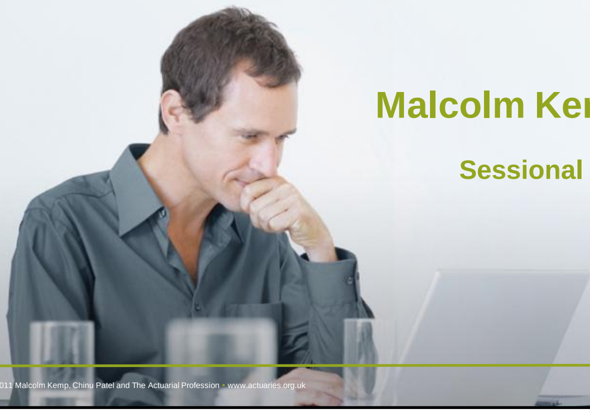
The Actuarial Profession
making financial sense of the future

Entity-wide Risk Management for Pension Funds



Malcolm Kemp and Chinu Patel

Sessional Research Meeting, London

28 February 2011

Agenda

- Background and main conclusions
- Suggested topics for debate
- Adapting ERM governance disciplines to pension funds
- Discussion of paper

Agenda

- Background and main conclusions
- Suggested topics for debate
- Adapting ERM governance disciplines to pension funds
- Discussion of paper

Background

- Pension funds are experiencing unprecedented change
- Trend towards improved risk management disciplines across entire financial sector and beyond
  - Especially Enterprise Risk Management disciplines
- Actuaries ought to be well placed to help
  - Qualitative (governance) and quantitative (modelling) skills
- ERM Practice Executive Committee (and Actuarial Profession more generally) focused on needs of members including those working in pension fund area and/or keen to expand out from it

What is ERM?

- Framework, using risk as the core building block, to enable key business decisions to be aligned with inherent risk.

Differentiators

- Considers all risks
- Applied across whole business
- Risk embedded into decision-making processes

Key enablers

- Commitment and leadership from the top
- Risk owned by business
- Supporting risk management function
- Effective communication to all stakeholders of how risk is managed

The paper's main conclusions (1)

- Effective ERM is valuable to virtually any type of pension entity
- Holistic approach to risk management is highly relevant
- But 'enterprise' aspects of traditional ERM approaches may need some modification
  - Depending on choice of 'entity' being focused on
  - Pension fund, sponsor and/or two combined?
  - Different perspectives of beneficiaries, sponsors, regulators etc.
  - Specific purpose underlying the pension scheme

The paper's main conclusions (2)

- Need to manage funding and investment policy and sponsor covenant risk in tandem
  – Within a well crafted governance framework
- ERM approaches used elsewhere provide a benchmark against which to compare pension fund practice
  – Particularly for pensions actuaries wanting to expand application of actuarial skills to beyond just the pension scheme

Agenda

- Background and main conclusions
- Suggested topics for debate
- Adapting ERM governance disciplines to pension funds
- Discussion of paper

Points for debate: (1) The relevance of ERM

- ERM is a coherent set of disciplines
  - Grouping knowledge in a way that provides useful insights
- Pension schemes, with their unusual mix of social purpose and different stakeholders often with potentially conflicting interests, can benefit substantially from ERM
- Pension fund risk management is not just about investment risk
  - In UK, sponsor covenant also highly relevant
  - Some other risks, e.g. operational risk (interpreted broadly), are asymmetric
  - Who benefits from/suffers upside/downside?
  - Risk transfer solutions are now available

Points for debate: (2) Transparency of travel

- Balance sheet structure is very important
  - Analogy with CDOs and other SPVs
- Transparency, especially of 'journey plan'
  - Is a PPFM or ORSA or equivalent appropriate?
  - Living wills – what if the sponsor's business model fell apart?
  - What should be published: trading off flexibility vs. clarity?
- Should Investment Committees be Risk Committees?
- Are funding, investment and risk policies typically joined up?

Points for debate: (3) External developments

- Walker Review
  - Risk function (and CRO)
  - Increase Board involvement on risk matters
- Solvency II
  - ORSA
  - Potential harmonisation of regulatory capital requirements
  - ‘Quick win’ by introducing SII-style risk disciplines?
- Despite (or because?) schemes may have few if any dedicated staff
- Fund like a (not wholly owned?) subsidiary?

10

Points for debate: (4) Making models more useful

- Model structures should marry up with intrinsic dynamics
- Traditional ALM models may be too investment focused and not ERM friendly
- Increase emphasis on sponsor covenant risk
- Identify proportions of (investment and other) risks and associated rewards allocated to different stakeholders

11

Model Example (1)

- DB Final Salary Scheme, closed to new accrual, no discretionary benefit increases, target funding level of 100%, deficits/surpluses versus target amortised 20% each year
- Funding 'valuation' includes discount rate 1.2% pa higher than wind up valuation (equity risk premium – asset strategy 60% equities)
- Only illustrative (e.g. model assumes 100% mortality at age 80!)

	Priority on wind up	Benefit value on wind up basis, assuming 100% recovery			
		Market implied spread on sponsor obligations			
		1% pa	2% pa	3% pa	4% pa
Active	2 (to deferred on wind up)	6619	6365	6163	6001
Deferred	2	18013			
Pensioner / spouse	1	34259			

Source: Nematrian Limited

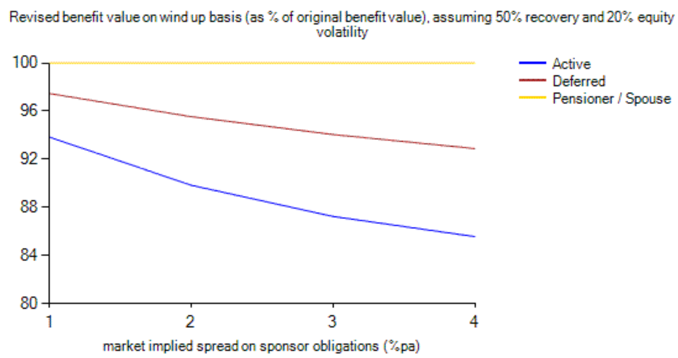
Model Example (2)

	Equity volatility (%pa)	Revised benefit value (and equivalent annualised spread) on wind up basis, now assuming only 50% recovery			
		Market implied spread on sponsor obligations			
		1% pa	2% pa	3% pa	4% pa
Active	0	96.2% (0.14%)	93.5% (0.24%)	91.5% (0.31%)	90.1% (0.37%)
Deferred	0	98.2% (0.11%)	96.7% (0.21%)	95.5% (0.29%)	94.5% (0.35%)
Pensioner / spouse	0	100.0% (0.00%)	100.0% (0.00%)	100.0% (0.00%)	100.0% (0.00%)
Active	20	93.8% (0.22%)	89.8% (0.38%)	87.2% (0.48%)	85.6% (0.55%)
Deferred	20	97.5% (0.16%)	95.5% (0.28%)	94.1% (0.38%)	92.9% (0.46%)
Pensioner / spouse	20	100.0% (0.00%)	100.0% (0.00%)	100.0% (0.00%)	100.0% (0.00%)

Source: Nematrian Limited, 1000 simulations for 20% equity volatility

Numerical and graphical presentations

- Graphics may aid communication and explanation
- Choice of output and how presented may influence interpretation



Source: Nematrian Limited, 1000 simulations for 20% equity volatility

Model Example (3)

- **Question**: What proportion of asset returns accrue to beneficiaries?
  – Initial funding level increased by 1% but otherwise example unchanged (e.g. trustees' target funding level remains 100%)
- **Answer**: Depends on riskiness of sponsor covenant, but often not much
  – Consistent with position if pension fund assets merely 'collateral' for a bond (issued by sponsor to beneficiaries)
- N.B. Assumptions on recovery rate, correlation and discretionary benefits

	Change in benefit value if initial funding level is 101%			
	Market implied spread on sponsor obligations			
	1% pa	2% pa	3% pa	4% pa
Active	0.09%	0.19%	0.28%	0.36%
Deferred	0.07%	0.13%	0.19%	0.25%
Pensioner / spouse	0.00%	0.00%	0.00%	0.00%

Source: Nematrian Limited

Agenda

- Background and main conclusions
- Suggested topics for debate
- Adapting ERM governance disciplines to pension funds
- Discussion of paper

16

Reminder of what ERM is

- Framework, using risk as the core building block, to enable key business decisions to be aligned with inherent risk.

Differentiators

- Considers all risks
- Applied across whole business
- Risk embedded into decision-making processes

Key enablers

- Commitment and leadership from the top
- Risk owned by business
- Supporting risk management function
- Effective communication to all stakeholders of how risk is managed

17

ERM frameworks

- Successful ERM requires vision and strategy to be set by board
- Risk should be owned by the business, with risk management (RM) as an enabling process
- Governance framework should be appropriate to nature, scale and complexity of the business and its risks. Ideal ingredients:
  - Risk decisions should be integrated with decisions concerning business operations
  - Framework should promote desired culture and behaviour
  - Material risks should be addressed on an enterprise-wide basis

  …….. supported by a well defined RM policy

ERM frameworks – typical large financial

- Risk governance framework might include:
  - Risk Committee, separate from Audit Committee
    - Centralised oversight of risk
    - Risk policy setting risk management responsibility
    - Engagement with executive management and board
  - CRO, reporting to risk committee, with complete independence from business units
    - Organisation's risk champion
    - Enterprise-wide oversight of RM activities
    - Guidance to risk owners
    - Challenges to business decisions on key risk areas
  - Supporting RM function

An example …. Perhaps an aspiration?

ERM frameworks – non financial firms

- Often less formal and more fragmented structures
- No CRO requirement
- CFO / Treasury / Audit Committees may have a greater role
- Sometimes ERM elements may fit around functional responsibilities
- ERM might be confined to major risks, or specific projects

ERM frameworks: Risk management function

- Large spectrum of remits
  - characterised by those that provide *independent challenge* vs. others involving *active participation* in decision making
  - driven by issues of effective organisational structures and governance arrangements

Model 1

- Front line managers own risk
- RM function provides support (*identification, quantification and mitigation*)

Clear division between front line business activities and RM function

Model 2

- RM function *decides what type of risks organisation carries*

Division between front-line business activities and RM function less clear

Good and bad ERM structures?

- No universally agreed best approach
  - ERM grows over time and structures constantly evolve and mature
  - Often driven by nature and complexity of the entity
- Hallmarks of good ERM depend on:
  - How deep RM has been embedded into culture of business
  - How comprehensive the RM framework is
  - Whether it is consistently applied across the whole business

Is this relevant to pension funds?

…. pension funds are different aren't they?

- Singular purpose
- Limited capital-raising ability
- Trustee/sponsor legal interface
- More flexible regulatory regime
- Different outlook to investment risk
- Different stakeholder dynamics
- Social element

…. but there are also similarities as well

- Managing discretions
- Managing conflicts
- Planning to fulfil objectives

…. and the case for ERM doesn't change

- There is always a purpose and objectives, which can be de-railed by numerous risks

ERM structures may need adaptation for pension entities

Governance challenges for pension funds (1)

- Historically a greater focus on investment efficiency
- Modern day decision making requires simultaneous reconciliation of many other issues for successful delivery of objectives
- Governance challenges include
  - Clearer mission and alignment of key management policies
  - Broadening scope and skills of the oversight function towards a more encompassing risk committee
  - Availability of skilled resources to integrate, manage and monitor risks consistently

Some specific governance challenges for pension funds (2)

- Producing value propositions which are practical and acceptable to both members and sponsors
- Greater use of external expertise, and management of agency problems
- Management of the interaction between sponsor covenant risk, investment strategy, contribution policy and other risks/opportunities
- Communication of the potential impact of risk decisions to stakeholder groups with differing interests and priorities in the pension fund
- How to accommodate some of the unpredictable risks from the social element of pension design
- When definition of ‘entity’ includes the sponsor : dealing with a wider array of risks, larger stakeholder base, more management interfaces and additional decision-making constraints

Embedding pensions into the business: where do we start?

- Where ERM is already well embedded in the business e.g. financial firms
  - Pension scheme as an additional line of business?
  - Pension scheme as a 'new' financial subsidiary?
- Elsewhere, with more consolidated board and risk oversight structures, ERM may be less than holistic but the governance may be in place for extending the ERM net by integrating key pension risks with, e.g., treasury risks or key project risks

Reiteration of main conclusions

- Manage funding and investment policy and sponsor covenant risk in tandem
  - Within a well crafted governance framework
- Holistic approach inherent in ERM highly relevant to virtually any type of pension entity
  - Approaches elsewhere provide relevant benchmarks, especially in relation to 'governance'
- 'Enterprise' aspects of traditional ERM approaches may need some modification
  - Depending on perspective and choice of 'entity' in question (the pension fund, sponsor and/or the two combined)

Agenda

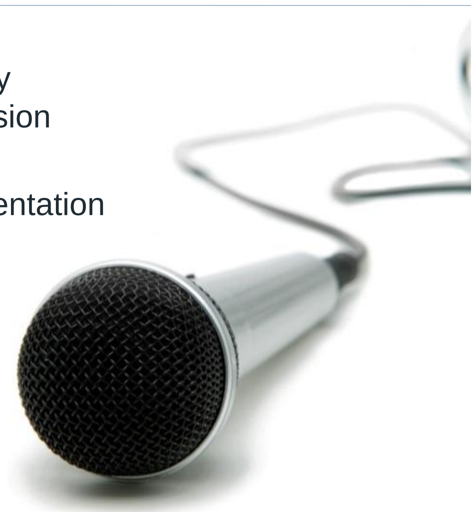
- Background and main conclusions
- Suggested topics for debate
- Adapting ERM governance disciplines to pension funds
- Discussion of paper

28

Questions or comments?

Expressions of individual views by members of The Actuarial Profession and its staff are encouraged.

The views expressed in this presentation are those of the presenter(s).



29