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## European Embedded Value

Implementing Market Consistent at AXA

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## European Embedded Value

**AXA implemented European Embedded Value on a bottoms-up market consistent basis last year. Here's how....**

- Objectives : setting the standard
- Landscaping : Co-existence with UK standards
- Reviewing consistency in an evolving market
- Framing decisions – Integration post-implementation

2



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## Objectives : Setting the Standard

- 12 principles from the CFO forum
- ...with some additional guidance, but evolving standard
- Choices to be made
- Disclosure
- For reference: [www.cfoforum.nl](http://www.cfoforum.nl)
  - Principles, Basis for Conclusions, and Disclosure & Sensitivities

3



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## Before ... and After

- AXA already published Traditional EV
  - For both Life and Total Group
  - Including Movement analysis
- Some changes required
  - New business modelling
  - Further expansion of options and guarantees modelling
- AXA internally had a stochastic Economic Capital & Value model
- Some choices to address
  - Top down or bottom up
  - Deterministic or Market consistent
  - Life or Total Group
  - Approach to non financial risks

4

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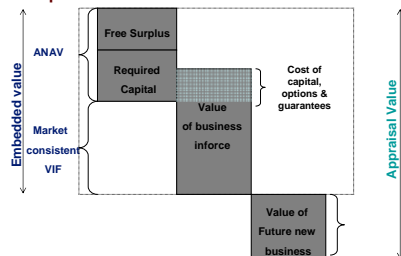
## EEVolution and choices

- Traditional EV
  - Lack of clarity about investment assumptions and discount rate
  - No explicit consideration of multiple scenarios
- Top down EEV
  - Easiest linkages to Traditional EV
- Bottom up EEV
  - More granular analysis of risks
  - If market consistent, links to option pricing

5

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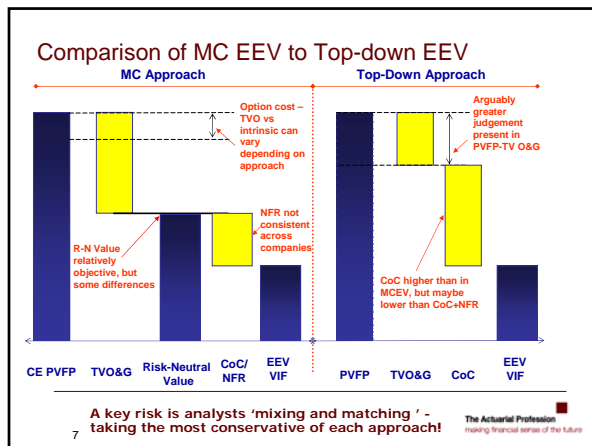
## EEV components



Embedded Value = Adjusted Net Asset Value (ANAV) + Value of inforce (VIF)

6

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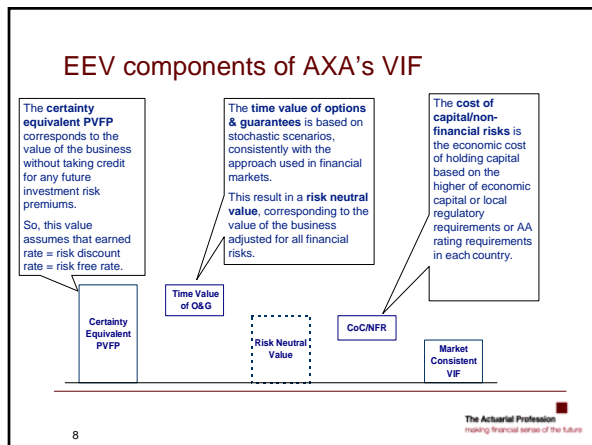
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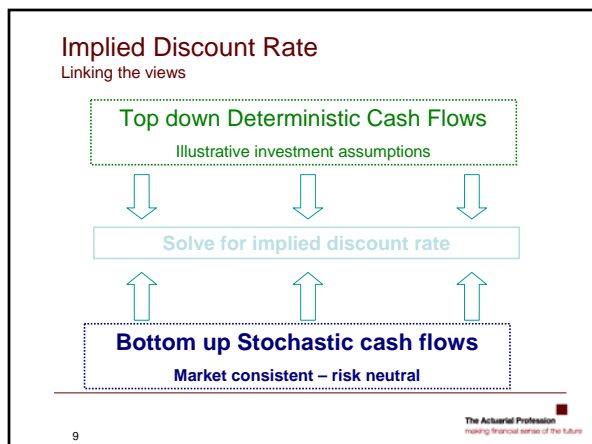
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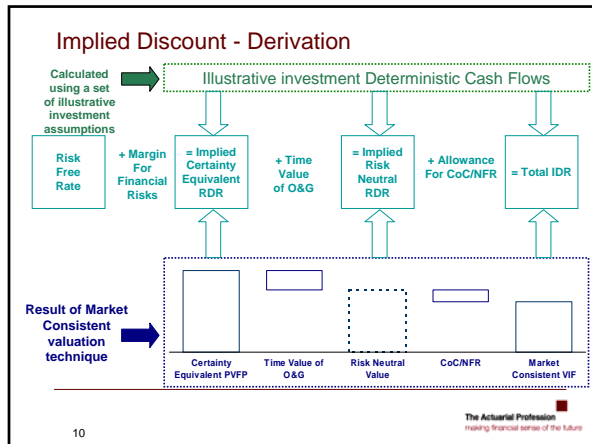
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### European Embedded Value Approach VIF / ANAV / CoC

<b>Required capital</b>	Maximum of three capital amounts; typically amount to reach AA rating
<b>Non financial risk</b>	Cost of required capital in excess of local minimum requirement
<b>Implied discount rate</b>	Calculation of a implied discount rate (IDR) for inforce and separately for new business
<b>Scenarios</b>	Barrie & Hibbert
<b>ANAV reconciliation</b>	RU reconciliates ANAV from IFRS and local statutory
<b>Submission</b>	All entries are made locally in Magnitude
<b>Interim reports</b>	Quarterly new business (NBV, APE, PVEP, IRR) Q1 and Q3 estimated; Half year updated for actual economic conditions

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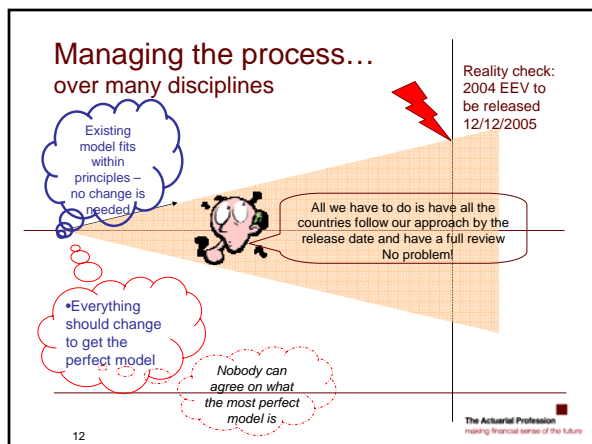
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## Consolidation tool Templates

- Static Validation
- ANAV reconciliation
- Key assumptions
- Movement analysis EEV
- Implied Discount rate
- Sensitivities

13

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## Roles and Responsibilities Local, Central and Reviewer

### Central

- Determine policy
- Coordinate process
- Issue instructions
- Provide training
- Review, consolidation reporting
- Central controls



### Reviewer

- Review policy
- Review methodology & modeling
- Review assumptions
- Report findings

### Local teams

- Follow guidelines
- Set appropriate assumptions for local conditions
- Perform cash flows projections
- Calculate the ANAV on the basis of statutory accounts and reconcile to statutory and IFRS
- Enter into central reporting system
- Local controls

14

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## European Embedded Value – Bottoms Up!

- Objectives : setting the standard
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15

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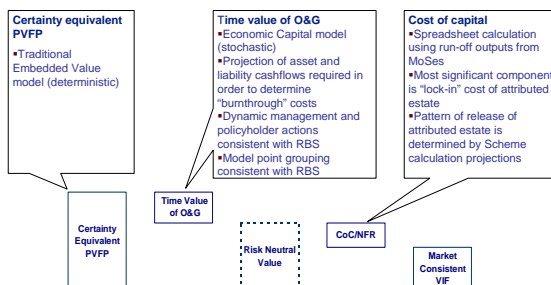
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## The AXA UK Experience: Risk Management Tools

- Prior to EEV, risk management measures included:
  - Traditional Embedded Value
  - Regulatory calculations, including Realistic Balance Sheet (RBS) and ICA
  - Economic Capital & Value
  - Attributed Estate Scheme calculations
  - Monthly New Business Value
- Projection model (MoSes)
  - Can be run either deterministically or stochastically according to purpose

16

## The AXA UK Experience: Building European Embedded Value



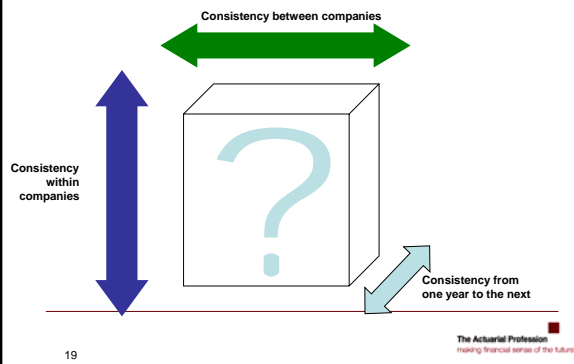
17

## European Embedded Value – Bottoms Up!

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18

## What is consistency?




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## What are the reference points?

- **EEV Principles**
  - 12 Principles, plus associated guidance
  - The first objective criteria for embedded values?
  - But significant scope for interpretation in THE key area: Allowance for Risk
    - Principle 3 requires "sufficient allowance for the aggregate risks in the covered business"
- **"Best Practice"**
  - Will only emerge over time
  - Shaped by a wide group
    - Insurers
    - Reviewers
    - Experts
  - Recipients (shareholders; analysts)

20

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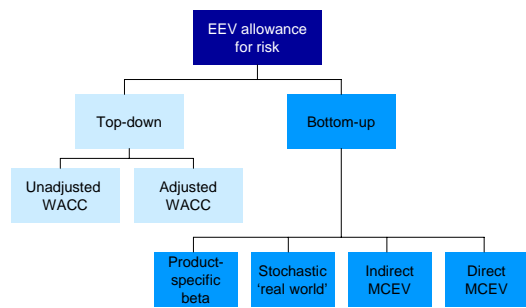
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## A number of approaches have been used to allow for risk




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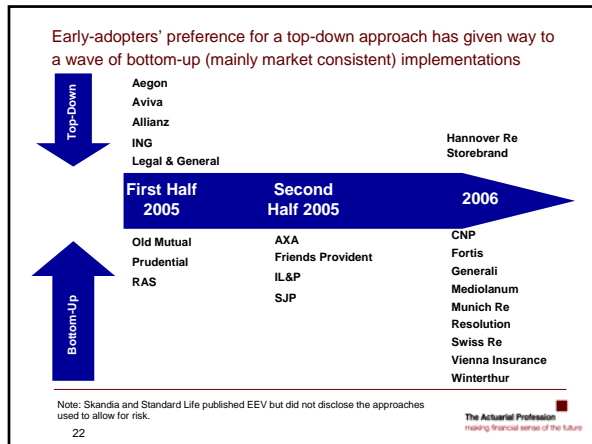
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Market-consistent embedded value aims to standardise the allowance for risk in line with that implicit in market prices

- The key attraction of MCEV is that it is a “mark to market” approach
  - Makes it more comparable between companies
  - Reduces the subjectivity in results
  - Reduces the ability of management to “manage” the results
- BUT there remain a few areas of genuine disagreement
  - Choice of risk-free rate
  - Whether and how to allow for a liquidity premium
  - How to treat illiquid or non-existent markets
  - How to allow for non-market risk

23

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A bottom-up market consistent approach places greater demands on modelling systems

Certainty equivalent scenario	Deterministic Projection model	Risk neutral stochastic scenarios	Stochastic Projection model
<ul style="list-style-type: none"> <li>▪ Vector replaces constant return assumption - for accumulation and discounting</li> <li>▪ Interpretation of certainty equivalent scenario for               <ul style="list-style-type: none"> <li>▪ Income/capital gains</li> <li>▪ Credit spreads/losses</li> </ul> </li> <li>▪ Bonus rates adjusted to certainty equivalent (“risk free”) returns</li> </ul>		<ul style="list-style-type: none"> <li>▪ Scenarios to be arbitrage free</li> <li>▪ “No leakage” from scenario/model combination</li> <li>▪ Option and guarantee cost critically dependent on               <ul style="list-style-type: none"> <li>▪ Management actions</li> <li>▪ Policyholder behaviour</li> </ul> </li> </ul>	

24

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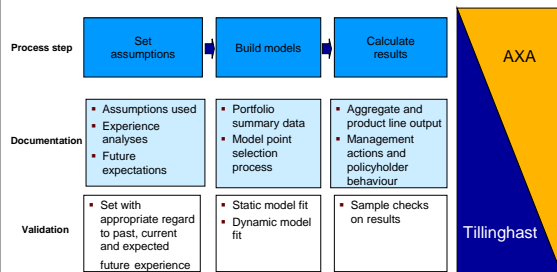
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Developing an effective review process required an efficient combination of AXA and Tillinghast resources



25

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26

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## Framing decisions – post implementation Now, what do you do with it?

- Depends on which "It" you chose
- AXA's bottom up approach links directly to product development
  - More disciplined approach to product guarantees
- NBV targets
  - Value not volume (while serving client needs!)
- Return on EEV
  - Tradeoffs between new business and inforce management

27

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## Integration into Risk Management



- Monthly new business value reporting moving from traditional to European EV basis



- Internal education

- Product approval process

- Ensure appropriate recognition of non-financial risks



- Project assessment

- e.g. Retention targeting

- Focus on “value adding” activity on EEV basis

28

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## Possible Future EEVolutions

- Increased consistency across companies?
- More granular reporting?
- Accelerated reporting timeframes?
- Expanded Interim Reporting?
- A path towards IFRS Phase II and Solvency II?



29

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