EIOPA-BoS-16/075
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Annex 2 to Opinion (EIOPA-BoS-16/075): Results of the quantitative assessment

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1. Introduction

1. This annex describes the results of the quantitative assessment (QA). The results of the QA are presented at an aggregate level, grossed up to a member state level and without making individual participants in the QA identifiable.

2. Differences in objectives between the QA and the stress test

2. The aim of the QA was to collect up-to-date information about the six examples of supervisory frameworks included in the EIOPA consultation paper and to assess the practicality of the improved methodologies presented therein.[1] The information collected has served as an input for drafting this Opinion.

3. The QA was undertaken in conjunction with the IORP stress test (ST) due to the overlap between these exercises, in particular with regard to the valuation of the balance sheet for IORPs providing DB/hybrid pension schemes. Nevertheless, it should be highlighted that these exercises have different objectives. Furthermore, the samples are not fully the same. Some IORPs taking part in the QA did not participate in the ST and vice versa.

4. The IORP stress test included all EEA countries with material IORP sectors and consisted of a core module for IORPs providing DB/hybrid schemes and a satellite module for IORPs providing DC schemes.

5. The aim of the core module was to identify risks and vulnerabilities for the delivery of safe and sustainable pensions and the potential financial stability consequences under a set of severe stress scenarios. This was done using the national balance sheet and also the common methodology, valued on a risk free basis and including all security and benefit adjustment mechanisms that are available to IORPs in different member states. The use of a common methodology allowed for a more comparable view of the impact of adverse scenarios and ensured a comprehensive assessment of the resilience of IORPs, taking into account the effect on sponsors, members and beneficiaries.

6. The results of the stress test were published on 26 January 2016.[2]

3. Participation and exercise

3.1. Scope and participation

7. The QA was aimed at IORPs providing schemes which include any guarantees to members and beneficiaries. IORPs providing only pure defined contribution (DC) schemes (i.e. that do not provide any guarantees to the participants) were not included within the scope of the QA.[3]

8. NSAs could take part in the QA on a voluntary basis. Six member states decided to participate: Belgium, Germany, Ireland, Netherlands, Portugal and the United Kingdom. These countries represent 95% of the European DB IORP sector in terms of assets. One IORP from Cyprus that participated in the IORP stress test also decided to complete the QA exercise. The results of this IORP are not

[1] EIOPA, Consultation Paper on Further Work on Solvency of IORPs, EIOPA-CP-14/040, 13 October 2014.

[2] EIOPA, IORPs Stress Test Report 2015, 26 January 2016, available under https://eiopa.europa.eu/financial-stability-crisis-prevention/financial-stability/occupational-pensions-stress-test

[3] Insurance undertakings subject to Article 4 of the IORP Directive were also under the scope of the quantitative assessment. However, member states where Article 4 insurers are present decided not to participate.

considered in this annex in order not to reveal the identity and data of this institution.

9. The NSAs approached the IORPs and selected the sample. Overall the sample in the six participating member states contains 101 IORPs representing in total EUR 1.25tr in assets. This implies an overall market coverage of 41% of assets in the six member states (see figure 3.1). The participation rates range from 33% in the UK to 62% in PT. IE did not collect data from individual IORPs. Instead, the NSA performed the calculation on an aggregate IORP which is representative for DB schemes in IE. For the UK, the NSA completed the templates on behalf of participating IORPs, based on the data they provided and complemented, where necessary, by data held by the NSA on each participating IORP.

10. IORPs in NL and UK account for almost 90% of the sample in terms of assets (see figure 3.2).

Figure 3.1: Coverage of non-DC IORP sector

% assets

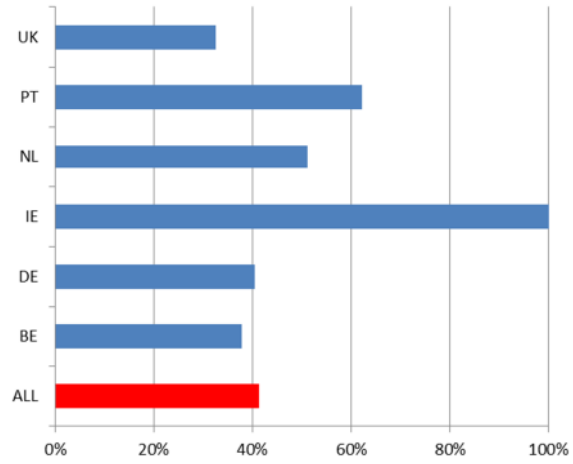
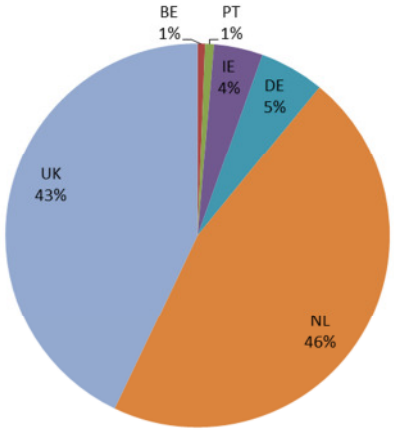


Figure 3.2: Contribution to the sample

% assets total sample



Source: EIOPA

11. Overall, representativeness of the sample is considered satisfactory in most member states. Still, it should be noted that the samples selected by NSAs tend to be biased towards larger IORPs, which may follow a different and more sophisticated approach to risk management and risk taking than smaller IORPs. Also, smaller IORPs would probably have more difficulties in providing sufficient resources to undertake all the required calculations.

3.2. Exercise

12. The QA exercise was conducted from 11 May to 10 August 2015. The QA package published on EIOPA's website at the start of the exercise included:

- the technical specifications;
- a qualitative questionnaire;
- a reporting spreadsheet as well as a word template for completing part of the qualitative questions;
- spreadsheets with yields curves and fundamental spreads; and,

- ten so-called helper tabs to assist IORPs in calculating the risk margin, sponsor support, pension protection schemes and various SCR modules.

13. A launch event was organised on 19 May 2015 at EIOPA premises to assist participating IORPs in completing the QA as well as the ST exercise.[4] EIOPA experts gave presentations introducing the specifications and reporting templates and participants and other stakeholders had the opportunity to raise and discuss issues.

14. To ensure a smooth conduct of the QA (and ST), NSAs also organised national kick-off events and technical workshops during the exercise and/or participated in technical meetings set up by industry associations. Moreover, many NSAs - as well as the Deutsche Aktuarvereinigung in Germany - provided participating IORPs with guidance on filling the spreadsheets and interpreting the technical specifications in light of national specificities.

15. In the UK the Pensions Regulator (TPR) offered IORPs to complete the templates in order to encourage participation. Most IORPs in the UK sample made use of this opportunity, although some UK IORPs filled the spreadsheet themselves. IORPs supplied relevant data. Based on these input data and supplemented where necessary with data already available at the NSA, TPR completed the reporting spreadsheets. IORPs were also given the opportunity to complete the full qualitative questionnaire. TPR undertook to answer questions which related to areas or data where it already holds the required information, with IORPs requested to complete the additional questions.

16. EIOPA had a questions and answers (Q&A) procedure in place to stimulate a consistent interpretation and application of the specifications. Participating IORPs could direct questions on the technical specifications and the spreadsheets to their respective NSAs. NSAs would subsequently send questions of general interest to EIOPA. A dedicated Q&A workstream was established to answer the questions within eight working days through a weekly update on EIOPA's website. In total 9 Q&A documents were published until 5 August 2015, which contained answers to 79 questions (relating to both QA and ST). In addition, four updates of the reporting spreadsheets were published, accompanied by an automatic updater for already filled-in templates, and updates of two helper tabs.

3.3. Validation

17. IORPs had to submit the completed templates to their NSAs by 10 August. In turn NSAs were to (securely) transmit the data templates to EIOPA by 24 August for the central validation. Due to the limited time period between NSAs receiving and sending the data, the national and central validation had to be partly conducted in parallel. However, some NSAs were able to start the national validation before 10 August, because all or part of the templates were submitted before that date.

18. Two one-week validation meetings were held at EIOPA premises to ensure quality of the results and consistency within and between member states. The central validation team consisted of experts from NSAs participating in the QA/ST and EIOPA staff. The two validation meetings were subject to strict protocols to ensure the confidentiality of the data.

[4] https://eiopa.europa.eu/Pages/Conferences/Workshop-with-participating-IORPs-in-the-Pensions-stress-test-and-the-Quantitative-assessment.aspx

19. The first validation meeting took place from 31 August to 4 September. The validation team checked the completeness of the submissions, coherence of data provided in different parts of the template and the plausibility of results, including consistency with the technical specifications. Following the meeting, requests to complete the data, to resolve issues and/or to provide further clarification were referred to the relevant NSAs for their follow-up with the participating IORPs, where necessary. NSAs had to transmit feedback and revised templates before the second validation meeting, which was held from 28 September to 2 October. This meeting was to a large extent used to ascertain that issues identified during the first meeting were adequately addressed, either by completing/revising the data or by providing a satisfactory explanation.

20. In one area EIOPA decided that the central validation team itself should amend the templates. Some IORPs reported in the baseline scenario(s) a negative excess of assets over liabilities on the balance sheet or on the stressed balance sheet underlying the SCR calculation. In the baseline scenarios IORPs had to include all security and benefit adjustment mechanisms, including benefit reductions, which means that a shortfall on the balance sheet is not possible. Even if not (explicitly) allowed for under national law or if only possible during a wind-up of the IORP or of the sponsor, the shortfall implies that benefits may have to be reduced at some stage in the future, assuming that future asset returns do not exceed the risk-free rate or that IORPs do not take other action, such as strengthening the sponsor covenant. In order to achieve a consistent application of the technical specifications and to ensure a fair treatment of participants that did report benefit reductions, EIOPA decided to resolve any shortfalls in the baseline scenarios by including benefit reductions as a balancing item. NSAs were provided with the opportunity - possibly in coordination with the IORP - to review and amend the revised template, subject to the condition of maintaining a non-negative excess of assets over liabilities.

3.4. Grossing up data

21. The results of the QA have been grossed up to the national level. This provides a better view of the impact of the examples of supervisory frameworks on the national IORP sectors.

22. In all countries, apart from the UK, the total amount of assets on the national balance sheet has been used as a scaling factor. The scaling factor is uniform in each of these countries, i.e. no reweighting of IORPs occurs within the sample of each country.

23. For the UK, TPR made separate calculations for the part of the DB universe which was not included in the sample. The UK sample is made up of very large schemes which all qualified for the balancing item approach to the valuation of sponsor support. This is not wholly representative of the whole DB universe in the UK, as 4% of DB schemes measured in terms of assets does not meet at least one of the two conditions for using sponsor support as a balancing item as prescribed in the technical specifications for the QA.[5] In consequence, simply applying a grossing up factor relating to assets would have been misleading. The TPR calculations for the non-participating DB schemes have been added to the results for the UK sample to obtain the QA outcomes for the total DB universe.

24. Many of the results presented in this opinion are expressed in relative terms, i.e. as a percentage of liabilities. This is unavoidable if one wants to display or

[5] See paragraph 61 in section 3.4.6 of Annex 1 for an analysis of the extent to which UK IORPs meet these conditions.

compare country aggregates which very much differ in absolute terms. Since no reweighting has been applied to IORPs within most member states, the results expressed in relative terms are the same as for the original sample in all member states except for the UK. However, the European aggregate results do deviate, even in relative terms. Grossing up to the national level will change the weights of the country results compared to the sample. Moreover, the European aggregate consists for a large part of the UK DB schemes, for which the national outcomes were not derived by applying a uniform scaling factor to the sample.

25. The analysis also shows distributions of outcomes of individual IORPs. The reason is that the impact of the examples of supervisory frameworks underlying the aggregates may be quite heterogeneous within member states. However, no data is published that can be linked to specific IORPs. This also implies that no country-aggregates are published, if such aggregates can be linked to specific IORPs, which could happen if only a few IORPs are included in the sample.

4. Description sample and national regime

4.1. General

26. The IORPs contained in the sample provide pensions to 13.7 million members and beneficiaries.[6] This total number of members and beneficiaries consists of 39% of active members, 35% of deferred members and 27% of retired persons (see figure 4.1). The DB sectors in PT and the UK are the most mature with an above average proportion of retired persons. In BE only 3% of membership consists of retired persons, since IORPs tend only to provide lump sum payments at retirement.

Figure 4.1: Breakdown of membership of IORPs in sample

% total members and beneficiaries

Source: EIOPA

27. A little over one-third of DB schemes provided by IORPs in the sample are open to new members (see figure 4.2).[7] More than half of DB schemes are either

[6] This includes the aggregate number of 646 thousand members and beneficiaries of DB schemes in IE.

[7] Note that IORPs may provide multiple DB schemes. IORPs from BE, DE and PT completed the question on the status of the IORP/pension schemes for multiple non-DC schemes.

closed to new members (52%) or closed to new accruals (9%). PT and the UK have the highest proportion of closed schemes, DE and NL the lowest.

28. 31% of the sponsors of the IORPs in the sample are private companies, 39% are subsidiaries of private companies/groups and 25% are multiple employers (see figure 4.3). The remaining 5% of sponsor are not-for-profit/other institutions. The subsidiaries of private companies/group have predominantly been reported by schemes in the UK sample. A large share of the sample in BE and DE consists of multi-employer IORPs.

Figure 4.2: Status of non-DC pension schemes provided by IORPs

% non-DC pension schemes provided by IORPs

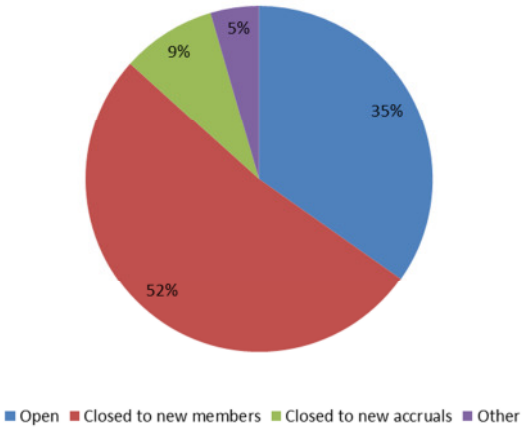
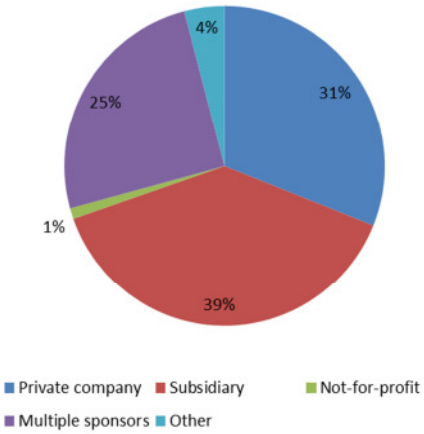


Figure 4.3: Nature of the IORP's sponsor

% IORPs



Source: EIOPA

4.2. Security and benefit adjustment mechanisms

29. IORPs in the participating countries dispose of different security and benefit adjustment mechanisms to protect pension obligations and to absorb demographic and financial shocks.

30. All participating IORPs in DE and the UK are covered by unlimited, legally enforceable sponsor support (see figure 4.4). In BE almost all IORPs have a sponsor which is required by law to guarantee the pension promise, but a small minority is not covered by sponsor support[8]. In IE and PT all IORPs dispose of sponsor support. However, in IE all sponsor support is voluntary. In PT about 60% of participating IORPs can rely on legally enforceable sponsor support, while the remaining 40% depend on non-legally enforceable sponsor support. In NL the incidence of sponsor support is relatively low.

31. No IORPs reported legally enforceable sponsor support which is contractually or otherwise limited to a certain amount.

32. In most instances sponsor support takes the form of increases in employer contributions. This is the case for sponsor support provided in BE, NL, PT and the

[8] This small minority provides pensions for self-employed persons.

UK. Social and labour law in DE specifies that sponsoring employers have a subsidiary liability to pay the pension benefits, if the IORP is no longer able to do so. However, almost half of IORPs in DE report that sponsor support also consists of increases in employer contributions. IE and some IORPs in BE and NL indicate that in addition to higher employer contributions, increased employee contributions are possible[9].

Figure 4.4: Incidence of legally enforceable sponsor support, non-legally enforceable sponsor support and pension protection schemes

% responding IORPs

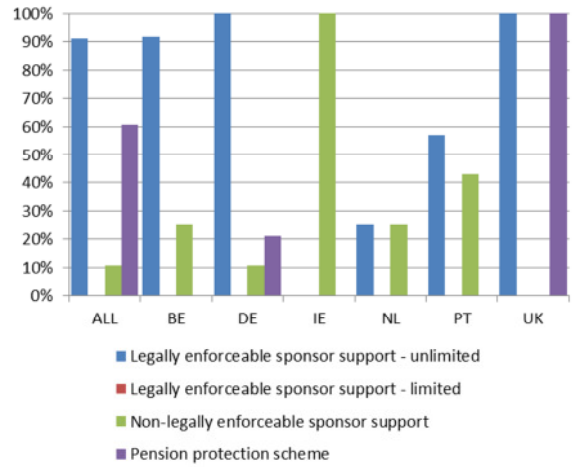
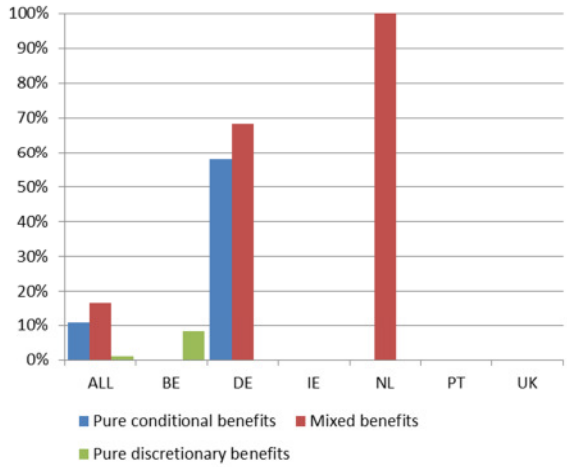


Figure 4.5: Incidence of pure conditional, mixed and pure discretionary benefits

% responding IORPs



Source: EIOPA

33. Pension protection schemes are only present in DE and the UK. The Pensions-Sicherungs-Verein aG (PSVaG) in DE applies to Pensionsfonds, but not to Pensionskassen which are the larger part of the national IORP sector. The Pension Protection Fund (PPF) in the UK covers all DB schemes. The PSVaG protects the full level of benefits in the case of insolvency of the sponsor. The PPF guarantees a reduced level of pensions and/or inflation compensation.

34. Most IORPs in BE and all in IE, PT and the UK only provide unconditional benefits. Non-unconditional benefits are mainly concentrated in DE and NL and too a much lesser extent in BE (see figure 4.5). Three types of non-unconditional benefits can be distinguished:

- Pure conditional benefits are granted based on certain objective conditions without a discretionary power of the IORP to deviate from that policy;
- Pure discretionary benefits are granted based on a subjective decision-making process only;
- Mixed benefits are a combination of both, being based on objective conditions as part of a discretionary decision-making process[10].

[9] For BE this refers to IORPs providing pensions for self-employed persons.

[10] EIOPA has decided not to distinguish mixed benefits as a separate category of benefits, but this report still includes mixed benefits as a separate category as it was included in the QA.

35. All types of non-unconditional benefits possess a full capacity to absorb losses incurred by the IORP.

36. Two-thirds of IORPs in DE and all participating IORPs in NL reported mixed benefits. In DE mixed benefits constitute profit sharing benefits being part of with-profit contracts. In NL mixed benefits consist of indexation of pensions, which is conditional on the IORP's financial position as well as a discretionary board decision. A large part of Pensionskassen in DE report pure conditional benefits - instead of unconditional benefits - because pension obligations are subject to an ex ante benefit reduction mechanism.

37. Benefit reduction mechanisms exist in all countries, but they can usually only be used under certain circumstances and when specific conditions are met. Benefit reductions can sometimes be applied on a going-concern basis, but often they are only possible during wind-up of the IORP or of the sponsor. Three types of benefit reduction mechanisms can be distinguished:

- Ex ante benefit reductions are based on contracts or by-laws, which are concluded beforehand and describe precisely under which conditions and to what extent reductions will take place;
- Ex post benefit reductions are a measure of the last resort when no other means are available;
- Benefit reductions in case of sponsor default are triggered in the event of a default of the sponsor, providing unlimited support, when assets of the IORP are insufficient to cover liabilities.

Table 4.1: Allowance of benefit reduction mechanism in participating countries and inclusion by IORPs in QA

	Ex ante benefit reductions		Ex post benefit reductions		Reductions in case of sponsor default	
	Allowed	Included	Allowed	Included	Allowed	Included
Belgium			√*	√	√**	√
Germany	√	√	√	√		
Ireland			√	√	√	
Netherlands	√		√	√		
Portugal			√	√	√	
UK			***	√	√	√

** Very rare as most IORPs dispose of a sponsor which is obliged by law to provide unlimited sponsor support. Hence, for IORPs without sponsor support (e.g. IORPs which manage pensions for self-employed persons) ex post benefit reductions may be the last resort benefit reduction mechanism.*

*** Only as a measure of last resort, after bankruptcy of the sponsor and when the assets after liquidation of the sponsor are not sufficient to cover members' acquired right.*

**** Ex post benefit reductions are only possible if all members and beneficiaries consent.*

38. Most common are allowances for ex post benefit reduction mechanisms (see table 4.1). In all countries ex post benefit reductions were to a greater or lesser degree taken into account in the QA. Ex ante benefit reductions are only included

by IORPs in DE, benefit reductions in case of sponsor default only by IORPs in BE and the UK.

4.3. National valuation standards and funding requirements

39. The IORP Directive lays down minimum rules for the prudential regulation of IORPs. As a consequence, national standards for the valuation of assets and technical provisions and funding requirements are very heterogeneous.

40. In most countries IORPs have to value assets on a market-consistent basis. While in DE Pensionsfonds also report market values of assets, Pensionskassen include book values in their statutory accounts.

41. IORPs in BE, IE and the UK as well as Pensionsfonds in DE use a discount rate based on the expected return on assets to value technical provisions (see table 4.2) Pensionskassen in DE have to apply a fixed discount rate. IORPs in PT have to apply a fixed discount rate for the valuation of liabilities under the minimum funding requirement applicable to all IORPs and use a discount rate based on the AA corporate bond yield for the valuation of liabilities according to additional sector specific rules and for funding purposes (see table 4.2). Only IORPs in the Netherlands are required to value technical provisions using current risk-free market interest rates.

42. National valuation standards also treat price/wage indexation of pensions differently. This is not relevant in DE where pension schemes rarely contain allowances for inflation increases. In BE salaries are automatically subject to inflation increases on the basis of social legislation and thus technical provisions increase accordingly. In IE revaluation of accrued pension rights and future salary growth are not included in technical provisions, since national valuation rules are based on a wind-up standard. Also in NL so-called 'conditional indexation', which is part of mixed benefits, is not taken into account. IORPs in PT do not have to recognise salary projection under the minimum funding requirement applicable to all IORPs but have to include it according to additional sector specific rules and for funding purposes. Indexation of pensions in payment should be taken into account under the minimum funding requirement if guaranteed by the pension scheme and also according to additional sector specific rules and for funding purposes. IORPs in the UK do have to recognise salary growth and inflation compensation in technical provisions.

43. In IE, PT and the UK IORPs are required to fund 100% of technical provisions (see table 4.2). This corresponds with the minimum requirement in the IORP Directive where the institution's liabilities are not underwritten by the IORP, but rather by the sponsor. IE introduced a supplementary risk-based reserve on 1 January 2016, but this funding requirement was not included in the QA since the QA is based on the reference date of end-2014.

44. IORPs which underwrite liabilities themselves, or guarantee a certain investment performance, are subject to the regulatory own funds requirement in accordance with Article 17(1) of the IORP Directive. In NL all IORPs have to meet this regulatory own funds requirement, which serves as the (national) minimum requirement. IORPs in NL also have to comply with a risk-based buffer requirement, calibrated at a 97.5% confidence level over a 1-year horizon. BE and DE also impose an additional own funds requirement in line with Article 17(3) of the IORP Directive. Pensionskassen in DE and part of IORPs in BE are required to hold regulatory own funds calculated in accordance Article 17(1) of the IORP Directive.

Table 4.2: National discount rates and funding requirements

	Discount rate	Funding requirement
Belgium	Expected return on assets *	100% technical provisions plus regulatory own funds in line with Art. 17(3) and calculated in accordance with Art. 17(1) IORP Directive.** and special solvency margins for IORPs without sponsors
Germany	Fixed discount rate (Pensions-kassen), expected return on assets (Pensionsfonds)	100% technical provisions plus regulatory own funds (Pensionskassen) in line with Art 17(3) and calculated in accordance with Art. 17(1) IORP Directive.
Ireland	Expected return on assets	100% technical provisions ***
Netherlands	Risk-free market interest rate	100% technical provisions plus regulatory own funds Art. 17(1) (minimum) and national risk-based buffer requirement (on average ≈25% of technical provisions) in line with Art. 17(3)
Portugal	Fixed discount rate of 4.5% / AA corporate bond rate ****	100% technical provisions
UK	Expected return on assets *****	100% technical provisions

** The discount rate may also be determined using the market yields of high quality or government bonds, but most IORPs use the expected return on assets allowing for prudence. Prudence can be allowed for by reducing the discount rate or by adding a margin to technical provisions. The expected return can be determined as a long-term expected return/fixed discount rate or relative to current risk-free market rates.*

*** Only those IORPs where the institution underwrites the liabilities or guarantees an investment return. At the moment no such IORPs exist in BE.*

**** As from 1 January 2016, the funding requirement for DB schemes includes a risk-based reserve in addition to technical provisions.*

***** In PT, there are general and additional sector specific rules that establish the main assumptions for the calculation of the amount of liabilities and the minimum level of liabilities that needs to be funded. The fixed discount rate of 4.5% applies to the level of technical provisions which is relevant for determining the minimum funding requirement applicable to all IORPs. However, IORPs in some sectors have to use a discount rate based on the AA corporate bond yield because they are subject to sector specific rules. Moreover, for funding purposes, according to the international accounting standards, IORPs usually use a discount rate based on the AA corporate bond yield. This was the level of technical provisions reported in the QA.*

****** The expected return can be determined as a long-term expected return/fixed discount rate or relative to current risk-free market rates.*

4.4. National balance sheet

45. The funding ratio based on national valuation standards was 91% end-2014 (see figure 4.6). IORPs in the sample did not have sufficient assets to cover liabilities. This is mainly driven by IORPs in the UK, which disposed of an average funding ratio of 84%. The funding ratio was highest in BE with assets covering 127% of liabilities, and somewhat above 100% in DE and PT and in slightly below 100% in IE and NL.

46. IORPs in BE, DE and NL do not only have to cover technical provisions with assets, but also an additional capital requirement (see figure 4.7). The negative capital requirement shown for PT should be interpreted as a technical correction. IORPs in PT reported a value for technical provisions based on international accounting standards, which exceeds the value of technical provisions relevant for national funding requirements. In consequence, the negative capital requirement represents the difference between both measures of technical provisions.

47. IORPs in the sample had on average a shortfall of 19% of liabilities with respect to the national funding requirement. IORPs in IE, NL and UK disposed on average of small to significant shortfalls, IORPs in DE, PT and BE of modest to large surpluses.

Figure 4.6: Average funding ratios (assets divided by liabilities), national regime, end-2014

% total liabilities

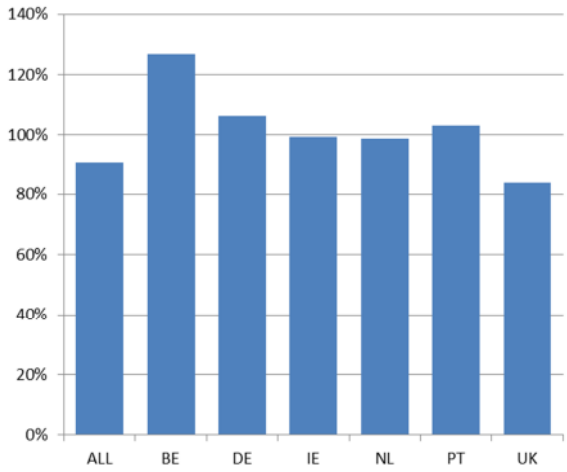
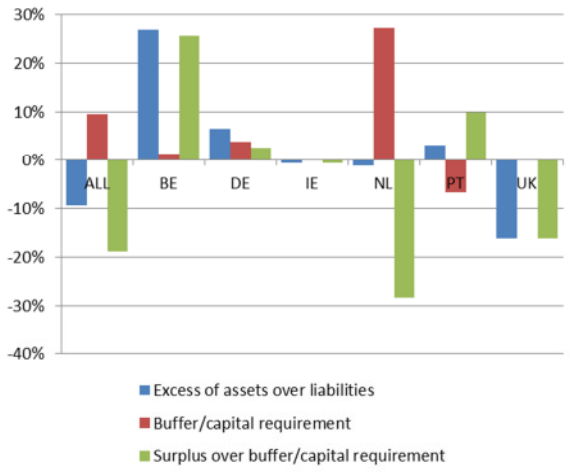


Figure 4.7: Excess of assets over liabilities, capital requirement and surplus over capital requirement, national regime, end-2014

% total liabilities



Source: EIOPA

48. IORPs that do not comply with the funding and capital requirements usually have to submit a recovery plan to the NSA. All in all 56% of participating IORPs indicated through the qualitative questionnaire to be subject to a recovery plan end-2014. This consists of 100% of IORPs in IE, 75% in NL, 14% in PT and 88% of IORPs in the UK. The average recovery period was respectively 8 years in IE and 11 years in the UK. In NL, the maximum recovery period to the risk-based capital requirement is 10 years, but IORPs must recover the regulatory own funds within 5 years.

5. Baseline scenarios

49. Participating IORPs were asked to value the balance sheet including all security and benefit adjustment mechanisms and calculate a solvency capital requirement in two baseline scenarios. Based on the results of these two baseline scenarios, the reporting spreadsheet automatically derived the outcomes for the six examples of supervisory frameworks. IORPs were invited to supplement the automatically derived values with their own calculations, if that was considered to be conceptually more suitable.

5.1. Investments

50. The value and breakdown of investments is the same in both baseline scenarios. IORPs had to report the various types of investments on a market-consistent basis.

51. IORPs in the sample invest on average close to 10% in property, almost 40% in listed and unlisted equities, 45% in fixed income securities and the remaining part of the investment portfolio in other assets (see figure 5.1). The other investment assets category mainly consists of derivative instruments, hedge funds and residual investment funds to which a look-through approach cannot be applied. IORPs in DE have low allocations to equities and high allocations to fixed income assets. IORPs in PT also have relatively low allocations to equities, but above average investments in property.

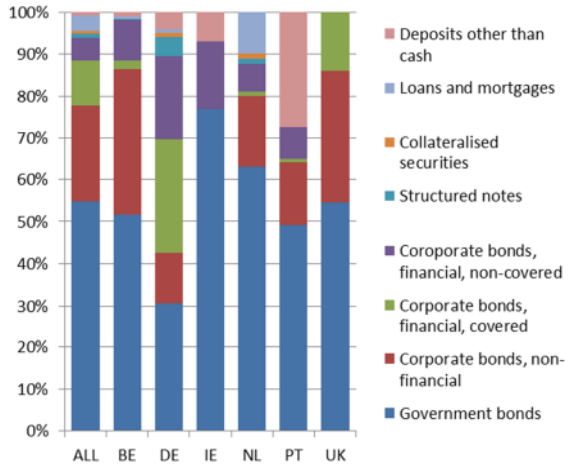
52. Fixed income portfolios are on average made up of 55% government bonds, almost 25% of non-financial corporate bonds, more than 10% covered bonds and 5% other financial corporate bonds (see figure 5.2). The remaining fixed income assets consist of structured notes, collateralised securities, loans and mortgages and deposits (excl. cash instruments). In IE and NL a relatively large proportion of the fixed income portfolio is allocated to government bonds. IORPs in DE have relatively low allocations to sovereigns in favour of corporate bonds. Roughly a quarter of fixed income securities in PT consist of bank deposits.

Figure 5.1: Breakdown market value investments (excl. DC), end-2014

% investments (excl. DC)

Figure 5.2: Breakdown market value fixed income assets, end-2014

% fixed income assets

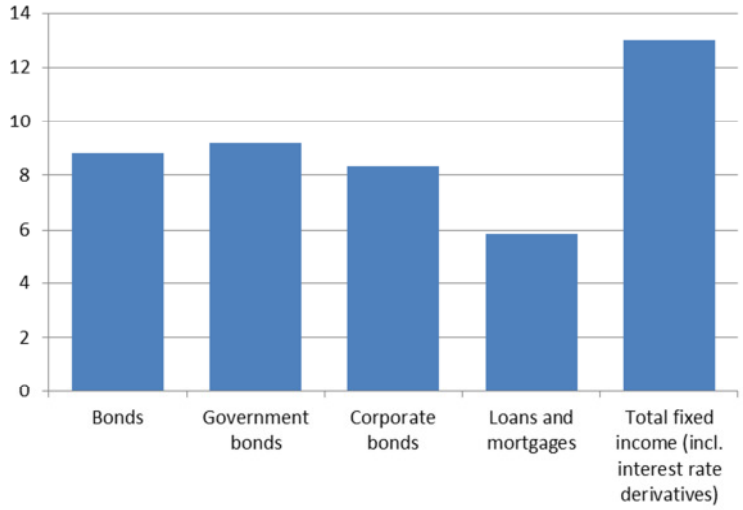


Source: EIOPA

53. The (weighted) average duration equals nine years for bonds and six years for loans and mortgages (see figure 5.3). The duration of total fixed income assets (incl. derivatives) amounts to 13 years, well exceeding the durations of bonds, loans and mortgages. In particular, IORPs in NL report duration extensions on the asset side of the balance sheet through derivative instruments.

Figure 5.3: Duration of bonds, loans and mortgages and total fixed income assets (incl. derivatives)

Years, asset-weighted average



Source: EIOPA

5.2. Baseline scenario 1

5.2.1. Specifications

54. IORPs were requested to complete baseline scenario 1 in accordance with the technical specifications, which are summarised below:

- The balance sheet should include all security mechanisms (legally enforceable sponsor support, non-legally enforceable sponsor support and pension protection schemes), benefit types (unconditional, pure conditional, mixed and pure discretionary benefits) and benefit reduction mechanisms (ex ante benefit reductions, ex post benefit reductions and reductions in case of sponsor default);
- The best estimate of technical provisions, sponsor support and pension protection schemes should be valued on a market-consistent basis, using the basic risk-free interest rate curve (incl. the ultimate forward rate (UFR), but excluding the matching/volatility adjustment);
- The technical provisions should include a risk margin using the cost-of-capital approach for liabilities which cannot be hedged on financial markets;
- The solvency capital requirement (SCR) should be based on the prescribed (sub-)modules calibrated to a 99.5% confidence level, taking into account the loss-absorbing capacity of all security and benefit adjustment mechanisms.

5.2.2. Balance sheet

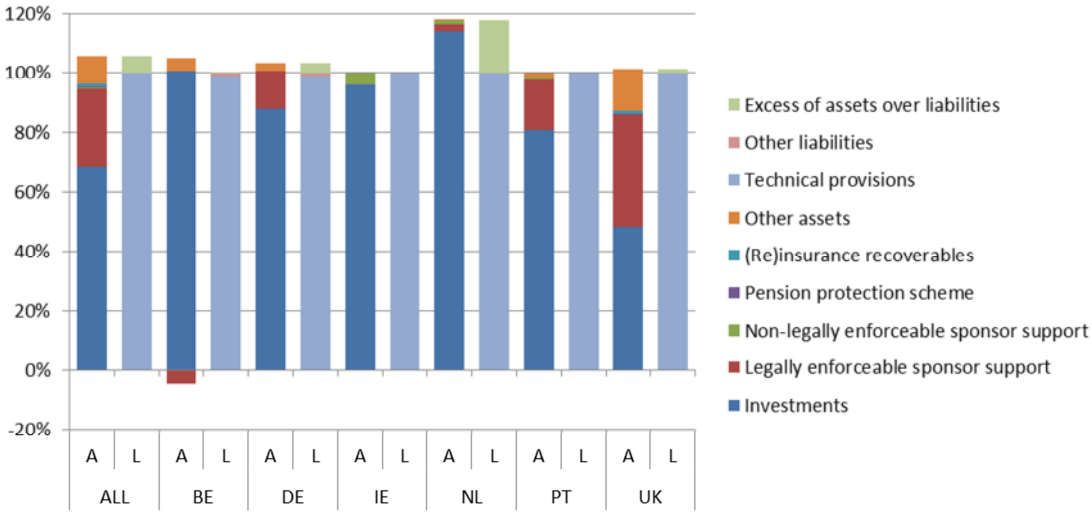
55. The aggregate balance sheet shows an excess of assets over liabilities of 6% of liabilities. Investments amount on average to 68% of liabilities on the balance sheet and other assets to 10% (see figure 5.4). The other, non-investment, assets mainly consist of liability driven investment (LDI) assets of UK IORPs,

recognised by the UK NSA under this category. Sponsor support and (re)insurance recoverables cover the remaining 28% of liabilities.

56. IORPs in BE, DE, PT and the UK are very much dependent on sponsor support to meet the market value of pension liabilities. All IORPs in DE and the UK, nearly all in BE and more than half of IORPs in PT are covered by unlimited, legally enforceable sponsor support. In BE the aggregate value of sponsor support is negative. Some IORPs in BE dispose of an excess of financial assets over technical provisions, which is expected to be returned to the sponsors at some stage in the future[11]. The negative value of sponsor support of this minority of IORPs outweighs the positive value of sponsor support reported by other IORPs. IORPs in IE and most IORPs in NL are not subject to full sponsor guarantees. IORPs in IE, NL and PT recognised relatively small amounts of non-legally enforceable sponsor support. IORPs in DE and UK included minor values for the pension protection scheme.

Figure 5.4: Assets (A) and liabilities (L) on balance sheet, baseline scenario 1

% total liabilities



Source: EIOPA

57. In aggregate technical provisions consist largely of unconditional benefits (101%) and to lesser extent of pure conditional benefits (5%) and mixed benefits (3% of total liabilities) (see figure 5.5). The value of ex post benefit reductions amounts to -9% of liabilities.

58. IORPs in DE included a large value of pure conditional benefits, being subject to an ex ante benefit reduction mechanism. All IORPs in NL and over half in DE recognised a modest value for mixed benefits. BE is the only country where pure discretionary benefit were reported. IORPs in IE and NL that do not have recourse (or very limited recourse) to sponsor support included substantial amounts of ex post benefit reductions on the balance sheet. The ex ante benefit reductions, ex post benefit reductions and/or reductions in case of sponsor default in BE, DE, PT and UK are relatively small and often barely visible in figure 5.5.

[11] Contributions for future accrual will be lowered.

Figure 5.5: Breakdown of technical provisions on balance sheet, baseline scenario 1

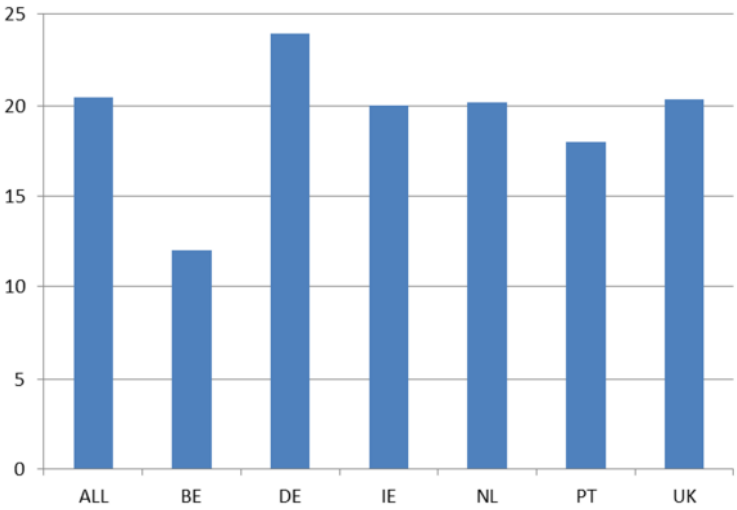
% total liabilities

Source: EIOPA

Note: The value of ex post benefit reductions in NL (28% of liabilities) exceeds the shortfall between assets and liabilities excl. ex post benefit reductions (10% of liabilities). NL IORPs applied a stochastic valuation to establish the value of benefit reductions, in line with HBS.2.1 of the technical specifications for the QA.

Figure 5.6: Duration of liabilities, baseline scenario 1

Years, liability-weighted average



Source: EIOPA

59. Technical provisions in NL, PT and the UK do not include a value for the risk margin. The risk margin represents the discounted value of the cost of capital - i.e. the cost-of-capital rate multiplied by the present value of future solvency capital requirements (SCR) - incurred by a reference IORP supporting the pension obligations. Since security and/or benefit adjustment mechanisms provide full loss-absorbency in the SCR, the present value of the cost-of-capital

and, hence, the risk margin equals zero in NL, PT and the UK. Despite this also being the case for BE, DE and IE, (part of) IORPs in these countries did include a value for the risk margin.

60. The average duration of pension liabilities equals twenty years (see figure 5.6). IORPs in BE report a relatively short duration. Most of BE IORPs do not provide annuities during retirement, but only lump sum payments at retirement. The duration in DE is relatively long as part of IORPs in DE included future pension accruals in technical provisions.

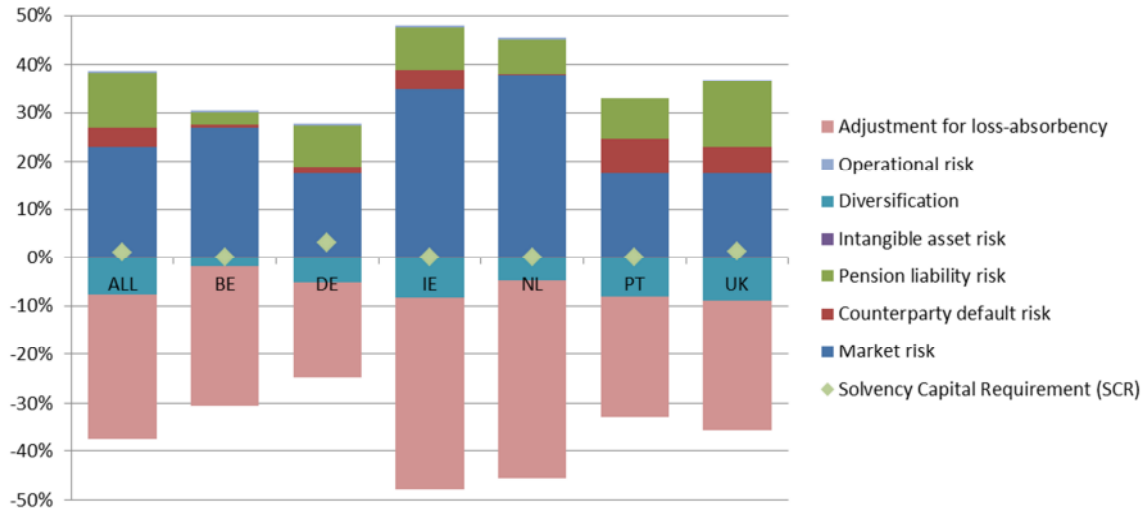
5.2.3. Solvency capital requirement

61. The overall solvency capital requirement (SCR) is nearly zero (see figure 5.7). The gross capital charges for market risk, counterparty risk and pension liability risk amount to respectively 23%, 4% and 11% of total liabilities. The charge for intangible asset risk is almost zero. The module was optional and only a few DE IORPs reported a value for intangible asset risk. The capital requirement for operational risk is 0.4% of total liabilities and is very similar in all countries. Only in PT the operational risk charge is zero as IORPs considered that operational risk is borne by the pension fund management entities.

62. Diversification between the various modules decreases the SCR by 8% of total liabilities. In baseline scenario 1 IORPs were requested to take into account the loss-absorbing capacity of all security and benefit adjustment mechanisms. The aggregate adjustment for loss-absorbency of -30% of liabilities results in an overall SCR of 1% of total liabilities. In DE and the UK security and benefit adjustment mechanisms do not provide full loss-absorbency in the SCR calculation. For some IORPs in these countries part of the risk is absorbed first by an available excess of assets over liabilities.

Figure 5.7: Breakdown solvency capital requirement, baseline scenario 1

% total liabilities



Source: EIOPA

63. The aggregate capital charge for market risk consists of gross charges for interest rate risk of 8% of liabilities, equity risk of 13%, property risk of 1%, spread risk of 3%, currency risk of 3% and concentration risk of almost 0% of liabilities (see figure 5.8). After allowing for the diversification effect between

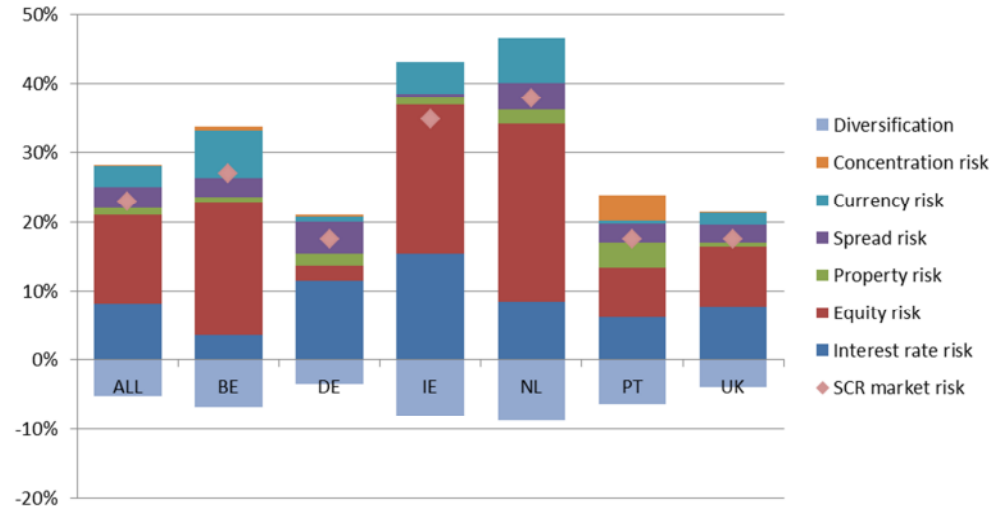
sub-modules of 5% of liabilities, an overall gross SCR for market risk results of 23% of liabilities.

64. IORPs in IE and NL are most exposed to market risks measured in terms of liabilities. Both countries have on average a high coverage of liabilities with financial assets. In IE this is caused by the relatively large amount of benefit reductions included in technical provisions. In NL the funding of liabilities is amplified by recognising a significant value for benefit reductions. IORPs in BE are also relatively well funded with financial assets. However, the resulting increase in the SCR for market risk is mitigated by the low exposure to interest rate risk due to the short duration of liabilities.

65. DE IORPs are least exposed to market risk. Low allocations to equities reduce equity risk exposure and high allocations to fixed income reduce mismatch risk between assets and liabilities. The low equity risk charge is partly compensated by relatively high charges for spread risk on bonds and loans and interest rate risk due to the long duration of liabilities. In PT the below average exposure to equity risk is to some extent compensated by above average capital charges for property and concentration risk. UK IORPs dispose on average of an investment portfolio which is similar to IORPs in IE and NL, but the SCR for market risk is about half the size. An important explanation is that investments in the UK, including the LDI assets recognised under the other non-investment asset category, only cover about 60% of liabilities as opposed to 95-115% in IE and NL.

Figure 5.8: Breakdown SCR market risk, baseline scenario 1

% total liabilities



Source: EIOPA

66. The aggregate capital charge for counterparty default risk is above average in IE, PT and UK and below average in BE, DE and NL. The module assesses the exposure to default risk of counterparties relating to cash at bank, derivative contracts and (re-)insurance arrangements, but also to sponsor support. IORPs that used the balancing item approach to the valuation of sponsor support were requested to assume a capital charge of zero for sponsor default risk. Other IORPs were asked to include sponsor default risk based on the sponsor's credit rating and the accompanying default probability. A rating lower than BB or the

absence of a rating implied a capital charge of almost the full value of sponsor support recognised on the balance sheet as well as the loss-absorbency of sponsor support in the SCR. The UK supervisor applied the counterparty default risk module to sponsor support even though the balancing item approach was applied for most IORPs. IE and part of IORPs in PT applied the high default probability relating to the unrated sponsors providing non-legally enforceable sponsor support. In the other three countries IORPs with unrated sponsors that did not apply the balancing item approach often used a lower default probability than the prescribed probability in case of an 'unrated' sponsor. This is especially the case in DE and to a lesser extent in BE and NL. For PT, the above average aggregate capital charge for counterparty default risk is also related to the amount of bank deposits held by some IORPs which were treated as cash at bank under the counterparty default risk for the purpose of calculating the SCR.

67. Longevity risk is 8% of liabilities, which is the most important component of the aggregate gross capital requirement for pension liability risk (see figure 5.9). The charges for mortality, disability, benefit option, expense, revision and catastrophe risk add up to another 9% of liabilities. Taking into account the effect of diversification between the sub-modules (-6% of liabilities), an overall SCR for pension liability risk results of 11% of liabilities.

68. The size of the longevity risk charge is similar in all countries. The exception is BE where IORPs usually do not provide life annuities, but only lump sum payments at retirement. IORPs were not required to calculate the other pension liability sub-modules. However, IORPs could include them on a voluntary basis when all or part of these sub-modules were considered to represent material risks. In particular, the UK supervisor calculated substantial capital charges for mortality, disability, benefit option, expense and revision risk using its own simplifications. The NL aggregate also shows exposure to disability, benefit option and catastrophe risk.

Figure 5.9: Breakdown SCR pension liability risk, baseline scenario 1

% total liabilities

Source: EIOPA

69. The overall adjustment for loss-absorbency of -30% of liabilities is attributable to legally enforceable sponsor support (-17%), ex post benefit reductions (-9%),

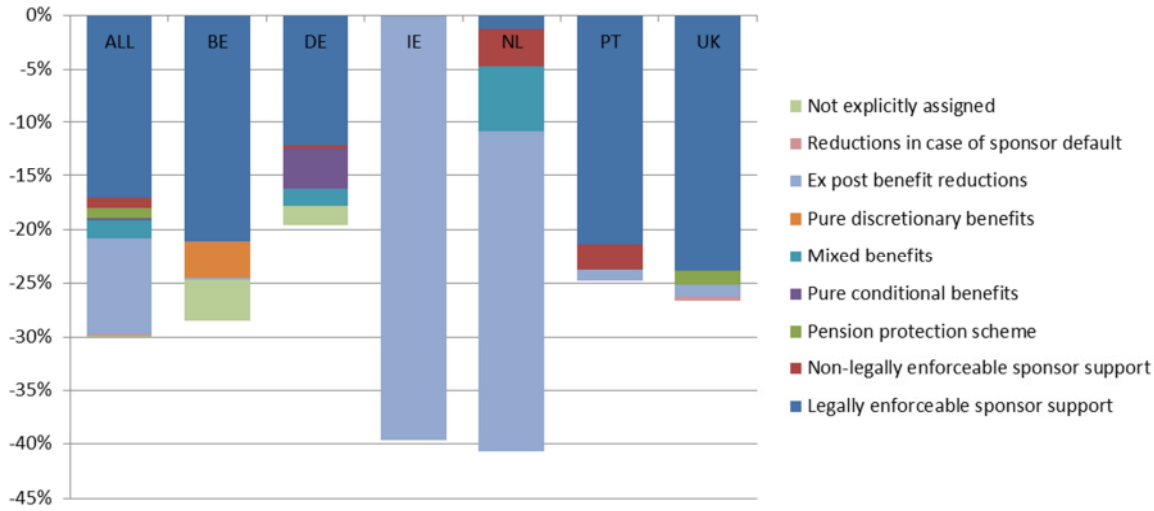
mixed benefits (-2%), non-legally enforceable sponsor support (-1%) and pension protection schemes (-1%) (see figure 5.10).

70. BE, DE, PT and the UK rely to a large extent on legally enforceable sponsor support to absorb the SCR stress scenarios, IE and NL very much depend on ex post benefit reductions. However, some IORPs in NL reported loss-absorbency of legally enforceable sponsor support, whereas some IORPs in BE, PT and UK used the loss-absorbing capacity of ex post benefit reductions or benefit reductions in case of sponsor default. Other benefit adjustment mechanisms with a loss-absorbing capacity that were reported are: pure conditional benefits (incl. ex ante benefit reductions) in DE, mixed benefits in DE and NL and pure discretionary benefits in BE. Non-legally enforceable sponsor support provided loss-absorbency in the SCR for part of the sample in NL and PT. The loss-absorbency of pension protection schemes was predominantly used by UK IORPs, although the amount involved was small.

71. Only IORPs that performed the loss-absorbency calculation on the aggregate level had to explicitly assign the adjustment to the different security and benefit adjustment mechanisms. Part of IORPs in BE and DE assessed the adjustment for loss-absorbency on the level of individual SCR (sub-)modules and, since this was not requested, did not explicitly assign the adjustment to the various items on the balance sheet.

Figure 5.10: Breakdown adjustment for loss-absorbency, baseline scenario 1

% total liabilities



Source: EIOPA

5.2.4. EAL and surplus

72. The overall excess of assets over liabilities (EAL) of 5% of total liabilities is the result of a relatively small positive EAL in DE and the UK and a large positive EAL in NL (see figure 5.11). In the other countries the EAL is zero as security and benefit adjustment mechanisms offset any gap between financial assets and liabilities (excluding benefit adjustment mechanisms).

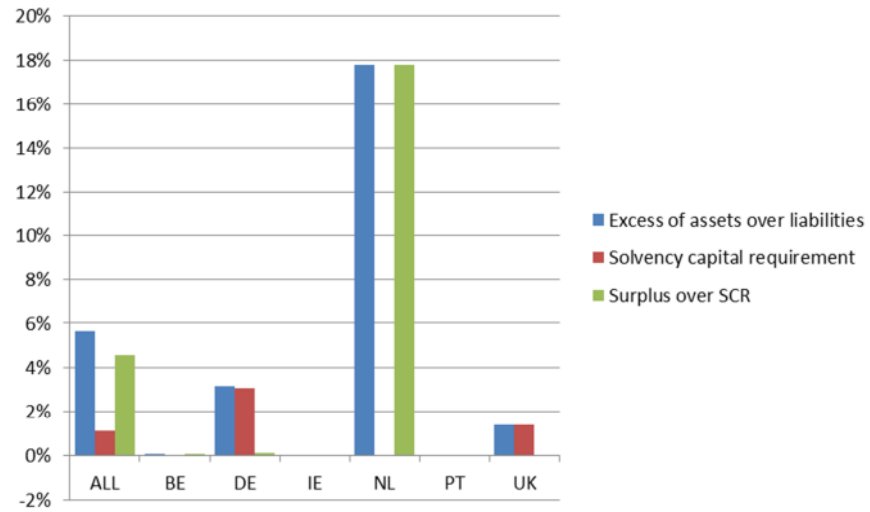
73. The aggregate SCR equals 1% of liabilities. The stress scenarios in the SCR are to a large extent absorbed by sponsor support, non-unconditional benefits and benefit reductions. Only some DE and UK IORPs reported a non-zero SCR, as

part of the losses are first absorbed by the available excess of assets over liabilities.

74. The aggregate surplus over the SCR amounts to almost 5% of liabilities. IORPs in NL have high surpluses over a zero SCR. In DE and the UK the SCR is (almost) exactly matched by the excess of assets over liabilities.

Figure 5.11: Excess of assets over liabilities, capital requirement and surplus over capital requirement, baseline scenario 1, end-2014

% total liabilities



Source: EIOPA

5.2.5. Comparison with national regime

75. Technical provisions in baseline scenario 1 increase by on average 16% compared to the national regimes (see figure 5.12). In most countries the value of unconditional benefits increases due to the use of the basic risk-free interest rate curve. Unconditional benefits increase by 21% in BE, 25% in PT, 33% in the UK and 75% in IE relative to national technical provisions. In DE many IORPs recognised pension obligations as pure conditional benefits because they are subject to an ex ante benefit reduction mechanism. NL is the only country where the value of unconditional benefits is similar to national technical provisions, as these are already valued on a market-consistent basis.

76. Technical provisions also increase compared to the national regime due to the inclusion of mixed benefits in DE and NL. Moreover, IE and part of the sample in BE and DE have supplemented the best estimate of technical provisions with a risk margin. In all countries the inclusion of benefit reductions has a downward effect on technical provisions relative to the national regime. The adjustments for benefit reductions are relatively small in BE, DE, PT and UK due to the high incidence of unlimited, legally enforceable sponsor support.

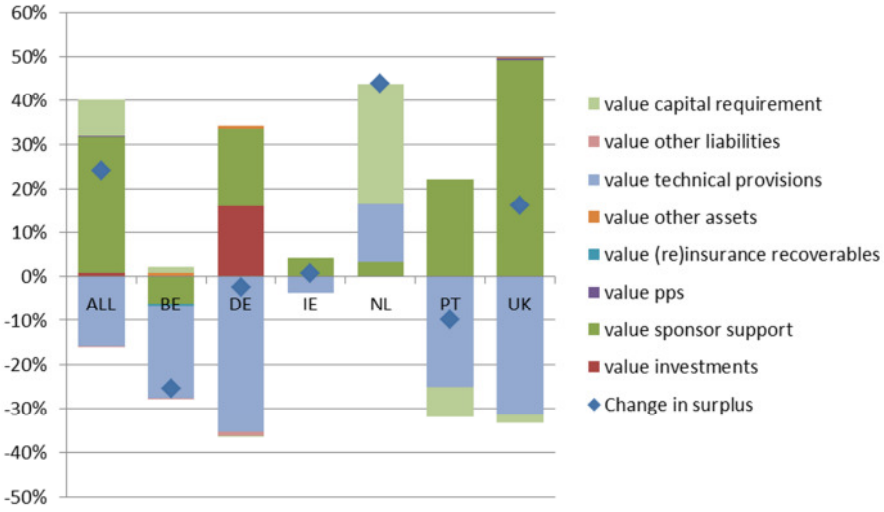
Figure 5.12: Technical provisions compared to national balance sheet, baseline scenario 1

% technical provisions current regime

Source: EIOPA

Figure 5.13: Decomposition of change in surplus over SCR compared to national regime, baseline scenario 1

% liabilities national regime



Source: EIOPA

Note: The figure explains the difference between the surplus over the SCR in baseline scenario 1 and the surplus over the funding requirement under the national regime. An increase in the value of assets (investments, sponsor support, pps, (re)insurance recoverables, other assets) increases the surplus in baseline scenario 1 compared to the national regime. An increase in the value of liabilities (technical provisions, other liabilities) as well as an increase in the capital requirement decreases the surplus in baseline scenario 1 compared to national regime.

The contribution of the capital requirement of -7% of liabilities in PT does not reflect an increase in the capital requirement, but rather the difference between the value of national technical provisions reported in the QA and the lower value of national technical provisions that underlies the funding requirement in PT.

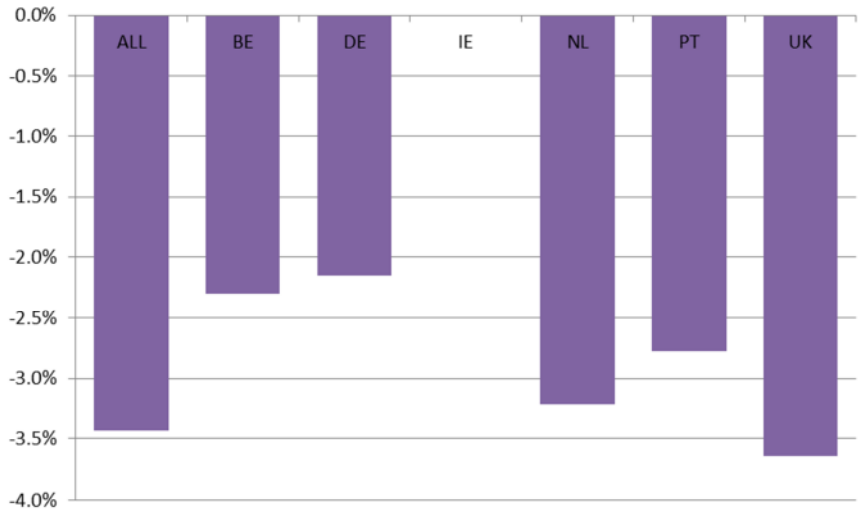
77. The higher value of technical provisions in most countries negatively affects the surplus over the capital requirement compared to the national regime (see figure 5.13). However, overall the surplus increases by 24% of liabilities, i.e. from a deficit of -19% under the national regime to a surplus of +5% in baseline scenario 1. The most important reason is that sponsor support, amounting to 31% of liabilities, is explicitly recognised on the balance sheet. The impact of sponsor support ranges from -6% in BE to +49% of national liabilities in the UK. The value of investments increases by 1% of liabilities. Investments increase substantially in DE due to the inclusion of market values on the common balance sheet compared to book values (amortised costs) on the national balance sheet. Finally, a decline in the SCR compared to national capital requirements increases the surplus by 8% of liabilities. In particular, in NL the aggregate capital requirement decreases from 27% of liabilities under the national regime to zero in baseline scenario 1, which allows IORPs to take into account the loss-absorbing capacity of sponsor support and benefit adjustment mechanisms.

5.2.6. Sensitivity analysis best estimate of technical provisions

78. IORPs were asked to conduct a sensitivity analysis of the best estimate of technical provisions in baseline scenario 1. The best estimate of technical provisions had to be re-calculated using the basic risk-free interest rate curve including a volatility adjustment and/or matching adjustment. IORPs could apply both the volatility and the matching adjustment but not with respect to the same pension obligations. The matching adjustment could only be applied if the IORP met the specified conditions.

Figure 5.14: Impact of volatility and/or matching adjustment on best estimate of technical provisions, baseline scenario 1

%



Source: EIOPA

79. The volatility adjustment amounted to +17 bps for the EUR and +22 bps for the GBP risk-free rate. The volatility adjustment was added to the raw interest rate swap curves before extrapolating them using the Smith-Wilson method to obtain the new risk-free interest rate term structure, including the volatility adjustment. This implies that the effect of the volatility adjustment gradually decreases after the last liquid point (LLP) - which equals 20 years for the EUR and 50 years for the GBP - as the forward rates converge to the ultimate forward rate (UFR) of 4.2%. The matching adjustment required an IORP-specific calculation based on

the provided fundamental spreads for each type of government/corporate bond, rating and duration.

80. 88% of IORPs only applied the volatility adjustment and 2% of IORPs applied both the volatility and matching adjustment. The remaining 10% of IORPs did not conduct the sensitivity analysis. When only considering the 90% of IORPs that performed the sensitivity analysis, the allowance for the volatility adjustment and/or matching adjustment would in aggregate reduce the best estimate of technical provisions by 3.4% (see figure 5.14). The aggregate impact on IORPs in the participating countries ranges from -2.2% in DE to -3.6% in UK.

5.3. Baseline scenario 2

5.3.1. Specifications

81. IORPs were requested to complete baseline scenario 2 in accordance with the technical specifications, which are summarised below:

- The balance sheet should include all security mechanisms (legally enforceable sponsor support, non-legally enforceable sponsor support and pension protection schemes), benefit types (unconditional, pure conditional, mixed and pure discretionary benefits) and benefit reduction mechanisms (ex ante benefit reductions, ex post benefit reductions and reductions in case of sponsor default);
- The best estimate of technical provisions, sponsor support and pension protection schemes should be valued using the expected return on assets ("Level B"). The weighted average risk premium on investment assets, taking into account expected changes of the asset allocation over time, should be added to the basic risk-free term structure. The following risk premiums for four broad asset categories were prescribed:

Table 5.1: Risk premiums for expected return on assets ("Level B"), basis points

Fixed income assets	
Government bonds	30 bps
Non-financial corporate bonds	60 bps
Financial corporate bonds	110 bps
Non-fixed income assets	300 bps

- The technical provisions should include a risk margin using the cost-of-capital approach for liabilities which cannot be hedged on financial markets;
- The solvency capital requirement (SCR) should be based on the prescribed (sub-)modules calibrated to a 99.5% confidence level, taking into account the loss-absorbing capacity of all security and benefit adjustment mechanisms.

5.3.2. Balance sheet

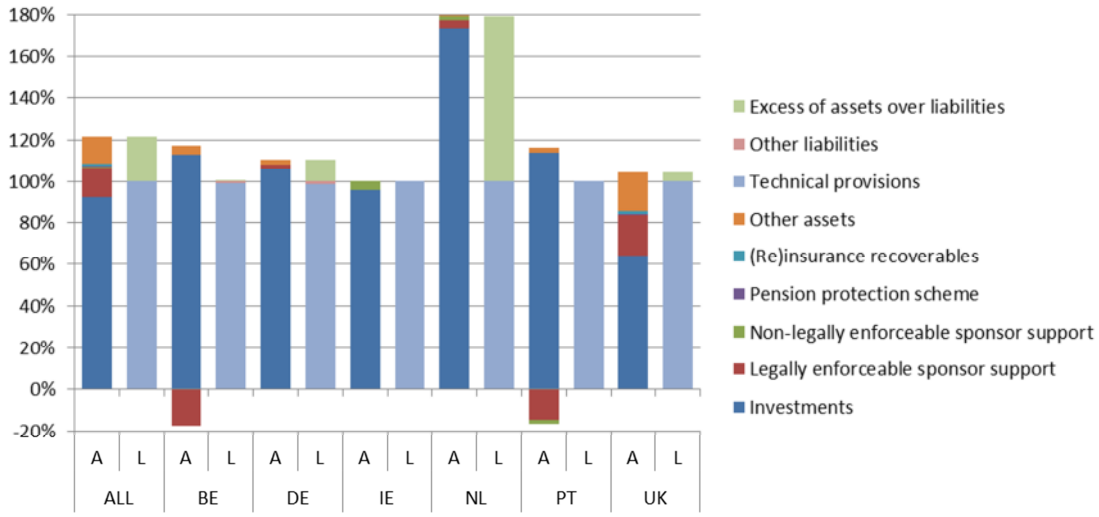
82. In baseline scenario 2 investments cover 93% of liabilities on the balance sheet (see figure 5.15). The other non-investment assets, which predominantly consists of liability driven investments in the UK recognised by the UK NSA under this category, make up another 13% of liabilities. Legally enforceable sponsor support, non-legally enforceable sponsor support and (re)insurance recoverables account for respectively 14%, 1% and 1% of liabilities. Overall, IORPs in the six member states dispose of an aggregate excess of assets over liabilities (EAL) of 22% of liabilities.

83. In DE and NL the market value of investments exceeds the level B value of liabilities, resulting in aggregate in a positive EAL. IORPs in BE and PT have in aggregate also more financial assets than liabilities. However, the EAL is zero in both countries due to the recognition of negative sponsor support, assuming that the sponsor is able, in some circumstances (and in particular in a case of overfunding), to reduce its contribution to the IORP or to withdraw assets from the IORP.

84. IORPs in IE and the UK have - in aggregate - insufficient financial assets to meet liabilities. In the UK the recognition of legally enforceable sponsor support results in a modest positive EAL. In IE the inclusion of non-legally enforceable sponsor support ensures that assets and liabilities are in balance.

Figure 5.15: Assets (A) and liabilities (L) on balance sheet, baseline scenario 2

% total liabilities

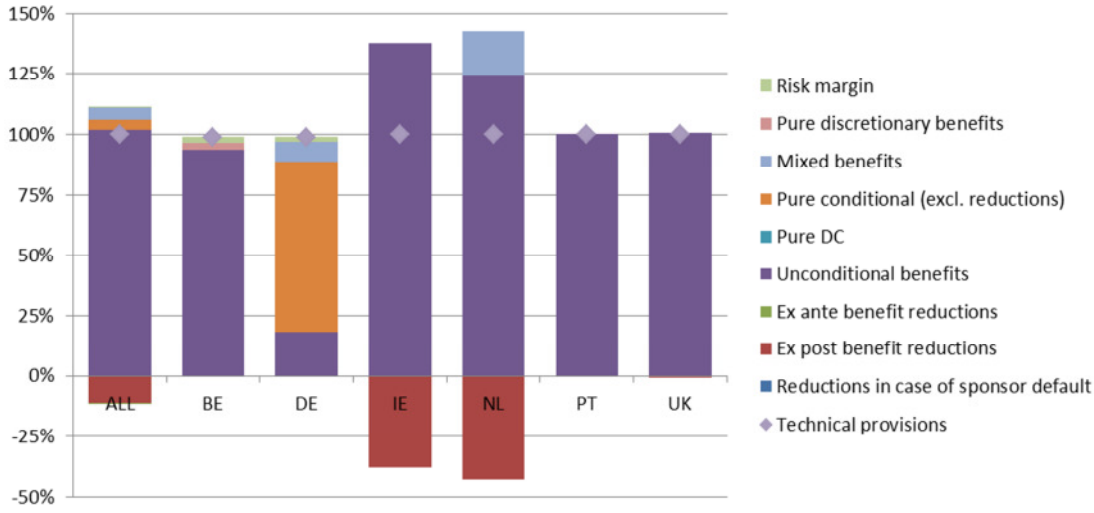


Source: EIOPA

85. Overall technical provisions in baseline scenario 2 consist for 102% of unconditional benefits, 4% of pure conditional benefits and 5% of mixed benefits (see figure 5.16). More than half of DE IORPs reported pure conditional benefits, which is subject to an ex ante benefit reduction mechanism. Mixed benefits were recognised by more than half of DE IORPs and all NL IORPs. The pure discretionary benefits included by IORPs in BE and risk margin included by IORPs in BE and DE are not visible in the six-country aggregate. Ex post benefit reductions and benefit reductions in case of sponsor default together amount to -11% of the aggregate technical provisions, of which substantial amounts were reported by IORPs in IE and NL. IORPs in DE, PT and the UK also reported values for benefit reductions but these are too small to be discernible.

Figure 5.16: Breakdown technical provisions on balance sheet, baseline scenario 2

% total liabilities



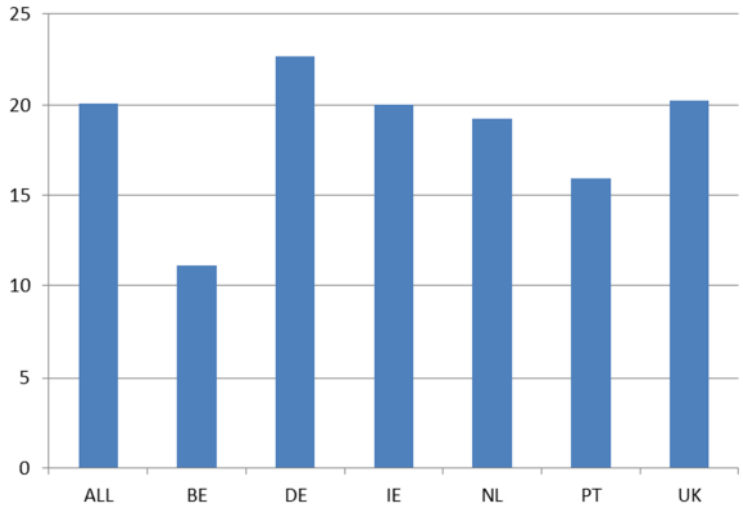
Source: EIOPA

Note: In NL a substantial value of ex post benefit reductions (43% of liabilities) is reported, while IORPs have on aggregate a surplus of assets over liabilities excl. ex post benefit reductions of 36% of liabilities. The reason is that the value of ex post benefit reductions is determined by the risk-free interest rate used in the national regime and not by the expected return on assets. Moreover, NL IORPs applied a stochastic valuation to establish the value of benefit reductions, in line with HBS.2.1 of the technical specifications for the QA.

86. The average duration of "Level B" pension liabilities equals 20 years (see figure 5.17). IORPs in DE have on average a relatively long duration, IORPs in PT and especially BE dispose of a relatively short duration.

Figure 5.17: Duration of liabilities, baseline scenario 2

Years, liability-weighted average



Source: EIOPA

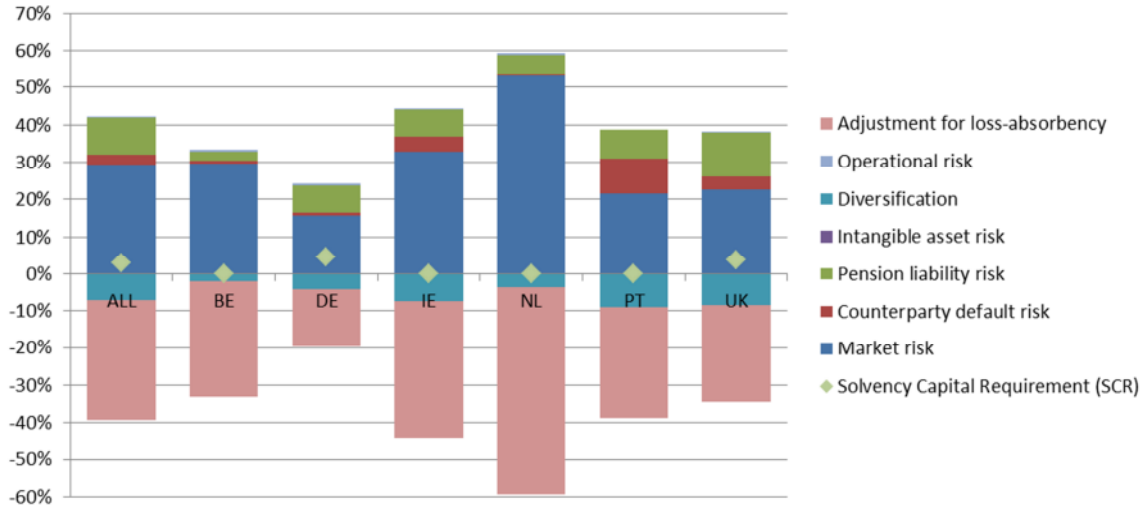
5.3.3. Solvency capital requirement

87. The overall solvency capital requirement (SCR) amounts to 3% of total liabilities (see figure 5.18). The gross capital charges for market risk (29% of liabilities), counterparty default risk (3%) and pension liability risk (10%) are almost offset by the effects of diversification between sub-modules (-7%) and the loss-absorbing capacity of security and benefit adjustment mechanisms (-32%). Only IORPs in DE and the UK reported in aggregate a (small) positive SCR, considering that part of the losses in the SCR calculation would first be absorbed by the available excess of assets over liabilities.

88. IORPs were not required to complete the intangible asset risk module. Only a small part of the DE sample voluntarily reported an insignificant charge for intangible asset risk. The gross capital requirement for operational risk amounts to 0.4-0.5% of liabilities in all countries. The only exception is PT where the charge was set to zero as operational risk is considered to be borne by the pension fund management entities.

Figure 5.18: Breakdown solvency capital requirement, baseline scenario 2

% total liabilities



Source: EIOPA

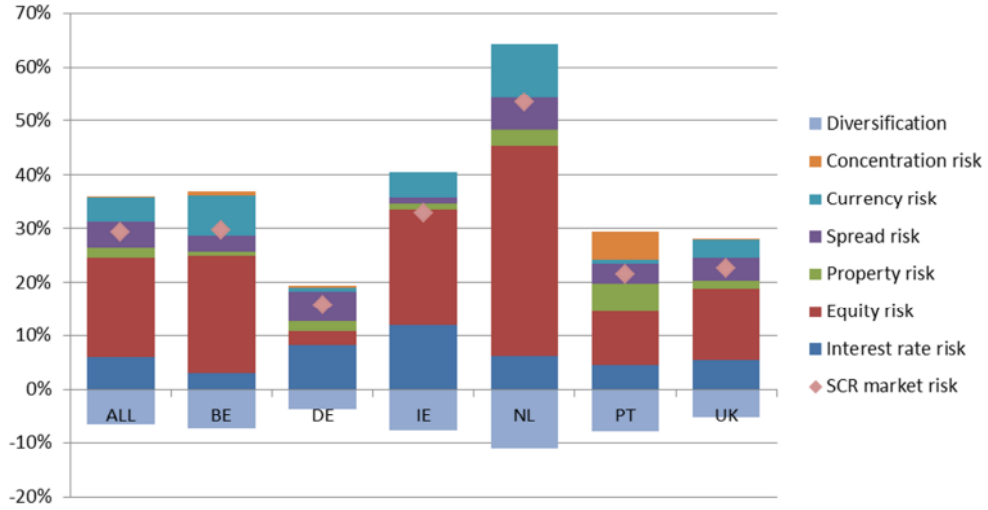
89. The aggregate SCR for market risk consists predominantly of equity risk (19% of liabilities) and to a lesser extent of interest rate risk (6% of liabilities), property risk (2%), spread risk (5%) and currency risk (5% of liabilities). Only IORPs in BE and particularly PT reported in aggregate a significant charge for concentration risk, but this is barely visible in the six-country aggregate. Taking into account the effects of diversification between the various sub-modules (-7% of liabilities), an overall SCR for market risk results of 29% of total liabilities (see figure 5.19).

90. IORPs in NL have by far the highest capital requirement for market risk expressed as a percentage of total liabilities. An important reason is that aggregate investments cover almost 175% of liabilities. IORPs in IE and the UK have asset allocations similar to NL IORPs, but investments only amount to around 95% of liabilities in IE and 85% in the UK (including LDI assets recognised by the UK NSA under the other non-investment asset category).

91. Aggregate investments in BE, DE and PT are respectively 113%, 107% and 114% of liabilities. The 113% funding ratio in BE explains why the SCR for market risk slightly exceeds the six-country average, even though the duration of pension liabilities and, hence, interest rate risk are relatively low. The exposure to market risk is well below the six-country average in DE and PT. DE IORPs have in aggregate the lowest SCR for market risk due to the high allocations to fixed-income assets and low allocations to equities. The resulting small equity risk charge is partly offset by relatively high charges for interest rate and spread risk. PT IORPs also have a below average equity risk charge, but above average charges for property risk as well as concentration risk.

Figure 5.19: Breakdown SCR market risk, baseline scenario 2

% total liabilities



Source: EIOPA

92. IORPs in IE, PT and UK reported in aggregate an above average gross SCR for counterparty default risk. The relatively high capital charge in PT is predominantly related to significant holdings of bank deposits and to a lesser extent to sponsor support. The UK Pensions Regulator included sponsor default risk in the counterparty default risk module, even though most participating IORPs met at least one of the conditions for using the balancing item approach to the valuation of sponsor support. IE applied a nearly full charge to the non-legally enforceable sponsor support recognised on the balance sheet, assuming the sponsors do not dispose of a credit rating. In line with the specifications for using the balancing item approach, some IORPs in other countries did not include sponsor support in the counterparty default risk module. Other IORPs applied a relatively low default probability linked to the sponsor's credit rating or assumed a low default rate in the absence of a credit rating.

93. Longevity risk is, with an aggregate charge of 7% of liabilities in the six member states, the most important determinant of the gross SCR for pension liability risk (see figure 5.20). The longevity risk charge is relatively low in BE since IORPs usually provide lump sum payments at retirement and not life-long pensions. The combined risk charge for the other sub-modules amounts to 8% of liabilities. Allowing for a diversification effect of -5% of liabilities leaves an overall SCR for pension liability risk of 10% of total liabilities.

94. IORPs were only required to assess the SCR longevity stress scenario. The other sub-modules could be included on a voluntary basis if any one of them was considered to constitute a material risk. In particular, the UK supervisor calculated - using its own simplifications - significant charges for mortality, disability, benefit option, expense and revision risk. NL IORPs included in aggregate charges for disability, benefit option and catastrophe risk.

Figure 5.20: Breakdown SCR pension liability risk, baseline scenario 2

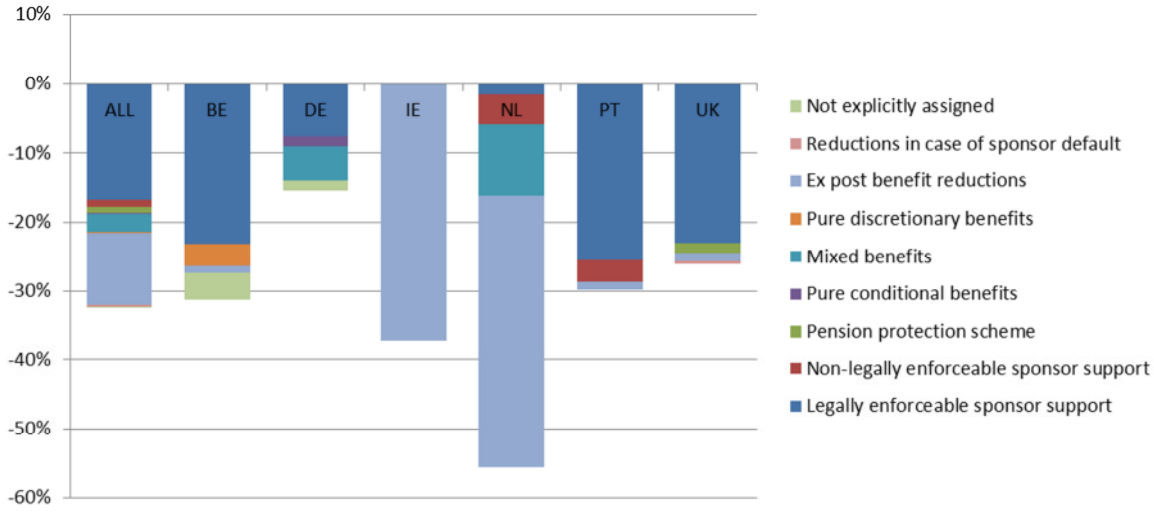
% total liabilities

Source: EIOPA

95. The overall adjustment for loss-absorbency of -32% of liabilities consists predominantly of legally enforceable sponsor support (-17% of liabilities) and ex post benefit reductions (-10% of liabilities) and to a lesser extent of mixed benefits (-3%), non-legally enforceable sponsor support (-1%) and pension protection schemes (-1% of liabilities) (see figure 5.21).

Figure 5.21: Breakdown adjustment for loss-absorbency, baseline scenario 2

% total liabilities



Source: EIOPA

96. IORPs in BE, DE, PT and UK rely most on legally enforceable sponsor support to absorb the SCR stress scenarios. IORPs in IE and NL are very much dependent on ex post benefit reductions. However, some IORPs in NL reported loss-absorbency of legally enforceable sponsor support, whereas some IORPs in BE, PT and UK used the loss-absorbing capacity of ex post benefit reductions or benefit reductions in case of sponsor default. Mixed benefits are able to absorb losses for part of DE IORPs and NL IORPs. The same is true for the pure conditional benefits (incl. ex ante benefit reduction mechanism) and the pure discretionary benefits which are reported in respectively DE and BE. In NL and PT part of the losses are in aggregate absorbed through non-legally enforceable sponsor support.

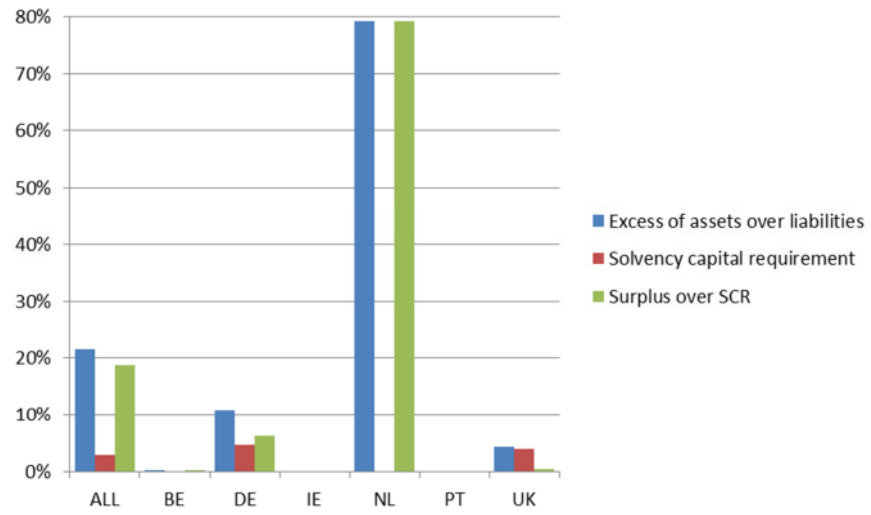
97. Part of the sample in BE and DE calculated the adjustment for loss-absorbency at the level of individual sub-modules and, since this was not requested, did not explicitly assign the overall adjustment to the relevant security and benefit adjustment mechanisms.

5.3.4. EAL and surplus

98. In baseline scenario 2 the six-country balance sheet exhibits a substantial excess of assets over liabilities (EAL) of 22% of liabilities (see figure 5.22). The main reason is the large positive EAL in NL. This is partly a reflection of NL IORPs estimating a sizeable value for ex post benefit reductions and partly of financial assets exceeding liabilities excluding those reductions. Also in DE financial assets exceed liabilities in aggregate, resulting in a substantial positive EAL. In the UK the inclusion of sponsor support values contributes in aggregate to a modest surplus on the balance sheet. The positive excess of financial assets over liabilities in BE and PT is offset by negative sponsor support values. In IE the shortfall between financial assets and liabilities (excl. reductions) is balanced by respectively ex post benefit reductions and sponsor support.

Figure 5.22: Excess of assets over liabilities, capital requirement and surplus over capital requirement, baseline scenario 2, end-2014

% total liabilities



Source: EIOPA

99. The aggregate solvency capital requirement (SCR) amounts to 3% of liabilities. Security and benefit adjustment mechanisms of IORPs are able to absorb most of the losses. Only part of IORPs in DE and the UK reported that first losses would

be covered by the available excess of assets over liabilities. The surplus over the SCR (19% of liabilities) follows from subtracting the SCR (3%) from the EAL (22%).

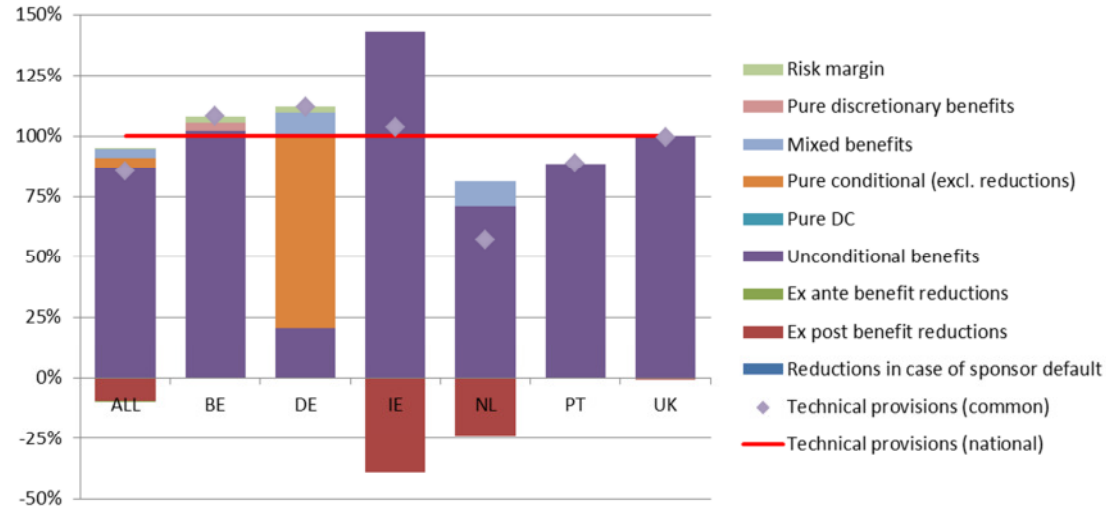
5.3.5. Comparison with national regime

100. In baseline scenario 2 technical provisions decrease on average by 14% relative to the national regimes (see figure 5.23). The value of unconditional benefits is well below the current level of technical provisions in NL and PT. The reason is that the Level B discount rate of the expected return on assets exceeds the discount rates in NL and PT (the risk-free interest rate curve in NL and the AA corporate bond yield in PT). Unconditional benefits in BE and the UK as well as the combined value of unconditional and pure conditional benefits in DE are more or less the same, indicating that current discount rates are on average similar to the Level B expected return on assets. In IE unconditional benefits are 43% higher than existing technical provisions. The discount rates currently used in IE exceed the Level B expected return on assets.

101. The inclusion of mixed benefits on the balance sheet increases technical provisions for DE and NL IORPs. The same holds true for the inclusion of the risk margin by part of IORPs in BE and DE. The substantial amounts of ex post benefit reductions reported by IE and NL IORPs reduce the value of technical provisions compared to the national regimes.

Figure 5.23: Technical provisions compared to national balance sheet, baseline scenario 2

% technical provisions current regime



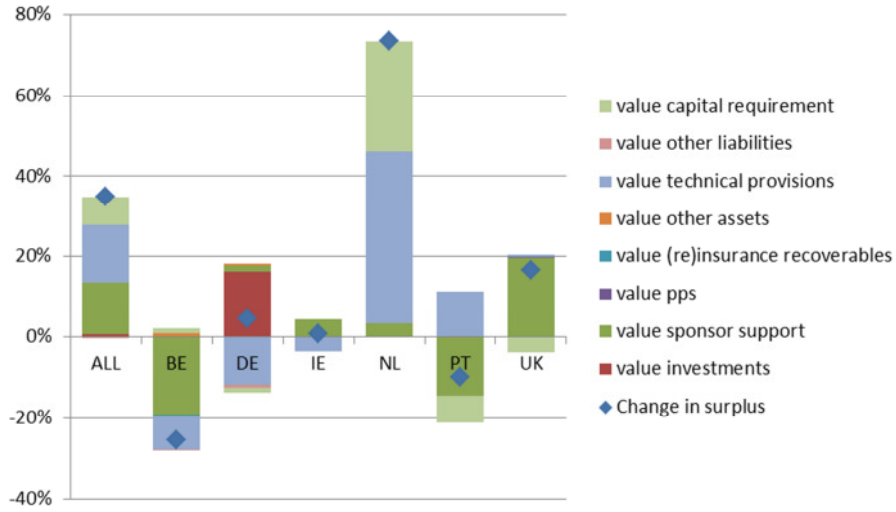
Source: EIOPA

102. Overall the surplus over the capital requirement increases by 35% of current liabilities compared to the national regime (see figure 5.24). The aggregate shortfall of 19% of liabilities under the national regime turns into a surplus of 19% of liabilities in baseline scenario 2. This is the result of the decrease in the aggregate value of technical provisions (14%), an increase in the value of investments (1%), the explicit recognition of sponsor support (13%) and a lower capital requirement compared to the national regime (7% of liabilities).

103. The existing aggregate surpluses in BE and PT diminish to zero in baseline scenario 2, mainly due to the inclusion of negative sponsor support values. The aggregate surplus of DE IORPs widens, as the increase in investments through the recognition of market values instead of book values (amortised costs) exceeds the increase in the level of technical provisions. In NL the aggregate shortfall relative to the national risk-based funding requirements (approximately 125% of technical provisions) changes into a large surplus. Not only technical provisions decline sharply, but also the capital requirement, which takes into account the loss-absorbing capacity of ex post benefit reductions. The existing shortfalls in the UK disappear in baseline scenario 2, as IORPs are allowed to explicitly recognise the value of sponsor support on the balance sheet.

Figure 5.24: Decomposition of change in surplus over SCR compared to national regime, baseline scenario 2

% liabilities national regime



Source: EIOPA

Note: The figure explains the difference between the surplus over the SCR in baseline scenario 2 and the surplus over the funding requirement under the national regime. An increase in the value of assets (investments, sponsor support, pps, (re)insurance recoverables, other assets) increases the surplus in baseline scenario 2 compared to the national regime. An (aggregate) increase in the value of liabilities (technical provisions, other liabilities) as well as an increase in the capital requirement decreases the surplus in baseline scenario 2 compared to national regime.

The contribution of the capital requirement of -7% of liabilities in PT does not reflect an increase in the capital requirement, but rather the difference between the value of national technical provisions reported in the QA and the lower value of national technical provisions that underlies the funding requirement in PT.

6. Examples of supervisory frameworks

6.1. Introduction

104. The aim of the QA was to collect quantitative data on the six examples of supervisory frameworks included in the consultation paper on further work on solvency of IORPs.[12]

105. IORPs were not required to do separate calculations for the examples of supervisory frameworks. The reporting spreadsheet automatically calculated the results for the six examples based on the outcomes for the two baseline scenarios, using a building-block approach. However, IORPs were invited to perform their own calculations, if this was considered to yield more appropriate outcomes. Depending on the specific example, the number of IORPs completing the examples themselves ranges from about 5% to 20%, representing 10% to 20% of total assets (see section 12.1 of Annex 1). No separate calculations could be provided for example 6 of supervisory framework, since this example is the same as baseline scenario 1.

106. The outcomes for the examples of supervisory frameworks presented in this section include the IORPs' own calculations. The automatically generated results are used for the (large majority) of IORPs that did not report separate results.

107. Example 6 introduces a common framework for risk assessment and transparency at the EU level without altering existing national capital and funding requirements, including the underlying valuation rules. Examples 3 and 5 propose a combination of strengthening quantitative requirements in pillar 1 and the introduction of a framework for risk assessment and transparency in pillars 2 and 3.

108. The specifications for the pillar 2/3 framework are the same in examples 3, 5 and 6. The only exception is that the framework in example 3 restricts itself to a common balance sheet and does not contain a standardised risk assessment. Since the pillar 2/3 frameworks in the three examples are very much the same and to avoid unnecessary duplication, the outcomes for the common framework for risk assessment and transparency will only be discussed under example 6 and not be repeated under examples 3 and 5.

6.2. Example 1

6.2.1. Description example 1

109. Example 1 of supervisory framework would introduce a harmonised capital requirement as well as a funding requirement at the EU level.

110. IORPs would be required to value the balance sheet on a market-consistent basis. The balance sheet should include legally enforceable sponsor support and non-legally enforceable sponsor support on the asset side and pure conditional benefits (incl. ex ante benefit reductions) and mixed benefits on the liability side. Moreover, technical provisions should include a risk-margin based on the cost-of-capital approach. The balance sheet should not include pension protection schemes, pure discretionary benefits, ex post benefit reductions and benefit reductions in case of sponsor default.

111. IORPs would have to comply with a solvency capital requirement (SCR), which is based on a market-consistent balance sheet. The SCR should be based on the

[12] EIOPA, Consultation Paper on Further Work on Solvency of IORPs, EIOPA-CP-14/040, 13 October 2014.

prescribed (sub-)modules calibrated to a 99.5% confidence level, taking into account the loss-absorbing capacity of security and benefit adjustment mechanisms on the balance sheet, i.e. excluding pension protection schemes, pure discretionary benefits, ex post benefit reductions and benefit reductions in case of sponsor default.

112. IORPs would be required to hold sufficient financial assets to cover the Level A technical provisions. These Level A technical provisions are the same as technical provisions on the balance sheet, i.e. including pure conditional benefits (incl. ex ante benefit reductions), mixed benefits and the risk margin, but excluding pure discretionary benefits, ex post benefit reductions and benefit reductions in case of sponsor default.

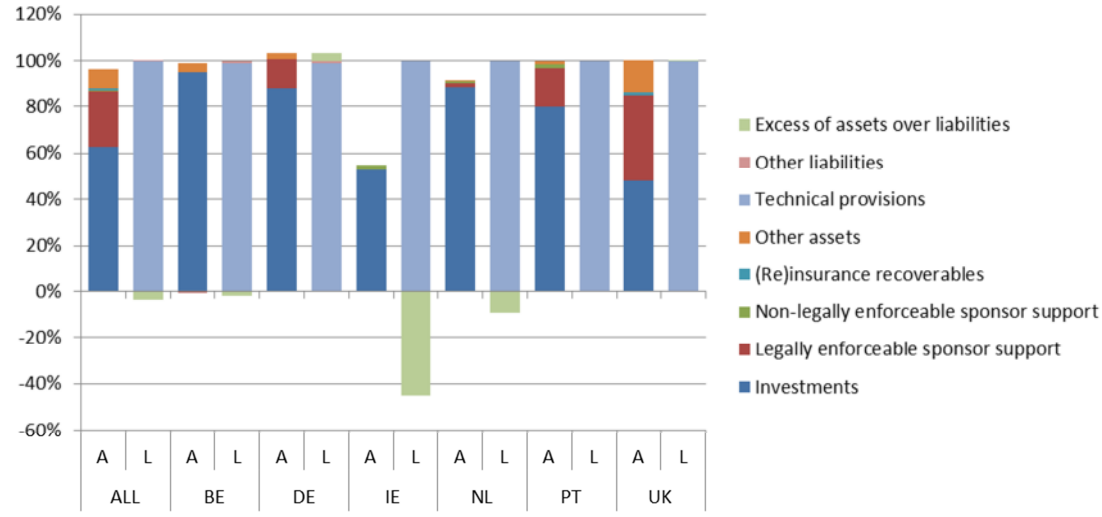
113. In the event of non-compliance with the capital and/or funding requirement, IORPs would be granted a short recovery period (less than 1 year) to restore compliance.

6.2.2. Balance sheet

114. The aggregate balance sheet in the six countries displays an excess of assets over liabilities (EAL) of -4% of liabilities (see figure 6.1). Investments (63%), sponsor support (24%), (re)insurance recoverables (1%) and other assets (9%) on the asset-side of the balance sheet do not fully cover the market-consistent value of liabilities.

Figure 6.1: Assets (A) and liabilities (L) on balance sheet, example 1

% total liabilities



Source: EIOPA

115. The shortfalls are most pronounced in IE and to a lesser extent NL since (most) IORPs do not dispose of unlimited, legally enforceable sponsor support to cover the shortfall between financial assets and liabilities, and ex post benefit reductions are not recognised on the balance sheet under this example.

116. In the other countries there is a high incidence of legally enforceable sponsor support. Still, BE and PT have in aggregate a small negative EAL. Some IORPs in these countries do not dispose of (sufficiently strong) sponsor support to cover liabilities in full. The aggregate EAL in DE and the UK is slightly positive.

However, also some IORPs in DE and the UK will experience a deficit because the sponsor is not strong enough and pension protection schemes are not recognised on the balance sheet under example 1.

117. The six-country aggregate value of technical provisions consists predominantly of unconditional benefits (92%) and to a lesser extent of pure conditional benefits (4%), mixed benefits (3%) and a risk margin (1%) (see figure 6.2). A majority of DE IORPs recognised pure conditional benefits because pension promises are subject to an ex ante reduction mechanism. Mixed benefits are reported by more than half of DE IORPs and all NL IORPs.

Figure 6.2: Breakdown technical provisions on balance sheet, example 1

% total liabilities

Source: EIOPA

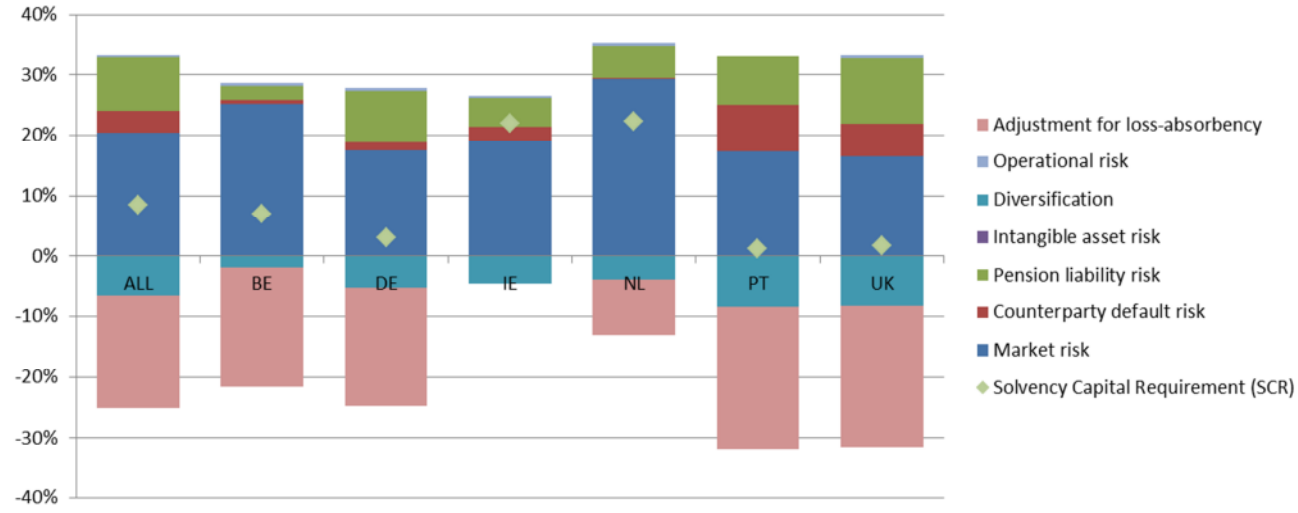
6.2.3. SCR

118. The market-consistent balance sheet serves as a basis for establishing the solvency capital requirement (SCR). The aggregate SCR in the six member states amounts to 8% of total liabilities (see figure 6.3). The loss-absorbing capacity of security and benefit adjustment mechanisms cannot fully cover the gross SCRs for market, counterparty default, pension liability, intangible asset and operational risk, after allowing for the effect of diversification between these modules.

119. The SCR is relatively high in IE and NL because (most) IORPs are not covered by legally enforceable sponsor support and ex post benefit reductions are not recognised under this example. In BE, DE, PT and the UK only part of IORPs are not able to realise full loss-absorbency in the SCR in the absence of (sufficiently strong) sponsor support. However, about half of DE IORPs dispose of an ex ante benefit reduction mechanism with a full loss-absorbing capacity. The positive aggregate SCR in DE reflects to a large extent IORPs which report that first losses are borne by the available excess of assets over liabilities.

Figure 6.3: Breakdown solvency capital requirement, example 1

% total liabilities



Source: EIOPA

6.2.4. Capital and funding requirements

120. The aggregate surplus over the SCR in the six member states amounts to -12% of total liabilities (see figure 6.4). Especially IORPs in IE and NL experience large shortfalls in meeting the SCR. Both countries have in aggregate a substantial negative EAL and positive SCR as (most) IORPs do not dispose of legally enforceable sponsor support, unlike in BE, DE, PT and the UK, and ex post benefit reductions are not recognised under this example. Even for IORPs BE, DE, PT and UK sponsor support may not always be able to cover the full pension liability under all circumstances and/or provide full loss-absorbency in the SCR, which means that such IORPs will experience a shortfall relative to the SCR. A substantial part of IORPs in DE dispose of an ex ante benefit reduction mechanism with the capacity to provide full loss-absorbency in the SCR.

121. IORPs are also required to have sufficient financial means to meet the level of liabilities to be covered with financial assets. Overall financial assets are able to cover 72% of Level A liabilities in example 1, implying an aggregate deficit of 28% of liabilities (see figure 6.5). The shortfalls in BE, DE, NL and PT are below average, in IE and UK above average.

Figure 6.4: Excess of assets over liabilities, SCR and surplus over SCR, example 1, end-2014

% total liabilities

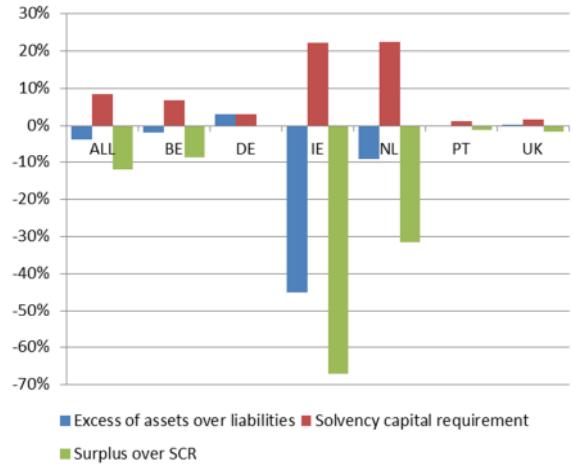
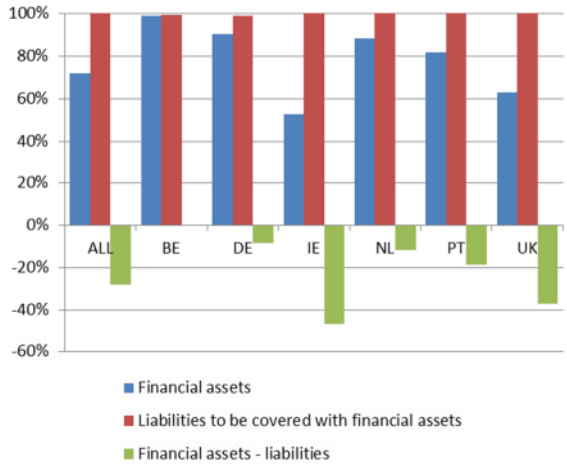


Figure 6.5: Financial assets and liabilities to be covered by financial assets, example 1, end-2014

% total liabilities



Source: EIOPA

122. IORPs representing about two thirds of aggregate liabilities are able to comply with the SCR (see figure 6.6). These are predominantly IORPs in BE, DE, PT and the UK, which are covered by sufficiently strong sponsor support or, in case of DE, an ex ante benefit reduction mechanism. Only 3% of IORPs - particularly in BE - are able to cover the Level A technical provisions with financial assets (see figure 6.7).

Figure 6.6: % IORPs experiencing surplus/shortfall relative to SCR, example 1, end-2014

% IORPs (liability weighted)

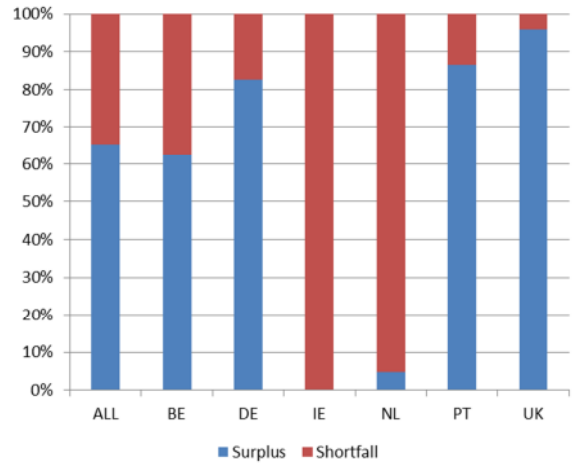
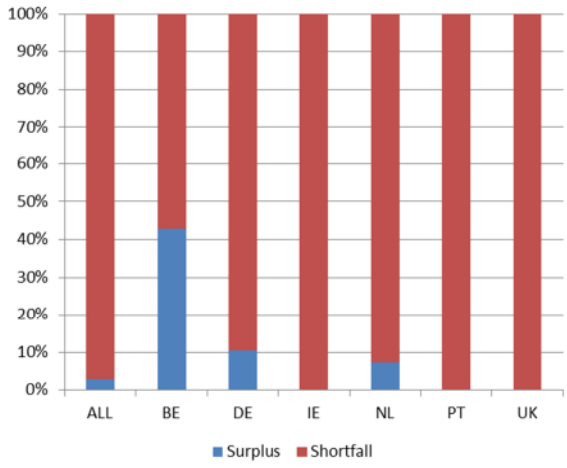


Figure 6.7: % IORPs experiencing surplus/shortfall with respect to funding requirement, example 1, end-2014

% IORPs (liability weighted)



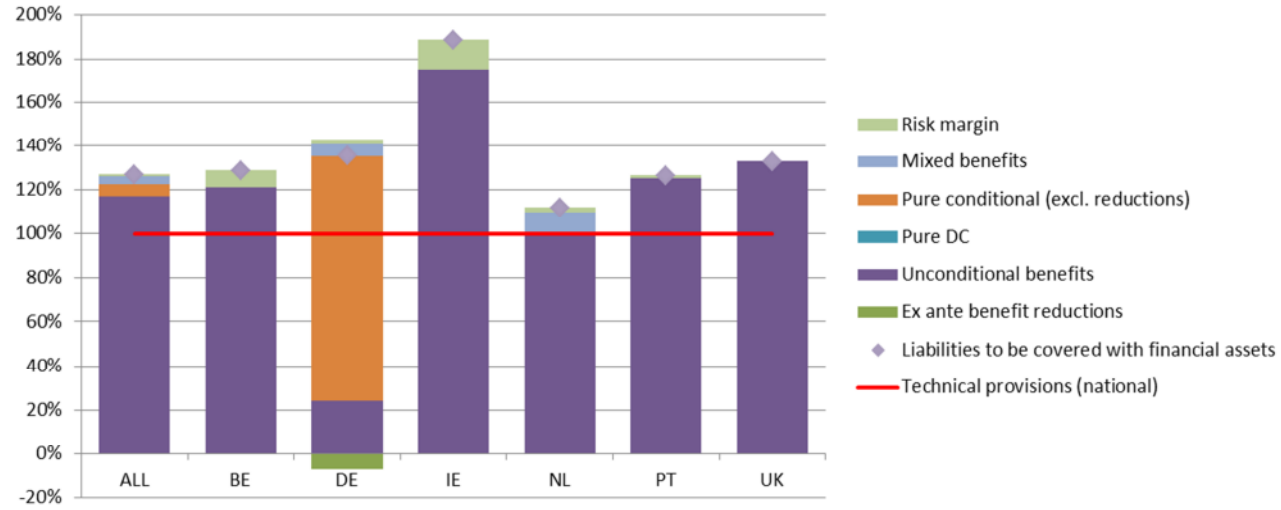
Source: EIOPA

6.2.5. Comparison with national regime

123. Aggregate technical provisions on the balance sheet as well as Level A liabilities to be covered with financial assets would increase by 27% compared to technical provisions on the national balance sheet (see figure 6.8). The most important driver is the introduction of market-consistent valuation of pension obligations. The basic risk-free interest rate is lower than current discount rates in all member states except NL. The requirement to supplement the best estimate of technical provisions with a risk margin has an upward effect in most countries. The inclusion of mixed benefits increases technical provisions in DE and NL, but in DE this is in aggregate offset by the possibility to recognise ex ante benefit reductions.

Figure 6.8: Liabilities to be covered by financial assets compared to technical provisions current regime, example 1

% technical provisions current regime



Source: EIOPA

124. Despite the rise in technical provisions, the aggregate six-country surplus over the capital requirement slightly improves compared to the national regimes (see figure 6.9). The aggregate shortfall diminishes from -19% in the current regime to -12% of liabilities in example 1. Sponsor support can be recognised on the balance sheet to cover shortfalls between financial asset and liabilities as well as in the loss-absorbency calculation for the SCR. However, sponsor support cannot be used to meet the funding requirement.

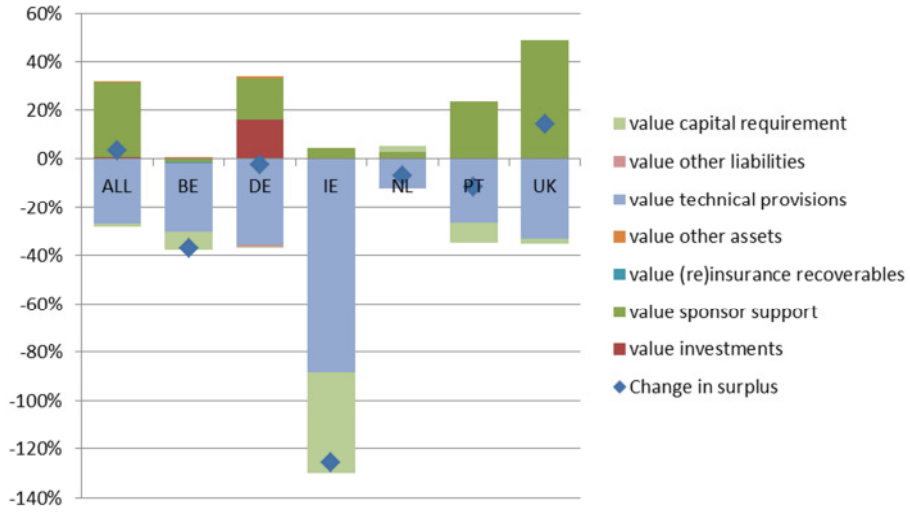
125. The current aggregate shortfalls in the UK of -16% of liabilities would decrease to -2% of liabilities. This is because sponsor support is explicitly included and most IORPs which took part in the QA were allowed to apply the balancing item approach to valuing sponsor support, filling the gap between financial assets and liabilities and providing full loss-absorbency in the SCR. Those remaining IORPs which did not qualify for the balancing item approach would be able to reduce the shortfall by explicitly recognising sponsor support, but would still be left with a shortfall relative to the SCR.

126. The change in the surplus is negative in all other countries. In BE and PT the surpluses over the funding requirement turn into a shortfall relative to the SCR. The recognition of sponsor support can in aggregate not (fully) offset higher

technical provisions and capital requirements. In BE part of IORPs reported a negative value for sponsor support, which in aggregate exceeds the positive value of sponsor support included by other IORPs. The existing modest surplus in DE reduces to zero as the increased value of assets - due to market valuation of investments and recognition of sponsor support - does not completely match the higher value of technical provisions. The already large aggregate shortfall in NL (relative to the risk-based funding requirement of approximately 125%) increases somewhat as the negative contribution of higher technical provisions (due to the inclusion of mixed benefits) exceeds the positive contributions of lower capital requirements and the recognition of sponsor support. The funding situation of IORPs in IE deteriorates due to the increase in technical provisions and the introduction of a substantial SCR.

Figure 6.9: Decomposition of change in surplus over SCR compared to national regime, example 1

% liabilities national regime



Source: EIOPA

Note: The figure explains the difference between the surplus over the SCR in example 1 and the surplus over the funding requirement under the national regime. An increase in the value of assets (investments, sponsor support, (re)insurance recoverables, other assets) increases the surplus in example 1 compared to the national regime. An increase in the value of liabilities (technical provisions, other liabilities) as well as an increase in the capital requirement decreases the surplus in example 1 compared to national regime.

The contribution of the capital requirement of -8% of liabilities in PT reflects only partly an increase in the capital requirement (-1%). It represents for the most part (-7%) the difference between the value of national technical provisions reported in the QA and the lower value of national technical provisions that underlies the funding requirement in PT.

127. In some countries IORPs are to a greater extent affected by the SCR under this example, most notably due to a low incidence of unlimited, legally enforceable sponsor support, while in other countries IORPs are to a greater extent affected by the funding requirement. When considering the smallest surplus (or largest shortfall) relative to the capital requirement or the funding requirement in

example 1, the surplus deteriorates in aggregate by 26% of liabilities (see figure 6.10). The decline in this combined measure of the surplus is above average in BE, IE, PT and UK and below average in DE and NL.

128. All IORPs experience a decrease in their surplus or, more often, an increase in shortfalls (see Figure 6.11). In example 1 IORPs are required to resolve these higher shortfalls within a relatively short time span (less than 1 year), whereas under the existing national prudential regimes IORPs are often granted much longer recovery periods.

Figure 6.10: Overall change in surplus, minimum surplus SCR and funding requirement, example 1, end-2014

% liabilities current regime

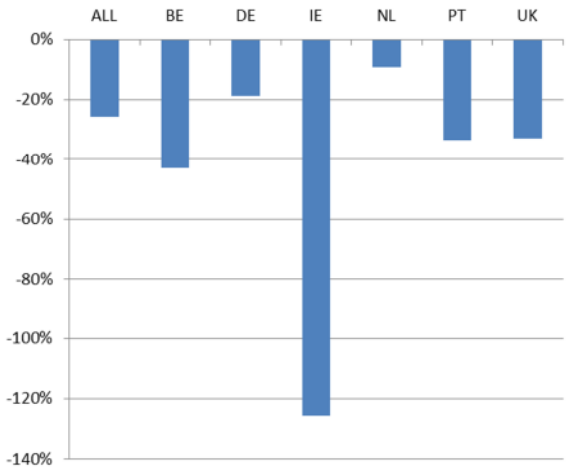
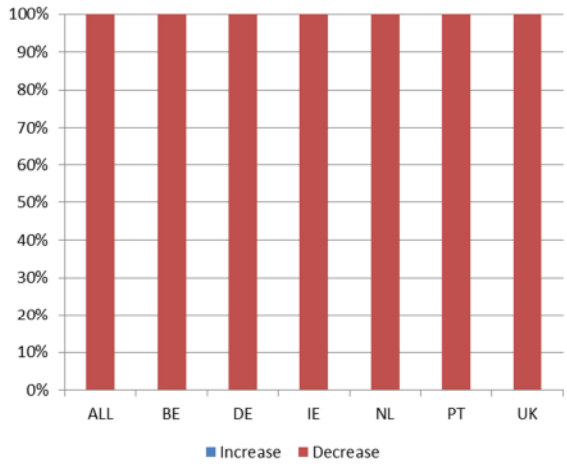


Figure 6.11: % IORPs experiencing increase/decrease in overall surplus, example 1, end-2014

% IORPs (liability weighted)



Source: EIOPA

129. The estimated aggregate shortfalls are not necessarily the same as the additional financial capital required to restore compliance with the SCR and/or the funding requirement. The reason is that the additional financial capital paid into the IORP may affect the value of sponsor support and/or non-unconditional benefits. A more favourable funding position may increase the chances of IORPs granting a higher level of pure conditional and mixed benefits. Conversely, a better funding position will reduce the need for future sponsor support.

6.3. Example 2

6.3.1. Description example 2

130. Example 2 of supervisory framework would introduce a capital requirement as well as a funding requirement at the EU level using a minimum harmonisation approach.

131. IORPs would be required to value the balance sheet using the expected return on assets. The balance sheet should include legally enforceable sponsor support and non-legally enforceable sponsor support on the asset side and pure conditional benefits (incl. ex ante benefit reductions) on the liability side. Moreover, technical provisions should include a risk-margin based on the cost-of-capital approach. The balance sheet should not include pension protection schemes,

mixed benefits, pure discretionary benefits, ex post benefit reductions and benefit reductions in case of sponsor default.

132. IORPs would have to comply with a solvency capital requirement (SCR) which is based on a balance sheet valued using the expected return on assets. The SCR should be based on the prescribed (sub-)modules calibrated to a 99.5% confidence level, taking into account the loss-absorbing capacity of security and benefit adjustment mechanisms on the balance sheet, i.e. excluding pension protection schemes, mixed benefits, pure discretionary benefits, ex post benefit reductions and benefit reductions in case of sponsor default.

133. IORPs would be required to hold sufficient financial assets to cover the Level B best estimate of technical provisions. The Level B best estimate of technical provisions includes pure conditional benefits, but excludes the risk margin, mixed benefits, pure discretionary benefits, ex ante benefit reductions, ex post benefit reductions and benefit reductions in case of sponsor default.

134. Member states may lay down additional requirements through national prudential legislation with regard to capital and funding requirements and underlying valuation standards. In the event of non-compliance with the capital and/or funding requirement, IORPs would be granted a recovery period in accordance with national prudential regulation of the home member state.

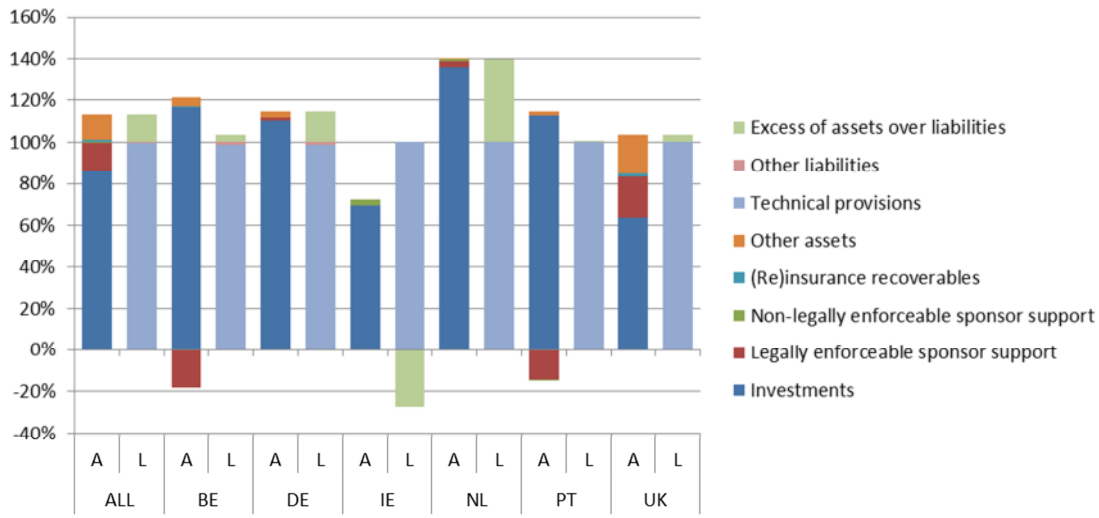
6.3.2. Balance sheet

135. The aggregate balance sheet shows an excess of assets over liabilities of 12% of liabilities (see figure 6.12). The combined value of investments (86% of liabilities), sponsor support (13%), (re)insurance recoverables (1%) and other assets (12%) exceeds the value of liabilities.

136. The IORP sectors in all countries have in aggregate a positive excess of assets over liabilities, with IE being the notable exception. Investments exceed liabilities in BE, DE, NL and PT. The resulting surplus is reduced in BE and PT through the recognition of negative sponsor support values. In the UK - where IORPs do not have sufficient financial assets to cover liabilities - the explicit recognition of sponsor support contributes to the modest surplus on the balance sheet.

Figure 6.12: Assets (A) and liabilities (L) on balance sheet, example 2

% total liabilities



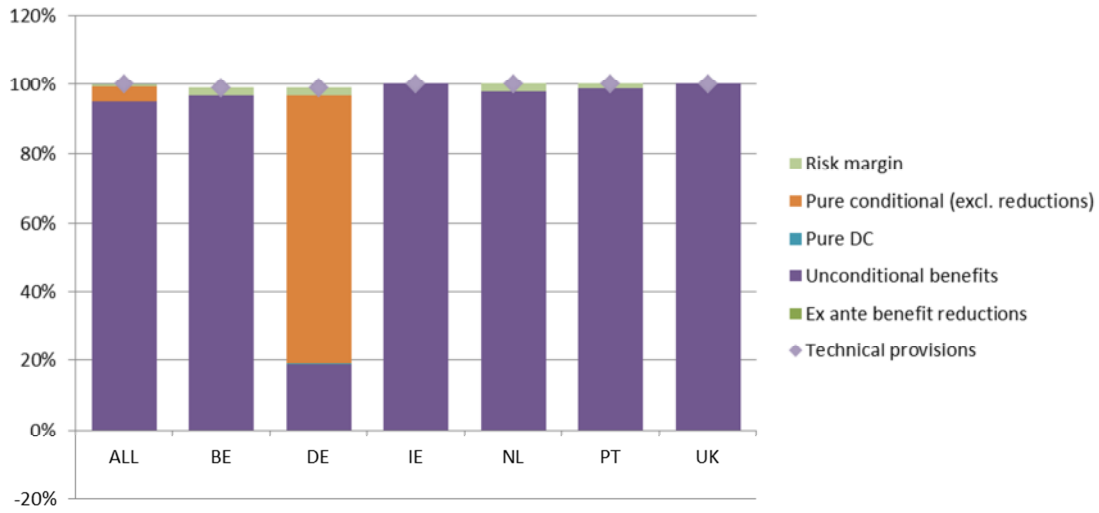
Source: EIOPA

137. The six-country aggregate value of technical provisions consists mainly of unconditional benefits (95%) and to a lesser degree of pure conditional benefits (4%) and a risk margin (1%) (see figure 6.13).

138. BE IORPs dispose of pure discretionary benefits, DE and NL IORPs dispose of mixed benefits which they do not have to include in technical provisions. Moreover, in example 2 IORPs are not allowed to recognise ex post benefit reductions or benefit reductions in case of sponsor default on the balance sheet. IORPs do have to recognise ex ante benefit reductions as part of pure conditional benefits, which are only available in DE. However, the amount of ex ante benefit reductions reported by DE IORPs is not material in example 2.

Figure 6.13: Breakdown technical provisions, example 2

% total liabilities



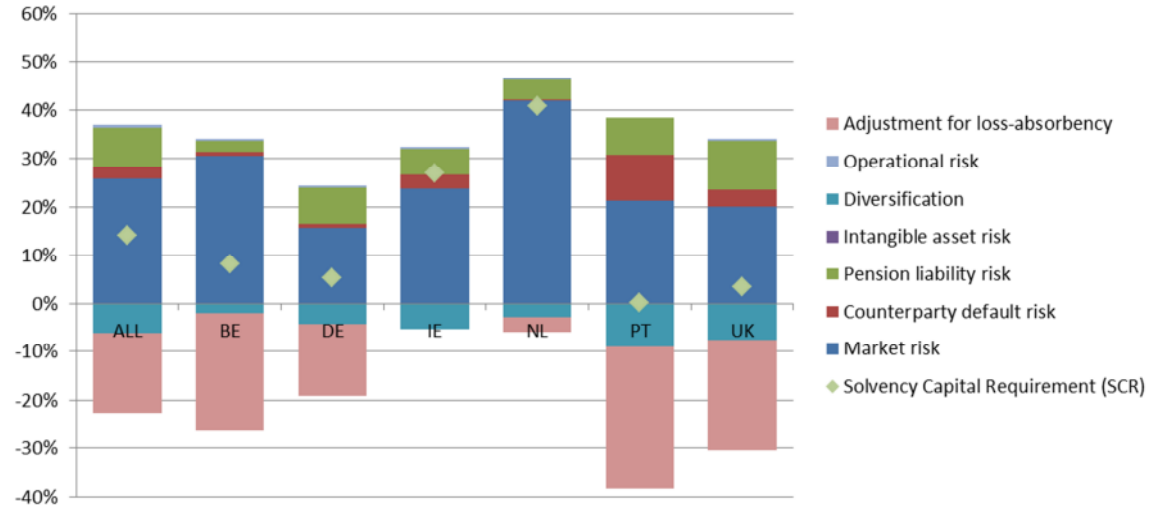
Source: EIOPA

6.3.3. SCR

139. The aggregate SCR of the six member states amounts to 14% of total liabilities (see figure 6.14). In BE, DE, PT and the UK sponsor support is to a large extent able to absorb the SCR stress scenarios. Part of IORPs in DE and the UK have a positive SCR as first losses are borne by the available excess of assets over liabilities. Some IORPs in BE, DE, PT and the UK do not dispose of (sufficiently strong) sponsor support that is capable of providing full loss-absorbency in the SCR. IE and NL have in aggregate a low adjustment for loss-absorbency and relatively high SCRs, as (most) IORPs are not covered by legally enforceable sponsor support and ex post benefit reductions are not recognised under this example.

Figure 6.14: Breakdown solvency capital requirement, example 2

% total liabilities



Source: EIOPA

6.3.4. Capital and funding requirements

140. The six-country aggregate excess of assets over liabilities (EAL) does not fully cover the capital requirement, resulting in a shortfall relative to the SCR of -1% of liabilities (see figure 6.15). IORPs in DE have in aggregate a modest surplus, IORPs in BE, NL, PT and the UK a small shortfall. IORPs in BE, DE, PT and NL are to a large extent able to cover the SCR with financial assets. In the UK most IORPs dispose of strong sponsor support which ensures that the EAL, SCR and surplus over the SCR are zero. Only the IORP sector in IE is confronted with a large shortfall.

Figure 6.15: Excess of assets over liabilities, SCR and surplus over SCR, example 2, end-2014

% total liabilities

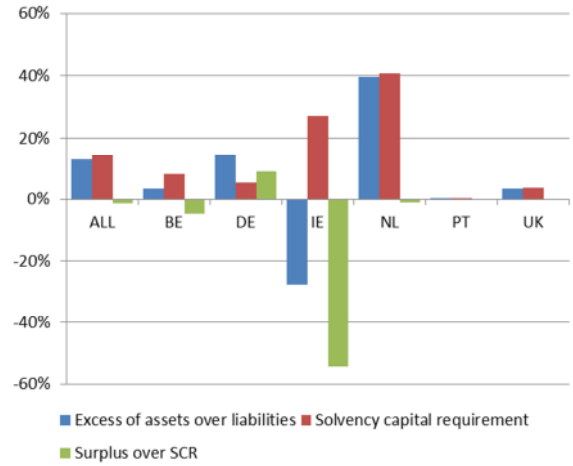
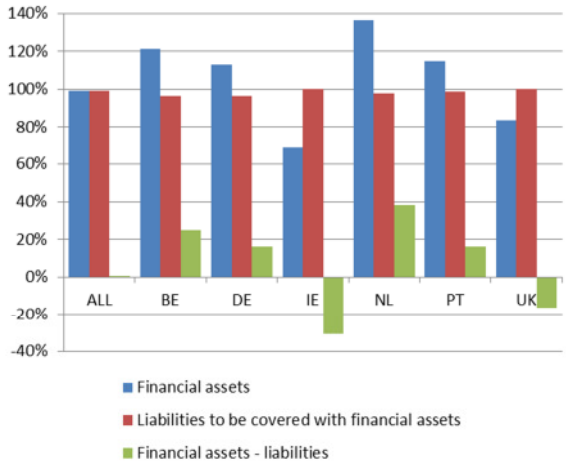


Figure 6.16: Financial assets and liabilities to be covered by financial assets, example 2, end-2014

% total liabilities



Source: EIOPA

141. The six-country aggregate amount of financial assets (almost) exactly matches the Level B best estimate of technical provisions (see figure 6.16). In most countries financial assets exceed liabilities valued using the expected return on assets. However, this is not the case in IE and the UK, which experience a shortfall compared to the Level B best estimate of respectively 30% and 16% of total liabilities.

142. IORPs representing about three quarters of aggregate liabilities have sufficient assets to cover the SCR (see figure 6.17), which are predominantly IORPs in BE, DE, PT and UK. However, some IORPs in these countries do not dispose of enough financial assets, sufficiently strong sponsor support or - in case of DE - an ex ante benefit reduction mechanism to comply with the SCR. IORPs representing two-thirds of aggregate liabilities in NL are not able to meet the SCR, but the shortfalls are relatively benign.

143. Over one-third of IORPs are able to cover the Level B best estimate of technical provisions with financial assets (see figure 6.18). In DE, NL and PT (almost) all IORPs are able to meet the funding requirement, in BE this is the case for 70% of liability-weighted IORPs.

Figure 6.17: % IORPs experiencing surplus/shortfall relative to SCR, example 2, end-2014

% IORPs (liability weighted)

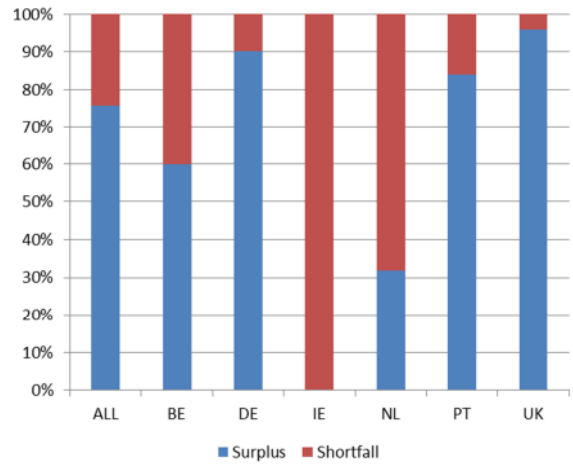
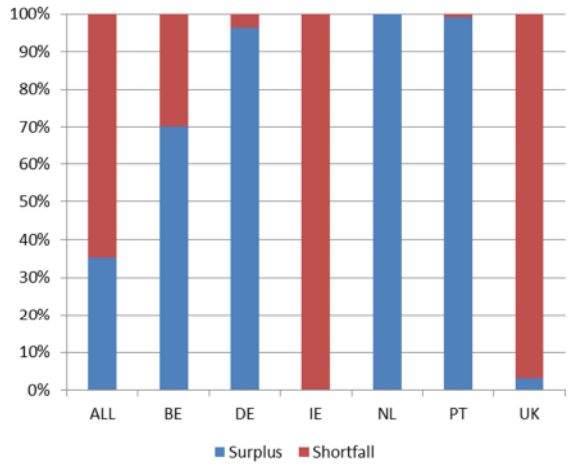


Figure 6.18: % IORPs experiencing surplus/shortfall with respect to the funding requirement, example 2, end-2014

% IORPs (liability weighted)



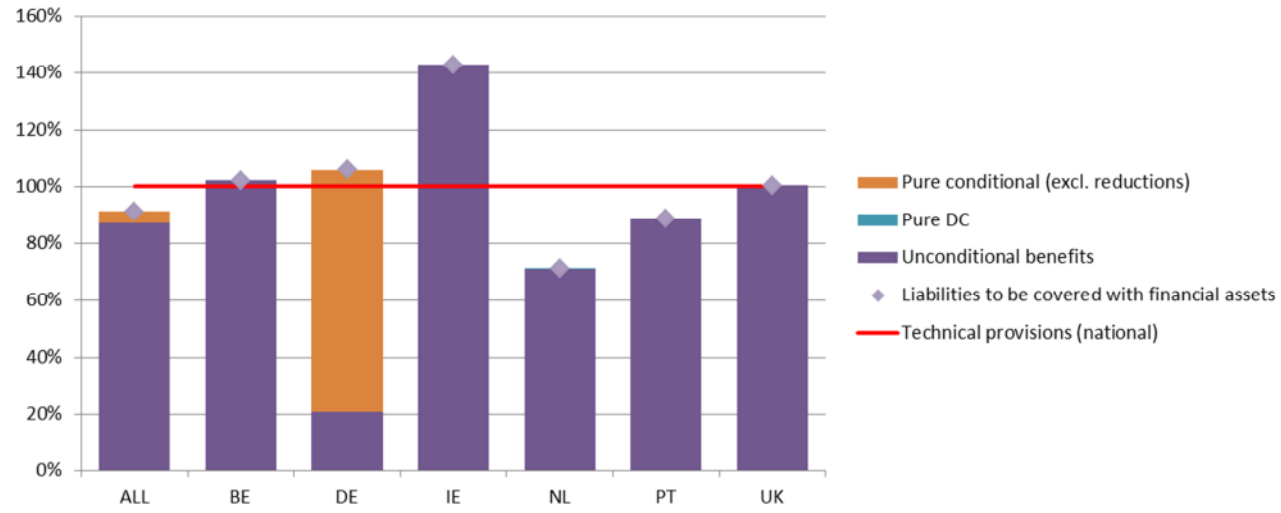
Source: EIOPA

6.3.5. Comparison with national regime

144. The level B best estimate of technical provisions is on average 9% lower than the value of technical provisions under the national regimes (see figure 6.19). Level B liabilities are about 30% and 10% lower than national technical provisions in respectively NL and PT due to the higher discount rate based on the expected return on assets. The Level B best estimate of technical provisions is similar to national technical provisions in BE, DE and the UK. IE is the only country where Level B liabilities substantially exceed technical provisions under the national prudential regime.

Figure 6.19: Liabilities to be covered by financial assets compared to technical provisions current regime, example 2

% technical provisions current regime



Source: EIOPA

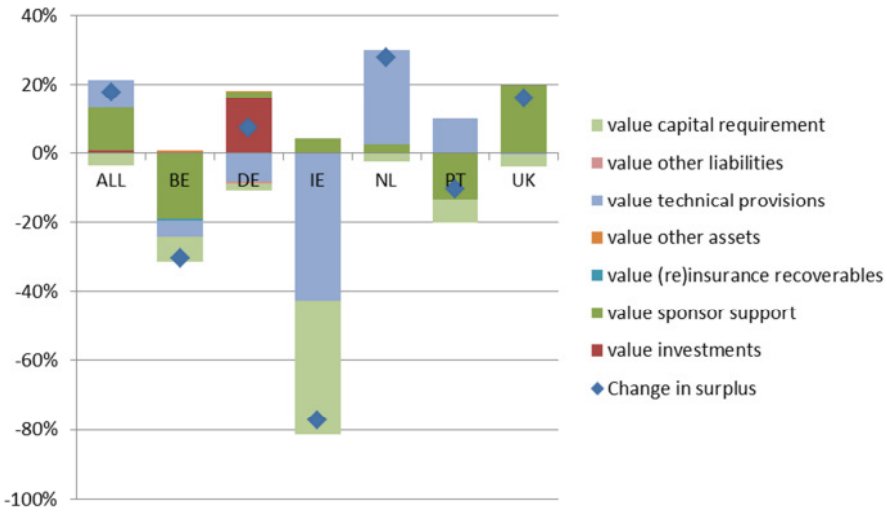
145. The value of technical provisions on the balance sheet is on average 8% lower than technical provisions under the national regimes since it also includes a risk margin amounting to 1% of liabilities. Moreover, in contrast to the Level B best estimate, ex ante benefit reductions should be accounted for in technical provisions, but the amount of these reductions reported under example 2 is very small.

146. The aggregate deficit of -19% of liabilities under the national regime diminishes to a shortfall of only -1% of liabilities in example 2. Hence, there is a positive change in the surplus compared to the national regimes (see figure 6.20). In particular, the substantial deficits in NL (when compared to the risk-based funding requirement of approximately 125% of technical provisions) and the UK would almost disappear. In NL this is the result of permitting IORPs to value liabilities using the expected return on assets, instead of a risk-free market interest rate curve. For the UK IORP sector this is the result of explicitly recognising sponsor support.

147. The current surpluses in DE would increase as a higher reporting value of investments and the possibility to explicitly take into account sponsor support would more than compensate for the modest rise in technical provisions and capital requirements. Despite the lower level of technical provisions, the existing aggregate surplus in PT would disappear as excess assets would be offset by negative sponsor support values. The substantial aggregate surplus in BE would turn into shortfall relative to the SCR of 5% of liabilities. A large part of IORPs in BE would substitute surpluses on the balance sheet by negative sponsor support values. The remaining part of IORPs will be confronted with a substantial SCR as a consequence of no or limited loss-absorbency of sponsor support. The IORP sector in IE has nearly enough (financial) assets to meet the funding requirement under the national regime, but would experience a large shortfall in example 2 due to the increase in technical provisions and the introduction of the SCR.

Figure 6.20: Decomposition of change in surplus over SCR compared to national regime, example 2

% liabilities national regime



Source: EIOPA

Note: The figure explains the difference between the surplus over the SCR in example 2 and the surplus over the funding requirement under the national regime. An increase in the value of assets (investments, sponsor support, (re)insurance recoverables, other assets) increases the surplus in example 2 compared to the national regime. An increase in the value of liabilities (technical provisions, other liabilities) as well as an increase in the capital requirement decreases the surplus in example 2 compared to national regime.

The contribution of the capital requirement of -7% of liabilities in PT does not reflect an increase in the capital requirement, but rather the difference between the value of national technical provisions reported in the QA and the lower value of national technical provisions that underlies the funding requirement in PT.

148. In some countries IORPs are to a greater extent affected by the SCR under this example, most notably due to a low incidence of unlimited, legally enforceable sponsor support, while in other countries IORPs are to a greater extent affected by the funding requirement. When considering the smallest surplus (or largest shortfall) relative to either the capital requirement or funding requirement in example 2, the surplus increases in aggregate by 8% of liabilities (see figure 6.21). The change is negative in BE, IE and PT, zero in the UK and positive in DE and NL.

149. IORPs representing almost 45% of aggregate liabilities experience a positive change in the surplus compared to the existing prudential regime, which is largely due to smaller shortfalls in NL (see figure 6.22). Especially in NL the quantitative requirements would be less strict than under the national regime, since liabilities could be discounted using the expected return on assets instead of a risk-free market interest rate. It should be noted though that the quantitative requirements in example 2 constitute minimum harmonisation rules which could be supplemented through national prudential law.

Figure 6.21: Overall change in surplus, minimum surplus SCR and funding requirement, example 2, end-2014

% liabilities current regime

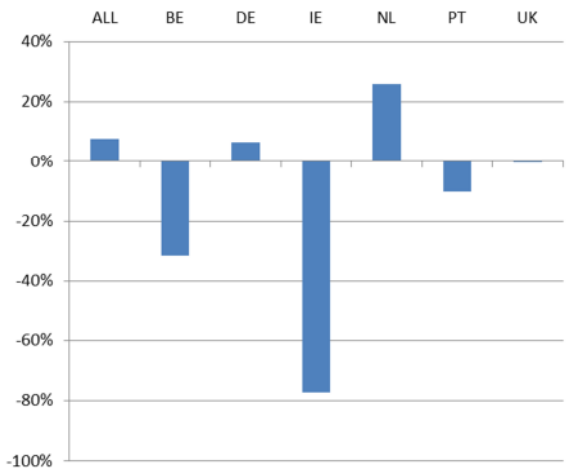
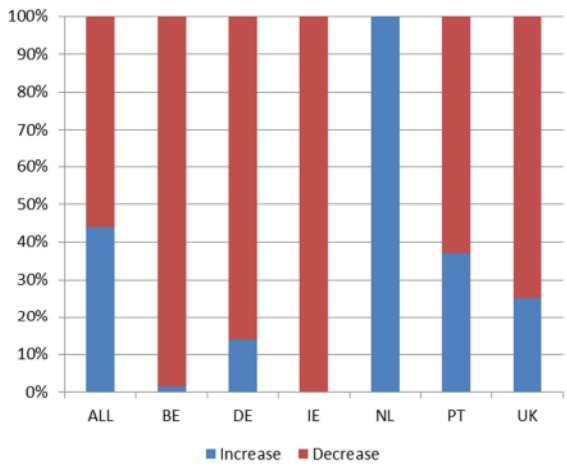


Figure 6.22: % IORPs experiencing increase/decrease in overall surplus, example 2, end-2014

% IORPs (liability weighted)



Source: EIOPA

150. The estimated aggregate shortfalls are not necessarily the same as the additional financial capital required to restore compliance with the SCR. The reason is that the additional financial capital paid into the IORP may affect the value of sponsor support and/or pure conditional benefits. A more favourable funding position will reduce the need for future sponsor support and ex ante benefit reduction.

6.4. Example 3

6.4.1. Description example 3

151. Example 3 of supervisory framework would introduce a capital requirement as well as a funding requirement at the EU level using a minimum harmonisation approach.

152. IORPs would be required to value the balance sheet on a market-consistent basis. The balance sheet should include legally enforceable sponsor support and pension protection schemes on the asset side and pure conditional benefits (incl. ex ante benefit reductions) on the liability side. Moreover, technical provisions should include a risk-margin based on the cost-of-capital approach. The balance sheet should not include non-legally enforceable sponsor support, mixed benefits, pure discretionary benefits, ex post benefit reductions and benefit reductions in case of sponsor default.

153. IORPs would have to comply with a solvency capital requirement (SCR) which is based on a market-consistent balance sheet. The SCR should be based on the prescribed (sub-)modules calibrated to a 99.5% confidence level, taking into account the loss-absorbing capacity of security and benefit adjustment mechanisms on the balance sheet, i.e. excluding non-legally enforceable sponsor support, mixed benefits, pure discretionary benefits, ex post benefit reductions and benefit reductions in case of sponsor default.

154. IORPs would be required to hold sufficient financial assets to cover the Level B best estimate of technical provisions based on the expected return on assets.

The Level B liabilities include pure conditional benefits (incl. ex ante benefit reductions), but exclude the risk margin, mixed benefits, pure discretionary benefits, ex post benefit reductions and benefit reductions in case of sponsor default.

155. Member states may lay down additional requirements through national prudential regulation with regard to the funding requirement and accompanying valuation standards. In the event of non-compliance with the capital and/or funding requirement, IORPs would be granted a recovery period in accordance with national prudential regulation of the home member state.

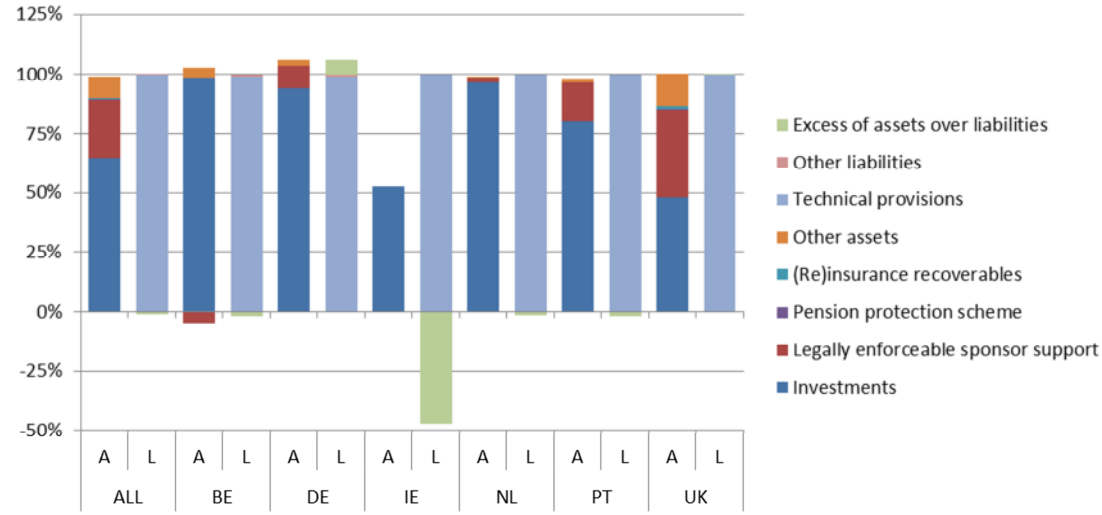
156. In addition to the above pillar 1 requirements, example 3 contains a pillar 2/3 framework which is the same as the common framework for risk assessment and transparency in example 6, but which excludes the standardised risk assessment (see section 6.7 for a discussion).

6.4.2. Balance sheet

157. The aggregate balance sheet shows an excess of assets over liabilities (EAL) of -1% of liabilities (see figure 6.23). The combined value of investments (64% of liabilities), legally enforceable sponsor support (25%), (re)insurance recoverables (1%) and other assets (9%) just falls short of the market-consistent value of liabilities.

Figure 6.23: Assets (A) and liabilities (L) on balance sheet, example 3

% total liabilities



Source: EIOPA

158. IORPs in BE, NL and PT have in aggregate a small negative EAL of -2% of liabilities, IORPs in DE and the UK have a modest to slight surplus. In aggregate IORPs in NL can almost cover liabilities with financial assets, recognising only a small value for legally enforceable sponsor support. A part of IORPs in BE disposes of an excess of financial assets over liabilities, but has reported negative sponsor support values, expecting that the excess funds will at some stage be returned to the sponsor. Other IORPs in BE and IORPs in DE, PT and the UK have included significant values of legally enforceable sponsor support. IE stands out compared to other countries with a substantial deficit. Investments cover only half of the market-consistent value of liabilities and IORPs would not

be able to recognise non-legally enforceable sponsor support under this example. Also in NL and PT part of IORPs dispose of non-legally enforceable sponsor which is not recognised in example 3.

159. The six-country aggregate value of technical provisions consists mainly of unconditional benefits (95% of liabilities) and to a lesser extent of pure conditional benefits (4%) and a risk margin (1%) (see figure 6.24).

160. About half of the sample of IORPs in DE and the whole sample of IORPs in NL provide their plan members with mixed benefits, which do not have to be included in technical provisions in example 3. The same holds true for pure discretionary benefits which a small share of BE IORPs dispose of. IORPs are not allowed to take into account ex post benefit reductions and benefit reductions in case of sponsor default, which are important adjustment mechanisms in in IE and NL and to a lesser extent in BE, DE, PT and the UK. Example 3 does include ex ante benefit reductions, of which DE IORPs reported a value of-8% of liabilities.

Figure 6.24: Breakdown technical provisions, example 3

% total liabilities

Source: EIOPA

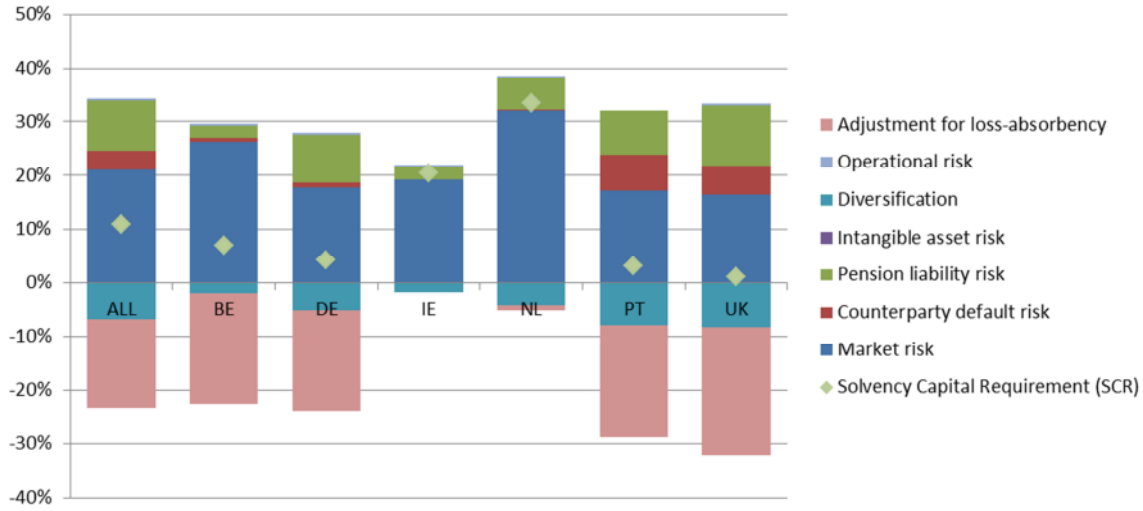
6.4.3. SCR

161. The six-country aggregate SCR amounts to 11% of total liabilities (see figure 6.25). The aggregate adjustment for loss-absorbency can only partly offset the gross risk charges for the five SCR modules taking into account the effect of diversification.

162. IE and NL are in aggregate confronted with a relatively high SCR, as (most) IORPs are not covered by legally enforceable sponsor support. In BE, DE, PT and the UK legally enforceable sponsor support is able to absorb most of the gross risk exposure. Moreover, part of DE IORPs dispose of an ex ante benefit reduction mechanism or a pension protection scheme. However, the aggregate SCR is not zero in these four countries as not all IORPs dispose of sufficiently strong legally enforceable sponsor support providing full loss-absorbency or - in case of DE - an ex ante benefit reduction mechanism or pension protection scheme that guarantees the full level of benefits. Moreover, in some IORPs in DE and the UK part of the losses is absorbed by the available excess of assets over liabilities.

Figure 6.25: Breakdown solvency capital requirement, example 3

% total liabilities



Source: EIOPA

6.4.4. Capital and funding requirements

163. IORPs in the six participating countries experience in aggregate shortfall relative to the capital requirements of -12% of liabilities, which equals the difference between the EAL (-1%) and the SCR (11%) (see figure 6.26). The shortfalls are most pronounced in IE and NL where the incidence of unlimited, legally enforceable sponsor support is low. In BE, DE, PT and the UK most IORPs are covered by legally enforceable sponsor support which can often provide full loss-absorbency in the SCR. Moreover, IORPs in DE often dispose of an ex ante benefit reduction mechanism or pension protection scheme that guarantees the full level of benefits.

Figure 6.26: Excess of assets over liabilities, SCR and surplus over SCR, example 3, end-2014

% total liabilities

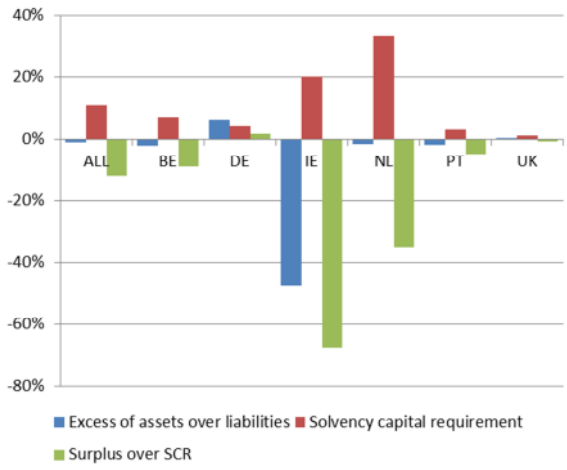
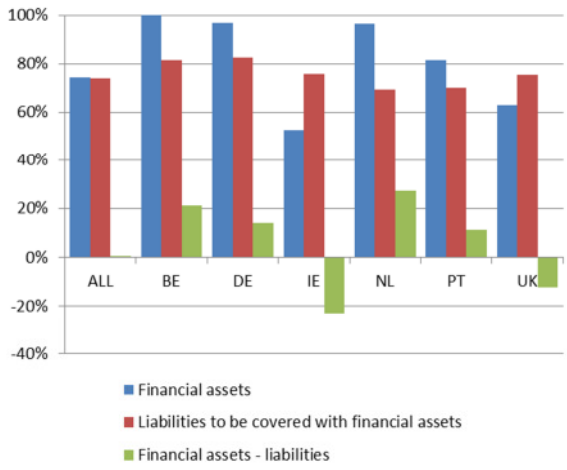


Figure 6.27: Financial assets and liabilities to be covered by financial assets, example 3, end-2014

% total liabilities



Source: EIOPA

164. The aggregate amount of financial assets in the six countries almost exactly matches the Level B best estimate of technical provisions (see figure 6.27). In the majority of countries aggregate financial assets exceed the Level B liabilities. This is not the case in IE and the UK where the IORP sectors would experience shortfalls of respectively -23% and -12% of liabilities.

165. IORPs representing about two thirds of aggregate liabilities are able to comply with the SCR (see figure 6.28). These are predominantly IORPs in BE, DE, PT and UK which are covered by sufficiently strong legally enforceable sponsor support or - in case of DE - an ante benefit reduction mechanisms or pension protection scheme. Almost 40% of IORPs are able to cover the Level B best estimate of technical provisions with financial assets (see figure 6.29). In DE, NL and PT (almost) all IORPs are able to meet the funding requirement, in BE this is the case for 70% of liability-weighted IORPs.

Figure 6.28: % IORPs experiencing surplus/shortfall relative to SCR, example 3, end-2014

% IORPs (liability weighted)

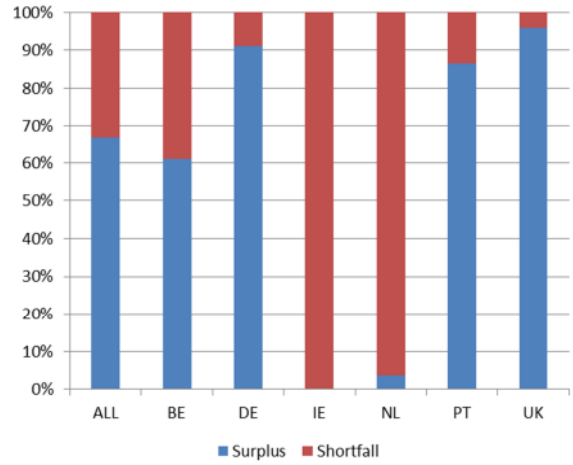
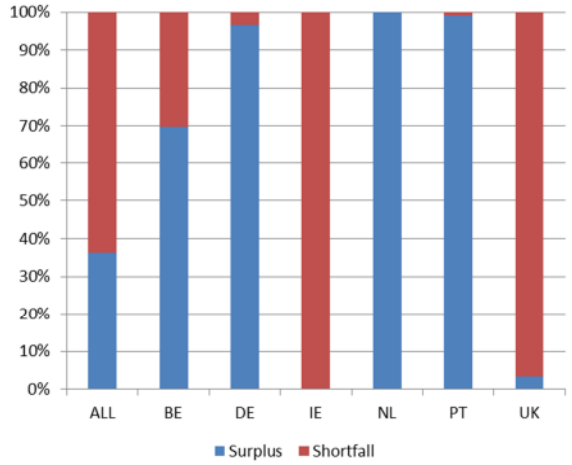


Figure 6.29: % IORPs experiencing surplus/shortfall with respect to funding requirement, example 3, end-2014

% IORPs (liability weighted)



Source: EIOPA

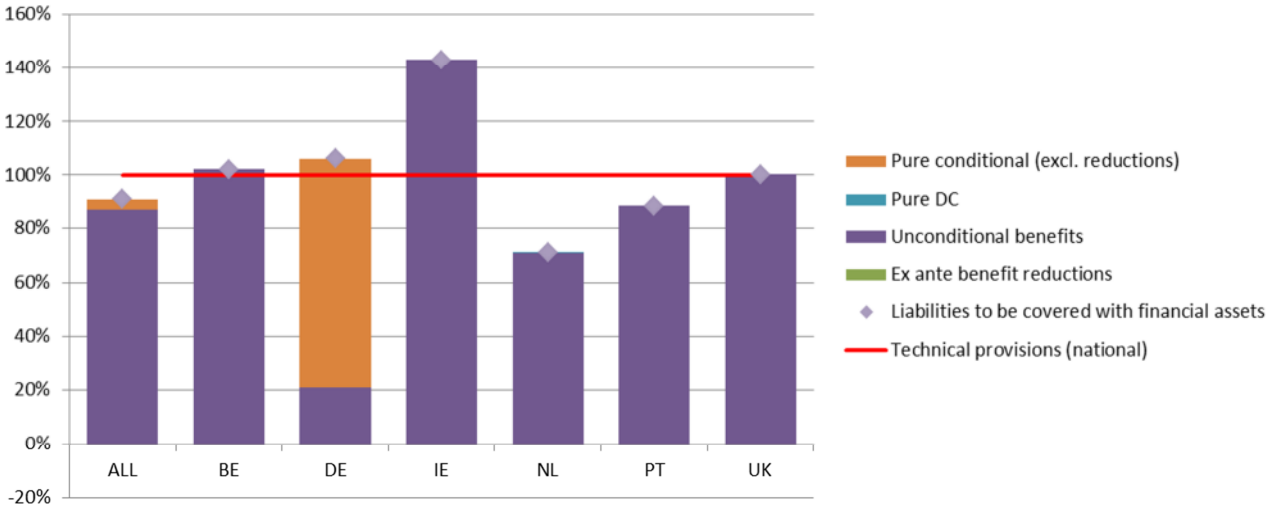
6.4.5. Comparison with national regime

166. The Level B best estimate of technical provisions is on average 9% lower than the value of technical provisions under the national regimes (see figure 6.30). This is predominantly due to a substantial decline in NL and to a lesser extent PT, which currently value liabilities with respectively a risk-free interest rate curve and AA corporate bond yield. In BE, DE and UK the Level B liabilities are in aggregate more or less the same as national technical provisions. In IE the Level B liabilities exceed national technical provisions by more than 40%.

167. The Level A technical provisions on the prudential balance sheet are on average 23% higher than technical provisions under the national regimes. Most countries would experience a substantial increase. The application of the risk-free interest rate implies a lower discount rate and a risk margin would have to be included in technical provisions. NL would only face a small increase due to the addition of a risk margin, since IORPs already have to value liabilities using a risk free rate.

Figure 6.30: Liabilities to be covered by financial assets compared to technical provisions current regime, example 3

% technical provisions current regime



Source: EIOPA

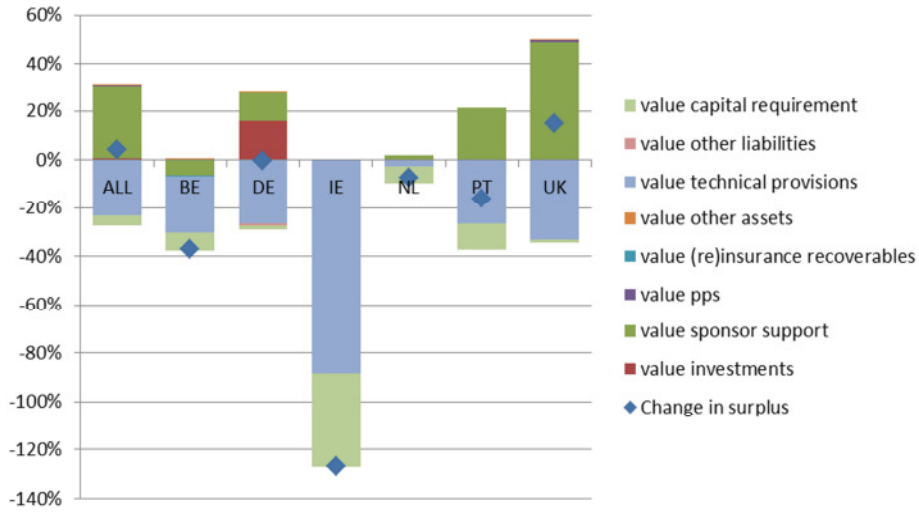
168. Despite the overall rise in technical provisions, there is in aggregate a positive change in the surplus over the capital requirement compared to current national regimes (see figure 6.31). The aggregate shortfall under the national regime of -19% of liabilities diminishes to a shortfall over the SCR of -12% of liabilities in example 3. The negative contribution of higher technical provisions and capital requirements is more than offset by a higher (market) value of investments and, most importantly, the explicit recognition of sponsor support on the balance sheet.

169. The existing shortfalls would almost disappear in the UK under this example. Most UK IORPs were eligible to use the balancing item approach to valuing sponsor support, providing full loss-absorbency in the SCR. Other IORPs covered by insufficiently strong sponsor support would still experience a much smaller shortfall compared to the national regime.

170. All other countries would experience a negative change in the surplus over the SCR, ranging from a marginal decline in DE to a large drop in IE. The DE IORP sector would maintain its current surpluses, although slightly smaller in size, as the increase in technical provisions is in aggregate compensated by a higher (market) value of investments and sponsor support. In BE and PT existing surpluses will turn into aggregate shortfalls of respectively -9% and -5% of liabilities. A large part of IORPs in BE and PT would meet the SCR because of strong sponsor support, but no longer have surpluses. This is especially the case in BE where IORPs compensate excess financial assets with negative sponsor support. However, part of IORPs in both countries will be faced with shortfalls in the absence of sufficiently strong legally enforceable sponsor support. The substantial current shortfall in NL widens somewhat, mainly because of a higher SCR compared to the national risk-based buffer requirement. Due to the rise in technical provisions and the introduction of the SCR, IE would be confronted with a large shortfall, where IORPs currently almost meet national funding requirements.

Figure 6.31: Decomposition of change in surplus over SCR compared to national regime, example 3

% liabilities national regime



Source: EIOPA

Note: The figure explains the difference between the surplus over the SCR in example 3 and the surplus over the funding requirement under the national regime. An increase in the value of assets (investments, sponsor support, pps, (re)insurance recoverables, other assets) increases the surplus in example 3 compared to the national regime. An increase in the value of liabilities (technical provisions, other liabilities) as well as an increase in the capital requirement decreases the surplus in example 3 compared to national regime.

The contribution of the capital requirement of -11% of liabilities in PT reflects only partly an increase in the capital requirement (-4%). It represents for the most part (-7%) the difference between the value of national technical provisions reported in the QA and the lower value of national technical provisions that underlies the funding requirement in PT.

171. In some countries IORPs are to a greater extent affected by the SCR under this example, most notably due to a low incidence of unlimited, legally enforceable sponsor support, while in other countries IORPs are to a greater extent affected by the funding requirement. When considering the smallest surplus (or largest shortfall) relative to either the capital requirement or funding requirement in example 3, the surplus decreases in aggregate by 5% of liabilities (see figure 6.32). In DE and the UK this combined measure of the surplus stays roughly the same compared to the national regime. The other countries experience an above average fall of the overall surplus, ranging from -8% in NL to -127% of current liabilities in IE.

172. 15% of IORPs experience a positive change in the surplus compared to the existing prudential regime (see figure 6.33). An above-average proportion of IORPs with a positive change in the surplus can be found in PT (40%) and the UK (20%).

Figure 6.32: Overall change in surplus, minimum surplus SCR and funding requirement, example 3, end-2014

% liabilities current regime

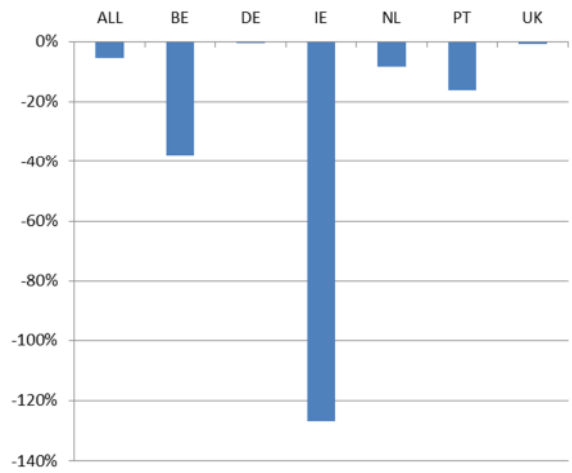
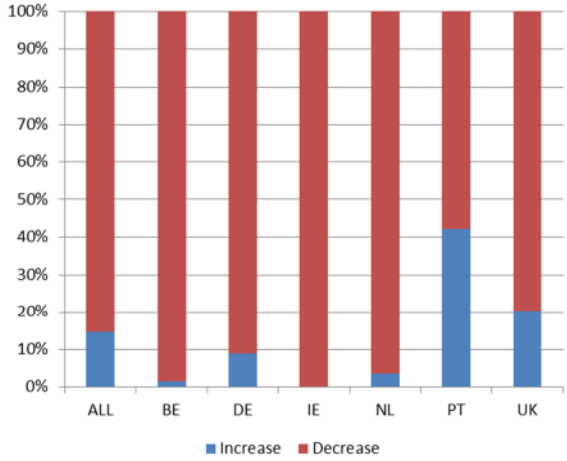


Figure 6.33: % IORPs experiencing increase/decrease in overall surplus, example 3, end-2014

% IORPs (liability weighted)



Source: EIOPA

173. The estimated aggregate shortfalls are not necessarily the same as the additional financial capital required to restore compliance with the SCR. The reason is that the additional financial capital paid into the IORP may affect the value of sponsor support and/or pure conditional benefits. A more favourable funding position will reduce the need for future sponsor support and ex ante benefit reductions.

6.5. Example 4

6.5.1. Description example 4

174. Example 4 of supervisory framework would introduce a capital requirement as well as a funding requirement at the EU level using a minimum harmonisation approach.

175. IORPs would be required to value the balance sheet on a market-consistent basis. The balance sheet should include legally enforceable sponsor support, non-legally enforceable sponsor support and pension protection schemes on the asset side and pure conditional benefits (incl. ex ante benefit reductions), ex post benefit reductions and benefit reduction in case of sponsor default on the liability side. Moreover, technical provisions should include a risk-margin based on the cost-of-capital approach. The balance sheet should not include mixed benefits and pure discretionary benefits.

176. IORPs would have to comply with a solvency capital requirement (SCR) which is based on a market-consistent balance sheet. The SCR should be based on the prescribed (sub-)modules calibrated to a 99.5% confidence level, taking into account the loss-absorbing capacity of security and benefit adjustment mechanisms on the balance sheet, i.e. excluding mixed benefits and pure discretionary benefits.

177. IORPs would be required to hold sufficient financial assets to cover the Level B best estimate of technical provisions based on the expected return on assets. The Level B liabilities include pure conditional benefits, but exclude the risk

margin, mixed benefits, pure discretionary benefits, ex ante benefit reductions, ex post benefit reductions and benefit reductions in case of sponsor default.

178. Member states may lay down additional requirements through national social and labour law with regard to the funding requirement and accompanying valuation standard. In the event of non-compliance with the capital and/or funding requirement, IORPs would be granted a recovery period in accordance with national social and labour law of the host member state.

6.5.2. Balance sheet

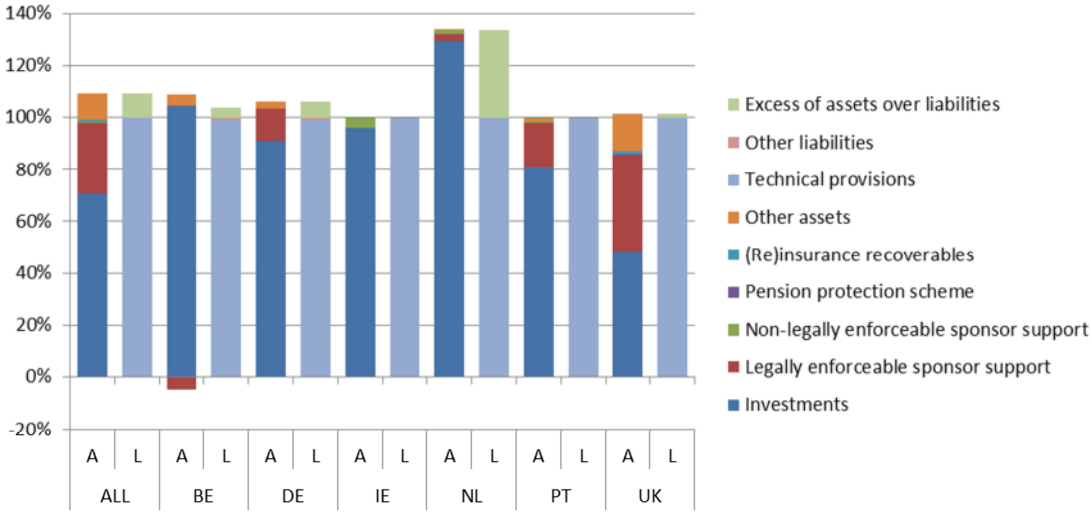
179. The aggregate balance sheet shows an excess of assets over liabilities (EAL) of 9% of liabilities (see figure 6.34). The combined value of investments (71% of liabilities), legally enforceable sponsor support (27%), (re)insurance recoverables (1%) and other assets (10%) exceeds the market-consistent value of liabilities.

180. IORPs in all countries have a non-negative EAL. The reason is that all available security mechanisms (legally enforceable sponsor support, non-legally enforceable sponsor support and pension protection schemes) should be included on the asset-side and all benefit reduction mechanisms (ex ante benefit reductions, ex post benefit reductions and benefit reductions in case of sponsor default) on the liability-side of the balance sheet.

181. IORPs did not have to recognise mixed benefits and pure discretionary benefits on the prudential balance sheet, which contributes to the positive EAL in BE, DE and NL. A small part of IORPs in BE provide pure discretionary benefits, while more than half respectively all IORPs in DE and NL provide mixed benefits.

Figure 6.34: Assets (A) and liabilities (L) on balance sheet, example 4

% total liabilities



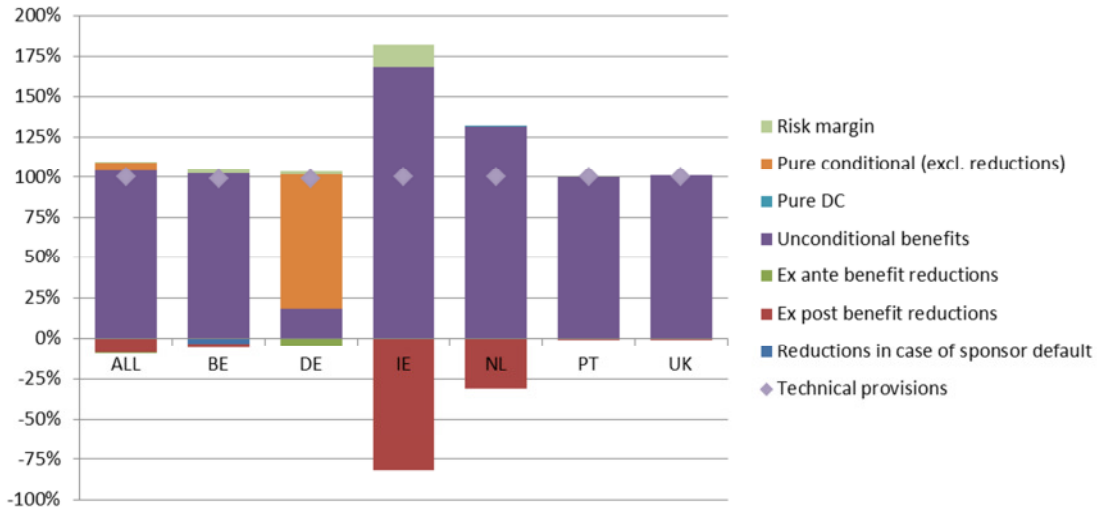
Source: EIOPA

182. The six-country aggregate value of technical provisions consists mainly of unconditional benefits (104%) and to a lesser extent of pure conditional benefits (5%) and ex post benefit reductions (-9%) (see figure 6.35). Benefit reductions are most pronounced in IE and to a lesser degree NL, but also IORPs in BE, DE, PT and UK recognised in aggregate a small amount for benefit reduction

mechanisms. IE and part of IORPs in BE and DE have added a risk margin to the best estimate of technical provisions, which is on the six-country aggregate level not significantly different from 0%.

Figure 6.35: Breakdown technical provisions, example 4

% total liabilities

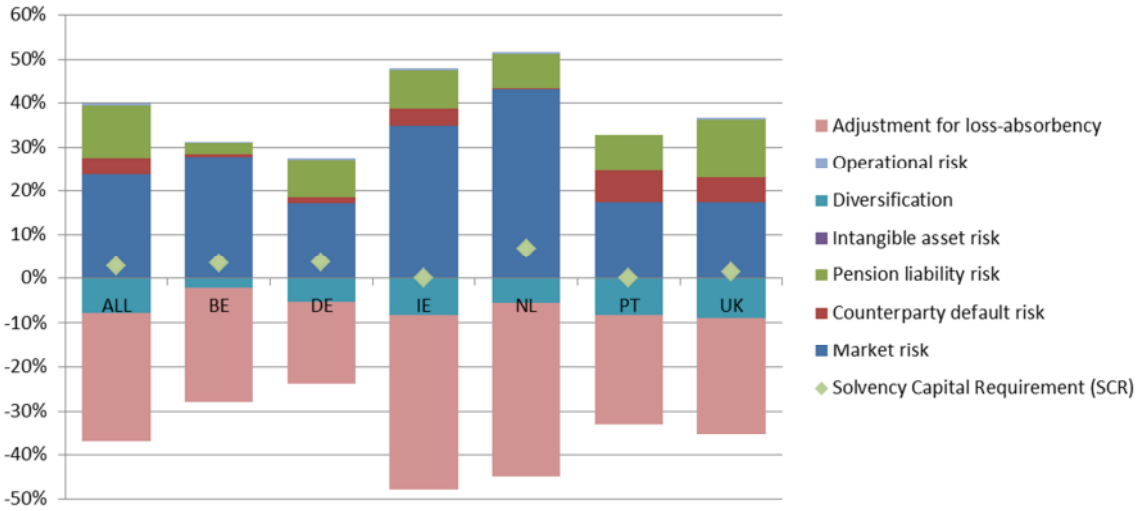


Source: EIOPA

Note: The value of ex post benefit reductions in NL (31% of liabilities) exceeds the shortfall between assets and liabilities incl. mixed benefits and excl. ex post benefit reductions (10% of liabilities). NL IORPs did not apply a deterministic/balancing item approach, but rather a stochastic valuation to establish the value of benefit reductions.

Figure 6.36: Breakdown solvency capital requirement, example 4

% total liabilities



Source: EIOPA

6.5.3. SCR

183. The aggregate SCR is slightly positive with a value of 3% of total liabilities (see figure 6.36). IORPs in IE and PT dispose of security and benefit adjustment mechanisms which achieve full loss-absorbency in the SCR. The aggregate adjustment for loss-absorbency in BE, DE, NL and the UK does not fully offset the gross risk charges for the different SCR modules, after allowing for the effect of diversification. Some IORPs in BE, DE and NL provide pure discretionary benefits or mixed benefits of which the loss-absorbing capacity cannot be taken into account under this example, but the upward effect on the SCR will be offset by a higher EAL. Part of IORPs in DE and UK absorb the first losses through the available excess of assets over liabilities.

6.5.4. Capital and funding requirements

184. The six-country aggregate excess of assets over liabilities (EAL) comfortably exceeds the capital requirement, resulting in a surplus over the SCR of 6% of liabilities (see figure 6.37). IORPs in all countries have a non-negative surplus over the SCR, as all security mechanisms and benefit reduction mechanisms are included in this example. IORPs in DE and especially NL have in aggregate a surplus over the SCR.

185. Aggregate financial assets in the six countries (almost) exactly match the Level B best estimate of technical provisions (see figure 6.38). IORPs in IE and UK dispose of aggregate shortfalls. In the other countries IORPs have in aggregate surplus of financial assets over the Level B best estimate of technical provisions.

Figure 6.37: Excess of assets over liabilities, SCR and surplus over SCR, example 4, end-2014

% total liabilities

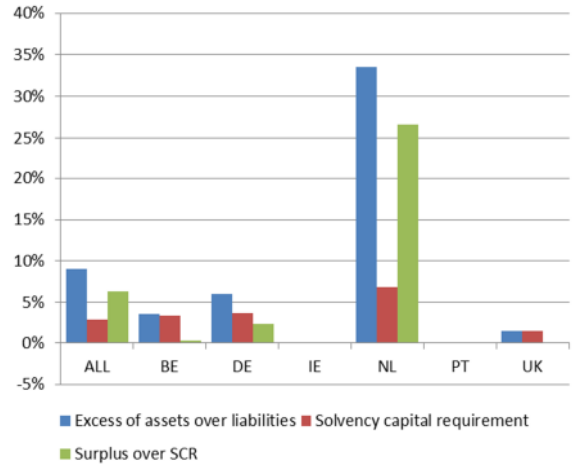
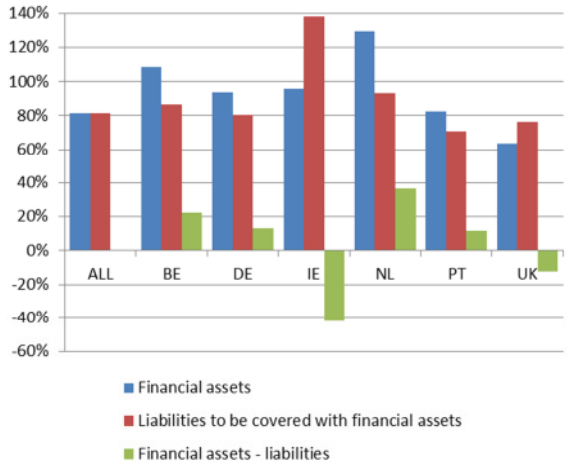


Figure 6.38: Financial assets and liabilities to be covered by financial assets, example 4, end-2014

% total liabilities



Source: EIOPA

186. All IORPs are able to comply with the SCR in example 4 since the balance sheet includes all security and benefit adjustment mechanisms (see figure 6.39).

187. One-third of IORPs are able to cover the Level B best estimate of technical provisions with financial assets (see figure 6.40). In DE, NL and PT (almost) all

IORPs are able to meet this tiering requirement, in BE this is the case for 70% of liability-weighted IORPs.

Figure 6.39: % IORPs experiencing surplus/shortfall relative to SCR, example 4, end-2014

% IORPs (liability weighted)

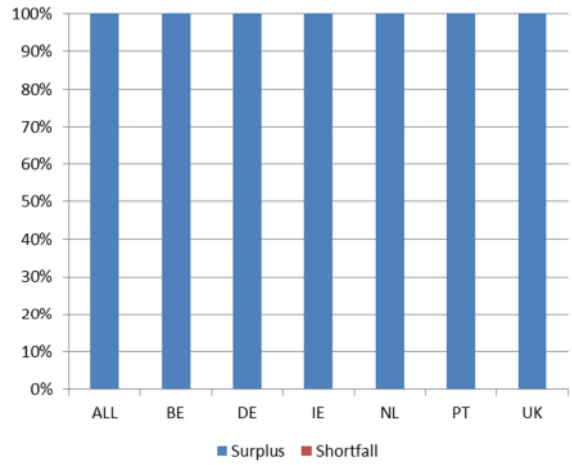
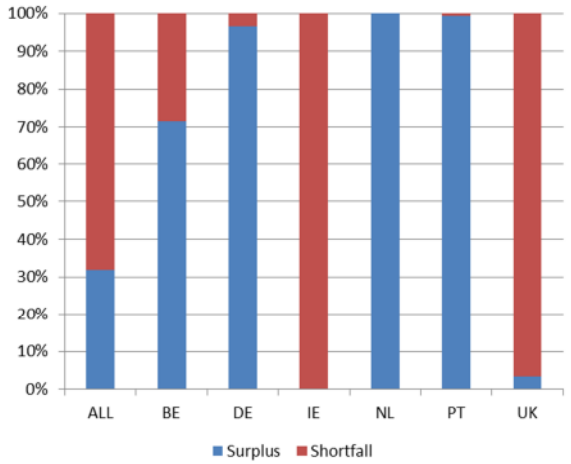


Figure 6.40: % IORPs experiencing surplus/shortfall with respect to funding requirement, example 4, end-2014

% IORPs (liability weighted)



Source: EIOPA

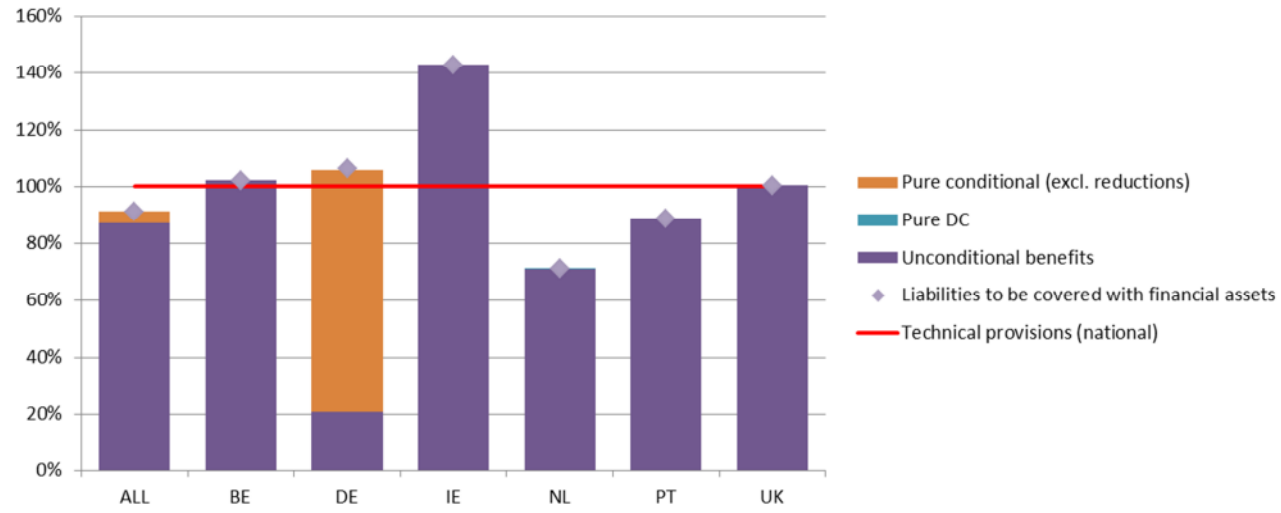
6.5.5. Comparison with national regime

188. The Level B best estimate of technical provisions (to be covered with financial assets) is on average 9% lower than the value of technical provisions under the national regimes (see figure 6.41). This is due to a substantial decline in NL and to a lesser extent PT, which currently value liabilities with respectively a risk-free interest rate curve and AA corporate bond yield. In BE, DE and UK the Level B liabilities are in aggregate more or less the same as national technical provisions. In IE the Level B liabilities exceed national technical provisions by more than 40%.

189. The Level A technical provisions on the prudential balance sheet are on average 12% higher than technical provisions under the national regimes. The most important reason is that discounting with the risk-free interest rate increases liabilities in all countries with the exception of NL. The increase due to the risk free interest rate is mitigated by the inclusion of benefit reductions in technical provisions. Especially in IE and NL, large values of ex post benefit reductions were recognised. As a consequence, Level A technical provisions are in aggregate only 4% higher in IE and as much as 24% lower in NL in comparison to the national regimes.

Figure 6.41: Level B liabilities to be covered by financial assets compared to technical provisions current regime, example 4

% technical provisions current regime



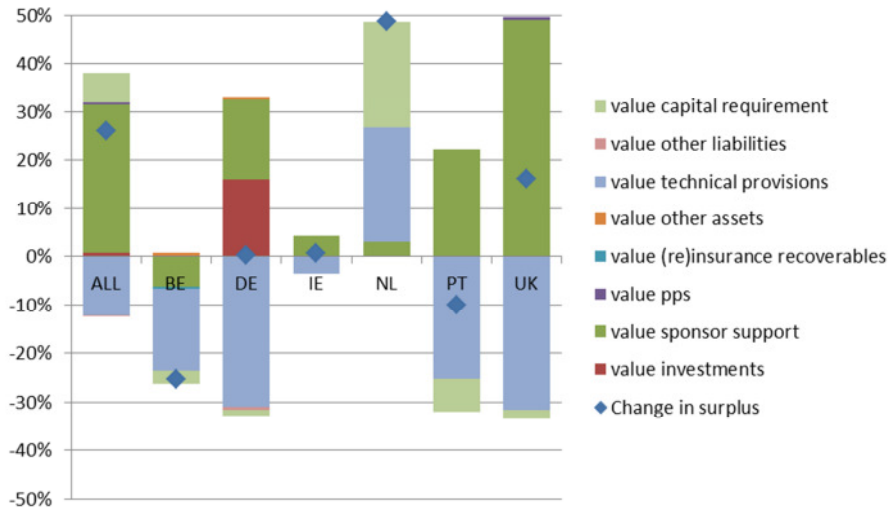
Source: EIOPA

190. Despite the overall rise in technical provisions, there is in aggregate a positive change in the surplus over the capital requirement compared to current national regimes (see figure 6.42). The existing aggregate shortfall of -19% of liabilities turns into a surplus over the SCR of 6% of liabilities in example 4.

191. The substantial deficits in NL and the UK with respect to the national funding requirements would disappear. IORPs in NL would experience strong decline in technical provisions as well as the capital requirement, mostly due to the possibility to take into account ex post benefit reductions. UK IORPs would be allowed to explicitly recognise a value for sponsor support, which for most IORPs would cover the shortfall of financial assets relative to the increased Level A value of technical provisions. The current surplus in DE would nearly stay the same as the negative impact of higher technical provisions is compensated by a higher (market) value of investments and the inclusion of sponsor support. While experiencing a marginal deficit under the national regime, IE IORPs would exactly meet the SCR in example 4, mainly because ex post benefit reductions offset the higher value of unconditional benefits and provide full loss-absorbency in the SCR. In BE and PT IORPs would be able to comply with the SCR, but the existing surpluses under the national regimes would vanish. Part of IORPs in BE report negative sponsor support, considering that an excess of financial assets will eventually be paid back to the sponsor.

Figure 6.42: Decomposition of change in surplus over SCR compared to national regime, example 4

% liabilities national regime



Source: EIOPA

Note: The figure explains the difference between the surplus over the SCR in example 4 and the surplus over the funding requirement under the national regime. An increase in the value of assets (investments, sponsor support, pps, (re-)insurance recoverables, other assets) increases the surplus in example 4 compared to the national regime. An increase in the value of liabilities (technical provisions, other liabilities) as well as an increase in the capital requirement decreases the surplus in example 4 compared to national regime.

The contribution of the capital requirement of -7% of liabilities in PT does not reflect an increase in the capital requirement, but rather the difference between the value of national technical provisions reported in the QA and the lower value of national technical provisions that underlies the funding requirement in PT.

192. In some countries IORPs often experience a smaller surplus over the SCR than with respect to funding requirement under this example, while in other countries IORPs frequently a smaller surplus (or larger shortfall) relative to the funding requirement. When considering the smallest surplus (or largest shortfall in case of the funding requirement) relative to either the capital requirement or funding requirement (see figure 6.43), the surplus increases in aggregate by 15% of liabilities

193. IORPs in NL experience in aggregate a positive change. The current shortfalls in NL would disappear as the possibility to include ex post benefit reductions would result in large surplus over the SCR regardless of the level of funding. In addition, NL IORPs would only have to cover the Level B best estimate with financial assets, where technical provisions are now based on risk-free market rate. IORPs in BE and PT would exactly meet the SCR instead of having surpluses of respectively 26% and 10% of liabilities.

194. 40% of IORPs experience a positive change in the surplus compared to the existing prudential regime, which mostly consist of NL, PT and UK IORPs (see figure 6.44).

195. Particularly in NL the quantitative requirements under example 4 would be less stringent than under the national regime. However, the quantitative requirements constitute minimum rules which could be supplemented through national social and labour law.

Figure 6.43: Overall change in surplus, minimum surplus SCR and funding requirement, example 4, end-2014

% liabilities current regime

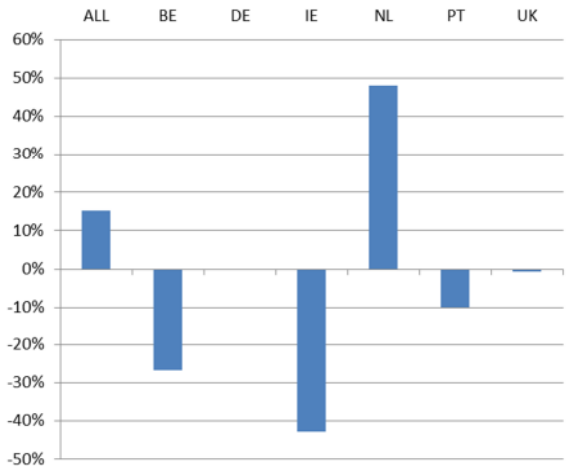
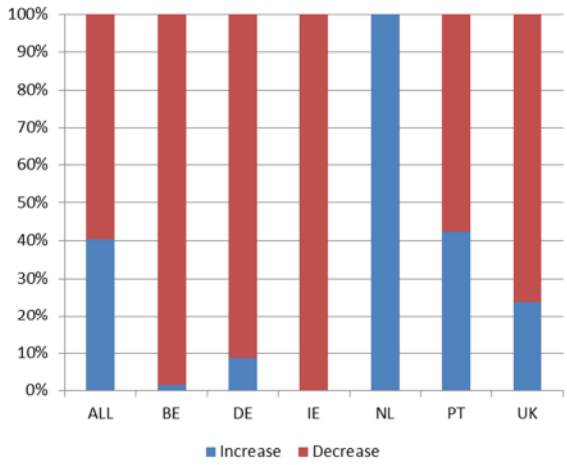


Figure 6.44: % IORPs experiencing increase/decrease in overall surplus, example 4, end-2014

% IORPs (liability weighted)



Source: EIOPA

6.6. Example 5

6.6.1. Description example 5

196. Example 5 of supervisory framework would introduce harmonised valuation standards underlying the current minimum capital and funding requirements at the EU level.

197. IORPs would be required to value the balance sheet on a market-consistent basis. The balance sheet should include pure conditional benefits (incl. ex ante benefit reductions) and mixed benefit on the liability side. Moreover, technical provisions should include a risk-margin based on the cost-of-capital approach. The balance sheet should not include sponsor support, pension protection schemes, pure discretionary benefits, ex post benefit reductions and benefit reductions in case of sponsor default.

198. IORPs would have to comply with the existing minimum capital requirements on a market-consistent balance sheet. The existing regulatory own funds requirement of Article 17(1) of the IORP Directive will continue to apply to IORPs where the institution itself, and not the sponsoring undertaking, underwrites the liabilities to cover against biometric risk, or guarantees a given investment performance or a given level of benefits.

199. Member states may continue to lay down additional capital requirements through national prudential legislation, in accordance with Art. 17(3) of the IORP Directive. In the event of non-compliance with the capital and/or funding

requirement, IORPs would be granted a recovery period in accordance with national social and labour law of the host member state.

200. IORPs would be required to hold sufficient financial assets to cover the Level A technical provisions. The Level A liabilities are the same as technical provisions on the balance sheet, including pure conditional benefits (incl. ex ante benefit reductions), mixed benefits and the risk margin, but excluding pure discretionary benefits, ex post benefit reductions and benefit reductions in case of sponsor default.

201. In addition to the above pillar 1 requirements, example 5 includes a common framework for risk assessment and transparency in pillar 2/3 which is identical to example 6 (see section 6.7 for a discussion).

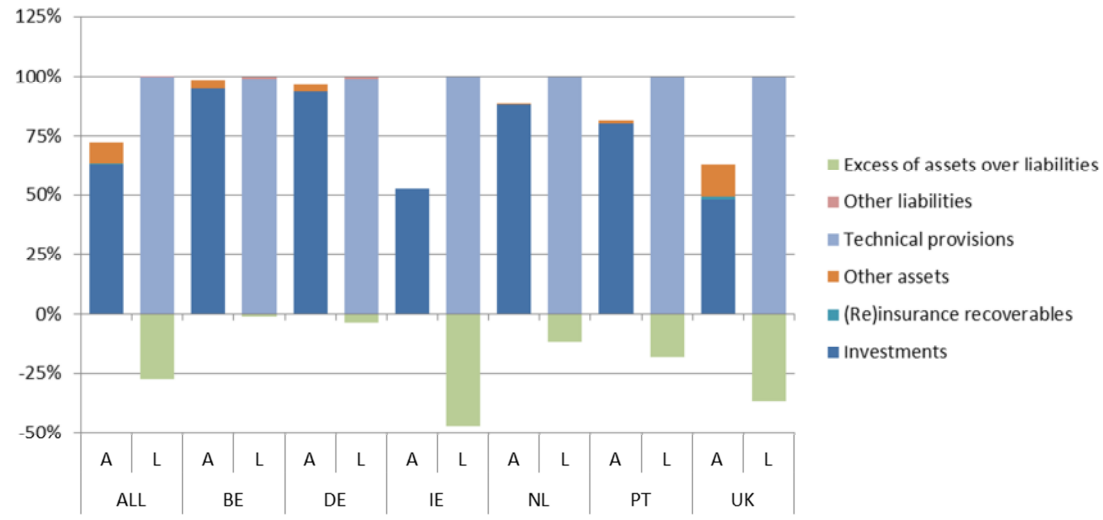
6.6.2. Balance sheet

202. The aggregate six-country balance sheet shows an excess of assets over liabilities (EAL) of -28% of liabilities (see figure 6.45). The combined value of investments (63% of liabilities), (re)insurance recoverables (1%) and other assets (9%) is lower than the value of liabilities. Example 5 only aims to harmonise the valuation of technical provisions. IORPs are not allowed to recognise sponsor support and pension protection schemes on the asset-side of the balance sheet.

203. IORP sectors in all countries experience an aggregate shortfall relative to liabilities, ranging from -1% of liabilities in BE to -47% of liabilities in IE.

Figure 6.45: Assets (A) and liabilities (L) on balance sheet, example 5

% total liabilities



Source: EIOPA

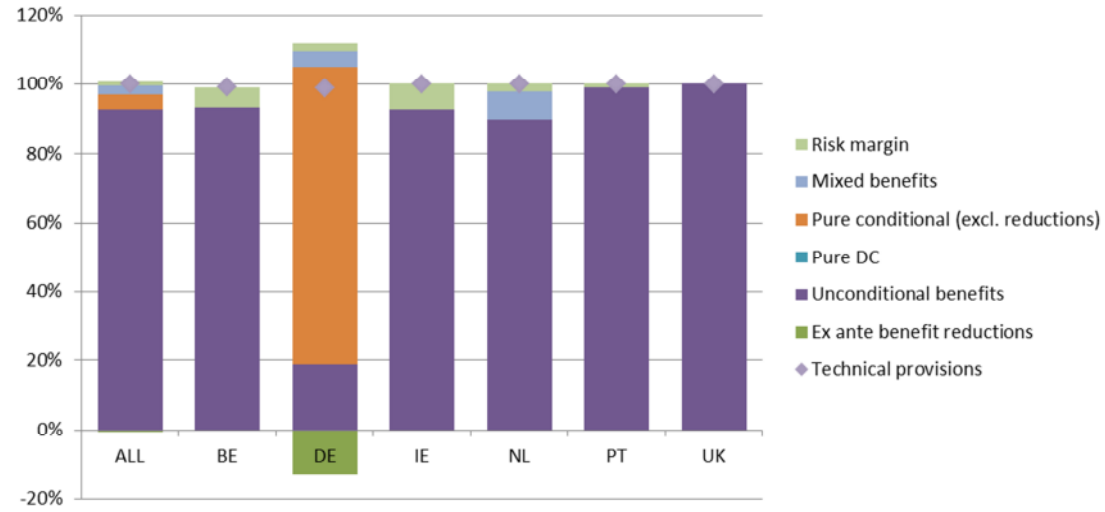
204. The six-country aggregate value of technical provisions consists mainly of unconditional benefits (93% of liabilities) and to a lesser extent of pure conditional benefits (4%), mixed benefits (3%), ex ante benefit reductions (-1%) and a risk margin (1%) (see figure 6.46). IORPs are not allowed to take into account ex post benefit reductions and benefit reductions in case of sponsor default, but ex ante benefit reductions should be included in technical provisions,

as part of pure conditional benefits. Moreover, example 5 excludes pure discretionary benefits

205. The quantitative results of example 5 are to a large extent derived from the baseline scenario 1, which includes all security and benefit adjustment mechanisms. As a consequence, many participants reported a risk margin of zero because risks are not borne by the IORP, but instead by sponsors, pension protection schemes and members and beneficiaries. Over 20% of IORPs reported their own calculations for example 5, providing in many cases an alternative value for the risk margin. Most IORPs in BE provided an adjusted value for the risk margin, while IE already included a risk margin in baseline scenario 1. This implies that especially in the other countries the risk margin may have been understated.

Figure 6.46: Breakdown technical provisions, example 5

% total liabilities



Source: EIOPA

6.6.3. SCR

206. Example 5 does not impose a solvency capital requirement (SCR). Instead, IORPs are expected to comply with the existing regulatory own funds requirement, in accordance with Article 17.1 of the IORP Directive, where the institution itself underwrites liabilities and not the sponsoring undertaking. The regulatory own funds requirement may be supplemented by additional buffer requirements on the national level.

6.6.4. Capital and funding requirements

207. The size of the capital requirement varies between countries, ranging from 0% in PT to 11% in NL (see figure 6.47). The reporting template included a default value of 5% of liabilities, assuming that the liabilities are underwritten by the institution itself, instead of the sponsor, and that no additional national buffer requirements apply. Part of IORPs provided a zero regulatory own funds requirement, most notably in DE, PT and the UK. Since risks are borne by the sponsoring undertaking, IORPs in BE should also have considered to set the regulatory own funds requirement to zero, but they did not do so. Part of IORPs in NL reported a higher figure, reflecting the national risk-based buffer requirement. All in all, the capital requirement in example 5 is somewhat higher in BE, IE and the UK compared to the current regime. In NL the capital

requirement is significantly lower than the aggregate national buffer requirement of 27% of liabilities reported for the current regime.

208. The six-country aggregate capital requirement amounts to 6% of liabilities. Considering the overall EAL of -28% of liabilities, this implies a shortfall relative to the capital requirement of -34% of liabilities. In line with excess of assets over liabilities, all member states experience aggregate shortfalls, ranging from -6% in BE to -52% of liabilities in IE.

209. The shortfalls relative to the liabilities to be covered with financial assets are the same as the EALs on the prudential balance sheet (see figure 6.48), as discussed above. In example 5 there is no distinction between 'assets' and 'financial assets' since sponsor support and pension protection schemes are not included.

Figure 6.47: Excess of assets over liabilities, capital requirement and surplus over capital requirement, example 5, end-2014

% total liabilities

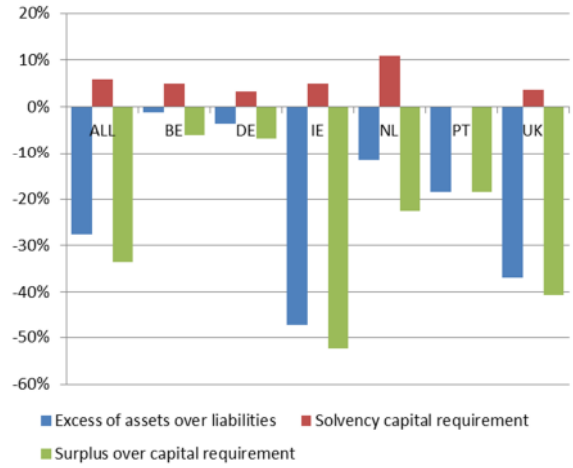
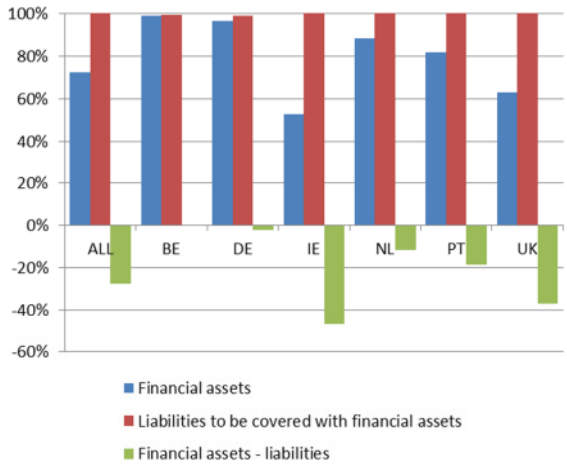


Figure 6.48: Financial assets and liabilities to be covered by financial assets, example 5, end-2014

% total liabilities



Source: EIOPA

210. IORPs representing only 3% of aggregate liabilities are able to comply with the capital requirement (see figure 6.49). Only 5% of IORPs are able to cover the Level A technical provisions with financial assets (see figure 6.50). These are predominantly IORPs in BE with already high buffers under the national regime and in DE which dispose of an ex ante reduction mechanism, which is included in technical provisions.

211. The share of DE IORPs meeting the Level A liabilities with financial assets in example 5 is considerably higher than in example 1, despite the same definition of Level A liabilities being employed. The reason is that DE IORPs representing a significant proportion of aggregate liabilities provided its own calculations for example 5. These IORPs reported a higher value of ex ante benefit reductions as compared to example 1 by applying the balancing item approach to value the ex ante benefit reduction mechanism under the assumption that sponsor support would not be available to support the pension promise.

Figure 6.49: % IORPs experiencing surplus/shortfall relative to capital requirement, example 5, end-2014

% IORPs (liability weighted)

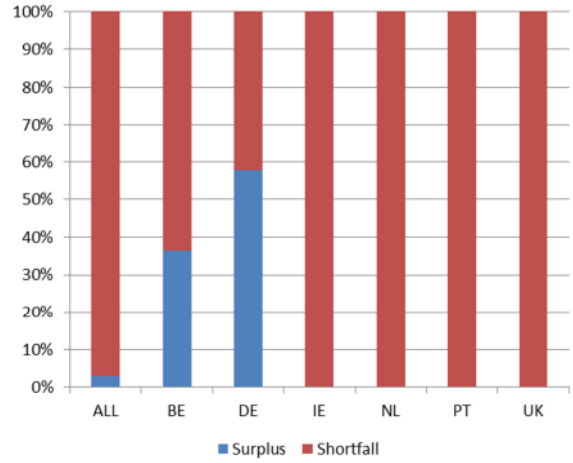
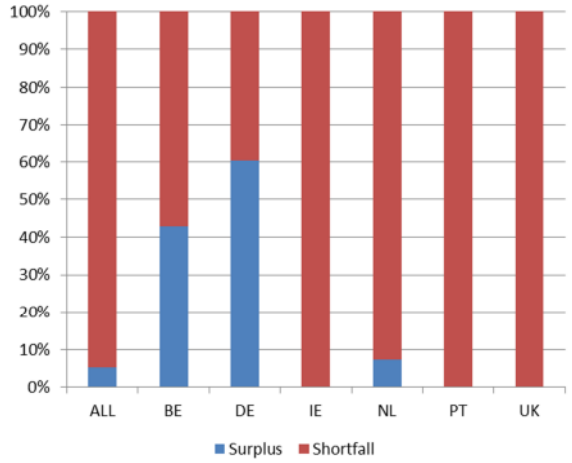


Figure 6.50: % IORPs experiencing surplus/shortfall with respect to funding requirement, example 5, end-2014

% IORPs (liability weighted)



Source: EIOPA

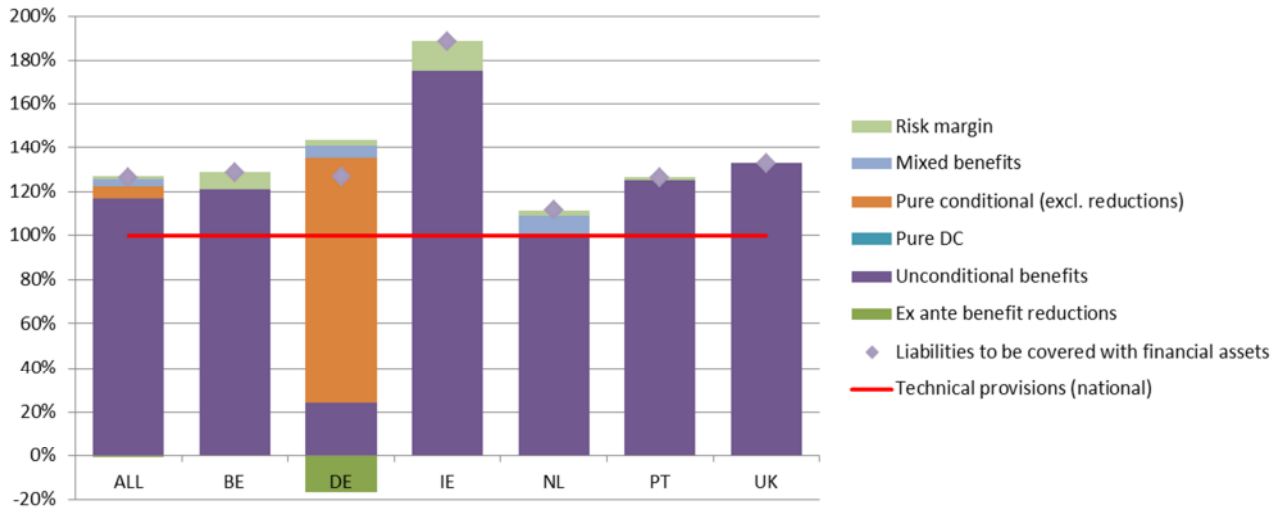
6.6.5. Comparison with national regime

212. Technical provisions on the common balance sheet as well as the liabilities to be covered with financial assets are on average 26% higher than technical provisions reported under the national regimes (see figure 6.51). The most important reason is that liabilities have to be valued on a market-consistent basis. This has an upward effect on technical provisions in all countries with the exception of NL, where pension obligations are already valued using a risk-free market interest rate. IORPs would also have to include a risk margin. Moreover, (part of) IORPs in DE and NL would have to include mixed benefits in technical provisions. In DE this would in aggregate be more than offset by the recognition of ex ante benefit reductions.

213. As a result of the higher level of technical provisions, IORPs will in aggregate experience a decrease of the surplus over the funding requirement (see figure 6.52). The existing aggregate shortfall of -19% of liabilities will widen to -34% of liabilities in example 5. The negative impact of market valuation of liabilities in DE is to some extent compensated by the positive impact of market valuation of investments. NL is the only country where the surplus slightly improves due to a decline in the capital requirement. The exact impact in NL would crucially depend on the shape of national buffer requirements under example 5. The negative impact of the regulatory own funds requirement in BE, IE and the UK may be overestimated.

Figure 6.51: Liabilities to be covered by financial assets compared to technical provisions current regime, example 5

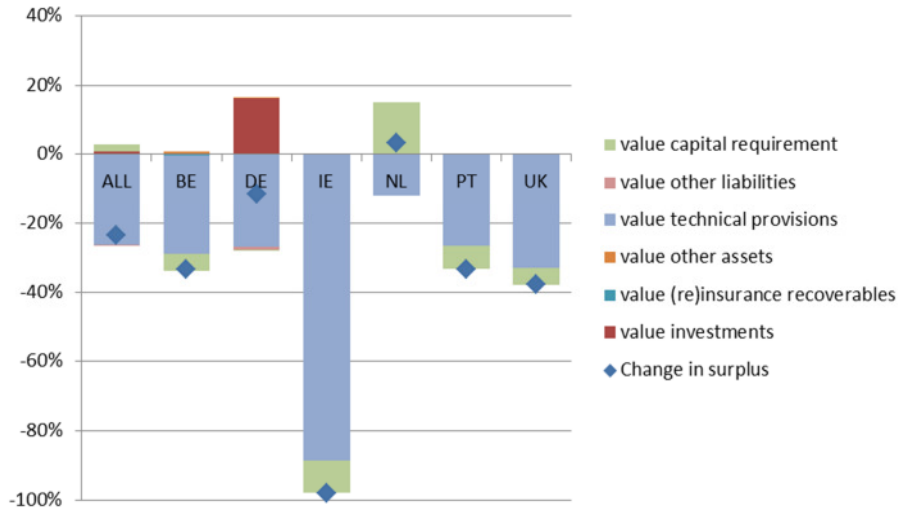
% technical provisions current regime



Source: EIOPA

Figure 6.52: Decomposition of change in surplus over capital requirement compared to national regime, example 5

% liabilities national regime



Source: EIOPA

214. The surplus deteriorates in aggregate by 23% of liabilities when considering the smallest surplus (or largest shortfall) relative to either the capital requirement or funding requirement in example 5 (see figure 6.53). In example 5 the change based on this combined measure of the surplus is the same as the change of the surplus over the capital requirement in the previous chart, since the surplus over the capital requirement never exceeds the surplus over the funding requirement. Only 20% of IORPs experience an increase in their surplus, which mostly consist of NL IORPs disposing of lower shortfalls (see Figure 6.54).

Figure 6.53: Overall change in surplus, minimum surplus SCR and funding requirement, example 5, end-2014

% liabilities current regime

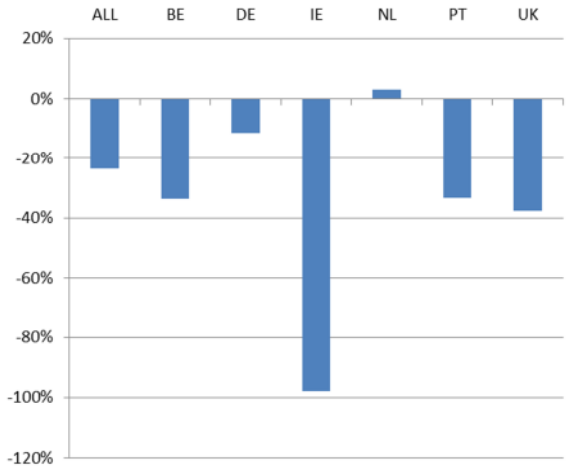
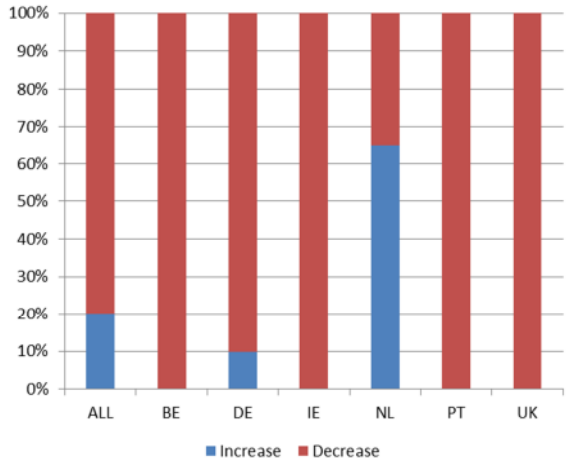


Figure 6.54: % IORPs experiencing increase/decrease in overall surplus, example 5, end-2014

% IORPs (liability weighted)



Source: EIOPA

6.7. Example 6

6.7.1. Description example 6

215. Example 6 of supervisory framework would introduce a common framework for risk assessment and transparency at the EU level consisting of a market-consistent balance sheet, valued using the basic risk-free interest rate, and a standardised risk assessment.

216. The balance sheet should include all security mechanisms (legally enforceable sponsor support, non-legally enforceable sponsor support and pension protection schemes), benefit types (unconditional, pure conditional, mixed and pure discretionary benefits) and benefit reduction mechanisms (ex ante benefit reductions, ex post benefit reductions and benefit reductions in case of sponsor default). The technical provisions should include a risk margin using the cost-of-capital approach for liabilities that cannot be hedged on financial markets;

217. The standardised risk assessment should be based on the prescribed risk factors calibrated to a 0.5% probability of occurrence within a year. The stress scenarios should be applied to the market-consistent balance sheet to analyse their impact on the IORP's excess of assets over liabilities and each of the available security and benefit adjustment mechanisms.

218. The pillar 2/3 framework of this example would leave the existing funding requirements and valuation standards in pillar 1 unchanged. NSAs would be granted sufficient powers to take supervisory action based on the outcomes of the risk assessment.

6.7.2. Balance sheet

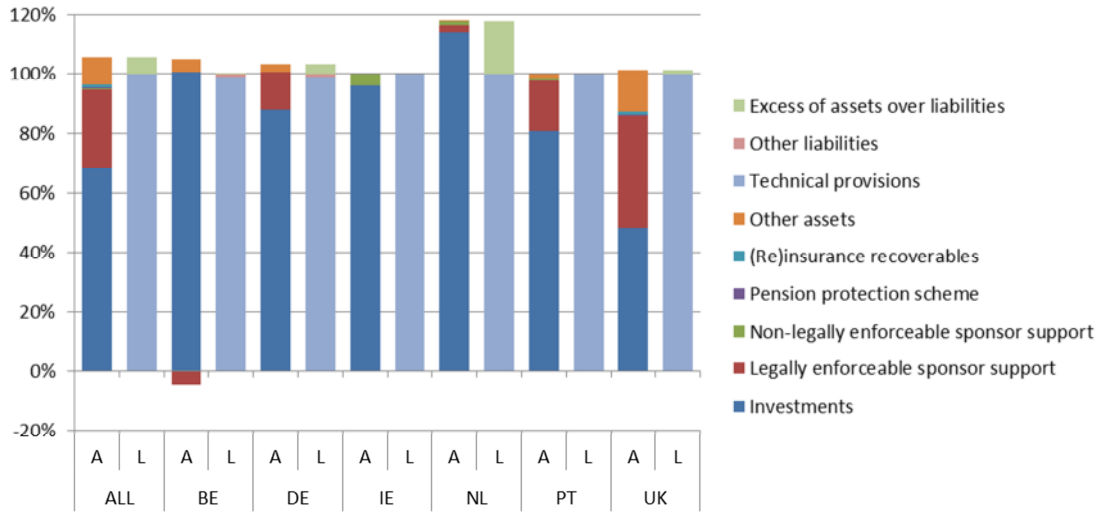
219. Investments amount on average to 68% of liabilities on the balance sheet and other non-investment assets to 10% (see figure 6.55). The other non-investment

assets mainly consist of liability driven investment (LDI) assets of UK IORPs, recognised by the UK NSA under this category. Sponsor support and (re)insurance recoverables cover respectively 26% and 1% of liabilities. On balance an excess of assets over liabilities of 6% of liabilities results.

220. All IORPs in DE and the UK, nearly all in BE and more than half of IORPs in PT are covered by unlimited, legally enforceable sponsor support. In BE the aggregate value of sponsor support is negative. This is due to the fact that some IORPs in BE dispose of an excess of financial assets over technical provisions, which is expected to be returned to the sponsors at some stage in the future[13]. The negative value of sponsor support of this minority of IORPs outweighs the positive value of sponsor support reported by other IORPs. IORPs in IE and most IORPs in NL are not subject to full sponsor guarantees. IORPs in IE, NL and PT recognised relatively small amounts of non-legally enforceable sponsor support. IORPs in DE and UK included minor values for the pension protection scheme.

Figure 6.55: Assets (A) and liabilities (L) on balance sheet, example 6

% total liabilities



Source: EIOPA

221. Technical provisions consist largely of unconditional benefits (101% of total liabilities) and to a lesser extent of pure conditional benefits (5%) and mixed benefits (3%) (see figure 6.56). The value of ex post benefit reductions amounts to -9% of liabilities.

222. IORPs in DE included a large value of pure conditional benefits, being subject to an ex ante benefit reduction mechanism. All IORPs in NL and over half in DE recognised a modest value for mixed benefits. BE is the only country where pure discretionary benefit were reported. IORPs in IE and NL that do not have recourse (or very limited recourse) to sponsor support included substantial amounts of ex post benefit reductions on the balance sheet. The ex ante benefit reductions, ex post benefit reductions and/or reductions in case of sponsor default in BE, DE, PT and UK are relatively small. Part of IORPs in BE and DE as well as IE include a value for the risk margin.

[13] Contributions for future accrual will be lowered.

Figure 6.56: Breakdown of technical provisions on balance sheet, example 6

% total liabilities

Source: EIOPA

Note: The value of ex post benefit reductions in NL (28% of liabilities) exceeds the shortfall between assets and liabilities excl. ex post benefit reductions (10% of liabilities). NL IORPs did not apply a deterministic/balancing item approach, but rather a stochastic valuation to establish the value of benefit reductions.

6.7.3. Standardised risk assessment

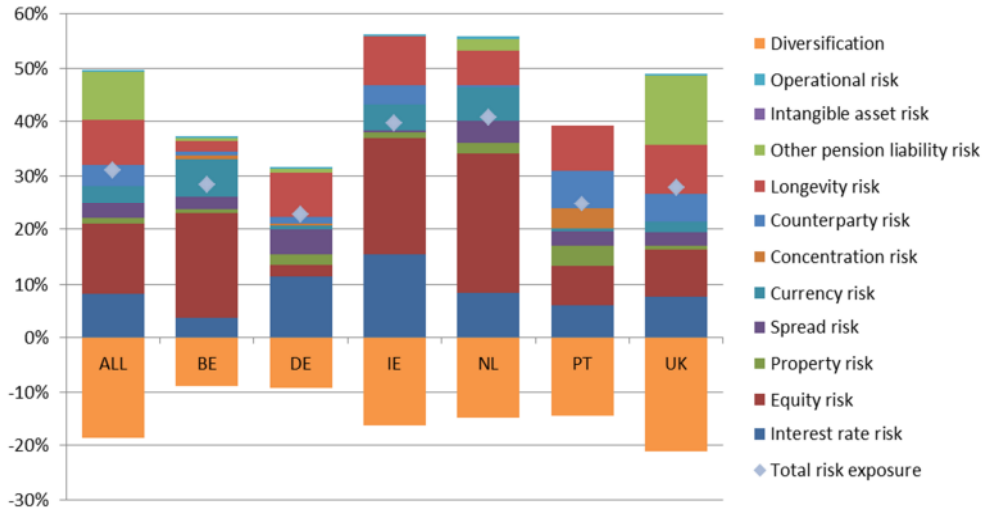
223. The aggregate risk exposure of IORPs amounts to 31% of liabilities, after taking into account the effect of diversification between the various risk factors (see Figure 6.57). IORPs are most exposed to equity risk (13% of liabilities), interest rate risk (8%) and longevity risk (8%) followed by counterparty/sponsor default risk (4%), foreign exchange risk (3%), spread risk on bonds and loans (3%) and property risk (1%). The other pension liability risks amounting to 9% of liabilities consist of a number of risk factors - such as mortality, disability, benefit option, expense and revision risk - which are mostly relevant in the UK.

224. IE and NL have an above average risk exposure of about 40% of liabilities. IORPs in both countries have relatively high equity allocations. Moreover, the impact of market risks is amplified by the relatively high coverage of liabilities (incl. benefit reductions) with investment assets. IORPs in BE have similar equity allocations and are also relatively well-funded with financial assets. However, this is mitigated by the low exposure to interest rate risk and longevity risk as many IORPs provide lump sum payments instead of life annuities. In the UK, on the other hand, exposure to market risks is diminished by the relatively low funding of liabilities.

225. IORPs in DE and PT have in aggregate the lowest risk exposure. In DE low allocations to equities reduce equity risk exposure, while high allocations to fixed income reduce mismatch risk between assets and liabilities. In PT the below average exposure to equity risk is to some extent compensated by above average capital charges for property and concentration risk.

Figure 6.57: Breakdown gross risk exposure standardised risk assessment, example 6

% total liabilities

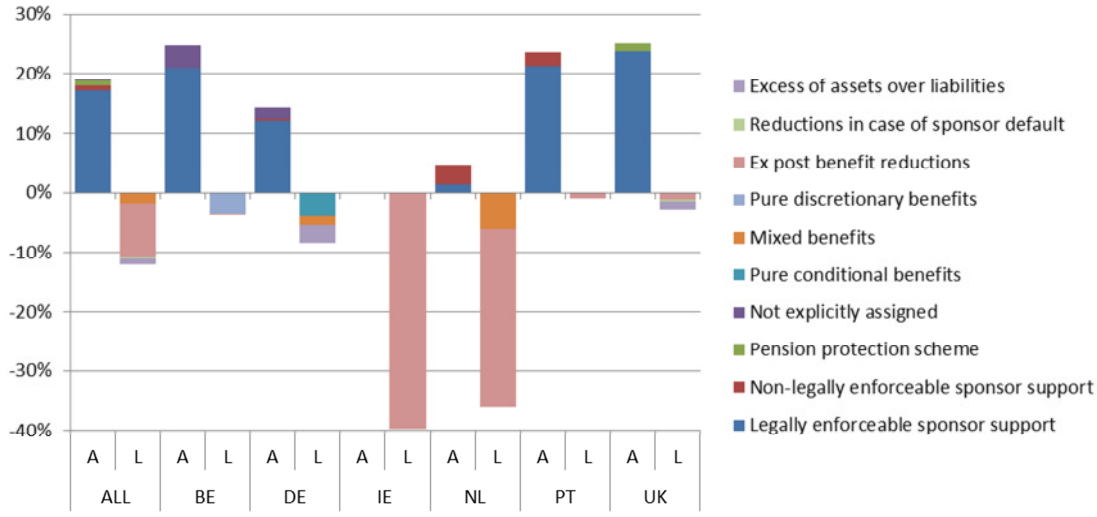


Source: EIOPA

226. The impact of the stress scenarios is mostly borne by sponsoring undertakings and plan members and only to a limited extent by the IORP itself (see figure 6.58). The stress scenarios would on the asset side result in an increase in the value of legally enforceable sponsor (17% of liabilities), non-legally enforceable sponsor support (1%) and pension protection schemes (1%). On the liability side the value of mixed benefits would decrease by 2% of liabilities and the value of ex post benefit reductions would increase by 9% of liabilities. On balance, the IORP's aggregate excess of assets over liabilities would decline by 1% of liabilities.

Figure 6.58: Impact gross risk on security and benefit adjustment mechanisms and EAL, example 6

% total liabilities



Source: EIOPA

227. IORPs in BE, DE, PT and the UK are most reliant on sponsor support to absorb the adverse scenarios, while IORPs in IE and NL are most reliant on benefit reductions. However, some IORPs in NL also make use of sponsor support, whereas some IORPs in BE, DE, PT and UK use benefit reductions. Pension protection schemes are covering some of the risks in the UK and to a lesser extent in DE. Pure conditional, mixed and pure discretionary benefits can be adjusted in BE, DE and NL. Only IORPs in DE and the UK report that the available excess of assets over liabilities can absorb part of the stresses.

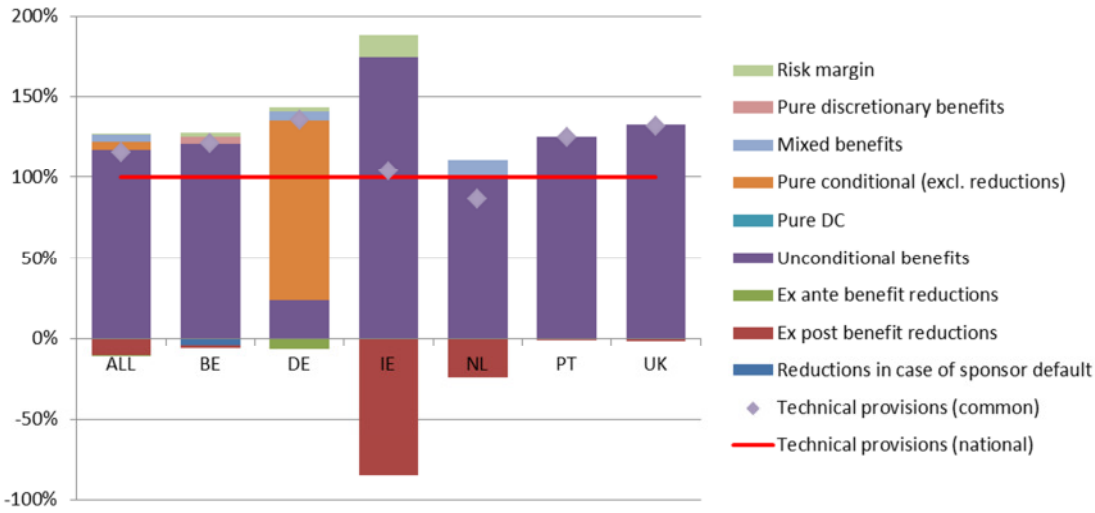
6.7.4. Comparison with national regime

228. Technical provisions on the market-consistent balance sheet are on average 16% higher compared to the national regimes (see figure 6.59). In most countries the value of unconditional benefits increases due to the use of the basic risk-free market interest rate curve. Unconditional benefits increase by 21% in BE, 25% in PT, 33% in the UK and 75% in IE relative to national technical provisions. In DE many IORPs recognised pension obligations as pure conditional benefits because they are subject to an ex ante benefit reduction mechanism. NL is the only country where the value of unconditional benefits is similar to the national technical provisions, which are already valued on a market-consistent basis.

229. Technical provisions are also higher compared to the national regime due to the inclusion of mixed benefits in DE and NL. Moreover, IE and part of the sample in BE and DE have supplemented the best estimate of technical provisions with a risk margin. In all countries technical provisions decrease relative to the national regime due to the inclusion of benefit reductions. The adjustments for benefit reductions are relatively high in IE and NL and relatively small BE, DE, PT and UK.

Figure 6.59: Technical provisions compared to national balance sheet, example 6

% technical provisions current regime



Source: EIOPA

7. Participants' assessments of methods and results

230. The quantitative assessment contained a qualitative questionnaire allowing participating IORPs to provide their assessment of the quality of input data, methods and the results. IORPs were requested to give their quality assessments for their calculations relating to the:

- Best estimate of technical provisions;
- Level B expected return on assets;
- Adjustments to basic risk-free interest rate;
- Risk margin;
- Sponsor support and pension protection schemes;
- (Re)insurance recoverables;
- Other assets and liabilities;
- Solvency capital requirement.

231. Moreover, IORPs were requested to list the most important difficulties in valuing the balance sheet, to explain what elements do not properly take into account the IORP's specificities and to provide their most important improvement to increase user-friendliness of the exercise. This section summarises the responses of participating IORPs to these qualitative questions.

232. The qualitative questionnaire also contained questions on the six examples of supervisory frameworks. The responses to these questions are summarised in the separate annex 3 with EIOPA's impact assessment.

7.1. Best estimate of technical provisions

233. IORPs were asked to indicate the quality of the reported best estimate of technical provisions and the underlying methodology and input data. On average participants assessed the output for the best estimate of technical provisions with a rating of three points on a scale from 1 to 4 (1=poor, 2=fair, 3=good and 4=excellent), which corresponds to 'good' (see figure 7.1 and 7.2). Both the valuation methodology and input data were scored 'good' on average. IORPs in PT provided an above average assessment of output quality (3.4) and in NL a below average assessment (2.3). NL IORPs considered the input data (3.3) to be of higher quality than the valuation methodology (2.3).

234. The best estimate of unconditional benefits was established by on average 11% of responding IORPs through a stochastic valuation, 23% through a deterministic valuation, 58% through a duration-based simplification and 2% through an 'other' approach (see figure 7.3). Unconditional benefits are not applicable for 5% of responding IORPs. The latter consist entirely of DE IORPs that did not report unconditional benefits, but only pure conditional benefits subject to an ex ante benefit reduction mechanism.

235. IORPs in BE, DE and PT used stochastic, but mostly deterministic approaches to value unconditional benefits. Half of IORPs in NL used a deterministic approach, while the other half employed an 'other' method, namely a direct calculation of cash flows discounted with the Level A interest rate curve. The UK supervisor valued the best estimate of technical provisions using the duration-based simplification, as provided for in HBS.4.9 of the technical specifications. The value of national technical provisions was converted to the Level A/Level B value on the common balance sheet by means of the change in the single effective discount rate corresponding to the duration of liabilities.

Figure 7.1: IORPs' assessment of quality of best estimate of technical provisions

Average rating on scale of 1 to 4: 1=poor, 2=fair, 3=good and 4=excellent

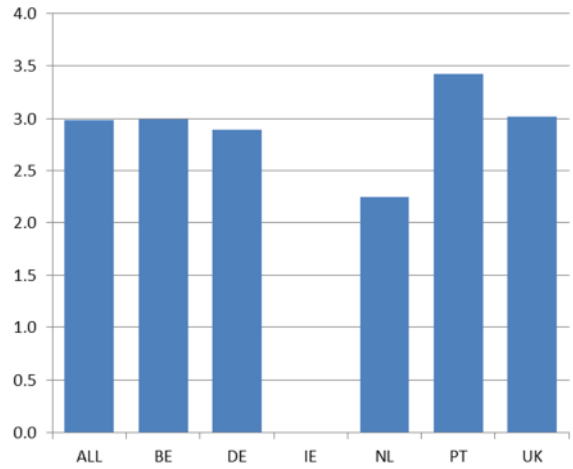
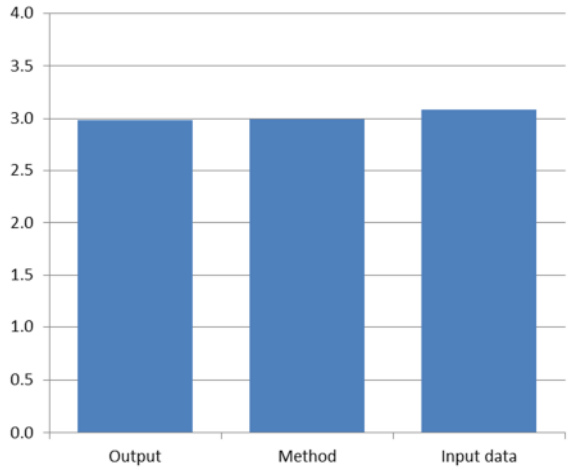


Figure 7.2: IORPs' assessment of quality of best estimate of technical provisions, method and input data

Average rating on scale of 1 to 4: 1=poor, 2=fair, 3=good and 4=excellent



Source: EIOPA

236. Non-unconditional benefits were only applied in BE, DE and NL (see figure 7.4). BE IORPs used a deterministic method to value pure discretionary benefits, NL IORPs a stochastic approach. In DE both types of methods were applied to value pure conditional and/or mixed benefits.

Figure 7.3: Valuation method for unconditional benefits

% responding IORPs

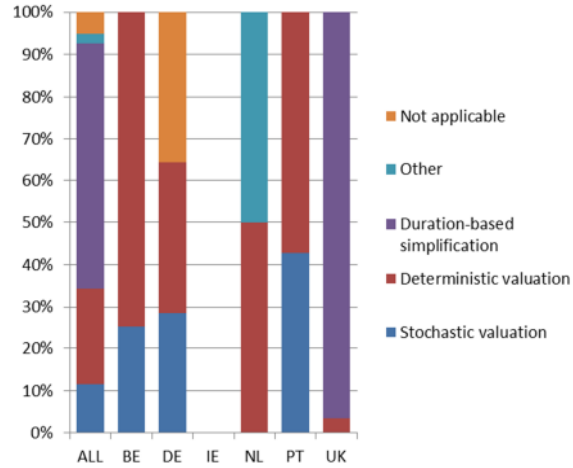
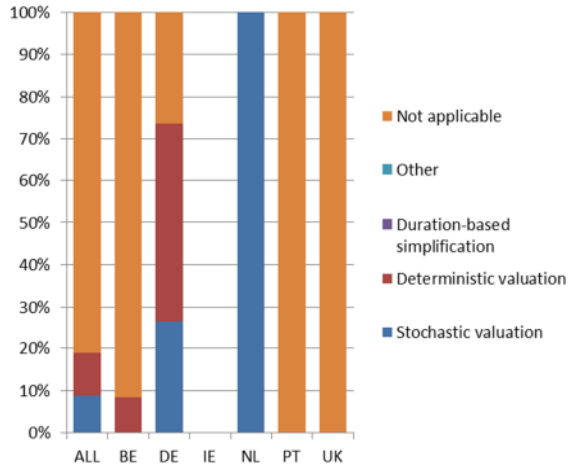


Figure 7.4: Valuation method for non-unconditional benefits

% responding IORPs



Source: EIOPA

237. IORPs in all countries included to a greater or lesser extent benefit reduction mechanisms: ex ante benefit reductions, ex post benefit reductions and/or benefit reductions in case of sponsor default. IORPs in NL used a stochastic method to value ex post benefit reductions. In all other countries IORPs used a balancing item approach or an 'other' methodology. This implied in practice that benefit reduction mechanisms actually reduce liabilities if the excess of assets over liabilities (excluding benefit reductions) is negative and have a zero value if the excess of assets over liabilities (excluding benefit reductions) is non-negative.

238. A number of DE IORPs indicated through the qualitative questionnaire that they used a deterministic approach to value for-profit obligations and/or ex ante benefit reductions. These IORPs noted that such a deterministic approach did not capture the inherent asymmetry of these mechanisms. Profit-sharing benefits can only be positive and ex ante benefit reductions can only be negative.

239. Considering the different elements of the best estimate of technical provisions, participants have most confidence in the value of unconditional benefits (see figure 7.5). Responding IORPs awarded the output for unconditional benefits an average rating of 3.7 which is close to 'excellent'. In particular the UK supervisor assessed their valuations as 'excellent', while other IORPs provided a score of on average 'good'. The quality of the other components was assessed as close to 'good' with ex post benefit reductions and mixed benefits receiving the lowest ratings.

Figure 7.5: Quality of output for components of best estimate of technical provisions

Average rating on scale of 1 to 4: 1=poor, 2=fair, 3=good and 4=excellent

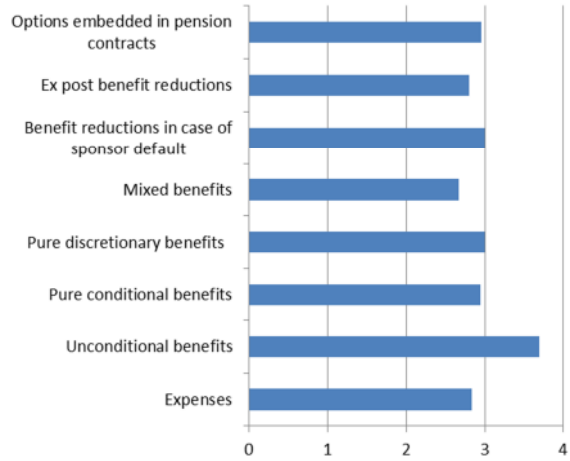
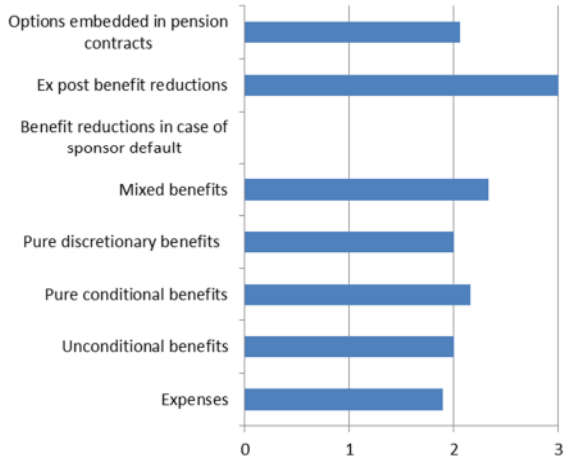


Figure 7.6: Significance of use of expert judgement

Average significance on scale of 0 to 3: 0=ignored, 1=low, 2=medium, 3=high



Source: EIOPA

240. Participants reported that the valuation of most components of the best estimate of technical provisions required medium expert judgement (see figure 7.6). Ex post benefit reductions are the clear exception which, according to NL and PT IORPs, needed a high level of expert judgement. NL and UK participants indicated a below average ('low' to 'medium') use of expert judgement for the

valuation of unconditional benefits, while PT IORPs reported an above average use (close to 'high'). NL IORPs considered that the valuation of mixed benefits required a high use of expert judgement, where DE IORPs scored its use as 'medium'.

241. IORPs provided examples of assumptions that required use of expert judgement, such as mortality assumptions, the share of married plan members, retirement age and the take-up of lump sums. Also the split between pure conditional and mixed benefits required in one instance some expert approximation, although it did not affect the combined value of both types of benefits. In particular, NL IORPs put forward that the assumptions underlying stochastic valuations are very subjective, influencing the scenario set and the option results.

242. The technical specifications prescribed that IORPs had to take into account potential future management actions in the valuation of the best estimate of technical provisions. IORPs took into account management actions with respect to amending mixed and pure discretionary benefits (10% of responding IORPs), ex post benefit reductions (3%), changing the future asset allocation (6%) and other reasons (3%). Of all respondents, 19% indicated that future management actions do not have a material impact on the best estimate of technical provisions, most notably in BE and IE. Almost two-thirds of participants (65%) said that no management actions were taken into account, although they might have some material impact. This was especially the case for half of NL IORPs and all UK IORPs, for which the QA has been completed by the national supervisor.

243. IORPs had to take into account all expenses that will be incurred in servicing all future obligations related to existing pension schemes/contracts, but expenses borne by the sponsoring employer were to be disregarded. Expenses averaged 1.9% of the best estimate of technical provisions, ranging from 0.04% in PT to 3.4% in DE.

244. A few IORPs reported that some minimal supplementary insurance obligations have not been included under pure conditional benefits. Moreover, some mixed benefits have been ignored due to insufficient experience with surpluses in new for profit contracts.

245. Some IORPs reported that options were not taken into account because impact was not material, while modelling options could be cumbersome. These IORPs ignored options like lapses, the ability for plan members to choose between lump sums and annuities and the possibility of early retirement. With regard to the latter, IORPs indicated that the early retirement factors are set on a cost neutral basis, so that the impact would be immaterial. It was also mentioned that a proper modelling of the options is too complex. Sometimes, it was indicated that an option had been taken into account, but that its value is subject to uncertainty. For example, when assumptions about a plan member option to choose between lump sums and annuities are based on a short observation period.

246. A number of IORPs in BE and DE mentioned that inflation compensation has not been taken into account. The DE IORPs indicated that pension benefits and/or contributions can sometimes be linked to inflation/wage growth. However, the impact was not considered to be material, as the effects on benefits and contributions tend to cancel each other out. Moreover, it was argued that wage growth is likely to be offset by a decline of the wage sum in a closed pension scheme. The national supervisor in BE instructed IORPs to apply an ABO-type

method, excluding future inflation and wage growth, in view of EIOPA's definition of "benefits and contributions to be included in cash flows".[14]

247. IORPs were requested through the qualitative questionnaire to specify the most relevant simplifications used in the calculation of the best estimate of technical provisions, which are summarised below:

- A small part of the best estimate of technical provisions (1%) has been valued using national valuation standards;
- Aggregation of members and beneficiaries of the same age;
- Abstract assumptions about the incidence and age of partners of plan members;
- Expenses are modelled proportionally to benefits and contributions;
- Duration-based simplification using single effective discount rate;
- Cash flows have been determined using second order mortality tables;
- Ignoring inflation compensation;
- Cash flows derived from ALM study for next 25 years, using a phenomenological approach thereafter;
- Stochastic valuation over a 20-year time horizon for non-unconditional benefits and benefit reduction mechanisms;
- Assumption of stationary active population with regard to future participation;
- Deterministic assumptions regarding proportion lump sum versus annuity;
- Simplification to value options and guarantees, instead of stochastic model like Black-Scholes, or ignoring some options;
- Deterministic method to value mixed benefits (profit/surplus sharing), instead of stochastic approach.

248. IORPs made the following suggestions for simplified methods to be developed by EIOPA:

- Exclude benefit types, such as mixed benefits, to which plan members are not contractually/legally entitled;
- Valuation of options and guarantees;
- Valuation of surplus sharing/for profit benefits.

7.2. Level B expected return on assets

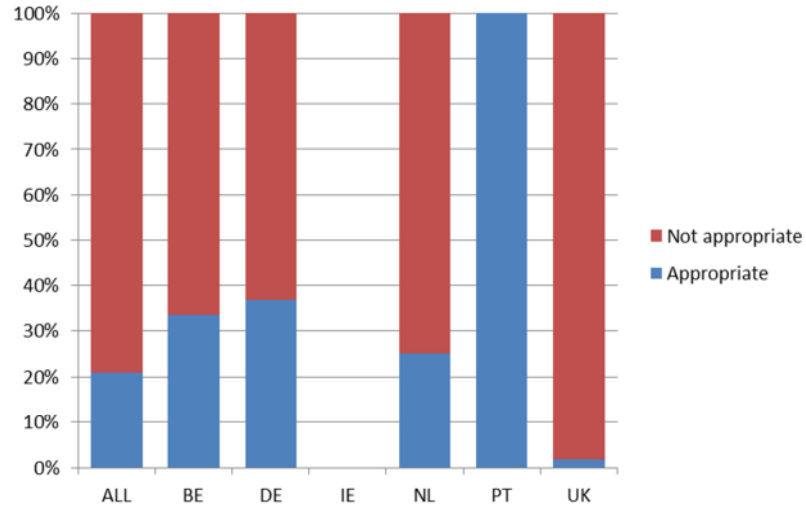
249. In baseline scenario 2 IORPs had to value the balance sheet using the expected return on assets instead of the basic risk-free interest rate. The technical specifications prescribed the risk premiums on governments bonds (0.3%), non-financial corporate bonds (0.6%), financial corporate bonds (1.1%) and non-fixed income securities (3%). To establish the weighted average risk premiums IORPs were asked to take into account the expected evolution over time of the simplified asset mix. The effective weighted average risk premium over the coming t years was to be added to the zero coupon risk free interest rate with maturity t for the relevant currency. The resulting expected return curve was to be used as the discount curve in baseline scenario 2 as well as some of the examples of supervisory frameworks.

250. On average only 21% of responding IORPs indicated that the prescribed method results in an appropriate estimate of the expected return on the IORP's assets (see figure 7.7). Most notably the IORPs completed by the UK supervisor thought that the approach is inappropriate. On the other hand, all IORPs in PT felt that the prescribed methodology was appropriate.

[14] The qualitative questionnaire requested IORPs to provide the main elements which were not clear in the definition of "benefits and contributions to be included in cash flows" and any suggestions to improve the definitions. The responses to these questions are summarised in section 7 of Annex 1.

Figure 7.7: Appropriateness of method to calculate the "Level B" discount rate

% responding IORPs



Source: EIOPA

251. IORPs commented through the qualitative questionnaire that the prescribed risk premiums (on government and corporate bonds) are lower than in the QIS on IORPs. These changes were considered as not well documented and explained in the technical specifications. The risk premiums were also viewed as low compared to risk premiums from other models. Moreover, the resulting expected returns were sometimes lower than the expected returns assumed by IORPs. Respondents doubted whether it makes sense to construct time-varying expected returns, since the risk premiums constitute long-term estimates. The other non-fixed income category was viewed critically because of the lack of granularity.

252. Participants made the following suggestions for improvement:

- IORPs should make own estimate of expected return, which takes into account the IORPs' specificities, possibly by further specifying that the estimate should be prudent/realistic and subject to supervisory approval/review;
- IORPs should be able to use the expected return used under the national regime, if applicable;
- Use alternative Level B* curve using time-dependent weighting schedules which gradually replaces IORPs' expected returns by EIOPA Level B curve;
- Specify risk premiums for at least all asset classes distinguished in the SCR, taking into account the corresponding levels of risk;
- Allow for a term premium in the risk-free interest rate curve, as forward rates are not equivalent to expected interest rates;
- Improve estimate of equity risk premium using price-earnings ratios.

253. Some IORPs were critical about using the expected return on assets as a discount rate because it would stimulate risk-taking by IORPs. Moreover, the resulting level of technical provisions would not ensure that IORPs have sufficient assets to cover guaranteed pension obligations.

7.3. Adjustments to the basic risk-free interest rate

254. As part of the baseline scenario 1, IORPs were requested to perform separate valuations of the best estimate of technical provisions based on the basic risk free interest rate including a volatility adjustment and/or matching adjustment. IORPs could apply both the volatility and the matching adjustment but not with respect to the same pension obligations. The matching adjustment could only be applied if the IORP met the specified conditions.

255. The risk free interest rate curves including the volatility adjustment were published as part of the supporting material on EIOPA's website. The same volatility adjustment as in Solvency II was used, i.e. no volatility adjustments were provided for the relevant currencies taking into account the portfolio characteristics of IORPs. The matching adjustment is IORP specific, which implies that participants would have to calculate this adjustment individually. For that purpose, a spreadsheet was provided with fundamental spreads for each type of government/corporate bond, rating and duration.

256. Only the volatility adjustment was applied by 88% of IORPs and both the volatility and matching adjustment by 2% of IORPs. The remaining 10% of IORPs did not conduct the sensitivity analysis.

257. IORPs did not encounter any practical problems in applying the volatility adjustment. Still, IORPs found it difficult to understand the volatility adjustment or to judge its appropriateness due to the lack of background information in the technical specifications.

258. In order to be able to apply the matching adjustment, IORPs had to fulfil the ten conditions summarised below:[15]

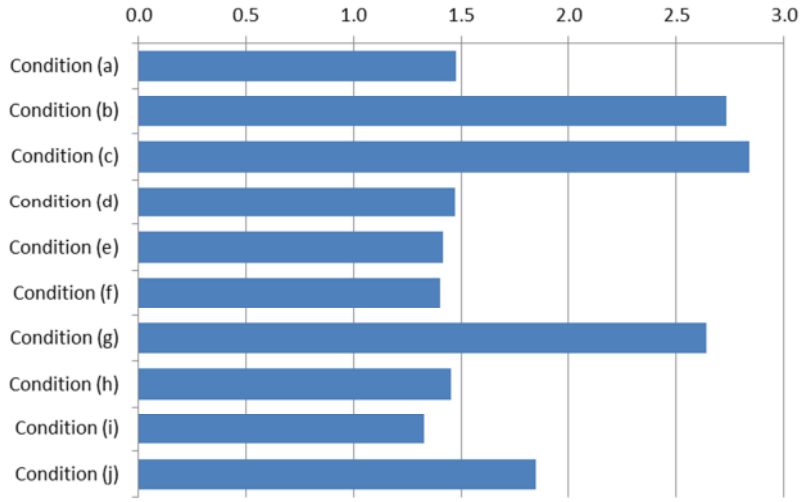
- Condition (a): the IORP has assigned a portfolio of bonds and other assets with similar cash flow characteristics to cover a portfolio of pension obligations, maintaining that assignment over the lifetime of the pension obligations;
- Condition (b): the portfolio of pension obligations and the assigned portfolio of assets are identified, organised and managed separately from IORP's other activities and the portfolio of assets cannot be used to cover losses arising from other activities;
- Condition (c): the expected cash flows of the assigned portfolio of assets replicate the cash flows of the portfolio of pension obligations and any mismatch does not give rise to material risks;
- Condition (d): the pension schemes/contracts underlying the portfolio of pension obligations do not give rise to future contribution payments;
- Condition (e): the only pension liability risk connected to the portfolio of pension obligations are longevity risk, expense risk, revision risk and mortality risk;
- Condition (f): the best estimate of the portfolio of pension obligations does not increase by more than 5% under a mortality risk shock;
- Condition (g): the pension schemes/contracts underlying the pension obligations include no options for the members and beneficiaries or sponsors or only a surrender option;
- Condition (h): the cash flows of the assigned portfolio of assets are fixed and cannot be changed by the issuers of the assets or any third parties;
- Condition (j): the pension obligations of a pension scheme/contract are not split into different parts when composing the portfolio of pension obligation.

[15] For an unabridged description of the conditions please refer to HBS.10.21 of EIOPA, Technical Specifications - Quantitative Assessment of Further Work on Solvency of IORPs, EIOPA-BoS-15/070v2, 11 May 2015.

259. Responding IORPs assessed that the difficulty to comply with the majority of these conditions would on average be around 1.5 on a scale from 0 to 3, which corresponds to low-medium difficulty (see figure 7.8). However, there would be medium difficulty in complying with condition (j), which states that the pension obligations of a pension scheme/contract cannot be split in different parts. Moreover, the difficulty for IORPs would be close to high to comply with condition (b), prescribing that the portfolios of assets and liabilities should be ring-fenced, condition (c), requiring replication of cash flows without material mismatch risk, and condition (g), specifying that the pension schemes/contracts underlying the pension obligations do not contain any options for plan members and/or sponsors.

Figure 7.8: Degree of difficulty to comply with conditions for applying the matching adjustment

Average degree of difficulty on a scale from 0 to 3: 0=No difficulty, 1=Low difficulty, 2=Medium difficulty, 3=High difficulty



Source: EIOPA

260. Besides the difficulties in meeting the requirements for applying the matching adjustment, some IORPs commented that the specifications are not clear and lacking concrete examples. Moreover, the concept is considered unpractical and based on too much data.

261. Some participants expressed the view that all adjustments to the risk-free interest rate curve which can be applied by insurance undertakings under Solvency II should also be available to IORPs. Moreover, it was suggested to adjust the volatility and/or matching adjustment - rather than transposing them exactly from Solvency II - to take into account the specificities of IORPs.

7.4. Risk margin

262. IORPs were required to add a risk margin to the best estimate of technical provisions for pension obligations that cannot be hedged on financial markets. The risk margin corresponds to the cost-of-capital of a reference IORP which has to comply with the SCR to support the pension obligations over the lifetime thereof.

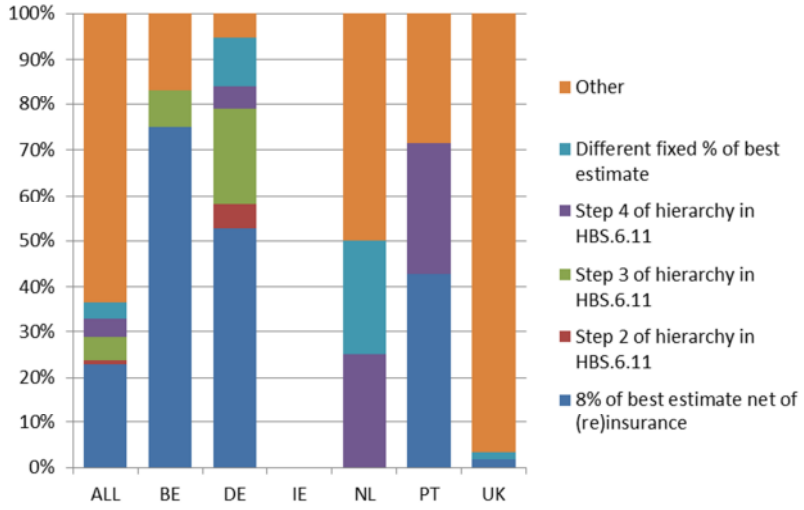
263. The technical specifications included a decision hierarchy of methods for calculating the risk margin, ranging from a full calculation of all future SCRs without using simplifications in step 1 to an approximation by calculating the risk margin as a fixed percentage of the best estimate in step 5. In line with step 5, a default simplification was provided where the risk margin equals 8% of the best estimate of technical provisions.

264. In the baseline scenarios IORPs had to include all security and benefit adjustment mechanisms, including ex ante and ex post benefit reductions and benefit reductions in case of sponsor default. The loss-absorbing capacity of these security and benefit adjustment mechanisms results in an SCR that is (almost) per definition zero, unless the IORP absorbs part of the SCR stress scenarios through its excess of assets over liabilities.

265. In the baseline scenarios only a minority of BE IORPs, more than half of DE IORPs and IE included a positive risk margin. In particular, however, IORPs in BE and PT calculated a positive risk margin in the examples of supervisory frameworks, which do not necessarily include all security and benefit reduction mechanisms. These IORPs mostly made use of the default simplification, equating the risk margin to 8% of the best estimate of technical provisions (see figure 7.9). A substantial proportion of IORPs indicated the use of steps 2, 3 or 4 of the hierarchy or a different fixed percentage of the best estimate. All IORPs using a different fixed percentage specified through the questionnaire a percentage of zero. In that respect, it should be noted that steps 2 to 4 also result in a risk margin of zero, if the calculation using the corresponding formula is based on an SCR of zero. The IORPs reporting an 'other' methodology most probably did not include the risk margin.

Figure 7.9: Method used to calculate the risk margin

% responding IORPs



Source: EIOPA

266. Many IORPs confirmed through the qualitative questionnaire that the risk margin was set to zero, as security and benefit adjustment mechanisms provided full loss absorbency in the SCR. Some IORPs questioned whether the concept of the risk margin is appropriate for IORPs since they normally do not have to earn a cost of capital. Moreover, it was put forward that a correct calculation of the risk

margin would be very burdensome, while the simplification equating the risk margin to 8% of the best estimate was viewed as a too rough approximation.

7.5. Sponsor support and pension protection schemes

267. Participating IORPs were asked to assess the quality of the reported value for sponsor support and of the underlying methodology and input data. On average participants scored the quality of the value of sponsor support with a rating of 1.5 on a scale from 1 to 4, corresponding to between 'poor' and 'fair' (see figure 7.10 and 7.11). In particular, UK IORPs, for which the national supervisor conducted the calculations, assessed the quality of the output for sponsor support as 'poor'. IORPs in the other countries considered the estimates for sponsor support to be of 'fair' to 'good' quality.

268. There is a substantial discrepancy between the quality assessments for the valuation methodologies and input data and the subsequent output for sponsor support. The reason is that the UK IORPs, for which the NSA completed the sponsor support calculations, judged the quality of methods as 'fair', the quality of input data as 'good' and, as mentioned above, the quality of output as 'poor'. In the other countries the quality assessments of input methods and data were much more aligned with the corresponding outputs.

Figure 7.10: IORPs' assessment of quality value of sponsor support

Average rating on scale of 1 to 4: 1=poor, 2=fair, 3=good and 4=excellent

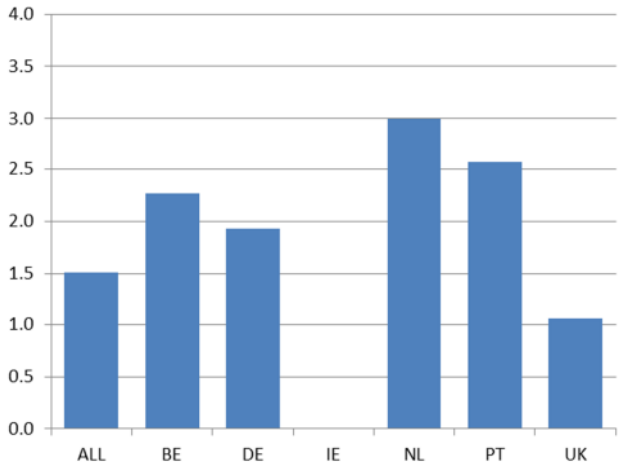
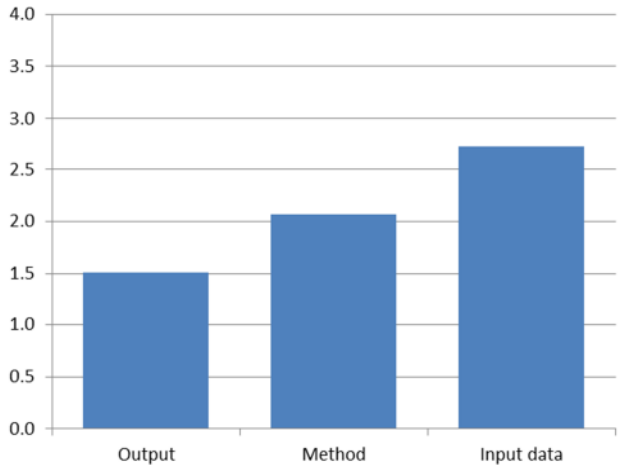


Figure 7.11: IORPs' assessment of quality value of sponsor support, method and input data

Average rating on scale of 1 to 4: 1=poor, 2=fair, 3=good and 4=excellent



Source: EIOPA

269. Almost three quarters of IORPs applied the balancing item approach to the valuation of sponsor support (see figure 7.12). This was the case for all IORPs in the UK, most IORPs in BE, more than half of IORPs in PT and a small proportion of IORPs in DE. Other IORPs used a deterministic valuation, stochastic valuation, one of the three simplifications provided by EIOPA or another approach. The valuation of sponsor support was not applicable to 4% of IORPs.

270. The technical specifications allowed IORPs with unlimited, legally enforceable sponsor support to apply the balancing item approach if one out of two

conditions was met. Either the annual probability of sponsor default should be below 0.5% or the sponsor's value should exceed 2 times the value that is required to balance the (SCR stressed) balance sheet. Note that the columns of Figure 7.13 do not necessarily add up to one, since IORPs may comply with both conditions.

271. Of responding IORPs, 78% reported compliance with the condition relating to the default probability of the sponsor and 11% with the condition relating to the value of the sponsor (see figure 7.13). Both conditions were met by 5% of IORPs and 16% of IORPs did not meet any of the conditions. Especially IORPs in DE indicated that they did not meet the conditions, which explains the low take-up of the balancing item approach in that country.

Figure 7.12: Valuation method for sponsor support

% responding IORPs

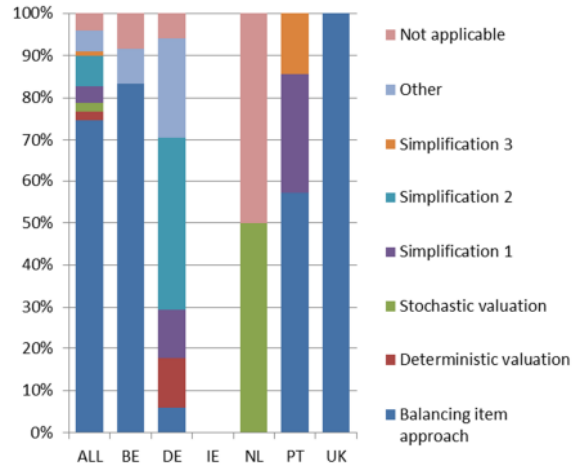
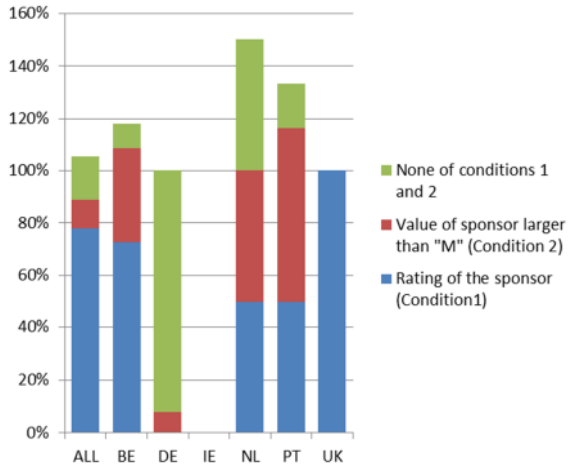


Figure 7.13: Compliance with conditions to apply balancing item approach

% responding IORPs



Source: EIOPA

272. Values for pension protection schemes were only reported by a minority of DE IORPs and most UK IORPs for which the NSA did the calculations. The quality of output, method and input data were on average assessed as 'good' by DE IORPs. UK IORPs, for which the NSA completed the sponsor support calculations, provided a rating of 'good' for the quality of output, 'fair' for the method and 'good' for the input data. Of IORPs in DE recognising pension protection schemes, one third applied the balancing item approach, one third the simplification provided by EIOPA and one third another method. The national supervisor in the UK applied the simplification for all IORPs which reported the pension protection scheme.

273. IORPs assessed the quality of the various input variables for the valuation of security mechanisms with a rating ranging from on average two to three (see figure 7.14). This range corresponds to a quality score between 'fair' and 'good'. Responding IORPs had the most confidence in cash flows from the pension protection scheme, recovery rate of claims on the sponsor and indexation assumption and least confidence in assumptions about sponsor behaviour, probability of default of the sponsor and cash in- and outflows from the sponsor.

274. The use of expert judgement in establishing these input variables ranges from 'low'/'medium' to close to 'high' (see figure 7.15). Assumptions about sponsor behaviour and the recovery rate of claims on the sponsor required 'low' to 'medium' expert judgement. The calculation of the maximum amount of sponsor support required close to 'high' use of expert judgement.

Figure 7.14: Reliability of inputs for the valuation of security mechanisms

Average rating on scale of 1 to 4: 1=poor, 2=fair, 3=good and 4=excellent

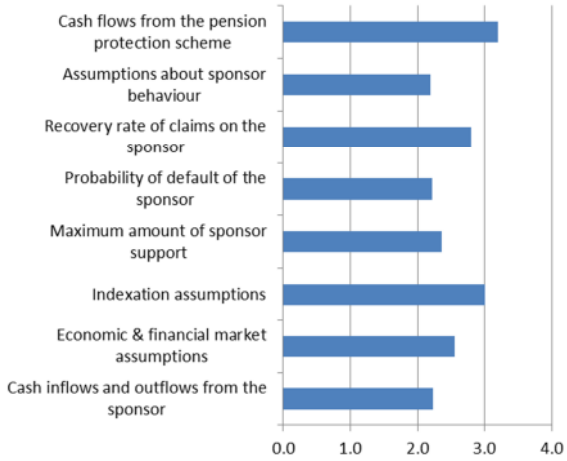
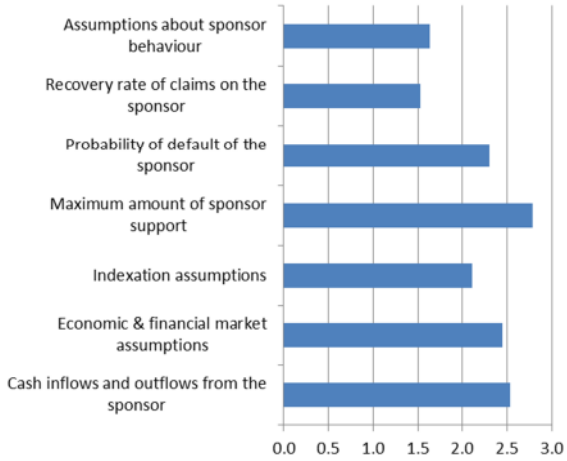


Figure 7.15: Significance of use of expert judgement

Average significance on scale of 0 to 3: 0=ignored, 1=low, 2=medium, 3=high



Source: EIOPA

275. Participants in DE commented that it is very difficult to value sponsor support where the IORP disposes of hundreds/thousands of sponsors. First of all, it would be almost impossible to establish the strength of all these sponsors individually. In addition, since many of these sponsoring employers are often very small, credit ratings and financial reporting data are often not available. For multi-employer IORPs based on collective bargaining an added complexity is that unfavourable scenarios may be resolved through a combination of higher contribution rates and benefit adjustments. The technical specifications do not provide proper guidance on valuing sponsor support for this type of IORPs. Moreover, the specifications did not provide sufficient guidance to model discretionary sponsor behaviour. UK IORPs, for which the national supervisor performed the calculations, commented that it is not clear how the maximum value of sponsor support should be calculated using the principles provided by EIOPA. Moreover, it is not clear how non-legally enforceable sponsor support should be taken into account.

276. IORPs applying the balancing item approach had to establish the maximum value of sponsor support and/or the sponsor default probability to ascertain whether they met one of the two conditions. If not, both measures of sponsor strength served as essential input variables to value sponsor support and pension protection schemes using the stochastic, deterministic or simplified approaches.

277. To establish the maximum value of sponsor support, 65% of responding IORPs used the principle-based approach allowed for in the technical specifications,

20% the simplification provided by EIOPA and 11% an own method (see figure 7.16). Since 6% indicated that no maximum was calculated or that it was not applicable, 2% of responding IORPs used a combination of approaches. All IORPs in PT used the simplification provided whereas nearly all UK IORPs made use of the principle-based approach. In BE and DE both the principle-based approach and the simplification were frequently employed. Especially IORPs in DE and NL calculated the maximum value of sponsor support by means of an own method.

278. IORPs that used the principle-based method/simplification specified through the qualitative questionnaire what definition of sponsor cash flows was used. Most these IORPs calculated the standard method based on the EBITDA, EBT or net income, often by using a weighted average over the past years. Many IORPs applied a coefficient of 33% to the measure of cash flows to obtain the maximum cash flows that are available to support the IORP. The 33% coefficient was not prescribed in the technical specifications, but was included as a default value in the helper tab for maximum sponsor support during a large part of the exercise.

279. Participants were also asked to explain the method, if they used an own method to establish the maximum amount of sponsor support:

- Some IORPs considered that the sponsor is sufficiently strong to cover the shortfalls on the balance sheet and in the SCR. As such, a maximum value of sponsor support was specified that exceeded the maximum shortfall.
- Some IORPs assumed a value for the maximum sponsor support equal to a certain percentage of shareholders' equity in the company's financial accounts.
- Some multi-employer IORPs based the maximum sponsor support calculations on cash flows and/or shareholders' equity on a sample of their largest sponsors (in relation to technical provisions). In some cases the resulting maximum sponsor support was extrapolated to the sponsors not included in the sample, in other cases it was interpreted as a prudent measure for all sponsors. It was also mentioned that an adjustment was made to take into account that the sponsor supported other IORPs.
- A couple of participants used the maximum commitment of the sponsor towards the IORP, as specified in the financial policy of the IORP or collective labour agreement.

280. One fifth of IORPs determined the sponsor default probability using the sponsor's credit rating (see figure 7.17). The technical specifications contain a table which provided a mapping between the sponsor's credit rating and the corresponding default probability. In accordance with that table, 2% of responding IORPs set the annual default rate to 4.175% because the sponsor does not dispose of a rating. Another 3% used the first stage of the ASA simplification ('Alternative simplified approach'), which allowed IORPs to derive default probabilities based on credit ratios of the sponsor. 2% of IORPs used default rates implied by securities on financial markets, 62% used estimates of the UK Pension Protection Fund (PPF) and 10% of IORPs used another approach. Of these IORPs 3% used a combination of approaches, since 4% of responding IORPs indicated that the sponsor default probability is not applicable.

281. The qualitative questionnaire asked IORPs to explain the nature of the own methods. Some multi-employer IORPs derived default probabilities using historically observed default rates. An IORP sponsored by an insurer explained that the annual default rate could not exceed 0.5% in view of the 99.5% confidence level under Solvency II. Other IORPs assumed a default probability of 0% because the strength of the sponsor was considered to be very high, like in the case of multi-employer scheme subject to the last-man-standing principle.

Figure 7.16: Method to value maximum sponsor support

% responding IORPs

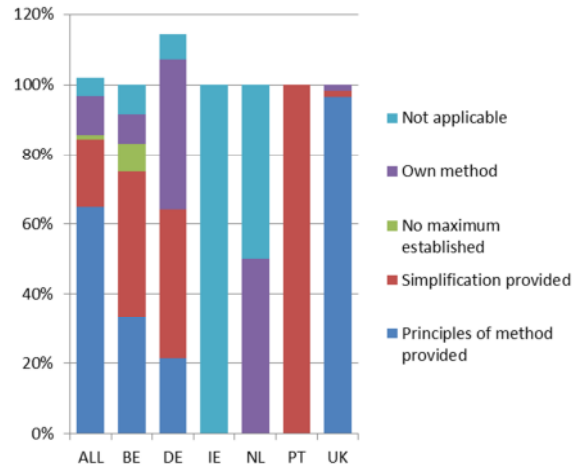
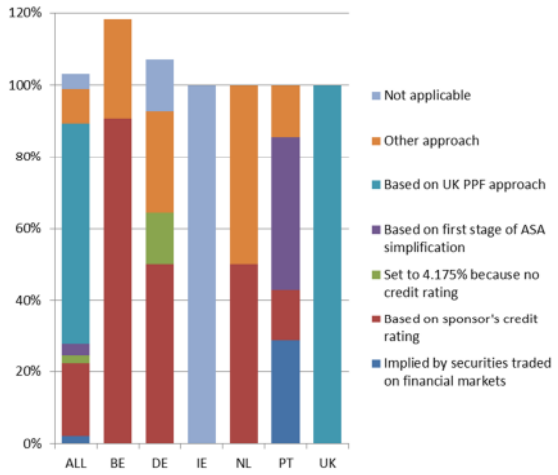


Figure 7.17: Approach used to establish the probability of sponsor default

% responding IORPs



Source: EIOPA

282. The recovery rate of claims on the sponsor is relevant for the valuation of sponsor support and pension protection schemes using a stochastic, deterministic or simplified method instead of the balancing item approach. The recovery rate determines the loss given default of the sponsor. The technical specifications specified that the recovery rate should not exceed 50%. Some IORPs explained through the qualitative questionnaire that they assumed a recovery rate of 50%. Others used 30% since this was the default percentage in the helper tab for sponsor support simplification 2. The UK supervisor used 5% which is broadly equal to the average recovery rate on insolvency reported by the UK PPF.

7.6. (Re)insurance recoverables

283. (Re)insurance recoverables were only recognised by a minority of IORPs in BE, DE and the UK. IORPs in these three countries assessed the quality of the value of (re)insurance recoverables, the valuation methodology and the input data with an average rating of 2.7 on scale of 1 to 4 (1=poor, 2=fair, 3=good and 4=excellent), which is equivalent to close to 'good' (see figure 7.18 and 7.19).

284. The valuation of (re)insurance recoverables should not only take into account the cash flows relating to the (re)insurance contract - i.e. recoverables from and direct payments to the (re)insurer - but also an adjustment for default of the (re)insurer. The technical specifications provided a duration-based simplification to calculate the counterparty default adjustment. However, IORPs were allowed to use an alternative methodology. Of responding IORPs to which the valuation of (re)insurance recoverables was applicable, three quarters used the simplification and one quarter an own methodology.

285. IORPs had most confidence in the input variables for cash in- and outflows, assessing their quality as more than 'fair'. The quality of inputs relating to the adjustment for default of the (re)insurer (probability of default, recovery rate) received an average score at the low end of the range 'poor' and 'fair'. IORPs

also indicated that more expert judgement was needed to establish the (re)insurer default adjustment than to determine the cash flows of the (re)insurance contract.

Figure 7.18: IORPs' assessment of quality value of (re)insurance recoverables

Average rating on scale of 1 to 4: 1=poor, 2=fair, 3=good and 4=excellent

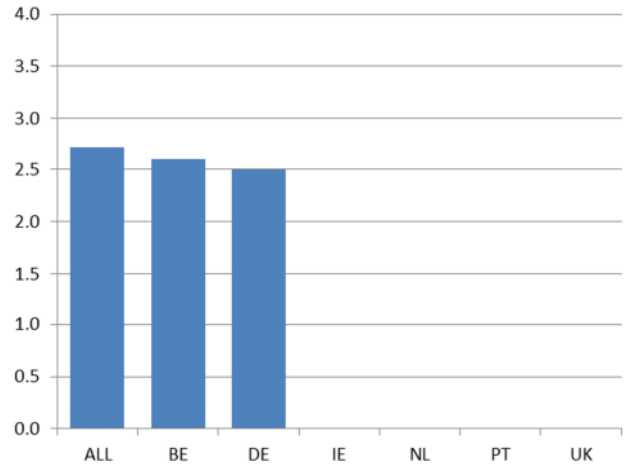
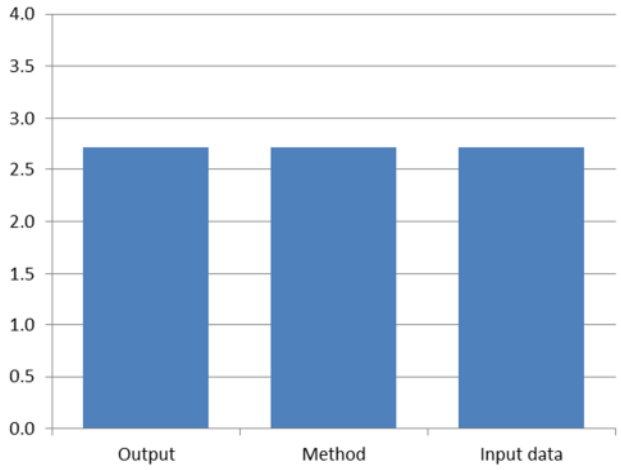


Figure 7.19: IORPs' assessment of quality value of (re)insurance recoverables, method and input data

Average rating on scale of 1 to 4: 1=poor, 2=fair, 3=good and 4=excellent



Source: EIOPA

286. One IORP indicated through the qualitative questionnaire that it did not recognise (re)insurance recoverables for materiality reasons, since the (re)insurance instrument only covers mortality and invalidity risk. Also the difficulty was raised of translating the risks and specificities of the (re)insurance arrangement to the specifications of the quantitative assessment. A participant expressed the view that (re)insurance recoverables should be valued using national standards. Moreover, this IORP questioned the adjustment for default of the (re)insurer, since (re)insurance undertakings are subject to one-year confidence level of 99.5% under Solvency II.

7.7. Other assets and liabilities

287. In all participating countries except IE, IORPs reported values for 'other assets', which include intangible assets, deferred tax assets, deposits to cedents and (re)insurance receivables, trade receivables and cash and cash equivalents. Only IORPs in BE and DE recognised other liabilities, such as deferred tax liabilities, payables and contingent liabilities (excl. subordinated loans).

288. Responding IORPs assessed the quality of the output values, valuation methodology and input data with an average rating of about 3.5, corresponding to 'good' to 'excellent' (see figure 7.20 and 7.21). The quality assessment of the value for other assets and liabilities was below average in BE, DE and PT and above average in the UK.

289. The technical specifications contained provisions to attain a market-consistent valuation of the different types of other assets and liabilities. IORPs could deviate from these provisions - for example, by using values based on national

accounting standards - if this would not lead to materially different results. Especially DE IORPs indicated through the qualitative questionnaire that other assets and liabilities were recognised using national standards.

Figure 7.20: IORPs' assessment of quality value of other assets and liabilities

Average rating on scale of 1 to 4: 1=poor, 2=fair, 3=good and 4=excellent

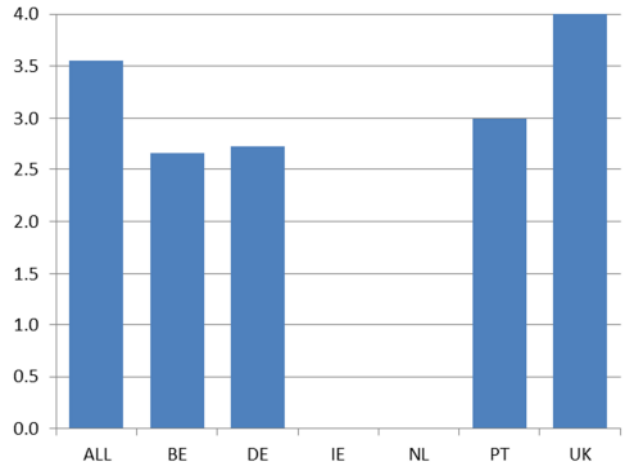
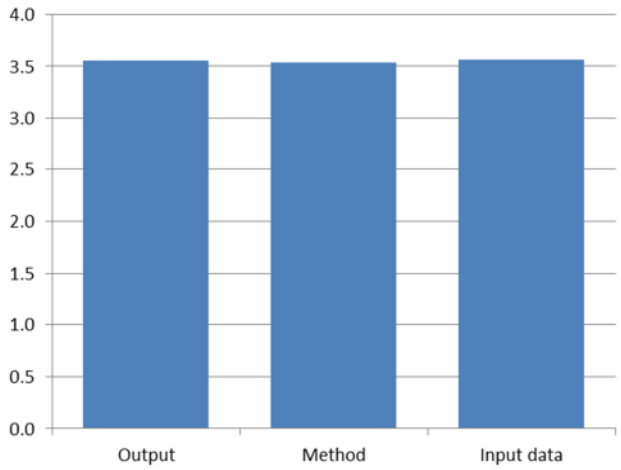


Figure 7.21: IORPs' assessment of quality value of other assets and liabilities, method and input data

Average rating on scale of 1 to 4: 1=poor, 2=fair, 3=good and 4=excellent



Source: EIOPA

7.8. Solvency capital requirement

290. IORPs assessed the quality of the output for the SCR with an average rating of 2.7 on a scale from 1 to 4 (1=poor, 2=fair, 3=good and 4=excellent), which corresponds to close to 'good' (see figure 7.22 and 7.23). Particularly IORPs in the UK and to a lesser extent in BE provided above average quality ratings. IORPs in DE, NL and PT gave a below average quality assessment of around 'fair'.

291. Overall IORPs judged the quality of the SCR methodology more favourably than the input data. However, this is largely due to the UK, where the national supervisor did the calculations. In the UK, the methodology received a quality rating of 'good' and the input data a score of 'fair'. In the other participating countries IORPs assessed the quality of input data with a somewhat higher score than the quality of the methodology.

292. A simplification was introduced which allowed IORPs to calculate the loss-absorbing capacity of security and benefit adjustment mechanisms at the level of the overall SCR instead of for each SCR (sub-)module. This means that IORPs would only have to calculate stressed balance sheets for the various (sub-)modules without taking into account loss-absorbency, but not about twenty stressed balance sheets including the loss-absorbency of security and benefit adjustment mechanisms.

Figure 7.22: IORPs' assessment of quality of value SCR

Average rating on scale of 1 to 4: 1=poor, 2=fair, 3=good and 4=excellent

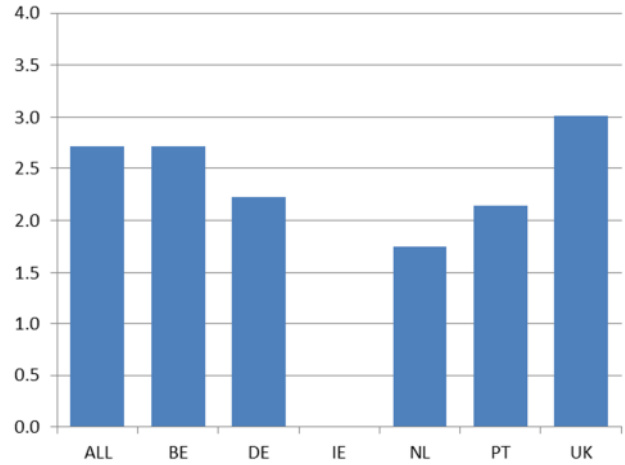
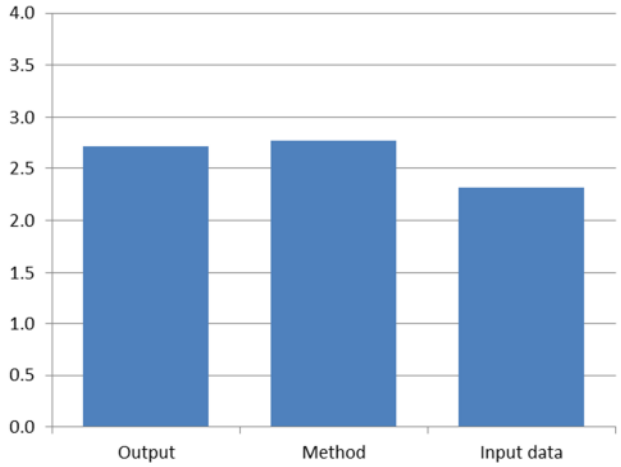


Figure 7.23: IORPs' assessment of quality of value SCR, method and input data

Average rating on scale of 1 to 4: 1=poor, 2=fair, 3=good and 4=excellent

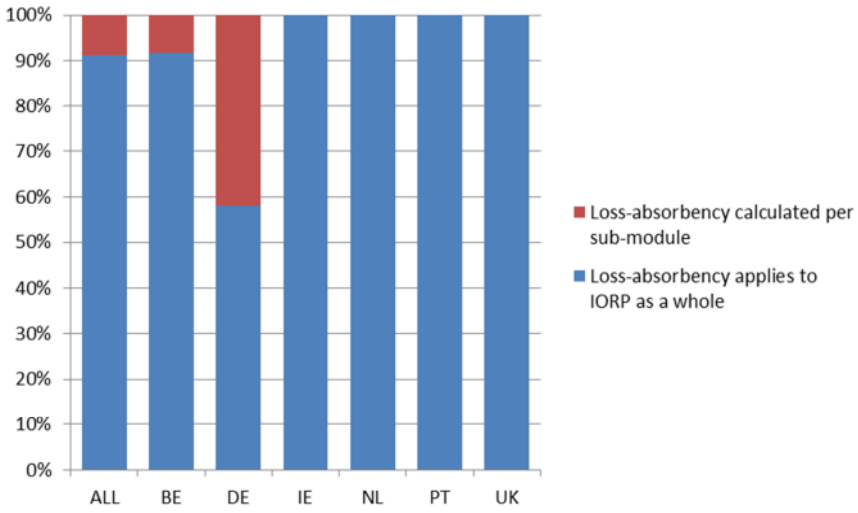


Source: EIOPA

293. A condition for doing the calculation at an aggregate level was that the loss-absorbency applies to the IORP as a whole and, hence, is not restricted to specific risks. The loss-absorbency could also be established at the level of the overall SCR if the IORP applied the balancing item approach to the valuation of sponsor support. All in all, more than 90% of IORPs made use of this simplification (see figure 7.24). Only a small proportion of IORPs in BE and a substantial part of IORPs in DE calculated the loss-absorbing capacity of security and benefit adjustment mechanisms for each SCR (sub-)module.

Figure 7.24: Method used to calculate loss-absorbing capacity of security and benefit adjustment mechanisms

% IORPs



Source: EIOPA

294. IORPs were asked in the qualitative questionnaire to provide their most important difficulties in implementing the SCR.

295. A number of IORPs responded that the technical specifications for the SCR are very lengthy, contain a lot of detail and are not always clear. Moreover, the calculations were very time consuming. It was particularly difficult to apply a look-through approach to investments and to categorise the data in an appropriate way for the various (sub-)modules. In this respect, the specifications were not always helpful. It was not specified which countries are represented in the EEA or the OECD and the spread risk module contained a lot of references to EU regulations. Moreover, references to the technical specifications in the reporting template were not always correct. IORPs mentioned that it was a considerable burden to value stressed balance sheets for the various SCR (sub-)modules. One IORP indicated that it was difficult to assess the impact of the different stress scenarios on derivative instruments, like options, forwards/futures and swaps. Another IORP had difficulty in understanding how to evaluate the counterparty default risk for cash and deposits at bank. Some IORPs questioned whether all the efforts were justified since the SCR was zero anyway due to the loss-absorbing capacity of security and benefit adjustment mechanisms. IORPs made the suggestion to develop a comprehensive spreadsheet to calculate the SCR, instead of having a reporting template with separate helper tabs for different (sub-)modules.

296. A couple of IORPs struck a more positive note. No practical problems were encountered in the aggregation of the capital charges for the various (sub-)modules since this was performed by the reporting template. Moreover, the view was expressed that the SCR standard formula provided an acceptable balance between accuracy and complexity.

7.9. IORPs' overall view on difficulties, specificities and user-friendliness

297. IORPs were requested to provide their most important difficulties in calculating the figures on the holistic balance sheet. The following list provides an overview of the responses:

- The required, detailed breakdown of the investment portfolio;
- Understanding the assumptions to be used for the valuation of liabilities and particularly whether the provided curves were spot or forward rates;
- The definition of "benefits and contributions to be included in cash flows" is not clear with respect to whether future contributions should be included when specific risks can be hedged, but when future contributions cannot be rejected;
- The use of multiple discount curves: market risk-free interest rate curve, national risk-free interest rate curve and EIOPA interest rate curve;
- High level of expert judgement required for the assumptions underlying stochastic valuations;
- Difficult to perform stochastic valuation of non-unconditional benefits over the entire duration of pension obligations;
- The valuation of mixed benefits/for-profit benefits/surplus sharing benefits;
- Categorising pension obligations in pure conditional, mixed and pure discretionary benefits;
- Projection of plan member option to choose lump sum instead of annuity;
- A correct evaluation of the cost-of-capital risk margin is very burdensome, while the provided simplification (8% of the best estimate) is too rough an approximation;

- Translating the risks and specificities of insurance instruments to the specifications for the quantitative assessment;
- The valuation of deferred tax assets and liabilities;
- Understanding the criteria for applying the balancing item approach to the valuation of sponsor support;
- Valuing sponsor support and in particular determining the financial strength of the sponsor (maximum sponsor support, sponsor default risk), especially for multi-employer IORPs.
- Level of judgement needed for making projections of the sponsor's future cash flows in order to establish its financial strength;
- The access to and availability of financial reporting data of the sponsor, especially in case multi-employer IORPs
- The SCR is very complex and still requires the calculation of many stressed balance sheets, even when the balancing item approach is applied;
- Applying a look-through approach and structuring the input data for the calculation of the SCR (sub-)modules;
- It is challenging to understand the concept of and determine the loss-absorbing capacity in the SCR calculation, especially in relation to the loss-absorbency of technical provisions;
- The projection of cash flows for fixed-income assets to evaluate the SCR for interest rate risk;
- Difficult to understand how to evaluate the SCR for counterparty default risk for cash and deposits at bank;
- The appropriate modelling of financial derivatives in the SCR calculation.

298. IORPs were also asked to explain what elements of the holistic balance sheet do not properly take into account the IORP's specificities. The list below summarises the responses:

- The establishment of a one-year SCR based on a market-consistent balance sheet results in short-term steering signals for IORPs' management, which is inconsistent with the long-term nature of occupational pension provision;
- The specified methods to value technical provisions do not match the needs of IORPs since national frameworks are different;
- A market-consistent balance sheet implies that EUR 100 of bonds has the same value as EUR 100 of equities. This ignores that risk-taking in collective pension arrangements is welfare improving through intergenerational risk sharing;
- The basic risk-free interest rate curve does not reflect the appropriate risk free curve.
- Market valuation of assets and liabilities using the risk-free interest rate swap curve conflicts with the national framework, which is relevant for the IORP's financial policy and strategy;
- Valuation of liabilities using the interest rate swap curve conflicts with existing LDI approach to match bond portfolio with liabilities valued using government bond yields;
- Valuing liabilities using the risk free interest rate results in a level of technical provisions which is too high when the IORP applies cash flow matching of liabilities through an LDI approach;
- Using the risk-free interest rate curve to value technical provisions ignores the returns on the investment portfolio;
- Using the risk-free interest rate curve to value technical provisions is too prudent given the long duration of liabilities, so an adjustment may be appropriate;
- The examples of supervisory frameworks that do not take into account benefit reductions seem not relevant for the NL IORP sector;

- The market values of mixed benefits and benefit reductions can be easily confused with expected indexation and benefit reductions. Therefore, an ALM analysis would be more appropriate to assess the expected development of pension benefits;
- The application of the risk margin is not appropriate for IORPs since they normally do not have to earn a cost of capital;
- The approach to value sponsor support and maximum sponsor support does not reflect the complex and dynamic nature of sponsor support and its specific characteristics;
- The technical specifications insufficiently consider multi-employer IORPs and in particular multi-employer IORPs based on collective labour agreements;
- The simplification for maximum sponsor support contained in the helper tab relies on strong assumptions which may require further analysis;
- The balancing item approach should not be restricted to sponsor support, but include all third parties that safeguard the pension promise, depending on their default rate and/or strength.

299. It should be noted that also the view was expressed that the holistic balance sheet takes into account the specificities of IORPs. According to this view, IORPs have the possibility to opt for their own specific methodologies based on the principle-based specification or use the available, more standardised simplifications.

300. Finally, IORPs were asked to describe the most important improvements to increase the user-friendliness of the exercise. The list below provides an overview of the suggestions:

- EIOPA should avoid conducting such exercises in the summer months, although it is to be commended that the quantitative assessment and stress test were combined;
- More time should be taken before launching in order to avoid that spreadsheets have to be updated during the exercise and that specifications have to be clarified;
- The participating IORPs should be afforded more time to get acquainted with the documentations, implement the specifications and analyse the results for the qualitative questionnaire;
- The Q&A procedure should be optimised so that answers to questions are published faster on EIOPA's website;
- The number of tested scenarios and examples of supervisory frameworks as well as the number of interest rate curves should be more limited;
- The number of questions, especially on data quality, should be reduced and the qualitative questionnaire should not contain requests to provide additional quantitative data or calculations (or these questions should be included in a quantitative questionnaire);
- The technical specifications, qualitative questionnaire and the reporting template should be available in all official or at least in the main EU working languages;
- The technical specifications should include a list of abbreviations and a key word register;
- The technical specifications should be more concise and clearer to save time on reading and interpreting the documentation, although it was also suggested that more detailed specifications are needed to enhance comparability;
- The global technical specifications should be supplemented by more detailed instructions from national supervisors, considering the specificities of the national IORP sectors;

- A comprehensive tool could be made available to perform the SCR calculations, instead of a reporting template and separate helper tabs for the various SCR (sub-)modules;
- The reporting template could be pre-filled with an example and accompanied by more detailed description on what should be entered in individual cells;
- Like in the QIS on IORPs, a tool to discount cash flows of assets and liabilities could be provided.

Annex A: Aggregate, grossed-up sample results of the QA under the national regime, baseline scenarios and examples of supervisory frameworks

The data provided in this annex refer to the end of 2014 and are expressed in EUR billion. The data were compiled for the purpose of the QA and do not correspond to statistics from official sources. The data are based on a sample of IORPs for BE, DE, NL, PT and the UK, which have subsequently been grossed up to the national level. For IE the data constitute NSA calculations on an aggregate IORP which is representative for the total of DB schemes in IE.

For BE, DE, NL and PT the total amount of assets on the national balance sheet has been used as a scaling factor to gross up the sample results to the national level. The scaling factor is uniform in each of these countries, i.e. no reweighting of IORPs occurs within the sample of each country.

For the UK, TPR made separate calculations for the part of the DB universe which was not included in the sample. The UK sample is made up of very large schemes which all qualified for the balancing item approach to the valuation of sponsor support. This is not wholly representative of the whole DB universe in the UK, as 4% of DB schemes measured in terms of assets does not meet at least one of the two conditions for using sponsor support as a balancing item as prescribed in the technical specifications for the QA. In consequence, simply applying a grossing up factor relating to assets would have been misleading. The TPR calculations for the non-participating DB schemes have been added to the results for the UK sample to obtain the QA outcomes for the total DB universe.

Please refer to the main text for the specifications and explanations of the QA results under the national regime (section 4), baseline scenarios (section 5) and examples of supervisory frameworks (section 6).

Table 1: QA results national regime, EUR billion

	ALL	BE	DE	IE	NL	PT	UK
Assets							
Investments (incl. pure DC)	2640.9	19.9	165.2	51.6	1133.4	14.9	1255.9
Sponsor support	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Legally enforceable							
Non-legally enforceable							
Pension protection scheme	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(Re)insurance recoverables	30.7	0.1	0.0	0.0	0.0	0.0	30.6
Other assets	371.1	0.7	4.4	0.0	0.1	0.3	365.7
Total assets	3042.8	20.7	169.6	51.6	1133.4	15.1	1652.3
Liabilities							
Technical provisions	3358.3	16.1	158.4	52.0	1146.5	14.7	1970.6
Risk margin							
Best estimate (excl. DC)	3358.0	16.1	158.2	52.0	1146.4	14.7	1970.6
Unconditional benefits							
Pure conditional benefits							
- ex ante benefit reductions							
Mixed benefits							
Pure discretionary benefits							
Ex post benefit reductions							
Reductions sponsor default							
Pure DC liabilities	0.3	0.0	0.1	0.0	0.2	0.0	0.0
Other liabilities	1.2	0.2	1.0	0.0	0.0	0.0	0.0
Total liabilities	3359.5	16.3	159.4	52.0	1146.5	14.7	1970.6
Capital requirement							
Excess assets over liabilities	-316.7	4.4	10.2	-0.4	-13.1	0.5	-318.3
Capital requirement	317.1	0.2	6.0	0.0	311.9	-1.0	0.0
Surplus (capital requirement)	-633.8	4.2	4.2	-0.4	-325.0	1.5	-318.3

Table 2: QA results baseline scenario 1, EUR billion

	ALL	BE	DE	IE	NL	PT	UK
Assets							
Investments (incl. pure DC)	2666.6	19.9	190.9	51.6	1133.4	14.9	1255.9
Sponsor support	1037.0	-0.9	27.6	2.2	37.7	3.2	967.1
Legally enforceable	1021.2	-0.9	27.6	0.0	24.3	3.1	967.1
Non-legally enforceable	15.8	0.0	0.0	2.2	13.4	0.1	0.0
Pension protection scheme	9.1	0.0	0.0	0.0	0.0	0.0	9.1
(Re)insurance recoverables	30.7	0.0	0.0	0.0	0.0	0.0	30.6
Other assets	372.3	0.8	5.4	0.0	0.1	0.3	365.7
Total assets	4115.6	19.8	223.9	53.9	1171.2	18.4	2628.5
Liabilities							
Technical provisions	3893.5	19.6	214.9	53.9	994.4	18.4	2592.5
Risk margin	11.0	0.4	3.3	7.3	0.0	0.0	0.0
Best estimate (excl. DC)	3882.2	19.1	211.4	46.6	994.2	18.4	2592.5
Unconditional benefits	3935.4	19.5	37.9	90.8	1149.4	18.4	2619.4
Pure conditional benefits	164.4	0.0	164.4	0.0	0.0	0.0	0.0
- ex ante benefit reductions	-11.5	0.0	-11.5	0.0	0.0	0.0	0.0
Mixed benefits	133.3	0.0	9.1	0.0	124.1	0.0	0.0
Pure discretionary benefits	0.7	0.7	0.0	0.0	0.0	0.0	0.0
Ex post benefit reductions	-341.6	-0.4	0.0	-44.1	-279.3	0.0	-17.7
Reductions sponsor default	-9.9	-0.7	0.0	0.0	0.0	0.0	-9.2
Pure DC liabilities	0.3	0.0	0.1	0.0	0.2	0.0	0.0
Other liabilities	2.5	0.2	2.3	0.0	0.0	0.0	0.0
Total liabilities	3896.0	19.8	217.1	53.9	994.4	18.4	2592.5
Capital requirement							
Excess assets over liabilities	219.6	0.0	6.8	0.0	176.8	0.0	36.0
SCR	42.6	0.0	6.6	0.0	0.0	0.0	36.0
Surplus (SCR)	177.0	0.0	0.2	0.0	176.8	0.0	0.0

Table 3: QA results baseline scenario 2, EUR billion

	ALL	BE	DE	IE	NL	PT	UK
Assets							
Investments (incl. pure DC)	2666.6	19.9	190.9	51.6	1133.4	14.9	1255.9
Sponsor support	426.7	-3.1	2.7	2.2	37.7	-2.1	389.2
Legally enforceable	411.3	-3.1	2.7	0.0	24.3	-1.9	389.2
Non-legally enforceable	15.4	0.0	0.0	2.2	13.4	-0.2	0.0
Pension protection scheme	3.0	0.0	0.0	0.0	0.0	0.0	3.0
(Re)insurance recoverables	30.7	0.0	0.0	0.0	0.0	0.0	30.6
Other assets	371.8	0.8	4.9	0.0	0.1	0.3	365.7
Total assets	3498.8	17.6	198.5	53.9	1171.2	13.0	2044.5
Liabilities							
Technical provisions	2876.7	17.4	177.1	53.9	654.0	13.0	1961.2
Risk margin	4.5	0.4	4.1	0.0	0.0	0.0	0.0
Best estimate (excl. DC)	2871.9	17.0	172.9	53.9	653.9	13.0	1961.2
Unconditional benefits	2927.4	16.5	32.7	74.3	814.7	13.0	1976.2
Pure conditional benefits	125.7	0.0	125.7	0.0	0.0	0.0	0.0
- ex ante benefit reductions	-0.5	0.0	-0.5	0.0	0.0	0.0	0.0
Mixed benefits	133.0	0.0	14.5	0.0	118.5	0.0	0.0
Pure discretionary benefits	0.6	0.6	0.0	0.0	0.0	0.0	0.0
Ex post benefit reductions	-309.7	0.0	0.0	-20.4	-279.4	0.0	-9.9
Reductions sponsor default	-5.0	0.0	0.0	0.0	0.0	0.0	-5.0
Pure DC liabilities	0.3	0.0	0.1	0.0	0.2	0.0	0.0
Other liabilities	2.3	0.2	2.1	0.0	0.0	0.0	0.0
Total liabilities	2879.0	17.6	179.2	53.9	654.0	13.0	1961.2
Capital requirement							
Excess assets over liabilities	619.8	0.0	19.3	0.0	517.1	0.0	83.3
SCR	83.4	0.0	8.1	0.0	0.0	0.0	75.3
Surplus (SCR)	536.3	0.0	11.2	0.0	517.1	0.0	8.0

Table 4: QA results example of supervisory framework 1, EUR billion

	ALL	BE	DE	IE	NL	PT	UK
Assets							
Investments (incl. pure DC)	2666.6	19.9	190.9	51.6	1133.4	14.9	1255.9
Sponsor support	1034.4	-0.1	27.6	2.2	33.2	3.4	968.1
Legally enforceable	1023.0	-0.1	27.6	0.0	24.3	3.1	968.1
Non-legally enforceable	11.4	0.0	0.0	2.2	8.9	0.3	0.0
Pension protection scheme	-	-	-	-	-	-	-
(Re)insurance recoverables	30.7	0.0	0.0	0.0	0.0	0.0	30.6
Other assets	372.3	0.8	5.4	0.0	0.1	0.3	365.7
Total assets	4103.9	20.6	223.9	53.9	1166.6	18.6	2620.3
Liabilities							
Technical provisions	4256.9	20.8	214.9	98.0	1285.3	18.6	2619.4
Risk margin	38.1	1.2	3.3	7.3	26.1	0.2	0.0
Best estimate (excl. DC)	4218.5	19.5	211.5	90.8	1259.0	18.4	2619.4
Unconditional benefits	3935.4	19.5	37.9	90.8	1149.4	18.4	2619.4
Pure conditional benefits	164.4	0.0	164.4	0.0	0.0	0.0	0.0
- ex ante benefit reductions	-11.5	0.0	-11.5	0.0	0.0	0.0	0.0
Mixed benefits	118.7	0.0	9.1	0.0	109.6	0.0	0.0
Pure discretionary benefits	-	-	-	-	-	-	-
Ex post benefit reductions	-	-	-	-	-	-	-
Reductions sponsor default	-	-	-	-	-	-	-
Pure DC liabilities	0.3	0.0	0.1	0.0	0.2	0.0	0.0
Other liabilities	2.5	0.2	2.3	0.0	0.0	0.0	0.0
Total liabilities	4259.4	20.9	217.2	98.0	1285.3	18.6	2619.4
Capital requirement							
Excess assets over liabilities	-155.5	-0.4	6.7	-44.1	-118.6	0.0	0.9
SCR	358.4	1.4	6.6	21.6	286.2	0.2	42.3
Surplus (SCR)	-514.0	-1.8	0.0	-65.7	-404.9	-0.2	-41.3
Funding requirement							
Financial assets	3069.5	20.7	196.3	51.6	1133.4	15.1	1652.3
Liabilities	4256.7	20.8	214.8	98.0	1285.1	18.6	2619.4
Surplus	-1187.2	-0.1	-18.5	-46.4	-151.7	-3.4	-967.1

Table 5: QA results example of supervisory framework 2, EUR billion

	ALL	BE	DE	IE	NL	PT	UK
Assets							
Investments (incl. pure DC)	2666.6	19.9	190.9	51.6	1133.4	14.9	1255.9
Sponsor support	418.6	-3.1	2.6	2.2	29.4	-2.0	389.4
Legally enforceable	411.4	-3.1	2.6	0.0	24.3	-1.9	389.4
Non-legally enforceable	7.3	0.0	0.0	2.2	5.1	-0.1	0.0
Pension protection scheme	-	-	-	-	-	-	-
(Re)insurance recoverables	30.7	0.0	0.0	0.0	0.0	0.0	30.6
Other assets	371.8	0.8	4.9	0.0	0.1	0.3	365.7
Total assets	3487.6	17.6	198.4	53.9	1162.9	13.2	2041.7
Liabilities							
Technical provisions	3083.9	16.9	171.2	74.3	832.3	13.2	1976.2
Risk margin	22.0	0.4	4.1	0.0	17.3	0.2	0.0
Best estimate (excl. DC)	3061.6	16.5	166.9	74.3	814.7	13.0	1976.2
Unconditional benefits	2927.4	16.5	32.7	74.3	814.7	13.0	1976.2
Pure conditional benefits	134.2	0.0	134.2	0.0	0.0	0.0	0.0
- ex ante benefit reductions	-0.5	0.0	-0.5	0.0	0.0	0.0	0.0
Mixed benefits	-	-	-	-	-	-	-
Pure discretionary benefits	-	-	-	-	-	-	-
Ex post benefit reductions	-	-	-	-	-	-	-
Reductions sponsor default	-	-	-	-	-	-	-
Pure DC liabilities	0.3	0.0	0.1	0.0	0.2	0.0	0.0
Other liabilities	2.3	0.2	2.1	0.0	0.0	0.0	0.0
Total liabilities	3086.2	17.0	173.3	74.3	832.3	13.2	1976.2
Capital requirement							
Excess assets over liabilities	401.4	0.6	25.1	-20.4	330.6	0.0	65.5
SCR	439.3	1.4	9.1	20.1	338.4	0.0	70.3
Surplus (SCR)	-38.1	-0.8	15.8	-40.5	-7.8	0.0	-4.8
Funding requirement							
Financial assets	3069.0	20.7	195.8	51.6	1133.4	15.1	1652.3
Liabilities	3062.1	16.5	167.4	74.3	814.7	13.0	1976.2
Surplus	6.9	4.2	28.4	-22.6	318.7	2.1	-323.9

Table 6: QA results example of supervisory framework 3, EUR billion

	ALL	BE	DE	IE	NL	PT	UK
Assets							
Investments (incl. pure DC)	2666.6	19.9	190.9	51.6	1133.4	14.9	1255.9
Sponsor support	1013.5	-0.9	19.3	0.0	24.3	3.1	967.7
Legally enforceable	1013.5	-0.9	19.3	0.0	24.3	3.1	967.7
Non-legally enforceable	-	-	-	-	-	-	-
Pension protection scheme	9.1	0.0	0.0	0.0	0.0	0.0	9.1
(Re)insurance recoverables	30.7	0.0	0.0	0.0	0.0	0.0	30.6
Other assets	372.3	0.8	5.4	0.0	0.1	0.3	365.7
Total assets	4092.1	19.8	215.6	51.6	1157.8	18.2	2629.1
Liabilities							
Technical provisions	4132.4	20.0	200.8	98.0	1175.7	18.6	2619.4
Risk margin	37.4	0.4	3.4	7.3	26.1	0.2	0.0
Best estimate (excl. DC)	4094.7	19.5	197.3	90.8	1149.4	18.4	2619.4
Unconditional benefits	3935.4	19.5	37.9	90.8	1149.4	18.4	2619.4
Pure conditional benefits	159.3	0.0	159.3	0.0	0.0	0.0	0.0
- ex ante benefit reductions	-16.7	0.0	-16.7	0.0	0.0	0.0	0.0
Mixed benefits	-	-	-	-	-	-	-
Pure discretionary benefits	-	-	-	-	-	-	-
Ex post benefit reductions	-	-	-	-	-	-	-
Reductions sponsor default	-	-	-	-	-	-	-
Pure DC liabilities	0.3	0.0	0.1	0.0	0.2	0.0	0.0
Other liabilities	2.5	0.2	2.3	0.0	0.0	0.0	0.0
Total liabilities	4134.9	20.2	203.1	98.0	1175.7	18.6	2619.4
Capital requirement							
Excess assets over liabilities	-42.8	-0.4	12.5	-46.4	-17.9	-0.3	9.7
SCR	454.6	1.4	8.6	20.0	393.5	0.6	30.6
Surplus (SCR)	-497.4	-1.8	3.9	-66.3	-411.4	-0.9	-20.9
Funding requirement							
Financial assets	3069.5	20.7	196.3	51.6	1133.4	15.1	1652.3
Liabilities	3062.5	16.5	167.9	74.3	814.7	13.0	1976.2
Surplus	6.9	4.2	28.4	-22.6	318.7	2.1	-323.9

Table 7: QA results example of supervisory framework 4, EUR billion

	ALL	BE	DE	IE	NL	PT	UK
Assets							
Investments (incl. pure DC)	2666.6	19.9	190.9	51.6	1133.4	14.9	1255.9
Sponsor support	1033.4	-0.9	26.0	2.2	35.7	3.2	967.1
Legally enforceable	1019.6	-0.9	26.0	0.0	24.3	3.1	967.1
Non-legally enforceable	13.8	0.0	0.0	2.2	11.4	0.1	0.0
Pension protection scheme	9.1	0.0	0.0	0.0	0.0	0.0	9.1
(Re)insurance recoverables	30.7	0.0	0.0	0.0	0.0	0.0	30.6
Other assets	372.3	0.8	5.4	0.0	0.1	0.3	365.7
Total assets	4112.0	19.8	222.3	53.9	1169.2	18.4	2628.5
Liabilities							
Technical provisions	3767.1	18.9	207.5	53.9	875.9	18.4	2592.5
Risk margin	11.1	0.4	3.4	7.3	0.0	0.0	0.0
Best estimate (excl. DC)	3755.7	18.5	204.0	46.6	875.7	18.4	2592.5
Unconditional benefits	3935.4	19.5	37.9	90.8	1149.4	18.4	2619.4
Pure conditional benefits	166.1	0.0	166.1	0.0	0.0	0.0	0.0
- ex ante benefit reductions	-9.9	0.0	-9.9	0.0	0.0	0.0	0.0
Mixed benefits	-	-	-	-	-	-	-
Pure discretionary benefits	-	-	-	-	-	-	-
Ex post benefit reductions	-336.0	-0.4	0.0	-44.1	-273.7	0.0	-17.7
Reductions sponsor default	-9.9	-0.7	0.0	0.0	0.0	0.0	-9.2
Pure DC liabilities	0.3	0.0	0.1	0.0	0.2	0.0	0.0
Other liabilities	2.5	0.2	2.3	0.0	0.0	0.0	0.0
Total liabilities	3769.5	19.1	209.8	53.9	875.9	18.4	2592.5
Capital requirement							
Excess assets over liabilities	342.5	0.7	12.5	0.0	293.2	0.0	36.0
SCR	104.8	0.6	7.9	0.0	60.3	0.0	36.0
Surplus (SCR)	237.7	0.0	4.7	0.0	233.0	0.0	0.0
Funding requirement							
Financial assets	3069.5	20.7	196.3	51.6	1133.4	15.1	1652.3
Liabilities	3063.0	16.5	168.4	74.3	814.7	13.0	1976.2
Surplus	6.5	4.2	27.9	-22.6	318.7	2.1	-323.9

Table 8: QA results example of supervisory framework 5, EUR billion

	ALL	BE	DE	IE	NL	PT	UK
Assets							
Investments (incl. pure DC)	2666.6	19.9	190.9	51.6	1133.4	14.9	1255.9
Sponsor support	-	-	-	-	-	-	-
Legally enforceable	-	-	-	-	-	-	-
Non-legally enforceable	-	-	-	-	-	-	-
Pension protection scheme	-	-	-	-	-	-	-
(Re)insurance recoverables	30.7	0.0	0.0	0.0	0.0	0.0	30.6
Other assets	372.3	0.8	5.4	0.0	0.1	0.3	365.7
Total assets	3069.5	20.7	196.3	51.6	1133.4	15.1	1652.3
Liabilities							
Technical provisions	4240.7	20.8	201.3	98.0	1282.6	18.6	2619.4
Risk margin	39.6	1.2	4.8	7.3	26.1	0.2	0.0
Best estimate (excl. DC)	4200.8	19.5	196.4	90.8	1256.3	18.4	2619.4
Unconditional benefits	3935.4	19.5	37.9	90.8	1149.4	18.4	2619.4
Pure conditional benefits	149.5	0.0	149.5	0.0	0.0	0.0	0.0
- ex ante benefit reductions	-26.4	0.0	-26.4	0.0	0.0	0.0	0.0
Mixed benefits	116.0	0.0	9.0	0.0	106.9	0.0	0.0
Pure discretionary benefits	-	-	-	-	-	-	-
Ex post benefit reductions	-	-	-	-	-	-	-
Reductions sponsor default	-	-	-	-	-	-	-
Pure DC liabilities	0.3	0.0	0.1	0.0	0.2	0.0	0.0
Other liabilities	2.5	0.2	2.3	0.0	0.0	0.0	0.0
Total liabilities	4243.1	21.0	203.6	98.0	1282.6	18.6	2619.4
Capital requirement							
Excess assets over liabilities	-1173.7	-0.3	-7.3	-46.4	-149.2	-3.4	-967.1
Capital requirement	247.4	1.0	6.7	4.9	140.0	0.0	94.7
Surplus (capital requirement)	-1420.9	-1.3	-13.9	-51.3	-289.2	-3.4	-1061.8
Funding requirement							
Financial assets	3069.5	20.7	196.3	51.6	1133.4	15.1	1652.3
Liabilities	4240.4	20.8	201.2	98.0	1282.4	18.6	2619.4
Surplus	-1170.9	-0.1	-4.9	-46.4	-149.0	-3.4	-967.1

Table 9: QA results example of supervisory framework 6, EUR billion

	ALL	BE	DE	IE	NL	PT	UK
Assets							
Investments (incl. pure DC)	2666.6	19.9	190.9	51.6	1133.4	14.9	1255.9
Sponsor support	1037.0	-0.9	27.6	2.2	37.7	3.2	967.1
Legally enforceable	1021.2	-0.9	27.6	0.0	24.3	3.1	967.1
Non-legally enforceable	15.8	0.0	0.0	2.2	13.4	0.1	0.0
Pension protection scheme	9.1	0.0	0.0	0.0	0.0	0.0	9.1
(Re)insurance recoverables	30.7	0.0	0.0	0.0	0.0	0.0	30.6
Other assets	372.3	0.8	5.4	0.0	0.1	0.3	365.7
Total assets	4115.6	19.8	223.9	53.9	1171.2	18.4	2628.5
Liabilities							
Technical provisions	3893.5	19.6	214.9	53.9	994.4	18.4	2592.5
Risk margin	11.0	0.4	3.3	7.3	0.0	0.0	0.0
Best estimate (excl. DC)	3882.2	19.1	211.4	46.6	994.2	18.4	2592.5
Unconditional benefits	3935.4	19.5	37.9	90.8	1149.4	18.4	2619.4
Pure conditional benefits	164.4	0.0	164.4	0.0	0.0	0.0	0.0
- ex ante benefit reductions	-11.5	0.0	-11.5	0.0	0.0	0.0	0.0
Mixed benefits	133.3	0.0	9.1	0.0	124.1	0.0	0.0
Pure discretionary benefits	0.7	0.7	0.0	0.0	0.0	0.0	0.0
Ex post benefit reductions	-341.6	-0.4	0.0	-44.1	-279.3	0.0	-17.7
Reductions sponsor default	-9.9	-0.7	0.0	0.0	0.0	0.0	-9.2
Pure DC liabilities	0.3	0.0	0.1	0.0	0.2	0.0	0.0
Other liabilities	2.5	0.2	2.3	0.0	0.0	0.0	0.0
Total liabilities	3896.0	19.8	217.1	53.9	994.4	18.4	2592.5
Excess assets over liabilities							
Excess assets over liabilities	219.6	0.0	6.8	0.0	176.8	0.0	36.0
Standardised risk assessment							
Risk exposure	-1210.7	-5.6	-49.1	-21.4	-404.9	-4.5	-725.2
Risk-absorbency security and benefit adjustment mechanisms	1168.1	5.6	42.5	21.4	404.9	4.5	689.2
Excess assets over liabilities	-42.6	0.0	-6.6	0.0	0.0	0.0	-36.0

Annex B: List of country abbreviations

AT	Austria
BE	Belgium
BG	Bulgaria
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
ES	Spain
FI	Finland
FR	France
GR	Greece
HR	Croatia
HU	Hungary
IE	Ireland
IS	Iceland
IT	Italy
LI	Liechtenstein
LT	Lithuania
LU	Luxembourg
LV	Latvia
MT	Malta
NL	Netherlands
NO	Norway
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom

Annex C: List of other abbreviations used

A	Assets
ABO	Accumulated benefit obligation
ALM	Asset and liability management
ASA	Alternative simplified approach
bps	Basis points
DB	Defined benefit
DC	Defined contribution
EAL	Excess of assets over liabilities
EBITDA	Earnings before interest, taxes, depreciation and amortisation
EBT	Earnings before taxes
EEA	European Economic Area
EIOPA	European Insurance and Occupational Pensions Authority
EU	European Union
EUR	Euro
GBP	Great Britain Pound
HBS	Holistic balance sheet
IORP	Institution for Occupational Retirement Provision
L	Liabilities
LDI	Liability driven investment
LLP	Last liquid point
NSA	National supervisory authority
OECD	Organisation for Economic Cooperation and Development
PPF	Pension Protection Fund
pps	Pension protection scheme
PSVaG	Pensions-Sicherungs-Verein Versicherungsverein auf Gegenseitigkeit
Q&A	Questions and answers
QA	Quantitative assessment
QIS	Quantitative impact study
SCR	Solvency capital requirement
ST	Stress test
TPR	The Pensions Regulator
tr	Trillion (10^{12})
UFR	Ultimate forward rate