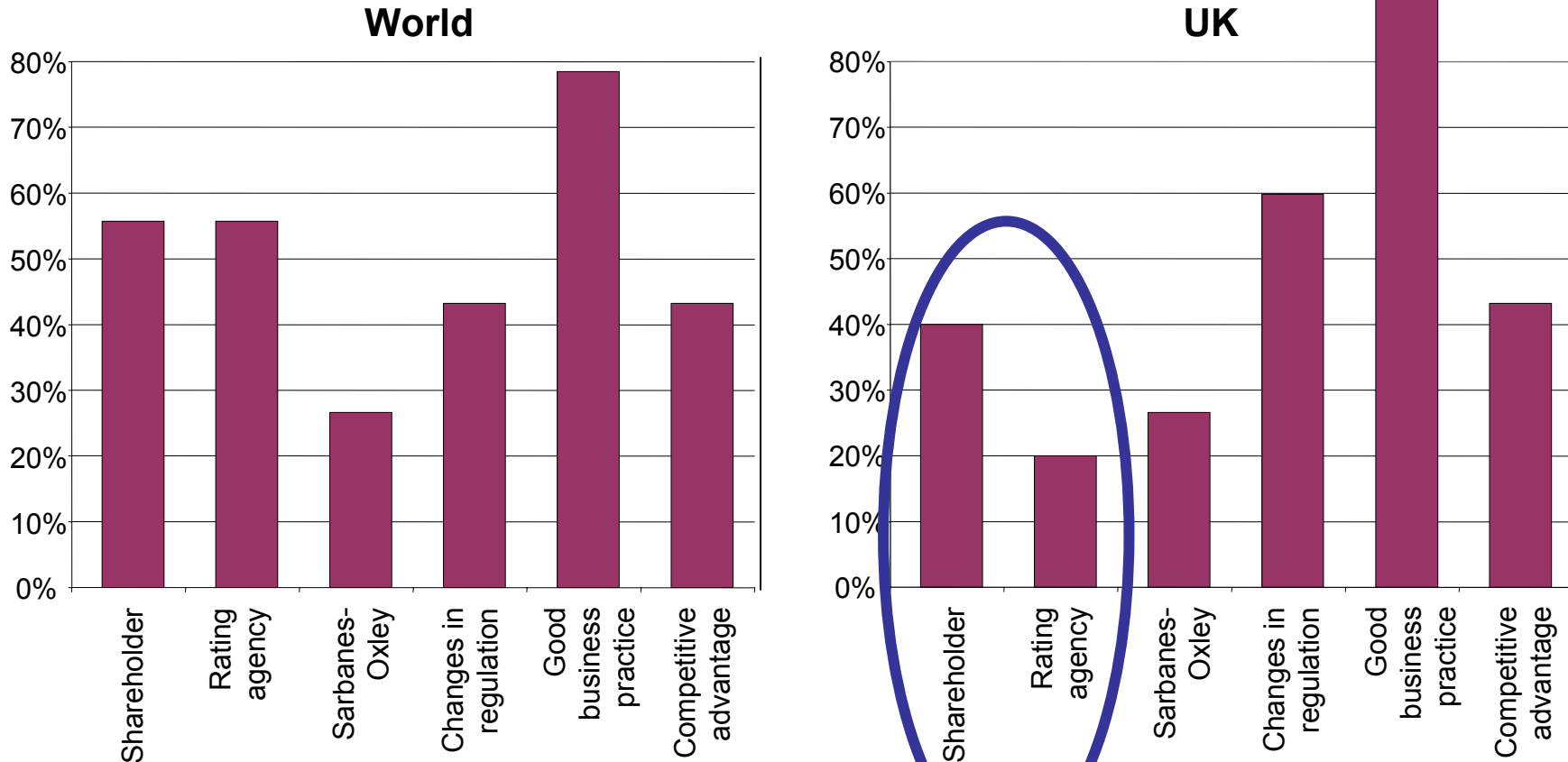


Source: Tillinghast Biannual ERM Survey



But, compared to others, UK insurance companies are more compliance focused

Q: What are the principal drivers for your current risk management efforts?



Source: Tillinghast
Biannual ERM Survey

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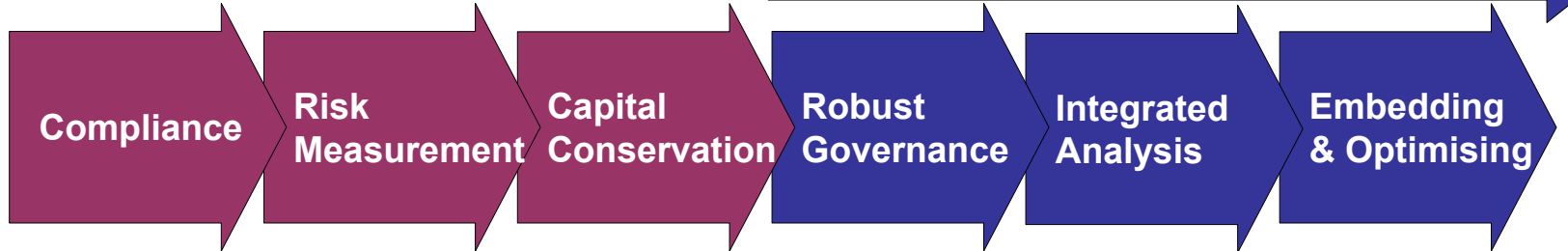
HBOS experience

ERM – the way forward

To build a competitive advantage, companies need a clear vision of what they want to achieve

Recent focus of activity

ACTIVE RISK MANAGEMENT



- | | | | | | |
|---|---|--|---|--|---|
| <ul style="list-style-type: none"> ▪ IAS ▪ IFRS ▪ PSB ▪ EEV _____ ▪ SOX | <ul style="list-style-type: none"> ▪ ICAS ▪ RBS ▪ Solvency II _____ ▪ Basel II | <ul style="list-style-type: none"> ▪ Asset mix ▪ Hedging ▪ Bonus rates ▪ Closing to new business | <ul style="list-style-type: none"> ▪ Risk strategy ▪ Risk appetite ▪ Risk governance ▪ Risk process | <ul style="list-style-type: none"> ▪ Value metrics ▪ Sensitivities ▪ Economic capital | <ul style="list-style-type: none"> ▪ Capital allocation ▪ Target setting ▪ Pricing ▪ Performance Measurement ▪ Reporting |
|---|---|--|---|--|---|

Active risk management – concepts

- Absolute risk tolerance
- Risk capital usage
- Risk v. reward

Acceptance of risks and pricing



Impact on balance sheet

- Risk capital availability
- Capital structure



Proactive risk management

- Capital optimisation
- Risk transfer
- Risk mitigation

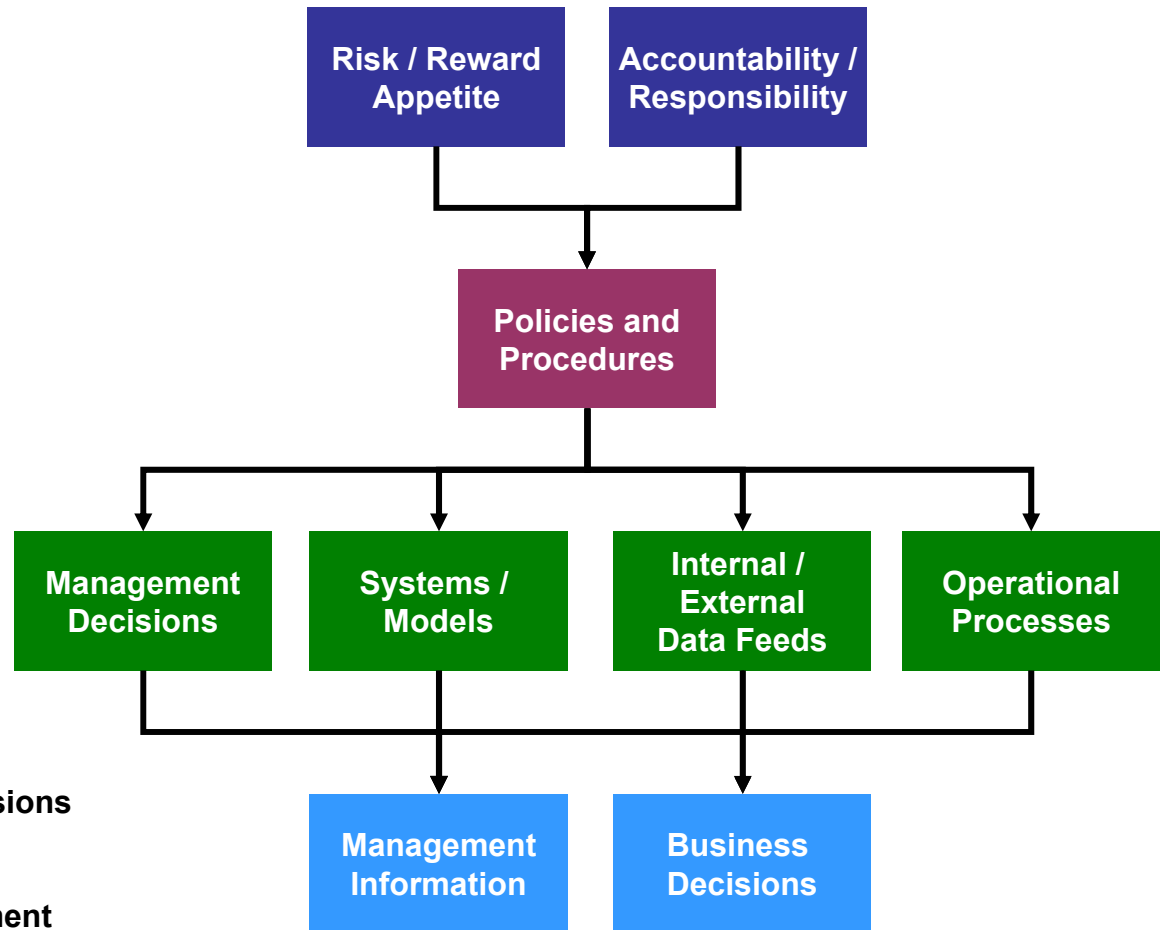
Active risk management – organisational structure

Governance:
Board / Senior
Management input

Policies:
Business input and
Board / Senior
Management Review

Processes:
Business
processes

Outputs:
Business outputs / decisions
with referral
to and/or review from
Board / Senior Management



What makes a governance structure 'active'?

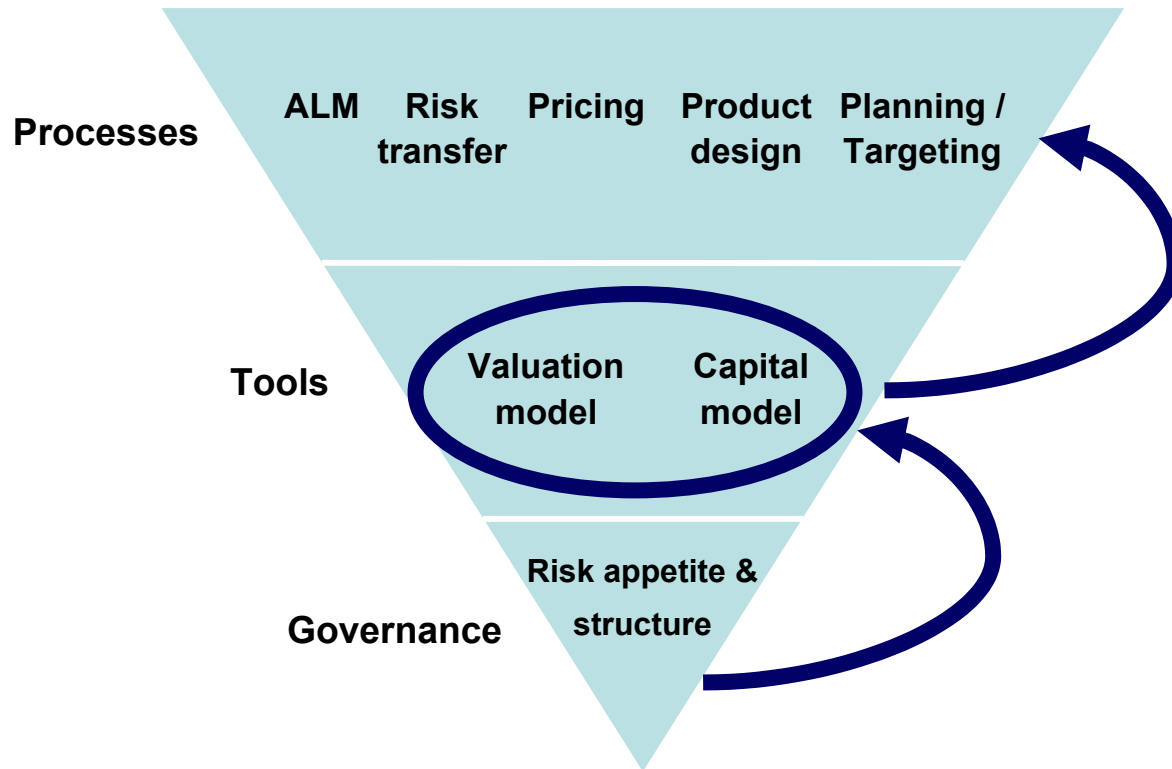
Evidence:

- Meet good practice standards
- Aware of best practice approaches
- Management of key risks
- Improvement over time in risk documentation and data
- Adequate management information

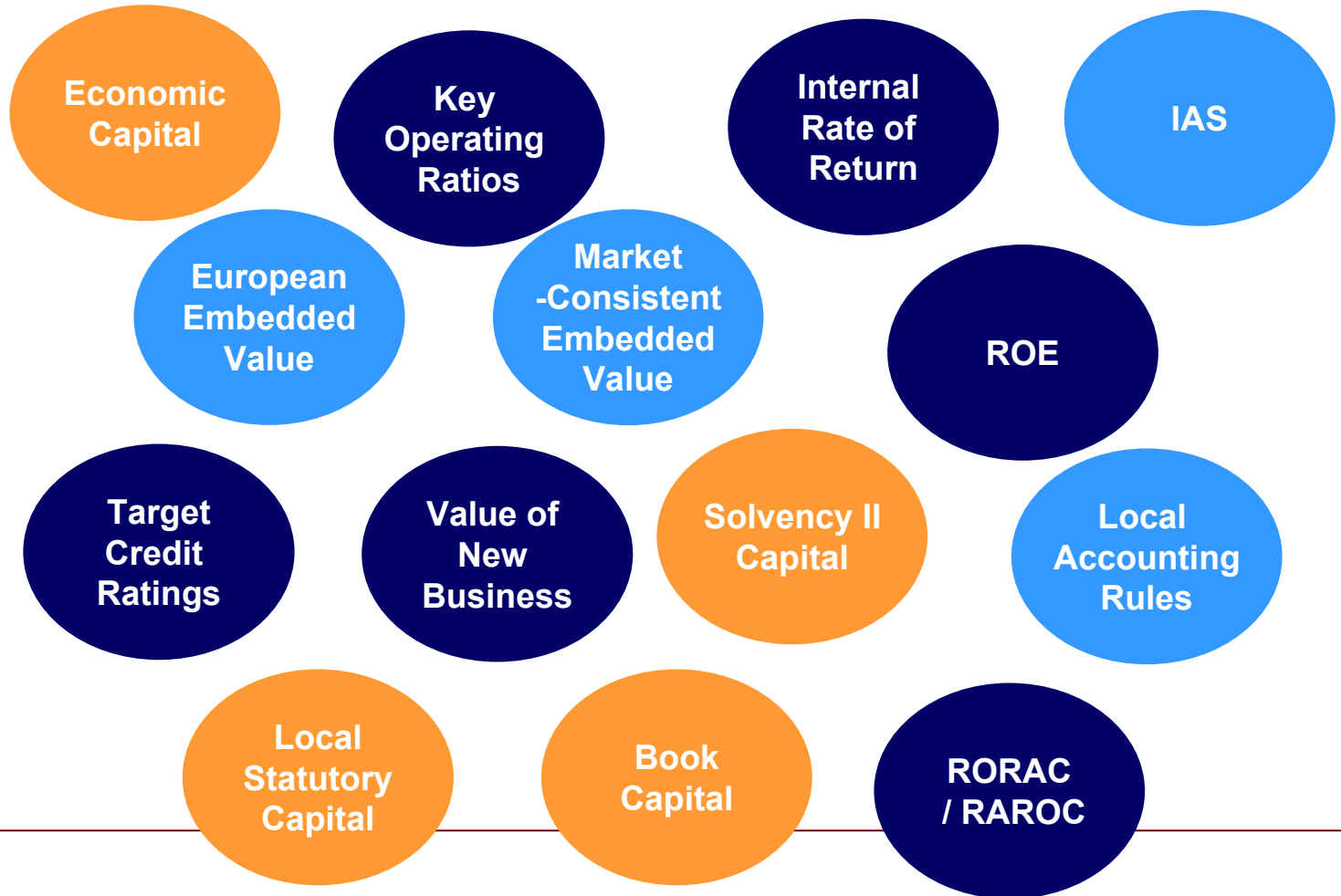
Effectiveness:

- Existence of a framework is not evidence of good or best practice
- The framework should be embedded and affect decisions
- The framework should uncover problems
- Accurate and timely MI should be available

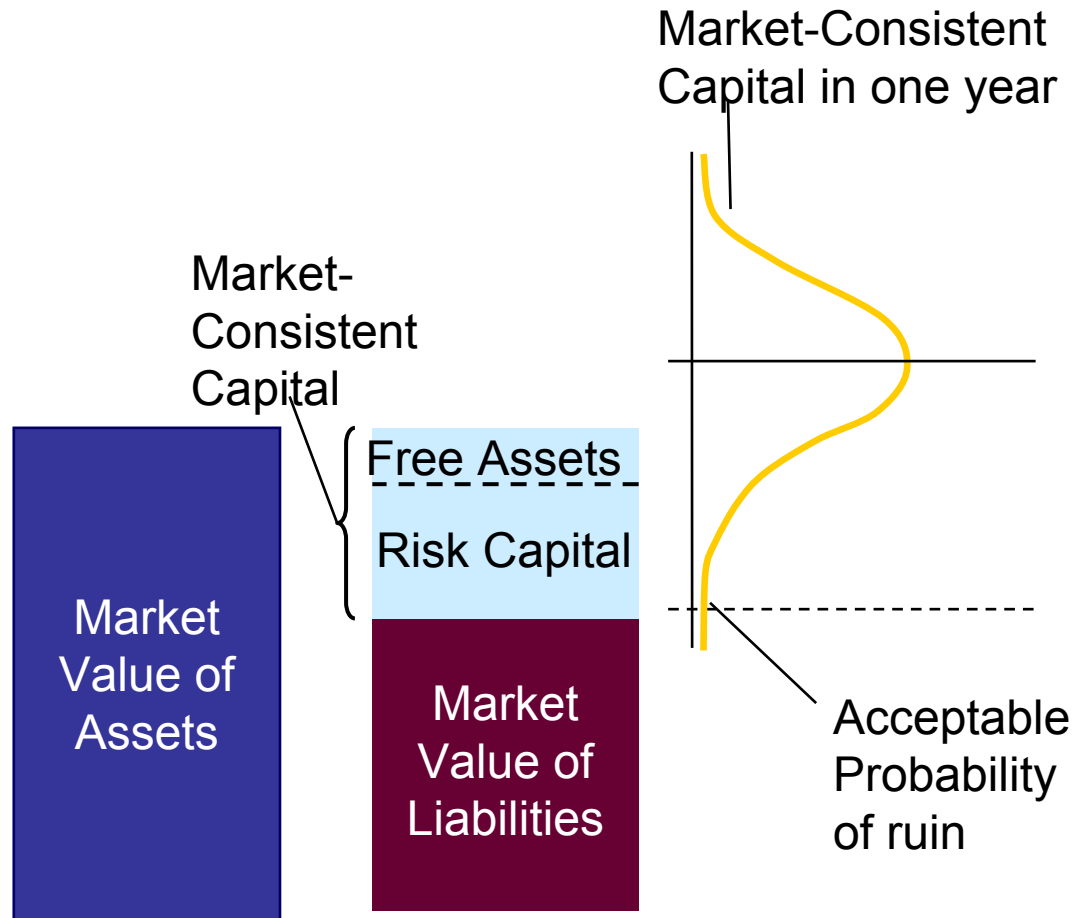
Active risk management requires integrated analysis – objectives



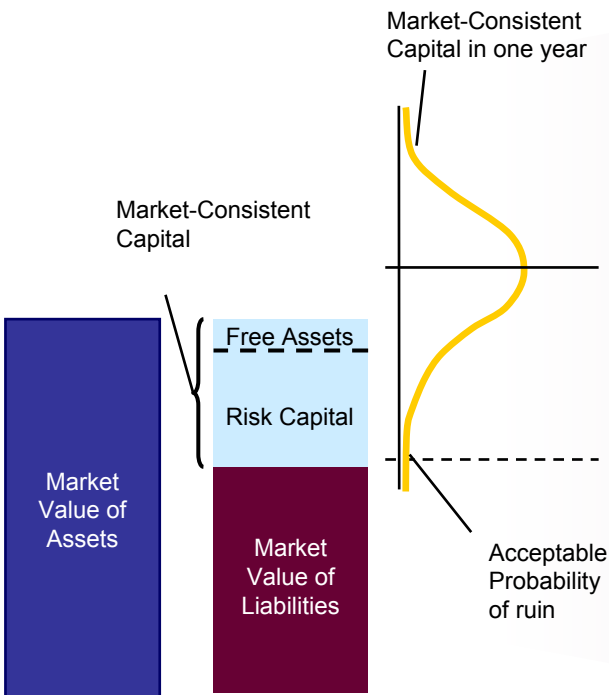
Pitfalls – seeing the wood from the trees



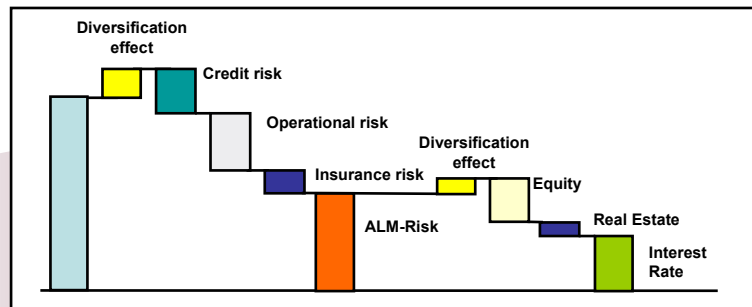
Active risk management requires integrated analysis – concepts



Active risk management – risk MI



Split of Economic Capital



BU Economic Capital

Risk Category	BU1	BU2	BU3	BU4	BU5	Other	Total
Interest rates	535	397	170	296	985	465	1,322
Share prices	98	448	320	393	71	50	689
Other market risk	242	341	382	625	697	658	1,277
Insurance	591	664	284	258	755	293	1,262
Operational	131	92	78	827	554	171	1,026
Strategic	12	57	8	42	18	25	79
Total	849	963	603	1,177	1,529	876	2,550

Sensitivities

	MCEV	Solvency coverage	IAS net equity	IAS profit
Market Risk Dashboard				
Base-scenario	1,000	150%	500	50
Changes:				
Interest rate shift parallel -100 bp	-900	50%	-20	-5
Interest rate shift parallel +100 bp	300	-60%	20	5
Equity price decreases 20%	-500	-30%	-400	-200
Property price decreases 20%	-300	-20%	-200	-100
£ vs all other currencies -10%	-100	-10%	-50	30

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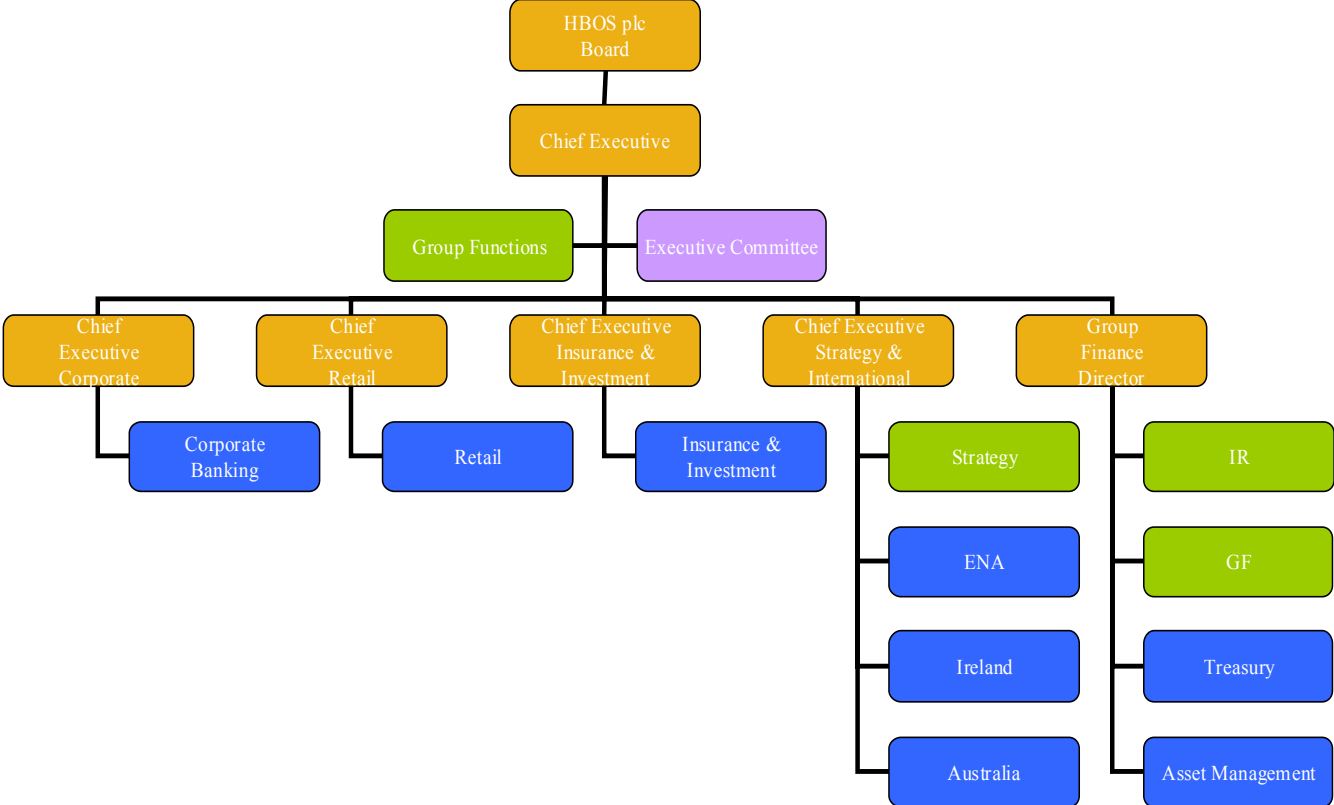
HBOS experience

ERM – the way forward

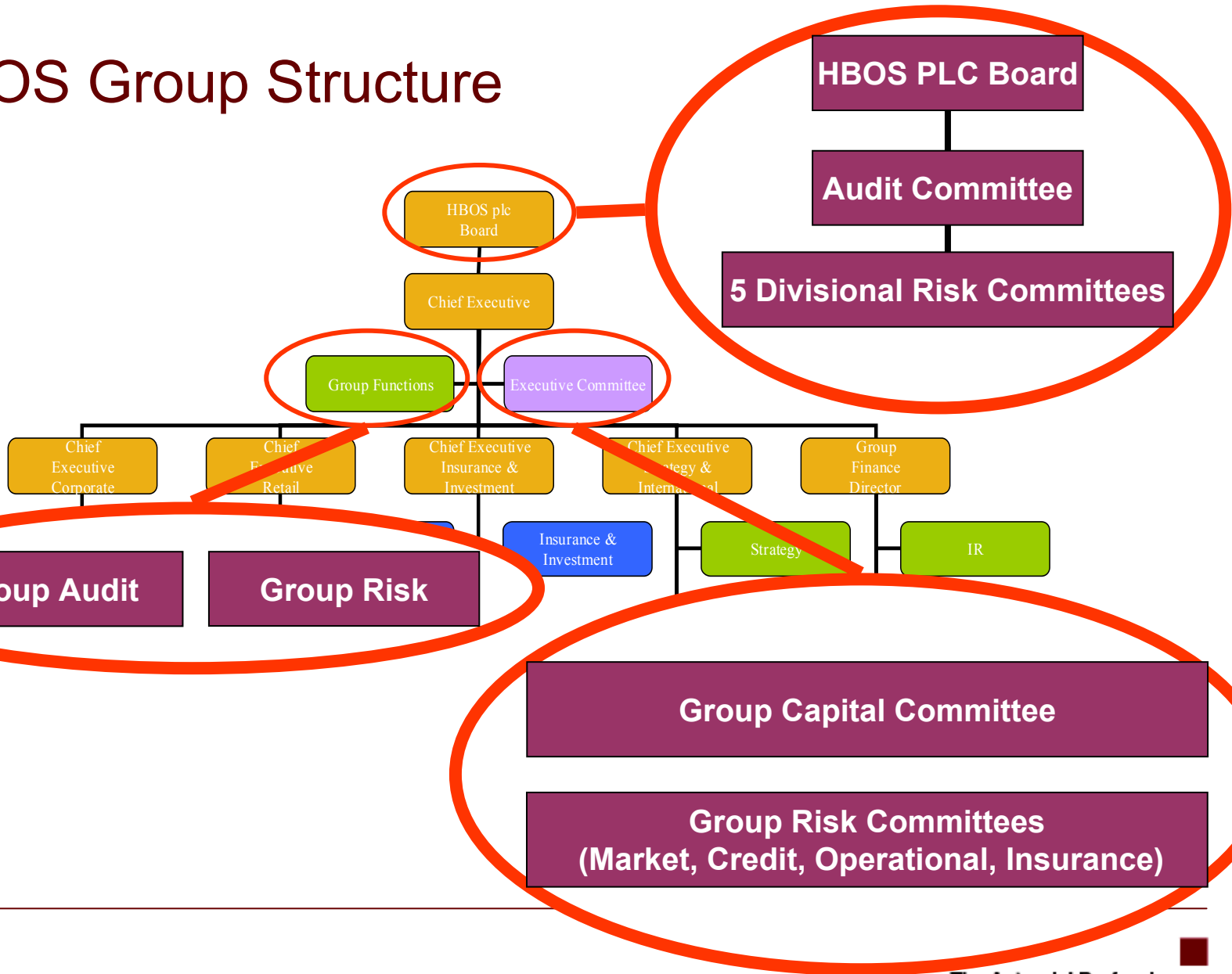
Experience in a UK Life Company

- **HBOS**
- Life Company Governance
- Risk MI
- Risk Management Effectiveness

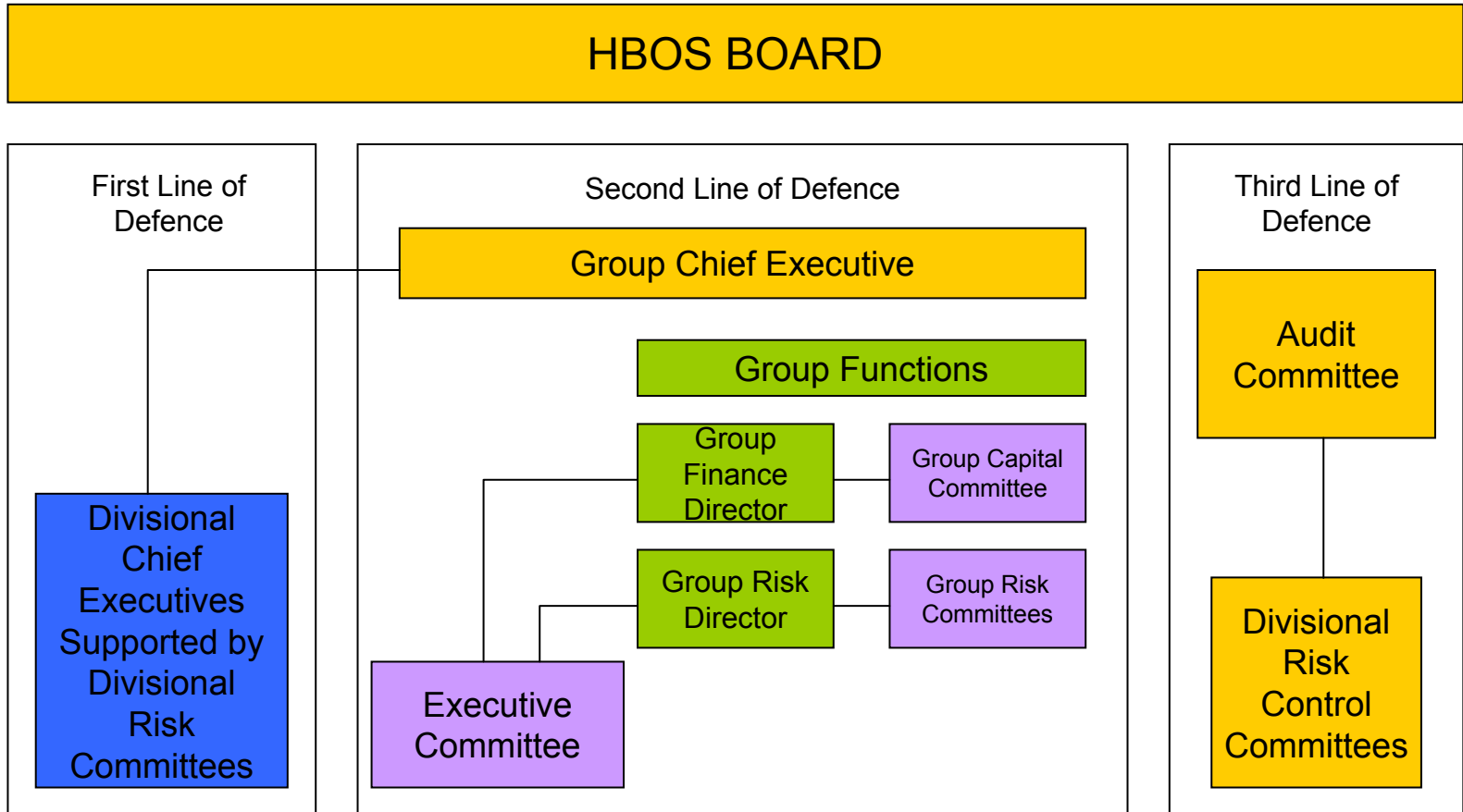
HBOS Group Structure



HBOS Group Structure



HBOS Risk Governance Structure



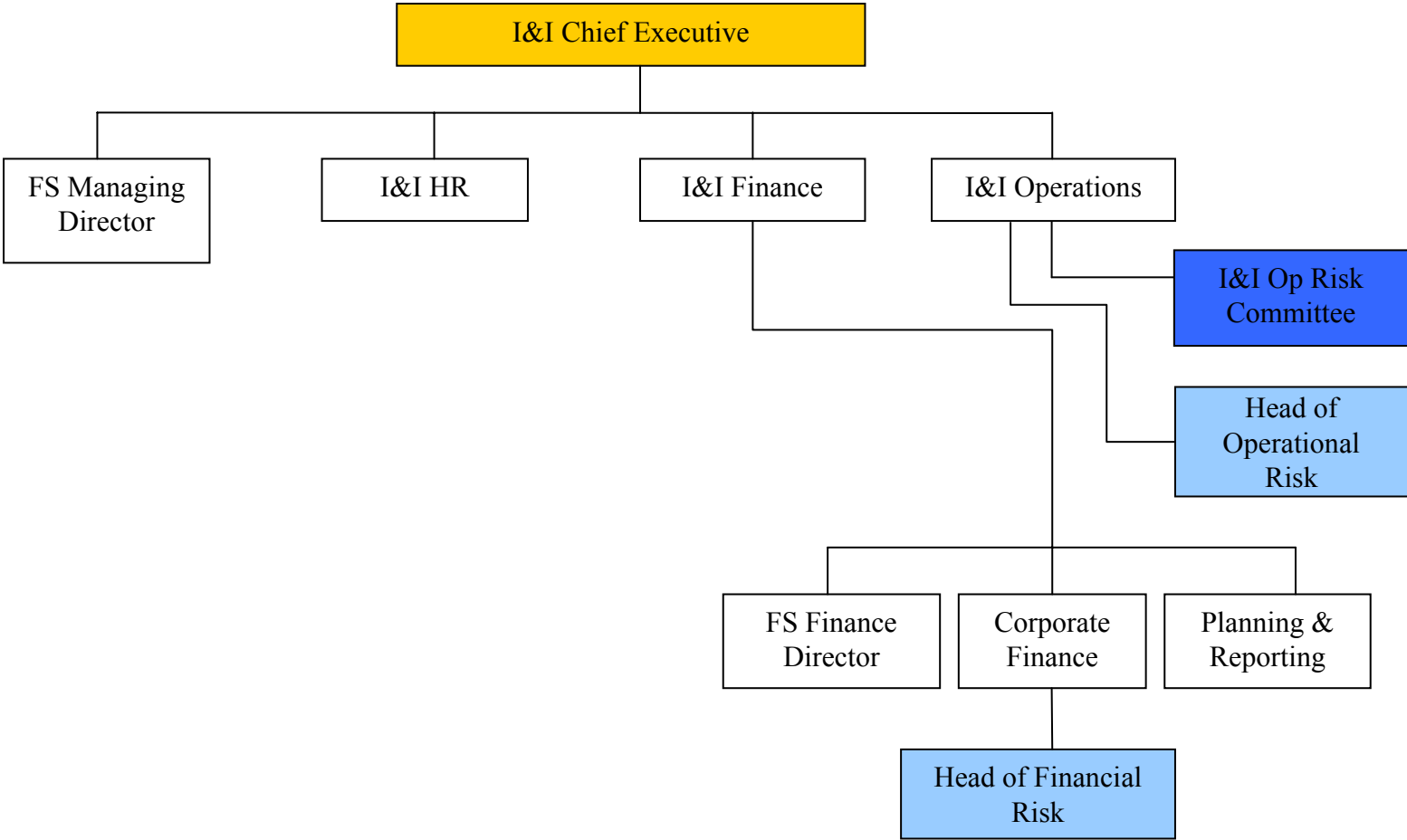
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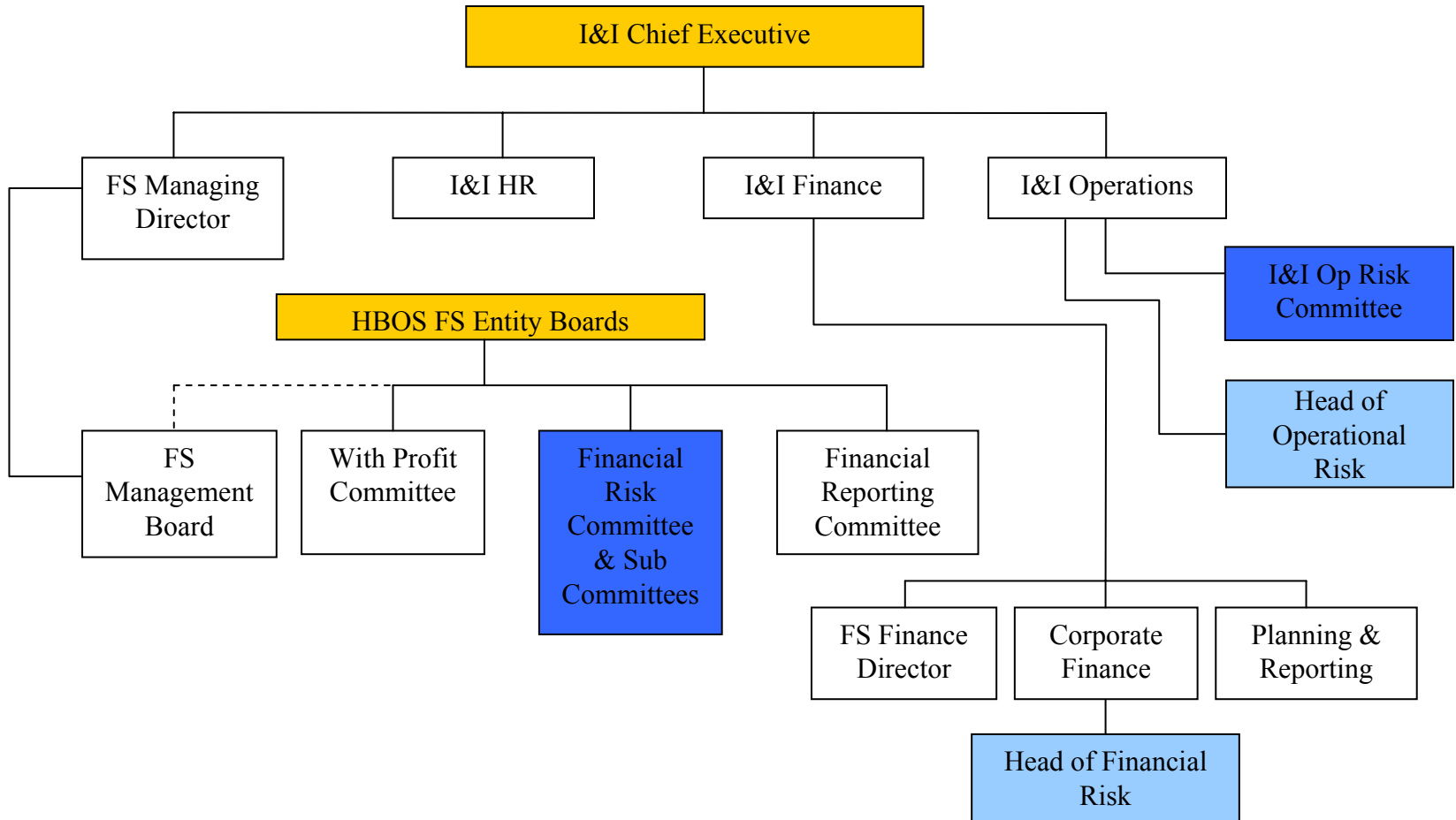
Governance Processes

- Mainly developed in 2004 in conjunction with risk policies, risk MI and initial ICA development
- Board sub-committee further delegates work on some risks, e.g. mortality
- Group Risk provide independent and technical oversight and link to various Group risk and audit committees
- Operational Risk function provides independent review of systems & controls environment and risk management processes
- Internal Audit

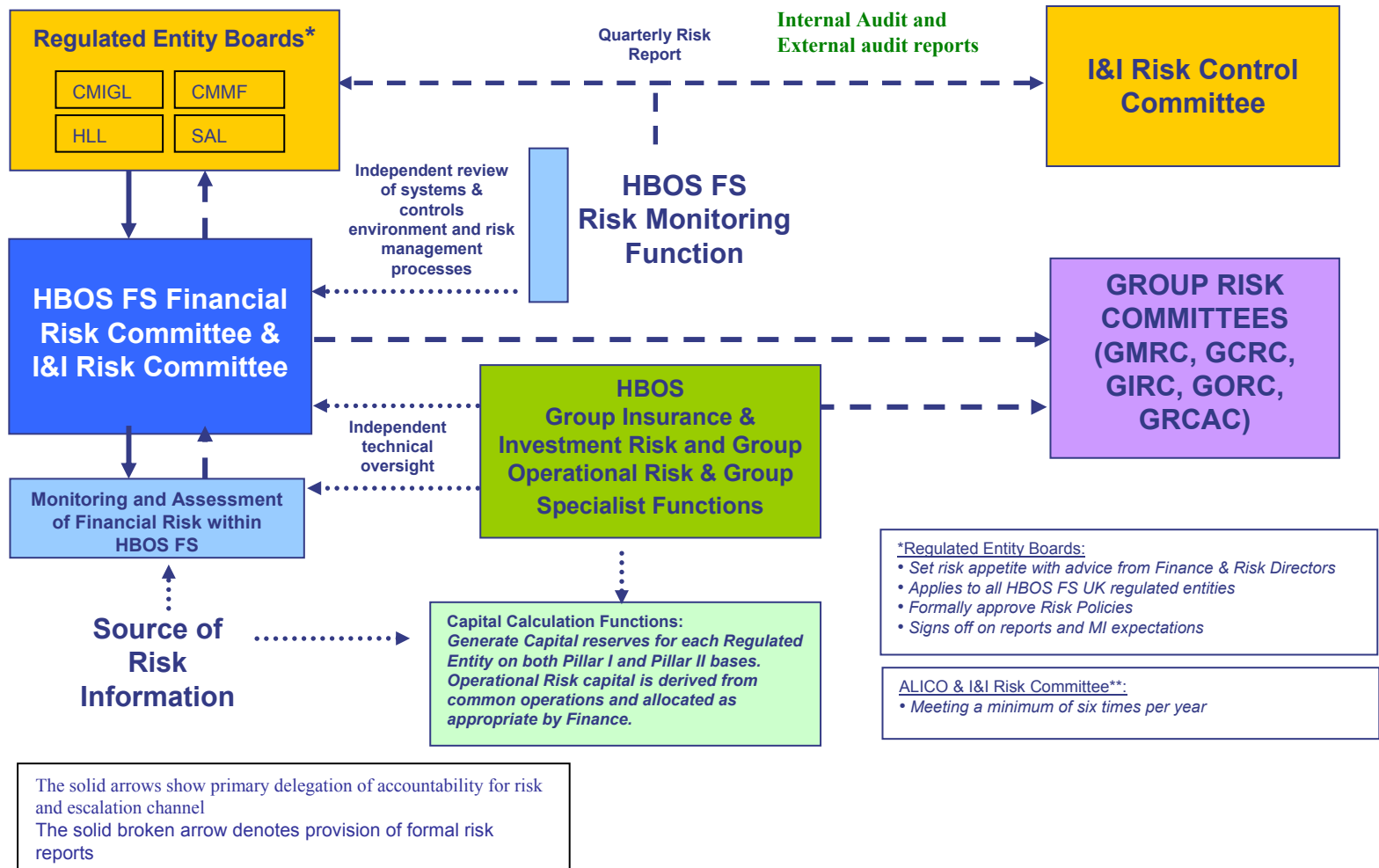
HBOS Insurance & Investment Divisional Risk Structure



HBOS Insurance & Investment Divisional Risk Structure



HBOS Life Entities' Governance Structure



Governance Structure – Financial Risk Policies

- Scope: Market, Insurance, Credit and Liquidity
- Also: Pricing (developing to include ICA), Reinsurance, Derivatives, Box Management, Fund Mandates
- Policies developed in 2004 and approved by Life Company Boards, in place for Jan 2005
- Consistency with wider Group policies (banking)
- Reviewed and re-approved annually
- Operational Risk picked up separately

Key Features of Risk Policies

- Company Specific
- Risk Appetite
 - Link to ICA, e.g. ‘sufficient working capital to be 99.5% confident of being able to set up reserves to meet projected liabilities for new and existing business in a year’s time, without requiring additional capital’
 - Profit, e.g. volatility takes account of Group risk appetite
- Governance
 - Operated through monthly Board sub committee
 - Monthly risk reporting based on risk MI
 - Oversight by Group Risk function

Additional contents of a Risk Policy

- Description of various types of risk
- Detailed risk appetite e.g. if averse to certain types of risk
- Measurement
- Control and mitigation

For Example - Insurance Risk Policy

- Risk types: mortality, morbidity, persistency, expense, tax.....
- Risk appetite details: approach to longevity, protection, guaranteed options.....
- Measurement: own experience, industry experience, sensitivities of capital and profit to changes in experience
- Control and mitigation: product design and sign off, underwriting processes, reinsurance.....

Experience in a UK Life Company

- HBOS
- Life Company Governance
- **Risk MI**
- Risk Management Effectiveness

Collection of Risk MI

- Also developed initially in 2004
- Reviewed in detail in 2006 and revised
- Lots of information – varying frequencies
- Analysis and presentation is a challenge!
- Monthly report with commentary to Board sub committee
- Includes risk dashboard.....

Risk MI – Overall dashboard

Profit Before Tax	Unit	Actual	Plan	Var	RAG LIMITS		
					Red	Amber	Indicator
Overall YTD PBT	£m	100.0	90.0	11.1%	-10.0%	-5.0%	△

Capital In Excess Of ICG @ 31/12/2005	Unit	Assets In Excess Of ICA	Deduction To Meet ICG	Assets In Excess Of ICG	RAG LIMITS		
					Red	Amber	Indicator
Company A	£m	1,780	150	1,630	1,000	1,400	▽
Subsidiary Company B	£m	500	100	400	200	300	↔
Subsidiary Company C	£m	200	-	200	50	75	↔

ICA Risk Capital based on most as at 31 Dec 05	Unit	Shareholder	With Profit Sub-Fund	Total	RAG LIMITS		
					Red	Amber	Indicator
Market Risk - equity/property fall	£m						
Market Risk - equity volatility	£m						
Market Risk - FI yields & spreads	£m						
Market Risk - currency	£m						
Market Risk - Total	£m	500	1,400	1,900	3,000	2,000	△
Credit Risk	£m	40	40	80	150	100	△
Liquidity Risk	£m	15	10	25	40	20	↔
Insurance Risk - mortality/longevity	£m						
Insurance Risk - persistency/reg withdrawal	£m						
Insurance Risk - expenses	£m						
Insurance Risk - other	£m						
Insurance Risk - Total	£m	1,500	500	2,000	3,000	2,500	△
Operational Risk	£m	500	100	600	600	450	△
Group Contagion Risk	£m	10	5	15	25	20	△
Diversification Benefit	£m	(500)	(250)	(750)			△
Total ICA Capital	£m	2,065	1,805	3,870	4,750	3,750	△
Best Estimate Liabilities	£m	15,000	10,000	25,000			
Market Value of Assets	£m	18,000	12,500	30,500			
Pillar II Surplus	£m	935	695	1,630			

Company A - Pillar 1 Capital Sensitivities	Change	Impact on Free Assets
Equity capital values	-10%	£m
Equity Volatility	+5%	£m
Gilt yield curve	+100bps	£m
Corporate bond spreads	+50 bps	£m
Overall PBT Sensitivities	Change	Impact on PBT
Equity capital values	-25%	£m
Equity Volatility	+5%	£m
Gilt yield curve	+100bps	£m

Economic Indicators	31-Dec-05	30-Sep-06	Trend Over Last Month
FTSE 100 index	5618.8	5960.8	△
Implied £ equity volatility 10 yrs	21.10%	20.60%	▽
Pillar I Resilience Test - fall in equities	10.0%	10.0%	↔
UK Base Rate	4.50%	4.75%	↔
FTSE UK Gilt Yield (15 years)	4.08%	4.39%	↔
£ Corporate Bond Spread (AA, 15 years)	46	49	↔
UK Inflation (RPI) - Dec 05 and Aug 06	2.2%	3.4%	△

EXAMPLE KEY FINANCIAL RISK INDICATORS

30 September 2006

Company A Solvency Ratios			Trend Over Last Month
	31-Dec-05	30-Sep-06	
Free Asset Ratio	20.0%	25.0%	▽
Cover Ratio	200%	250%	▽

KEY	
Position against RAG Limits	
Green	Within limits
Yellow	Consideration of implications necessary
Red	Outside limits, action may be required
Movement over last month	
△	KRI is increasing & direction is adverse
▲	KRI is increasing & direction is benign
▲	KRI is increasing, for information only
↔	KRI is stable
▽	KRI is decreasing & direction is adverse
▼	KRI is decreasing & direction is benign
▼	KRI is decreasing, for information only

Risk MI – Economic indicators

Profit Before Tax	Unit	Actual	Plan	Var	RAG LIMITS		
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Operational Risk	£m	500	100	600	600	450	▲
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Diversification Benefit	£m	(500)	(250)	(750)			▲
Total ICA Capital	£m	2,065	1,805	3,870	4,750	3,750	▲
Best Estimate Liabilities	£m	15,000	10,000	25,000			
Market Value of Assets	£m	18,000	12,500	30,500			
Pillar II Surplus	£m	935	695	1,630			

▼ KRI is decreasing & direction is benign
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Company A - Pillar 1 Capital Sensitivities	Change	Impact on Free Assets
Equity capital values	-10%	£m
Equity Volatility	+5%	£m
Gilt yield curve	+100bps	£m
Corporate bond spreads	+50 bps	£m
Overall PBT Sensitivities	Change	Impact on PBT
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Risk MI – Key

Profit Before Tax	Unit	Actual	Plan	Var	RAG LIMITS		
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KEY

Position against RAG Limits

- Within limits
- Consideration of implications necessary
- Outside limits, action may be required

Movement over last month

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Equity Volatility	+5%	£m
Gilt yield curve	+100bps	£m

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Risk MI - Profit

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30 September 2006

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Risk MI - Capital

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Profit Before Tax	Unit	Actual
Overall YTD PBT	£m	100.0

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UK Inflation (RPI) - Dec 05 and Aug 06	2.2%	3.4%	▲

Risk MI – ICA Risk Capital

Profit Before Tax	Unit	Actual	Plan	Var	RAG LIMITS		
					Red	Amber	Indicator
Overall YTD PBT	£m	100.0	90.0	-11.1%	-10.0%	-5.0%	▲

EXAMPLE KEY FINANCIAL RISK INDICATORS

ICA Risk Capital based on most as at 31 Dec 05	Unit	Shareholder	With Profit Sub-Fund	Total	RAG LIMITS		
					Red	Amber	Indicator
Market Risk - equity/property fall	£m						
Market Risk - equity volatility	£m						
Market Risk - FI yields & spreads	£m						
Market Risk - currency	£m						
Market Risk - Total	£m	500	1,400	1,900	3,000	2,000	▲
Credit Risk	£m	40	40	80	150	100	▲
Liquidity Risk	£m	15	10	25	40	20	↔
Insurance Risk - mortality/longevity	£m						
Insurance Risk - persistency/reg withdrawal	£m						
Insurance Risk - expenses	£m						
Insurance Risk - other	£m						
Insurance Risk - Total	£m	1,500	500	2,000	3,000	2,500	▲
Operational Risk	£m	500	100	600	600	450	▲
Group Contagion Risk	£m	10	5	15	25	20	▲
Diversification Benefit	£m	(500)	(250)	(750)			▲
Total ICA Capital	£m	2,065	1,805	3,870	4,750	3,750	▲
Best Estimate Liabilities	£m	15,000	10,000	25,000			
Market Value of Assets	£m	18,000	12,500	30,500			
Pillar II Surplus	£m	935	695	1,630			

Overall PBT Sensitivities	Change	Impact on PBT
Equity capital values	-25% £m	
Equity Volatility	+5% £m	
Gilt yield curve	+100bps £m	

FTSE UK Gilt Yield (15 years)	4.08%	4.39%	↔
£ Corporate Bond Spread (AA, 15 years)	46	49	↔
UK Inflation (RPI) - Dec 05 and Aug 06	2.2%	3.4%	↔

Risk MI – Capital and Profit Sensitivities

Profit Before Tax	Unit	Actual	Plan	Var	RAG LIMITS		
					Red	Amber	Indicator
Overall YTD PBT	£m	100.0	90.0	-11.1%	-10.0%	-5.0%	△

EXAMPLE KEY FINANCIAL RISK INDICATORS
30 September 2006

Capital In Excess	Company A - Pillar 1 Capital Sensitivities		Change		Impact on Free Assets	Trend Over Last Month
Company A	Equity capital values		-10%	£m		▼
Subsidiary Compar	Equity Volatility		+5%	£m		▼
Subsidiary Compar	Gilt yield curve		+100bps	£m		
	Corporate bond spreads		+50 bps	£m		
ICA Risk Capital based on most as	Overall PBT Sensitivities		Change		Impact on PBT	
Market Risk - equity	Equity capital values		-25%	£m		
Market Risk - equity	Equity Volatility		+5%	£m		
Market Risk - FI yield	Gilt yield curve		+100bps	£m		
Market Risk - currency						
Market Risk - Total						
Credit Risk						
Liquidity Risk						
Insurance Risk - m						
Insurance Risk - pe						
Insurance Risk - ex						
Insurance Risk - ot						
Insurance Risk - To						
Operational Risk						
Group Contagion Risk						
Diversification Benefit						
Total ICA Capital		£m				
Best Estimate Liabilities		£m				
Market Value of Assets		£m				
Pillar II Surplus		£m				

Company A - Pillar 1 Capital Sensitivities	Change		Impact on Free Assets
Equity capital values	-10%	£m	
Equity Volatility	+5%	£m	
Gilt yield curve	+100bps	£m	
Corporate bond spreads	+50 bps	£m	
Overall PBT Sensitivities	Change		Impact on PBT
Equity capital values	-25%	£m	
Equity Volatility	+5%	£m	
Gilt yield curve	+100bps	£m	

Economic Indicators	31-Dec-05	30-Sep-06	Trend Over Last Month
FTSE 100 index	5618.8	5960.8	▲
Implied £ equity volatility 10 yrs	21.10%	20.60%	▼
Pillar I Resilience Test - fall in equities	10.0%	10.0%	↔
UK Base Rate	4.50%	4.75%	↔
FTSE UK Gilt Yield (15 years)	4.08%	4.39%	↔
£ Corporate Bond Spread (AA, 15 years)	46	49	↔
UK Inflation (RPI) - Dec 05 and Aug 06	2.2%	3.4%	▲

Risk MI – Other Key Items (mainly monthly)

- New business profitability
- Expenses and Commission
- Bond exposures by credit rating and country
- Option take up
- Reinsurer exposure and credit ratings
- With profits:
 - Payouts – asset share ratios and portfolio smoothing costs
 - Cost of Guarantees
 - Surrender rates
- Experience Analyses – mainly annual
- Concentration Analyses eg derivative exposures

Experience in a UK Life Company

- HBOS
- Life Company Governance
- Risk MI
- **Risk Management Effectiveness**

Risk Management Effectiveness (RME)

- RME standards are minimum requirements for conduct of risk management activities across the Group.
- Well established in the banking divisions, and implemented within the insurance businesses in 2004.
- Developed with external assistance, took into account UK position - and wider
- RME standards are reviewed annually to take account of evolving practices.
- Ratings are standardised across the Group and are consistent with ratings used by Group Internal Audit.
- Annual independent opinion to the Group Audit Committee on the effectiveness and efficiency of the risk management activities.
- Approach helps to identify gaps, focus debate on what is appropriate and measure progress.

Contents

UK developments in
context

Sources of advantage

HBOS experience

ERM – the way forward

What is ERM?


Google - Microsoft Internet Explorer provided by Towers Perrin

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Print Mail

Address <http://www.google.co.uk/webhp?hl=en> Go

[Personalised Home](#) | [Sign in](#)



- ~~Environmental resource management~~
- ~~Exchange rate mechanism~~
- ~~Effective records management~~
- Enterprise risk management

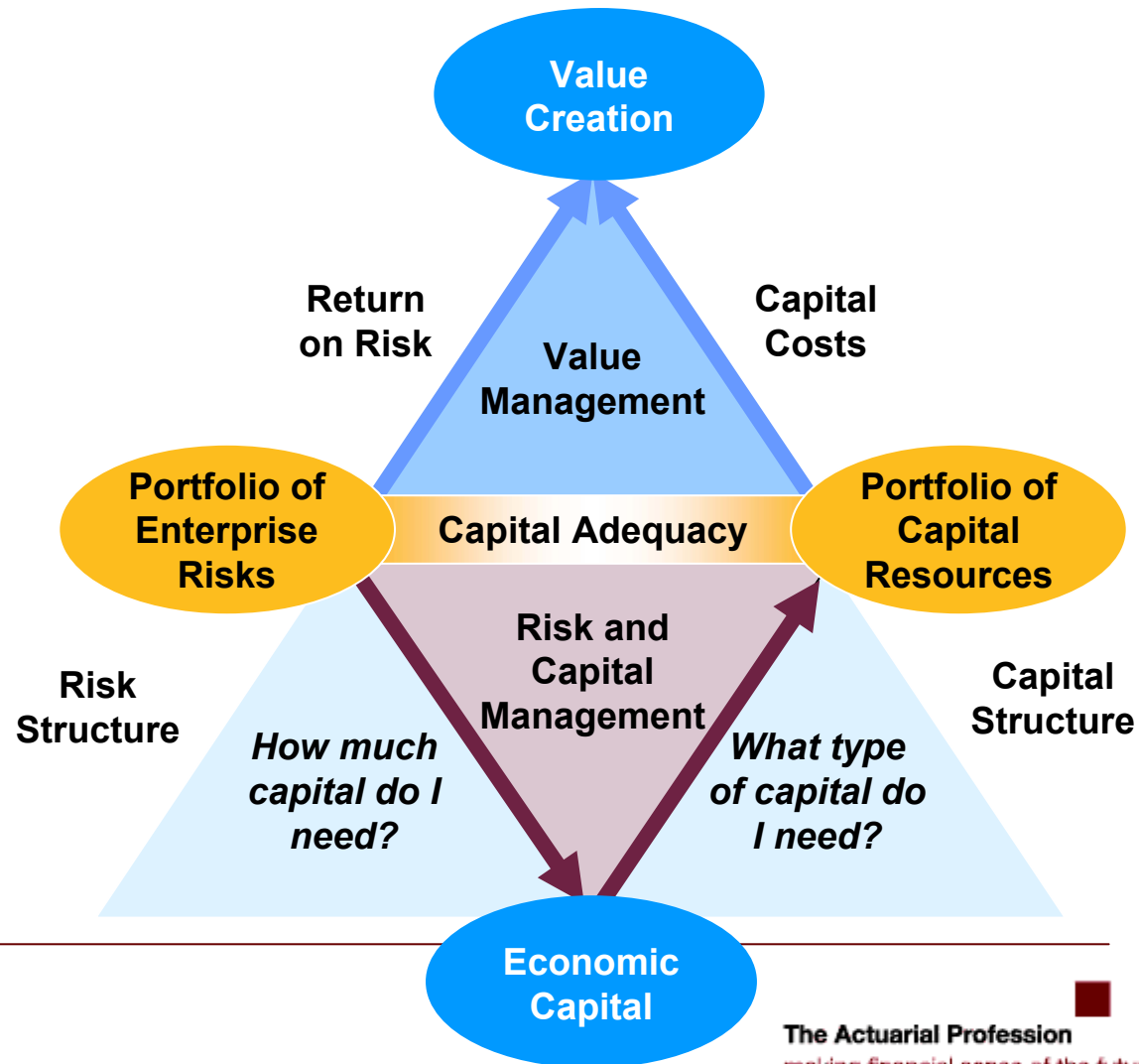
Integrated and active enterprise-wide risk management approach

<http://www.google.co.uk/search?q=halloween> Internet

An ERM framework should be comprehensive

Leading-edge companies maximise value by relating decisions on the risks they take to the decisions on the capital they use to finance their business ...

... they also explicitly consider how best to balance the interests of shareholders and policyholders by analysing economic capital requirements and value creation



To maximise value, companies need to actively manage risk exposures

Risk Strategy

- What business are we in?
- Where do we have a competitive advantage?
- Which risks are we looking to take?

Risk Appetite

Absolute Risk Tolerance

- What risk of ruin should we work to?
- How much exposure do we want to individual risk types?
- Where do we want our risk exposures?

Risk / Reward Balance

- What return should we expect on our risks?
- How do we identify the optimal portfolio of risks to hold?

Companies need accurate, consistent, granular and regular MI

Risk Appetite Monitoring Report

Risk Category	BU1	BU2	BU3	BU4	BU5	Other	Total
Interest rates	535	397	170	296	985	465	1,322
Share prices	98	448	320	393	71	50	689
Other market risk	242	341	382	625	697	658	1,277
Insurance	591	664	284	258	755	293	1,262
Operational	131	92	78	827	554	171	1,026
Strategic	12	57	8	42	18	25	79
Total	849	963	603	1,177	1,529	876	2,550

- Who sees this analysis?
- What decisions do they make?
- What monitoring is necessary?
- How often do they need to see the analysis
- What additional information is required to monitor exposures?

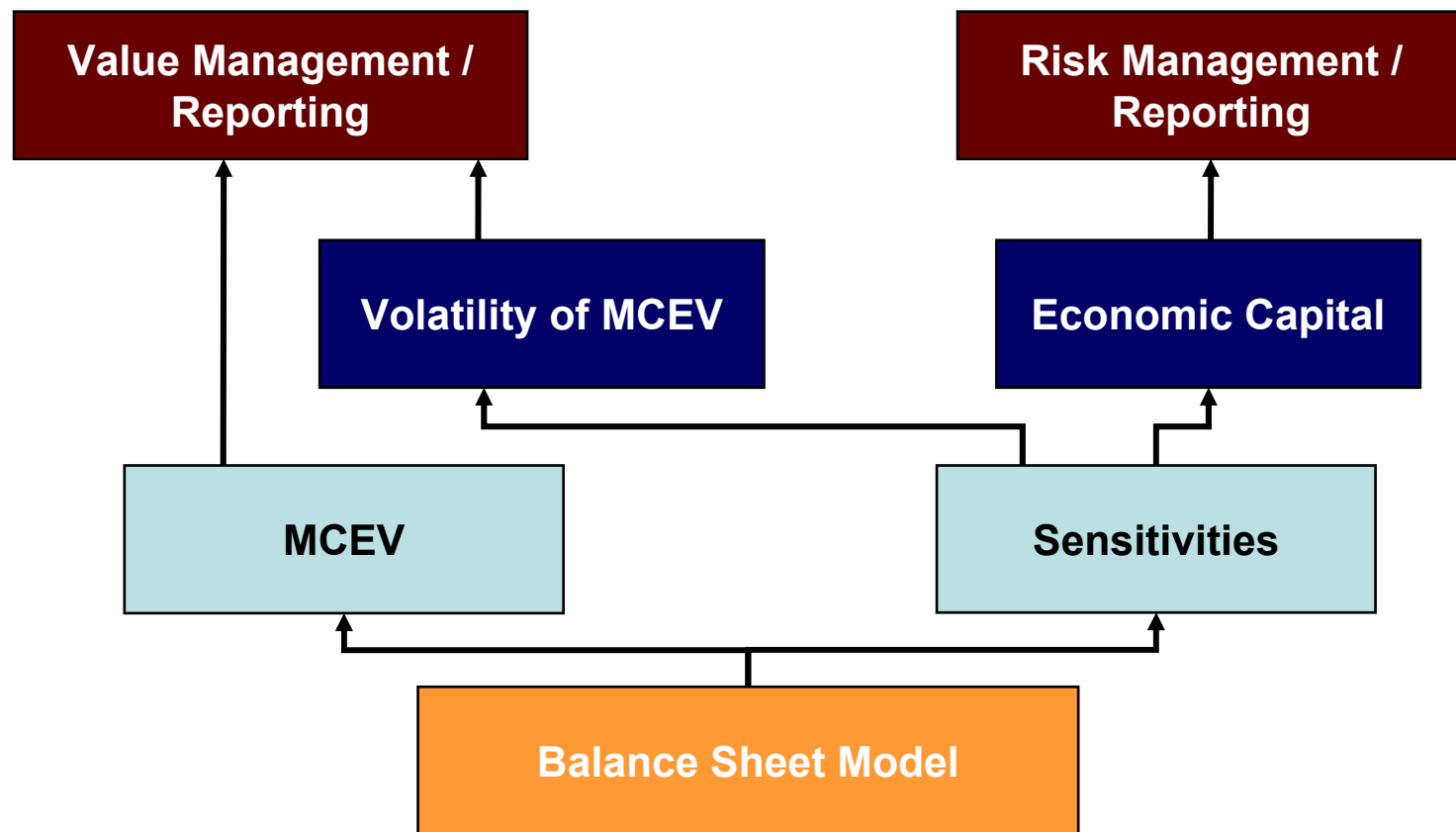
Companies need accurate, consistent, granular and regular MI

Key Sensitivities Report

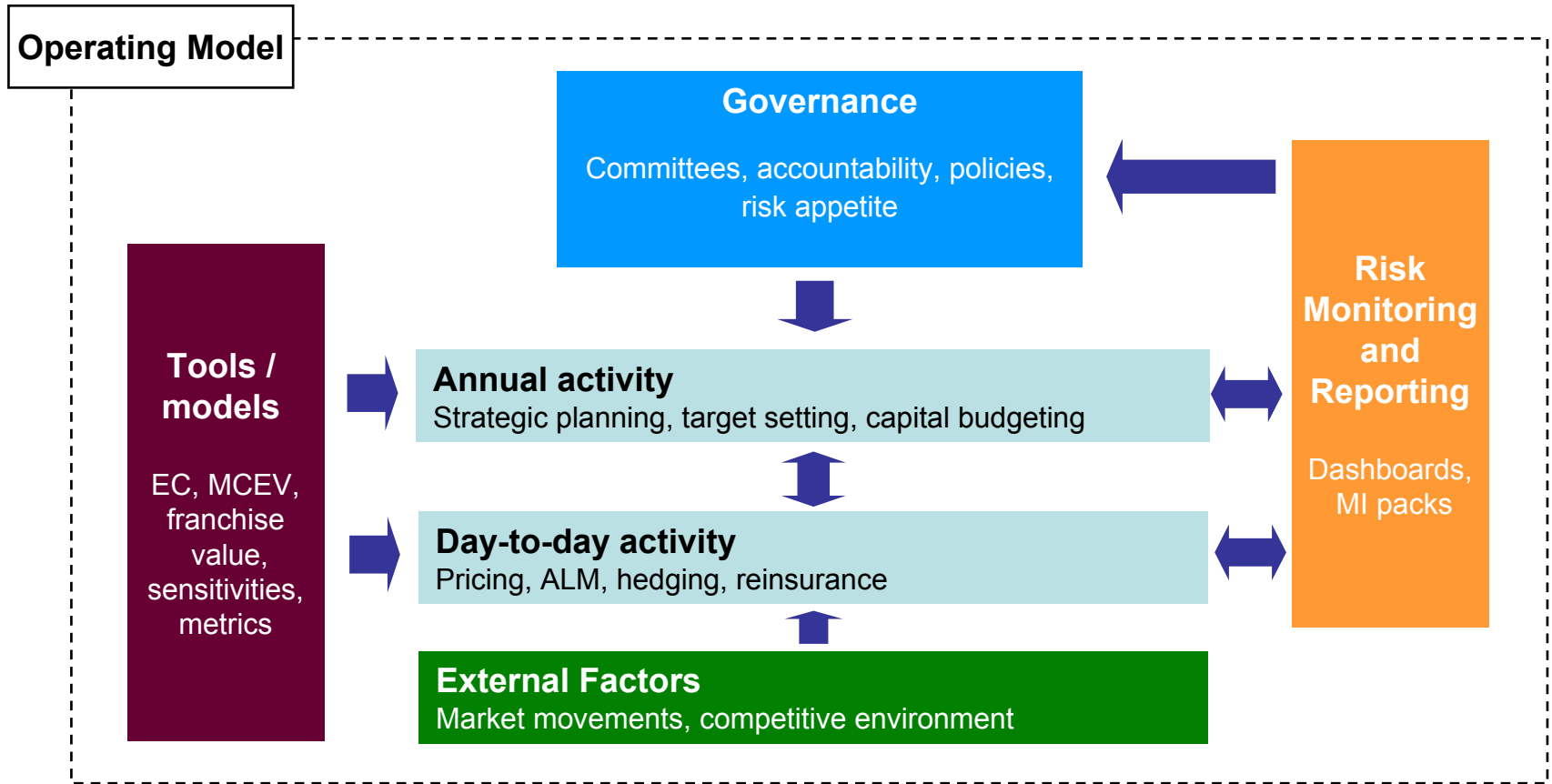
Market Risk Dashboard	MCEV	Solvency coverage	IAS net equity	IAS profit
Base scenario	1,000	150%	500	50
Sensitivities:				
Interest rate shift parallel -100bp	-900	50%	-20	-5
Interest rate shift parallel + 100 bp	300	-60%	20	5
Equity price decrease - 30%	-500	-30%	-400	-200
Property price decrease - 20%	-300	-20%	-200	-100
£ vs all other currencies -10%	-100	-10%	-50	-30

- Who sees this analysis?
- What decisions do they make?
- What monitoring is necessary?
- How often do they need to see the analysis
- What additional information is required to monitor exposures?

Market-consistent techniques can provide the basis for a consistent analytical engine ...



... but, the key to success is to develop capabilities in parallel





Risk and Capital Management: Creating a Competitive Advantage

Neil Holliday, HBOS

Stuart Robinson, Tillinghast

6 November 2006