



SOCIETY OF ACTUARIES

**Global Best Practices in ERM for
Insurers and Reinsurers Webcast
December 10 & 11, 2008**

**Session # 1P: Market-Consistent Risk
Management**

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**Moderator
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Session 1P: Market Consistent Risk Management

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December 10, 2008

ERM and regulatory solvency capital requirements

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1. Features of insurance market in Japan

- 3rd Largest market with high penetration rates
- Lowest interest rate
- Fixed return insurance product
- Long maturity of life insurance liability ⇒ limited hedging instruments
- The expose to significant catastrophe risks
- Significant shift of the insurance needs from death to medical and pension

Japanese insurers need

- sophisticated risk management,
- capitals for underwriting unhedgeable risks,
- proactive reaction to the policyholders' needs

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2. FSA views toward future solvency standards

Economic based solvency regime

- ✓ More incentive for ALM & ERM
- ✓ Introduce economic valuation for asset and liability simultaneously
- ✓ Careful consideration should be paid to revenue recognition, etc.

Group solvency

- ✓ International standard for internationally active insurance groups would enhance the comparability, credibility and transparency of the insurance market

Capital assessment, supervisory review and public disclosure

- ✓ International standard should be supported by enhanced supervisory review, supervisory cooperation and disclosure

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3.JFSA Approach toward More Risk Sensitive Solvency Regime

Issues to be improved

Credibility of current regime

- ✓ Prompt actions can be taken in a appropriate timing
- ✓ Ensure the market credibility both of supervisor and industry
- ✓ Reflect Material risks (e.g. ALM mismatch) appropriately

Incentive for better risk and capital managements

- ✓ Introduction of incentive structure in required capital for better risk and capital management
- ✓ Supervisory review and disclosure of risk management practice

Directions that we should take

- ✓ Higher confidence level would enhance the market confidence
- ✓ Economic based solvency regime would allow better alliance with their own risk and capital management

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3.JFSA Approach^(*) toward More Risk Sensitive Solvency Regime

Current Reform

(*) The Solvency Margin Study Team proposed the reforms on April 3rd, 2007.

Risk Factors

- ✓ Higher confidence-level : 90 % (for asset mngmt risks) ⇒ 95 %
- ✓ Re-calibration with the current financial data
- ✓ Diversification factors reflected by risk management practices

Solvency Margins

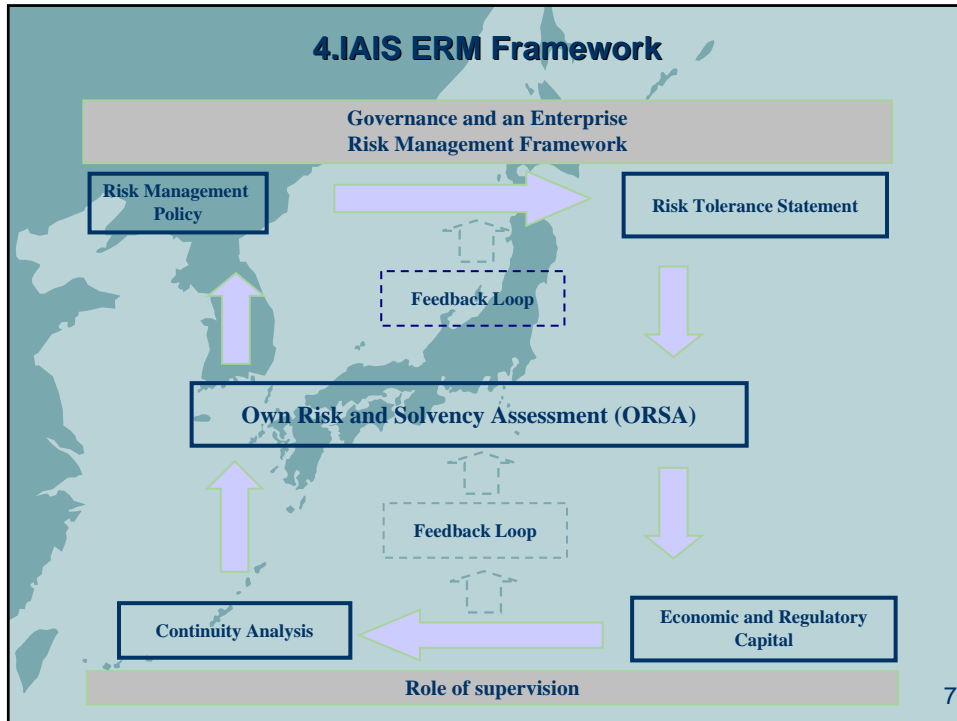
- ✓ Assets which rely on the future profitability of the insurer itself (Deferred Tax Assets, Other Tax Benefits & Future Income) need to be considered for limitation to appropriate level

Reform toward Economic Based Solvency Regime

Making continued efforts, considering Year 2010 as a target, to introduce

- ✓ Economic based valuation of insurance liability
- ✓ More sophisticated standard model, such as to reflect each insurer's ALM position appropriately, etc

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5. Current turmoil is giving good excuses for some of the insurers to wait and see....

Economic based valuation??

- ✓ Only a current economic valuation can provide sufficiently relevant and reliable information of the financial position of the insurer.

Internal model??

- ✓ The IAIS acknowledge model limitations before this crisis.
- ✓ Better risk management is still the most important agenda.
- ✓ Without model, how to make sure that your decision is appropriate to the interests of the stakeholders, including policyholders?

"Not now maybe later" is a good decision??

- ✓ Good internal model need substantial time to be "used" appropriately by and strong commitment from the management.
- ✓ Japanese Banks initiated Basel II implementation in the bottom of our economy, which gives good data forms for better risk managements.
- ✓ Best practice from pure economic sense can be the strong basis of the new solvency standards, therefore insurers should not wait supervisors' guidance

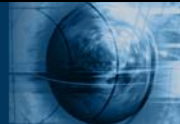
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Market Consistent Risk Management

Presentation to ERM Webinar
For Discussion Purposes only

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11 December 2008

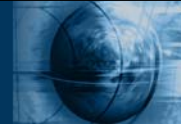
Agenda



- Why are companies moving towards Market Consistent Risk Management?
- Examples that highlight the challenges
- Practical issues in implementation



Towards Market Consistent Risk Management



International Accounting and Regulatory Capital Standards and moving us down this path.

Accounting Standards

- IFRS
- Market Consistent Embedded Values

Regulatory Capital Standards

- VACARM
- Solvency 2

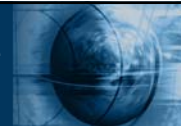
...and the international players are moving rapidly down this path.

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Extreme Market Conditions will Accelerate the Process



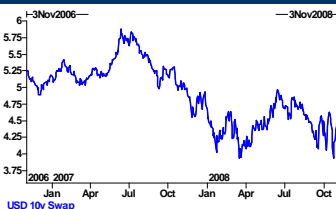
- The current crisis is differentiating itself in terms of (i) severity of losses and (ii) the breadth of those losses across risky asset classes
- Even "conservative" insurers have been impacted by losses on corporate bond portfolios

S&P 500



S&P 500

USD 10y Swap



USD 10y Swap

Source: Goldman Sachs

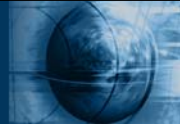
CDX Index



5y CDX

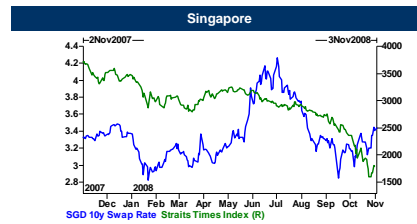
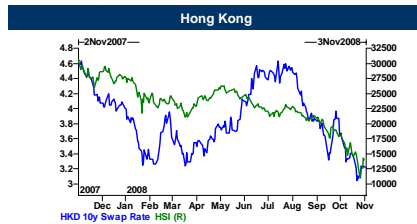
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Asia: Falling Equities & Interest Rates



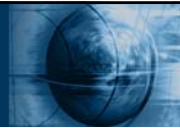
Asian insurance companies face the combined misery of falling equity markets and falling interest rates.

- Most companies have relatively small and approximately linear exposures to equities (on the downside)
- The impact of lower rates via negative spread problems could be even more damaging over the longer term



Source: Goldman Sachs

How Should We Respond?



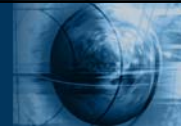
“Know your exits”

- The industry has less capital – on any reasonable measure
- Assumption of ready access to further capital if required is tenuous at best
- Demand for products with guarantees and margins for safety not likely to abate

Managing in a market consistent framework can help insurance companies to “know where the exits are” in the event that they need to lay off risk

- Knowing and managing to market hedge costs provides optionality
- Assumption of reinsurance companies pricing in a market *in*consistent manner increasingly unlikely

Example: Variable Annuities

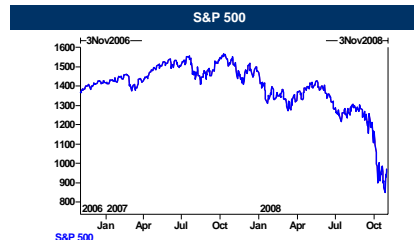


Example: Managing a GMWB product (backed by equity oriented mutual funds)

- As equity markets have fallen, hedging programs beset by issues

- high costs of hedging
- hard to source long dated volatility

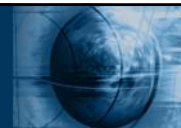
- Minimum income guarantees have increased interest rate risk



-just as rates have fallen
- In Asia, hedging approaches face additional challenges in terms of:
 - illiquid rate markets
 - few options to source longer dated assets

Please note that the provision of example is for illustrative purposes only and does not guarantee any actual value in the future. Actual events and results may differ materially from those assumed. The analysis or information provided is based on certain assumptions which may not be assumptions that Goldman Sachs normally employs, and the provision of such analysis or information does not guarantee any actual return, value or cash flow in the future. The analysis or information provided herein was supplied in good faith based on information which we believe, but do not guarantee, to be accurate or complete; however we are not responsible for errors or omissions that may occur.

Implementation: Some Observations



- Any methodology will be constrained by how well you implement it
 - A relatively simple model backed by good people and process is a useful starting point
- Understand the limitations of your approach
- Liquidity in the preferred hedging instruments may not always be there
- Be wary of correlation risk (eg. equities and rates in our previous example)
- If you assume large basis risk, eg. hedging long dated volatility with short dated instruments
 - Monitor and manage expectations
 - Have a Plan B

Managing Expectations

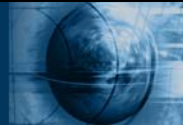


Insurance companies are invariably seeking to hedge an unpredictable, unknowable dynamic liability.

- There is truly no perfect hedge – educate management to expect some slippage
- Look at all of the Greeks – even if the decision is not to hedge them
- Banks tend to have two way flows – and hedge the net position.
 - This gives banks efficiencies typically not available to life companies
 - This provides efficiencies that insurance companies may seek to take advantage of

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How Will It Change the Insurance?



Given the business model's leverage to financial market performance, the insurance industry is increasingly turning to hedging strategies.

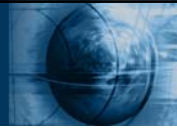
- Tighter ALM
- Technology spend
- Ever closer working relationships between different parts of the business
 - Actuaries and the investment team
 - Across the product development life cycle

Open question: will it change the types of products the industry offers?

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Market Consistent Risk Management – in practice

ERM Webinar

For Discussion Purposes only



Gayle Adams
11 December 2008

Outline

1. What is market consistent risk management
2. Flushing out some issues
3. Practicalities
4. What to do?

Horses for courses

What is it?

- A systematic way of identifying and managing the total risk of an organization in a consistent manner across markets
 - From traditional insurance risks to governance, management and operational risks etc
- Various objectives depending on driver – include transparency, comparability, consistency, CQI
- Drivers from various sources
 - Regulators (IAIS & country specific)
 - Multi-nationals, professional bodies (actuaries, accountants, etc)
 - Even individuals in organizations - like internal actuaries!

Sounds sensible. Hard to argue with.

But are markets consistent?

1. In Asia -
 - Mature markets, new markets, rapidly changing markets
 - Skilled resource short markets, expense constrained markets
 - Large, medium, small and tiny markets
 - Very regulated, partly regulated, unregulated markets
2. All have different products, wording, access to capital, regulations, skills etc
3. Compare Indonesia, Hong Kong, India, Japan, UAE, Singapore, Korea, Australia.....
4. Markets are consistent in that they are trying to adapt!

Horses for courses

Sounds simple

- Some examples from around the working world
 - Some good
 - Some challenging
 - All real

An example from a mature market

APRA Prudential Standard LPS 220

A life company's risk management framework must, at a minimum, include:

- a) **an RMS** [ed:Risk Management Statement];
- b) **risk management policies, controls and procedures** which identify, assess, monitor, report on and mitigate all material risks, financial and non-financial, likely to be faced ... having regard to such factors as the size, business mix and complexity of ... operations;
- c) **a written business plan**, that is approved by the Board prior to its adoption and at any time that it is materially revised. The Business Plan must be reviewed at least annually;
- d) **clearly defined managerial responsibilities and controls** for the risk management framework; and
- e) **a review process** to ensure that the risk management framework remains effective.

Source: APRA Prudential Standard LPS 220

An example from a different “mature” market

1. A large non-life mutual insurer was transitioning to a new, much needed administration system
2. Complications included -
 - Premium rates could not be increased during the year long transition
 - There was an adverse claims trend
 - Premium rates where expected to become inadequate before the end of the transition
 - Solvency was low but would be OK **as long as premium rates where increased at the planned time**

What happened?

Time went on.....

Towards the end of the year long project –

- A simple mistake was made
 1. Too few claim processors were hired for new system
 2. An unexpected claims backlog built up in a few weeks
 3. The call centre became swamped by calls about claims
 4. The press began reporting insolvency rumors
 5. The company had to devote itself to clearing the backlog and restoring confidence to regulators & public
 6. The implementation of the “change premium rates” module was delayed
- The planned rate increase had to be delayed

What happened???

The story's end.....

The day was saved

1. The adverse claim trend had reduced and not increased over the year ...
2. Solvency was therefore maintained!

The temporary problem of too few claims processed nearly caused a major solvency problem



Where to now?

Applying it! What to do?

1. Paul Carrett in the last presentation gave as *good as quote as any*

“Any methodology will be constrained by how well you implement it
 - *A ... simple model backed by good people and process is a useful starting point**Understand the limitations of your approach”*
2. Professional bodies and regulators can help

What is happening?

- I asked a sample of actuaries in the region from a variety of companies, consultancies, regulators in life, non-life and health insurance.
- I heard the following comments from the following countries “ ”
- All up liquidity crisis and accuracy of obscure parts of central estimates were NOT the biggest concerns in several countries –
 - Some countries reported small concern about capital or liquidity
 - But reports of concerns about uncontrolled growth, basic ability to understand profitability, severe shortage of skilled resources, data, organizational readiness

Practical Problems

- The actuary may not have the power or position
- Trained and skilled resources may not be available
- Data, reporting systems and methods take time to build
- Priorities can be very different
- Regulator may or may not be on same page
- Organization may not yet appreciate the risks

The positive -

- Professional bodies and regulators can help
- Actuaries (and others) can influence organizations over time with a bit of help

Applying it! Leadership

- Professional bodies and regulators can help – be sensitive to the conflicts of -
 1. Country sensitive standards are definitely needed
 - To stop excuses, help focus, force reality checks, give internal people some thing to fight inertia
 2. Companies and countries can evolve only so fast
 - New products need original application of sound theory
 - Often severe skill shortages
 - Need for a whole organization to come together
 - Need time for consultation, digestion and understanding
 3. The real world will keep happening while we implement MCRM
 - Credit crisis, terrorists, tsunamis.....

Applying it! Leadership

- Ideally our professional bodies should enable and support
 - It can be a lonely and over burdened world out there
 - Reality can be significant

- Simplicity and a clear framework for systematic development

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Some more examples... for
your contemplation



An example from another mature market

A small non-life insurer in a fairly unregulated but mature market

- **Premiums were currently profitable by a suitable targeted small margin**
- **IBNR method meant automatic over reserving**
- **Had an actuary**
- **Had decided the future was not in its core business**
- **It was very “innovative” & going into blue sky markets**
- **Had ambitious growth and business plans**

Looks good?



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... that gets worse

On the other hand -

- The actuary had just started, no statutory or board responsibilities, 2 spreadsheets of data
- Significant adverse claims trend began to emerge
- IBNR estimation error fluctuated wildly – leading to profit misunderstanding
- New ventures liability was highly geared and fairly unique in the world – assessment in its infancy
- Past growth was from acquisition, not from sales i.e. long term negative policyholder growth
- Unit insurance expenses getting higher, development expenses higher still

The risk management actuary's dilemma

- Management don't like "negativity"! And they certainly do not want a report!
- The Board trusts Management and don't want a report
- The auditors were perplexed & confused. They only had a small budget. They would like a report on the insurance (not new ventures) IBNR
- The local actuarial body had no professional standards to help – except that central estimates should not be set below 50%... Management accepts this requirement - after a struggle (starving families on the street!).

Was the actuary able to implement market consistent risk management that year?