



ACTUARIAL ASSOCIATION OF EUROPE

Towards an AAE view on a cash-flow approach for IORPs and LTGs

The Board seeks your input

Sofia, 11/12 April 2019

The Board looks forward receiving your views

Is a cash flow analysis consistent with Solvency II thinking?

Could a cash flow analysis add insights in addition to a valuation?

If there are no harmonised Pillar 1 requirements (IORP II), could a cash flow analysis deliver a harmonised European approach to pension risks?

Issue with valuation of pensions illustrated

Results of the 2017 IORP Stress Test

National Balance Sheet - baseline

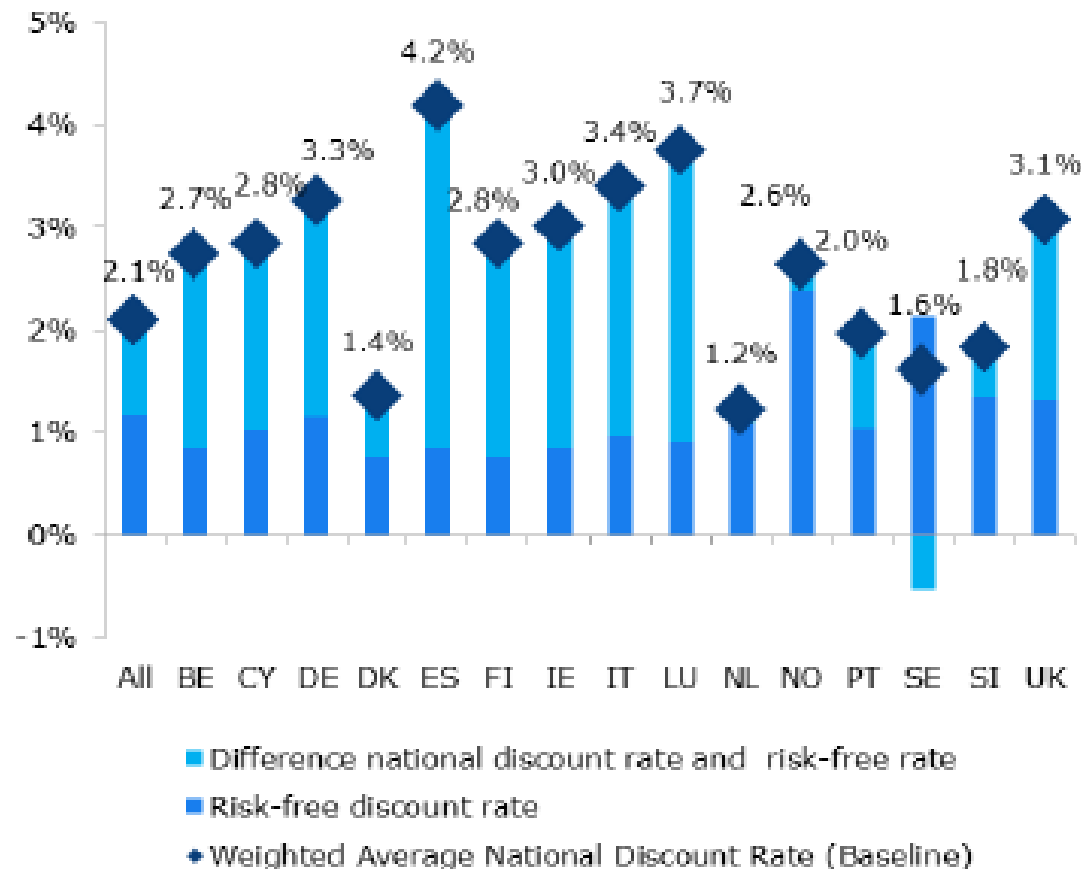
Figure 3.6: Assets, liabilities, national funding requirement (over liabilities) and, where available, the minimum funding requirement in baseline scenario by country, % liabilities



Results look pretty much OK on these national bases.

National Discount Rate - baseline

Figure 3.5: National discount rate in baseline scenario by country, liability weighted average, %



- Significant spread in discount rates

- Theory:

Discount Rate

=

Risk Free Rate + Risk Premium

- Risk Premium depends on the nature of the pension promise
 - If pensions are guaranteed: risk premium = 0
 - If softer: risk premium > 0
- As most pensions are guaranteed:
 - Generally a too high discount rate is being used
 - Liabilities understated
 - Funded status too optimistic

Source: EIOPA report IORP stress test 2017

Cash Flow Analysis

A way forward?

Cash-flow analysis

A cash flow analysis is an analysis of an array of numbers over a period of time (the cash-flows), such as pension payments. The analysis of such an array of numbers could provide important information on the conditions under which pension payments can always be done now and in the future. Such analysis could provide a wealth of information on possible future developments under different (stress) scenarios. A cash-flow analysis is especially useful for long-term pension promises and could include an analysis of the effects of conditional characteristics of both the pension payments as well as the assets.

Cash Flows and Valuation

Generating expected cash-flows

Assumptions (biometric / economic)

Valuation

[illegible]

[illegible]

What do we want to achieve?

Goal of Solvency II:

to establish a single regulatory framework within the EU to protect insurers' policyholders via adequate capital and consistent risk management standards, thus **ensuring that policyholder obligations are met** with a very high likelihood.

Goal of IORP II Directive:

to facilitate the development of occupational retirement savings and to provide sustainable and adequate occupational pensions to the European citizens, allowing both for the likelihood that **pension assets will be adequate to meet benefits** and that contingency arrangements are adequate in the event of employer insolvency.

Goal of Cash Flow Analysis:

to give information on the likelihood of **whether a pension (insurance) promise can be met**

Cash Flow Analysis

year t=	1	2	...	10	11	12	13	14	15	...	51	52	53	54
Pension payment	0	0	...	1000	1000	1000	1000	1000	1000	...	1000	1000	1000	1000
Probability	0,996	0,991	...	0,932	0,922	0,910	0,898	0,884	0,869	...	0,00042	0,00022	0,00011	0,00005
Expected cash flow	0	0	...	932	922	910	898	884	869	...	0,42	0,22	0,11	0,05
Discount factor	0,980	0,961	...	0,820	0,804	0,788	0,773	0,758	0,743	...	0,364	0,357	0,350	0,343
Value today	0	0	...	765	741	718	694	670	646	...	0,15	0,08	0,04	0,02
Valuation	11942,45													

Analyses that have been suggested:

1. Internal Rate of Return (example):

- $IRR < 4\%$: OK
- $IRR > 7\%$: measures needed
- $4\% < IRR < 7\%$: discuss

2. Composite measure:

- Time to default
- Amount of shortage
- Probability of default

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Before end of April

Discussion in the Board meeting of 10 May

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