Institute and Faculty of Actuaries

Actuarial Mission Impossible: Embedding Economic Capital

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Embedding – market perspectives

“Your mission if you choose to accept it”

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What is embedding

- Effective embedding means the model is used to positively influence business strategy and risk culture:
  - Informing the strategic decision making process
  - Inputting into risk management processes to enable greater “agility” to detect, anticipate, and react to changes or uncertainties
  - Driving first line business performance and risk taking activities

Have you failed before you started?

- The concept of needing to embed implies you have mandated the need to build something (e.g. by your Group or regulator) and then need to find a reason to use it internally, rather than the other way around
- Under Solvency II we saw many examples of the incentives for embedding being regulatory related or capital driven, rather than a desire to “use”:
  - “I’ll obviously use the model when Solvency II goes live – I won’t have a choice!”

The best examples of well embedded models are generally firms that built their models out of a business need long before any regulations required it

It’s a challenge for many – but why?

- You cannot embed what is not:
  - A priority (buy-in and ‘tone from the top’)
  - Available in time (frequency and performance)
  - Understood (senior understanding and training)
  - Giving reliable results (governance and robustness of processes and controls)
  - Representative of your business (fit to the risk profile)
  - Forward looking (projection capabilities)
  - … (this is not an exhaustive list)

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It’s a challenge for many – but why?

- Multiple potential uses mean
  - the exact same ‘model’ cannot always be used in all cases
  - variations must be used (proxies, simplifications, varying metrics, differing reporting levels, etc.)
- There is a need for consistency between models, i.e. they are aligned in terms of underlying view of the business / risk profile

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Some better examples

“this isn't mission difficult, it's mission impossible. "Difficult" should be a walk in the park for you”

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Some better examples

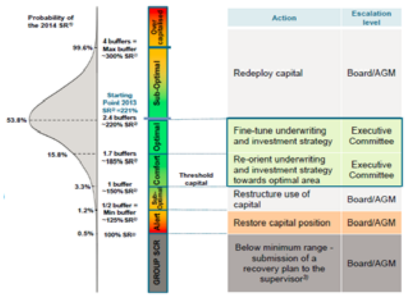
- Several reinsurers fell into the category of firms having built a model for business needs first rather than to meet regulatory requirements. This stemmed from a need to:
  - Understand the risks being taken on (long tails / extremes)
  - Manage and optimise the balance of risks – what to retain vs. cede, volume of business to take on in one risk vs. another to ensure diversification, etc.
  - Seeking pricing accuracy and competitive advantages
  - Seeking to differentiate against competitors and articulate financial strength (often in the form of a rating)

Some better examples

- These firms did not start from a desire to reduce capital, but rather to hold appropriate capital and understand the drivers of capital held
- Senior sponsorship and buy-in was received due to the commercial focus and results than could be achieved
- Models developed by such firms needed updating to meet new regulatory requirements (e.g. Solvency II) but starting from an embedded point enables a smoother transition

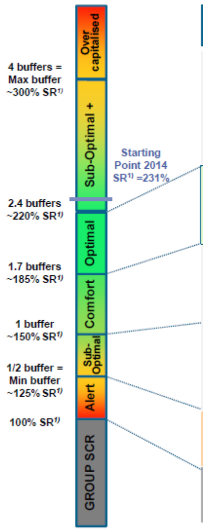
Example 1: Scor framework

- In 2013, Scor introduced a new solvency target and capital-setting framework, around which all aspects of the business will be managed
- This links to its capital model, allocating management actions to model result outcomes and clarity over governance levels required to execute actions
- S&P has subsequently upgraded their opinion of Scor's ERM to "very strong"
- Possible benefits *
  - Clear performance measuring and monitoring
  - Clarity to market and clients
  - Improved risk reporting
  - Increased internal focus and link to risk culture
  - Increased internal understanding of the risks and model output



Source:http://www.scor.com/images/stories/pdf/Inverstors/financial-reporting/presentation/irday2013_presentationfinal.pdf (page 115)
Date: 4 September 2013

❑ The management responses reflect the dynamic process which enables SCOR to steer its risk and capital positions towards the optimal area.



Action	Possible management responses (examples)	Escalation level
Redeploy capital	✓ Consider special dividends ✓ Consider acquisitions ✓ Buyback shares / hybrid debt ✓ Increase dividend growth rate ✓ Reconsider risk profile, including capital shield strategy ✓ Enlarge growth of profitable business	Board/AGM
Fine-tune underwriting and investment strategy	✓ Permanent check and optimization to remain in the optimal zone	Executive Committee
Re-orient underwriting and investment strategy towards optimal range	✓ Improve selectiveness in underwriting and investment ✓ Improve the composition of the risk portfolio ✓ Optimize retrocession and risk-mitigation instruments e.g. ILS ✓ Consider securitizations	Executive Committee
Improve efficiency of capital use	✓ Issue hybrid debt ✓ Reduce and / or issue stock dividends ✓ Reconsider risk profile, including more protective capital shield ✓ Slow down growth of business ✓ Consider securitizations	Board/AGM
Restore capital position	✓ Consider private placement / large capital relief deal ✓ Consider rights issue (as approved by the AGM) ✓ Restructure activities	Board/AGM
Below minimum range - submission of a recovery plan to the supervisor[2)]		Board/AGM

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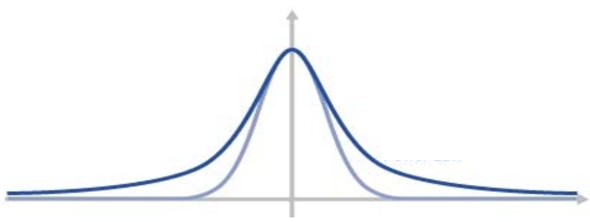
Example 2 – executive understanding



- Highlights:
  - Clear **executive understanding** of what model is doing and the different options available
  - Understanding of **limitations** and **key judgements**
  - Existing **readiness for regulatory challenge**
- Gaps:
  - Model **governance**
  - Independent **validation**

Example 3 – solvency monitoring

In the midst of the 2008 crisis, Board asked **"are we solvent?"**

Two examples of actual management responses:

- Company A: ***"We will revert with our estimate in 2-3 weeks"***
  - Significant ad-hoc work undertaken, external support required
  - Eventual response provided included significant limitations
- Company B: ***"Yes, we checked at 5pm yesterday"***
  - Very powerful management information with up to date knowledge available
  - Provides comfort to Board and regulator and enables trust to be placed on management
  - Real savings in management time, clear embedding of model outputs

Business case - It can be difficult to build a business case to invest in and develop production of such timely information, particularly when outside of economic crises. The benefits of doing so, however, are significant.

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So how did we do it at HSBC

"they've got no training for this kind of thing"

HSBC's insurance business

Isn't HSBC just a Bank?

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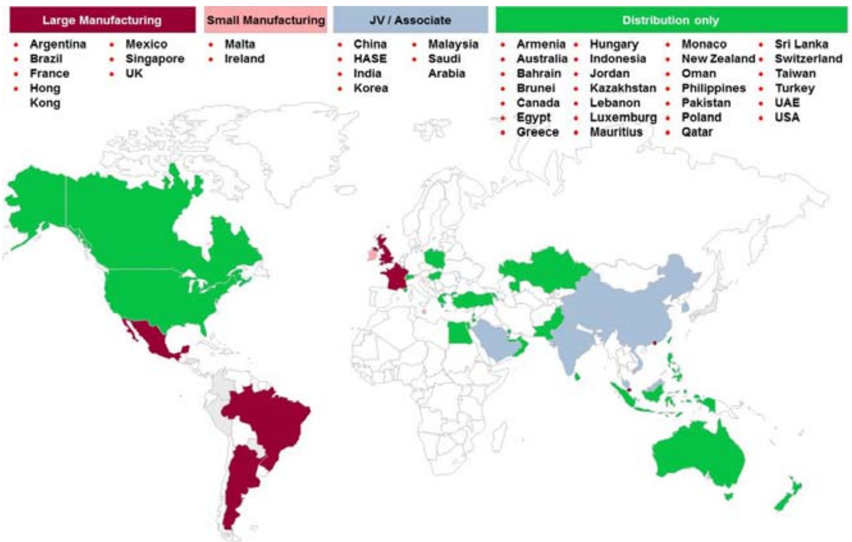
About HSBC's insurance business



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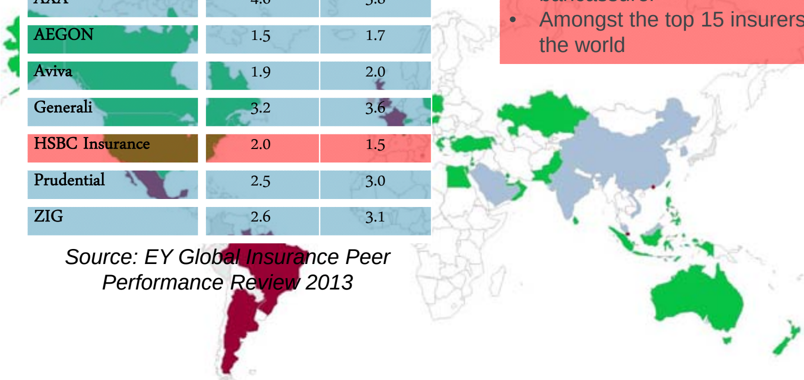
About HSBC's insurance business

Peers	Operating profit (£bn)	
	FY12	FY13
Allianz	7.6	8.6
AXA	4.6	5.8
AEGON	1.5	1.7
Aviva	1.9	2.0
Generali	3.2	3.6
HSBC Insurance	2.0	1.5
Prudential	2.5	3.0
ZIG	2.6	3.1

Source: EY Global Insurance Peer Performance Review 2013



2013 HSBC Peer Analysis

By PBT, HSBC Insurance ranked:
- The world's leading bancassurer
- Amongst the top 15 insurers in the world

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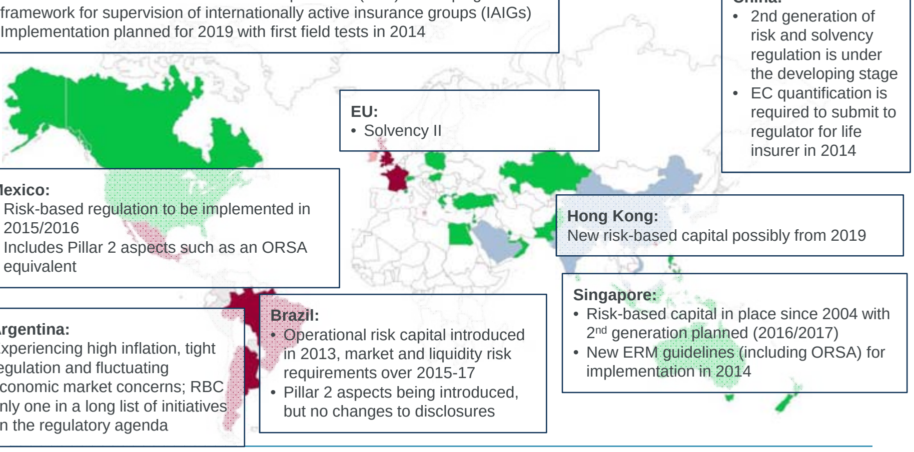
Myriad of global regulatory environments

And no common regulator…

Global:
- International Association of Insurance Supervisors (IAIS) developing common framework for supervision of internationally active insurance groups (IAIGs)
- Implementation planned for 2019 with first field tests in 2014



China:
- 2nd generation of risk and solvency regulation is under the developing stage
- EC quantification is required to submit to regulator for life insurer in 2014

EU:
- Solvency II

Mexico:
- Risk-based regulation to be implemented in 2015/2016
- Includes Pillar 2 aspects such as an ORSA equivalent

Hong Kong:
New risk-based capital possibly from 2019

Singapore:
- Risk-based capital in place since 2004 with 2nd generation planned (2016/2017)
- New ERM guidelines (including ORSA) for implementation in 2014

Argentina:
Experiencing high inflation, tight regulation and fluctuating economic market concerns; RBC only one in a long list of initiatives on the regulatory agenda

Brazil:
- Operational risk capital introduced in 2013, market and liquidity risk requirements over 2015-17
- Pillar 2 aspects being introduced, but no changes to disclosures

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HSBC Insurance Economic Capital

Ok, so big business, variety of products, lots of regulators to keep happy…

It doesn't sound much more of a challenge than for other multinational insurers?

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HSBC Insurance Economic Capital

Let's rewind to this time last year…

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HSBC Insurance Economic Capital

- The accountants maintained unexplained levels for IFRS results at less than 5% of IFRS profits over 2012 to 2013.
- The actuaries…

Period	EC Restatements as a % of Economic Profit	EC Unexplained as a % of Economic Profit
4Q 2013	-150%	1%
3Q 2013	-11%	1%
2Q 2013	31%	-40%
1Q 2013	16%	-75%
Q4 2012	-239%	41%
Q3 2012	-35%	32%
Q2 2012	-31%	94%
Q1 2012	-61%	-8%

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Accountants vs Actuaries

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HSBC Insurance Economic Capital

- **Lack of governance** led to regular changes in methodology and hence huge restatements
- Results took more than **8 weeks** to produce
- **No understanding** of EC outside the actuarial teams
- Very **inconsistent methodologies** adopted by the different business units
- **Unknown quality of data** underlying the models
- **Limited ability to look forward**

NO WAY THAT DECISION-MAKERS COULD TRUST ECONOMIC CAPITAL ENOUGH TO USE IT

2014 Objectives

1. **Speed**
   - Results by WD 10 (simplify processes, streamline data requirements)
   - Monthly frequency
   - Capability for ad hoc impact analysis / stress & scenario testing
2. **Stability**
   - Consistent, simple methodology
   - Formal governance around assumptions, methodology and results in the same way as for IFRS
3. **Secure trust**
   - Bridge EC and IFRS P&L
   - Sources of value (attribution)
   - Independent model validation

Delivering these has allowed us to…

- Implement EC as the measure of the Bank's Insurance Risk in the Group ICAAP
- Make EC a key basis in the Bank of England's Stress Test of the UK banking system
- Start embedding EC into key business processes:
  - Pricing
  - Performance measurement
  - Planning
  - Capital management
  - Asset liability management
- Business stakeholders (outside Risk and Finance) and key stakeholders in the Bank are now actively asking for training on EC!

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Examples

- Implemented hedging strategy in Asia-Pacific
- Increased credit limits for lower rated bonds
- Implementing capital management strategy with target levels, appetite range and tolerance limits for EC buffer
- Increasing asset duration and market risk in Brazil
- From 2015 the Bank will measure Insurance performance based on returns on EC
- Product developments put on hold based on EC consumption

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Lessons learned along the journey

Sheryl Sandberg
COO Facebook

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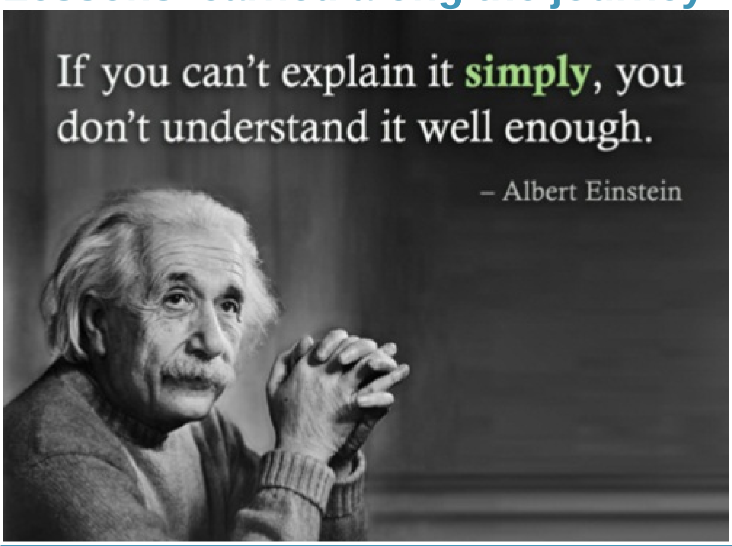
Lessons learned along the journey



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Lessons learned along the journey

A game of trust…

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Lessons learned along the journey

Companies that forget their customers don’t live long enough to regret their mistake

SALOMON

Francoise Salomon

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Wrap up

Effective embedding

- Means the model is used to positively influence business strategy, decisions and risk culture
- The embedding challenge is made far more difficult when regulatory, rather than commercial, drivers are at play

The Three 'Pillars' for embedding

1. Speed
2. Stability
3. Secure Trust

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Thank you

"This message will self-destruct in five seconds"

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Questions Comments

Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

The views expressed in this presentation are those of the presenters.