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ACTUARIAL
ASSOCIATION
OF EUROPE

Pensions Risk Management Working Group

Quantitative Risk Management for Pensions

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Setting the scene: Pensions Landscape

IORP Structure	Characteristics	Funding / solvency*
Separate legal entity		
No sponsor	Separate legal entity, fully owned by its members.	Fully funded at all times
Single-employer	Separate legal entity, backed by sponsor	Funding backed by sponsor and member contributions
Multi-employer	Separate legal entity, with membership from multiple employers	Ring-fenced funding requirements for each sponsor
Cross-border	Separate legal entity operating across different jurisdictions	Fully funded at all times
Insurance-linked	Separate legal entity, operates under an insurance company's balance sheet	Solvency II like rules
Liabilities on sponsor balance sheet (no separate legal entity)		
Book reserve	Liabilities booked on company's own balance sheet	No IORP specific solvency rules

Scheme types

DB: Traditional DB schemes with guarantees

DC: DC schemes with no guarantees. All risk with the members and beneficiaries.

Hybrid: DB or DC scheme with different levels of guarantees or conditional guarantees

SIZE OF THE IORP SECTOR

1 419

IORPs

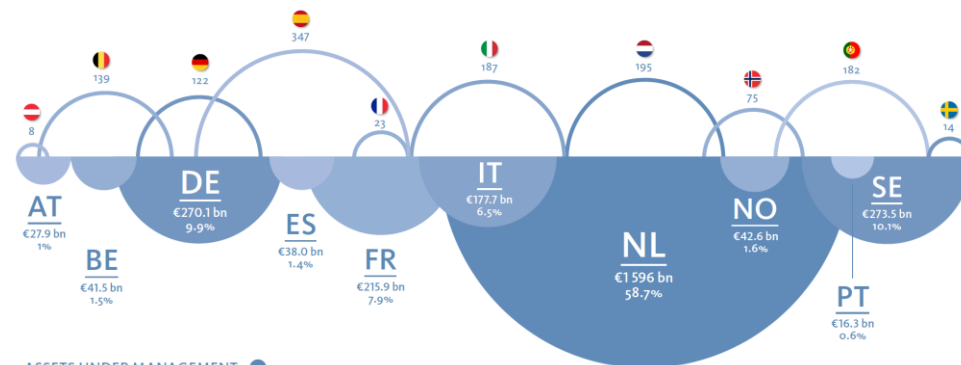
71.6 m

members and beneficiaries

€2 720 bn

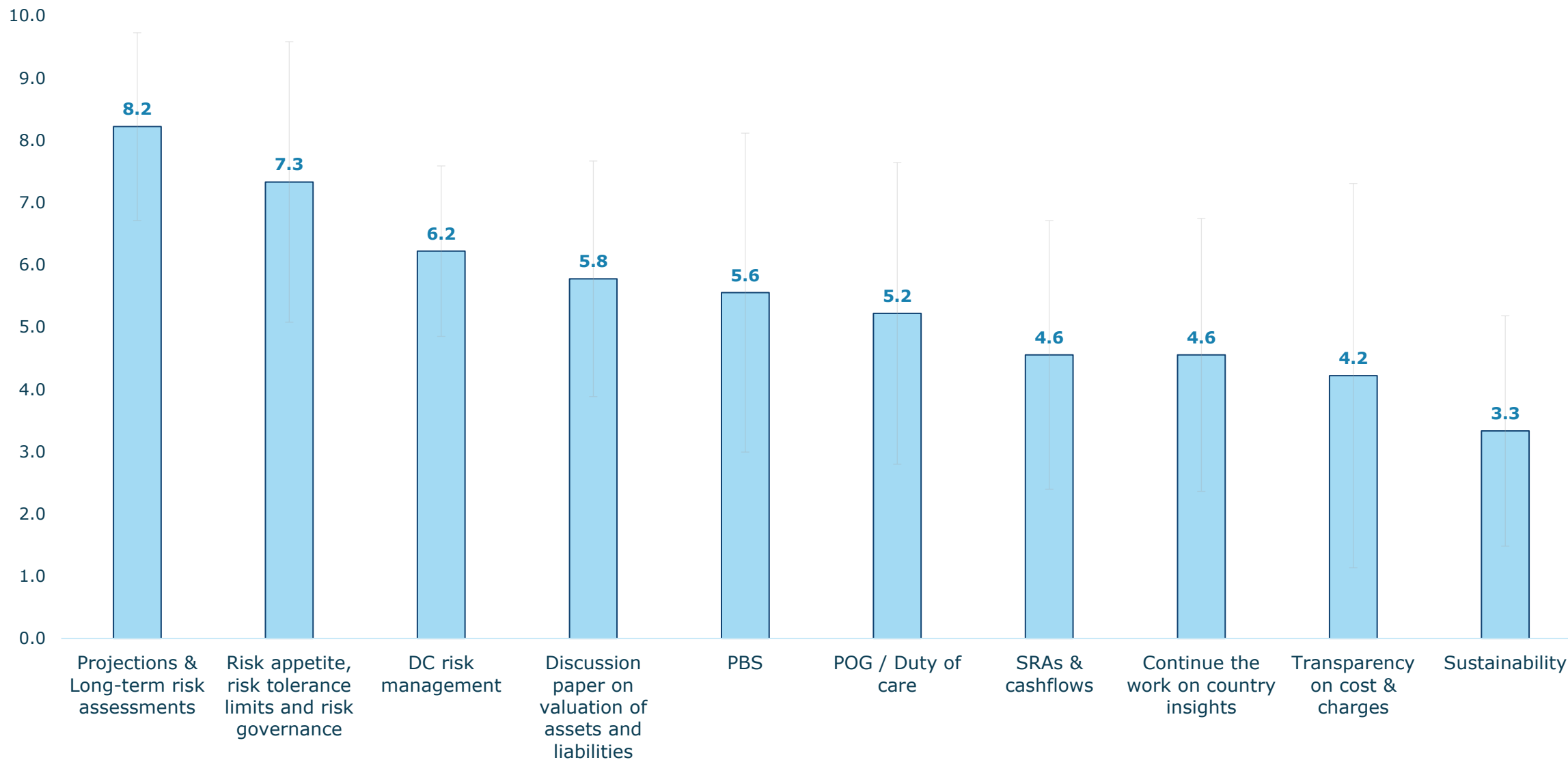
in assets

NUMBER OF IORPS ○



ASSETS UNDER MANAGEMENT ●

Importance score (0 – 10)



Overall purpose and scope our work:

To enhance the AAE's contribution to Pensions and Risk Management by actively engaging in discussions, influencing and supporting regulatory developments, and promoting good governance in alignment with actuarial expertise and professional standards.

- ① **Advancing Risk Management in Pensions:** Support the integration of risk management techniques and tools, particularly within the Institutions for Occupational Retirement Provision (IORPs).
- ② **Improving current frameworks:** Identify and address areas where actuarial insights can contribute to resolving regulatory gaps or ambiguities in risk management frameworks. Highlight shortcomings in existing regulations, overly burdensome requirements, or areas needing further guidance.
- ③ **Internal discussions:** Promote an understanding of key pensions risk management topics with the AAE. Facilitate knowledge sharing and professional collaboration through discussions, publications, and events.
- ④ **Actuarial Leadership in Risk Management:** Promote the actuarial profession as leading stakeholders in pensions risk management, demonstrating thought leadership in the field.
- ⑤ **Deliverables:** Our group is considering the preparation of a discussion paper to initiate dialogue on this topic with a potential follow up webinar to engage stakeholders and reinforce key messages.

Overall purpose of our work:

Following a survey on key areas of interest within the Pensions Risk Management Working Group and IORP II Review Task Force, two dedicated projects were identified as priority topics from the members of the two groups:

A. Quantitative Risk Management (QRM) for Pensions Project:

Phased approach addressing key risk management challenges in pensions such as:

1. Framework for QRM in pensions (*deep dive on next slide*)
2. Valuation of assets and liabilities,
3. Long-term risk assessments, cashflows and projections for IORPs,
4. Standardised risk assessments (SRAs).

B. Member Communication Project: focusing on analysing and enhancing communication strategies for pension scheme members (*not yet initiated*).

Purpose of today's presentation: To provide an overview of the Quantitative Risk Management (QRM) Project, outlining its key objectives and initial concepts. The session aims to initiate discussions with committee members to discuss the project's scope and identify the core focus areas and how we phase them over a 3-year work plan.

Why:

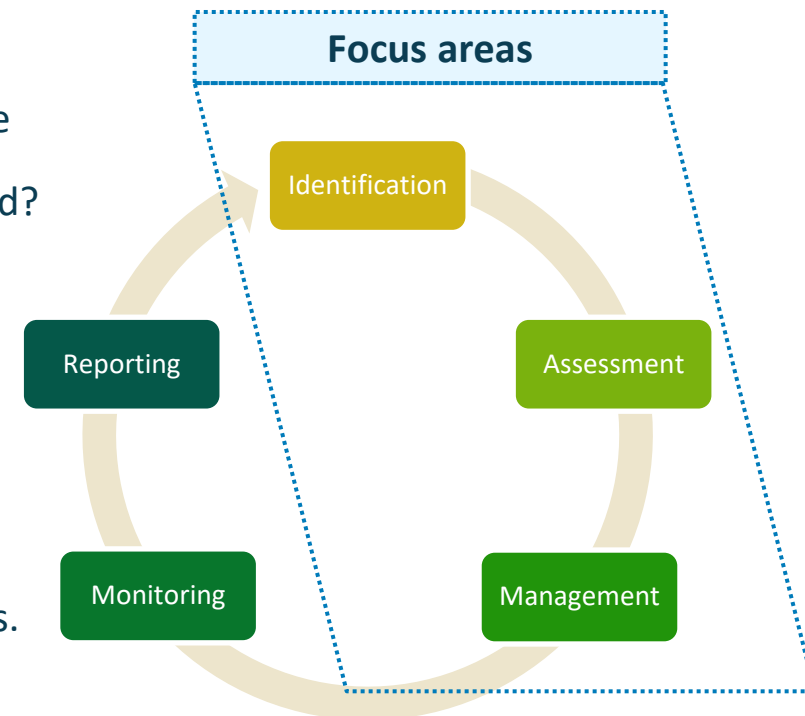
- IORP II not a risk-based framework, so not much help from the directive and not much (modern) literature on QRM tailored for Pensions.
- Increased focus on risk management both in the industry and from regulators. But is everyone inventing the wheel at the same time?

What: Work-in-progress goals

1. Gap analysis: Identify what we already have in current legislation and modern literature
2. Get inspiration from other industries (Insurance, banks etc.) – what is good? what is bad?
3. Discussion paper on QRM Framework for Pensions

Our first headlines of “Framework for QRM in pensions”

- **Risk Identification:** Clearly defining risks relevant to pension schemes.
- **Risk Categories:** Addressing financial, demographic, operational, and ESG risks.
- **Nature of Risk:** Differentiating between guaranteed benefits and other funded promises.
- **Risk Takers:** Understanding the perspectives of IORPs, sponsors, and members.
- **Risk Indicators & Risk Appetite:** Defining risk appetite and tolerance levels, including consideration of key metrics such as solvency ratios, replacement ratios, and value at risk.



Discussion: Open discussion among committee delegates in particular with regards to the ideas presented on slides 6 and 7.

Next Steps:

- ① Initial findings presented to committees in September 2025.
- ② Aim to have a draft discussion paper on the first phase of the project in April 2026.



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APPENDIX

Preliminary Draft, Work in Progress – Shared as pre-read to assist the discussion

Some remarks based on observations from the EU pensions' landscape:

1. **Definition of "Fully Funded":** The term "fully funded" is not universally defined and varies across different jurisdictions. Similarly, "fully funded at all times" lacks a standard definition and is subject to recovery schemes, minimum funding requirements, and solvency regulations.
2. **Collective vs Individual Assets:** Collective assets do not imply ownership by individual participants but rather provide pension rights covered by pooled assets for all members. Individual assets exist when pension rights are directly linked to specific assets in an individual, ring-fenced, pension account.
3. **Book Reserve vs IORP:** The book reserve system and IORPs are distinct concepts. By definition, an IORP is an external institution, whereas a book reserve scheme records pension liabilities directly on a company's balance sheet.
4. **Hybrid Schemes:** Hybrid pension schemes can integrate specific Defined Benefit (DB) and Defined Contribution (DC) commitments. Cash balance schemes may also be considered hybrid, as they combine contribution commitments with financial guarantees.

Preliminary Draft – Only for Discussion

QRM Framework - Project outcome example

	Risk Identification		Risk categories		Nature of risk		Risk Takers		Risk Indicators	
	<i>DB</i>	<i>DC</i>	<i>DB</i>	<i>DC</i>	<i>DB</i>	<i>DC</i>	<i>DB</i>	<i>DC</i>	<i>DB</i>	<i>DC</i>
No sponsor										
Single employer										
Multi-employer										
Cross-border										
Insurance linked										
Book reserve										

Preliminary Draft – Only for Discussion

- Quantitative Risk Management for Pensions (QRMP) considers several views
- Valuation frameworks are linked to local regulations
- Valuation frameworks are linked to stakeholders
- QRMP takes into account the applicable specificities
- Different stakeholders are taking risk (risk takers)
- Risk indicators depend on types of risk
- Risk indicators depend on context of risk taker
- The Professional Judgment of the actuary determines the applicable framework and indicators

Preliminary Draft – Only for Discussion

- 1° Risk categories
- Scope for risk categories is primarily actuarial and financial risks. Operational risk management, climate risk management are covered by other WGs in the AAE. The strategic and the reputation risks are linked to the specific activities of each IORP .
- 2° Risk Takers
- The risk management for IORP refers to the possible vulnerability of different risk takers:
- The Institution for Occupational Retirement Provision (IORP)
- The sponsoring undertaking (employer)
- The members (employees, professionals) and beneficiaries

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3° Nature of Risks

- The IORP is committed to
 - an obligation of means (the IORP accepts to manage the occupational pension scheme(s) on a best effort basis)
 - an obligation of result (the IORP assures benefit payments based on contractual conditions : see art 15 IORP Directive - similar to mutual companies)
- The employer and the employee share the risks in function of the type of plan (defined benefit – defined contribution) and the conditionality of it.

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4° Valuation framework

The financial framework is depending on the risk taker :

- For the IORP : the valuation of assets and liabilities of the institution depends on the local regulation and accounting. The solvency framework can use a different approach such as market consistent as is the case for insurance companies and depends on the risks taken by the institution.
- For the sponsor/employer : the accounting framework used by the sponsoring company to determine its share value or equivalent.
- For the member/employee : appreciation of the IORP of the personal financial situation of its members is based on the so called prudent man principle and the duty of care.

Preliminary Draft – Only for Discussion

4° Valuation framework

The financial framework is depending on the risk component :

- Solvency risk refers to shareholder value and loss capacity
- Reserving risk refers to vested rights and prudence level
- Funding risk refers to level and cash flow of contributions
- Liquidity risk refers to availability of assets over time

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- 4° Valuation framework *Market Consistent or not that is the question*

SII Directive art 75 :

“Valuation of assets and liabilities

1. Member States shall ensure that, unless otherwise stated, insurance and reinsurance undertakings value assets and liabilities as follows:

(a) assets shall be valued at the amount for which they could be exchanged between knowledgeable willing parties in an arm’s length transaction;

(b) liabilities shall be valued at the amount for which they could be transferred, or settled, between knowledgeable willing parties in an arm’s length transaction.”

- Market Consistency implies that insurance liabilities are evaluated in a risk neutral environment. The implementation of the definition can vary in function of the risk taker and the nature of the risk.”

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5° Risk Indicators

Several financial risk indicators can be developed. In essence these indicators depend on the risk taker, for example :

- For the IORP : the solvency ratio
- For the sponsor/employer : the reserving and the funding ratio
- For the member/employee : the replacement ratio

The quantification of the risk indicators will depend on the valuation framework, and the underlying methods and assumptions to project the assets and liabilities.

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6° Risk Appetite

The risk appetite of the risk taker is influenced by the risk capacity or the impact on the financial position of the risk taker in case of realization of the risk.

- For the IORP : corporate finance strength of the institution
- For the sponsor/employer : corporate finance strength of the company representing the employer
- For the member/employee : personal finance

The risk appetite will allow to define the risk tolerance and corresponding limits.

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7° Definition of ratios

Combining all aspects discussed before it should be possible to define risk indicators and ratios that best fit the needs and context of each risk taker involved in the IORP activity.

The valuation of the risk indicators depend on the projection of the cash flows and the assets and liabilities in the context of the pension plan, the ring-fenced funds or the total balance sheet of the IORP. For the purpose of the risk analyses these projections can be based on stochastic scenarios or when appropriate on deterministic scenarios.

The choice of the actuarial methods and the assumptions is governed by the professional judgement of the actuary overseeing the interest of all stakeholders.

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Quatitative Risk Management IORP			
Risk Taker	IORP	Sponsor	Member
Nature of risk	Obligation of means Obligation of result	DB/DC Conditionality	DB/DC Conditionality
Risk Indicator	Solvency Ratio	Funding Ratio	Replacement Ratio
Risk Appetite	Corporate structure IORP Capacity	Corporate structure sponsor Capacity	Personal Finance
Valuation	Market Consistent Transfert value of liabilities of IORP	Accounting framework shareholde value	Prudent Person Duty of care
Cash Flows	Cash Flow Projection Assets and Liabilitiues Deterministic and Stochastic	Cash Flow Projection Assets and Liabilitiues Deterministic and Stochastic	Cash Flow Projection Assets and Liabilitiues Deterministic and Stochastic

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