The Actuarial Profession
making financial sense of the future

SOLVENCY II AND BASEL II - WHAT CAN ACTUARIES LEARN?

33rd ANNUAL GIRO CONVENTION

Hilton Vienna Hotel, Am Stadtpark

Introduction

- The current Basel II regime
- The current FSA regime
- The proposed Solvency II regime
- Credit Risk
- Market Risk
- Operational Risk
- Diversification
- Conclusion

What is the Basel II regime?

Three-pillar approach

Pillar 1:

Quantitative capital requirements

- Computation of credit, market and operational risk charges – model based

Pillar 2:

Qualitative supervisory review

- Assessment of all material risks and the control environment, and the capital ad
- Firm wide stress and scenario analysis

Pillar 3:

Market discipline

- Market discipline and disclosure of information

ICAAP – assessment of overall risks and capital adequacy within the firm including both the quantitative and qualitative framework of risk governance.

Increased level of third party disclosure principally within the financial reporting of the firm

Looking at matters from a regulatory perspective : What are the perceived linkages between Pillar 1, Pillar 2 and the ICAAP?

Pillar 1

- minimum capital requirement:
- calculated using prescribed parameters (advanced or standardised).
- the more risk sensitive approach adopted will have implications within a Pillar 2 context.

Pillar 2

- supervisory assessment of the amount of capital considered necessary to cover:
  - Pillar 1 risks (including any uncertainties in their calculation); and
  - risks not included in Pillar 1.
- calculated on a forward-looking basis through, at least, an economic downturn.

ICAAP

- the firm's own assessment of its capital needs;
- need not be calculated by reference to regulatory capital (firms which use economic capital models will express their capital using a variety of measures e.g. tier 1, shareholder funds).

From the regulatory perspective, the key factors for consideration are the amount, quality and depth of internal capital that a firm holds, at group level, business unit and the mechanism as to how internal capital is allocated within the firm as a group.

Proxy for business risk in the firm.

Proxy for control risk in the firm plus a resilience margin.

The Firm's computation of its internal capital requirement.

REGULATORY CAPITAL REQUIREMENT

INTERNAL CAPITAL REQUIREMENT

What is the FSA regime?

- Three pillars…

Pillar 1:	Pillar 2:	Pillar 3:
ECR	ICA	Disclosure

Solvency II – Three-pillar approach!

Three-pillar approach recommended in KPMG study for EU (and reflecting Basel II approach)

Pillar 1:

Quantitative capital requirements

- Minimum capital requirement (MCR)
- Solvency Capital Requirement (SCR) – Standard formula
- SCR – Internal model

Lower solvency capital requirement due to internal model

Pillar 2:

Qualitative supervisory review

- Supervision process
- Internal controls and embedding risk management
- Principles and tools

New focus for supervisor
May include validation of internal models

Pillar 3:

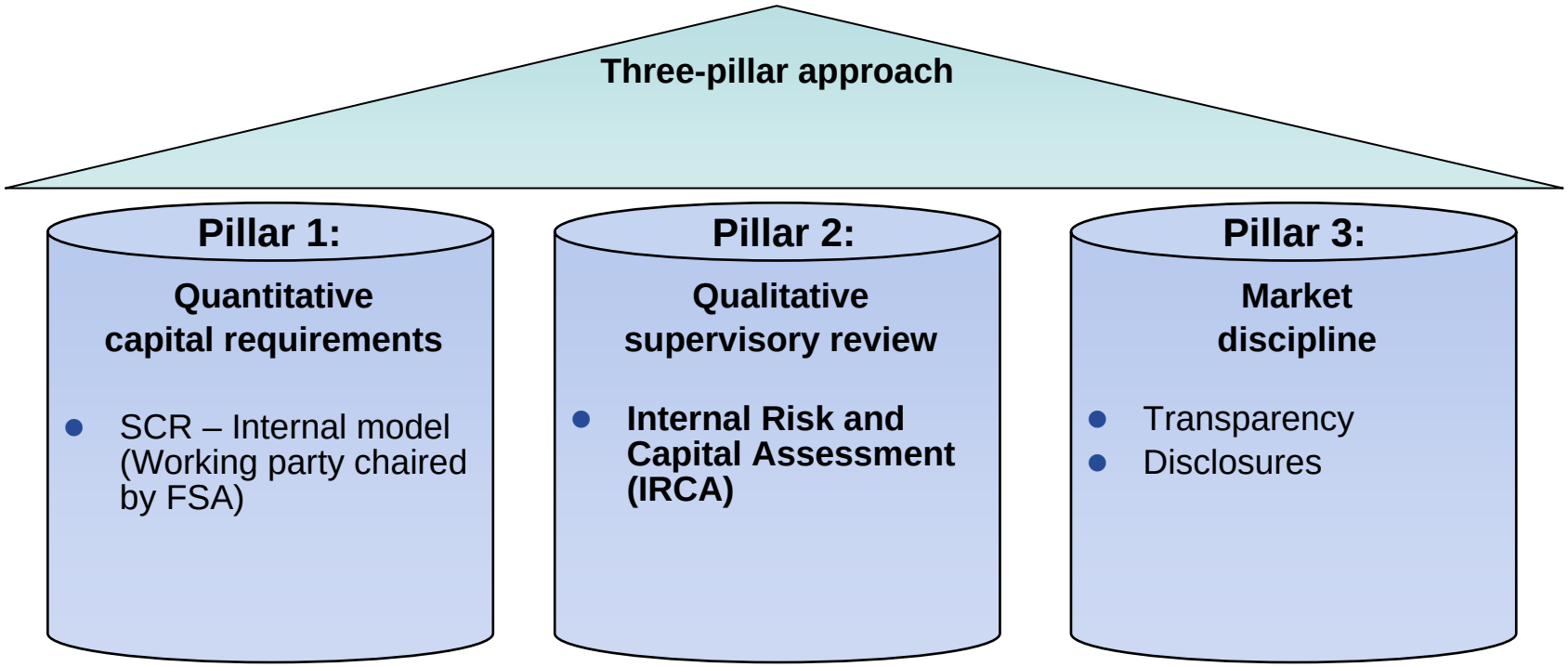
Market discipline

- Transparency
- Disclosures
- Support of risk-based supervision through market mechanisms

More pressure from capital markets

More pressure from rating agencies

Solvency II – Three-pillar approach – Future links to UK regime

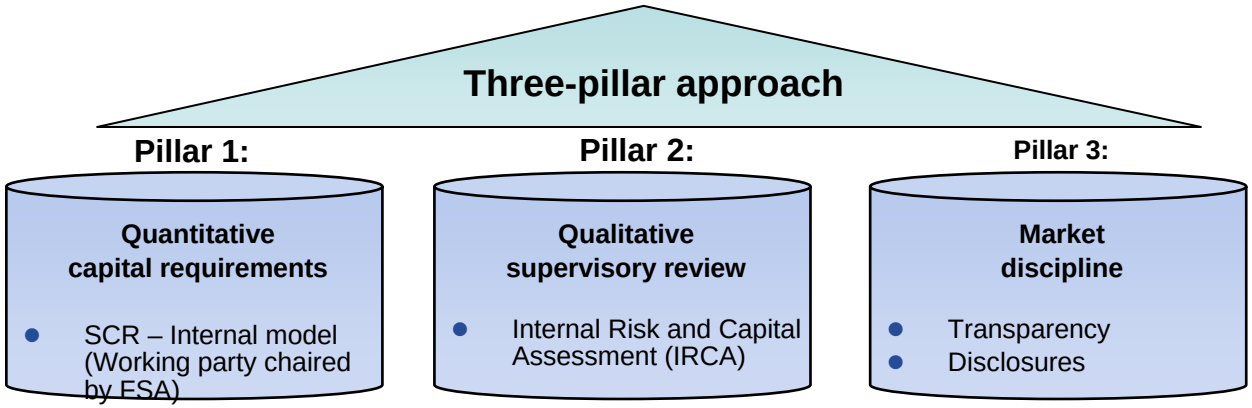


The FSA is chairing the Working Party preparing the recommendations to the EU in respect of the proposals for the Internal Model requirements. As such the ICA Principles provide a good indications of what these requirements may look like.

Even those firms that chose to follow the standard formula / model for the SCR with be required to come to a Pillar 2 assessment of the adequacy of financial resources given the risks faced.

As such the current ICA regime is likely to have wide application under Solvency II.

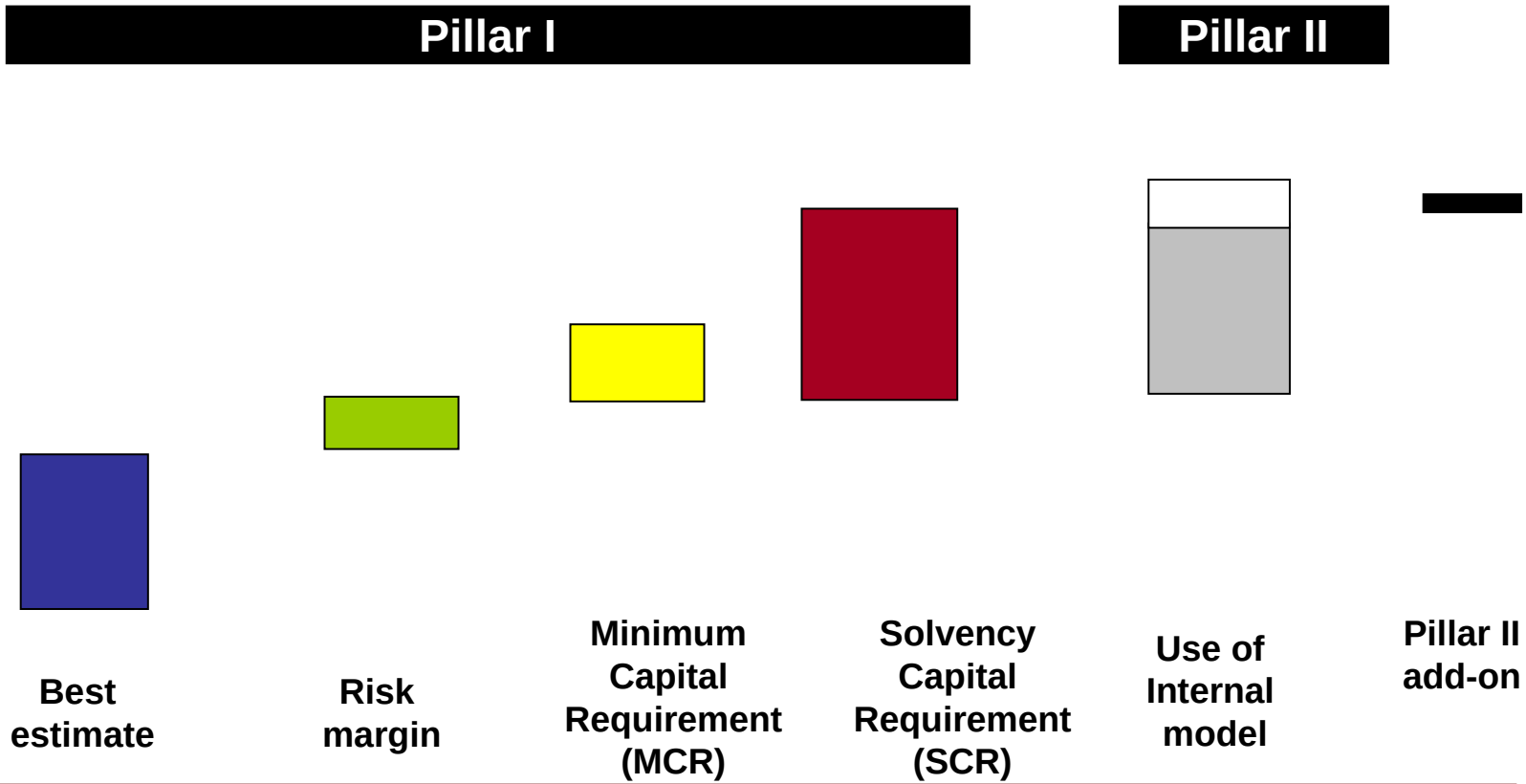
Solvency II – Three-pillar approach



Lamfalussy Approach:

Level 1 **Directives setting out a framework of overarching principles**
Level 2 **Measures implementing Level 1** **Commission develops with technical input from CEIOPS and adopts with EIOPC consent**
Level 3 **Measures to foster supervisory convergence, developed and agreed through CEIOPS**
Level 4 **Enforcement of all EU measures, lead by the Commission**

Solvency II – The quantitative requirements



SOLVENCY II AND BASEL II:
Common threads under Pillar II

- Understanding the significant risks in the business in a quantifiable way. Enhancing the risk management capability.
- Internal Controls: Developing and embedding and integrated risk management control system.
- Senior management responsibilities and evidence of controls.
- Model understanding and use in business.
- Fostering good regulatory relationship.

How do individual risks compare in practice?

Credit Risk

- Typical ICA – Standard model
- Basel formula – Normal distribution
- Basel formula:
  - PD – Probability of default
  - EAD – Exposure at default
  - LGD – Loss given default
  - M – Maturity
  - R – Correlation factor

$$K = LGD.\left[N\left(\frac{N^{-1}(PD) + \sqrt{R}N^{-1}(0.999)}{\sqrt{1-R}} \right) - PD \right].MF(M, PD)$$

Credit Risk

Two main approaches in Basel II:

- The Standardised Approach
  - External ratings (e.g. S&P, Moody's)
- The Internal Ratings-Based Approach
  - Foundation approach
  - Advanced approach
- Example – a reinsurance contract…

Credit Risk – Basel Formula

- S&P 2005 Ratings:

S&P Rating 2005	
Grade	**Cumulative average PD Year 1**
AAA	0.0200%
AA	0.0200%
A	0.0400%
BBB	0.2800%
BB	0.8700%
B	7.7800%
CCC	27.0200%

- Basel Calculation:

Reinsurer	S&P	PD	LGD	Maturity (years)	Exposure Size (GBP)	Correlation, R	Maturity Adjustment	Capital	Capital %
XYZ Re	BBB	0.2800%	50%	2	95,389,102	22.43%	19.41%	2,380,107	2.50%

Credit Risk – Solvency II

- SCR formula (QIS 2):

$$SCR_{cred1} = \sum_i g(rating_i).RDur_i.MV_i$$

rating $_i$	CEIOPS rating bucket	*g* risk weight
AAA	I – Extremely strong	0.008%
AA	II – Very strong	0.056%
A	III – Strong	0.660%
BBB	IV – Adequate	1.312%
BB	V – Speculative	2.032%
B	VI – Very speculative	4.446%
CCC or lower	VII – Extremely speculative	6.950%
Unrated (except reinsurance)	VIII – unrated	1.600%

Market Risk

Typical ICA – Stress and scenarios / ALM

For example, 25% drop in asset values

- Basel II – 99% VaR on **trading book**
- Question – do insurers have a trading book?
- How often should this be valued? (daily, weekly, monthly, annually)
- Note – pattern of insurer's liabilities

Operational Risk

Typical ICA figure ~ 12-15% of ICA

Basel II approach:

i. 15% of average 3 years gross earnings
ii. Factor (β) to differentiate business lines
iii. AMA – internal / external loss data with scenarios

Example

Standardised vs. Internal Models

- SCR – Choice of Standardised or Internal
- Standardised Models:
  - Labour and data requirements
  - Insurers are inherently different
  - Calibration – too high / too low
  - Cost-benefit

Standardised vs. Internal Models

- Internal model choices:
  - Partial internal models?
  - Consistency of models
  - Pillar 2

Diversification

- Banks and Basel II:
  - Assumes a general level of diversification
  - Operational and Market risks
  - Add up all three
- Insurers and ICA:
  - QIS 2 proposes diversification via correlation matrices

Is Basel II same as Solvency II?

The simple Answer is NO but in a around about way they trying to achieve the same thing!

- Basel II is about bringing stability to the International Banking Industry i.e. the whole industry
- Solvency II is about policyholder protection and financial strength of individual insurance companies

- In Basel II the real capital determinant will be in Pillar 2 (1 in 25 year downturn in credit risk calculation). Pillar II is effect a “correction” to Pillar 1
- However, Solvency II Pillar 1 aims to include allowance for business cycles – a lesson learnt from Basel Banking regime
- There is no charge for liabilities under Basel II whereas Solvency II is mainly about liability capital charge. The scope for arbitrage greater under Basel II
- Qualitative and Quantitative information under Solvency II is likely to be higher under ICA regime but will take lead from Basel II

Questions

Omar Ripon
Risk and Regulatory – Financial Risk Management
KPMG LLP
+44 (0) 207 694 2909

Martin Noble
Risk and Regulatory – General Insurance Actuarial
KPMG LLP
+44 (0) 207 311 6156