The Actuarial Profession
making financial sense of the future

Entity-wide Risk Management for Pension Funds

Malcolm Kemp and Chinu Patel

Presentation to Groupe Consultatif

IFR and Pensions Committee Meeting

25 March 2011

Agenda

- Background, main conclusions and modelling suggestions

- Adapting ERM governance disciplines to pension funds

Agenda

- Background, main conclusions and modelling suggestions
- Adapting ERM governance disciplines to pension funds

ERM for Pension Funds

- 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

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

Main conclusions of paper

- 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'
  - Pension fund risk management is not just about investment risk
- '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)

Need for 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?
- UK Walker Review, CRO, increased Board focus on risk matters

Enhancing pension scheme modelling

- 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

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

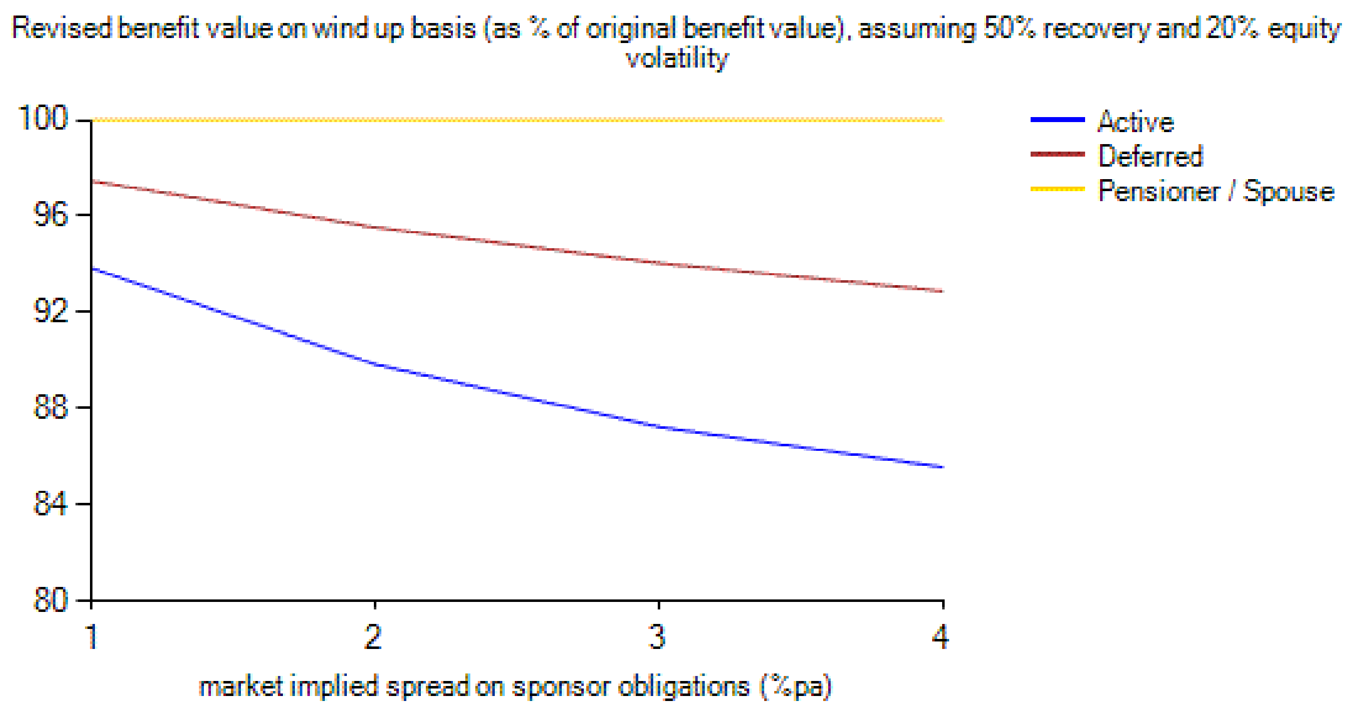
Model Example (2)

	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, main conclusions and modelling suggestions

- Adapting ERM governance disciplines to pension funds

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

ERM is for insurance, not pensions!

Not true

.... as long as there is a purpose and objectives, which can be de-railed by numerous risks

...... ERM is about planning to fulfil these in an effective way

Similarities

- Planning to fulfil objectives in an effective way
- Managing discretions
- Managing conflicts
- Managing people interfaces

Read across

Differences

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

Adaptations

Characteristics of successful ERM frameworks

- Vision and strategy is set by Board

- Risk is 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. I

  Ideal ingredients:

  – Risk decisions are integrated with decisions concerning business operations
  – Should promote desired cultural and behavioural expectations
  – Material risks should be addressed on an enterprise-wide basis, supported by a well defined RM policy

Typical ERM frameworks – 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?

Typical 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

Structure of Risk management functions

- Large spectrum characterised

  independent challenge vs. active participation in decision making

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*

Less clear division between front-line business activities and RM function

In practice quite likely driven by issues of effective organisational structures and governance arrangements

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

    …… and commitment to ERM

- Hallmarks of good ERM:
  - How deep has RM been embedded into culture of business?
  - How developed is the RM framework?
  - Is it consistently applied across the whole business?

Governance challenges for pension funds (1)

- In pensions, historically a greater focus on investment efficiency

……But modern day decision making requires simultaneous reconciliation of many other issues for successful delivery.

….And so the ERM challenge is to manage these is a more integrated and dynamic fashion

- Governance challenges are correspondingly greater and 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

Governance challenges for pension funds (2)

- Some specific challenges we identify are
  - 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 and contribution policy
  - 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
  - Dealing with a wider array of risks, larger stakeholder base, more management interfaces and additional decision-making constraints when the definition of 'entity' gets widened to include the sponsor

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

- Or pension scheme, if significant, may be viewed as a stand-alone project managed on ERM principles.

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 fund
  - 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)