

Tranche 13 analysis

A review of defined benefit pension schemes with valuation dates between September 2017 and September 2018 (Tranche 13)

Contents

Introduction	page 3
Summary	page 4
Market conditions and impacts on scheme funding	page 4
Developments in employers' profits, balance sheets and dividend payments	page 4
Impact on recovery plans (RPs) and affordability	page 5
Market indicators	page 6
Bond yields	page 6
Asset returns	page 8
DB schemes	page 10
Funding position of DB schemes in aggregate	page 10
Potential impact on scheme deficits in more detail	page 11
Employer trends	page 14
Employer profitability	page 14
Employer balance sheets	page 18
Dividend trends	page 20
Implications for scheme funding	page 23
Potential impact on DRCs	page 23
Comparing these impacts to the employer's affordability	page 24
DRCs compared to employer's PBT in Tranche 10 and 13	page 29
Methods, principal assumptions and limitations	page 32
Scheme data	page 32
Employer data and methodology	page 33
Affordability assessment	page 35
Employer covenant	page 35
Limitations of covenant metrics	page 36
Glossary	page 37
How to contact us	back cover

Introduction

This analysis of the expected positions of defined benefit (DB) pension schemes with valuation dates between 22 September 2017 and 21 September 2018 (Tranche 13) gives further context to our 2018 annual funding statement¹.

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 some scheme-specific characteristics. The position of individual schemes will therefore vary depending on a number of individual factors. Similarly, our analysis of trends in potential sponsor 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 2018.

For example, over the period from March 2015 to March 2018, the FTSE All World (excluding UK sterling) returned 35.7%. 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 2018.

Overall, our modelling suggests that schemes undertaking valuations at 31 March 2018 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, 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 2017 will, in aggregate, show improved deficit and funding positions, mainly as a result of stronger asset returns between December 2014 and December 2017.

Developments in employers' profits, balance sheets 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 profits and balance sheets over the last three years. However, there is a wide distribution of how profits have 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, page 16).

For the group of FTSE350 companies that paid both DRCs and dividends in each of the previous six years, we have seen, at the median level, the ratio of dividends to DRCs increase from 10.2:1 to 14.8:1. This is mainly driven by the significant increase in dividends over the period, without a similar increase in contributions.

For non-FTSE350 public companies that paid DRCs and at least one dividend during the past decade, the ratio of dividends to DRCs has increased from 3.1:1 to 4.8:1.

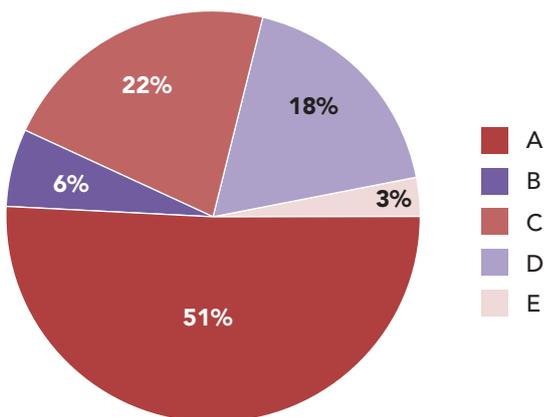
Implications for recovery plans (RPs) and affordability

Our modelling highlights that if Tranche 13 schemes were to retain their Recovery Plan (RP) end dates, or for those schemes nearing the end of their RP make a modest increase in the RP length, the median required increase in DRCs would be around 0% to 25% (see figure 11, page 23). About 35% of schemes would be able to retain their DRCs at the same level or less while under 20% would need to increase DRCs to more than double their current levels. The schemes that need to increase their DRCs to more than double their current levels are generally schemes where current DRCs represent a relatively low percentage of company profit before tax (PBT).

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 – E, depending on scheme and employer characteristics. The chart below shows broadly what percentage of schemes carrying out valuations in Tranche 13 fall into each category. The principal risks and our expectations for each category are explained further on page 25.

Figure 1: Segmented Tranche 13 schemes as per annual funding statement categories

Sources: TPR, FAME published by Bureau van Dijk



Market indicators

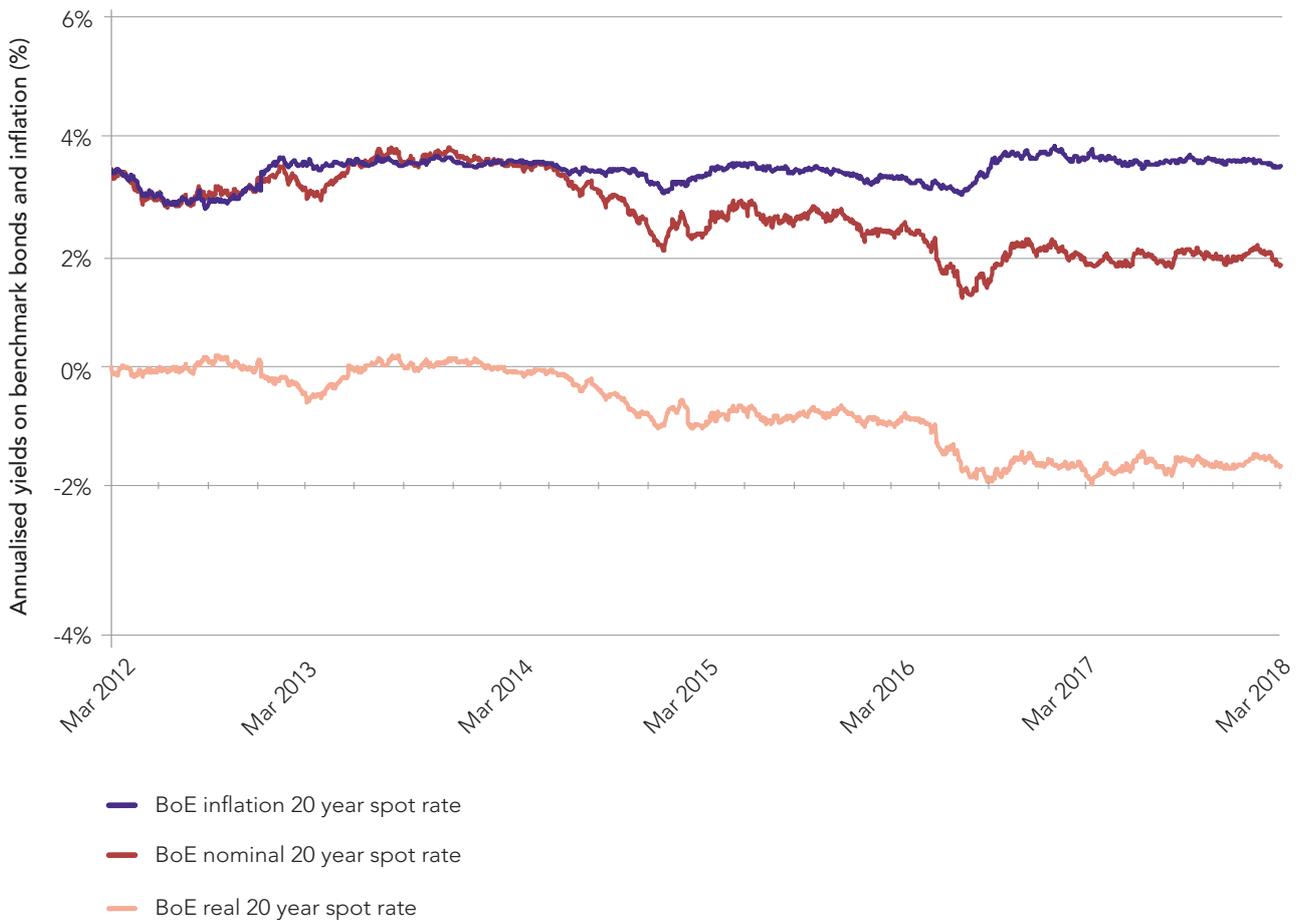
Scheme funding is sensitive to the impact of the changes in market conditions on schemes' assets and the valuation of their liabilities.

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 2012.

Figure 2: Benchmark yields

Sources: Bank of England (BoE), Thomson Reuters

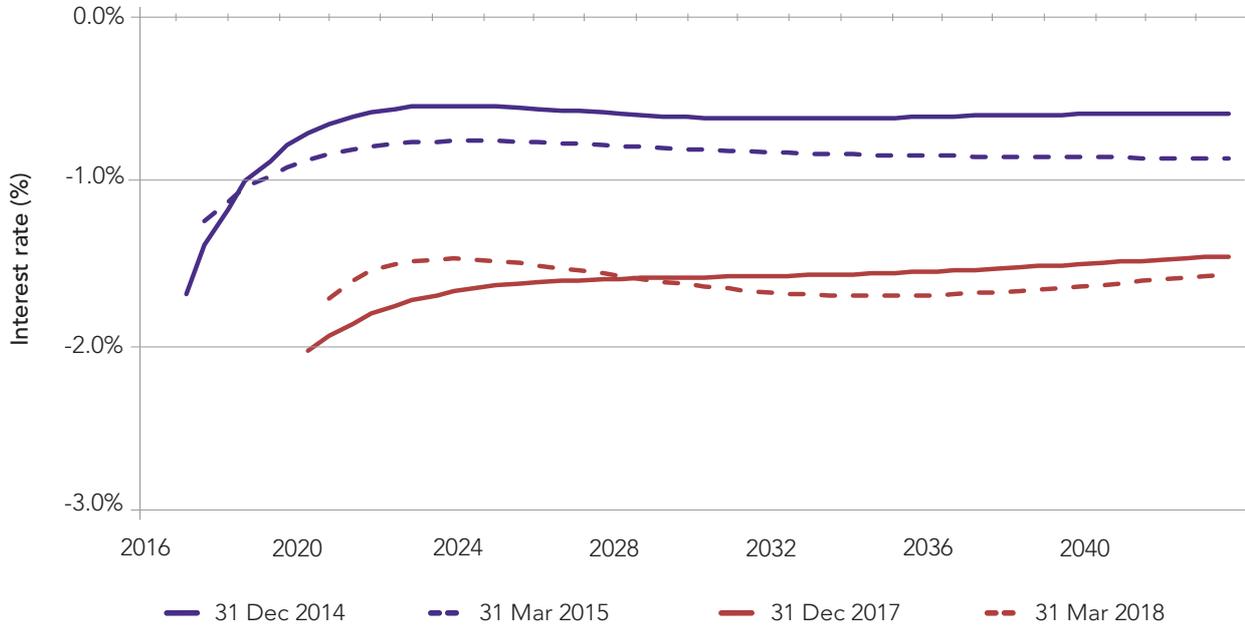


There has been a significant fall in gilt yields since March 2012. Long-term real gilt yields fell into negative territory in 2014 and have not yet recovered. Nominal yields have fallen in the same fashion. Inflation expectations have however remained broadly unchanged over the six year period.

Figure 3 shows the real forward interest rates as estimated by the Bank of England as at the end of December 2014, March 2015, December 2017 and March 2018. 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 2014 to December 2017 and March 2015 to March 2018, there has been a significant fall in the implied real forward interest rates at the longer end of the yield curve. The fall at the shorter end of the curve is greater for December 2017 valuations.

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 2012. The returns have been re-based to 100 at 31 March 2015, so the chart shows the relative change from that point.

Figure 4: Asset returns

Source: Thomson Reuters

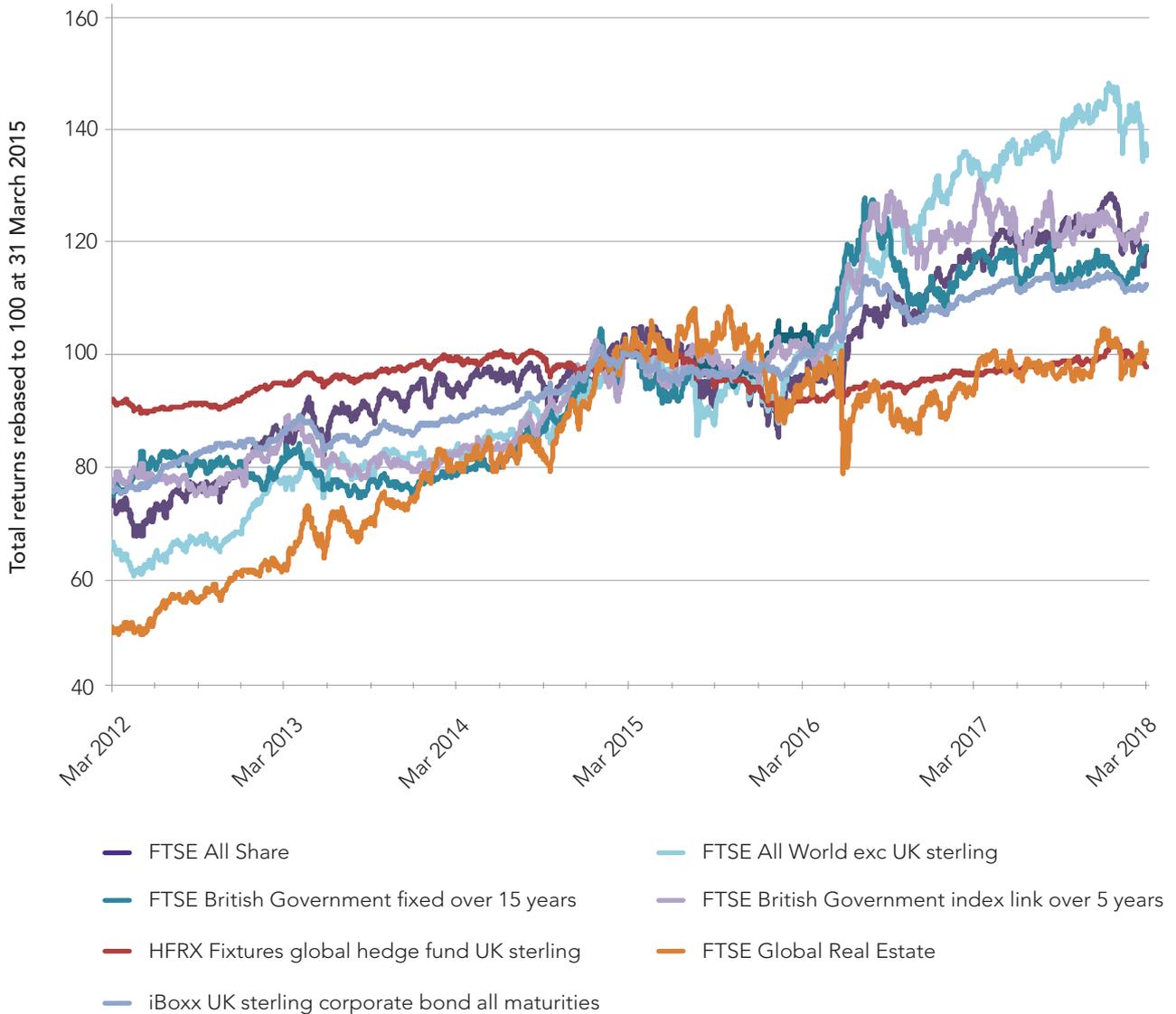


Table 1 shows the total returns in UK Sterling for various asset indices over the periods December 2014 to December 2017 and March 2015 to March 2018.

Table 1: Total returns in UK Sterling from different asset classes over the three years to 31 December 2017 and 31 March 2018

Index name (asset class)	Total returns over the period 31 Dec 2014-31 Dec 2017	Total returns over the period 31 Mar 2015-31 Mar 2018
FTSE All Share (UK equities)	33.3%	18.6%
FTSE All World excluding UK Sterling (Overseas equities)	55.1%	35.7%
iBoxx UK Sterling Corporate Bonds – all maturities	18.1%	12.5%
FTSE British Government fixed over 15 years (fixed interest gilts)	22.5%	19.4%
FTSE British Government index-linked over 5 years (index-linked gilts)	29.0%	25.1%
HFRX Global Hedge Fund United Kingdom Sterling/Pounds	1.7%	-2.1%
FTSE EPRA/NAREIT UK Index	15.6%	0.9%

Over the last three years, returns have been significantly positive for most asset classes. This is mainly due to strong asset returns in 2016, despite many asset classes' returns being relatively flat or negative during 2015 and 2017. The hedge fund index has seen almost flat returns over both three year periods.

Most asset classes returned significantly more over the period December 2014 to December 2017 than March 2015 to March 2018. This is primarily due to the positive returns on these asset classes over the period December 2014 to March 2015, coupled with relatively low or negative returns over the period December 2017 to March 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: The Pensions Regulator (TPR), Thomson Reuters



The changes in market conditions mean that deficits on a technical provisions (TP) basis for the DB universe will be marginally better based at March 2018 relative to March 2015. This analysis may not be representative of individual schemes whose assets and liabilities will depend on many scheme-specific factors. These include (but are not limited to) the approach taken to setting discount rates, the exact timing of valuations and funding positions, the level of DRCs, asset allocation, and interest rate and inflation hedging strategies.

Potential impact on scheme deficits in more detail

Figures 6a and 6b illustrate the key drivers in the change in deficit for all Tranche 13 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 two factors:

- a. the movement in real gilt yields over the period, and
- b. 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.

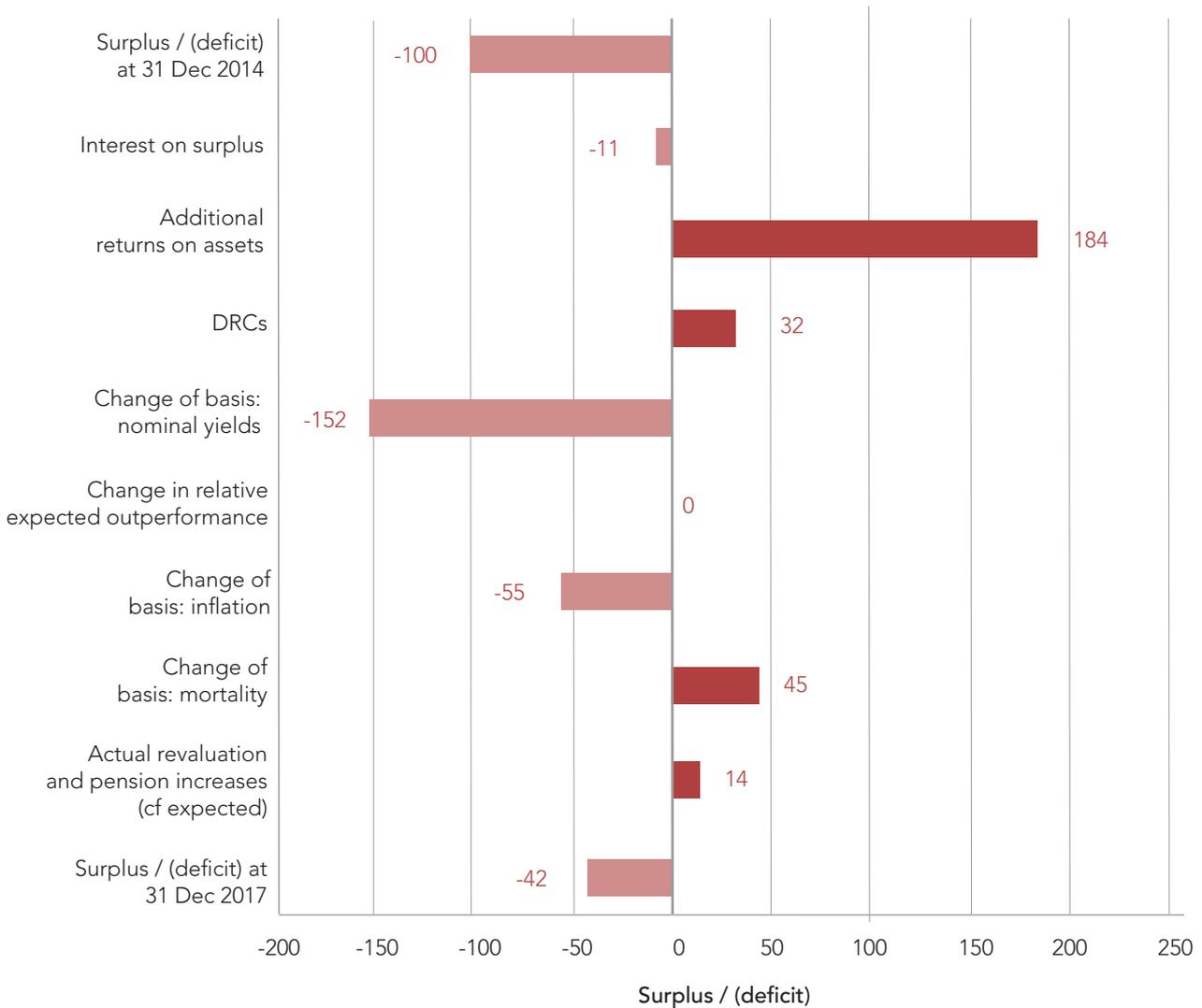
When assessing the expected return over the longer term relative to gilts and how this has changed over the three years since March 2015 and December 2014, we have not seen enough evidence to support a change. This has resulted in a zero item in the following two graphs under 'change in relative expected outperformance'. In practice, schemes may determine the appropriate discount rate in different ways and will have their own scheme-specific investment strategy.

The method used to estimate the movement in the deficits over the three year periods we consider below have been simplified. We would 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.

Figure 6a: Estimated impact of market conditions on deficits of all Tranche 13 schemes – December 2014 to December 2017

Sources: TPR, Thomson Reuters



Between 31 December 2014 and 31 December 2017, deficit contributions, coupled with better than expected asset returns and lower than expected revaluation and pension increases, have more than offset the increase in liabilities due to the change in market conditions. The above 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. This has served to further reduce liabilities and hence the deficit².

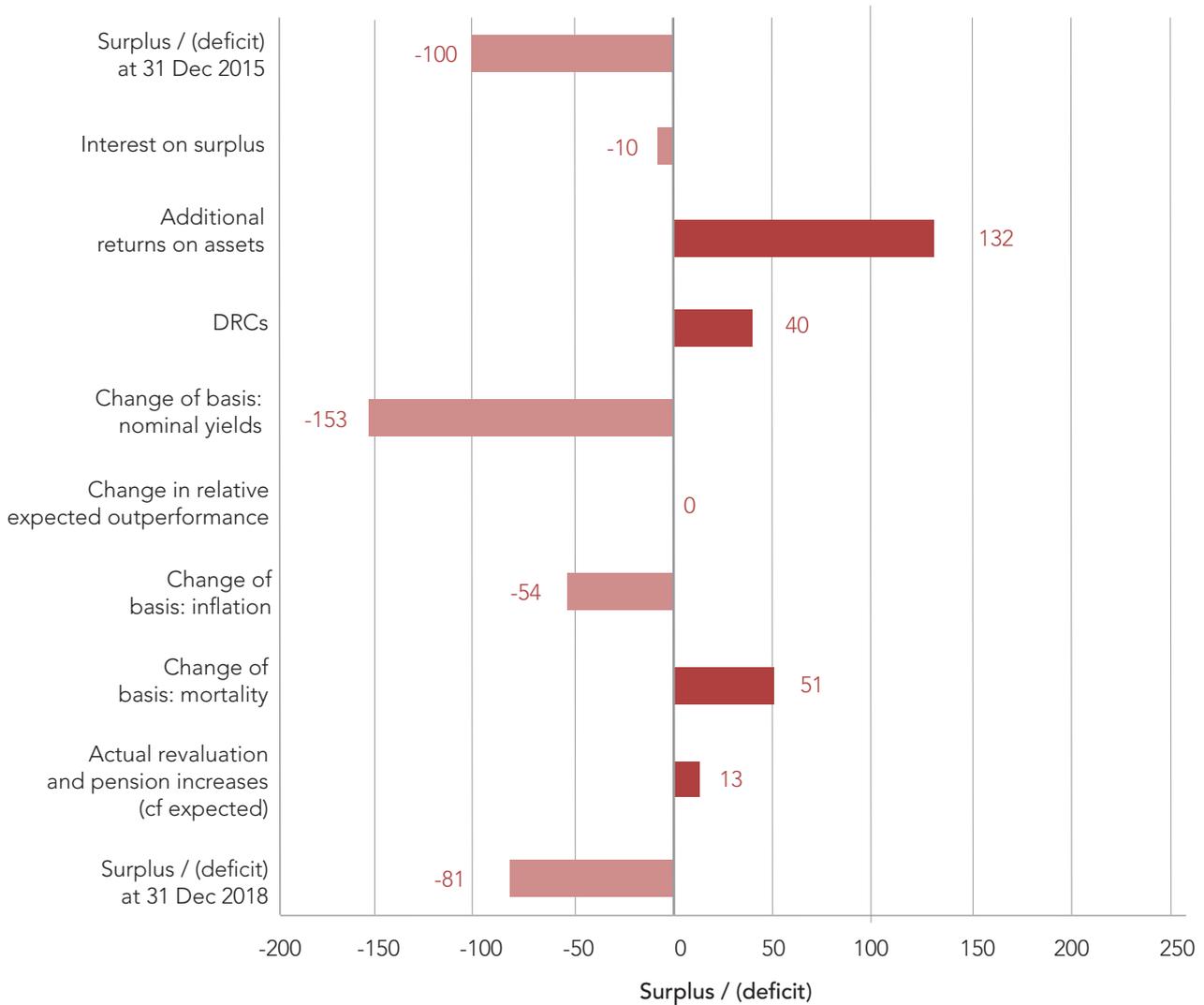
Our analysis shows that overall funding levels and deficits are likely to have improved over this period. However, this is based on aggregated scheme data, and in practice individual schemes may experience higher or lower levels of impact over the three years.

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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.

Figure 6b: Estimated impact of market conditions on deficits of all Tranche 13 schemes – March 2015 to March 2018

Sources: TPR, Thomson Reuters



We estimate that the aggregate deficit of Tranche 13 schemes as at 31 March 2018 could have reduced slightly from three years ago. The estimated reduction in deficit is not as significant as from December 2014 to December 2017. Most asset classes returned significantly more over the period December 2014 to December 2017 than over the period March 2015 to March 2018. This has had a large impact on the expected deficits at the end of the period, and is the primary reason for the difference in the two illustrated positions.

The analysis is based on aggregated scheme data and again, in practice, the impact on individual schemes may be higher or lower for various reasons.

Employer trends

Employer profitability

As well as the impact of market conditions on the scheme, changes in the strength of the employer covenant are a key consideration for trustees and employers.

Figure 7 looks at how the level of profitability, approximated by the employers' Profit Before Tax (PBT) in this illustration, has changed for schemes with a Tranche 13 valuation date. PBT data for 2008 (the data covering the tranche 4 valuation period, which a majority of the Tranche 13 population will have submitted a valuation in respect of) has been rebased to 100 for ease of comparison.

Figure 7: PBT for Tranche 13 schemes from 2008

Sources: TPR, Financial Analysis Made Easy published by Bureau van Dijk

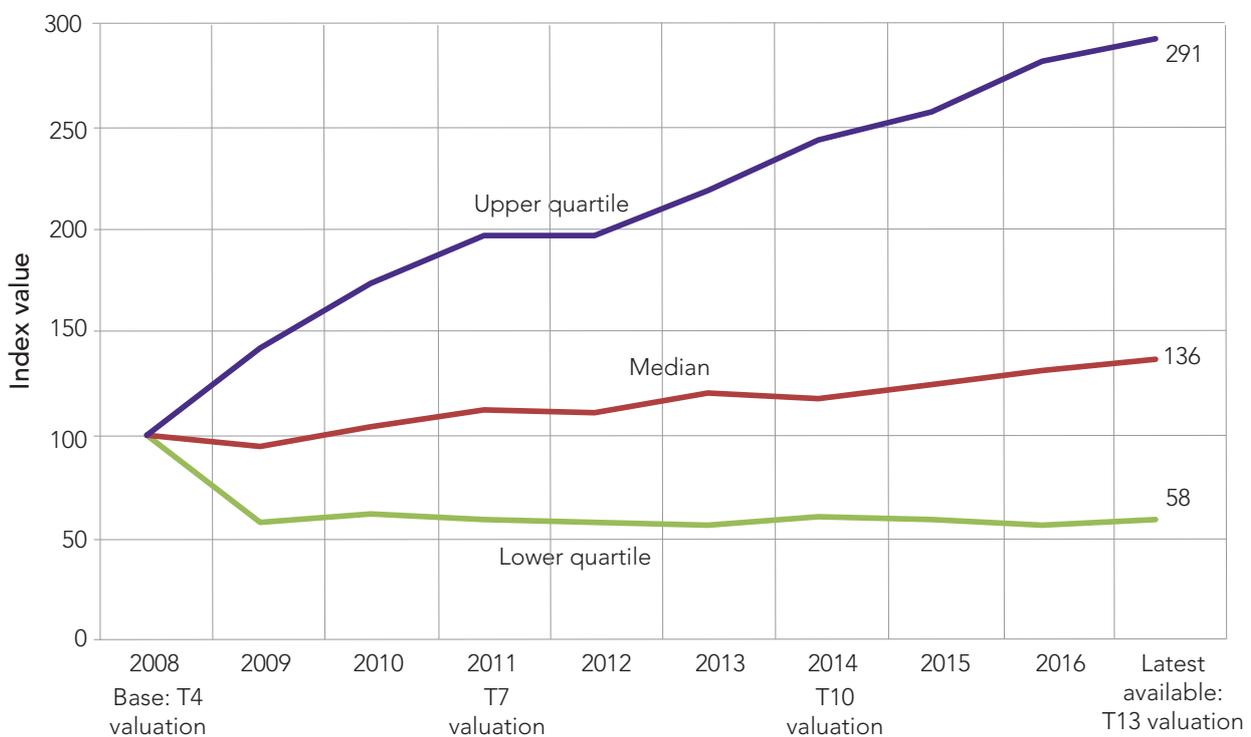


Figure 7 shows, for Tranche 13 schemes, the distribution of changes in employer PBT from 2008 with the quartiles of the overall distribution plotted for each year, relative to 2008.

Only schemes with employers where positive PBT has been reported in each of the years shown are included in this chart, given presentational difficulties associated with negative PBT in the base year. See Table 2 for details of the full distribution of employers included in this chart.

The median of the distribution at the latest point (index value = 136) suggests that nominal profits have increased by at least 36% since 2008 for half of the schemes in the analysis.

The lower quartile of the distribution at the latest point (index value = 58) suggests that for a quarter of schemes, employer PBT has changed by between +36% and -42%, with a further quarter of schemes for whom employer PBT has decreased by more than 42%, relative to 2008.

The upper quartile (latest index value = 291) suggests that, for a quarter of schemes, employer PBT has increased by between +36% and +191%, with a further quarter of schemes for whom employer PBT has increased by more than +191%, relative to 2008.

The upper quartile and median points for the PBT distribution have increased since tranche 10 (ie employers' financial years ending 2014). This suggests that, for the majority of schemes, nominal profits have increased.

Table 2: Full distribution (proportion of all schemes including negative PBT categories)

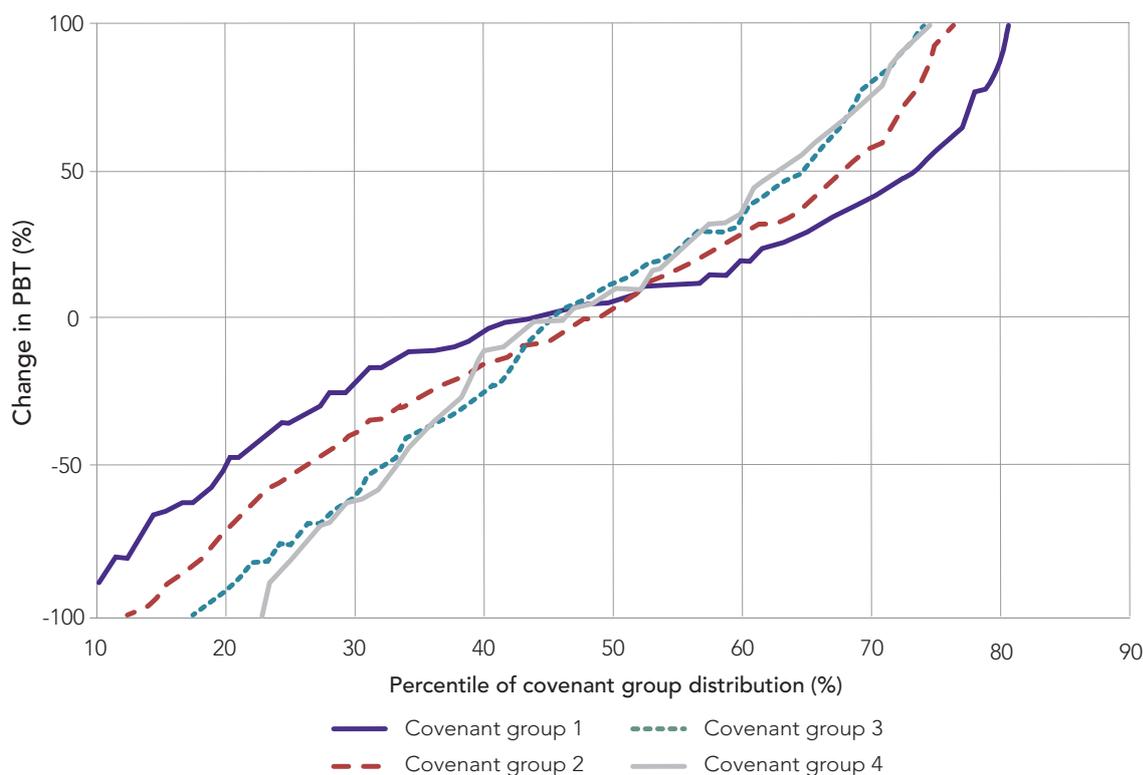
Sources: TPR, Financial Analysis Made Easy published by Bureau van Dijk

Group	Base (2008) (%)	2009 (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)	2015 (%)	2016 (%)	Latest (%)
Insufficient PBT data (inc base year)	19.2	21.2	22.5	22.8	21.9	22.0	22.0	23.3	27.2	22.6
Included in Figure 7	59.5	47.6	49.0	48.9	48.5	50.1	48.9	46.6	45.6	47.5
Negative PBT in base year	21.4	8.4	12.4	12.5	12.3	12.9	14.1	12.9	13.4	14.4
Negative PBT in ref year	N/A	10.2	8.7	8.4	9.2	7.6	9.0	10.5	8.8	9.7
Negative PBT in both years	N/A	12.5	7.5	7.4	8.1	7.4	6.0	6.7	5.0	5.8

As set out in Table 2, in each of the years considered, the analysis includes information for around 45% to 60% of schemes' employers with around 20% to 30% excluded due to insufficient employer PBT data. The remainder have been excluded due to either reporting negative PBT in the base year (2008), in the reference year, or both.

Figure 8: Change in PBT for Tranche 13 schemes (including negative PBT categories)

Sources: TPR, Financial Analysis Made Easy published by Bureau van Dijk



The above chart shows the distribution of the relative percentage change in employer PBT for Tranche 13 schemes from the previous valuation (employer financial year ending 2014) to latest available employer data³. The data is split by covenant group⁴ for comparison where the covenant group was assessed at the scheme's previous valuation.

The chart shows, for example, that for Covenant group 1, a quarter of schemes experienced an increase in their sponsors' PBT by 55% or greater over the period, while the same proportion of schemes experienced a decrease in their sponsors' PBT by 35% or greater, with the remaining half falling between these two values.

3

Latest available represents approximately 5% employer accounts with 2017 financial year ends, and approximately 95% 2016 financial year ends.

4

Covenant groups reflect those assigned in a scheme's previous (usually tranche 10) valuation. Covenant groups (CG) 1-4 are assigned at the point of initial RP 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: covenant group 1 – strong; 2 – tending to strong; 3 – tending to weak; 4 – weak. Covenant assessments are not usually undertaken for in-surplus schemes.

Similarly for Covenant group 4, the chart shows that more than a quarter of schemes experienced an increase in their sponsors' PBT by 100% or greater, while a quarter experienced a decrease in their sponsors' PBT of 80% 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 weaker (CG3 and CG4) rated schemes – around a 10-15% increase in PBT at the median (50th percentile).

However, there is a wide distribution and there are 45% 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.

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

Sources: TPR, Financial Analysis Made Easy published by Bureau van Dijk

Group	Proportion of all T13 schemes
Insufficient PBT data	20.1%
Included in Figure 7	79.9%
Total	100.0%

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

Employer balance sheets

Figure 9 looks at how the strength of employers' balance sheets, approximated using shareholders' funds (SHF), has changed for schemes with a Tranche 13 valuation date. SHF data for 2008 has been rebased to 100 for ease of comparison.

Figure 9: SHF for Tranche 13 schemes

Sources: TPR, Financial Analysis Made Easy published by Bureau van Dijk

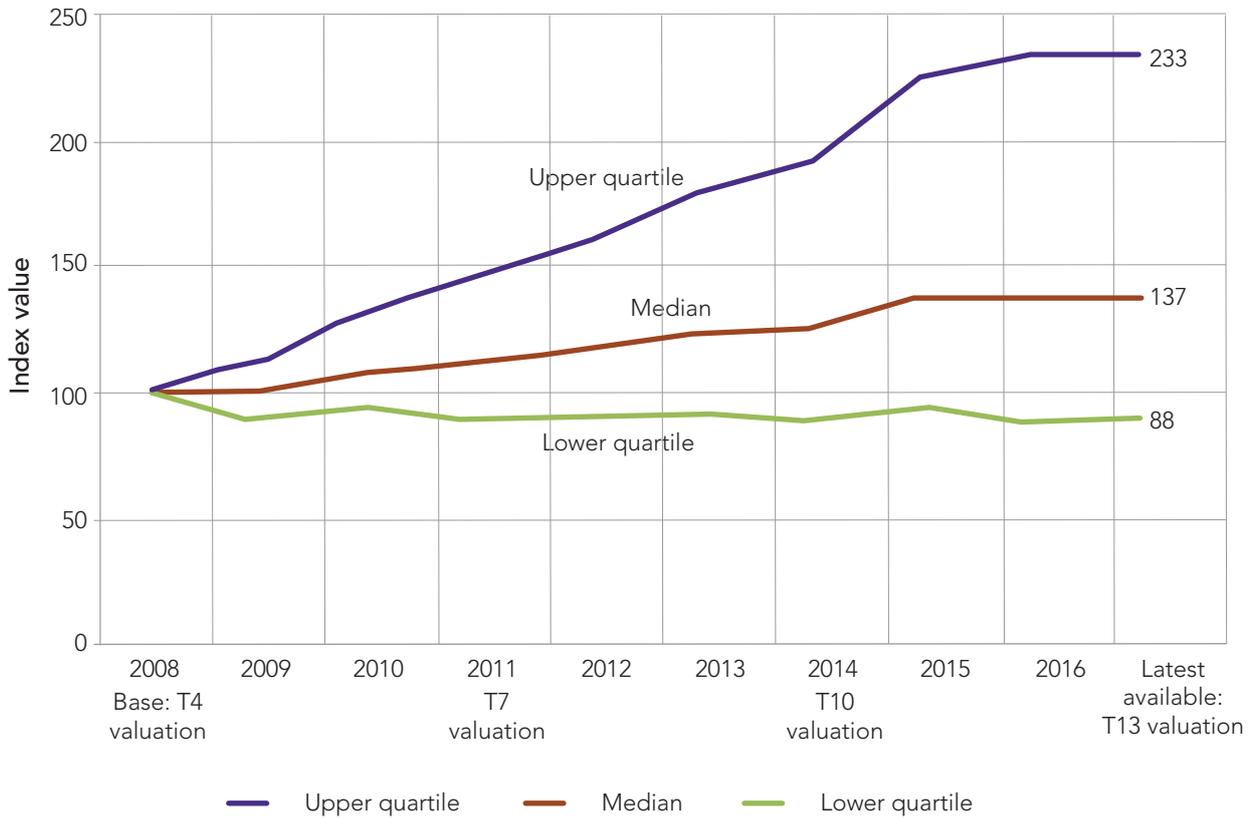


Figure 9 shows for Tranche 13 schemes the distribution of changes in employer SHF since 2008 with the quartiles of the overall distribution plotted for each year, relative to 2008.

The median of the distribution at the latest point (index value = 137) suggests that SHF have increased by more than +37% for half of the schemes in the analysis. The lower quartile of the distribution at the latest point (index value = 88) suggests that for a quarter of schemes, SHF have changed by between +37% and -12%, with a further quarter of schemes for whom SHF have reduced by more than 12%, relative to 2008. The upper quartile (latest index value = 233) suggests that for a quarter of schemes, SHF have increased by between +37% and 133%, with a further quarter of schemes for whom SHF have increased by more than 133%, relative to 2008.

Since the previous valuation date (2014) 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 schemes including negative SHF categories)

Sources: TPR, Financial Analysis Made Easy published by Bureau van Dijk

Group	Base (2008) (%)	2009 (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)	2015 (%)	2016 (%)	Latest (%)
Insufficient SHF data (inc base year)	13.3	14.2	15.4	15.1	14.4	14.5	14.6	15.7	19.1	13.5
Included in Figure 9	79.5	76.4	74.9	75.3	74.9	74.8	74.2	73.3	68.9	73.3
Negative SHF in base year	7.3	1.2	2.5	2.3	3.3	3.7	3.8	4.5	4.1	4.5
Negative SHF in ref year	N/A	2.3	2.6	2.5	3.6	3.8	4.3	4.0	5.7	6.0
Negative SHF in both years	N/A	5.9	4.7	4.8	3.8	3.3	3.2	2.5	2.1	2.7

Figure 9 only includes schemes with employers that reported positive SHF in the years shown. The data coverage varies from around 70% to 80% across the years shown. Around 10-15% of schemes are excluded due to insufficient SHF data. The remaining 5-10% have been excluded due to either reporting negative SHF in the base year (2008) or in the reference year, or both.

Dividend trends

Figure 10a shows the median ratio of dividends to DRCs, as paid by employers of DB schemes in the FTSE350 (representing around 210 companies and 450 schemes) from 2011 to latest available financial year end (FYE) accounts.

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

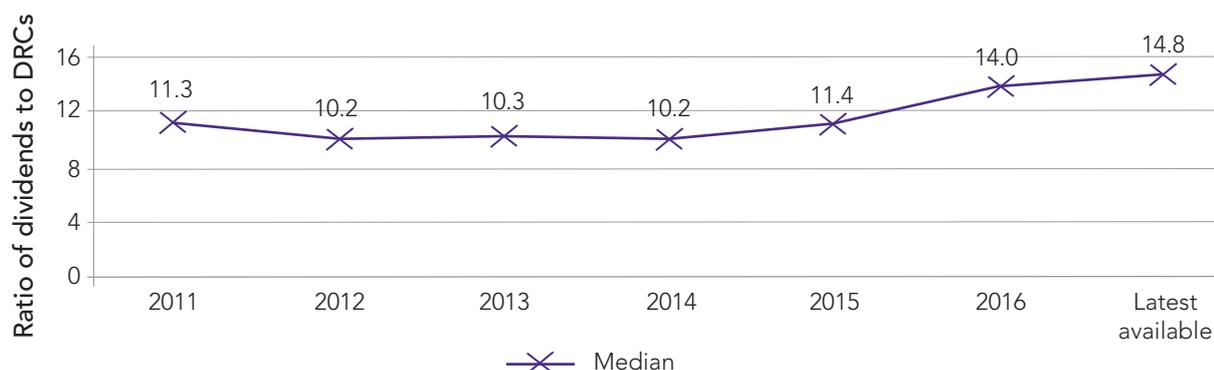


Figure 10a shows that for current FTSE350 companies that sponsor DB pension schemes (through direct participation or majority shareholding in participating employers), the trend in dividends compared to DRCs has generally increased over the period from 2011/12. The median ratio of dividends to DRCs has increased from 10.2:1 in 2012 to 14.8:1 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.

For three quarters of this population in 2012, DRCs represented less than 27% of dividends. This figure is around 23% of dividends based on the latest information. Similarly, for a quarter of this population in 2012, DRCs represented less than 4% of dividends, a figure that has reduced to around 2% of dividends, based on the latest information.

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

Sources: TPR, 'Financial analysis made easy' published by Bureau van Dijk

Group	2011 (%)	2012 (%)	2013 (%)	2014 (%)	2015 (%)	2016 (%)	Latest (%)
No dividend data	8	6	5	3	3	0	0
DRCs and dividends both non-zero (included in the distribution in Figure 10a)	73	76	76	79	81	78	77
Nil DRCs	9	11	10	10	11	15	17
Nil DRCs and nil dividends	2	1	0	0	0	1	0
Nil dividends	7	5	8	7	5	5	5

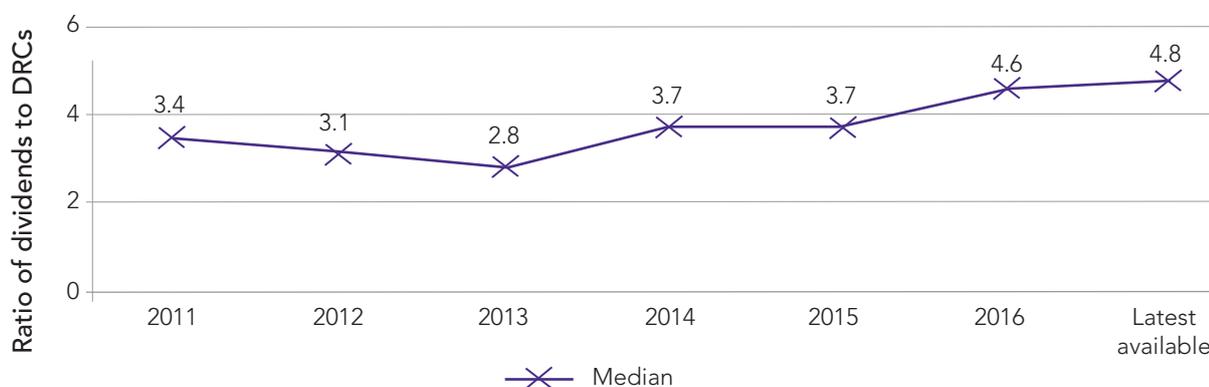
Figure 10a only includes current FTSE350 companies that sponsor a DB scheme, and where both the DRCs and dividends were non-zero in the year shown. Table 5 shows that, based on the latest employer accounts, this amounted to 77% of the total current FTSE350 companies that sponsor a DB scheme.

The percentage of current FTSE350 companies that sponsor a DB scheme which paid no DRCs but paid dividends has increased from 9% in 2011 to 17%, 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 5% and 8%.

Figure 10b shows the median ratio of dividends to DRCs from 2011 to the latest available financial year end, as paid by public employers of schemes outside the FTSE350 (representing around 260 employers and 420 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 companies who paid at least one dividend over the period

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 2011) 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 3.1:1 in 2012 to 4.8:1, based on the latest accounting information.

Table 6: Full distribution (proportion of all 260 employers including nil DRCs and/or nil dividends) – non-FTSE350 public (listed/unlisted) companies with material DB pensions exposure

Sources: TPR, Financial Analysis Made Easy published by Bureau van Dijk

Group	2011 (%)	2012 (%)	2013 (%)	2014 (%)	2015 (%)	2016 (%)	Latest (%)
No dividend data	4	4	3	3	3	4	3
DRCs and dividends both non-zero (included in the distribution in Figure 10b)	50	52	53	53	54	51	52
Nil DRCs	9	10	8	8	8	9	9
Nil DRCs and nil dividends	10	9	7	5	7	7	7
Nil dividends	27	24	29	30	29	29	29

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 2011, this amounted to 50% of the total non-FTSE350 companies that sponsor a DB scheme, and 52% based on latest accounting information.

The percentage of non-FTSE350 public companies that sponsor a DB scheme that paid no DRCs but paid dividends in a given year, has remained relatively stable over the period shown, only varying between 8% and 10%.

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 27% in 2011 to 29% based on latest accounting information, using these two data points alone.

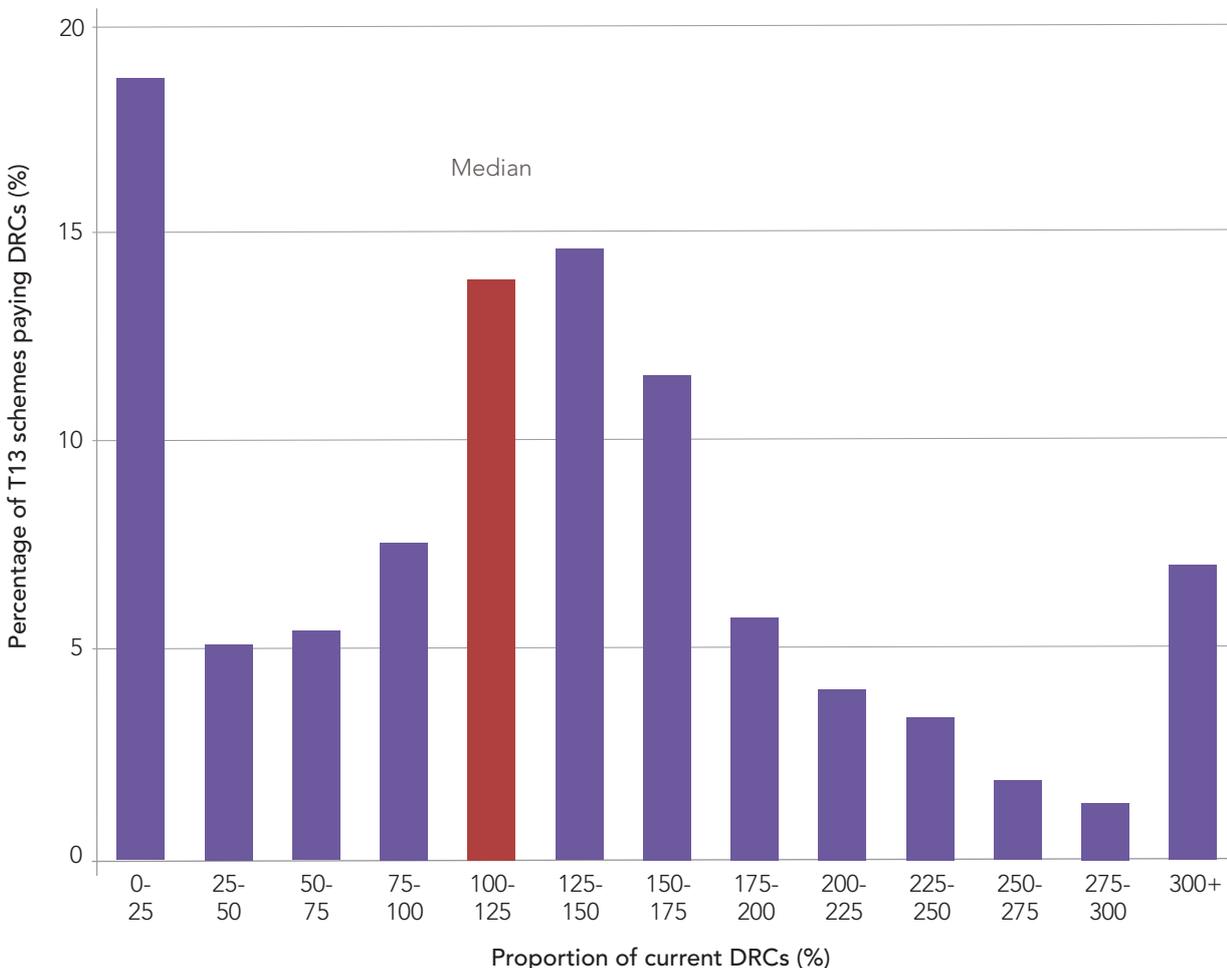
Implications for scheme funding

The analysis above highlights that many schemes are likely to have a lower deficit than revealed at their previous valuation date. However, for schemes undertaking valuations in March 2018, deficits have not reduced by as much as would have been expected over the inter-valuation period. It is therefore likely that their current RP will not be on track to remove the deficit revealed at the previous valuation and trustees will need to make changes to their RP. However, the trends in employers' PBT and SHF and the relative increase in dividends compared to DRCs highlight that affordability may have increased for a number of employers. This increased affordability means that they may also have a greater number of deficit management strategies available to them than before. Furthermore the increase in dividends suggests an increase in affordability which could be used to shorten recovery plans instead.

Potential impact on DRCs

Figure 11 below illustrates the potential impact on DRCs for Tranche 13 valuations as at 31 March 2018, expressed as a percentage of the level of current DRCs (ie what was agreed in Tranche 10 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 RP agreed at the last valuation, whichever is longer.

Figure 11: Modelled Tranche 13 DRCs as a proportion of current DRCs – based on same RP end date as last valuation, or three years if longer



On these assumptions, about 35% 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 45% of schemes would need an increase of between 0 and 100%, and the remainder would need to increase DRCs by more than 100% (including a minority (c. 7%) who would need to increase their DRCs to more than three times their current levels). However, further examination of the schemes in the last category showed that the majority of them are supported by strong employers who will have greater ability to increase contributions.

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 – E, depending on scheme and employer characteristics. We have outlined in the following table, the proportion of Tranche 13 schemes that fall into each category.

Table 8: Segmentation of Tranche 13 schemes as per annual funding statement categories

Sources: TPR, FAME published by Bureau van Dijk

	Employer characteristics	Funding characteristics	Percentage of schemes (by number)	Key risks to manage	What we expect of trustees
A	Strong or tending to strong employers	Scheme funding on track to meet long term funding target, technical provisions are not weak and recovery plan is not unduly long	51%	<p>Sudden downturn in business</p> <p>Covenant weakens in the future, maybe at the same time as investments underperform</p> <p>Lack of longterm covenant visibility</p>	<p>Consider strengthening technical provisions, increasing contributions or reducing recovery plan lengths</p> <p>Where dividends and other forms of covenant leakage are disproportionate to DRCs we expect a short recovery plan</p>
B	Strong or tending to strong employers	Combination of weak technical provisions and/or long recovery plans	6%	As for Group A, but greater imperative to improve funding and reduce member risk	<p>Strengthen technical provisions, increase DRCs and reduce recovery plan lengths</p> <p>Consider strengthening short term security through other means such as contingent assets and guarantees</p>

	Employer characteristics	Funding characteristics	Percentage of schemes (by number)	Key risks to manage	What we expect of trustees
C	Weaker employer with limited affordability	Scheme funding on track to meet long term funding target, technical provisions are not weak and contributions are reducing deficits at a slower but affordable pace	22%	<p>As for Group A, but against the background of a weaker covenant which may not withstand much downside risk</p> <p>Pressure to employ limited affordability to grow company</p>	<p>Prioritise scheme liabilities over shareholder returns</p> <p>Retain cash within the company to fund sustainable growth and address pension deficit</p> <p>Monitor covenant risk and limit member risk by securing a proportionate reward for scheme from employer growth and/or maximising other forms of available support, including contingent assets and formal group support</p>

	Employer characteristics	Funding characteristics	Percentage of schemes (by number)	Key risks to manage	What we expect of trustees
D	Weaker employer with limited affordability	Combination of weak technical provisions and/or long recovery plans	18% (This includes 7% of schemes with a weak employer but where formal group support may be available)	As for Group C, but more urgent need to improve funding and reduce member risk	<p>Prioritise scheme liabilities over shareholder returns</p> <p>Maximise support for scheme by assessing (a) affordability and determining what cash, contingent assets and formal group support are available and (b) what plans and strategies put forward by employer will sufficiently strengthen future covenant</p> <p>Seek opportunities to reduce risk in order to protect employer and members</p>

	Employer characteristics	Funding characteristics	Percentage of schemes (by number)	Key risks to manage	What we expect of trustees
E	Weak employer, unable or unlikely to provide adequate support	Stressed schemes with limited or no ability to use flexibilities in the funding regime	3%	Crystallisation of unsupported investment risk and/or employer affordability weakening further	<p>Seek best possible funding outcome for members in the circumstances</p> <p>Be prepared to show evidence of appropriate measures, including cessation of future accrual, awareness of future risks and ability to manage them, avoidance of covenant weakening, maximisation for non-cash support and consideration of winding up</p>

DRCs compared to employers' PBT in Tranche 10 and 13

Table 9 illustrates the significance of DRCs compared with employers' PBT at the last valuation and the modelled DRCs for schemes in Tranche 13 – assuming no change in current RP end-dates (subject to 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 65% of Tranche 13 schemes⁵).

The rows correspond to DRCs agreed in Tranche 10 as a proportion of employers' three year average PBT to FYE2014 (the information that would have been relevant at Tranche 10 valuation dates). The columns correspond to the modelled DRCs for Tranche 13 as a proportion of employers' three year average PBT to the latest available financial year end.

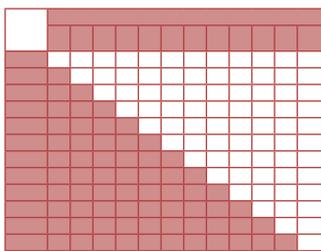
For example, our modelling estimates that 34 schemes agreed DRCs in Tranche 10 that were between 0-10% of employers' PBT at that time, and under the modelled scenario for Tranche 13, DRCs are estimated to be between 10-20% of employers' latest available PBT.

5

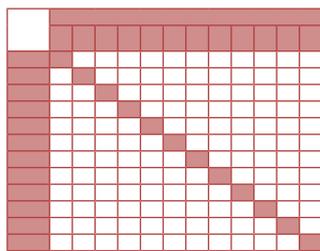
1,143 out of 1,762 schemes included, after excluding 314 schemes with negative PBT and 305 schemes with unreliable or unavailable data.

Table 9: DRCs compared with employer's PBT in Tranche 10 and 13

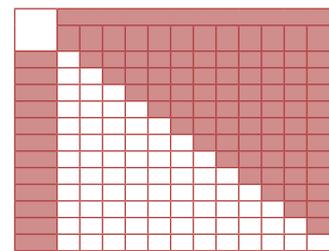
		Modelled T13 DRCs as a percentage of latest PBT (%)											
		0	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100+
Tranche 10 DRCs as a percentage of 2013 PBT (%)	0	248	55	4	3	4	2	0	1	0	0	0	1
	0-10	60	165	34	7	6	3	3	1	1	0	1	4
	10-20	14	22	32	24	9	6	1	3	1	0	0	4
	20-30	9	16	11	13	8	11	7	2	2	2	2	9
	30-40	9	3	6	9	9	2	4	2	3	5	2	9
	40-50	4	0	2	4	5	3	5	1	1	2	0	9
	50-60	3	2	0	2	1	3	4	1	4	2	2	7
	60-70	4	0	1	2	2	0	1	4	2	2	1	7
	70-80	1	1	1	2	0	1	2	2	1	1	0	10
	80-90	0	1	0	1	1	1	0	3	2	0	0	12
	90-100	1	1	1	1	1	1	2	1	0	0	0	2
	100+	21	4	10	4	5	5	2	3	2	2	2	61



Group X



Group Y



Group Z

Table 9 shows:

- ▶ Schemes in Group X (below the lilac line) are those where the ratio of modelled Tranche 13 DRCs as a proportion of employers' PBT is estimated to be less than that ratio in Tranche 10. This represents around 25% 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 (on the lilac line) are those where the ratio of modelled Tranche 13 DRCs as a proportion of employers' PBT is estimated to be in the same range as that ratio in Tranche 10. 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 (above the lilac line) are those where the ratio of modelled Tranche 13 DRCs as a proportion of employers' PBT is estimated to be greater than that ratio in Tranche 10. This represents around 30% of schemes shown in the table. For these schemes, the indication is that the modelled DRCs may be less affordable than at the scheme's last valuation. However, for around a 30% of schemes in this group, the modelled DRCs are less than 20% PBT.

Table 9 also shows that we estimate over 10% of Tranche 13 schemes (shaded in pink) 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. This year, to estimate the return on property assets, we have moved from using the IPD monthly property index to the FTSE Global Real Estate Index. 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 Tranche 13 schemes have their next actuarial valuation as at 31 March 2018. The above 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.

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 two factors:

- a. the movement in net gilt yields over the period, and
- b. our estimate of how prudent expected returns over gilt yields (from the portfolio of return-seeking assets) has changed over the same period.

The overall resulting discount rates have, on average, the same margin over gilt yields as that assumed by the scheme actuaries at the previous valuation, but the nominal (or 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.

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 2017 in respect of statutory employers with at least one DB member – the most recent data primarily relating to accounting years ending in 2016 or 2017. For some employers (and therefore some schemes), the required data was not available – mainly SMEs, public/third sector or overseas companies – and therefore the analyses may not be representative of these schemes and/or sectors.

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 methodology for the calculation of the change in employers' PBT by covenant group is as follows: $\text{Change in PBT} = (\text{PBT}_{\text{Latest}} - \text{PBT}_{2014}) / \text{ABS}^6 (\text{PBT}_{2014})$. This includes schemes reporting negative PBT in Tranche 10 (employers' financial year end 2014) and/or in the current tranche (employers' latest available financial year end).

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.

Different approaches to analysis in some previous tranches relate to, amongst other elements: changes to representation of negative growth of PBT, changes to timing of DRCs within a year, 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 under analysis. Refer to earlier Tranche analyses for further details.

In particular, we have considered the financial strength and ratio of dividends-to-DRCs for two main cohorts of companies – companies that were constituents of the FTSE 350 index as at 1 March 2018, and all other UK public companies (outside the FTSE 350). The selection of this second cohort represents a change from previous year's analysis, in which we instead considered the financial support for schemes from (non-FTSE 350) listed and unlisted companies which had paid at least one dividend in the preceding 10 years.

6

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

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 the risk assessment process. 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 it 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. 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 made by employers to the scheme in order to address any deficit in the value of the assets compared to the technical provisions (TPs), in line with the Schedule of Contributions and the recovery plan (RP). For the purpose of this analysis, we have assumed current contributions to be those in year 4 of the RP agreed at the Tranche 10 valuation, except for RPs 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.

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 2008), we use the average of the last available three years' profits for all of 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 (RP)

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.

RP length

The RP 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 RP it will be fully funded in relation to the TPs.

Section 179 liabilities (s179)

This refers to a valuation of PPF compensation benefits 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 2017 and 21 September 2018 (both dates inclusive) are in Tranche 13. Because scheme-specific funding valuations are generally required every three years, these schemes (with a few exceptions) had their last formal valuation in Tranche 10 (valuation dates between 22 September 2014 and 21 September 2015).

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Tranche 13 analysis

for defined benefit pension schemes

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