Society of Actuaries in Ireland

Risk Management for Pensions

October 2014

Working party members

- John Byrne
- Sarah Fee
- Cathal Fleming
- Tracy Gilbert
- Peter Gray
- Eoin Kennedy
- Emmet Leahy
- Catherine McGrath
- Brian McGovern
- Laura Power
- Philip Shier
- Paul Torsney
- Enda Walsh

What were we asked to consider?

- *"Help members increase their understanding of risk management as it applies to pension funds"*
- In particular:
  - Is there a role for an actuary as risk manager?
  - What are similarities / differences in risk management for pensions and other entities?
  - How can a risk management process be cost effective?

What did we actually do?

Review existing materials and prior research

Gather insights from stakeholders and colleagues in other practice areas

Consider legislative and regulatory context

Aim to help turn the theory into practice…

- ***Suggested risk management framework*** for pension schemes
- ***Materials to help support implementation*** of a risk framework
- Present to members

So why are we all talking about risk management?

- Identified as a “wider area” for ***future actuarial practice***
- Because ***regulators*** are focussing on risk management
- In light of ***recent experience***

What is European regulatory view on risk management for pensions?

European Commission objectives include:

- ***Increase governance standards***
- ***Ensure good risk management***
- ***Reduce regulatory divergence***

Draft revised IORP directive builds significantly on IORP

- New chapter on “System of Governance”

Timeframe for transposition - 2016 / 2017 (?)

IORP II – Article 22
General Governance Requirements

- Effective system of governance which provides for ***sound and prudent management of activities***
- ***Adequate transparent organisational structure***
- ***Clear allocation*** and ***appropriate segregation*** of responsibilities
- Effective system for ensuring ***transmission of information***
- ***Regular internal review***

IORP II – Article 23

Fit and proper management

- All persons with key functions are fit and proper
  - ***"Professional qualifications, knowledge and experience are adequate to enable sound and prudent management"***
- Procedures and controls to ***enable supervisor to assess compliance***

IORP II – Article 25

Functions

- IORPs must have:
  - *Risk management function*
  - *Internal audit function*
  - *Actuarial function*

- One person can carry out more than one function

- ***Risk management can’t be same person as internal audit***

- Functions can’t be undertaken by person who does similar function in sponsoring entity*

IORP II – Article 26
Risk management system and function

- ***Strategies, processes, reporting procedures***
- ***Integrated*** into organisational structure
- Cover at least following areas, appropriately to size/nature/scope/complexity:
  - Underwriting/reserving, asset-liability management, investment, liquidity/concentration, operational
  - Insurance and other risk mitigation techniques

IORP II – Article 27
Internal audit function

- Evaluate adequacy and effectiveness of:
  - *Internal control system*
  - *Other elements of governance system*
  - *Outsourced activities*

- At least one independent person, internal or external to IORP

- Generally responsible for internal audit only*

IORP II – Article 28
Actuarial function

- Calculation of ***technical provisions***
- Assess ***methodologies, models, assumptions***
- Assess ***data quality and sufficiency***
- Express opinion on:
  - Underwriting policy
  - Adequacy of insurance arrangements
- Contribute to effective implementation of risk management system

IORP II – Article 29

Risk evaluation for pensions

- ***IORPs must carry out risk assessment***
- Produce risk evaluation to ***document assessment***
- Have in place ***methods to identify and evaluate risks***
- Risk evaluation shall be integral part of operational strategy

Views of the Irish pension regulator on pension risk management

- ***No evidence of risk management*** in relation to pensions
- ***If risk management is optional it probably won't happen***, partially due to cost
- ***Greater awareness required*** of risk concepts, risk management and risk in general
- Likely to see a ***change in approach*** from compliance monitoring to a ***more proactive Pensions Authority***

Pension Authority guidance on financial management of DB schemes

- ***Information*** for trustees
  - Asset & liability valuations, asset allocation and performance, scheme costs
- ***Governance*** practices
  - Meetings, delegation of functions, conflicts, advisors
- ***Processes***
  - Frequency of investment /funding/ risk reviews
- ***Analysis***
  - Required contributions, key threats to meeting liabilities

SAI response to Pension Authority consultation

- ***Welcomed by SAI*** - happy to work with Pensions Authority in developing tools
- ***Ensure purpose is improved risk management***, not increased paperwork
- ***Many recommended practices already carried out***
- Bear in mind that ***risk minimisation / elimination not always possible or appropriate***
- ***Tiered approach*** may be appropriate (basic / good / best practice)
- ***Guidance materials and tools will help*** improve outcomes

Views from Pensions Ombudsman's office

- ***Two common themes*** to majority of complaints:
  - ***Understanding / apportionment of responsibility***
  - ***Inadequate / poor communications***
- Concerned mainly with DC schemes
- Members often don't understand their role or responsibilities
- Trustee ability / understanding / training is sometimes to be questioned

In this context, we aimed to address key design and implementation issues

- Is there anything we can learn / use from risk management in other practice areas?
- How might we structure a pension risk management framework?
- What steps can we take to begin implementing a formal risk framework?

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Risk management in other areas of actuarial practice

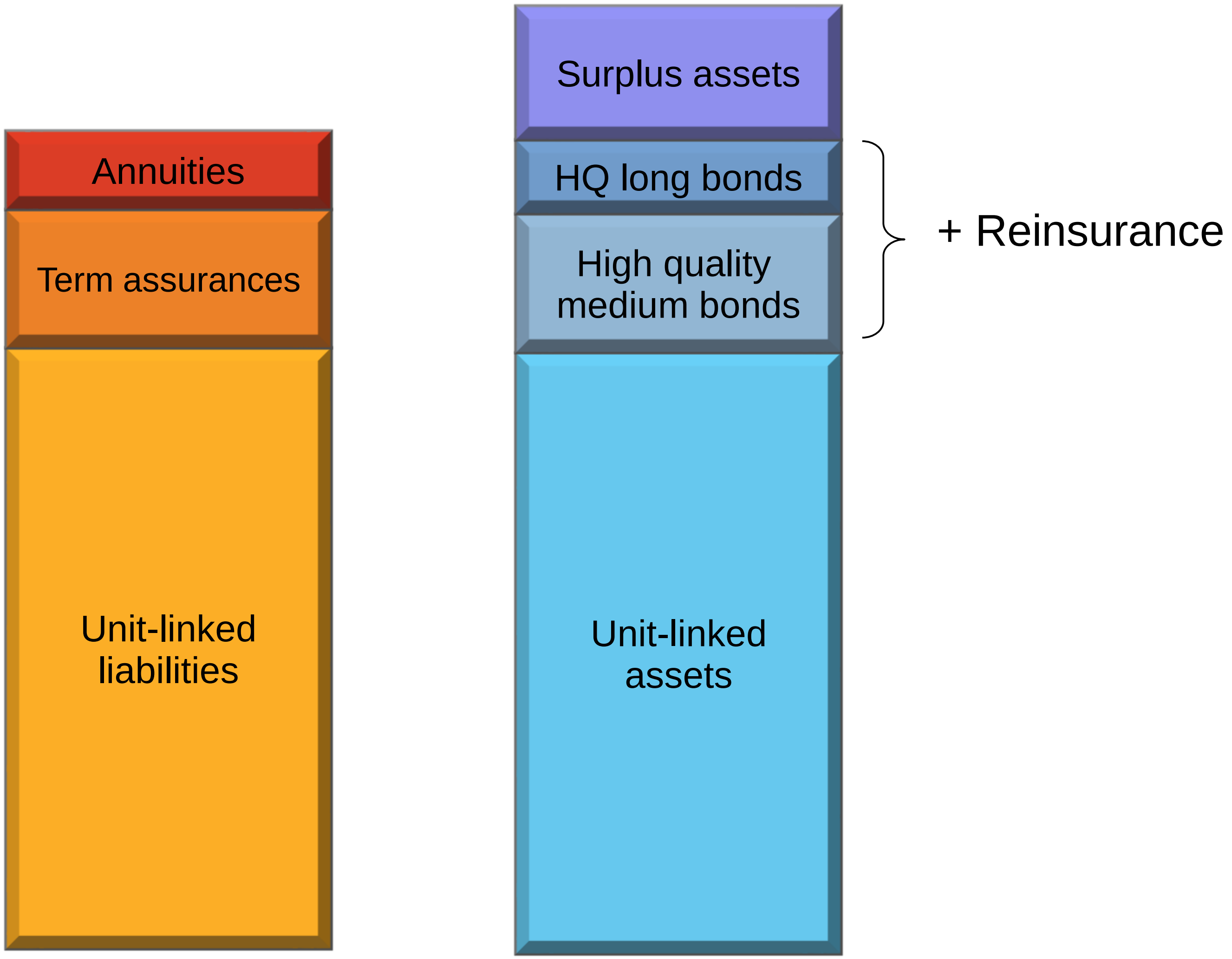
Pension Schemes vs. Life Companies

- ✓ Assets and liabilities that are long term and financial in nature
- ✓ Actuaries play a strong role in both
- ✓ End "customer" is retail
- ✓ Considerable overlap in terms of expertise and provision in the market

Pension Schemes vs. Life Companies

- Life companies tend to be large scale; huge variability in Schemes
- Life companies have a Board; Schemes have Trustees **and** a Sponsor
- Not all Scheme decision makers are financial professionals
- Interaction between assets and liabilities not so alike...

Balance sheet of a modern Life Company



General Insurance Companies and Risk Management

- Similar to Life Companies in structure and regulation
- Liabilities tend to be shorter in duration than those of pension schemes and life companies
- Huge uncertainty over the level of liabilities
- Relatively new area for actuaries in comparison to Life and Pension areas
- Solvency II provides much of the framework for risk management

General Insurance Companies and Risk Management

Past failures:

– **Private Motorists Protection Association**
  - Weak Regulation
  - Premiums too low to build up a reserve of cash
  - Poor claims experience

– **Insurance Corporation of Ireland**
  - Owned by AIB
  - London office took on risks without matching with an appropriate premium
  - UK business growing too fast
  - Insufficient cash

A life company failure: Equitable Life

- World's oldest mutual: established 1762

- 1.5m policyholders, £26bn AUM
- Closed to new business in 2000
- Compensation due to be paid to customers
- Now a case study in ST-9

Equitable Life

Why did it fail?

- **Balance sheet** caused the problem
- **Culture** led to this and prevented fixes
- **Regulation** was deficient

Equitable Life

Balance Sheet

- Policy of not building up free reserves
- Guaranteed annuity rate options
  - Designed in 1970’s and 1980’s
  - Became unaffordable in 1990’s
- Options were open-ended
- Didn’t hedge annuity risk
- Tried to back out of GAR promises but failed

Equitable Life

Culture

- “Arrogant superiority”* of management
- Isolated position with insufficient attention to market changes
- Over-reliance on contract wording
- Failure to consider “what if” scenarios
- Combined Appointed Actuary / CEO role

* Sir Howard Davies, Chairman of the FSA

Regulation

- Over-tolerant regulator

- Shortage of supervisory staff

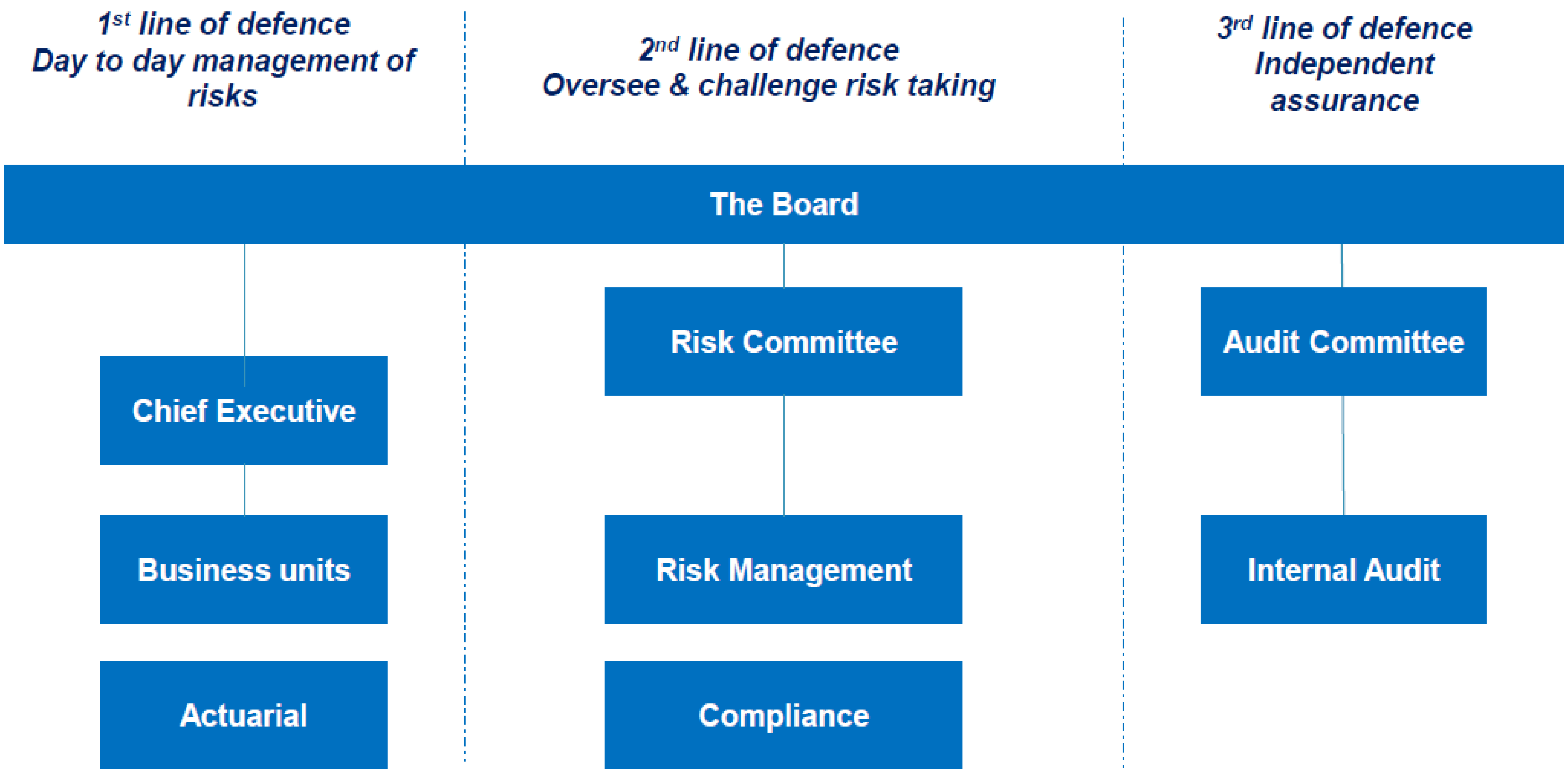
"The Equitable Life Payment Scheme was set up by HM Government to make fair and transparent payments to Equitable Life policyholders who suffered financial losses **as a result of government maladministration which occurred in the regulation of Equitable Life**. "

Source: https://www.gov.uk/equitable-life-payment-scheme

Risk management today

Risk governance operating model design : 3LOD
Key principles

Many financial institutions have adopted the 3LOD principles in relation to the design of their risk governance operating models. Whilst the Solvency II requirements are consistent with these principles some modifications are likely to be required.

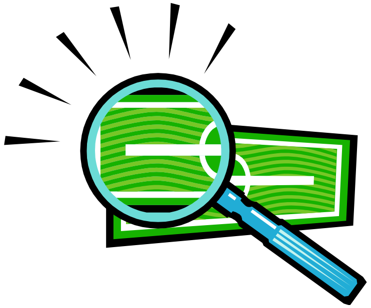


Source: https://web.actuaries.ie/events/2014/05/three-lines-defence-%E2%80%93-where-does-cro%E2%80%99s-role-start-and-end-breakfast-meeting

Corporate Governance Code 2013 (effective 1/1/2015)

- Policy
  - Risk Appetite Statement

- Implementation
  - Chief Risk Officer



- Oversight
  - Risk Committee

Policy - Risk Appetite Statement

- Risk Appetite statement must “address separately the short, medium and long term horizons”
- “The Board is required to understand the risks to which the institution is exposed…”
- “The appetite shall be expressed in qualitative terms and also include quantitative metrics…”

What might a Risk Appetite Statement look like?

- Put it in context with the entity's goals
- A brief overview: "The Risk Appetite is the level of risk required to achieve objectives A, B and C"
- List risk categories (6-12 perhaps)
- Solvency II uses "1 in 200 year event" approach
- Tabulate, e.g.:

Risk Type	Scenario	Appetite
Equity	50% fall in markets	A-L ratio worsens 10%

The Chief Risk Officer

- “The CRO shall be responsible for ensuring that the institution has effective process in place…and manage risks to which the institution is or might be exposed.”
- “CRO shall have relevant expertise, qualifications and background… seniority and independence”
- “The CRO shall promote sound and effective risk management...”
- The CRO shall provide “…comprehensive and timely information on…material risks which enables the board to understand the overall risk profile of the institution.”

The Risk Committee

- "The number of members of a risk committee shall be sufficient to handle the nature, scale and complexity of the business..."

- "The Chairman of the Risk Committee shall be a non-executive director"

- The CRO and Risk Committee must, jointly, ensure that the "risk management system... is effective and proportionate to the nature, scale and complexity of the risks inherent in the business"

Summary and Conclusions

- Parallels can be drawn between pensions and other practice areas
- Solvency II / CGC governance framework very useful
- A lot of advantages to a structured approach to risk management:
  - Clearly define roles and responsibilities
  - Help identify gaps and weaknesses
  - Provide comfort to regulators / members
  - Big advantages for small Schemes
  - Should actually reduce risk!

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Proposed risk management framework

High level model

Three lines of defe

Trustee Board or Sponsor

Line 1: "Do"	• Business units
Line 2: "Check"	• Risk management function
Line 3: "Review"	• Audit

Administrator
Investment Manager
Scheme Actuary?

Risk committee
Pensions manager
Scheme Actuary?

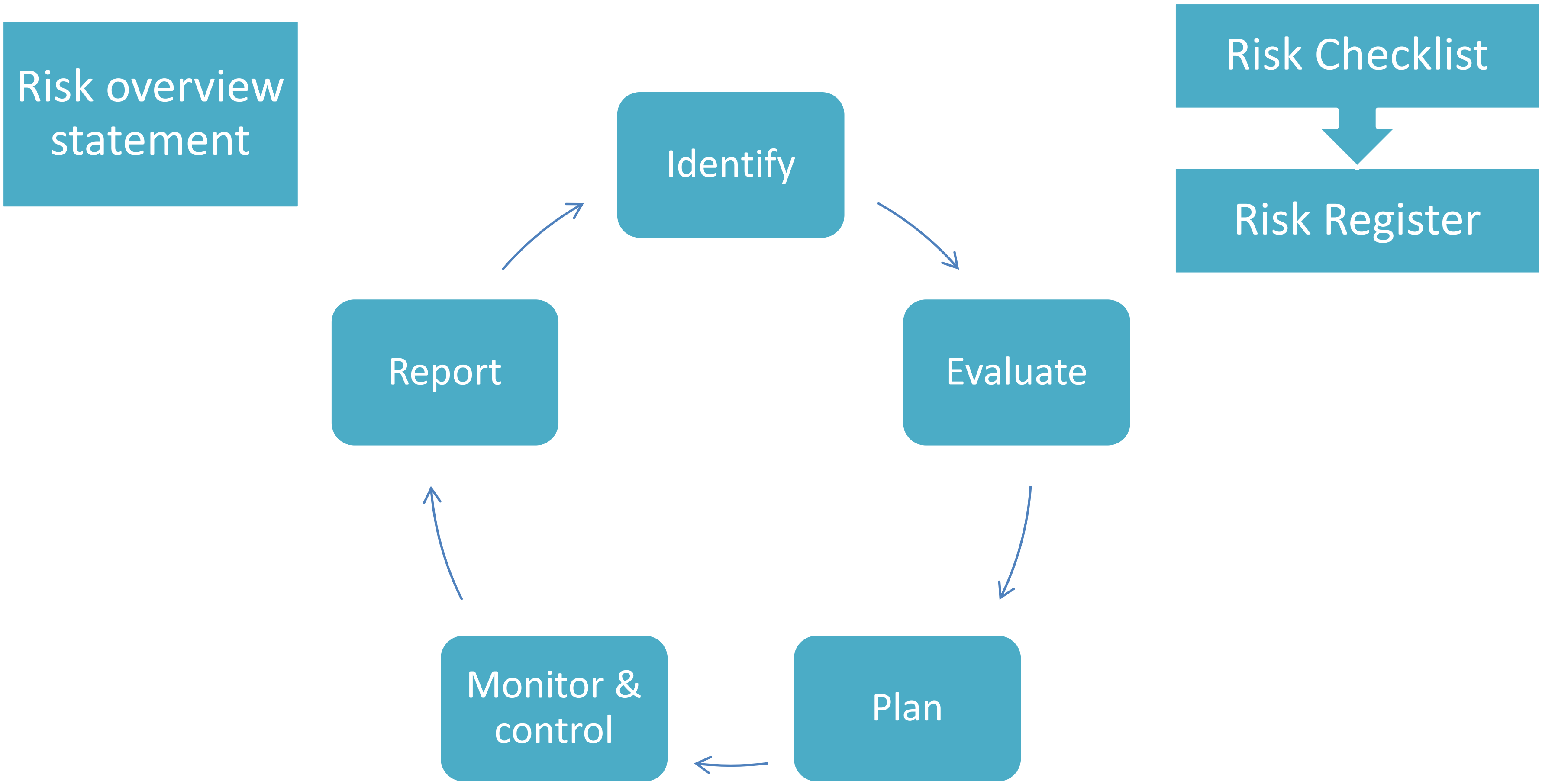
Internal audit
External audit
- financial statements
- risk framework

High level model
Roles and responsibilities

- No definitive answer as to exact structure of model and who fits in to which line
  - Depends on nature, size and complexity of the scheme and sponsor

- Key concepts for all schemes
  - Segregation of responsibilities
  - Effective challenge between the lines

Suggested risk management framework



Documentation

Risk overview statement

- **Statement of trustees' appetite / attitude to risk** - a "mission statement"
- **Structural elements**
  - Trust Deed and Rules, balance of powers summary, service agreements etc
- **Governance approach**
  - Trustee board membership, subcommittees, frequency and conduct of meetings, decision making processes, register of interests etc
- **Policy suite**
  - SIPP, funding plan, conflicts of interest, dispute resolution, data protection etc

Sample content (base line of minimum requirements / good practice/ ideal approach) drafted and will be available on website

Pension Protection Fund – risk appetite statement

"In general, the Board has a ***cautious risk appetite with respect to all risk categories apart from investment operations where it is even more risk averse***".

"We will ***take risks that have been carefully considered*** and ***where controls have been implemented to reduce the likelihood of a risk materialising or the impact if one did materialise***".

"Where commercially viable, we would ***expect financial risks to be hedged*** through appropriate instruments or insurance".

"Risks will be monitored by the use of key risk indicators as agreed by the Executive team through the Asset and Liability Committee and the Risk Management Committee as described in our risk management policy".

Ontario Teachers Pension Plan – risk appetite statement for investments

*“**The Board recognizes that more aggressive investing can lead to higher returns, but also higher losses, and that less aggressive investing can lead not only to smaller losses, but also lower returns, which could lead to an inability to fund liabilities**”.*

“It is the ***responsibility of the Board to oversee investments and strategic directions***, establish overall guidelines and limits and monitor the exercise of delegated authority”.

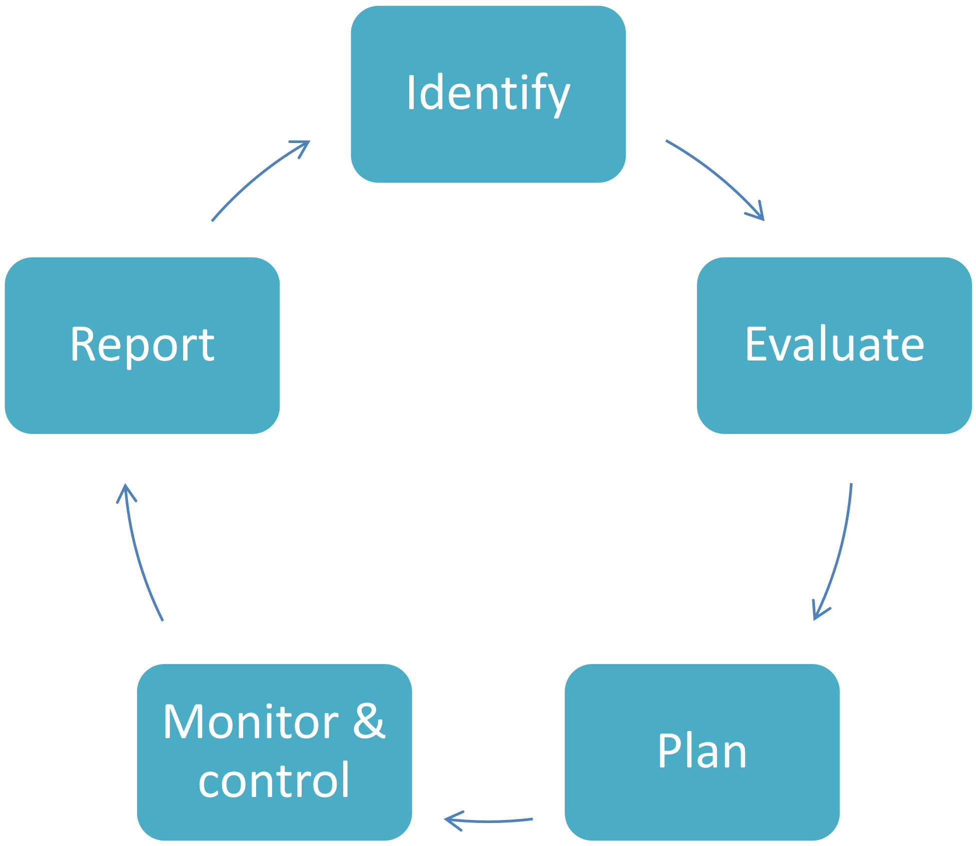
“The ***asset mix policy, overall risk budgets and allocations by department should be reviewed annually*** and whenever changing market conditions warrant”.

“The ***Board has zero tolerance for legal, ethical and reputational breaches*** and expects appropriate disciplinary action to be taken in the event that employees violate applicable requirements”.

Risk checklist and risk register

- **Risk checklist**
  - Generic list of all potential risk to a scheme
  - Facilitates discussion on the risks particular to the scheme
- **Risk register**
  - Statement of risks particular to the scheme
  - Record of outcome of various stages of risk management system
    - risks identified in most recent review (**Identify**)
    - ranked / prioritised according to exposure (**Evaluate**)
    - agreed mitigation / management approach (**Plan**)
    - reporting responsibilities (**Report**)
  - Reviewed and refreshed at agree intervals (**Monitor**)
  - Sample documents prepared and will be available on the website

Risk Management Cycle



Risk Management Cycle: Identify

Risk grouped into the following categories

- Scheme management
- Funding and Solvency
- Investment
- Operational
- Legislative
- Sponsor covenant

Risk Management Cycle: Evaluate

- Evaluate risk by:
  - Likelihood
  - Impact
- **Non-financial risks** are likely to require qualitative measure of risk
- **Financial risks** may allow some quantitative measures
  - VaR
  - Scenario / sensitivity
- Modelling and consideration proportionate to nature and scale of risk
- Consider the correlations between risks

Risk Management Cycle: Plan

- Important to remember not the aim to eliminate all risks

- Rather aim is to understand the risks involved and
  - **Remove** risk
  - **Reduce** likelihood or/and impact risk to an acceptable level
  - **Transfer** (some or all of) the risk to other parties
  - **Accept or exploit** risk

- Note decisions in risk register

- Assign responsibility for each risk

Risk Management Cycle: Monitor

- Review of **risk checklist** and **risk register**
  - For effectiveness of risk mitigation processes previously agreed
    - Performance of individuals and entities involved in scheme operation
    - Examine areas where mitigation did not work as planned
    - Examine areas where agreed mitigation was not (fully) implemented
  - For new risks and relevance of risks previously included
  - Agree frequency of reviews
    - High level review annually
    - More formal review every three years (unless significant change in circumstances of scheme)

- Review **risk management framework**
  - Periodic external review

Risk Management Cycle: Report

- By third party providers to the trustees – in relation to delegated functions
  - Legislative compliance
  - Service levels
  - Risk incidents / issues
  - Emerging risks

- By trustees to members
  - Disclosure of risk appetite / attitude statement
  - For DB schemes – risk analysis in triennial valuation report
  - Should trustees perhaps report to members on their regular reviews of the scheme's risk register?

- By trustees to regulator?
  - How / when to evidence risk management?

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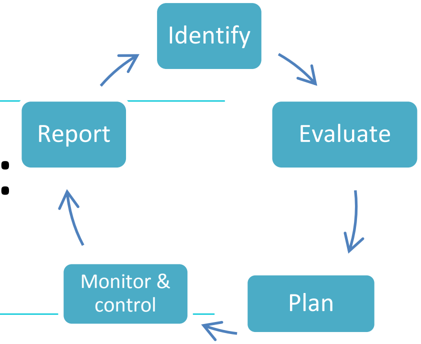
Practical implementation for Irish pension schemes

Suggested risk management system:

All very good in theory….but how to implement?



Defined Contribution Pensions

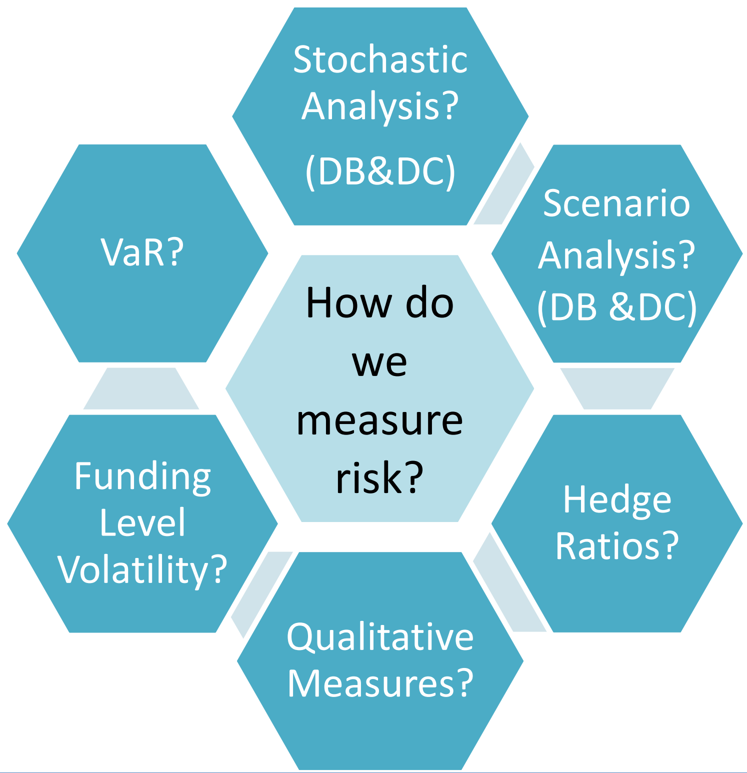
Overlap

Defined Benefit Pensions

Risk Management Cycle: Identify

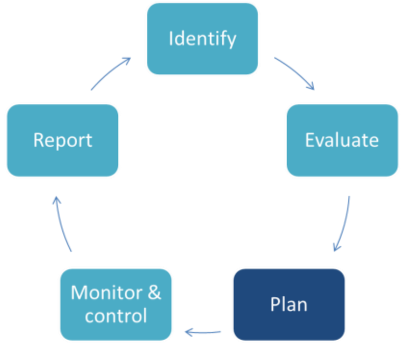
Starting point of generic risk checklist
- Which risks are relevant?

Risk Management Cycle: Evaluate



Main aim is to measure impact of relevant risks in a clear manner

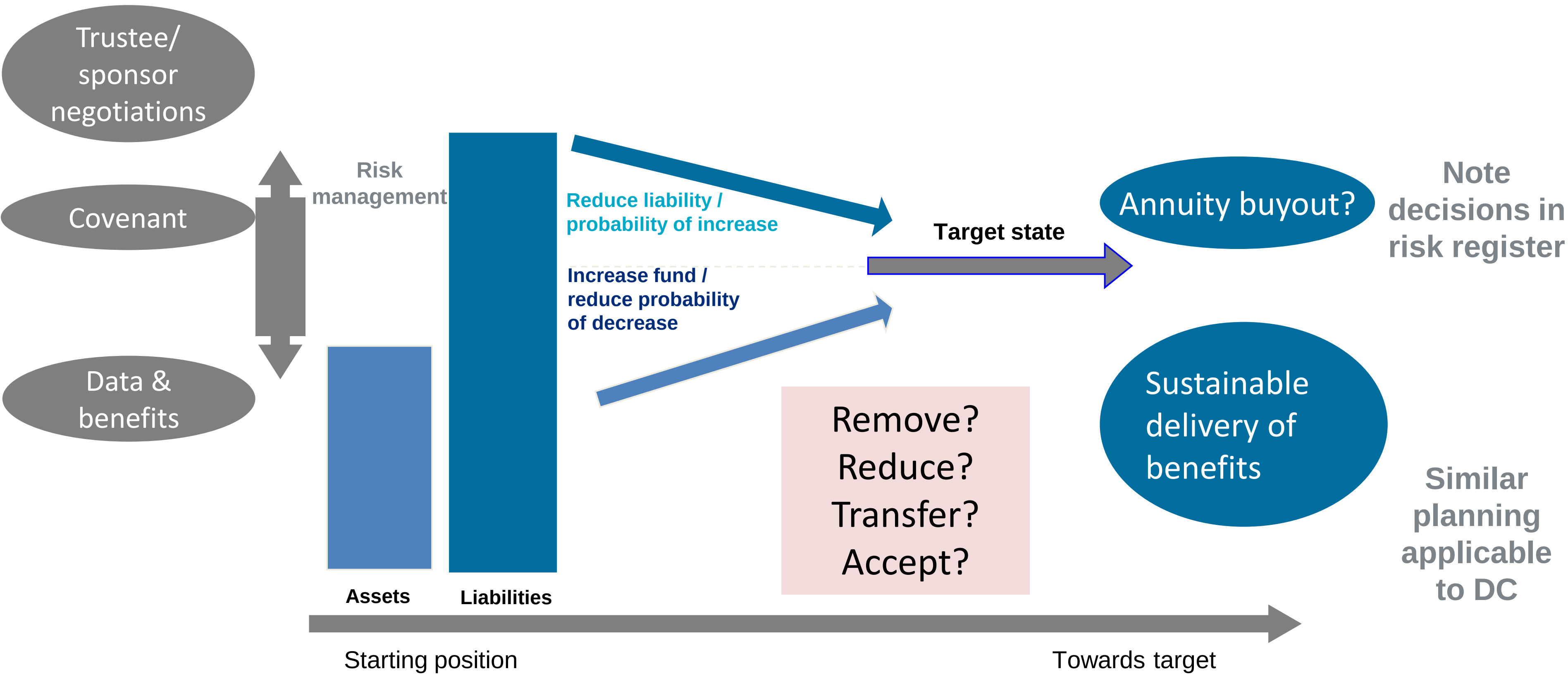
Risk Management Cycle: Plan



- **Sponsors** – increased contributions
- **Members** – benefit reduction and benefit security
- **Trustees** - must balance both views
- Removal not practical - Pension schemes set up to accept some level of risk
- Objectives of the Plan is a crucial component – what is target?
- What is acceptable level of risk in order to achieve objective?
  - Trustee and company negotiation

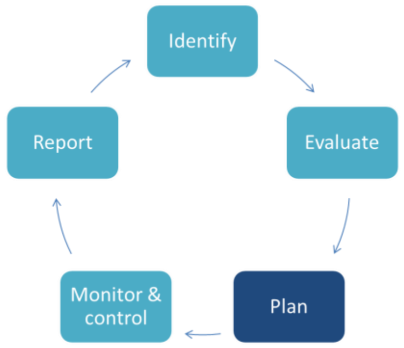
Planning stage involves setting out objectives of the Scheme

Risk Management Cycle: Plan



More and more tools in place to help manage risks to reach end goal

Risk Management Cycle: Plan – Tools available



- Risk management
  - Full / Partial transfer options
    - Traditional buy-out / buy-in
    - Non-traditional transfer e.g. captive, longevity swaps
  - Operational
    - Outsource
  - Covenant
    - Covenant assessment
    - Company guarantee
  - Investment strategy
    - De-risking
    - Interest rate and inflation hedging
      - Diversification
  - Liability management
    - ETVs / PIX etc
    - Benefit strategy
  - Funding
    - Non-traditional funding e.g SPVs
      - Contingent Assets

Some tools more applicable to DB. Much work on DC risk management tools also in recent years

Risk Management Cycle: Monitor

- Review of **risk checklist** and **risk register**
  - For effectiveness of risk mitigation processes previously agreed
    - Performance of individuals and entities involved in scheme operation
    - Examine areas where mitigation did not work as planned
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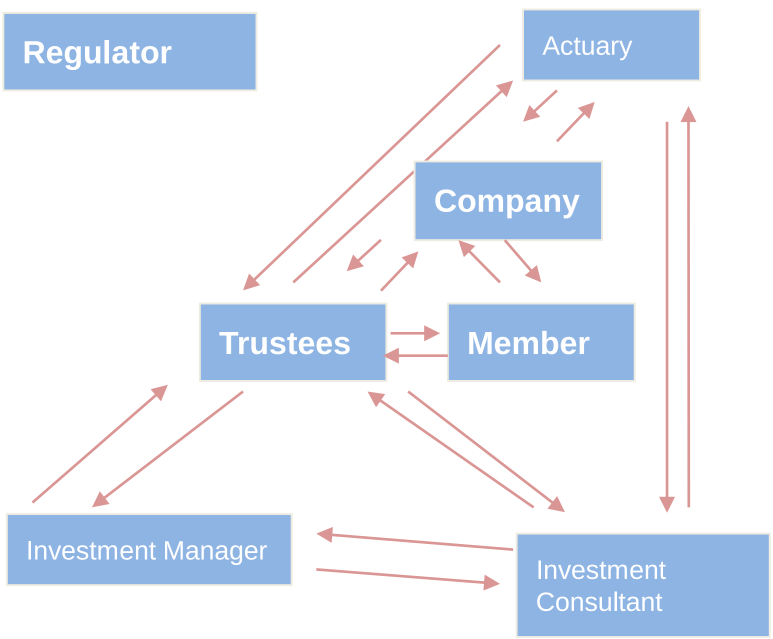
Risk Management Cycle: Monitor

Existing Stakeholders



- More and more complex co-ordination between various parties– efficient risk management framework can be difficult to implement

Who will take charge?

Trustees?

Company?

Mixture of both?

- Would ideal approach be a mixture of both? i.e. a strong Trustee board with regular input from company?
- Pensions manager / professional Trustee / sub-committee in overseeing role?

Risk Management Cycle: Report

Risk category	Risk	Impact	Likelihood	Overall	Owner	Mitigation
Scheme management	Conflicts of interest may impact, or be perceived to impact, on decision making	H	M	H	Trustees	* Prepare Register of Interests * Declare any new conflicts prior to Trustee meetings
	Lack of understanding of legal responsibilities, specific details of scheme and regulatory framework.				Trustees	* Review understanding of issues continuous basis * Trustee training (specifically if particular area of weakness)
	Failure to comply with regulatory requirements				Trustees/Actuary	* Prepare annual governance and report progress on continuous basis
	Fraud or theft	M	L	L	Trustees	* Robust controls on bank accounts * Appointment of custodian * Processes surrounding confirmation of existence and identity of beneficiaries
	Poor advice from advisors	H	L	L	Trustees	* Appoint suitably qualified advisors * Implement written agreements regarding scope of work of advisors
Sponsor covenant	Change in sponsor covenant (willingness and ability to meet obligations)	H	M	H	Trustees	* Monitor payments of sponsor contributions * Request financial information from sponsor to monitor financial health * Consider independent assessment of sponsor covenant * Request parental guarantee if applicable
Investment and Market	Lack of understanding of overall investment goals	M	L	L	Trustees	* Appoint professional investment advisor * Prepare SIPP
	Inappropriate strategic asset allocation	M	H	H	Trustees/ I... advisor	* Investment strategy review at least every three years * VaR analysis

Risk register is good example of evidence of risk management

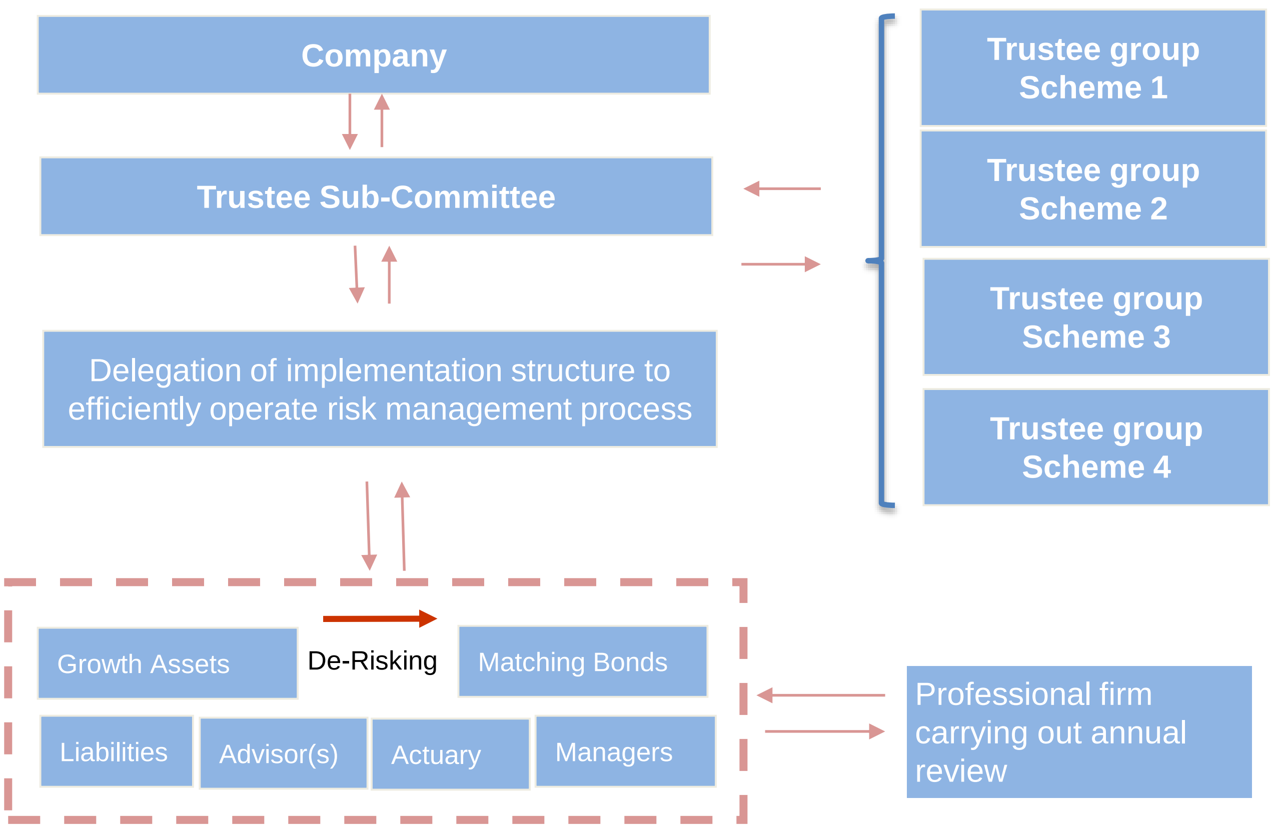
Risk Management framework

Case Studies

September 2014

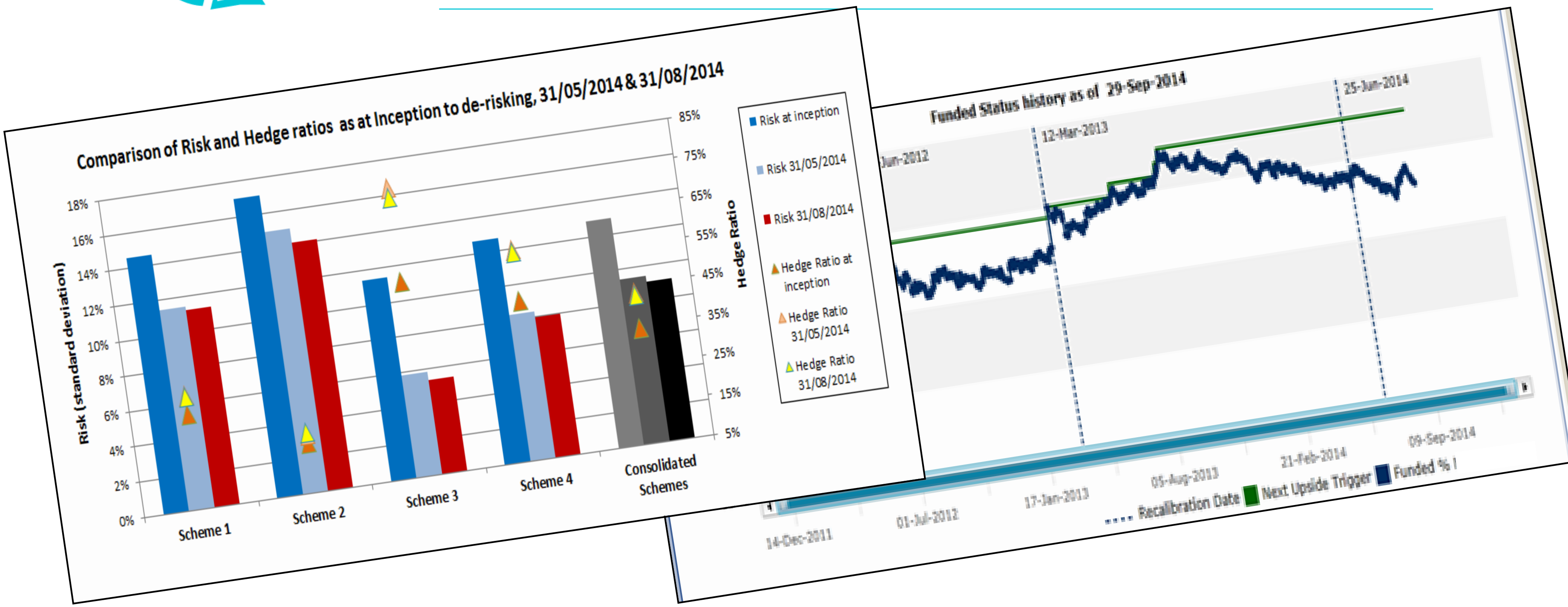
Risk Management Framework: Case Study 1

- Several cross border Schemes
- Trustee sub-committee focus on strategic aspects
- Consistency in approach
- Delegation of implementation
  - De-risking through daily monitoring of funding level
  - Discretion of growth portfolio
- Quarterly risk analysis
- Regular summary to individual Trustee groups



Sub-committee focus on strategic aspects. Consistency across Schemes

Risk Management Framework: Case Study 1



- Quarterly risk analysis using 2 measures (funding level volatility and hedge ratios)
- Trustee access to funding level on a daily basis
- Annual review of strategy and holistic approach in conjunction with triennial valuation

Annual review of delegated function carried out in addition

Risk Management Framework: Case Study 1

Line 1: "Do"	• Delegated function • Scheme Actuary
Line 2: "Check"	• Trustee subcommittee • Quarterly risk analysis • Compliance
Line 3: "Review"	• Annual review of delegated function • Triennial review • Individual Trustee groups • Annual accounts and audit

3 lines of defense model can easily be applied

Risk Management Framework: Case Study 2

- Post 2008, Internal review indicated robust governance structure to be adapted and applied to the DB Scheme
- Scheme now viewed as strategic part of company
- Commits company resources
- Demonstrates sponsor commitment to the Scheme
- Introduces responsibility and accountability
- Reporting & review structure up to board level

Audit/Risk Committee & Parent Company

Company: HR & Pensions Managers

Corporate Pension Advisors

Trustees

Scheme Actuary

Initial Planning Stage: Target of sustainable benefits

Liability Management

- Voluntary transfer options made available:
  - ETVs and PIX
- Buy-out for "base" pensions

Investment Risk

- Investment Strategy agreed between Trustees and company – actuaries on both sides heavily involved

Operational Risks

- Detailed audit of member data
- Re-launched member communications

Remove?
Reduce?
Transfer?
Accept?

Practical considerations

- One-size fits all approach ?
- Costs – Time & Money
- Should there be a base requirement with best practice guidance for schemes that can afford?
  - Should this be mandatory?
- Other jurisdictions
- Trustee expertise maybe an issue for many schemes
  - Current Trustee training regime may need to be revised

What next?

- Role of actuary as CRO?
  - Challenge actuaries to lead approach with clients on risk management
    - Introduce (explicitly!) as part of triennial valuation
    - Introduce as part of review of DC Scheme governance
- Consider baseline / best practice for Schemes?
  - Is there a need for follow up work out of this group?
- Role of regulator?
  - Recent consultation with possibility of tools being issued

Let’s hear what panel has to say!!