ACTUARIAL ASSOCIATION OF EUROPE

Risk Mapping Social Security Pension Systems

Pensions Committee\Social Security Sub-committee

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Setting Context

The triennial Pension Adequacy Reports and the Ageing Reports as risk management

Enterprise Risk Management and enterprise risk categories

Risk management of financial institutions – Banks, Insurers – is our usual example

Pension is a financial transaction

Social security pension funds are publicly managed financial institutions

Examples for devising a SSPS risk management framework

The broad context: ERM Risk and Risk assessment

COSO, ISO standards

Principles and strategic and operational risk management cycles

Risk

- The possibility that an **event** will occur and adversely affect the achievement of **objectives**

Risks of the ever-changing **risk universe** of the enterprise

Risk appetite and tolerance vs performance – link with strategic planning

Risk assessment

- Risks are analysed considering likelihood and **impact**, on an **inherent-and-residual** basis, for determining how they should be managed

What kind of risks? – Enterprise risk categories

Governance and organisation

- Governance and Strategy risks, Reputational risk, Compliance risk
- Organisational structures, processes and HR

Business risks:

- Specific to own business activities
- Specific to *financing* business activities (investment)

Operational risks: operating as an organisation

- the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events
- IT/cyber risks are here
- Risks of *financing* the organisation and operations (expenses)

Our examples: the financial institutions

- Banking: Basel Accords
- Insurance: Solvency Regulations
- Historically aiming to manage the business risk of the institution
  - Formally Regulatory capital tools, aka Economic capital
  - But with high level of Risk appetite/tolerance because of the nature of the business
- The ERM of financial institutions
- Financial institutions' risk categories

Governance and organisation

***Business risks*: Financial institutions trade in money and risks**

- **Their trade is transforming risks and durations**
- ***Risk appetite/tolerance: For them Financial risks are business risks***

Operational risks: operating as an organisation

Pension systems

Objective: *The primary goal of a pension system should be to provide adequate, affordable, sustainable, and robust retirement income (The World Bank)*

Multi pillar pension systems are defined along different

- adequacy objectives and
- risk sharing arrangements

The pillars define the governance, organisation and finances

- Public or private
- PAYG or funded
- DB or DC
- Mandatory or voluntary

The usual pensions business risk elements have different effects in the different arrangements

European Public 1st pillar pension systems

Social security systems are pension funds, but with significantly different

- *Regulation*
- Governance
- Funding
- Organisation

Objective

- Adequacy and Sustainability

Governance and organisation relations

- The Institution: public pensions

Business and Finances

- PAYG DB

Operations (of the organisation)

- Public sector Administrator

Devising Pension risk universe for monitoring

Events

What can change pensions? To whom? When?

A multistate model of transitions between

- Active, Unemployed, … Pensioner, Dead states

Events may occur

- at individual level
- with different effects on Socio-economic groups

Impact

Events may change outcomes *vis-á-vis* the objectives

Risks with effect on

- Adequacy
- Sustainability
- Affordability and
- Robustness (vs volatility)

of the retirement income

At individual and economy levels

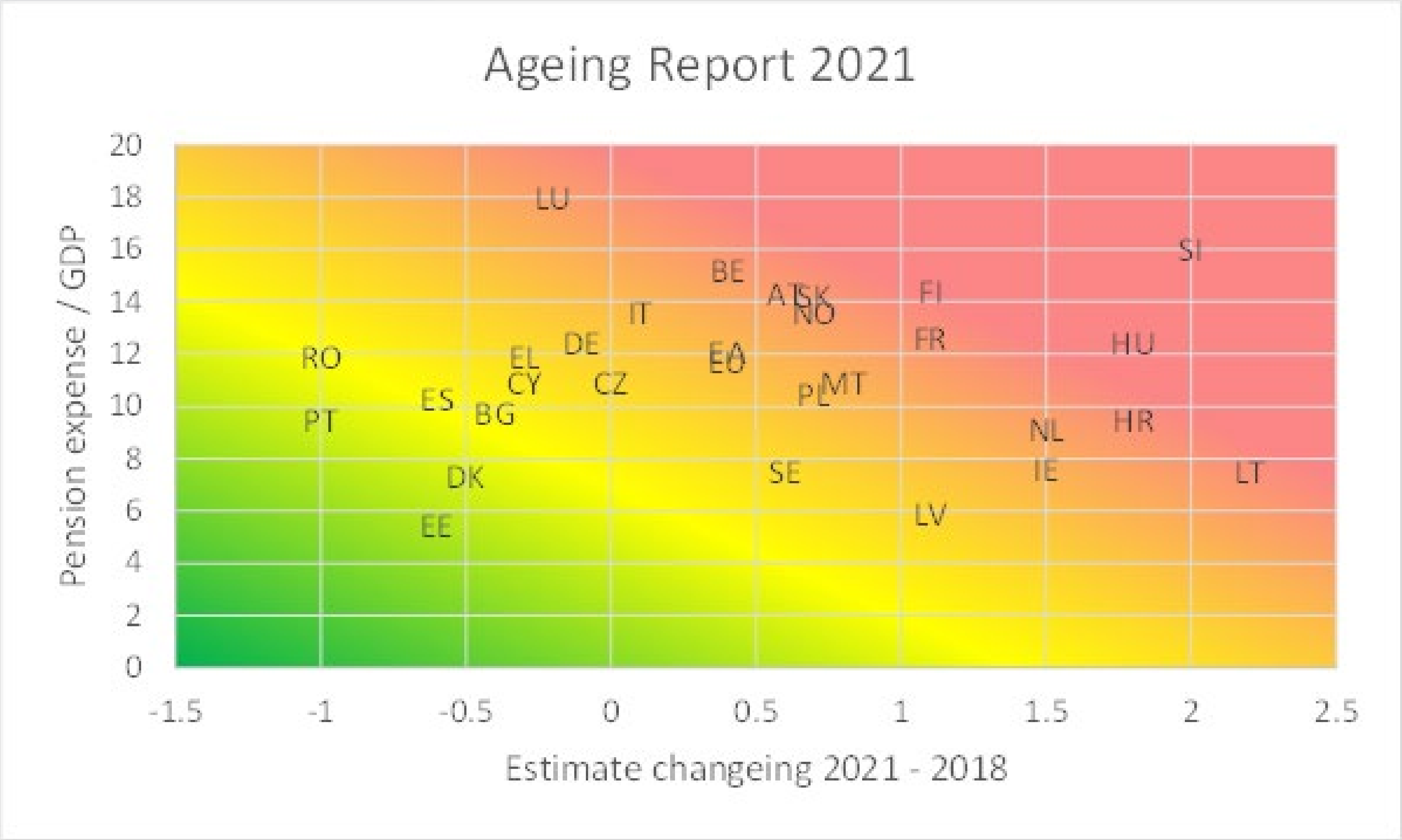
Indicators

Key Risk Indicators

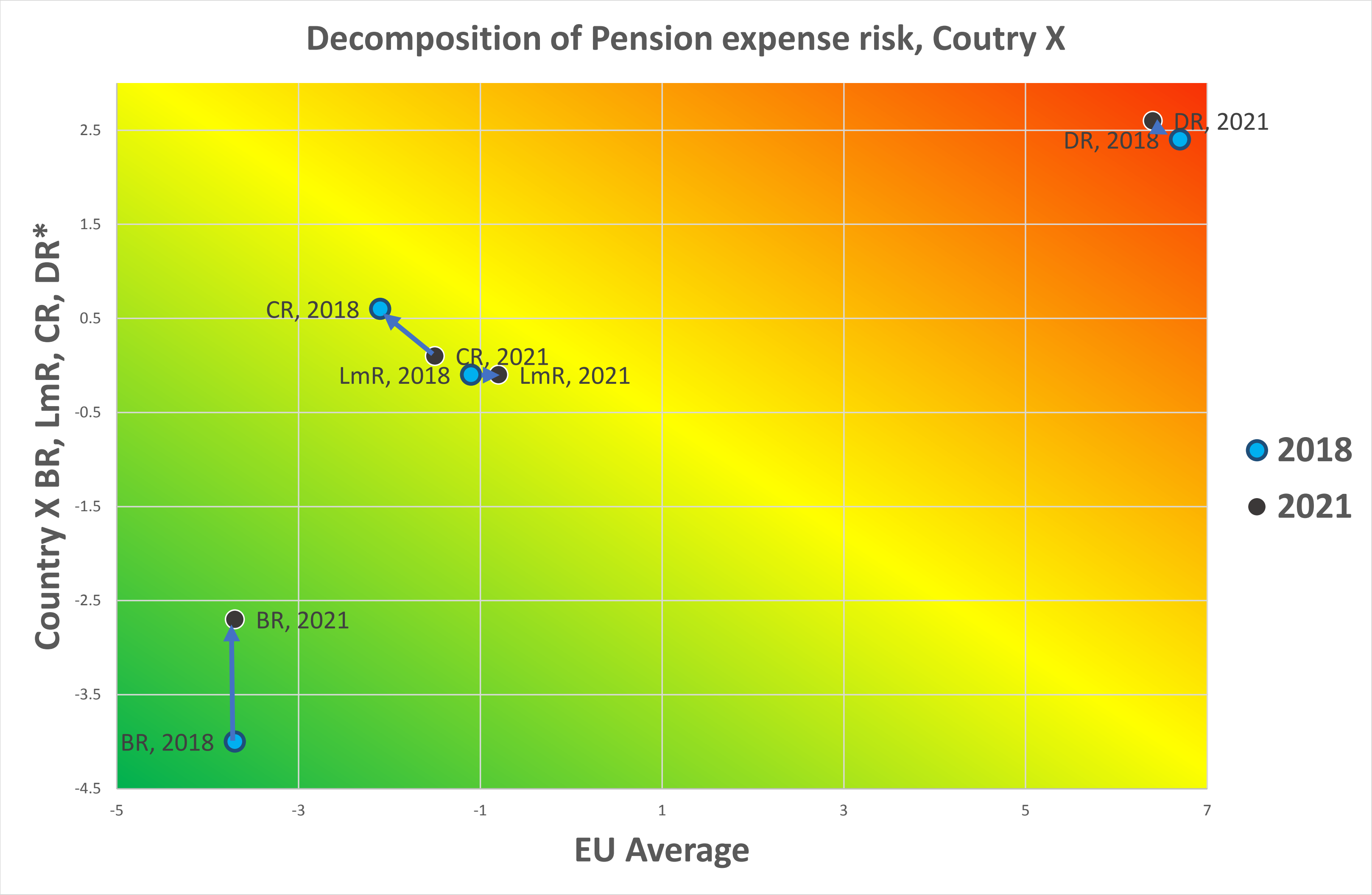
Examples

- PAR: Adequacy indicators – typically individual
- AR: Pension expenditure measures – sustainability at economy level
- Required contribution rate
- Contribution density
- Benefit „volatility"

Example: Risk mapping – Ageing Report: Sustainability



Example: Social Security Risk mapping of one country (prioritisation)



Conclusions

ERM standards, the RM of financial institutions are good examples to pensions

A Risk management framework can be systematically built up for SSPSs

As Pareto optimum, Risk assessment can result in as good analysis as a traditional

But with a potential to more consistent, detailed analysis and forward-looking solutions

Actuarial contribution – just as to SSPS administration – is applicable

RM Function, ORA is advisable

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