Government Actuary's Department

LGPS SCOTLAND

Section 13 Dry Run Report

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Contents

1 Executive summary

In connection with the local fund valuations of the Local Government Pension Scheme (Scotland) (LGPS Scotland) from 2017, section 13 of the Public Service Pensions Act 2013 requires the Government Actuary to report on whether four main aims are achieved:

> compliance: whether the fund's valuation is in accordance with the scheme regulations

> consistency: whether the fund's valuation has been carried out in a way which is not inconsistent with the other fund valuations within LGPS Scotland

> solvency: whether the rate of employer contributions is set at an appropriate level to ensure the solvency of the pension fund

> long term cost efficiency: whether the rate of employer contributions is set at an appropriate level to ensure the long-term cost-efficiency of the scheme, so far as relating to the pension fund

We have carried out a "dry run" section 13 analysis based on the 2014 local valuations.

Compliance

We found no evidence of material non-compliance.

Consistency

We found inconsistencies between the valuations in terms of approach taken, assumptions used and disclosures. These inconsistencies make meaningful comparison of local valuation results unnecessarily difficult.

Solvency

Funds raised few concerns in the area of solvency. The only flags raised were due to an increase in contribution following an asset shock for the open funds. Closed funds are generally well funded, so that the main concerns related to the fact that there is different covenant value for private sector employers.

Long term cost efficiency

Funds raised few concerns in the area of long term cost efficiency. This is because they are all in surplus on the standardised basis, so our measures, which deal with deficit elimination, were not triggered.

We note however standardised assumptions we have used are not appropriate for funding purposes, which is managed on a local agreed basis, in accordance with the Regulations and the Funding Strategy Statement.

Future analysis

Based on our on-going experience of reporting under section 13(4) (including this dry run) we may change or add considerations, criteria, tests or metrics to the analysis in the future.

1.1 The Government Actuary has been appointed by the Scottish Public Pensions Agency ("SPPA") on behalf of Scottish Ministers to report under section 13 of the Public Service Pensions Act 2013 in connection with the Local Government Pension Scheme (Scotland) ("LGPS Scotland" or "the Scheme"). Section 13 provides for a review of LGPS Scotland funding valuations and employer contribution rates to check that they are appropriate and requires remedial steps to be taken where scheme managers consider appropriate.

Aims of section 13

1.2 Section 13 will apply for the first time to the 2017 round of sixteen separate fund valuations for LGPS Scotland. Specifically, in relation to each fund within LGPS Scotland, section 13 requires the Government Actuary to report on whether four main aims are achieved:

> compliance: whether the fund's valuation is in accordance with the scheme regulations;

> consistency: whether the fund's valuation has been carried out in a way which is not inconsistent with the other fund valuations within LGPS Scotland;

> solvency: whether the rate of employer contributions is set at an appropriate level to ensure the solvency of the pension fund; and

> long term cost efficiency: whether the rate of employer contributions is set at an appropriate level to ensure the long-term cost-efficiency of the scheme, so far as relating to the pension fund.

Purpose of the dry run

1.3 SPPA, on behalf of Scottish Ministers, has asked the Government Actuary's Department ("GAD") to carry out a "dry run" based on the round of LGPS Scotland valuations completed as at 31 March 2014 to demonstrate how we may have approached our analysis had section 13 applied to those valuations. This dry run report is designed to help those administering authorities and their actuarial advisors to prepare for the 2017 round of valuations with some knowledge about how GAD might approach reporting under section 13 following those valuations.

1.4 Based on our on-going experience of reporting under section 13(4) (including this dry run) we may change or add considerations, criteria, tests or metrics to the analysis in the future.

1.5 In this dry run report we make no specific recommendations for remedial steps in relation to solvency and long term cost efficiency, as section 13 did not apply as at 31 March 2014. All the funds are well funded on the standardised basis, so few flags were raised. If section 13 had applied at 31 March 2014, we do not expect to have made any fund specific recommendations.

1.6 As part of the dry run analysis, we indicate in this report how the process following production of a draft report under section 13 might have progressed had section 13 applied in terms of engagement with administering authorities prior to finalisation of the report.

Compliance

1.7 We found no evidence of non-compliance with the scheme regulations. Two fund valuation reports contained no mention of compliance with regulations. We have sought clarification on this from the fund actuary, which has allayed our concerns.

Consistency

1.8 Section 13(4)(b) states that actuarial valuations should be carried out in a way which is not inconsistent with other valuations completed under the scheme regulations. GAD has taken "other valuations" to mean valuations of other funds within LGPS Scotland, as at 31 March 2014[1]. We do not consider it appropriate to compare the LGPS Scotland valuations with LGPS England and Wales valuations, for example.

1.9 Under the heading of consistency, we have found inconsistencies between the valuations in terms of approach taken, assumptions used and disclosures. These inconsistencies make meaningful comparison of local valuation results unnecessarily difficult.

1.10 The primary areas GAD has analysed are:

- Common contribution rates
- Average actual contributions vs common contribution rate
- Assumptions

1.11 We have viewed consistency in two ways:

- Presentational. Those aspects of the valuations for which we consider there is no particular justification for differences in disclosure between different funds. This includes results disclosures (i.e. presenting the key results in a similar format) and agreeing a common understanding of terms such as the common contribution rate ("CCR"[2]) even if these are not explicitly defined in regulations.
- Evidential. Those aspects of the valuations that should be consistent except where supported by evidence or local circumstances (e.g. some demographic assumptions). On financial assumptions, we believe that local circumstances may merit different assumptions (e.g. current and future planned investment strategy, different financial circumstances) leading to different levels of prudence adopted. However, in some areas, it appears that the choice of assumptions is

[1] in line with Explanatory note 88 of the Act.

[2] CCR has been replaced by primary and secondary rates in regulation 60.

highly dependent on the "house view" of the particular firm of actuaries advising the fund, with only limited evidence of allowance for local circumstances.

1.12 There is a wide range of reasonable assumptions for uncertain future events, such as the financial assumptions. For the avoidance of doubt, we have not concluded that any of the approaches, taken in isolation, are unreasonable. However in some cases the approaches are not consistent with each other, and it is not clearly explained in valuation reports whether the relevant assumptions, and hence differences in those assumptions between funds, are solely driven by local circumstances. Furthermore, there would also seem to be no common understanding of what constitutes "prudence" for the purposes of regulation 56 of the Local Government Pension Scheme (Scotland) Regulations 2014, and its reference to CIPFA guidance.

1.13 We are not expecting the immediate prescription of assumptions. Nevertheless readers of the reports might expect there to be consistency, and that transparent comparisons can be made between funds.

1.14 We are only able to conclude under section 13(4)(b) of the PSPS Act 2013 that 'the valuation has been carried out in a way which is not inconsistent with other valuations', if the valuations are carried out in consistent manner. Currently, in our opinion, the valuations are not carried out consistently.

1.15 We appreciate that there are significant challenges to achieving full consistency, particularly in the short term. In the longer term, we would however expect a narrowing of the range of assumptions used, where local experience cannot be used to justify differences.

1.16 We recommend that the three actuarial firms who advise administering authorities in carrying out funding valuations should seek to agree a standard way of presenting relevant disclosures in their valuation reports to better facilitate comparison.

Solvency

1.17 Under the heading of solvency, the closed funds had various strategies in place to protect benefits in the event of a shock, such as a fall in asset values, a rise in liability values or a failure of employers. A combination of being backed by private sector employers and being closed to new entrants (so reducing pensionable payroll through which to absorb volatility) leads to some concerns about the resilience of these funds.

1.18 A small number of amber flags were raised under solvency for the open funds under our asset shock. However, none were red-flagged and we had few concerns. Please see table 6.2 for further detail.

1.19 We believe it is important that administering authorities and other employers understand the potential for variability in contributions, so that they can understand the affordability of potential future contribution requirements.

1.20 A more detailed description of the tests and triggers alluded to in the tables below can be found in the relevant sections of this report and are not repeated in this executive summary.

Long term cost efficiency

1.21 All funds were well funded on the standardised and best estimate bases, which means that many of our measures under long term cost efficiency are not applicable, since they deal with elimination of deficit on that basis.

1.22 It should be noted, however, that the standardised assumptions we have used are not appropriate for funding purposes, which is managed on a local agreed basis, in accordance with the Regulations and the Funding Strategy Statement.

1.23 One fund, Strathclyde Pension Fund, lengthened its actual deficit recovery period since the previous valuation as at 31 March 2011. Lothian Buses, shows a surplus on an ongoing valuation basis, but a deficit on a more cautious basis (using gilt yields as the discount rate). It appears to have indicated an extended deficit recovery period on this latter basis. We understand both funds have plans in place following

2 Introduction

This report summarises GAD's "dry run" review of the actuarial valuations of the Local Government Pension Scheme as at 31 March 2014 as if section 13 of the Public Service Pensions Act 2013 had been in force at that date with the Government Actuary as the appointed person under section 13.

We have looked at a range of metrics to identify exceptions. Remedial steps may have been recommended where there is a potentially material combination of negative outcomes against those metrics which is not satisfactorily explained or justified. Failure against one metric may not by itself always lead to remedial action being recommended.

2.1 This report is addressed to Scottish Ministers. GAD has prepared this paper to set out the results of our review of the 2014 funding valuations of LGPS Scotland as if section 13 of the Public Service Pensions Act 2013 ("section 13" of "the Act") as it pertains to LGPS Scotland had been in force as at 31 March 2014.

2.2 Section 13 will apply for the first time to the valuations as at 31 March 2017. This report therefore does not have authority under the Act. Instead it serves as a "dry run" to assist stakeholders in preparing for the 2017 round of LGPS Scotland funding valuations, and is hereafter referred to as the "dry run report". We expect our report following the 2017 valuations to comprise more in-depth analysis in some areas. In relation to exceptions (this term is described below), we refer to actions we may have taken had section 13 applied as at 31 March 2014.

2.3 Subsection (4) of section 13, requires the Government Actuary to report on whether the four main aims are met:

> <u>Compliance</u>: whether the fund's valuation is in accordance with the scheme regulations

> <u>Consistency</u>: whether the fund's valuation has been carried out in a way which is not inconsistent with the other fund valuations within LGPS Scotland

> <u>Solvency</u>: whether the rate of employer contributions is set at an appropriate level to ensure the solvency of the pension fund

> <u>Long term cost efficiency</u>: whether the rate of employer contributions is set at an appropriate level to ensure the long-term cost-efficiency of the scheme, so far as relating to the pension fund

2.4 Section 13, subsection (6) states that if any of the aims of subsection (4) are not achieved,

a) the report may recommend remedial steps;

b) the scheme manager must—

(i) take such remedial steps as the scheme manager considers appropriate, and

(ii) publish details of those steps and the reasons for taking them;

c) the responsible authority may—

(i) require the scheme manager to report on progress in taking remedial steps;

(ii) direct the scheme manager to take such remedial steps as the responsible authority considers appropriate.

Purpose of this paper

2.5 The purpose of this paper is to provide stakeholders with information about:

> the tests and metrics we have used to assess whether the aims of compliance, consistency, solvency and long term cost efficiency have been achieved;

> an indication of how funds performed against the chosen metrics; and

> how we determine exceptions.

2.6 This report is designed to help those authorities prepare for valuations from 2017 onwards, when section 13 will be in force.

2.7 This paper will be of relevance to LGPS Scotland stakeholders including Scottish Ministers, the Chartered Institute of Public Finance & Accountancy ("CIPFA"), administering authorities and other employers, actuaries performing valuations for the funds within LGPS Scotland, the Scottish LGPS Scheme Advisory Board ("SAB") and HM Treasury ("HMT").

Exceptions

2.8 Exceptions occur where funds appear to be materially out of line with other funds, or out of line with what we might have expected based on our judgement and our interpretation of solvency and long term cost efficiency.

2.9 We have looked at a range of metrics to identify exceptions under solvency and long term cost efficiency. We have expressed these in the form of green, amber or red flags. In broad terms, a red flag or a combination of amber flags would tend to indicate a need for further investigation and/or engagement with the relevant administering authority and their actuary. The trigger points for these flags are based on a combination of absolute measures and measures relative to the bulk of the funds in scope.

2.10 More detail is provided in the solvency and long term cost efficiency chapters and appendices. It should be noted that these flags are intended to highlight areas for further investigation, but green does not indicate a clean bill of health and also that the fact we are not specifically suggesting remedial action does not mean that scheme managers should not consider actions.

2.11 Local valuation outputs depend on both the administering authorities' Funding Strategy Statements and the actuary's work on the valuation. We have reported where valuation outcomes raised concerns in relation to the aims of section 13, but it is not our role to express an opinion as to whether that conclusion was driven by the actions of authorities or their actuary, or other stakeholders.

Remedial steps

2.12 Section 13 does not prescribe what remedial steps may be recommended, but for example they could include:

> that the administering authority consider and report on an issue (e.g. if a closed scheme has no plan to deal with a material reduction in the capacity of fund employers to increase contributions in place);

> that the administering authority strengthens scheme governance, for example by making changes to a relevant committee[3] or pensions board;

> that a revised approach be taken at the next valuation; and

> that the current valuation be reopened and changes made to employer contributions in advance of the next valuation.

2.13 Remedial steps may be recommended if there is a potentially material combination of negative outcomes against those metrics which is not satisfactorily explained or justified. Failure against one metric may not by itself lead to remedial steps being recommended.

2.14 Our aim in producing this dry run report is to encourage, where appropriate, administering authorities to consider taking steps to change the approach taken to the 2017 valuation.

Limitations

2.15 We recognise that the use of data and models has limitations. For instance, the data that we have from valuation submissions and publicly available financial information is likely to be significantly less detailed than that available to funds. Our risk assessment framework enables us to broadly assess scheme risks and decide on our engagement with funds on an indicative basis.

2.16 Although much of the analysis, particularly the calculations we have undertaken, is approximate, we consider it to be sufficient for the purposes of identifying which funds could be subject to recommendation for remedial steps. While the measures used should not represent targets, these measures help us determine whether a more detailed review is required; for example, we may have highlighted where multiple measures are triggered amber for a given fund.

[3] For example, a committee formed under section 56 of the Local Government (Scotland) Act, 1973.

2.17 For some measures under solvency and long term cost efficiency, data were not available. We expect that data will be available for the section 13 work following the 2017 valuations.

2.18 We have not considered the impact of post valuation events except to the extent that these may have already been taken into account in the valuation disclosures.

Data on contributions paid

2.19 We were provided data on average contributions expected to be paid into each fund by the actuarial firms. We have checked that the numbers provided look reasonable.

2.20 Our data request sought actual contributions for 2014/15 and expected contributions from 2015/16 – 2016/17.

Standardised basis

2.21 There are significant areas of inconsistency highlighted in chapter 4, which make meaningful comparison of valuation results set out in local valuations reports unnecessarily difficult.

2.22 To address this, we have restated the results on a standardised basis. This basis is not market consistent and is the same as the SAB standardised basis used in the LGPS England & Wales Section 13 Dry Run Report to aid comparison.

2.23 Further details of this basis can be found in Appendix E. Note that this basis may change for the 2017 report.

2.24 The restatement to the standardised basis has been done approximately. For example, if results for different employers within a particular fund are produced on different bases, our restatement process would not be able to pick up that level of detail, and the restated results could be incorrect if a particular employer was material in relation to the overall assets and liabilities of that fund.

2.25 This use of standardisation does not imply the bases are suitable to be used for funding purposes.

2.26 The standardised basis is arbitrary and was not set to be market consistent or prudent, while regulations and CIPFA guidance call for prudence to be adopted. The standardised basis is not pertinent to any given fund's particular investment strategy and is merely to enable comparisons to be made. In particular it should not be seen as a minimum funding requirement, nor should it encourage funds/employers to reduce the margins for prudence they have adopted for funding purposes. Further this does not take into account any anticipated changes in investment strategy that may be planned or in progress.

2.27 Use of this basis leads to relatively high funding levels, in particular for the closed funds, which tend to be funded on a more cautious basis than the open funds due to their relative maturity.

Sensitivities

2.28 The local valuations and our calculations underlying this dry run report are based on specific sets of assumptions about the future. Some of our solvency measures are stress tests but these are not intended to indicate a worst case scenario. Following the 2017 valuations, we intend to illustrate a range of potential outcomes.

Future review

2.29 Based on our on-going experience of reporting under section 13 (including this "dry run" report) we may add additional considerations, criteria, tests or metrics to the analysis. It is currently our intention that we will endeavour to consult (informally or formally), or forewarn, stakeholders in advance of adding such additional considerations/criteria.

2.30 We note that following the publication of the dry run report, there may be changes to regulations and approaches to local valuations in 2017 and beyond, which could lead to changes in the items analysed, under consistency for example, in future iterations of section 13.

Appendices

2.31 Appendices are contained in a separate document.

2.32 We reproduce section 13 of the Act in Appendix A. Other relevant regulations are reproduced in Appendix B. Appendix C contains a description of data provided including mapping of 32 local authorities to the 11 administering authorities in the Scheme. Appendix D sets out the bases used for standardising results. Appendix E contains descriptions of standardised assumptions used. Appendix F contains descriptions of measures for Solvency. Appendix G contains descriptions of measures for long term cost efficiency.

Other important information

2.33 GAD has no liability to any person or third party for any act or omission taken, either in whole or in part, on the basis of this report. No decisions should be taken on the basis of this report alone without having received proper advice. GAD is not responsible for any such decisions taken.

2.34 In performing this analysis, we are grateful for helpful discussions with and cooperation from:

> Scottish Ministers/SPPA

> Fund actuaries

> LGPS (Scotland) Scheme Advisory Board

> CIPFA

> HMT

2.35 We have conducted our analysis assuming that the *desirability* of stable contributions is subordinate to the *requirement* for solvency and long term cost efficiency under the relevant legislation.

2.36 We understand and assume that there is no regulatory authority assumed by or conferred on the Government Actuary in preparing this or any future section 13 report, and neither does the appointment to report under section 13 give the Government Actuary any statutory power to enforce actions on scheme managers (or others).

2.37 The modelling underlying this report has been prepared in accordance with the Board for Actuarial Standards' Technical Actuarial Standard M: Modelling. The report complies with TAS M and TAS R: Reporting.

3 Funding analysis

This chapter provides the reader with some context in terms of the size of fund liabilities, investment strategies and covenant risk.

The liabilities are dominated by Strathclyde #1 fund. Closed funds represent a small proportion of total liabilities.

Investment strategy is mainly return seeking. Closed funds have on average around 25% of their assets in defensive classes.

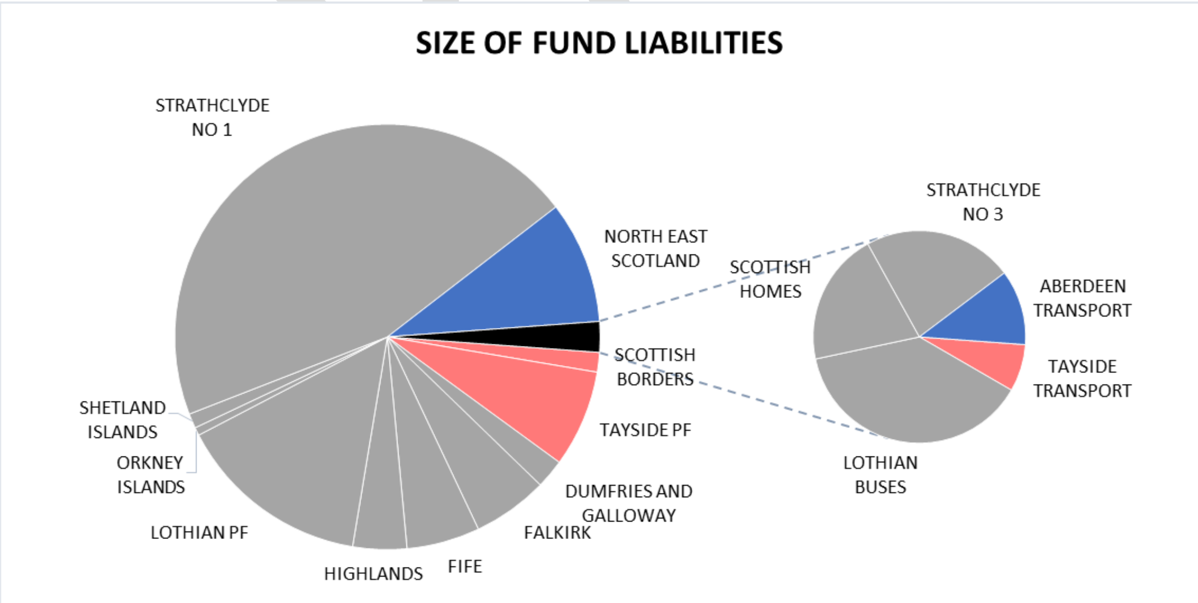
Some of the closed funds are generally dominated by private sector employers, which leads to some concerns about the ability of employers to meet pensions when due.

3.1 Chart 3.1 shows the proportion of scheme liabilities relating to each fund.

3.2 Strathclyde #1 and Lothian Pension Fund together represent almost 70% of total liabilities.

3.3 Closed funds represent less than 2.5% of total liabilities.

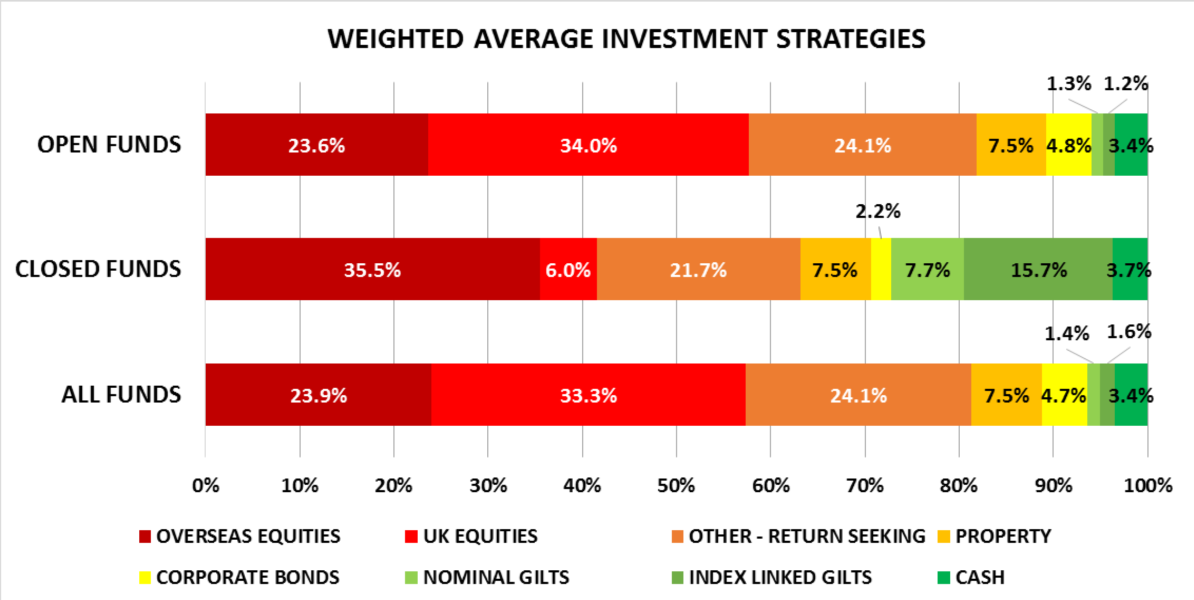
Chart 3.1: Size of liabilities by fund and actuarial advisor



3.4 Scottish local government consists of 32 local authorities. These participate in the LGPS Scotland through eleven administering authorities. The local authorities are allocated across these administering authorities as shown in Appendix D.

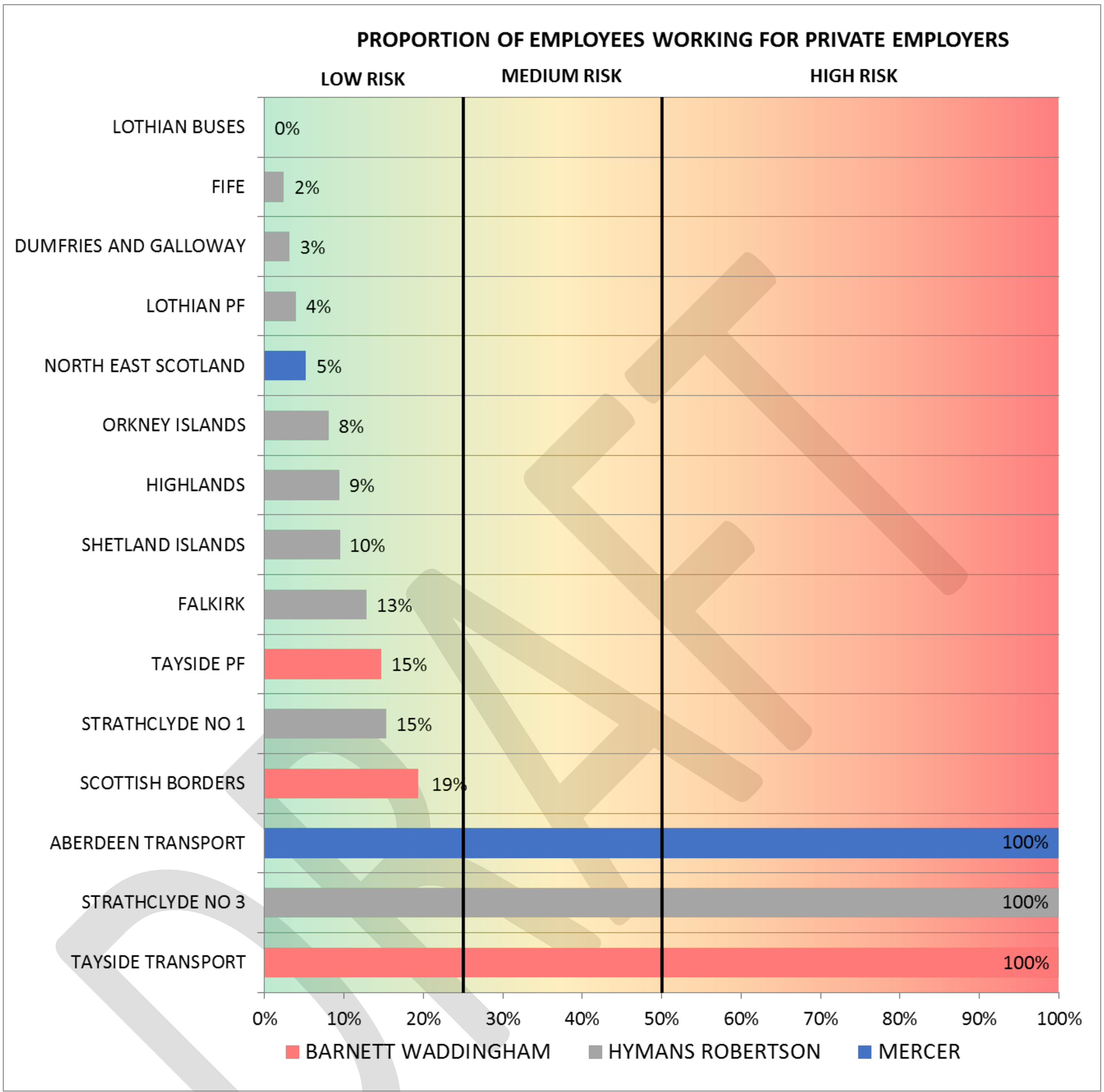
3.5 Chart 3.2 shows that the average investment strategy consists of almost 90% return seeking assets. This is consistent with an open fund with a high proportion of active members and low covenant risk.

Chart 3.2: Weighted average investment strategies



3.6 Chart 3.3 shows the distribution of covenant risk, using the proportion of private sector employees as a proxy for covenant risk. This is a simple measure and does not cover all the complexities inherent in determining covenant risk.

Chart 3.3: Covenant risk



4 Compliance with scheme regulations

We have relied on statements of compliance with regulations by, and professional requirements on, the actuaries performing the valuations of LGPS Scotland funds. We have performed some spot checks of compliance, and investigated further where funds are identified as exceptions using the metrics set out in this chapter.

We found **no evidence of non-compliance** with the scheme regulations.

4.1 There are a number of regulations that administering authorities are required to comply with when producing their respective valuation reports, funding strategy statements ("FSS") and statements of investment principles ("SIP").

4.2 These regulations are:

> Regulation 32 of the Local Government Pension Scheme (Administration) (Scotland) Regulations 2008 for valuation reports;

> Regulation 31 of the same regulations for FSSs; and

> Regulation 12 of the LGPS (Management and Investment of Funds) (Scotland) Regulations 2010 for SIPs.

4.3 These regulations include reference to CIPFA guidance on preparing and maintaining a FSS.

4.4 From 1 April 2015, regulations 60 and 56 of the Local Government Pension Scheme (Scotland) Regulations 2014 will apply to valuation reports and FSSs respectively. We understand that CIPFA's FSS guidance has been updated in 2016. However, for the purposes of this report compliance has been checked against the regulations in place as at 31 March 2014, as detailed above[4]. We are not lawyers and have performed these checks as a lay reader of the regulations. We do not expect changes in regulations to have a material effect to this approach.

Selecting funds based on predetermined criteria

4.5 In order to investigate the compliance of fund documentation with the regulations detailed above we reviewed that valuation reports of all funds

4.6 14 of the 16 funds had short paragraphs in each of the respective reports stating that they had complied with the relevant regulations.

[4] Copies of the regulations listed on this page can be found in Appendix B of this report.

4.7 Two funds, Strathclyde #1 and Strathclyde #3 Pension Funds, did not contain such a statement. We have raised this with the actuary to those funds who provided confirmation that they are fully compliant. Following this, we had no residual concerns in the area of compliance.

4.8 In our data request for the 2017 section 13 work we may seek additional information on how funds ensured compliance with the relevant regulations and request that this be consistently documented between actuarial advisors.

5 Consistency between valuations under the scheme regulations

We viewed consistency in two ways: presentational and evidential. Whilst none of the individual approaches taken are unreasonable, they are not consistent and some variations in assumptions seem to be based on only limited allowance for local circumstances.

We found inconsistencies in the following areas, and recommend the actuarial firms agree an approach to ensuring each is more readily comparable following 2017 and subsequent valuations.

- The interpretation of the common contribution rate (CCR) disclosed in the valuations
- Average actual contributions vs CCR
- The assumption concerning the amount of commutation
- The assumption for expected pensioner mortality
- The derivation of discount rates used for the valuations
- The assumption used for real earnings growth

If a similar approach is retained for the 2017 valuations we expect to still conclude that the consistency aim of section 13 is not met. Therefore, as an initial step towards achieving consistency, we recommend that the actuarial firms seek to agree a standard way of presenting the valuation results on an agreed standardised basis and associated metrics and other relevant disclosures to permit comparison in their valuation reports. GAD is prepared, if required, to help facilitate these discussions.

5.1 Section 13(4)(b) states that actuarial valuations should be carried out in a way which is not inconsistent with other valuations completed under the scheme regulations. For the purposes of this section GAD has, in line with Explanatory note 88 of the Act, taken "other valuations" to mean valuations of other funds within LGPS Scotland, as at 31 March 2014.

5.2 We have interpreted "not inconsistent" to mean that methodologies and assumptions used, in conjunction with adequate disclosure in the report, should allow comparison by a reader of the reports. We explain this further below.

5.3 We found that there are inconsistencies between the valuations in terms of approach taken, assumptions used and disclosures. These inconsistencies make meaningful comparison of local valuation results unnecessarily difficult.

5.4 In this chapter we highlight inconsistencies that cannot, in our opinion, be justified by local considerations. The primary areas GAD has analysed are:

> Common contribution rates ("CCR")

> Average actual contributions vs CCR

> Assumptions

We also looked at smoothed asset values and post valuation asset returns as aspects adopted by one of the firms, but not the others.

5.5 In many cases we found there is a considerable amount of consistency in these areas between funds advised by the same firm of actuarial advisors, but inconsistency between funds advised by different actuarial advisors. In this chapter, where relevant, we refer to the relevant actuarial firms as a proxy to listing out the funds that those actuarial firms advise. The charts in this chapter clarify the actuarial firm advising each fund.

5.6 We consider that readers of LGPS Scotland valuation reports might expect there to be consistency, and that transparent comparisons can be made between funds.

5.7 We have viewed consistency in two ways:

> Presentational. Those aspects of the valuations for which we consider there is no particular justification for differences in disclosure between different funds. This includes results disclosures (i.e. presenting the key results in a similar format) and agreeing a common understanding of terms such as CCR[5], even if these are not explicitly defined in regulations.

> Evidential. Those aspects of the valuations that should be consistent except where supported by evidence or local circumstances (e.g. some demographic assumptions). On financial assumptions, we believe that local circumstances may merit different assumptions (e.g. current and future planned investment strategy, different financial circumstances) leading to different levels of prudence adopted. However, in some areas, it appears that the choice of assumptions is highly dependent on the "house view" of the particular firm of actuaries advising the fund, with only limited evidence of allowance for local circumstances.

5.8 There is a wide range of reasonable assumptions for uncertain future events, such as the financial assumptions. For the avoidance of doubt, we have not concluded that any of the approaches, taken in isolation are unreasonable. However the approaches are not consistent with each other, and it is not clearly explained in valuation reports whether the relevant assumptions, and hence differences in those assumptions between funds, are solely driven by local circumstances. Furthermore, there would also seem to be no common understanding of what constitutes "prudence" for the purposes of regulation 56[6] (reproduced in Appendix B) of the scheme's regulations and its reference to CIPFA guidance.

[5] CCR has been replaced by primary and secondary rates in regulation 60.
[6] Regulation 31 in the 2009 Administration regulations.

5.9 In the case of LGPS Scotland, a scheme split into a number of different funds, inconsistencies in the approach to doing the valuation and the way in which assumptions are set, hinders transparency.

5.10 We have illustrated the effects of inconsistencies by restating the local valuation results on a standardised basis. In Chart 5.5 later in this chapter, we set out the relative rankings on 2014 local bases and the standardised basis for each fund. Publication of results on a standardised basis would improve the ability of a reader to be able to make comparisons, but does not in itself address the inconsistencies on which section 13 requires us to comment.

5.11 We can only conclude under section 13(4)(b) of the PSPS Act 2013 Act that 'the valuation has been carried out in a way which is not inconsistent with other valuations', if the valuations are carried out in consistent manner. Currently, in our opinion, the valuations are not carried out consistently.

5.12 We acknowledge that there are significant challenges to achieving consistency, particularly in the short term under existing regulations. In the longer term, we would expect a narrowing of the range of assumptions used, where local experience cannot be used to justify differences.

5.13 As an initial step towards achieving consistency, we recommend that the valuation results on an agreed standardised basis and associated metrics are published in valuation reports in a dashboard to allow readers to make like for like comparisons.

5.14 We acknowledge that a like for like report of standardised funding levels has been prepared by Hymans Robertson in 2015 and made available to interested stakeholders.

Differences in interpretation of 'common contribution rate'

5.15 Regulation 32 of the LGPS (Administration) (Scotland) Regulations 2008[7] states that:

> An actuarial valuation must contain a rates and adjustments certificate;

> The rates and adjustments certificate must specify:

- o The common rate of employers' contributions; and
- o Any individual adjustments

Where the common rate of employers' contribution is defined as:

"the amount which, in the actuary's opinion, should be paid to the fund by all bodies whose employees contribute to it so as to secure its solvency, expressed as a percentage of the pay of their employees who are active members."

[7] Regulation 32 is reproduced in Appendix B.

5.16 The funds advised by Mercer have interpreted this to mean that the CCR should be set as a fund's standard contribution rate ("SCR") in respect of future accrual. Under this approach any contributions required in respect of existing deficits are recorded as individual adjustments for each employer.

5.17 Funds advised by Barnett Waddingham and Hymans Robertson have interpreted the legislation to mean that a fund's CCR should be equal to its SCR plus any contributions required in respect of deficit. Any individual adjustments therefore reflect only the differences between employers contributing to a given fund.

5.18 It is not possible to compare the CCR for all funds. There is a clear inconsistency in how the CCR is interpreted.

5.19 We recommend that the three actuarial firms seek to agree a standardised way of presenting contribution rates and other relevant disclosures to permit comparison. We acknowledge that new regulations specify the terms primary and secondary contributions rates and that CCR will no longer be relevant. However, the general principle that the actuarial firms should interpret these terms consistently, and by reference to contributions actually received, remains valid.

Average actual contributions vs common contribution rate

5.20 Regulation 32(6)(b) of the Local Government Pension Scheme (Administration) (Scotland) Regulations 2008[8] states that when calculating a fund's CCR the actuary must have regard to the desirability of maintaining as nearly constant a common rate as possible. We expected to see a relationship between the actual contributions paid over a given period and the CCR, but found we were not able to reconcile the two for most funds.

5.21 This "stability clause" is one of a number of reasons why employers are not necessarily required to pay the CCR derived in the fund's local valuation report, Other reasons include varying historical liabilities by employer and different contribution rates for scheduled bodies (due to variation in covenant quality). In some cases, if required contribution rates increase, actual contributions can taper towards the required contribution rate over a number of years.

5.22 Employers may also pay additional lump sum contributions as set out in the rates and adjustments certificate of their local valuation report. This is a common practice amongst many employers, reflecting their specific cash flow situation at a given point in time. These lump sums could, in addition to the employer's regular contributions, lead to total contributions exceeding the fund's CCR.

5.23 In practice, the approach to setting contributions varies according to actuarial firm.

5.24 In particular, Hymans Robertson state in their reports that:

The CCR "does not represent the rate which any one employer is actually required to pay, nor is it the average of the actual employer rates". Hymans Robertson "undertake an asset-liability modelling exercise that investigates the effect on the

[8] See Appendix B

Fund of possible investment scenarios that may arise in the future. An assessment can then be made as to whether long term, secure employers in the Fund can stabilise their future contribution rates (thus introducing more certainty into their future budgets) without jeopardising the long-term health of the Fund."

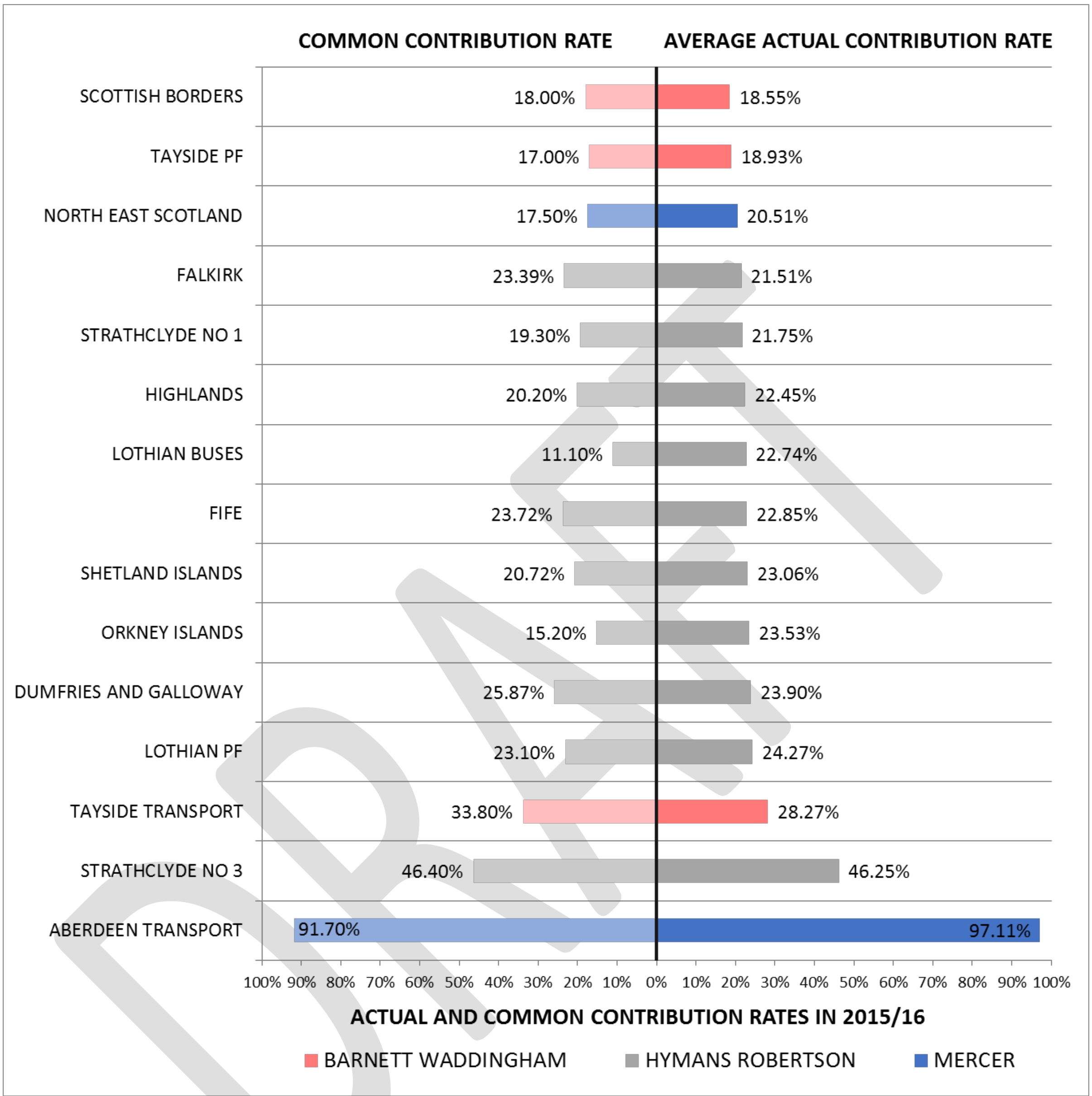
5.25 North East Scotland Pension Fund, advised by Mercer, adopt a different discount rate assumption for future service than past service, as set out in paragraph 5.51. This implies a different methodology for recommending rates, but in contrast to some funds, the actual rates paid to this fund is similar to the rate recommended by Mercer.

5.26 Funds advised by Barnett Waddingham generally use a single discount rate for both past and future service liabilities.

5.27 Chart 5.1 shows the difference between actual 2015/16 employer contributions, as provided by individual funds, and the common contribution rate specified in the fund's local valuation report. For the purposes of the chart, the CCR is taken to be the sum of the standard contribution rate and any additional contribution rate in respect of deficit. We have adjusted where deficit contributions are not specified in the CCR. Whilst we understand that there is a stepping process through which contributions move towards the recommended rates, we found that the relationship between the CCR and contributions actually paid by employers was difficult to interpret, regardless of which firm the fund in question is advised by.

5.28 This inconsistency makes it unnecessarily difficult for a reader to be able to understand the results of the valuation and to be able to interpret and compare those results with other funds. We understand that the CCR will no longer be required as a disclosure under revised regulations from 2017. However, we believe it is imperative that the primary and secondary rates that are required under new regulations should relate directly to the contributions recommended to be paid by the actuary (over a suitable period), and consistently reported, to enable comparisons to be made.

Chart 5.1: Average actual contributions vs. common contribution rates



Note: Scottish Homes Pension Fund is excluded from this chart as it has no active members.

Use of smoothed asset values

5.29 The 3 funds advised by Barnett Waddingham used smoothed asset values to calculate funding ratios in their 2014 actuarial valuations, where the smoothing period was the six month period from 1 January 2014 to 30 June 2014. This is not consistent with other funds who have used the actual market value of assets as at the valuation date of 31 March 2014.

5.30 In one case the smoothed asset value was higher than the market value of assets at 31 March 2014, and in two cases it was lower. We do not consider this to introduce bias because in other circumstances the opposite could be true and as mentioned in paragraph 5.40, Barnett Waddingham also set their discount rate according to prevailing market conditions over the six months straddling the valuation date.

Use of different financial assumptions to calculate future contribution rates

5.31 North East Scotland Pension Fund (advised by Mercer) used different financial assumptions when calculating future contribution rates. All other funds used market conditions as at 31 March 2013. The reasoning for this approach, given by Mercer, is that:

- *"contributions will be invested in market conditions applying at future dates, which are unknown at the effective date of the valuation, and which are not directly linked to market conditions at the valuation date; and*

- *the future service liabilities for which these contributions will be paid have a longer average duration than the past service liabilities so the base yield is currently higher due to the shape of the yield curve."*

5.32 This leads to higher discount rates and lower contribution rates than they would have otherwise been.

Long term mortality improvements

5.33 Mortality rates are expected to improve in the future, resulting in longer life expectancies. As benefits are expected to be paid for longer, improving life expectancy results in higher liabilities in respect of existing accrued benefits and higher contributions to cover the cost of future accrual.

5.34 There may be evidence of regional variation in mortality rates that justify funds having different assumptions, but it is perhaps more difficult to justify different assumptions for the future improvements in those mortality rates.

5.35 GAD's analysis shows that each actuarial advisor appears to have a common 'house' view on the extent of future mortality improvements. The table below shows the assumed rates of annual improvement in male mortality rates by advisor. In all cases the assumed improvement for male and female mortality rates is the same.

Table 5.1: Annual assumed rate of future mortality improvements

ACTUARIAL ADVISOR	LONG TERM RATE OF MORTALITY IMPROVEMENTS 1.25%	1.50%	TOTAL
BARNETT WADDINGHAM	0	3	3
HYMANS ROBERTSON	11	0	11
MERCER	0	2	2

5.36 Hymans Robertson differ from the other two advisors with an assumed rate of mortality improvement of 1.25% for all of the funds they advise.

Derivation of discount rates

5.37 At each actuarial valuation a fund, on the advice of its actuary, sets the discount rate or rates that will be used to value its existing liabilities and calculate the contributions that should be paid in order for the fund to meet the cost of future accrual of benefits, and to remove any existing deficit from the scheme.

5.38 The actuarial advisors approach the derivation of these discount rates differently. The table below summarises the approach taken by one "typical" fund advised by each firm, and is taken from that fund's valuation report and FSS.

Table 5.2 Discount rate methodology

ACTUARIAL ADVISOR	DISCOUNT RATE	METHODOLOGY	2013 VALUATION ASSUMPTION
SCOTTISH BORDERS COUNCIL PENSION FUND *(BARNETT WADDINGHAM)*	PAST SERVICE LIABILITIES AND FUTURE CONTRIBUTIONS	ASSET BASED RATE	5.5%
DUMFRIES AND GALLOWAY COUNCIL PENSION FUND *(HYMANS ROBERTSON)*	PAST SERVICE LIABILITIES AND FUTURE CONTRIBUTIONS	GILT YIELDS + 1.6%	5.1%
NORTH EAST SCOTLAND PENSION FUND *(MERCER)*	PAST SERVICE LIABILITIES	GILT YIELDS + 1.4%	4.9%
	FUTURE CONTRIBUTIONS	CPI + 3%	5.6%

5.39 Further details on the approach used are set out below, taken from the fund's valuation report and funding strategy statement

Scottish Borders Council Pension Fund

5.40 The fund's funding strategy statement says:

5.41 *"For open employers, the discount rate applied to all projected liabilities reflects a prudent estimate of the rate of investment return that is expected to be earned from the underlying investment strategy by considering average market yields in the 6 months straddling the Valuation date. The discount rate so determined may be referred to as the "ongoing" discount rate. At the 2014 Valuation the ongoing discount rate was 5.5%.*

5.42 *For closed employers, with no individual active membership, an adjustment may be made to the discount rate in relation to the remaining liabilities once all active members are assumed to have retired if at that time (the projected "termination date"), the employer either wishes to leave the Fund, or the terms of their admission requires it."*

5.43 The fund's valuation report says:

"The discount rate – this is based on the expected investment return from the Fund's assets."

Dumfries and Galloway Council Pension Fund

5.44 The fund's funding strategy statement says:

"This "discount rate" assumption makes allowance for an anticipated out-performance of Fund returns relative to long term yields on UK Government bonds ("gilts").....Given the very long-term nature of the liabilities, a long term view of prospective asset returns is taken. The long term in this context would be 20 to 30 years or more. For the purpose of the triennial funding valuation at 31 March 2014 and setting contribution rates effective from 1 April 2015, the Fund actuary has assumed that future investment returns earned by the Fund over the long term will be 1.6% per annum greater than gilt yields at the time of the valuation (this is the same as that used at the 2011 valuation)."

5.45 The fund's valuation report says:

"Although there has been a slight downward shift in the expected returns on risky assets since the 2011 valuation, we believe the expected returns in excess of the returns on government bonds to be broadly unchanged since 2011. Therefore, we are satisfied that an AOA[9] *of 1.6% p.a. is a prudent assumption for the purposes of this valuation. This results in a discount rate of 5.1% p.a."*

[9] AOA = Asset Outperformance Assumption

North East Scotland Pension Fund

5.46 The fund's funding strategy statement says:

"Investment Return (discount rate):

A yield based on market returns on UK Government gilt stocks and other instruments which reflects a market consistent discount rate for the profile and duration of the Scheme's accrued liabilities, plus an Asset Out-performance Assumption ("AOA") 1.4% per annum."

5.47 The fund's valuation report says:

"The discount rate adopted to set the Funding Target is derived by mapping projected cashflows arising from accrued benefits to a yield curve (which is based on market returns on UK Government gilt stocks and other instruments of varying durations), in order to derive a market consistent gilt yield for the profile and duration of the Scheme's accrued liabilities. To this an Asset Out-performance Assumption ("AOA") of 1.4% per annum is added to reflect the Fund's actual investment strategy.

"The financial assumptions in relation to future service (i.e. the normal cost) are not specifically linked to investment conditions as at the valuation date itself, and are based on an overall assumed real return (i.e. return in excess of price inflation) of 3% per annum."

5.48 This review does not seek to comment on the methodologies the three firms use to derive their discount rates. Further, we accept that the discount rate is the main vehicle for adding prudence, as required by regulations. We are pointing out that the methods are different, resulting in different levels of prudence being incorporated into the valuation results, and that this in itself is not explicit, which makes the results of the 2014 valuations unnecessarily difficult to compare for the reader. We also note that the production of standardised results for the 2017 valuations will help in this regard.

Assumed asset out performance within discount rate

5.49 In practice, each actuarial firm has its own method of assessing the appropriate discount rate. However, based on information provided, we considered it appropriate to break this down into the following four components (although we acknowledge this construct does not reflect the way some firms assess their discount rate assumption).

- A risk free real rate of return ("RFR")
- Assumed Retail Price Index ("RPI") inflation
- The assumed asset performance over and above the risk free rate (which is a balancing item to get to the discount rate used, and therefore the main determinant of the variation in discount rates, and ultimately the level of prudence adopted)

5.50 Chart 5.2 shows the assumed asset out performance over and above the risk free rate, where the asset outperformance assumption ("AOA") is calculated as the fund's nominal discount rate ("DR") net of:

- The RFR – the real 20 year Bank of England spot rate as at 31 March 2014
- Assumed RPI – as assumed by the fund in their 2014 actuarial valuation

i.e. $AOA = DR - RFR - RPI$

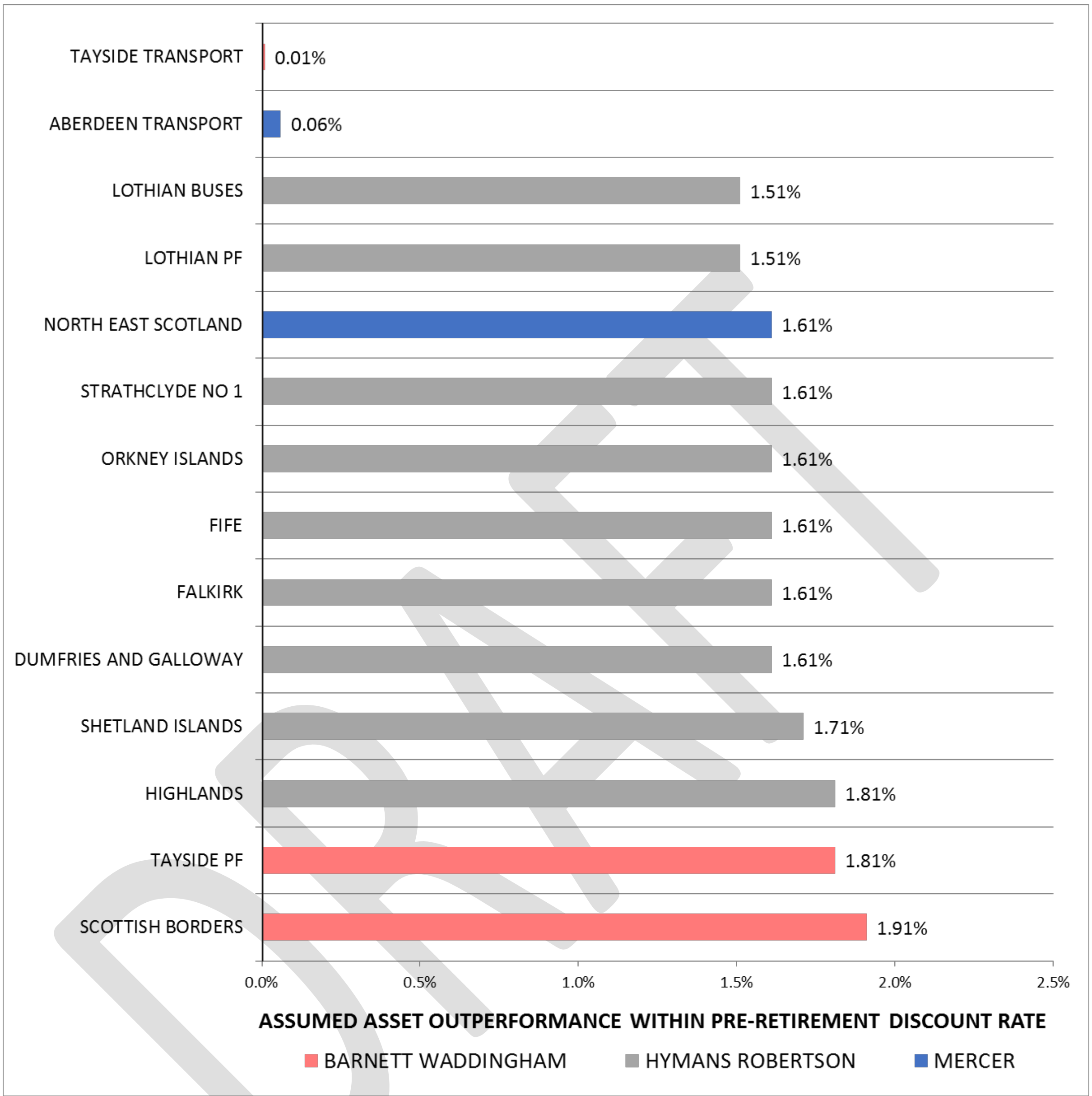
5.51 The chart is ordered by maximum assumed AOA, with the advisory firm represented by the colour scheme. It indicates that the different rates are more likely to be the result of differing future expectations between the three actuarial advisors than, for example, different investment strategies. A higher AOA tends to lead to a higher discount rate and a lower value placed on the liabilities, other things being equal.

5.52 As we have noted, Mercer use a different discount rate to assess future contribution rates. This chart shows the AOA implicit in the discount rate used to value past service liabilities.

5.53 For Strathclyde No 1 Fund, Hymans Robertson use a lower asset outperformance assumption for post-retirement benefits of 1.2% pa (cf 1.6% for pre-retirement, as shown in the following charts). We have taken this into account when restating the results to standardised bases.

5.54 In the following charts, Scottish Homes Pension Fund and Strathclyde No 3 Fund have been excluded as it uses a yield curve approach to determine liability values, therefore a single asset outperformance assumption is not relevant. In practice, the assumed outperformance assumption is 0% for these two funds.

Chart 5.2: Assumed asset outperformance within discount rate

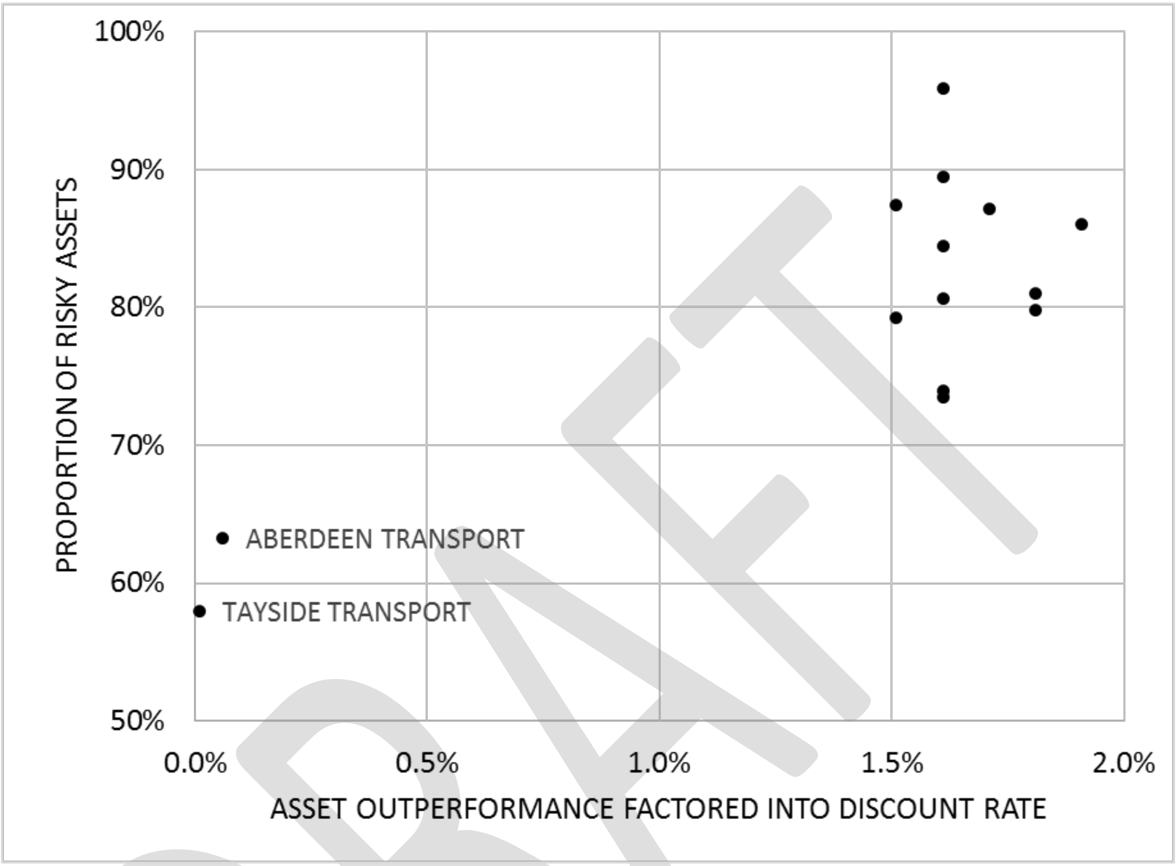


5.55 The variation between funds in the implied level of asset outperformance over and above the risk free rate of return could be due to differing investment strategies between funds. For example, a fund invested solely in defensive assets, such as Government bonds, would expect a lower rate of return than a fund invested solely in return-seeking assets, such as equities. They would typically use a lower discount rate in their actuarial valuation to allow for this low-risk, low-return investment strategy.

5.56 The variation in asset outperformance could also be considered as a measure of the risk appetite adopted by the funds. We would encourage the actuarial firms to provide additional explicit discussion of this aspect in the 2017 and subsequent valuation reports to assist the reader in interpreting the fund's risk appetite.

5.57 The following chart shows that there is not a definite link between asset pre-retirement outperformance assumption and proportion of return seeking assets.

Chart 5.3: Pre-Retirement Asset Outperformance by proportion of return seeking assets



Real earnings growth

5.58 There is considerable inconsistency in the assumptions of future real earnings growth, where real earnings growth consists of:

> The excess of the assumed rate of earnings inflation over the assumed rate of CPI inflation

> Assumed promotional salary growth

5.59 A higher rate of real earnings growth (all other assumptions remaining constant) will lead to higher liabilities in an actuarial valuation as the majority of existing liabilities are linked to a member's final salary.

5.60 However, where contribution rates are quoted as a percentage of payroll (although this appears to be relatively rare) a higher rate of real earnings growth also means that future contributions, in money terms, will increase. A higher real earnings assumption may therefore have the effect of weighting contributions in respect of deficit further towards the future, when a fund's payroll is expected to be larger, rather than the present day.

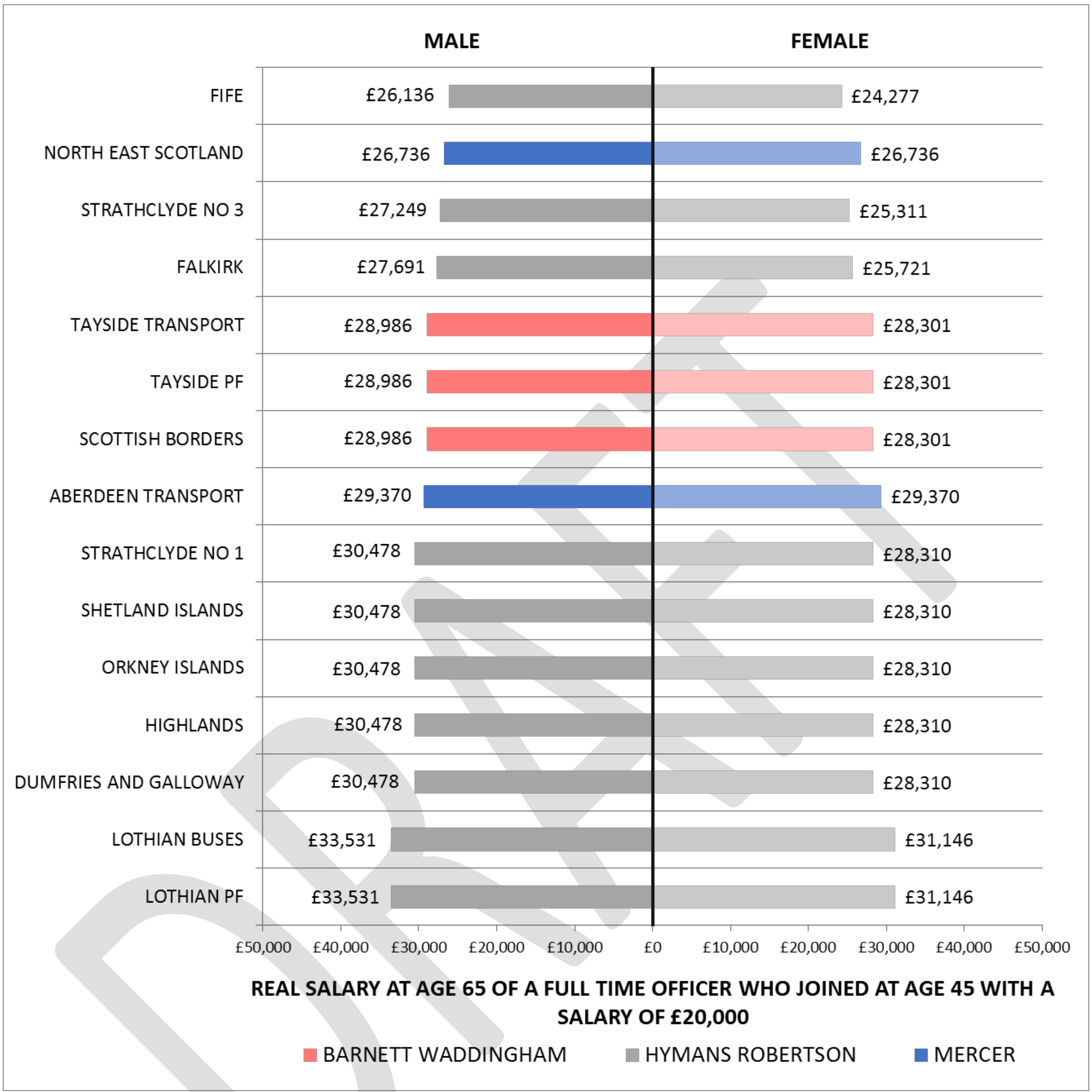
5.61 The following chart shows the assumed salary at age 65, in 2014 prices terms, for a member who joined the fund aged 45 on 31 March 2014 with a salary of £20,000 per annum. Mercer combine their general salary increase and promotion salary increase assumptions into a single figure. The funds they advise have been included in the analysis on that basis.

5.62 All funds (except for those advised by Mercer, who do not have separate promotional salary increase assumptions) have assumed different levels of promotional salary growth for male and female members.

5.63 Funds advised by Hymans Robertson also have a separate promotional salary growth assumptions for full-time and part-time members, and for 'Officers and Post 98 members' and 'Manual members', whereas funds by Barnett Waddingham have a single assumption for all active members. For the purposes of the chart that follows we have used the full time, officer and post 98 members assumptions

5.64 We would expect some regional variation in this assumption. We also understand that it is an area in which the local authorities may have some input, particularly in short term variations. We would encourage the actuarial firms to add explicit commentary about both short term and long term impacts of these factors on the assumptions adopted.

Chart 5.4: Projected real salary at age 65 for a member aged 45 on £20,000 pa, 2014 prices



Note: Scottish Homes Pension Fund is excluded from the chart above, as it has no active members.

Standardising the valuation results

5.65 Whilst we acknowledge that no presentation of results on a standardised basis was required as at 2014, the inconsistencies between funds identified above prevent meaningful comparison of local valuation results. As part of the next valuation cycle, as at 31 March 2017, funds may produce results on a standardised set of assumptions as well as on their local assumptions, which would be a positive step towards allowing the reader to be able to compare the results of valuations for different funds.

5.66 As this information is not available for the actuarial valuations as at 31 March 2014 GAD have adjusted the existing valuation results in order to approximately standardise them using a particular set of assumptions. This paper refers to this set of assumptions as the "standardised basis".

5.67 The standardised basis is reproduced in Appendix D.

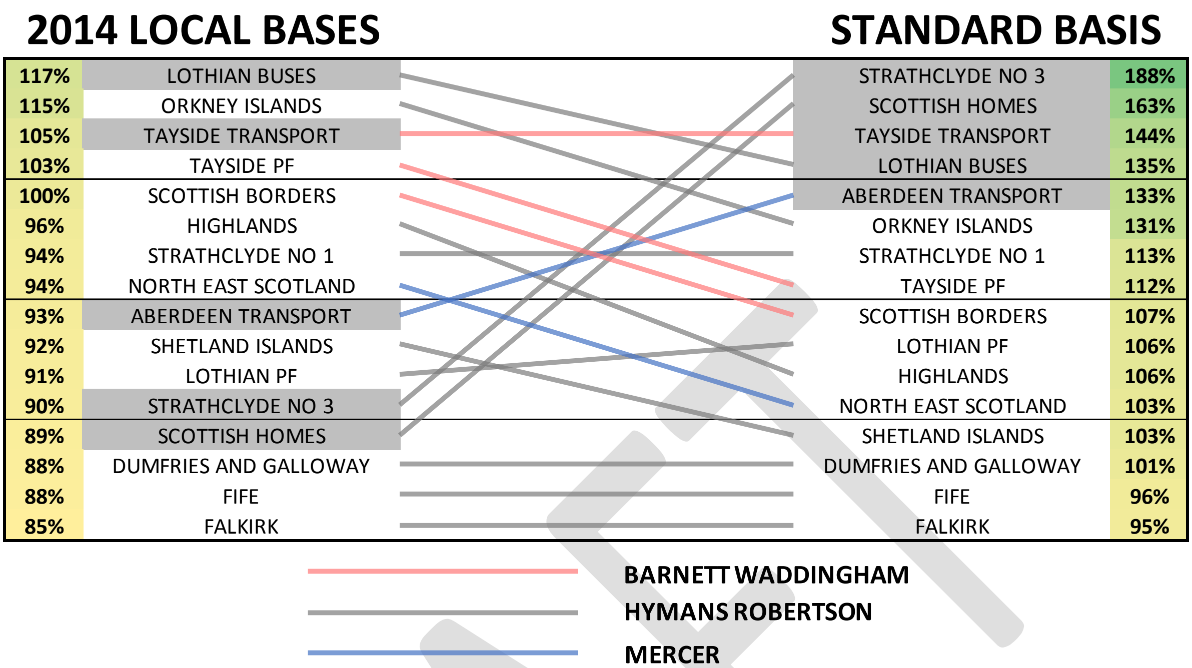
5.68 The following chart shows how the relative ranking of funds by funding ratio (assets/liabilities) has changed as a result of the standardisation process. Funds at the top of the list are those that have the highest funding levels and those at the bottom of the list have the lowest funding levels.

5.69 Closed funds typically have more prudent assumptions that open funds due to the shorter term of liabilities and less risky investment strategies. This means that closed fund funding levels will improve more markedly than those of open funds as a result of the standardisation process. Closed funds have been shaded in grey in the following chart.

5.70 The chart shows a clear pattern, with closed funds ranking highest on the standardised basis. This may be interpreted as an indication of differing levels of prudence adopted.

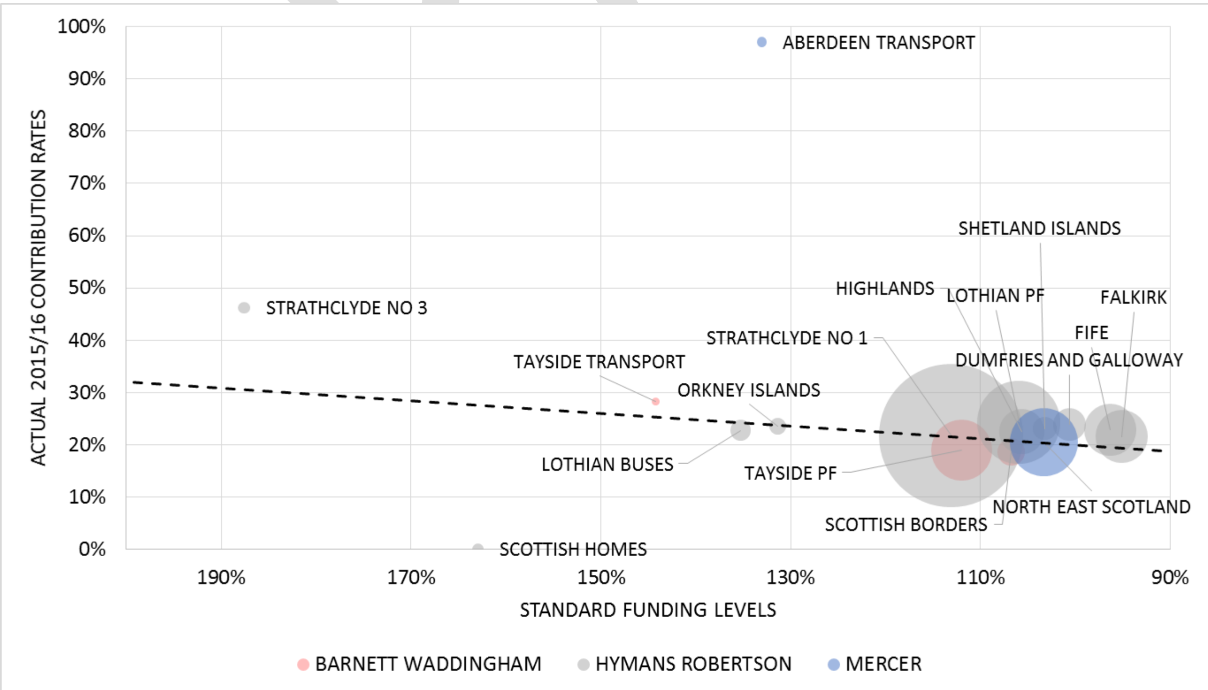
5.71 The extent of the changes in ranking between the two bases indicate that any comparisons based on the local fund valuation results, which are inherently inconsistent, could lead to incorrect conclusions.

Chart 5.5: Standardising local valuation results



In chart 5.6, we look at how contributions vary by funding level (on the standardised basis). In general, particularly if funds are in deficit, we would expect the contributions paid to increase if the funding level is lower. In practice, the weighted trendline is downwards.

Chart 5.6: Actual contributions by funding level and size of liabilities



6 Solvency

The conclusions of this chapter are that:

> For the closed funds, we are not aware of any explicit plans in place to ensure solvency. We would have engaged with the administering authorities to discuss the need for plans to be put in place had section 13 applied as at 31 March 2014.

> We believe it is important that administering authorities and other employers understand the potential variability of contributions, so that they can understand the affordability of providing LGPS Scotland benefits to their employees.

6.1 Under section 13(4)(c) of the Act the Government Actuary (as the person appointed by the responsible authority) must, following an actuarial valuation, report on whether the rate of employer contributions to the pension fund (in this case an LGPS Scotland pension fund) is set at an appropriate level to ensure the solvency of the pension fund.

6.2 The explanatory notes to the Act state that solvency means that the rate of employer contributions should be set at *"such a level as to ensure that the scheme's liabilities can be met as they arise"*. We do not regard that this means that a pension fund should be 100% funded at all times. Rather, and for the purposes of section 13, we consider that the rate of employer contributions shall be deemed to have been set at an appropriate level to ensure solvency of the pension fund if:

> the rate of employer contributions is set to target a funding level for the whole fund (assets divided by liabilities) of 100% over an appropriate time period and using appropriate actuarial assumptions (where appropriateness is considered in both absolute and relative terms in comparison with other funds)

and either:

> employers collectively have the financial capacity to increase employer contributions, should future circumstances require, in order to continue to target a funding level of 100%

or

> there is an appropriate plan in place should there be, or if there is expected in future to be, no or a limited number of fund employers, or a material reduction in the capacity of fund employers to increase contributions as might be needed

6.3 In the context of LGPS Scotland:

> Our understanding is that, in contrast to employers in the private sector, there is no insolvency regime for local authorities

- Therefore, for the purposes of our analysis we will assume that local authority sponsors cannot default on their pension liabilities through failure
- For funds with local authority employers, members' benefits are therefore dependent on the assets of the scheme and future contributions from employers including local authorities

It is therefore important that administering authorities and other employers understand the potential cost, so that they can understand the affordability of potential future contribution requirements.

Volatility of contributions

6.4 The future rate of employer contributions to ensure the solvency of the fund can be highly volatile, and dependent on economic conditions at the time of valuation and asset returns over the periods between valuations.

Solvency considerations

6.5 In assessing whether the conditions in paragraph 6.2 are met, we will have regard to:

Risks already present:

- funding level on the standardised basis
- the extent to which the fund continues to be open to new members. If the fund is closed to new members or is highly mature, we will focus on the ability to meet additional cash contributions
- the ability of the fund to meet benefits due (without constraining investment policy)
- the ability of tax raising authorities to meet employer contributions

Emerging risks:

- the cost risks posed by changes in the value of the scheme liabilities (to the extent that these are not matched by changes to the scheme assets)
- the cost risks posed by changes to the value of scheme assets (to the extent that these are not matched by changes to the scheme liabilities)
- the proportion of scheme employers without tax raising powers or without statutory backing
- how the risks above compare with the pensionable payroll of scheme employers, and the wider income of sponsoring employers as a whole

6.6 If the conditions in paragraph 6.2, taking into account the considerations above, are met then it is expected that the fund will be able to pay scheme benefits as they fall due.

Solvency measures

6.7 In the 2017 section 13 report GAD is likely to use ten[10] measures across the two categories to assess whether the above conditions are met. In this 2014 dry run report GAD has only used six of these ten measures as the data required for the other four measures were not available within the necessary time frame. However, we have included all ten measures in the descriptions that follow for information purposes.

6.8 In the following table we set out the considerations with regards to risks already present and emerging risks, and map these to the likely measures:

Table 6.1: Solvency measures

Consideration	Measure Used
Risks already present:	
The relative ability of the fund to meet its accrued liabilities	**Funding level:** A fund's funding level using the standardised basis, as set out in Appendix D
The extent to which the fund continues to be open to new members. If a fund is closed to new members or is highly mature, we will focus on the ability to meet additional cash contributions	**Open fund:** Whether the fund is open to new members
The proportion of scheme employers without tax raising powers or without statutory-backing	**Non-statutory members:** The proportion of members within the fund who are/were employed by an employer without tax raising powers or statutory backing
The ability of tax raising authorities to meet employer contributions	**Contribution cover[10]:** Actual contributions paid to the fund as a proportion of local authority income
Emerging risks:	
The cost risks posed by changes in the value of the scheme liabilities (to the extent that these are not matched by changes to the scheme assets) compared with the pensionable payroll of scheme employer	**Liability shock:** The change in average employer contribution rates as a percentage of payroll after a 10% increase in liabilities

[10] Data were not available to populate all measures. We expect these data to be available for the section 13 work following the 2017 valuations.

Consideration	Measure Used
How the risk above compares with the pensionable payroll of scheme employers, and the wider income of sponsoring employers as a whole	**Liability shock cover[11]:** The change in average employer contribution rates as a percentage of local authority income after a 10% increase in liabilities
The cost risks posed by changes to the value of scheme assets (to the extent that these are not matched by changes to the scheme liabilities)	**Asset shock:** The change in average employer contribution rates as a percentage of payroll after a 15% fall in value of return-seeking assets
How the risk above compares with the pensionable payroll of scheme employers, and the wider income of sponsoring employers as a whole	**Asset shock cover[11]:** The change in average employer contribution rates as a percentage of local authority income after a 15% fall in value of return-seeking assets
The impact of non-statutory employers defaulting on contributions	**Employer default:** The change in average employer contribution rates as a percentage of payroll if all employers without tax raising powers or statutory backing default on their existing deficits
How the risk above compares with the pensionable payroll of scheme employers, and the wider income of sponsoring employers as a whole	**Employer default cover[11]:** The change in average employer contribution rates as a percentage of local authority income if all employers without tax raising powers or statutory backing default on their existing deficits

6.9 We have included reference to tax payer-backed employers being of stronger covenant value than other employers. Data for this purpose were requested from individual funds, some of whom split the members into 5 categories:

> **Group 1:** Local Authorities with tax raising powers.

> **Group 2:** Employers who are tax-payer backed or with a government guarantee.

> **Group 3:** Other scheduled bodies who are government backed but raising their own revenues (e.g. some universities, Scottish Water)

> **Group 4:** Predominantly non tax-payer backed employers without a government guarantee.

> **Group 5:** Private sector employers, or those not in groups 1 to 4.

[11]Data were not available for these measures. We expect information to be available following the 2017 valuations.

6.10 Where data was provided in this format we have assumed groups 1, 2 and 3 to be tax payer-backed, while categories 4 and 5 are not tax payer-backed. It is likely that some category 4 employers have council guarantees, bonds or other external security. However, we consider that this does not alter the general principle that the residual liability falls back to the tax-payer backed employers.

6.11 Each fund's score under each measure is colour coded, where:

> RED indicates a potentially material issue that may contribute to a recommendation for remedial action in order to ensure solvency;

> AMBER is used to highlight a possible risk to sponsoring employers; and

> GREEN indicates that there are no material issues that may contribute to a recommendation for remedial action in order to ensure solvency.

6.12 It should be noted that these flags are intended to highlight areas for further investigation, but green does not indicate a clean bill of health and also that the fact we are not specifically suggesting remedial action does not mean that scheme managers should not consider actions.

6.13 Emerging risk measures require assumptions. We used market consistent assumptions for this purpose, details of which can be found in Appendix D. Details of the methods used to calculate scores under each measure and the criteria used to assign a colour code can be found in Appendix F.

6.14 In tables 6.2 (open funds) and 6.3 (closed funds) below we illustrate the results of the six solvency measures we have used for each of the individual funds in LGPS Scotland. A fund with a large number of amber or red measures is one where the solvency of the fund may be at risk.

6.15 The rates shown in tables 6.2 and 6.3 are approximate, and are based on the information provided to GAD and/or publicly available. Although the calculations are approximate, we consider they are sufficient for the purposes of identifying which funds are a cause for concern. While they should not represent targets, these measures help us determine whether a more detailed review is required; for example, we would have concern where multiple measures are triggered amber for a given fund.

Table 6.2: Solvency: Open funds

PENSION FUND	MATURITY (RANK)	SOLVENCY MEASURES					
		RISKS ALREADY PRESENT			EMERGING RISKS		
		FUNDING LEVEL	OPEN FUND	NON-STATUTORY EMPLOYEES	LIABILITY SHOCK	ASSET SHOCK	EMPLOYER DEFAULT
DUMFRIES AND GALLOWAY	6.2 (6)	101%	YES	3%	+4%	+4%	-0%
FALKIRK	5.3 (13)	95%	YES	13%	+3%	+4%	-0%
FIFE	5.3 (12)	96%	YES	2%	+3%	+4%	-0%
HIGHLANDS	5.6 (11)	106%	YES	9%	+3%	+5%	-1%
LOTHIAN PF	5.9 (9)	106%	YES	4%	+4%	+5%	-0%
NORTH EAST SCOTLAND	6.1 (7)	103%	YES	5%	+4%	+6%	-0%
ORKNEY ISLANDS	4.8 (15)	131%	YES	8%	+3%	+5%	+0%
SCOTTISH BORDERS	5.9 (8)	107%	YES	19%	+4%	+5%	-1%
SHETLAND ISLANDS	5.3 (14)	103%	YES	10%	+3%	+5%	-0%
STRATHCLYDE NO 1	6.4 (5)	113%	YES	15%	+4%	+7%	-2%
TAYSIDE PF	5.7 (10)	112%	YES	15%	+3%	+5%	-1%

Table 6.3: Solvency: Closed funds

PENSION FUND	MATURITY (RANK)	SOLVENCY MEASURES					
		RISKS ALREADY PRESENT			EMERGING RISKS		
		FUNDING LEVEL	OPEN FUND	NON-STATUTORY EMPLOYEES	LIABILITY SHOCK	ASSET SHOCK	EMPLOYER DEFAULT
ABERDEEN TRANSPORT	24.6 (2)	133%	NO	100%	+0%	+0%	N/A
LOTHIAN BUSES	6.9 (4)	135%	NO	0%	+0%	+2%	N/A
SCOTTISH HOMES	N/A	163%	NO	N/A	N/A	N/A	N/A
STRATHCLYDE NO 3	15.8 (3)	188%	NO	100%	+0%	+0%	+0%
TAYSIDE TRANSPORT	25.4 (1)	144%	NO	100%	+0%	+0%	N/A

Observations based on the solvency measures

Open Funds

6.16 All funds should be aware of their solvency position to ensure that the relevant plans are in place to be able to pay benefits when they fall due, and employers are able to accommodate potential future increases in contributions.

6.17 This is particularly important in the case of mature funds. They should ensure that sufficient plans are in place to be able to pay benefits when they fall due in the environment of no future employer contributions.

6.18 A number of funds showed amber flags under the asset shock measure due to high proportion of return seeking assets.

Closed Funds

6.19 Table 6.3 shows that despite being closed and the predominance of non-statutory employees, the emerging risks are not triggered, due to the relatively high funding levels of these funds on the market consistent basis.

6.20 Scottish Homes Pension fund has no remaining active members. We understand Strathclyde No 3 fund is fully funded on a cessation basis and has nearly all its interest rate/inflation risks hedged. A phased settlement plan for transition back to Strathclyde Fund No 1 when the employer ceases participation is understood to be in place. Lothian Buses Pension fund is 100% publically owned. As the other funds are closed to new members, their payrolls are also decreasing, which may reduce the scope to be able to meet variations in contributions. This means that they are at risk of requiring outside funding in the future, which in turn may be uncertain.

Outcomes

6.21 Had section 13 been in force at the time, we would expect to have engaged with the fund administrators to discuss their plans. Remedial action may have been recommended, depending on the outcome of that engagement. That remedial action may have included putting in place a plan to pay benefits when they fall due in the environment of no future employer contributions, and may have included a requirement to seek a guarantor (should there not already be one).

7 Long term cost efficiency

> - Very few flags were raised under long term cost efficiency.
> - This is due to the funds being well funded, particularly on the best estimate market consistent basis. Consequently a number of our measures did not apply.
> - Two of the funds had extended their deficit repayment periods, which on its own, and given they are relatively well funded, was not a cause of particular concern.

7.1 Under section 13(4)(c) of the Act, the Government Actuary (as the person appointed by the responsible authority) must, following an actuarial valuation, report on whether the rate of employer contributions to the pension fund (in this case an LGPS Scotland pension fund) are set at an appropriate level to ensure the long-term cost efficiency of the scheme, so far as relating to the pension fund.

7.2 The accompanying explanatory notes to the Act state that: "Long-term cost-efficiency implies that the rate must not be set at a level that gives rise to additional costs. For example, deferring costs to the future would be likely to result in those costs being greater overall than if they were provided for at the time."

7.3 We conclude that the rate of employer contributions has been set at an appropriate level to ensure long term cost efficiency if the rate of employer contributions is sufficient to make provision for the cost of current benefit accrual, with an appropriate adjustment to that rate for any surplus or deficit in the fund.

7.4 In assessing whether the requirement for long term cost efficiency is met, we had regard to a number of absolute and relative considerations and constructed ten[12] measures to assess these considerations. Data were not available to populate all measures, although we expect data to be available for the section 13 work following the 2017 valuations.

7.5 A relative consideration is primarily concerned with comparing LGPS Scotland pension funds with other LGPS Scotland pension funds. An absolute consideration is primarily concerned the fund on a standalone basis. In the following table we set out the relative and absolute considerations, and map these to the ten measures.

[12] Data were not available to populate all measures. We expect these data to be available for the section 13 work following the 2017 valuations.

Table 7.1: Long term cost efficiency measures

Consideration	Measure Used
Relative considerations:	
The pace at which the deficit is expected to be paid off	**Deficit Repaid:** The proportion of deficit paid off in the first year, where the deficit is calculated on a standardised market consistent basis
The implied deficit recovery period	**Deficit Period:** Implied deficit recovery period calculated on a standardised market consistent basis
The investment return required to achieve full funding	**Required Return:** The required investment return rates to achieve full funding in 20 years' time on a standardised market consistent basis
The pace at which the deficit is expected to be paid off	**Repayment Shortfall:** The difference between the actual deficit recovery contribution rate and the annual deficit recovery contributions required as a percentage of payroll to pay off the deficit in 20 years, where the deficit is calculated on a standardised market consistent basis
The pace at which the deficit is expected to be paid off	**Repayment Pace[13]:** The amount of deficit paid off over each future valuation period, as a proportion of the original deficit, and the number of years required to pay off 50% of the value of original deficit, where the deficit calculations are carried out on a standardised market consistent basis
Absolute Considerations:	
The extent to which the required investment return above is less than the estimated future return being targeted by a fund's investment strategy	**Return Scope:** The required investment return rates as calculated in required return, compared with the fund's expected best estimate future returns assuming current asset mix maintained
The extent to which any deficit recovery plan can be reconciled with, and can be demonstrated to be a continuation of, the previous deficit recovery plan, after allowing for actual fund experience	**Deficit Extension:** The change in each fund's reported deficit recovery period from the 2011 valuation to the 2014 valuation

[13] Data were not available to populate all measures. We expect these data to be available for the section 13 work following the 2017 valuations.

Consideration	Measure Used
If there is a deficit, the extent to which the contributions payable are sufficient to cover the cost of current benefit accrual and the interest cost on the deficit over the current inter-valuation period	**Interest Cover:** A check on whether the annual deficit recovery contributions paid by the fund are sufficient to cover the annual interest payable on that deficit, where the deficit is calculated on a standardised market consistent basis
The extent to which any deficit recovery plan can be reconciled with, and can be demonstrated to be a continuation of, the previous deficit recovery plan, after allowing for actual fund experience	**Deficit Reconciliation:**[14] Confirmation that the deficit period can be demonstrated to be a continuation of the previous deficit recovery plan, after allowing for actual fund experience
If there is no deficit, the extent to which contributions payable are likely to lead to a deficit arising in the future	**Surplus retention[14]:** Confirmation that contributions from funds not in deficit are not likely to lead to a deficit arising in the future.

7.6 Four of these measures were selected from the KPIs defined by the Scheme Advisory Board for the LGPS in England and Wales[15].

7.7 These selected measures have been augmented with six additional measures which we believe are appropriate in helping to assess whether the aims of section 13 are met.

7.8 Three of the measures (deficit extension, deficit reconciliation and surplus retention) were assessed based on the local funds' actuarial bases (i.e. no standardised basis was required), or are proposed to be assessed on these bases as part of the section 13 work following the 2017 valuations. However, because of the inconsistencies in approach highlighted in chapter 5, it was not possible to assess the other measures using the local valuations.

7.9 For the remaining measures (deficit repaid, deficit period, required return, repayment shortfall, repayment pace, return scope and interest cover) we assessed the metrics on a standardised market-consistent basis (as set out in Appendix E), or we propose to do so as part of the section 13 work following the 2017 valuations.

[14] Data were not available to populate all measures. We expect these data to be available for the section 13 work following the 2017 valuations.
[15] http://committees.westminster.gov.uk/documents/s15058/11%20-%20Appendix%201%20-%20KPI%20Guidance.pdf

7.10 Each fund's score under each measure is colour coded, where:

- RED indicates a potentially material issue that may contribute to a recommendation for remedial action in order to ensure long-term cost efficiency of contributions;
- AMBER indicates a possible risk to the long-term cost efficiency of contributions; and
- GREEN indicates that there are no material issues that may contribute to a recommendation for remedial action in order to ensure long-term cost efficiency of contributions.

7.11 It should be noted that these flags are intended to highlight areas for further investigation, but green does not indicate a clean bill of health and also that the fact we are not specifically suggesting remedial action does not mean that scheme managers should not consider actions.

7.12 The analyses and calculations carried out under these long-term cost efficiency measures are approximate. They rely on the accuracy of the data provided by the respective local funds and their actuarial advisors.

7.13 Although the calculations are approximate, we consider they are sufficient for the purposes of identifying which funds are a cause for concern. While the measures should not represent targets, these measures help us determine whether a more detailed review is required; for example, we would have concern where multiple measures are triggered amber for a given fund.

7.14 In the two tables that follows we illustrate the results of each long term cost efficiency measure for each of the individual funds in LGPS Scotland.

7.15 The data that have been used to calculate the measures employed in this dry run report are set out in Appendix C while the methodology is set out in Appendix G.

Table 7.2: Open funds

PENSION FUND	MATURITY (RANK)	LONG TERM COST EFFICIENCY MEASURES						
		RELATIVE CONSIDERATIONS				ABSOLUTE CONSIDERATIONS		
		DEFICIT REPAID	DEFICIT PERIOD	REQUIRED RETURN	REPAYMENT SHORTFALL	RETURN SCOPE	DEFICIT EXTENSION	INTEREST COVER
DUMFRIES AND GALLOWAY	6.2 (6)	IN SURPLUS	IN SURPLUS	-1%	12%	7%	0	Yes
FALKIRK	5.3 (13)	IN SURPLUS	IN SURPLUS	0%	11%	6%	0	Yes
FIFE	5.3 (12)	IN SURPLUS	IN SURPLUS	-1%	11%	7%	0	Yes
HIGHLANDS	5.6 (11)	IN SURPLUS	IN SURPLUS	-1%	10%	7%	0	Yes
LOTHIAN PF	5.9 (9)	IN SURPLUS	IN SURPLUS	-2%	13%	9%	0	Yes
NORTH EAST SCOTLAND	6.1 (7)	IN SURPLUS	IN SURPLUS	-4%	10%	10%	-3	Yes
ORKNEY ISLANDS	4.8 (15)	IN SURPLUS	IN SURPLUS	-2%	11%	8%	0	Yes
SCOTTISH BORDERS	5.9 (8)	IN SURPLUS	IN SURPLUS	-2%	6%	8%	-12	Yes
SHETLAND ISLANDS	5.3 (14)	IN SURPLUS	IN SURPLUS	-1%	12%	7%	0	Yes
STRATHCLYDE NO 1	6.4 (5)	IN SURPLUS	IN SURPLUS	-1%	11%	8%	2	Yes
TAYSIDE PF	5.7 (10)	IN SURPLUS	IN SURPLUS	-1%	8%	7%	-9	Yes

Table 7.3: Closed funds

PENSION FUND	MATURITY (RANK)	LONG TERM COST EFFICIENCY MEASURES						
		RELATIVE CONSIDERATIONS				ABSOLUTE CONSIDERATIONS		
		DEFICIT REPAID	DEFICIT PERIOD	REQUIRED RETURN	REPAYMENT SHORTFALL	RETURN SCOPE	DEFICIT EXTENSION	INTEREST COVER
ABERDEEN TRANSPORT	24.6 (2)	IN SURPLUS	IN SURPLUS	N/A	78%	N/A	0	Yes
LOTHIAN BUSES	6.9 (4)	IN SURPLUS	IN SURPLUS	N/A	8%	N/A	3	Yes
SCOTTISH HOMES	N/A	IN SURPLUS	IN SURPLUS	N/A	N/A	N/A	0	Yes
STRATHCLYDE NO 3	15.8 (3)	IN SURPLUS	IN SURPLUS	N/A	32%	N/A	0	Yes
TAYSIDE TRANSPORT	25.4 (1)	IN SURPLUS	IN SURPLUS	N/A	13%	N/A	-7	Yes

Observations based on the long-term cost efficiency measures

7.16 Table 7.2 and 7.3 show that no funds would have given rise to significant concerns about the long-term cost efficiency of their contributions if the requirements of section 13 were in place as at 31 March 2014.

7.17 No flags were raised under the surplus retention measure, so we have excluded this measure from tables 7.2 and 7.3. At present, all the funds were in surplus on the standardised market consistent basis and were paying sufficient contributions into their funds, which resulted in an increase in the value of the surplus on the standardised market consistent basis.

7.18 Strathclyde Pension Fund and Lothian Buses Fund lengthened their actual deficit recovery period since the previous valuation as at 31 March 2011. We understand that the deficit recovery period has historically been related to the average future working lifetime of the active members which grew slightly in each case from 2011 to 2014. We also note that Lothian Buses shows a surplus on an ongoing valuation basis, but a deficit on a more cautious basis (using gilt yields as the discount rate). The extended deficit recovery period is on this latter basis.