

# Preparing for Principles-Based Financial Reporting and Solvency Standards

A. David Pelletier FCIA, FSA  
Executive Vice President  
**RGA Reinsurance Company**

Institute of Actuaries of Japan  
Tokyo, June 2009



The security of experience. The power of innovation.

[www.rgare.com](http://www.rgare.com)

# What we'll cover

- I. IFRS – an update
- II. Solvency standards – an update
- III. Impact on a company's assets, liabilities, products, ...
- IV. Impact on the actuary's work, training, and systems
- V. Possible outcomes in Japan

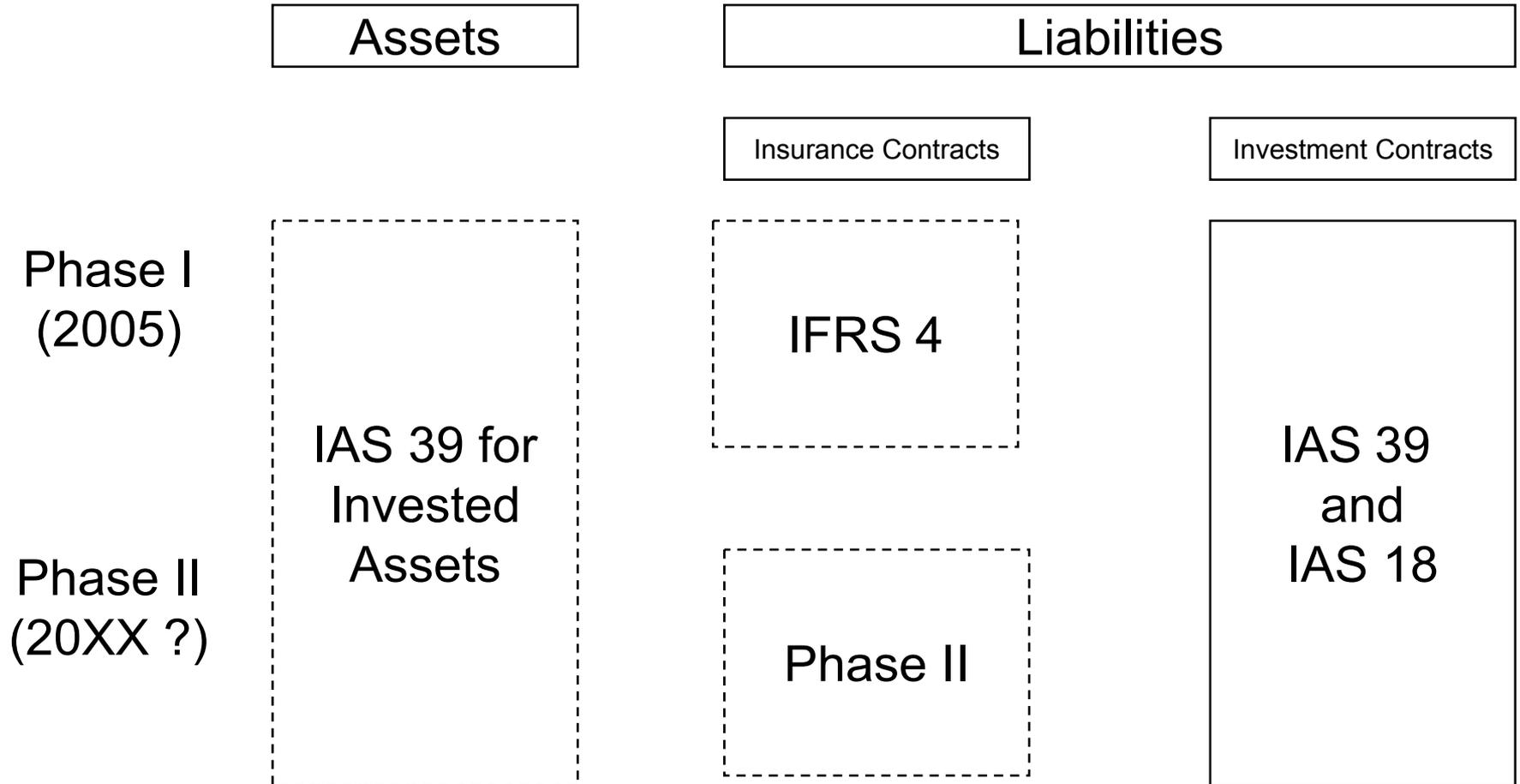
# I. IFRS – an update

- Why global standards
- Framework
- Phase I
- Phase II and where it's heading

# A global set of accounting standards - why

- Given that companies operate, and raise capital, increasingly more globally
  - To enhance transparency and comparability of companies in same industry across different countries
  - To reduce cost of capital via better access to capital markets
- Will in many countries result in an improvement over current standards
- Hopefully will ultimately lead to a single basis for general purpose and statutory reporting

# IFRS reporting framework



# Insurance contracts - Phase I

- IFRS 4 as temporary solution – “Keep doing what you’re doing, mostly!”
- Liability adequacy test
- Elimination of equalization/cat reserves
- Reporting of reinsurance
  - Reinsurance ceded moved to the asset side of the balance sheet
  - Reinsurance premiums to be reported as an expense, not offset against premium income
- Some “unbundling” and separate accounting of “embedded derivatives”
- More extensive disclosure requirements
  - Management, concentration and mitigation of risks
  - Assumptions and sensitivity analysis

# Phase II timeline highlights

- 1999 – Issues Paper on Insurance produced by the IASB's predecessor IASC
- 2001 – Draft Statement of Principles
- 2005 – IFRS 4 as temporary measure (Phase I)
- 2007 – Discussion Paper
- Oct 2008 – FASB formally joins project
-  April 2010 ? – Exposure Draft
- July 2011 ?? – Final standard
- 2013 ??? – Effective date

# The old approach ...

- The liabilities  $A_{x+t} - P_x \ddot{a}_{x+t}$ 
  - based on frozen assumptions, potentially irrelevant later
  - using a premium that wasn't the one actually being paid
  - ignoring various contingencies (lapse!) and benefits (cash values)
  - ignoring specific reinsurance treaty features
  - erroneously considered to be automatically conservative (and along came “negative spread”)
  - eventually suggesting “cashflow testing” to see if the results of all these old-fashioned calculations made any sense
- And then compared to assets **not** held at what they were worth, and/or **not** at values consistent with the measurement of the liabilities
- Unfortunately, not so old ...

# Getting (slowly!) to the new way

- Best estimate assumptions, and process for developing them
- Explicit margins, and process for developing them
- Ongoing revision of assumptions
- All significant benefits, risks picked up, including actual features of reinsurance treaties
- Measurement of assets and liabilities on a consistent basis
- Potentially simpler to explain and understand, but more complex to carry out

# What we'll see in IFRS 4 Phase II

- Liability will be a discounted cashflow approach
  - Present value of probability-weighted cash flows, using up-to-date assumptions and observable market inputs where they exist
  - Insurers must consider embedded options, guarantees, policyholder cancellation options, and participation rights
- Practical translation
  - Net liability will be what you're going to pay out, less what you're going to take in, measured realistically on an up-to-date basis, with a risk margin
  - But the process of getting there will be more complex, and the results will be more volatile

# Some issues

- Exit value vs fulfillment value vs IAS 37 model
- Use of risk-free rates for discounting (and impact where products priced using expected asset returns)
- Use of own credit standing
- Approaches towards the risk margin
  - “Provision for Adverse Deviation”, vs
  - Cost of capital
  - Not a “shock absorber”
- Unbundling (bifurcation) for contracts that include deposit and insurance elements
- Gain at issue (“Day one difference”).
- Possible (unfortunate?) impact of separate “revenue recognition project”.
- Consideration of renewal premiums

***Will they get to the right answers???***

# Various candidate approaches

	Exit value 1	Fulfillment value 2 <sub>(discarded)</sub>	IAS 37 model updated	Fulfillment value 4
Definition	Amount to transfer obligations	PV of cost to fulfill obligations	Rational am't to relieve oblig'ns, plus additional margin	Same, but with "composite" margin
Margin components	Market risk + service margins	Risk margin	Cost margin + add'l margin based on Day 1 difference	Composite margin calibrated to premium
Margin remeasurement in future	Yes	Yes	Risk margin portion only	No - Composite margin fixed
Day 1 difference	Recognized	Recognized	No Day 1 profit	No Day 1 profit; Loss if onerous
Liability adequacy test	Not required	Not required	Not required	Required only at inception
Own credit standing	Reflected	Not reflected	Not reflected	Not reflected

# II. Solvency standards – an update

- Early solvency requirements
- Solvency II in Europe
- A view from Canada

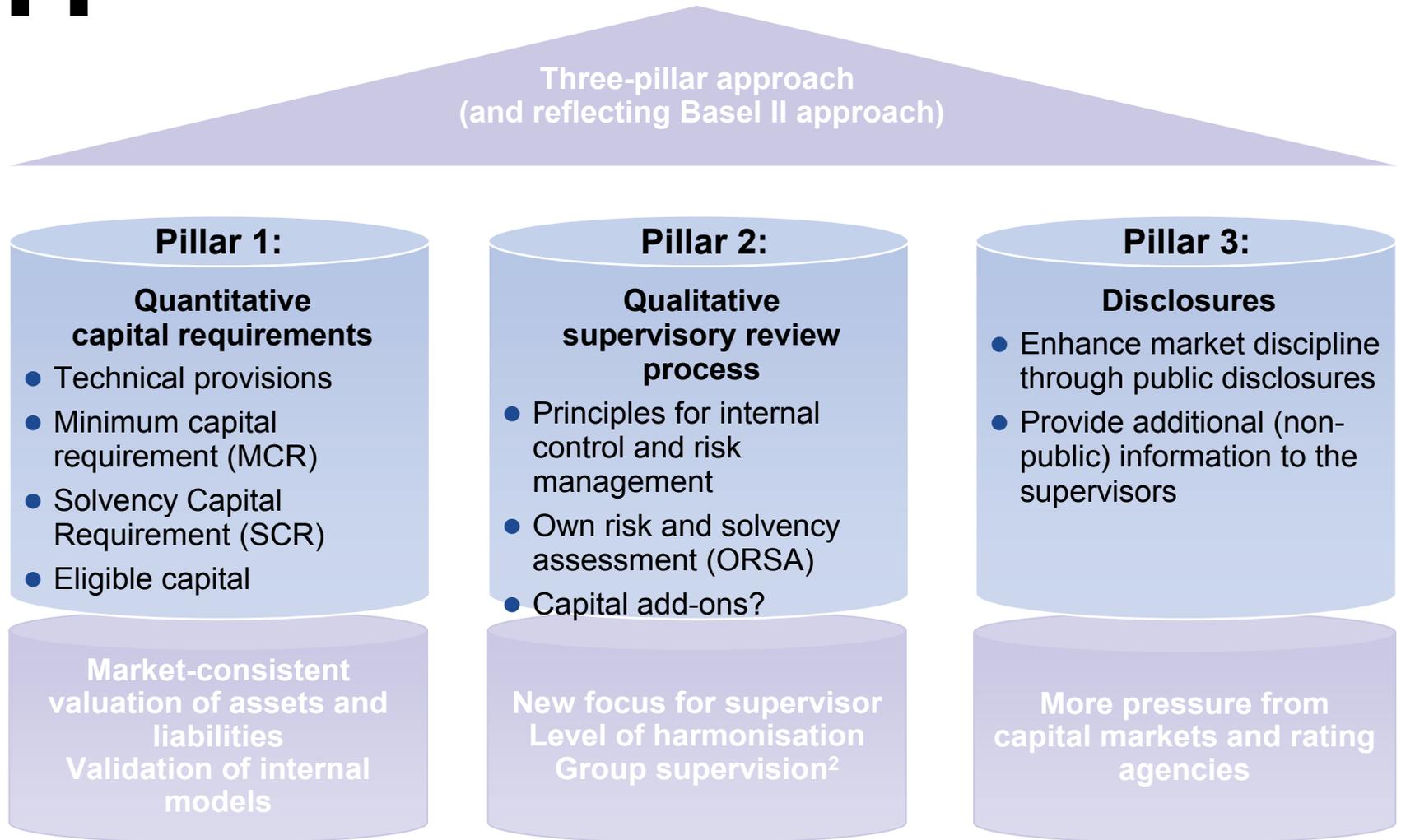
# Early Solvency Requirements

- Accounting Rules
- EU Solvency I
- Canadian MCCSR
- US RBC
- Australia, Japan, and many more

# Early solvency measurement shortcomings

- Looked only at liabilities
- Didn't differentiate by risk
- Didn't cover all the risks
- Didn't recognize guarantees
- Didn't keep pace with product evolution

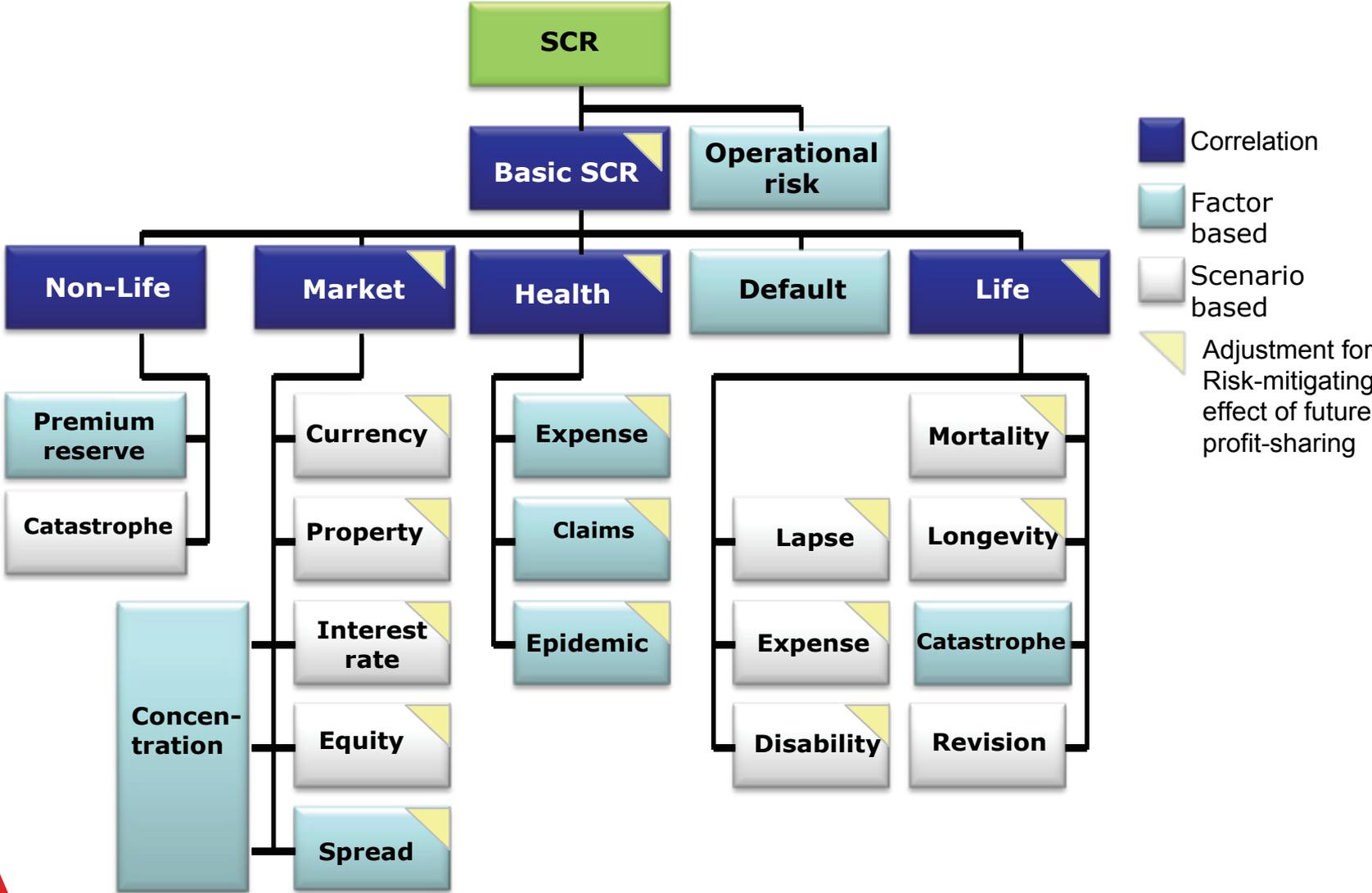
# Solvency II – Three-pillar approach<sup>1</sup>



# Pillar 1 – Key Features

- Solvency Capital Requirement – 99.5% VaR over 1 year
- Scenarios instead of factors
- Correlation assumptions
- Standard formula **or internal models**
- Utilizes calculation of market-consistent values of assets and liabilities

# The SCR Standard Approach



# Sample covariance matrix (Life risk)

<i>CorrLife</i>	<i>Life<sub>mort</sub></i>	<i>Life<sub>long</sub></i>	<i>Life<sub>dis</sub></i>	<i>Life<sub>lapse</sub></i>	<i>Life<sub>exp</sub></i>	<i>Life<sub>rev</sub></i>	<i>Life<sub>CAT</sub></i>
<i>Life<sub>mort</sub></i>	1						
<i>Life<sub>long</sub></i>	-0.25	1					
<i>Life<sub>dis</sub></i>	0.5	0	1				
<i>Life<sub>lapse</sub></i>	0	0.25	0	1			
<i>Life<sub>exp</sub></i>	0.25	0.25	0.5	0.5	1		
<i>Life<sub>rev</sub></i>	0	0.25	0	0	0.25	1	
<i>Life<sub>CAT</sub></i>	0	0	0	0	0	0	1

$$SCR_{life} = \sqrt{\sum_{rxc} CorrLife^{rxc} \cdot Life_r \cdot Life_c}$$

Source: European Commission, QIS 4 Technical Specifications

# A view from Canada

- Unlike the US, Canada has preferred to have principles-based “statutory” and “Canadian GAAP” one and the same
- A separate solvency calculation MCCSR on top of the liabilities
- But now, the regulator OSFI losing influence over Canadian GAAP as it moves to IFRS
- Simple solution: Total Asset Requirement

# Total Asset Requirement

- Traditional approach: add solvency requirement on top of policy liabilities
- What Canada will do instead: determine total assets required for financial strength and then *subtract* policy liabilities to determine required capital
- Hence:
  - can maintain same total asset requirement as liability accounting standards change
  - can automatically adjust for features of IFRS that are “unacceptable” to OSFI

# **III. Impact on a company's assets, liabilities, products ...**

- Of emerging solvency requirements
- Of IFRS
- Examples of profit stream
- Illustration of volatility

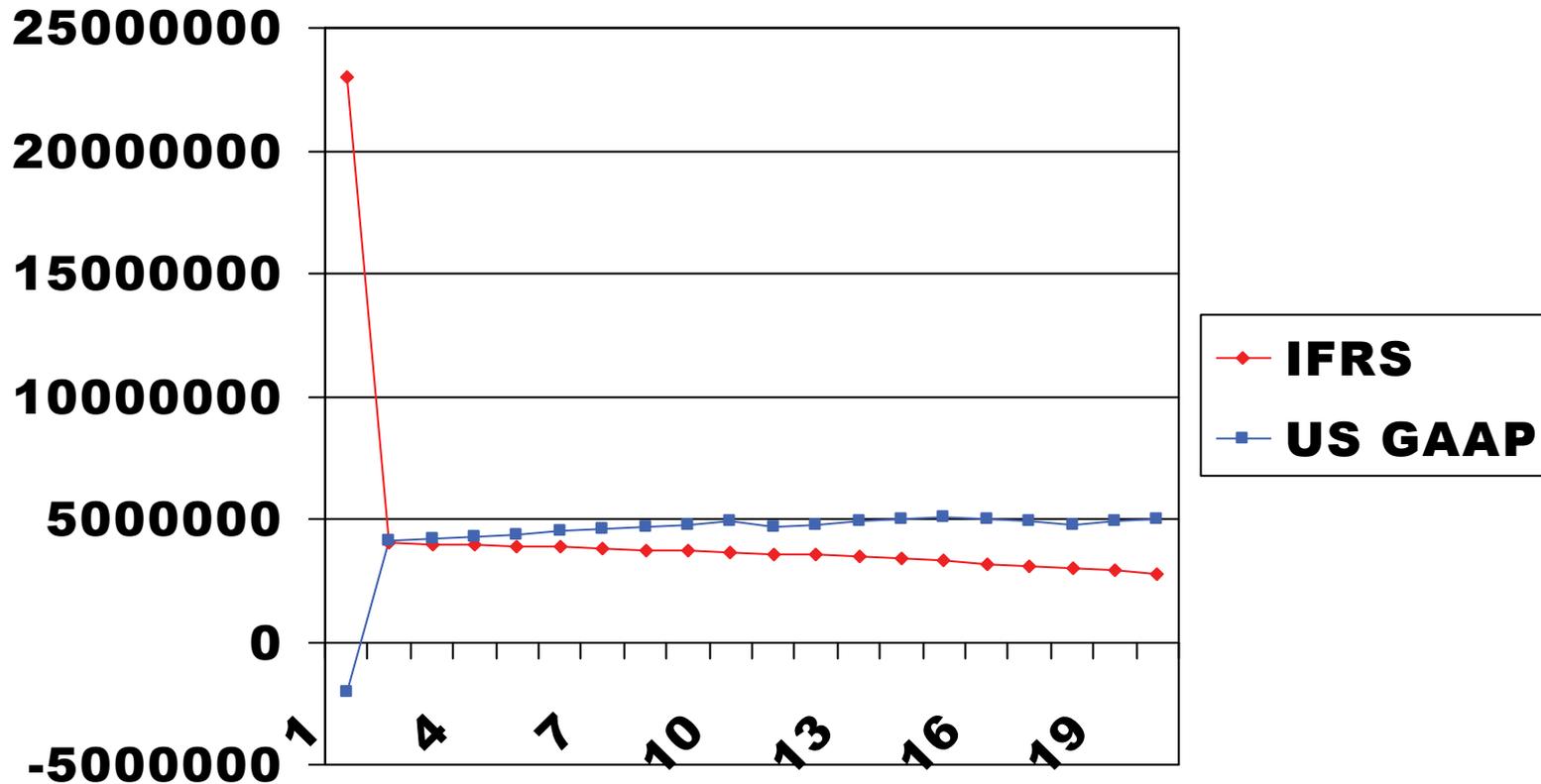
# Impact of emerging solvency requirements

- Will drive greater focus on asset-liability management:
  - Finding/generating longer assets, or
  - Reducing duration of products?
- May lead to greater risk diversification by insurers
- May lead to greater use of reinsurance
- Will require good communication skills on part of actuaries, so not a “black box”

# Impact of IFRS (including Phase II)

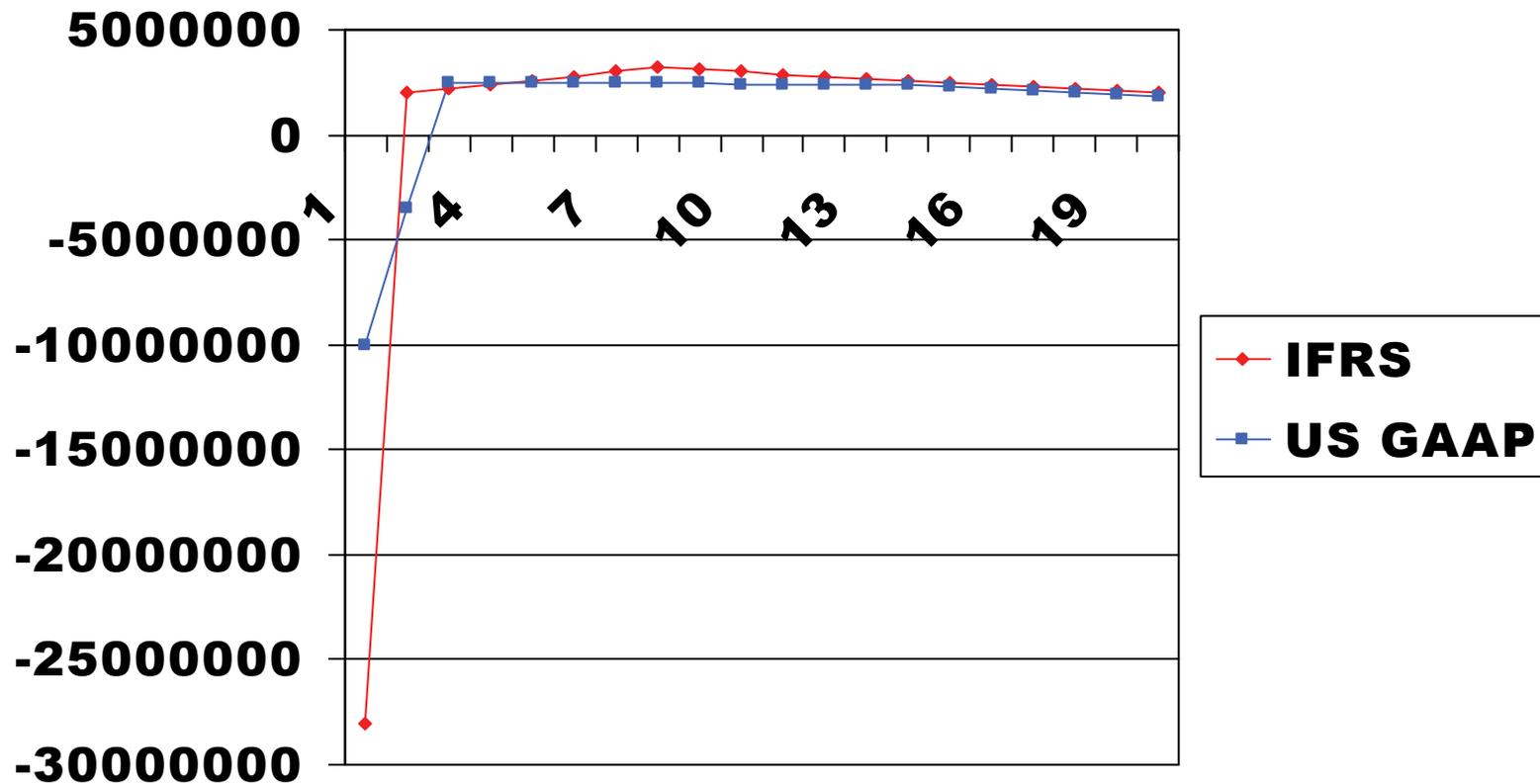
- In many countries on many products:
  - Life insurance liabilities will tend to drop relative to past statutory results, as undue conservatism stripped away
  - Investment contract liabilities may tend to rise, due to use of risk-free discount rates
- On some products in some countries (eg, where negative spread exists), a potentially significant increase in liabilities
- Relative to US GAAP, see Society of Actuaries' Research Report at:

# IFRS exit value approach vs US GAAP: Term New Business Profit



Source: Society of Actuaries Research Report, 2008.01.29

# IFRS exit value approach vs US GAAP: LTC New Business Profit



Source: Society of Actuaries Research Report, 2008.01.29

# Volatility: Actual example of life product under IFRS-like approach

## 1. Pricing, hence before issue

- Change of 1% in either assumed lapse or interest rate would drive premium up by around 10-12%

## 2. Valuation, after issue:

- Change of 1% in either assumed lapse or interest rate would drive reserves up by around **50%**
- Note: premiums now fixed, so much greater impact on PV of benefits than PV of premiums!

# Liability (ignoring reinsurance):

- **Sum of PV of:**
  - death benefits
  - surrender benefits
  - dividends
  - commissions and expenses
  - any other disbursements
- **Less sum of PV of:**
  - actual premiums
  - any other policy-related income

# Impact of assumption change (say $i$ from 5% to 2%)

- Before change:  $V = A_{x+t} - P_x \ddot{a}_{x+t} @ 5\%$
- After change:  $V = A_{x+t} - P_x \ddot{a}_{x+t} @ 2\%$

??????

# Impact of assumption change (say $i$ from 5% to 2%)

- Before change:  $V = A_{x+t} - P_x \ddot{a}_{x+t} @ 5\%$
- ~~After change:  $V = A_{x+t} - P_x \ddot{a}_{x+t} @ 2\%$~~
- After change:  $V = A_{x+t} - \overset{5\%}{P}_x \ddot{a}_{x+t} @ 2\%$

# Numerical illustration

<b>Impact of Actuarial Assumption Strengthening</b>			
	<b>Before</b>		
<b>Assets</b>	<b>1100</b>		
<b>Liabilities</b>			
. <b>PV Benefits</b>	<b>10000</b>		
. <b>PV Premiums</b>	<b>9000</b>		
. <b>Difference</b>	<b>1000</b>		
<b>Surplus</b>	<b>100</b>		
<b>Earnings</b>	<b>20</b>		

# Numerical illustration (cont'd)

<b>Impact of Actuarial Assumption Strengthening</b>			
	<b>Before</b>	<b>After</b>	<b>Change</b>
<b>Assets</b>	<b>1100</b>	<b>1100</b>	<b>0%</b>
<b>Liabilities</b>			
. <b>PV Benefits</b>	<b>10000</b>	<b>10500</b>	<b>5%</b>
. <b>PV Premiums</b>	<b>9000</b>	<b>9270</b>	<b>3%</b>
. <b>Difference</b>	<b>1000</b>		
<b>Surplus</b>	<b>100</b>		
<b>Earnings</b>	<b>20</b>		

# Numerical illustration (cont'd)

<b>Impact of Actuarial Assumption Strengthening</b>			
	<b>Before</b>	<b>After</b>	<b>Change</b>
<b>Assets</b>	<b>1100</b>	<b>1100</b>	<b>0%</b>
<b>Liabilities</b>			
. <b>PV Benefits</b>	<b>10000</b>	<b>10500</b>	<b>5%</b>
. <b>PV Premiums</b>	<b>9000</b>	<b>9270</b>	<b>3%</b>
. <b>Difference</b>	<b>1000</b>	<b>1230</b>	<b>23%</b>
<b>Surplus</b>	<b>100</b>		
<b>Earnings</b>	<b>20</b>		

# Numerical illustration (cont'd)

<b>Impact of Actuarial Assumption Strengthening</b>			
	<b>Before</b>	<b>After</b>	<b>Change</b>
<b>Assets</b>	<b>1100</b>	<b>1100</b>	<b>0%</b>
<b>Liabilities</b>			
. <b>PV Benefits</b>	<b>10000</b>	<b>10500</b>	<b>5%</b>
. <b>PV Premiums</b>	<b>9000</b>	<b>9270</b>	<b>3%</b>
. <b>Difference</b>	<b>1000</b>	<b>1230</b>	<b>23%</b>
<b>Surplus</b>	<b>100</b>	<b>-130</b>	<b>-230%</b>
<b>Earnings</b>	<b>20</b>	<b>-210</b>	<b>-1150%</b>

# IV. Impact on the actuary's work, training, and systems

- Principles
- Judgement and impact
- Future focus on measuring and managing risk

# An opening perspective

- Post-Enron, a widely-shared perspective that “principles-based” rather than “rules-based” approaches preferable

BUT

# An opening perspective

- Post-Enron, a widely-shared perspective that “principles-based” rather than “rules-based” approaches preferable

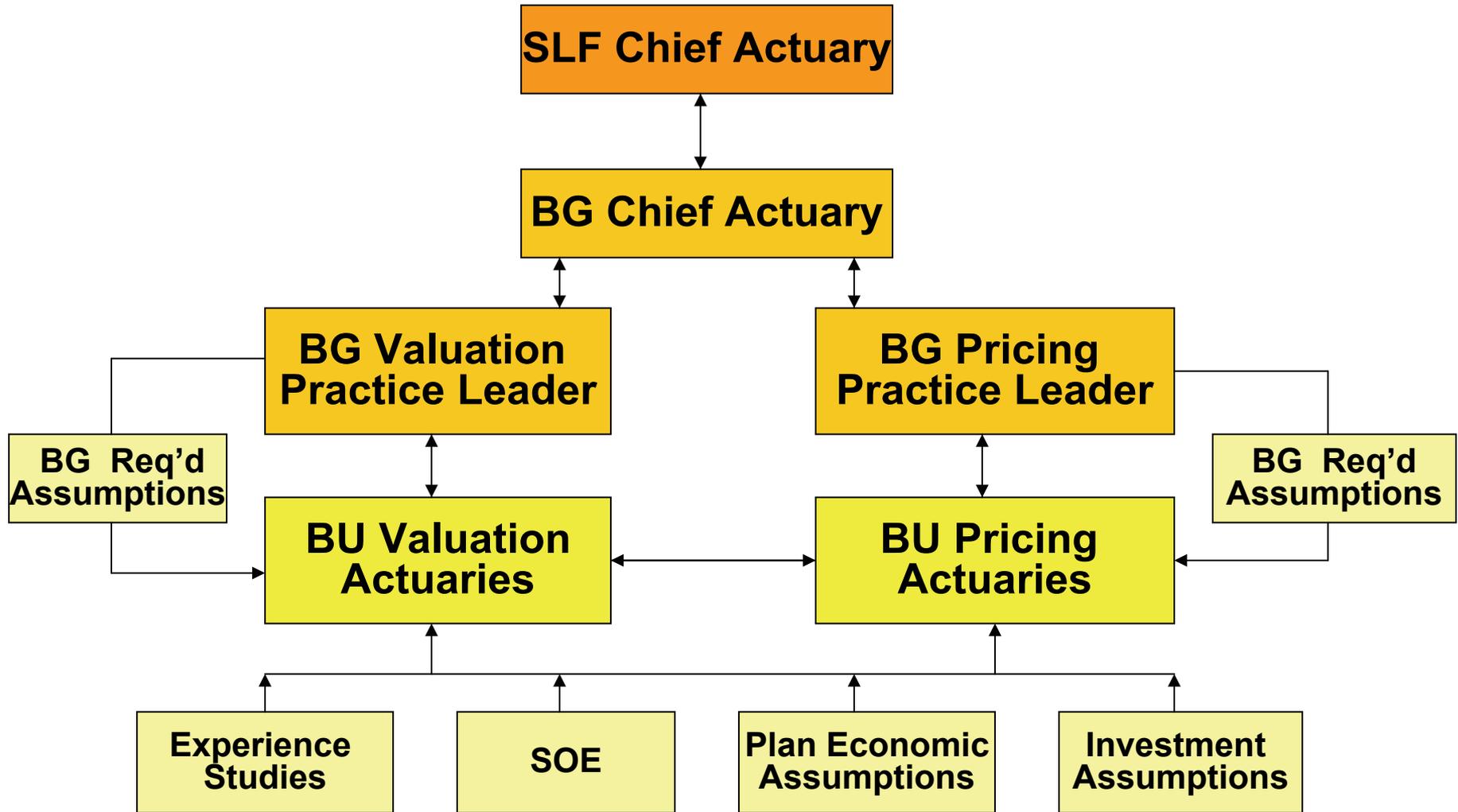
BUT

- Principles-based approaches work only
  - if the principles make sense, and
  - with people who have them, and can make sound judgements accordingly

# The role, and training, of the actuary

- Ability to manipulate commutation columns doesn't matter any more
- Assumption-setting
  - Huge impact on financial statements
  - No longer a question of meekly following the rules from the regulator
- Understanding both sides of the balance sheet, and what can go wrong
- Judgement on trends, impact, whistle-blowing, ...

# Assumption Setting Process\* at Sun Life Financial



# Possible support for the actuary in his/her professional role

- Standard-setting
  - Techniques
  - Expected assumptions
  - Margins
- Possibly, given lessons learned from financial crisis, dynamic solvency testing (stress-testing rather than mere models)
- Software???
- Possibly, given impact of actuary's work, peer review
  - Assumptions/methods
  - Procedures/verification
  - Quality/clarity of communication
  - Reasonableness
  - Materiality
- Discipline

# The skill that will be needed: an example

## Raising the bar part one: Using an internal model under Solvency II

Under Solvency II, insurers can seek approval for use of their own internal model in calculating their solvency capital requirement. Approval depends on their ability to demonstrate that they meet six key tests:<sup>5</sup>

- Use test: Senior management needs to understand, endorse, and use the risk and capital evaluations from the internal model as a key basis for its business planning and strategic decision-making.
- Statistical quality: Evaluations need to be based on timely, reliable, consistent, and comprehensive risk data and be underpinned by current, credible, and verifiable risk assumptions.
- Validation: Evaluations and underlying assumptions need to be regularly sense-checked against actual experience.
- Calibration: Outputs need to be calibrated to a 99.5% value at risk (VAR) or equivalent measure and benchmarked against market practice.
- Attribution: Companies need to regularly check whether the categorization of risk and attribution of profit/loss in their models reflect the causes and sources of profit/loss within business units.
- Documentation: Companies need to keep regularly updated records covering the design, operation, mathematical basis, and underlying assumptions of their model.

# V. Possible outcomes in Japan

- IFRS: When and which?
- Solvency standards – bringing it in line with other developed countries

# IFRS: when and which?

- When will Japan adopt IFRS? Before or after IFRS 4 is amended by Phase II?
- If it's before Phase II is implemented (unlikely), a double conversion??
- Will the FSA require IFRS for all insurance companies (à la Canada) or just listed ones?
- What will Phase II finally look like?
- What will the impact of negative spread be?
- How much volatility will it introduce?

# Solvency standards

- A Solvency II approach?
- A Total Asset Requirement approach?
- Importance of both the numerator and the denominator
- Regardless, eventually full recognition of asset-liability mismatch

# For both IFRS and solvency reporting

- Lots of work for the actuaries (good)
- But a lot of work in standard-setting, software development, and technical and professional training to get there

# Sources for reference

- [www.iasb.org](http://www.iasb.org) - **International Accounting Standards Board**
- [www.iaisweb.org](http://www.iaisweb.org) - **International Association of Insurance Supervisors**
- [www.actuaries.org](http://www.actuaries.org) - **International Actuarial Association**
- [www.cfoforum.nl](http://www.cfoforum.nl) - **CFO Forum**
- [www.croforum.org](http://www.croforum.org) - **CFO Forum**