The Pensions Regulator

Tranche 14 analysis

A review of defined benefit pension schemes with valuation dates between September 2018 and September 2019 (Tranche 14 or T14)

May 2019

Contents

Introduction

This analysis of the expected positions of defined benefit (DB) pension schemes with valuation dates between 22 September 2018 and 21 September 2019 (Tranche 14 or T14) gives further context to our 2019 Annual Funding Statement[1]. The analysis is primarily aimed at a more technical audience than the main 2019 Annual Funding Statement.

In modelling the impacts of market conditions on schemes, we have made a number of approximations based on the high-level and limited data we hold, which means we cannot take account of all scheme-specific characteristics. The position of individual schemes will therefore vary, depending on a number of individual factors not considered here. Similarly, our analysis of trends in potential employer affordability is based on high-level publicly available data and is not offered as a substitute for scheme-specific assessments.

This material and the work involved in preparing it are within the scope of and comply with the Financial Reporting Council's Technical Actuarial Standard 100. For the purpose of this standard, the users of this material are considered to be the regulated community for UK occupational DB pension schemes.

1 www.tpr.gov.uk/statements

Summary

Market conditions and impacts on scheme funding

Our analysis shows that most major asset classes have achieved double digit positive returns over the last three years, which may affect schemes carrying out valuations in this tranche. For example, over the period from March 2016 to March 2019, the FTSE All World (excluding UK sterling) returned 53.4%. However, wider concerns for global growth and reductions in the nominal and real yields are likely to have an impact on schemes' expected returns across various asset classes over the medium and longer term. The value of the liabilities is also likely to have grown over the three years to 31 March 2019 because expected future returns for most asset classes are now lower than at the previous valuation (see page 7).

Overall, our modelling suggests that schemes undertaking valuations at 31 March 2019 will have marginally improved funding levels and deficits from those reported three years ago. However, the deficits have not improved to the extent that would have been expected over the inter-valuation period as shown in figures 6a and 6b, and so it is likely that their current recovery plans will not be on track to remove the deficit revealed at the previous valuation. If trustees want to keep the same end date to their current recovery plan, deficit reduction contributions (DRCs) will need to be increased.

The position for individual schemes can vary greatly compared with our aggregate estimates, depending on their valuation dates and their funding and investment strategies. For example, our modelling suggests that schemes undertaking valuations at 31 December 2018 will, in aggregate, show worse deficit positions, mainly as a result of lower asset returns between December 2015 and December 2018 than between March 2016 and March 2019.

Developments in employers' profit, shareholder funds and dividend payments

The strength of the employer covenant is a key consideration for trustees and employers when setting their funding plans. Our analysis of sponsoring employers suggests that the majority of employers have seen an increase in the nominal value of their profit and shareholder funds (SHF) over the last three years. However, there is a wide distribution of how profit has changed across and between individual companies, and there remains a considerable proportion of schemes whose employers have experienced a decline in profits over the period (see Figure 8 on page 16).

For the group of FTSE350 companies that sponsor a DB scheme, we have seen, at the median level, the ratio of dividends to DRCs increase from 9.2:1 to 14.2:1 over the period since 2012. This is mainly driven by the significant increase in dividends over the period, without a similar increase in DRCs.

For non-FTSE350 public companies that sponsor a DB scheme, the ratio of dividends to DRCs has increased from 3.7:1 to 4.9:1 over the same period, at the median level. As such, in relative terms, the ratio of dividends to DRCs for non-FTSE350 companies has increased at a slower rate than those for FTSE350 companies.

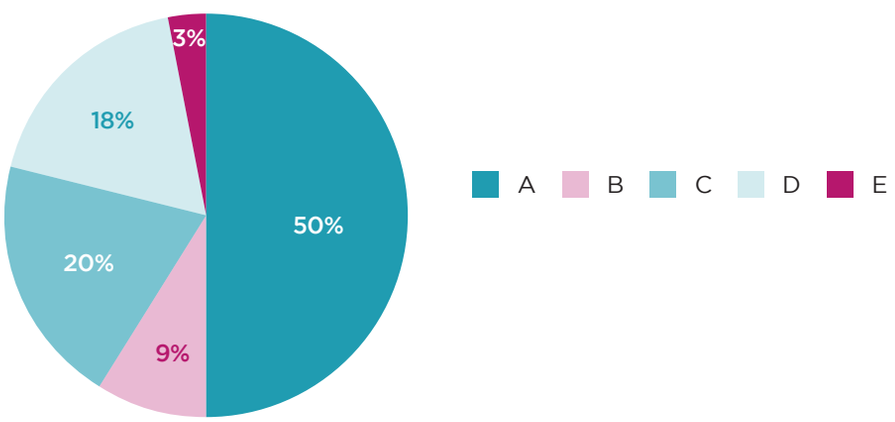
Implications for recovery plans and affordability

Our modelling highlights that for T14 schemes the median required increase in DRCs would be around 25% to 50% over the current level if schemes were to retain their existing recovery plan (RP) end dates, or for those schemes nearing the end of their recovery plan increase its length modestly (less than 3 years). About 30% of schemes would be able to retain their DRCs at the same level or less, while around 20% would need to increase DRCs to more than double their current levels. The latter group are generally schemes where current DRCs represent a relatively low percentage of company profit before tax.

A key factor for trustees and employers when agreeing an appropriate recovery plan is the affordability position of the employer, recognising that what is affordable may be affected by the employer's plans for sustainable growth.

In the Annual Funding Statement this year we segmented the universe into five broad categories, A–E, depending on scheme and employer characteristics. Figure 1 below shows the distribution of T14 schemes between these categories, with majority of schemes (almost 60%) in the two strongest employer groups where affordability should not generally be an issue.

Figure 1: Segmented T14 schemes as per Annual Funding Statement categories



Sources: The Pensions Regulator (TPR), 'Financial Analysis Made Easy' (FAME) published by Bureau van Dijk

Market indicators

Scheme funding is sensitive to the impact of the changes in market conditions on schemes' assets and the valuation of their liabilities.

Bond yields

Figure 2 shows the Bank of England estimates of nominal and real gilt yields and implied inflation as measured by the Retail Prices Index (RPI) over a 20-year period at each date from March 2013.

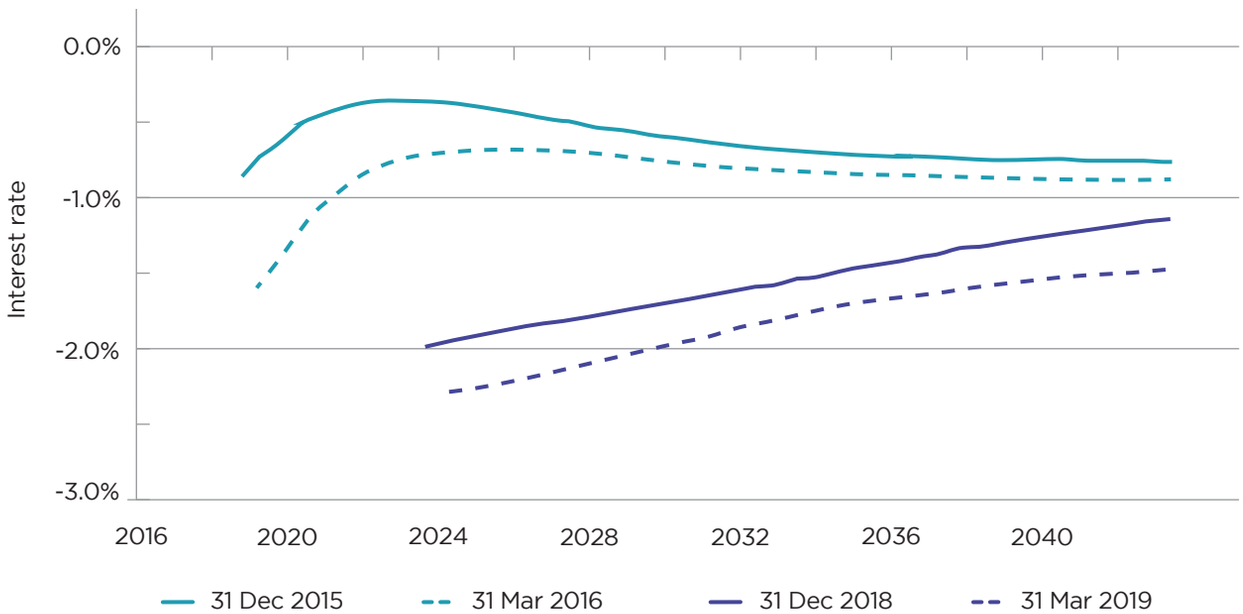
Figure 2: Benchmark yields

Sources: Bank of England (BoE), Thomson Reuters

There has been a significant fall in gilt yields since March 2013. Long-term real gilt yields fell into negative territory in 2014 and have not yet recovered. Nominal yields have fallen in the same fashion. Inflation expectations have however remained broadly unchanged over the six-year period.

Figure 3 shows the real forward interest rates as estimated by the Bank of England as at the end of December 2015, March 2016, December 2018 and March 2019. End of December and end of March are the most common valuation dates for schemes in this tranche.

Figure 3: UK instantaneous real forward gilt curves



Source: BoE

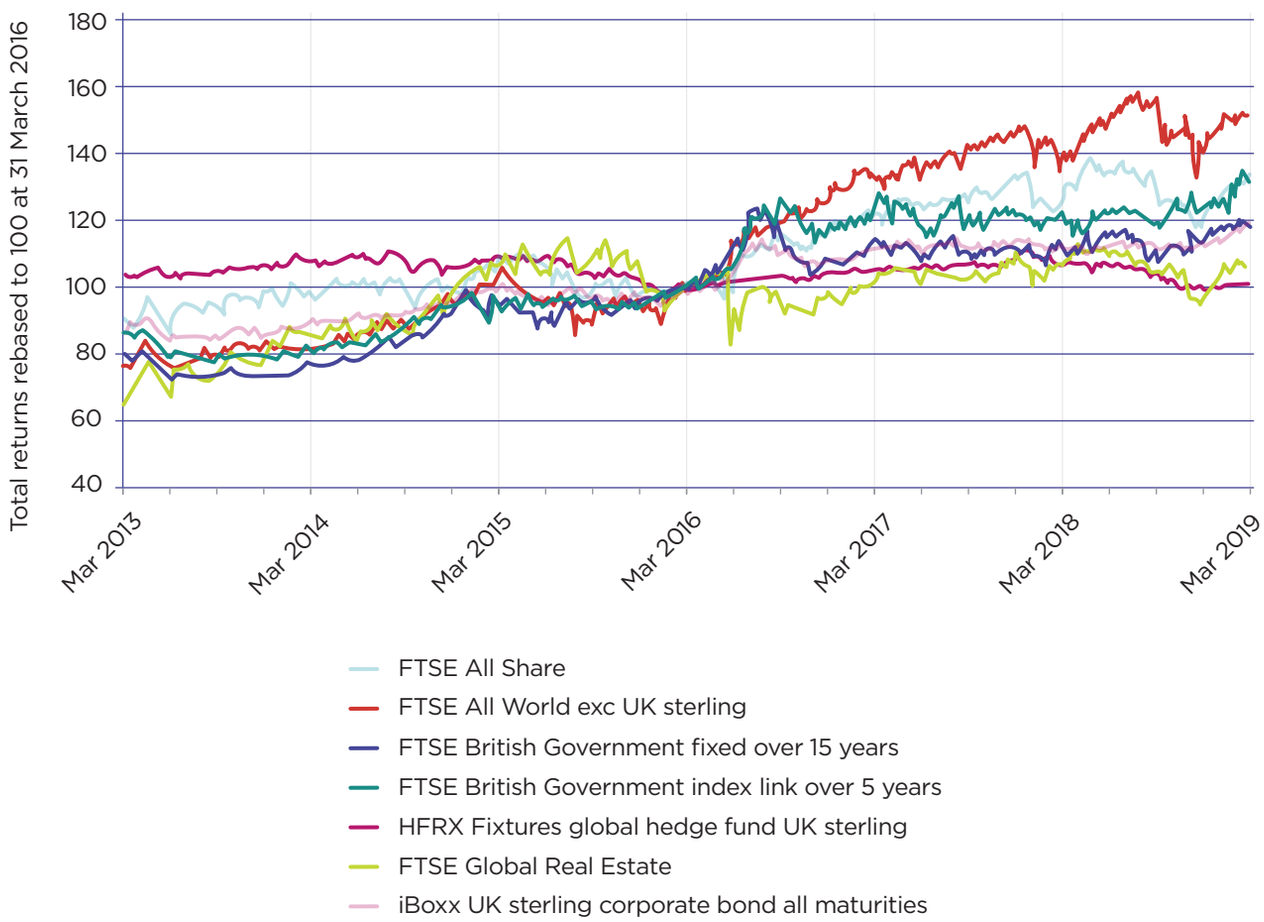
This chart shows that over the periods December 2015 to December 2018 and March 2016 to March 2019, there has been a significant fall in the implied real forward interest rates across the yield curve.

As has been the case for a couple of years, the reduction in yields and expectations for interest rates and inflation are likely to have a significant impact on expected returns across various asset classes. All else being equal, we would again expect that most schemes in this tranche will set funding strategies based on lower expected investment returns from most asset classes than at their last valuation. As a consequence, we expect that most schemes will have a larger reported value for their liabilities at their valuation date than would have been forecast three years before.

Asset returns

Figure 4 shows total returns (ie increases in value with income re-invested) for a range of asset class indices since 2013. The returns have been re-based to 100 at 31 March 2016, so the chart shows the relative change from that point.

Figure 4: Asset returns



Source: Thomson Reuters

Table 1 shows the total returns in UK Sterling for various asset indices over the periods December 2015 to December 2018 and March 2016 to March 2019.

Table 1: Total returns in UK Sterling from different asset classes over the three years to 31 December 2018 and 31 March 2019

Index name (Asset class)	Total returns over the period 31 Dec 2015-31 Dec 2018	Total returns over the period 31 Mar 2016–31 Mar 2019
FTSE All Share (UK equities)	19.5%	32.0%
FTSE All World excluding UK Sterling (Overseas equities)	44.0%	53.4%
iBoxx UK Sterling Corporate Bonds – All maturities	14.8%	16.8%
FTSE British Government fixed over 15 years (fixed interest gilts)	22.8%	19.5%
FTSE British Government index linked over 5 years (index-linked gilts)	30.1%	29.6%
HFRX Global Hedge Fund United Kingdom Sterling/Pounds	-3.7%	0.6%
FTSE EPRA/NAREIT UK Index	-10.4%	7.5%

Over the last three years, returns have been significantly positive for most asset classes. This is mainly due to strong asset returns in 2016.

Most asset classes returned significantly more over the period March 2016 to March 2019 than December 2015 to December 2018. This is primarily due to the positive returns on these asset classes over the period December 2018 to March 2019, coupled with relatively low or negative returns over the period December 2015 to March 2016.

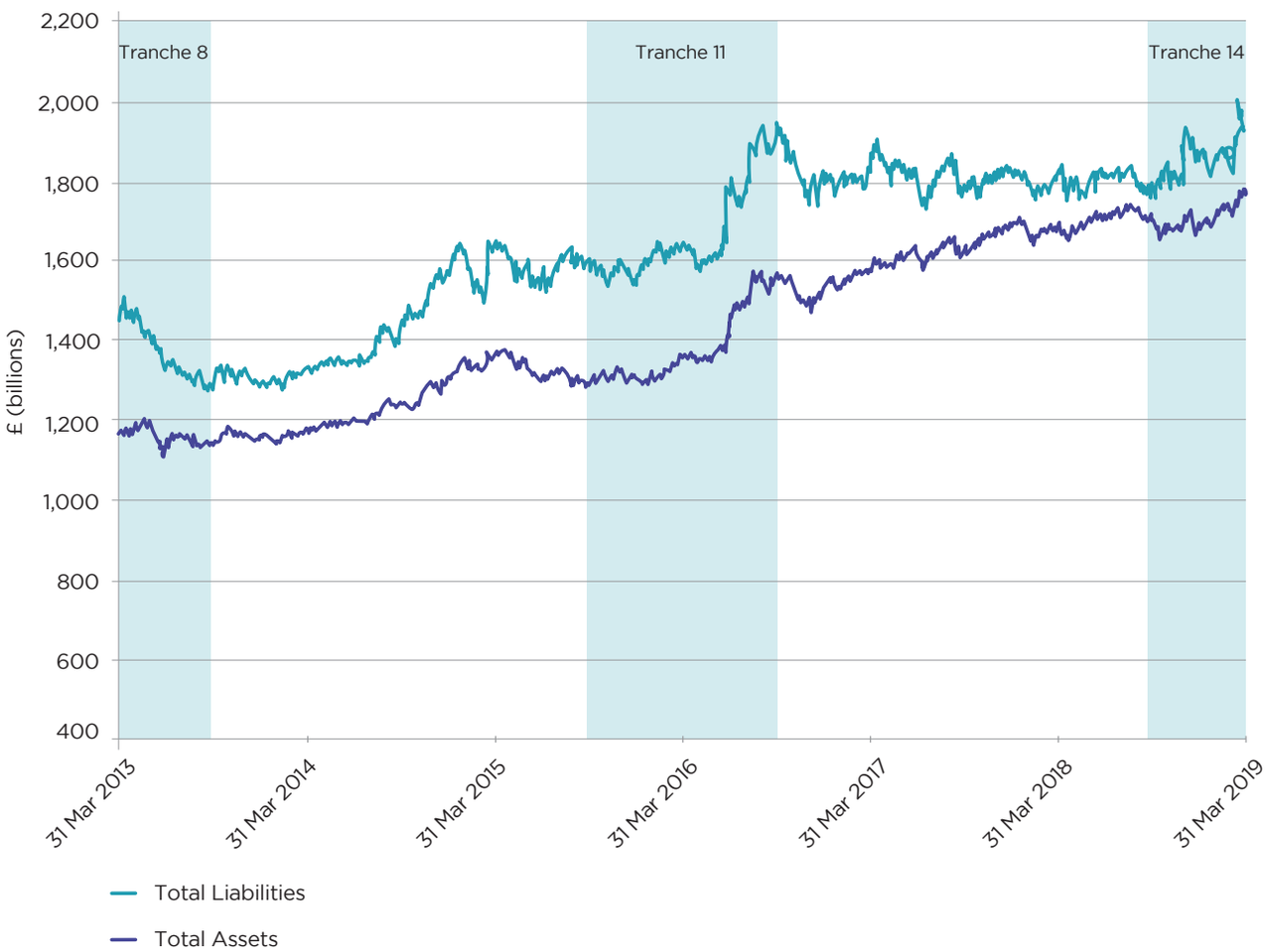
The hedge fund and property indices have seen relatively low returns over the three years to 31 March 2019, and negative returns over the three years to 31 December 2018.

DB schemes

Funding position of DB schemes in aggregate

Figure 5 shows estimates of assets and liabilities (technical provisions) for all schemes in our regulated DB universe. This is an aggregate analysis based on highly summarised data.

Figure 5: Estimated assets and liability positions of DB pension schemes



Sources: TPR, Thomson Reuters

The changes in market conditions mean that deficits on a technical provisions (TP) basis for the DB universe are expected to be marginally better at March 2019 relative to March 2016. This analysis may not be representative of individual schemes in this tranche of valuations and in addition, our modelling suggests that schemes undertaking valuations at 31 December 2018 will, in aggregate, show worse deficit positions, mainly as a result of lower asset returns between December 2015 and December 2018 than between March 2016 and March 2019.

Potential impact on scheme deficits in more detail

Figures 6a and 6b illustrate the key drivers in the change in deficit for all T14 schemes at the two most common valuation dates – 31 December and 31 March.

We have assumed that the discount rates that are used to calculate the liabilities of each scheme have changed since the previous scheme valuations broadly in line with three factors:

1. The movement in real gilt yields over the period.
2. Our estimate of how prudent expected returns in excess of gilt yields (from the portfolio of return-seeking assets) have changed over the same period.
3. The movement in investment portfolios from growth seeking to matching assets.

When assessing the expected return over the longer term relative to gilts and how this has changed over the three years since March 2016 and December 2015, we have seen evidence to support a small reduction in the prudent expected returns in excess of gilt yields. Our view of the general outlook for future investment returns is that they will be slightly lower than those expected three years ago, partially due to schemes investing in more matching assets, and partially due to fewer schemes allowing for yield reversion when setting discount rates. This has resulted in a small item in the following two graphs under 'change in relative expected outperformance'. In practice, schemes will determine the appropriate discount rate in different ways and will have their own scheme-specific investment strategy.

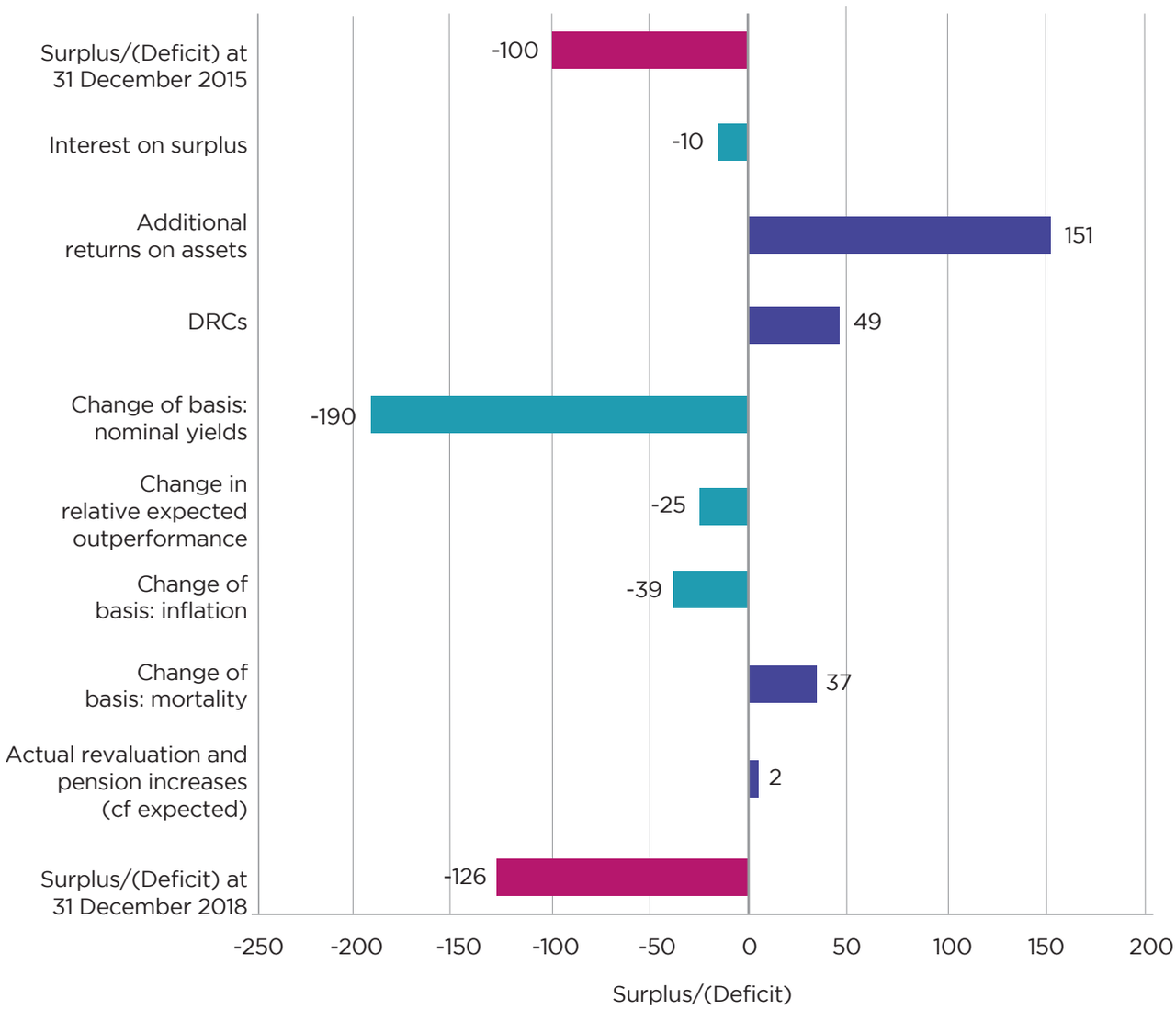
In addition to the consideration around the financial assumptions, our analysis implicitly assumes that the mortality base table assumptions used by the scheme actuary at the last valuation remain unchanged, but that future improvements are updated to use the latest Continuous Mortality Investigation (CMI) projections with no change to long term rates of improvement[2].

The method used to estimate the movement in the deficits over the three-year periods we consider below has been simplified. We expect scheme actuaries to have access to more detailed scheme data which will allow a more in-depth reconciliation to take place. The method and simplifications we have made in these reconciliations are contained in the 'methods, principal assumptions and limitations' appendix.

In Figures 6a and 6b, the starting deficit for all schemes has been notionally set to 100 to allow for easy comparison of the change over the period. The size of the bars shown on the chart illustrates the relative impact of each of those items on the deficit over the period.

2
While this is appropriate for the purposes of the simplistic analysis of schemes in general, what will be appropriate for individual schemes will depend on their specific circumstances. Note, at the time the analysis was performed we used CMI 2017 projections as CMI 2018 had not yet been released.

Figure 6a: Estimated impact of market conditions on deficits of all T14 schemes – 31 December 2015 to 31 December 2018

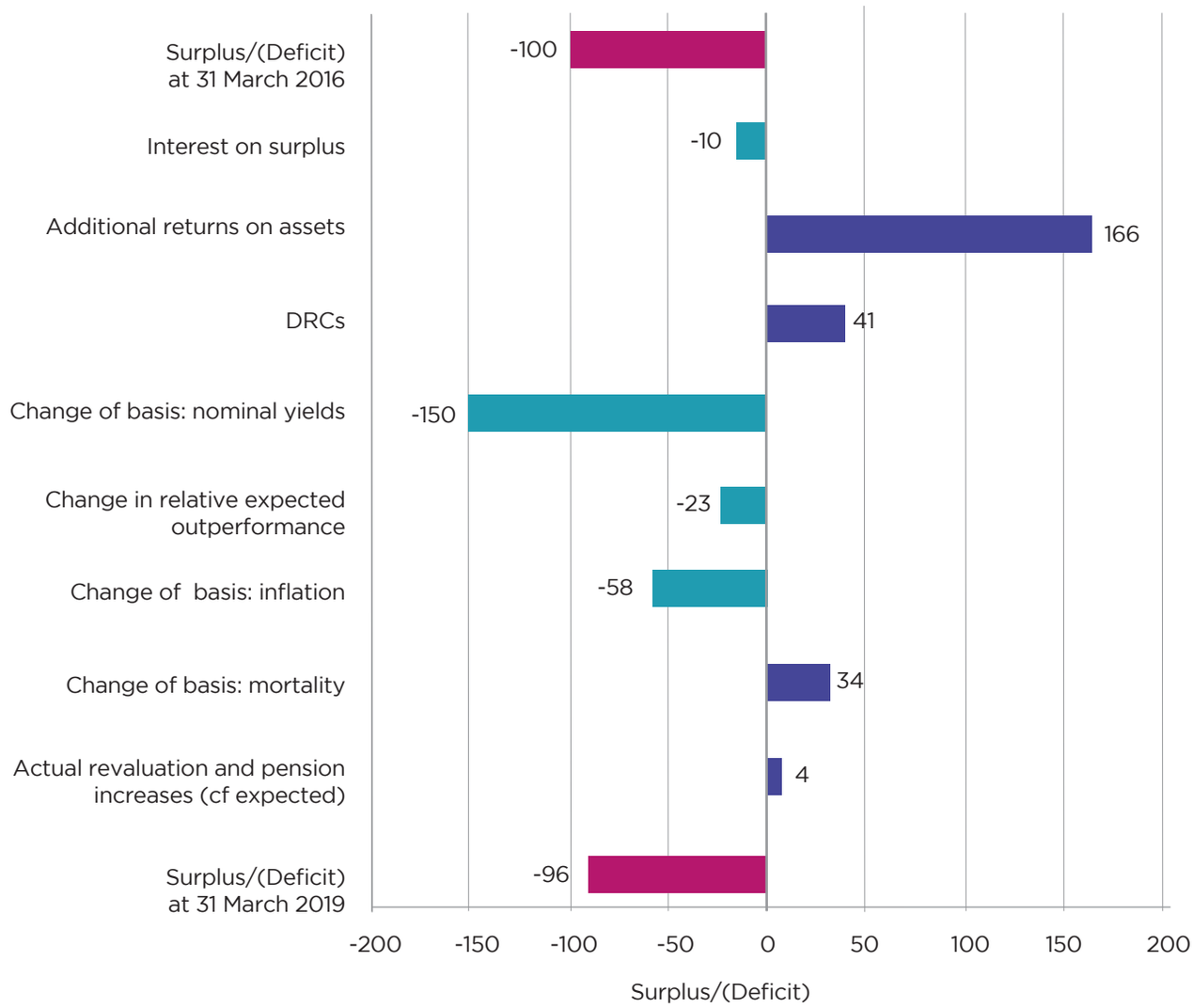


Sources: TPR, Thomson Reuters

Between 31 December 2015 and 31 December 2018, deficit contributions, better than expected asset returns and updated assumptions for future mortality improvements have not been enough to offset the increase in liabilities due to changes in market conditions and the reduction in relative expected outperformance.

Our analysis shows that, based on aggregated scheme data, deficits are likely to have deteriorated slightly over this period.

Figure 6b: Estimated impact of market conditions on deficits of all T14 schemes – 31 March 2016 to 31 March 2019



Sources: TPR, Thomson Reuters

We estimate that the aggregate deficit of T14 schemes as at 31 March 2019 could have reduced slightly from three years ago. The estimated change is better than that from December 2015 to December 2018. Most asset classes returned more over the period March 2016 to March 2019 than over the period December 2015 to December 2018. This had an impact on the expected deficits at the end of the period and is the primary reason for the difference in the two illustrated positions.

Employer trends

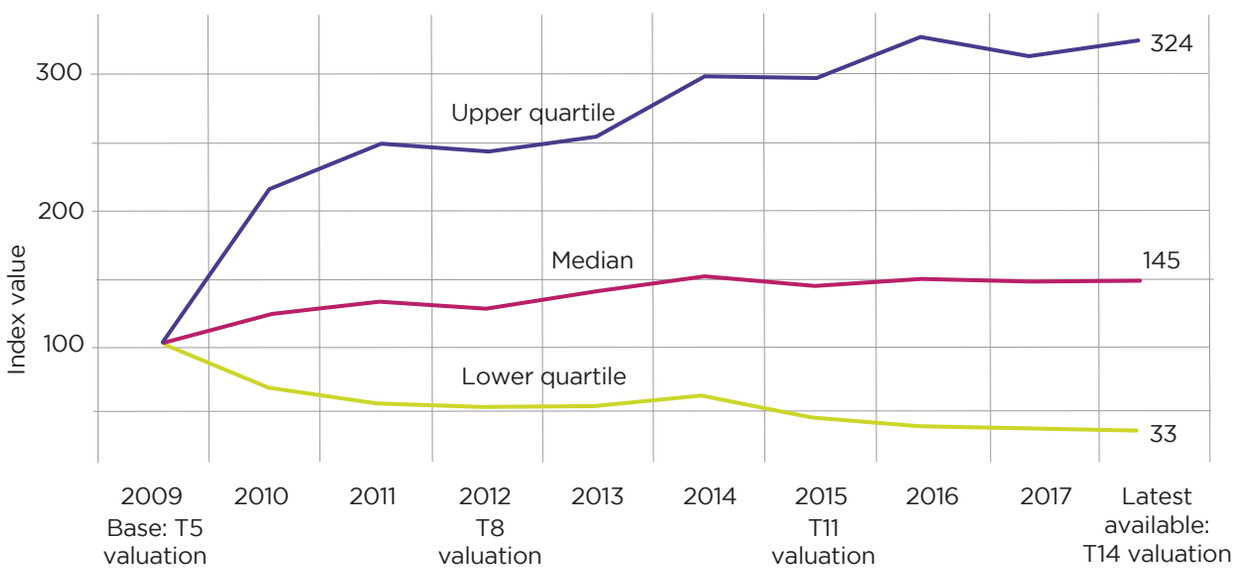
As well as the impact of market conditions on a scheme, changes in the strength of the employer covenant are a key consideration for trustees and employers when considering funding levels and integrated risk management (IRM). Our analysis below considers trends in employers' profit before tax (PBT), shareholder funds (SHF), and dividends relative to DRCs, based on available information.

Employer profitability

Figure 7 looks at how the level of profitability, approximated by the employers' PBT in this illustration, has changed for schemes with a T14 valuation date. PBT data for 2009 (the data covering the T5 valuation period, which a majority of the T14 population will have submitted a valuation in respect of), has been re-based to 100 for ease of comparison.

Please note the methodology underpinning this analysis has changed since last year to include companies that reported a loss before tax in one (or more) of the years presented. Further information on this change is detailed in the footnote below[3].

Figure 7: Profit before tax for T14 schemes from 2009



Sources: TPR, FAME published by Bureau van Dijk.

3.
Previously, data for schemes whose employers reported a loss before tax in the base year or a subsequent year were excluded from Figure 7. Such companies represented a minority of the overall population being presented. The exclusion of data for loss before tax, the values of which were negative, was due to difficulties presenting a distribution of the change in PBT, where a year was negative. In this year's publication, we have adopted a methodology which allows us to include such schemes, which increases the population covered in Figure 7. Please see 'Employer data and methodology' in the Annex to this publication for further information on our approach.

Figure 7 shows, for T14 schemes, the distribution of changes in employer PBT from 2009 with the quartiles of the overall distribution plotted for each year, relative to 2009.

The median of the distribution at the latest point (index value = 145) suggests that nominal profits have increased by at least 45% since 2009 for half of the schemes in the analysis.

The lower quartile of the distribution at the latest point (index value = 33) suggests that for a quarter of schemes, employer PBT has changed by between +45% and -67%, with a further quarter of schemes for whom employer PBT has decreased by more than 67%, relative to 2009.

The upper quartile (latest index value = 324) suggests that, for a quarter of schemes, employer PBT has increased by between +45% and +224%, with a further quarter of schemes for whom employer PBT has increased by more than 224%, relative to 2009.

The upper quartile and median points for the PBT distribution have increased since T11 (ie employers' financial years ending 2015). This suggests that, for the majority of schemes, nominal profits have increased.

Table 2: Full distribution (proportion of all T14 schemes)

Group	Base (2009) (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)	2015 (%)	2016 (%)	2017 (%)	Latest (%)
Included in Figure 7										
% Negative PBT	25%	19.6%	20.4%	20.7%	18.3%	16.8%	21%	23%	21.9%	22.3%
% Positive PBT	75%	80.4%	79.6%	79.3%	81.7%	83.2%	79%	77%	78.1%	77.7%
Included in Figure 7 (total)	**81.3%**	**79.7%**	**79.9%**	**79.3%**	**79.3%**	**78.2%**	**78.2%**	**77.7%**	**76.3%**	**77.8%**
Insufficient PBT data	18.7%	20.3%	20.1%	20.7%	20.7%	21.8%	21.8%	22.3%	23.7%	22.2%

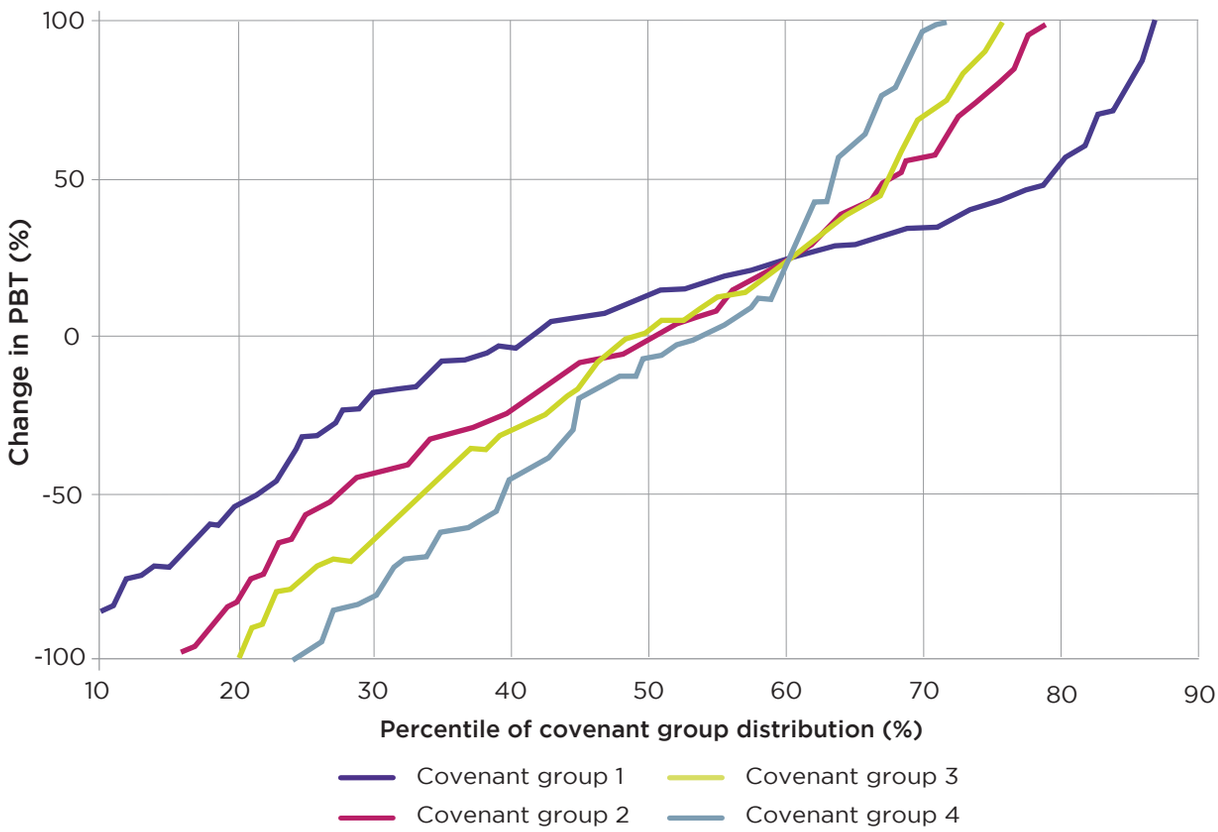
Sources: TPR, FAME published by Bureau van Dijk

As set out in Table 2, in each of the years considered, the analysis includes information for around 75% to 80% of schemes' employers with around 20% excluded due to insufficient employer PBT data in the base year, the reference year, or both.

Percentage change in employer PBT

The chart below shows the distribution of the percentage change in employer PBT for T14 schemes from the previous valuation (employer financial year ending 2015) to latest available employer data[4]. The data is split by covenant group (CG)[5] for comparison where the CG was assessed at the scheme's previous valuation.

Figure 8: Change in Profit before Tax for T14 schemes (including negative PBT categories)



Sources: TPR, FAME published by Bureau van Dijk

Figure 8 shows, for example, that for CG1, a quarter of schemes experienced an increase in their employers' PBT by 43% or greater over the period, while the same proportion of schemes experienced a decrease in their employers' PBT by 30% or greater, with the remaining half falling between these two values.

4
Latest available represents approximately 5% employer accounts with 2018 financial year ends, and approximately 95% 2017 financial year ends.

5
Covenant groups (CGs) reflect those assigned in a scheme's previous (usually tranche 11) valuation. CGs 1-4 are assigned at the point of initial recovery plan reviews to facilitate prioritisation. These grades may vary to the view taken during case-level intervention, where a wider range of information is taken into account. They are defined as: CG 1 - strong; 2 - tending to strong; 3 - tending to weak; 4 - weak. Covenant assessments are not usually undertaken by TPR for in-surplus schemes.

Similarly, for CG4, the chart shows that more than a quarter of schemes experienced an increase in their employers' PBT by 110% or greater, while a quarter experienced a decrease in their employers' PBT of 97% or greater, with the remaining half falling between these two values.

For the majority of employers shown in Figure 8, there has been an increase in the reported profits across all CG rated schemes in this analysis, with the most significant increase in stronger (CG1 and CG2) rated schemes – up to a 15% increase in PBT at the median (50th percentile).

However, there is a wide distribution and there are 48% of schemes with employers reporting a decline in profits over the period. The distribution is widest (steepest) in respect of weaker CG3 and CG4 rated schemes, which may be indicative of more volatile profitability, year-on-year.

Limitations of our analysis

Please note Figure 8 only includes those schemes with sufficient PBT data. Around 20% are excluded due to insufficient employer PBT data.

Table 3: Full distribution (proportion of all schemes including negative PBT categories)

Group	Proportion of all T14 schemes
Insufficient PBT data	19.7%
Included in Figure 8	80.3%
Total	**100.0%**

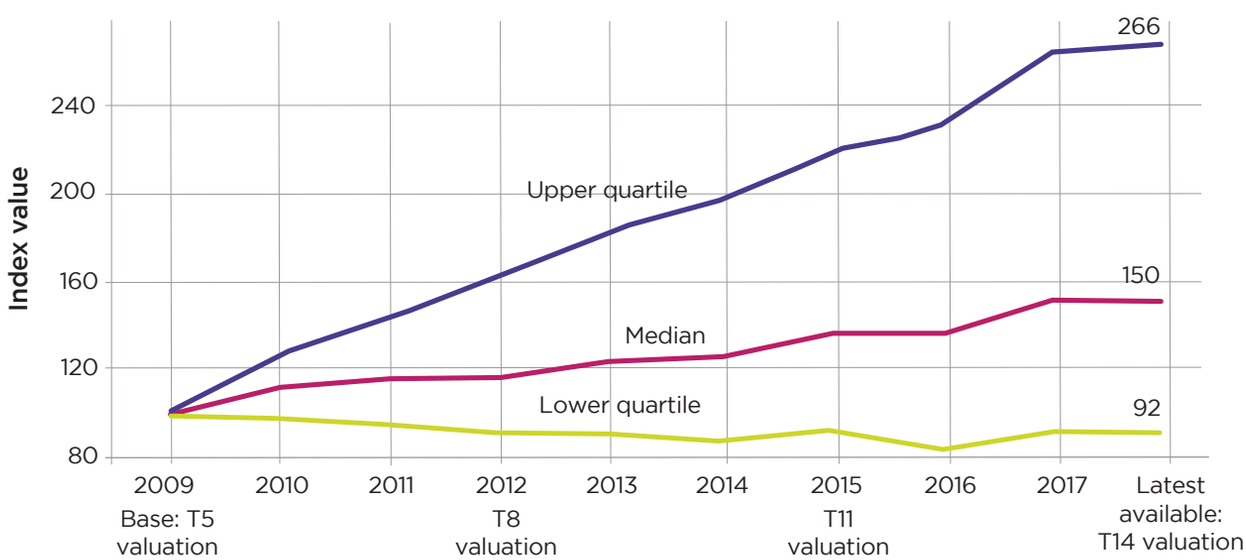
Sources: TPR, FAME published by Bureau van Dijk

Employer balance sheets

Figure 9 looks at how the strength of employers' balance sheets, approximated using SHF, has changed for schemes with a T14 valuation date. SHF data for 2009 has been rebased to 100 for ease of comparison.

The methodology underpinning this analysis has changed relative to prior years, to include employers that reported a net liability position (negative shareholder funds) in one (or more) of the years analysed. Further detail on this change is provided in the footnote below.[6]

Figure 9: Shareholders' funds for T14 schemes



Sources: TPR, FAME published by Bureau van Dijk.

6
Previously, data for schemes whose employers reported a net liability in the base year or a subsequent year were excluded from Figure 9. Such companies represented a minority of the overall population being presented. The exclusion of data for net liabilities, the values of which were negative, was due to difficulties presenting a distribution of the change in SHF, where a year was negative. In this year's publication, we have adopted a methodology which allows us to include such schemes, which increases the population covered in Figure 9. Please see 'Employer data and methodology' for further information on our approach.

Figure 9 shows for T14 schemes the distribution of changes in employer SHF since 2009 with the quartiles of the overall distribution plotted for each year, relative to 2009.

The median of the distribution at the latest point (index value = 150) suggests that SHF have increased by more than +50% for half of the schemes in the analysis.

The lower quartile of the distribution at the latest point (index value = 92) suggests that for a quarter of schemes, SHF have changed by between +50% and -8%, with a further quarter of schemes for whom SHF have reduced by more than 8%, relative to 2009.

The upper quartile (latest index value = 266) suggests that for a quarter of schemes, SHF have increased by between +50% and 166%, with a further quarter of schemes for whom SHF have increased by more than 166%, relative to 2009.

Since the previous valuation date (2015) for these schemes, increases in indexed values at the upper quartile and median suggest that, for a majority of schemes, SHF have increased over the last three years.

Table 4: Full distribution (proportion of all T14 schemes)

Group	Base (2009) (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)	2015 (%)	2016 (%)	2017 (%)	Latest (%)
Included in Figure 9										
% Negative SHF	9.8%	8.2%	8%	8.3%	8.2%	8.5%	8.4%	9.5%	8.2%	8.1%
% Positive SHF	90.2%	91.8%	92%	91.7%	91.8%	91.5%	91.6%	90.5%	91.8%	91.9%
Included in Figure 9 (total)	**87.1%**	**85.8%**	**86.1%**	**86.2%**	**86.2%**	**85.7%**	**85.8%**	**85.7%**	**84.9%**	**86.9%**
Insufficient SHF data	12.9%	14.2%	13.9%	13.8%	13.8%	14.3%	14.2%	14.3%	15.1%	13.1%

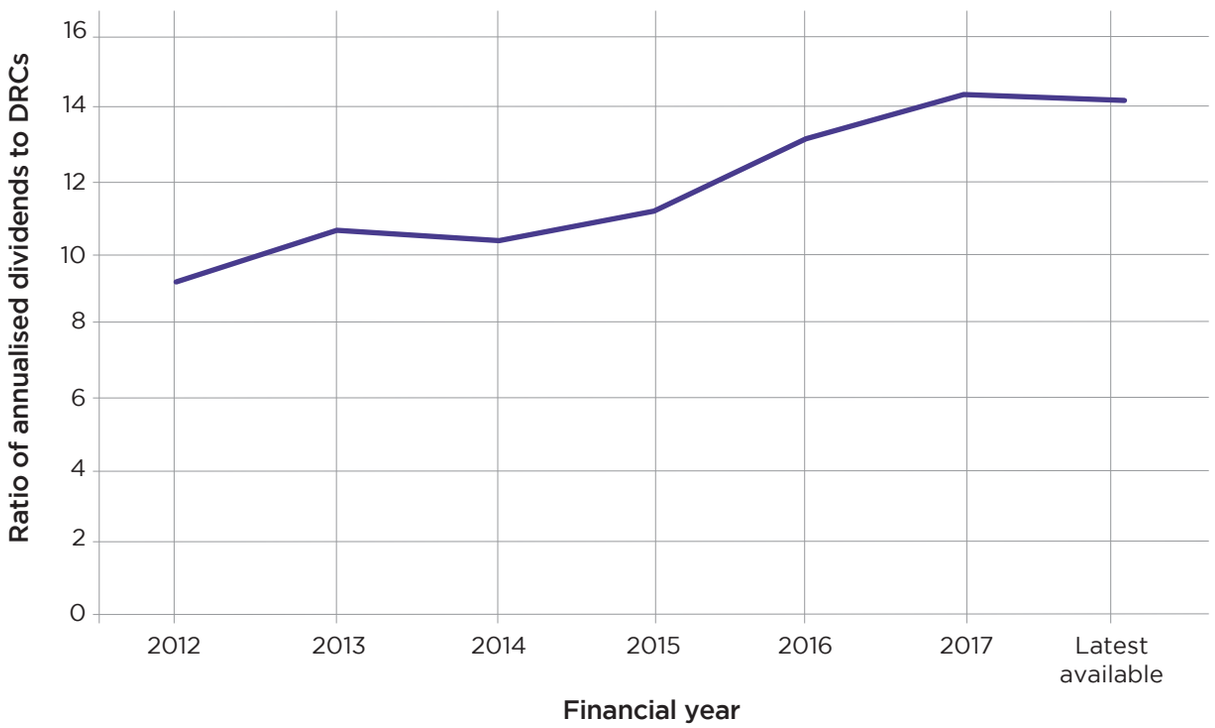
Sources: The Pensions Regulator, Financial Analysis Made Easy published by Bureau van Dijk

As set out in Table 4, in each of the years considered, the analysis includes information for around 85% of schemes' employers, with around 15% excluded due to insufficient employer SHF data in the base year, the reference year, or both.

Dividend trends

Figure 10a shows the distribution of the ratio of DRCs to dividends paid by employers of DB schemes in the FTSE350 (representing around 200 companies and 470 schemes) from 2012 to latest available financial year end accounts, with material DB pensions exposure (through direct participation or majority shareholding in participating employers).

Figure 10a: Ratio of dividends to DRCs (where both dividends and DRCs are non-zero) – current FTSE350 companies sponsoring DB/hybrid pension schemes



Sources: TPR, FAME published by Bureau van Dijk

Figure 10a shows that for current FTSE350 companies that sponsor DB pension schemes (through direct participation or majority shareholding in participating employers), the trend in dividends compared to DRCs has generally increased over the period from 2012.

The median ratio of dividends to DRCs has increased from 9.2:1 in 2012 to 14.2:1 in the employers' latest available accounts. This is mainly driven by the significant increase in aggregate dividends over the period, without a similar increase in contributions.

Year	Median
2012	9.2
2013	10.5
2014	10.3
2015	11.2
2016	13.1
2017	14.3
Latest available	14.2

Limitations of our analysis

Figure 10a only includes current FTSE350 companies that sponsor a DB scheme, and where both the DRCs and dividends were non-zero in the year shown. Table 5 below shows that, based on the latest employer accounts, this amounted to 76% of the total current FTSE350 companies that sponsor a DB scheme.

Table 5: Full distribution (proportion of around 200 employers including nil DRCs and/or nil dividends) – FTSE350 companies sponsoring DB/hybrid pension schemes

Category	2012	2013	2014	2015	2016	2017	Latest available
DRCs and dividends both non-zero	75.9	75.4	76.4	77.9	74.4	75.4	75.9
Nil dividends	6.0	7.5	7.0	6.5	6.0	6.5	6.5
Nil DRCs	7.5	8.5	10.1	11.1	17.1	16.1	16.1
Nil DRCs and nil dividends	1.5	1.0	0.5	0.0	2.0	1.5	1.5
No dividend data	9.0	7.5	6.0	4.5	0.5	0.5	0.0

Sources: TPR, FAME published by Bureau van Dijk

Further observations on dividends and DRCs for FTSE350 companies

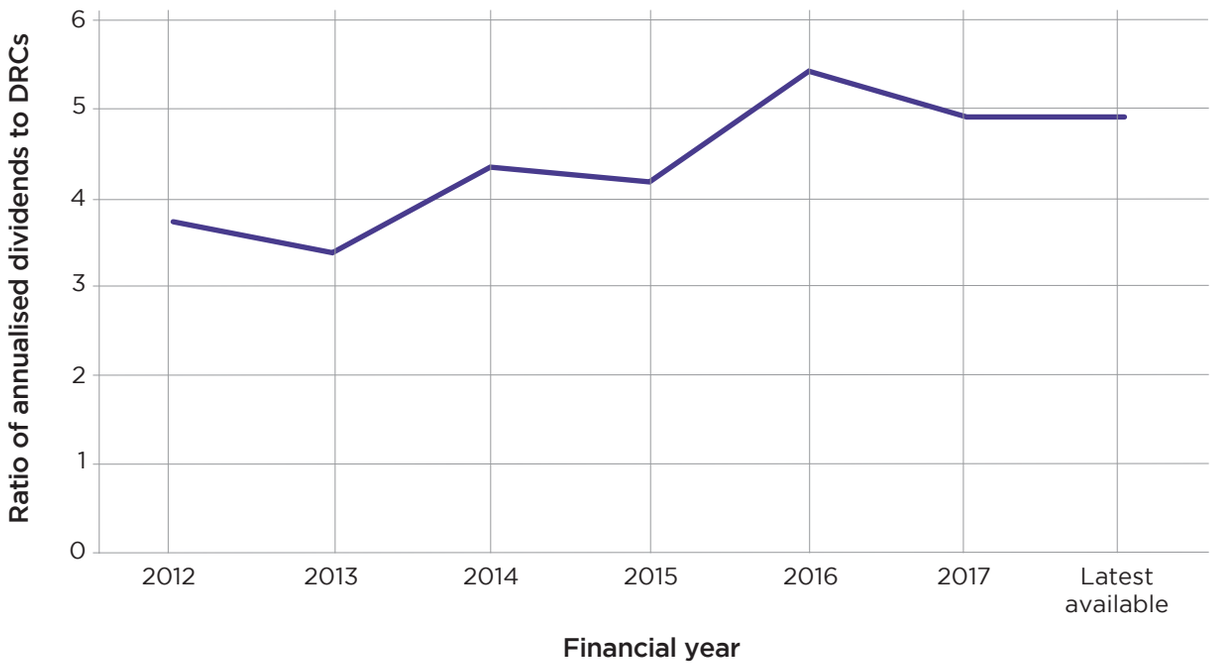
Table 5 also shows that the percentage of current FTSE350 companies that sponsor a DB scheme which paid no DRCs but paid dividends has increased from 8% in 2012 to 16%, based on the latest accounting information.

The percentage of current FTSE350 companies that sponsor a DB scheme that paid no dividends but paid DRCs has remained broadly flat over the period analysed - between 6% and 7%.

Ratio of dividends and DRCs for non-FTSE350 companies

Figure 10b shows the median ratio of dividends to DRCs from 2012 to the latest available financial year end, as paid by public employers of schemes outside the FTSE350 (representing around 250 companies and 410 schemes) with exposure to DB pensions. This exposure will have been through direct participation or majority shareholding in participating employers.

Figure 10b: Ratio of dividends to DRCs (where both dividends and DRCs are non-zero) –non FTSE350 public (listed/unlisted) companies with material DB pensions exposure



Sources: TPR, FAME published by Bureau van Dijk

This chart shows that, for this population, the trend in dividends compared to DRCs has a similar shape (over the period since 2012) to that of the FTSE350 cohort. That is, we have seen the same general increase in dividends compared to DRCs. However, the ratio of dividends to DRCs is, in general, lower than for the FTSE350. The median of the distribution has increased from 3.7:1 in 2012 to 4.9:1, based on the latest accounting information.

Year	Median
2012	3.7
2013	3.4
2014	4.3
2015	4.2
2016	5.4
2017	4.9
Latest available	4.9

Limitations of our analysis

Figure 10b only includes those non-FTSE350 public companies that sponsor DB schemes (through direct participation or majority shareholding in participating employers), where both the DRC and dividends in the year shown were more than zero. Table 6 shows that in 2012, this amounted to 55% of the total non-FTSE350 companies that sponsor a DB scheme, and 50% based on latest accounting information.

Table 6: Full distribution (proportion of around 250 employers including nil DRCs and/or nil dividends) – non-FTSE350 public (listed/unlisted) companies with material DB pensions exposure

Category	2012	2013	2014	2015	2016	2017	Latest available
DRCs and dividends both non-zero	54.8	52.4	54.4	54.0	50.0	50.8	50.4
Nil dividends	27.8	29.4	29.0	28.6	30.6	29.4	29.4
Nil DRCs	7.9	9.5	9.1	8.3	10.3	10.7	11.5
Nil DRCs and nil dividends	5.2	5.2	4.4	5.6	6.0	6.0	6.0
No dividend data	4.4	3.6	3.2	3.6	3.2	3.2	2.8

Sources: TPR, FAME published by Bureau van Dijk

Further observations on dividends and DRCs for non-FTSE350 companies

Table 6 also shows the percentage of non-FTSE350 public companies that sponsor a DB scheme that paid no DRCs but paid dividends in a given year, has generally increased over the period shown, from 8% in 2012 to 12% based on the latest available information.

The percentage of non-FTSE350 public companies that sponsor a DB scheme that paid no dividends but paid DRCs in a given year, has also remained broadly stable, though it has increased from 28% in 2012 to 29% based on the latest available information.

Implications for scheme funding

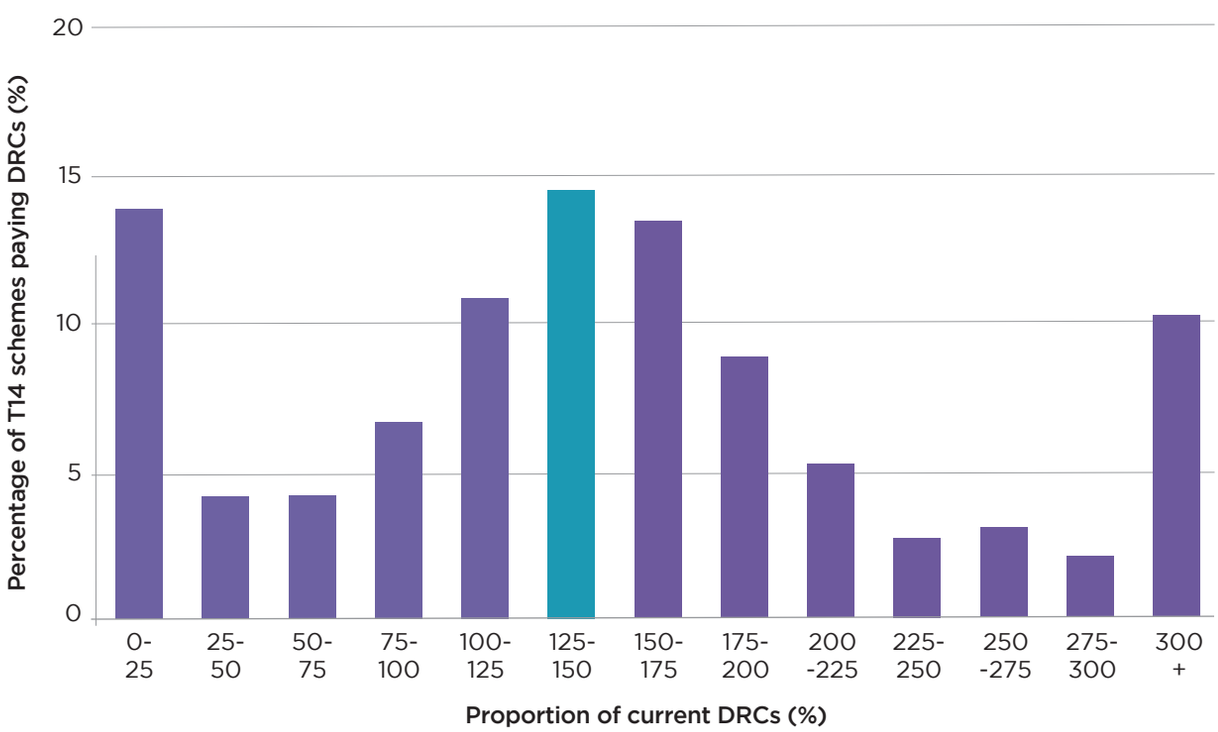
The analysis above highlights that many schemes are likely to have similar deficits to those revealed at their previous valuation date, and for schemes undertaking valuations at the end of 2018, deficits may have increased. Schemes would generally have expected their funding position to have improved over three years since their previous valuations were undertaken, and so it is therefore likely that current scheme recovery plans will not be on track to remove the deficit revealed at the previous valuation and hence trustees will need to make changes to their recovery plan.

However, the trends in employers' PBT and SHF indicate that affordability might have increased for some employers. Such increased affordability means that they may also have a greater number of deficit management strategies available to them than before. Furthermore, the level of dividends compared to DRCs suggests there may be affordability which could be used to shorten recovery plans instead.

Potential impact on DRCs

Figure 11 below illustrates the potential impact on DRCs for T14 valuations as at 31 March 2019, expressed as a percentage of the level of current DRCs (ie what was agreed in T11 valuations). We have assumed, for the purpose of illustration and to remove the distorting impact of short remaining periods, that each scheme aims to eliminate the deficit over three years or the remaining term of the recovery plan agreed at the last valuation, whichever is longer.

Figure 11: Modelled T14 DRCs as a proportion of current DRCs – based on same recovery plan end date as last valuation, or three years if longer



Sources: TPR, Thomson Reuters

On these assumptions, about 30% of schemes would be able to retain their DRCs at the same level or less, either because of an improvement in their funding position or, for those schemes nearing the end of their recovery plan, the possibility of a moderate increase in the recovery plan length. Around 50% of schemes would need an increase to DRCs of up to 100%, and the remainder (c. 20%) would need to more than double their DRCs to retain their current recovery plan end date.

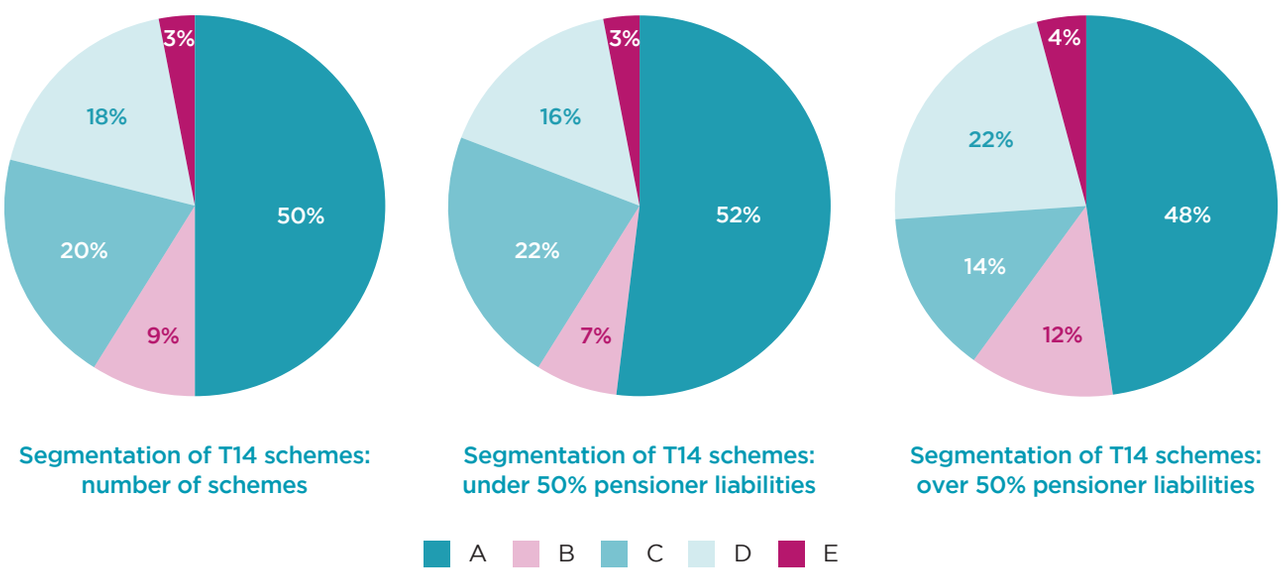
Further examination of the schemes in the last category showed that many of them currently have shorter recovery plans than the average and are supported by strong employers who will have greater ability to increase contributions. In addition, for some of these schemes, the apparently large increase may be due to current DRCs which are small compared to the size of the scheme and employer. We have not analysed this any further.

Comparing these impacts to the employer's affordability

A key factor for trustees and employers when agreeing an appropriate RP is the affordability position of the employer, recognising that what is affordable may be affected by the employer's plans for sustainable growth.

In the Annual Funding Statement this year we segmented the universe into five broad categories: A to E, depending on scheme and employer characteristics. A distribution of T14 schemes according to these categories is shown in Figure 12 below.

Figure 12: Segmentation of T14 schemes as per Annual Funding Statement categories



Sources: TPR, FAME published by Bureau van Dijk

Within each of these categories we segmented further according to the demographic maturity of schemes, which is increasingly becoming a significant factor when setting funding and investment strategies.

As explained in our Annual Funding Statement, scheme maturity can be measured in different ways and in each there is a spectrum between mature and immature. For the purposes of this analysis, given the high-level data we hold, we have segmented the schemes into mature and immature groupings based on the percentage of TP liabilities that are estimated to be in respect of pensioner members.

Where over 50% of the liabilities are in respect of pensioners, we have assumed that the scheme is mature, and where less than 50% of the liabilities are in respect of pensioners we have assumed the scheme is immature. This is a high-level analysis and for individual schemes we expect scheme actuaries to advise trustees on the broad position of their scheme within the maturity spectrum, now and how it may change in the future.

DRCs compared to employers' PBT in T11 and T14

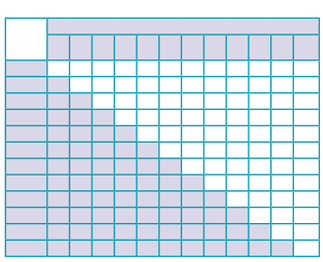
Table 8 illustrates the significance of DRCs compared with employers' PBT at the last valuation and the modelled DRCs for schemes in T14 – assuming no change in current RP end-dates (subject to a three-year minimum). Due to limitations on availability of appropriate data this table analyses only those schemes where reliable PBT data is available (ie about 63% of T14 schemes).

The rows correspond to DRCs agreed in T11 as a proportion of employers' three-year average PBT to financial year end accounts 2015 (the information that would have been relevant at T11 valuation dates). The columns correspond to the modelled DRCs for T14 as a proportion of employers' three-year average PBT to the latest available financial year end.

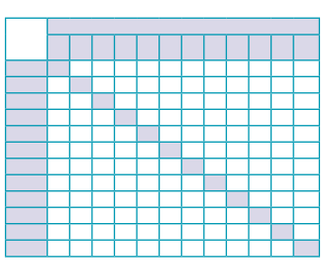
For example, our modelling estimates that 52 schemes agreed DRCs in T11 that were between 0-10% of employers' PBT at that time, and under the modelled scenario for T14, DRCs are estimated to be between 10-20% of employers' latest available PBT.

Table 8: DRCs compared with employer's PBT in T11 and T14

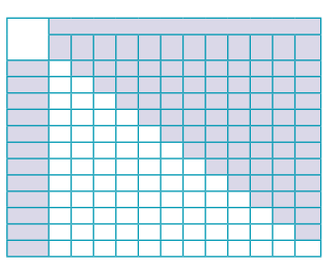
Tranche 10 DRCs as a percentage of 2013 PBT (%)	Modelled T14 DRCs as a percentage of latest PBT (%)											
	0	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100+
0	178	53	5	5	1	1	0	2	0	0	1	5
0-10	61	168	52	12	6	6	3	2	0	1	0	5
10-20	11	20	40	27	12	7	7	3	6	0	1	8
20-30	7	8	9	11	13	1	4	2	2	3	4	8
30-40	8	5	3	8	3	8	4	3	1	2	3	5
40-50	8	2	1	2	4	3	0	2	1	5	4	13
50-60	6	2	2	3	2	4	3	5	2	3	1	10
60-70	3	1	0	0	2	1	2	4	2	1	0	7
70-80	2	2	1	2	2	2	0	0	0	1	0	10
80-90	1	1	2	1	1	0	0	0	0	1	1	7
90-100	0	1	1	0	0	0	1	0	0	0	1	12
100+	10	3	1	2	3	2	3	5	1	3	2	72



Group X



Group Y



Group Z

Table 8 shows the following:

- Schemes in Group X are those where the ratio of modelled T14 DRCs as a proportion of employers' PBT is estimated to be less than that ratio in T11. This represents around 20% of schemes shown in the table. For these schemes, the indication is that modelled DRCs may be more affordable than at the scheme's last valuation.
- Schemes in Group Y are those where the ratio of modelled T14 DRCs as a proportion of employers' PBT is estimated to be in the same range as that ratio in T11. This represents around 45% of schemes shown in the table. For these schemes, the indication is that the modelled DRCs may be similarly affordable to those agreed at the scheme's last valuation
- Schemes in Group Z are those where the ratio of modelled T14 DRCs as a proportion of employers' PBT is estimated to be greater that ratio in T11. This represents around 35% of schemes shown in the table. For these schemes, the indication is that the modelled DRCs may be a higher proportion of PBT than at the scheme's last valuation. However, for around 30% of schemes in this group, the modelled DRCs are still less than 20% PBT.

Table 8 also shows that we estimate nearly 15% of T14 schemes will require DRCs greater than 50% of PBT in order to maintain the pace of funding agreed at their previous actuarial valuation. Further examination showed that around half of these are supported by strong or tending to strong employers who may be able to utilise other flexibilities in the system to agree appropriate funding plans.

Methods, principal assumptions and limitations

Scheme data

We rely solely on the information supplied to us via scheme returns, which may not be completely up–to-date or contain the level of detail that would be available to scheme actuaries when advising their clients. This inevitably leads to many more simplifications and approximations in the methods we use to estimate aggregate and individual funding positions, compared with the more robust calculations carried out for formal valuation and RP reporting by scheme trustees.

Many of these assumptions or simplifications have been driven by data limitations. For example, we have used index tracking of major asset classes, made no allowance for changes in asset strategy since the previous valuation, and made only a broad allowance for the effect of hedging instruments to mitigate interest rate or inflation risk.

Additionally, we have made assumptions about scheme liabilities in aggregate that may not accurately reflect the underlying liabilities of individual schemes.

The baseline for estimating the current deficit of each scheme is based on the results reported to us following its last valuation, adjusted approximately for contributions paid and movements in assets and liabilities in line with appropriate indices. Our analysis relies upon point-in-time valuations of schemes' assets and liabilities. For estimating the impacts on RPs, we have used the simplifying assumption that all T14 schemes have their next actuarial valuation as at 31 March 2019. The analysis implicitly assumes that the mortality base table assumptions used by the scheme actuary at the last valuation remain unchanged, but that future improvements are updated to use the 2017 version of the Continuous Mortality Investigation (CMI) projections with no change to long term rates of improvement.

We have assumed that the discount rates that are used to calculate the liabilities of each scheme have changed since the previous scheme valuations broadly in line with three factors:

1. The movement in real gilt yields over the period.
2. Our estimate of how prudent expected returns in excess of gilt yields (from the portfolio of return-seeking assets) have changed over the same period.
3. The movement in investment portfolios from growth seeking to matching assets.

The overall resulting discount rates have, on average, slightly lower margins over gilt yields compared to those assumed by the scheme actuaries at the previous valuation and the nominal (and real) discount rates are lower. This reflects our view that future investment returns will be lower than those in the past and will persist for a longer period. In practice, schemes may use different approaches to setting discount rates and may also have different views on prudent expected returns from the same portfolio. For the purposes of our aggregate analysis, we have assumed that 20% of liabilities are hedged against interest rate movements and 25% against inflation.

Scheme data continued...
This is not an exhaustive list of actuarial assumptions. The assumptions we have made may be a significant source of difference when compared with formal valuation results at the individual scheme level. In particular, for individual schemes, the results will be highly dependent on the following:

- The exact date of valuation.
- The scheme's asset strategy, including any changes made during the inter-valuation period.
- The extent of hedging against interest rates and inflation.
- Any changes to its mortality and longevity assumptions to reflect new information and emerging experience.
- The scheme's assessment of the appropriate discount rate to measure its liabilities.

If, collectively, trustees choose to use discount rates that are lower than we have assumed, then the estimated liabilities and deficits are likely to be higher than those modelled in this analysis, and vice versa.

Employer data and methodology

We rely solely on the information supplied to us via scheme returns to identify our employer population, which may not be up to date or contain the level of detail that would be available to covenant advisers when advising their clients. This inevitably leads to many more simplifications and approximations in the methods we use to estimate aggregate and individual covenant support.

Much of the data underlying the analyses relies on an evaluation of the ownership of participating employers by other group entities.

Ownership is defined as where a company is the UK-domiciled Domestic Ultimate Owner (DUO) of a participating employer, with a minimum controlling stake or interest of 50.01% in that employer. In some cases, we do not have sufficient data to identify the DUO of a participating employer.

We have used the latest published corporate financial data available from our sources as at 31 December 2018 in respect of statutory employers with at least one DB member – the most recent data primarily relating to accounting years ending in 2018 or 2019.

For some employers (and therefore some schemes), the required data was not available – mainly smaller companies, public/third sector or overseas companies – and therefore the analyses may not be representative of these schemes and/or sectors.

Employer data and methodology continued...

In order to estimate the available covenant support we have made certain assumptions and simplifications. The principal ones (though not an exhaustive list) are as follows:

- Where an employer participates in more than one scheme and/or a scheme is sponsored by more than one employer, we have made assumptions about the division/ aggregation of an employer's financial support among the pension schemes in which it participates, based on the relative size of each scheme's membership, and the number of members in each scheme attributable to each employer.
- Where corporate financial information for statutory employers was not available individually we have used consolidated accounts for the relevant group where appropriate, thus potentially overstating the covenant support available.
- Where corporate financial information was not available for all statutory employers to a scheme, we have used information aggregated over only those employers for whom the relevant data was available, thus potentially understating the covenant support available.

Any of these assumptions, made to overcome data limitations, may be a significant source of error at the individual scheme/employer level. However, the purpose of this analysis is to provide a picture across the DB landscape and we do not believe that these have a material effect. The revised methodology for the calculation of the change in schemes' employers' PBT by covenant group (Figure 8, Table 3) is as follows:

Change in PBT = $(PBT_{Latest} - PBT_{2015}) / ABS^{[1]} (PBT_{2015}) \times 100$. This includes schemes reporting a loss before tax in T11 (employers' financial year end 2015) and/or in the current tranche (employers' latest available financial year end).

This methodological approach has also been used in the schemes' employers' PBT (Figure 7, Table 2) and SHF (Figure 9, Table 4) trends analyses. Again, each annual point on in the trend in PBT, for example, is calculated as follows:

Index Value (PBT) = $100 + ((PBT_{ReferenceYear} - PBT_{BaseYear}) / ABS^{7} (PBT_{BaseYear}) \times 100)$.

As such this includes schemes reporting a net liability position in the Base Year and/or in the Reference Year, which was not the case in prior years' analysis.

The information on DRCs we collect covers DRCs expected in each year of the associated RP, with additional information as to the date the RP began and ends. DRCs are assumed to be paid continuously: 1/365th of DRCs in year one of the RP are assumed to be paid on every day of the year. These daily payments are then aggregated over the financial year corresponding to the employer's (DUO's) reporting period.

7 ABS means the absolute value, such that negative numbers are treated as positive.

Differences in stated positions for previous years, as compared with analysis in previous tranches, relate to, amongst other elements: changes in group ownership structures, changes to historic and current DRCs attributable resulting from the submission of revised RPs covering historic periods (due to the 15 month window for submission to us); and changes to the population (eg FTSE350 constituents) under analysis. Refer to earlier tranche analyses for further details.

Affordability assessment

The approach taken to this analysis segments all schemes by a number of different indicators that relate to how likely the scheme is to be in a position to pay members' benefits in full.

Key elements of this approach include an assessment of schemes where the covenant is deemed adequate to support the scheme (assessed either through our covenant group approach or using publicly available employer data), whether the scheme is in surplus, whether it has a PPF-approved guarantee and whether the scheme has in place a funding and investment strategy which is deemed adequate under current circumstances.

As part of the analysis, we made various assumptions to determine whether there is adequate covenant support. In combination with the funding and investment strategies that are in place, this suggests whether affordability is constrained. These assessments are based on a range of information including our internal risk indicators.

The analysis is based on modelled outputs and assumptions and should be viewed with a degree of caution. However, it does help to identify schemes where there may be affordability to withstand increased contributions, or where there may be sufficient covenant support for the risks taken, as well as highlighting potential affordability issues.

Employer covenant

The strength of the employer covenant is an important element in scheme funding and a key part of IRM. We use a number of metrics relating to employers to determine the covenant risk. However, we recognise that this is a highly complex area and that a one-size-fits-all approach to looking at the employer covenant would miss the many complexities and nuances of individual employers. For these reasons, we combine the use of metrics with professional judgement when assessing covenant.

The assessment of covenant seeks to understand the ability of the employer to provide funding to the scheme if required and how the scheme may affect the employer. The principles below set out some of the factors we take into account, although we recognise that for different types of employers the application of these principles may differ (for example not-for-profit employers and multi-employer schemes):

- The strategic outlook for the sector and the position of the employer within the industry, including the age, brand and public profile of the employer (ie its intellectual property).
- The income streams, cash generation and profitability of the employer, and the trends in these over time – in the context of their ability to fund pension contributions (and what impact, if any, adverse movements in required contributions may have on these employer metrics) .
- The level of reinvestment of profits/cash/income within the business to ensure sustainability.
- The level of debt of, or secured by, the employer, and the ability to service this comfortably from income streams and cash generation within the business.
- The strength of the balance sheet and its ability to withstand trading shocks or decreases to its income streams.
- The size and value of the balance sheet and assets in comparison with the size of the pension liabilities and deficit and their availability to reduce deficits, including, where the employer is considered weak, the likely asset cover in insolvency.
- Any restrictions on income, assets or reserves.
- The level and sustainability of dividends (or other analogous distributions, for example distributions to members of limited partnerships), as a proportion of profitability and cash generation.

Limitations of covenant metrics

The assessment of how affordable pension scheme contributions are to a particular employer is not an exact science, and we make a number of high-level assumptions to determine which categories of employers might be deemed to be reasonably able to support their schemes, leaving a pool where no such positive evidence exists. This does not mean that all employers in this residual pool will have affordability issues, but rather that this group is where we might expect affordability to be most constrained.

Within our affordability analysis, a comparison of DRCs to PBT has been undertaken. This ratio should only be taken as one indicator of a sponsoring employer's affordability. For example, looking at PBT in isolation may not be an appropriate methodology for assessing affordability due to inaccurate, misleading or absent data resulting from a complex group structure within which one or more employer(s) sits – as well as the fact that cash flows are typically a more accurate indicator of affordability (although we have not considered these given the inconsistency in how these are reported by the companies considered). Additionally, DRCs may be funded by other companies within the employer's group or through cash reserves and debt facilities. However, considering PBT is a consistent methodology for considering general trends across the spectrum of DB schemes.

Elsewhere in the analysis we have used certain accounting-based metrics as indicators of covenant support to compare with actuarially assessed liabilities, deficits or contributions. In practice, other measures may provide more appropriate indicators of formally assessed covenant strength and these may vary, among other things, by type of employer. Therefore, this analysis, or the metrics, should not be seen as a substitute for such bespoke assessments.

Glossary

Deficit repair contributions (DRCs)

These are contributions typically payable by employers alone to the scheme in order to address any deficit in the value of the assets compared to the technical provisions (TPs), typically in line with the Schedule of Contributions and the recovery plan. For the purpose of this analysis, we have assumed current contributions to be those in year 4 of the recovery plan agreed at the T11 valuation, except for recovery plans which were shorter than four years where we have assumed that the contributions paid in the last full year of the plan have continued. Throughout this analysis we have used DRCs in the context of the value the scheme receives without making any allowance for any tax benefit the sponsoring employer may receive.

Dividends

A sum of money paid by a company to its shareholders. Dividends shown are total dividends paid in each respective year, including any special dividends but excluding share buy-backs. We have not made any adjustments for any bias due to large payouts from a small number of companies.

IRM

Integrated Risk Management (IRM) is a risk management approach that can help to identify, manage and monitor the factors that affect the prospects of meeting scheme's funding objectives. It involves examining how employer covenant, investment and funding risks relate to and are affected by each other. It also considers what to do if risks materialise.

Profit before tax (PBT)

Profit before tax is a profitability measure after deduction of all operating expenses, interest on debt and depreciation but before the deduction of corporate tax. Except for Figure 7 (which shows trends in profitability since 2009), we use the average of the last available three years' profits for all our analysis as a reasonable indicator of cash generation after debt service and maintenance capital expenditure (capex). We make no adjustments to remove the impact of any pension items already included in the reported figure.

Recovery plan

Under Part 3 of the Pensions Act 2004, where there is a funding shortfall at the effective date of the actuarial valuation, the trustees must prepare a plan to achieve full funding in relation to the TPs. The plan to address this shortfall is known as a recovery plan.

Recovery plan length

The recovery plan length is the time that it is assumed it will take for a scheme to eliminate any shortfall at the effective date of the actuarial valuation, so that by the end of the recovery plan it will be fully funded in relation to the TPs.

Section 179 liabilities (s179)

This refers to a valuation of the PPF's contingent obligation to pay compensation under section 179 of the Pensions Act 2004, for PPF levy purposes. This measure is designed to be a close approximation to the liability measure that would be used to decide whether the PPF would need to take on the scheme, were the employer to become insolvent. In contrast to TPs, the assumptions to be used in an s179 valuation are prescribed by the PPF and are standard across all schemes. They are designed such that s179 is close to the cost of securing the value of PPF compensation level of benefits with an insurance company at the valuation date.

Shareholders' funds (SHF)

Shareholders' funds are an estimate of a firm's total assets minus its total liabilities. No adjustment is made to remove the impact of any pension accounting items already included in the reported figure.

Technical provisions (TPs)

The funding measure used for the purposes of Part 3 valuations. The TPs are a calculation undertaken by the actuary of the assets needed at any particular time to make provision for benefits already accrued under the scheme, using assumptions prudently chosen by the trustees, and are required for the scheme to meet the statutory funding objective. These include pensions in payment (including those payable to survivors of former members) and benefits accrued by other members and beneficiaries, which will become payable in the future.

Tranches

'Tranche' refers to the set of schemes that are required to carry out a funding valuation within a particular time period. Schemes whose valuation dates fall between 22 September 2018 and 21 September 2019 (both dates inclusive) are in T14. Because scheme-specific funding valuations are generally required every three years, these schemes (with a few exceptions) had their last formal valuation in T11 (valuation dates between 22 September 2015 and 21 September 2016).

The Pensions Regulator

Tranche 14 analysis for defined benefit pension schemes

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