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IFRS & US GAAP: International Financial Reporting for Insurers
August 30 – September 1, 2010

Hong Kong

Fair Value Implementation Issues for Insurers

Simon Walpole

Actuaries
Risk is Opportunity!

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Fair Value Measurement

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Applies to any asset or liability where fair value measurement is already required:

- Certain Invested Assets (Trading Assets, Available-For-Sale Assets) under SFAS 115
- Freestanding Derivatives
- Certain Embedded Derivatives (GMAB, GMWB, certain reinsurance features)
- PGAAP Balance Sheet Including Intangible Assets (Initial Valuation, Impairment Values)
- Separate Accounts
- SFAS 107 Disclosures
  - SA liabilities
  - Mortgage loans
  - Debt

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Valuation of GMWB

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FAS 133/157 Valuation of GMWB

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- Liability or Asset
  = PV Expected Cost minus PV Valn NP (Ascribed Fee)

- At inception, liability / asset = zero
- Solve for a Valuation Net Premium or Ascribed Fee
  - PV Valuation NP or Ascribed Fee at t=0 equals PV Expected Cost
- Ascribed Fee typically expressed as basis points of AV

- In future periods, Ascribed Fee stays unchanged but all assumptions (incl stochastic model parameters) and inforce data are updated

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Calculation of Expected Cost

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- Is it material? If not, do something simple – but if it is…
- Explicit calculations using risk neutral stochastic models generally a must – these are complex options
- PV Expected Cost
  = Fair Value of Excess Benefits from GMWB

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Calculation of FV Excess Benefits

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PV Excess Benefits = Projected Excess Benefits, discounted back

Projection Basis = current best estimate, stochastic to allow for asymmetry, and allowance for risk (cost of capital,…)

Excess benefits = benefits above account balance without guarantees

Discount rate = risk-neutral rates, stochastic distribution to allow for asymmetry

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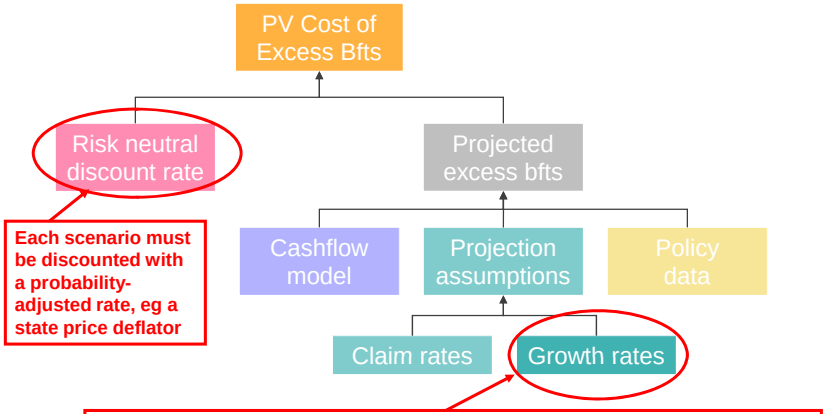
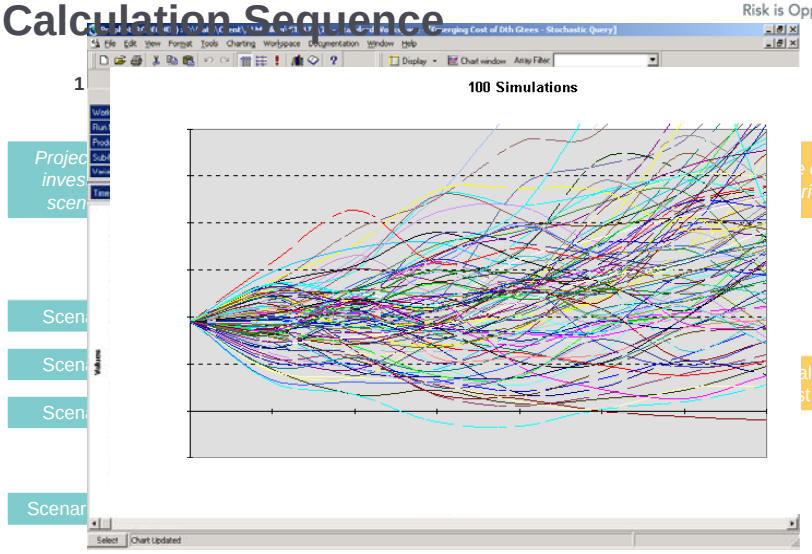
Calculation Components



Approach:
1. **Project 5000 (?) future investment scenarios**
2. **For each period in each scenario, decide on a relevant account growth rate**

Calculation Sequence



Modeling Considerations: Projection Models & Data

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- Full cash flow projection models needed
- Typically monthly projection steps (cash flows are complex)
- Seriatim or model cell (if policies fairly similar or cost varies predictably)
- Should allow "dynamic" assumption changes & interplay of various guarantees
  - Model mortality and associated GMDB in valuation of GMWB, and vice-versa
- Data could be seriatim or quarterly cohorts

Modeling Considerations: Economic Assumptions

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- Stochastic economic scenario generator needed
  - Arbitrage-free, market-consistent,…
  - Swap rates or government bond yields?
  - Volatility needs to relate to expected investments
  - Update frequently in line with economic conditions
  - Develop internally or buy off-the-shelf?
- Number of scenarios must be sufficient to minimize standard error
  - Several thousand under model cell approach
  - Several hundred under seriatim approach

Modeling Considerations: Other Assumptions

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- Mortality, persistency, premium levels, partial withdrawals, expenses
- Benefit utilization
- Best estimate, unlocked
  - Generally consistent with DAC assumptions except fund growth and volatility
- Dynamic assumptions, depending on “in-the-money-ness”:
  - Utilization / lapses
  - Premium payments (?)

Modeling Considerations: Dynamic Lapses

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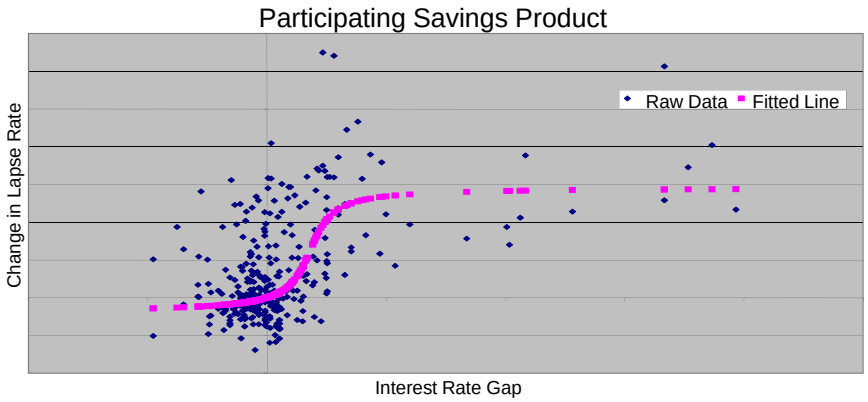

Modeling Considerations: Process

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- Fair Value methodology
  - Design and approval
  - Documentation (Valuation technique a required disclosure item)
- Valuation process
  - Design and documentation of process and procedures
  - Production of values and required disclosure items
  - Integration with overall Fair Value implementation project
- Importance of controls
  - Small changes to models can have a material impact
  - Model risk is substantial

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Calculation of VOBA

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Origin of Need for VOBA

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IFRS4:

- *An insurer shall, at the acquisition date, measure at fair value the insurance liabilities assumed and insurance assets acquired in a business combination. However, an insurer is permitted, but not required, to use an expanded presentation that splits the fair value of acquired insurance contracts into two components:*

  (a) a liability measured in accordance with the insurer's accounting policies for insurance contracts that it issues; and

  (b) an intangible asset, representing the difference between (i) the fair value of the contractual insurance rights acquired and insurance obligations assumed and (ii) the amount described in (a). The subsequent measurement of this asset shall be consistent with the measurement of the related insurance liability.

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P-GAAP Presentation

(ignore Goodwill, FV & VOBA net of tax)

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Method 1

Assets		Liabilities	
Investments	80		
		FV Reserve	70
		S/h Equity	10
TOTAL	**80**	**TOTAL**	**80**

Method 2

Assets		Liabilities	
Investments	80	Stat Reserve	90
VOBA	20		
		S/h Equity	10
TOTAL	**100**	**TOTAL**	**100**

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Method 2

- Method 2 is common because:
  - Actuaries recognize it as it's similar to the PVIF in an EV
  - It's easy to visualize:

    FV of reserves = what you hold now (stat reserve) *less* FV of what's going to go to shareholders and tax man

- VOBA net of tax = EV PVIF
- VOBA gross of tax = EV PVIF / (1 – tax rate)

- But is this as easy as it sounds?
- PVIF must be a "fair value" – not an "internal PVIF"

What is "Fair Value"?

Definition of a fair value:

The amount at which an asset (or liability) can be bought (or incurred) or sold (or settled) in a current transaction between willing parties, other than in a forced or liquidation sale.

> Quoted market prices are the best evidence of fair value (e.g., the price of stock traded on the NYSE)

> In the absence of quoted prices, use other valuation techniques (e.g., present value techniques or option or other pricing models)

Context for Complexities

As at 31.12.2007	Cathay	Shin Kong	Fubon	China Life	ING TW	PCA TW
Published Results (NT$m)						
ANW	207,000	89,800	17,900	17,475	29,463	5,604
VIF before CoC	226,000	56,200	19,800	10,520	-	-
CoC	(66,000)	(32,000)	(5,400)	(5,164)	-	-
VIF	160,000	24,200	14,400	5,356	(87,529)	(6,379)
EV	**366,000**	**114,000**	**32,300**	**22,831**	**(58,066)**	**(775)**
V1YNB	**30,000**	**12,800**	**5,600**	**1,485**	**8,199**	**N/A**
Method & Assumptions						
Method	TEV	TEV	TEV	TEV	EEV	EEV
RDR (VIF)	10.70%	11.90%	11.20%	11.91%	5.80%-7.00%	9.80%
RDR (VNB)	10.70%	11.90%	11.20%	11.91%	5.80%-7.00%	9.10%
Investment return for VIF	5.00%	5.05%	5.00%	5.05%		0.50%-6.40%
Investment return for VNB	5.00%	5.05%	4.50%	5.05%		0.50%-6.40%
RFR					2.70%-3.90%	5.50%
RFR period						5 years
Solvency capital	Local Min	Local Min	Local Min	Local Min	Internal model	Internal model

Sources: various public – see later – no reliance to be placed on this information, no liability accepted

Taiwan Examples

- Transactions
  - In past 2 years, the following have been fully or partially sold:
    - ING
    - PCA (Prudential UK)
    - Aegon
    - Nan Shan
    - Metlife
  - Prices have generally varied between zero and NAV
    - This immediately implies a negative VOBA
    - Surely VNB must have been positive (or sale would not have happened?), so VOBA must have been very negative…?
    - But all exits were by foreign companies – distressed sales???
- Market capitalizations
  - In the recent past, market capitalizations have generally been (significantly) lower than companies' estimates of Appraisal Value

Complexities

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- EV is not derived by the market – only share price is
- Companies can calculate and publish EVs on very different bases
- Different companies are subject to different requirements, and can have different views

- Main observations:
  - Transaction price might not have been at "fair value"
    - Need to consider available observable fair value information in the market
  - A "fully correct" VOBA needs to be backed out of an estimate of the fair value of the enterprise as a whole
    - VOBA must make sense compared to implied VNB
  - Negative PVIFs need extra care – RDR approach not robust

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Steps: Corporate Finance Approach

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1. Obtain observable market price information for similar enterprises (much better if in same territory)
   1. Market capitalization for listed companies
   2. Recent comparable transactions
2. "Clean" these figures to make them comparable
   1. Remove value of banks / non-life subs etc
   2. Adjust for known differences in risk profile
3. Calculate ratios and apply them to target company to derive estimated "fair appraisal value"
   1. Price/Book
   2. Price/Earnings
4. This gives a preliminary "corporate finance" type valuation

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Steps: Actuarial Approach

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5. Calculate a PVIF with best estimate assumptions, common RDR, and common capital allowance
    1. Include some working capital in the capital allowance, not just SM
    2. All on a "going concern" basis
6. Derive new business assumptions
    1. Also on a "going concern" basis
    2. No reference to impact of transaction
7. Derive actuarial appraisal value
    1. Combination of Net Asset Value + PVIF + VNB
    2. Check back that the "balance" makes sense, ie the PVIF and VNB are explainable in the context of each other
8. This gives a preliminary "actuarial" type valuation

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Steps: Final Valuation

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9. Triangulate
    1. Compare the "corporate finance" and "actuarial" valuations
    2. Both have reasonable ranges
        1. Corporate finance valuation can be adjusted so that target company is more like one or other of the comparable companies
        2. Actuarial valuation can be tweaked via the RDR, capital allocated, future new business assumptions etc
    3. Final valuation needs to be sensible under both approaches
10. Finally, the PVIF from this valuation is used for the VOBA

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Taiwan VOBA

- VOBA in respect of Taiwan companies has been very negative
  - Ie it adds to the liability, ie the FV of the liabilities > stat reserve
  - To get this, a high RDR has been used, and solvency capital has been locked in at a much higher level than the minimum
- The VNB implied by the sale price has still been positive, but with a fairly low implied multiplier
  - This arguably reflects regulatory arbitrage between Taiwanese companies and foreign companies
- Lessons
  - VOBA <> EV PVIF
  - Ensure that balance between PVIF and VNB implied by price is sensible
  - Must consider market comparables

Sources of Information & Notes for Taiwan EVs

EV/VNB Information:

Cathay Life:
http://mops.tse.com.tw/nas/STR/288220080708M001.pdf
Capital requirement assumption = 200% RBC + investments in insurance-related business
The investment return assumption for interest crediting annuities is 4.3%

Shin Kong Life
http://www.corpasia.net/taiwan/2888/irwebsite/download.php?filename=../../2888/events/79/EN/SKL%20EV2007_Website%20Files_Final.pdf

Fubon Life
http://www.corpasia.net/taiwan/2881/irwebsite_new/download.php?filename=../../2881/events/22/EN/Fubon 1Q08 result.pdf

China Life:
http://mops.tse.com.tw/nas/STR/282320080905M001.pdf

ING Taiwan:
Go to http://www.ing.com/group/search.jsp and search for "embedded value report"; report released on 20/02/08
For Taiwan, ANW is not disclosed. Statutory surplus used as a proxy. The company discloses EV, and VIF is a balancing item.

PCA Taiwan:
http://www.investis.com/prudential-plc/investors/financialreports/2007/ar2007/ar2007b.pdf

ING TW / PCA TW: all EV and VNB figures were published in group reporting currency (Euros for ING & Aegon, Sterling for Prudential); all figures in NT$ are converted

Other Supporting Information:

Annual Report of Life Insurance Republic of China 2007 (published by the Taiwan Insurance Institute)