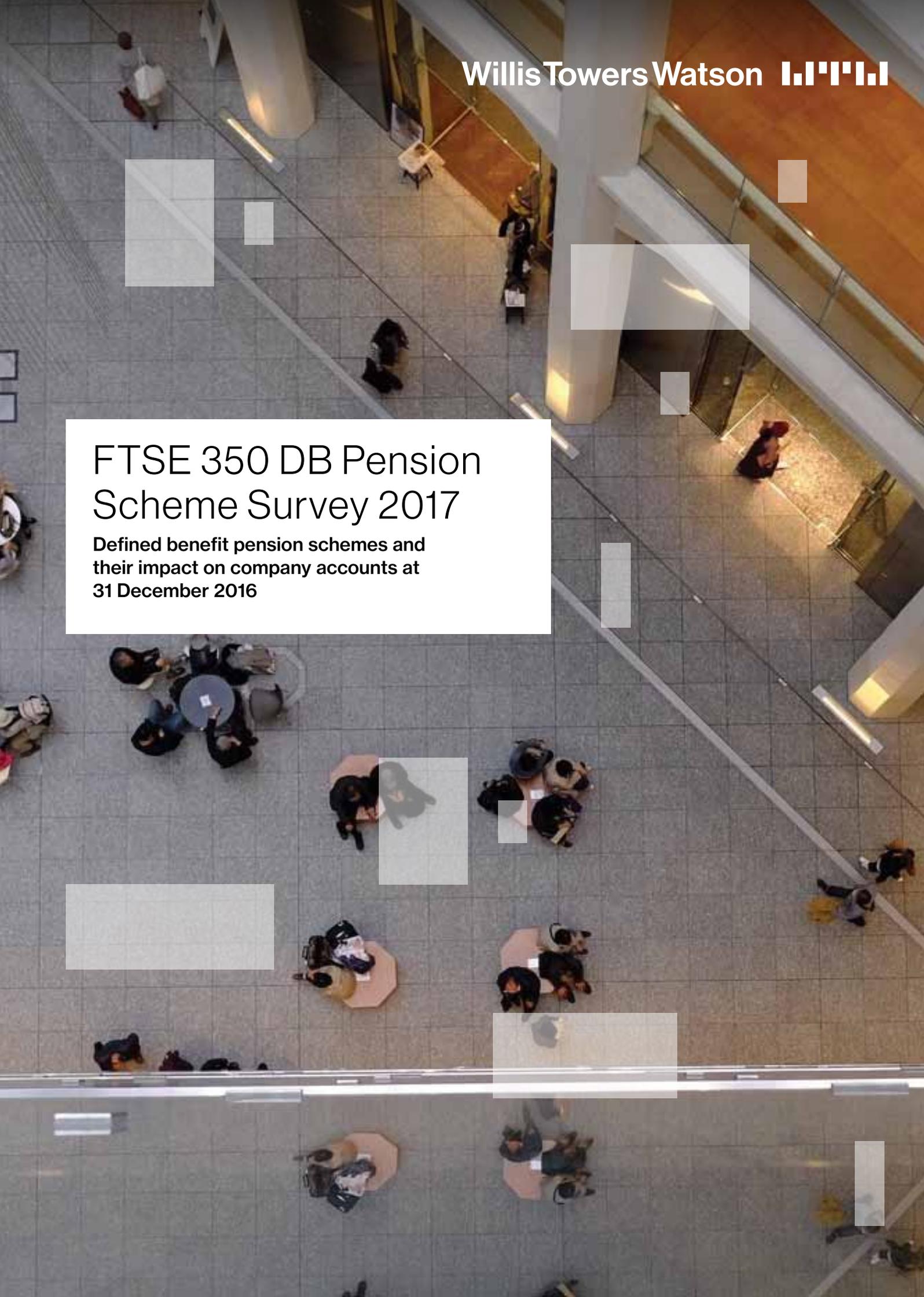


FTSE 350 DB Pension Scheme Survey 2017

Defined benefit pension schemes and their impact on company accounts at 31 December 2016

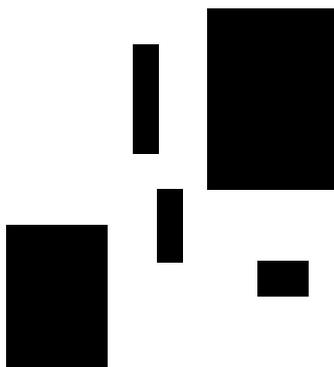


FTSE 350 DB Pension Scheme Survey 2017

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Introduction

Welcome to the 2017 Willis Towers Watson report discussing the impact of defined benefit pension schemes on company accounts as at 31 December 2016

With significant changes in options for defined contribution (DC) savers coming into effect in 2015, you might think that 2016 would have been a quieter year for defined benefit (DB) pensions. Political changes have however had a significant impact on the pensions world, with Brexit resulting in all-time low bond yields and increases in future expectations of inflation driving up the cost of providing DB pensions to record highs. It's not all doom and gloom though, as assets have performed strongly over 2016, with those holding bonds and overseas equities seeing the best returns (the latter driven in part by the falling value of the pound). Following Donald Trump's election, bond yields increased, offsetting part of the reduction earlier in the year. Overall, schemes with assets that closely match liabilities saw the best outcomes over 2016, with funding levels holding up or even improving, while others experienced a significant worsening.

During 2016 we saw companies further managing their pension risk, with a quarter of those that were providing further DB benefits choosing to close their schemes to further accrual and a 5% increase in companies that have secured part or all of their liabilities with an insurer. We have also seen an increase in member option exercises that take risk off the table.

This report focuses on the recently published disclosures of 105 companies in the FTSE 350 with DB pension liabilities reporting at 31 December 2016 (comprising around 70% of all FTSE 350 DB pension obligations). Changes in funding positions and **pension costs** over the year are explored alongside analysis of the factors influencing the size of the pension scheme deficits reported at this date. The report considers current issues for pension schemes, how these might impact company accounts and how companies are managing their pensions risk. The report also includes an analysis of key trends over the past few years.

Please note that, while this report focuses on the FTSE 350 in aggregate, we can also produce bespoke benchmarking reports on request.

We hope that you find this report informative. If you would like further details, please contact Charles, Alex or Claire, or your usual Willis Towers Watson consultant.



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The following sections provide more information on current issues and analysis of the underlying assumptions affecting DB pension scheme disclosures in company accounts. It is important to consider the impact of changes to assumptions together rather than in isolation.

Throughout this report, we refer to 'FTSE 350 companies' as meaning the 105 companies in the FTSE 350 with DB schemes reporting at 31 December 2016. The comparator 31 December 2015 figures are based on the 103 companies in the FTSE 350 reporting at that date, as highlighted in last year's report published in June 2016. Where reference is made to trends over the past six years in the 'Current issues' section, the data is based on the accounts of companies that remained in the FTSE 350 over this period.

Text in bold type is explained on page 25-26.

Executive summary

Developments over the year

Liabilities soared by 25% during 2016, with FTSE 350 liabilities only £25 million shy of the £1 trillion mark in September. Although assets provided strong growth, delivering returns of 20%, these failed to keep up with liabilities so deficits more than doubled, wiping £95 billion off the FTSE 350 over the year.

Pension costs are expected to grow by 50% for 2017.

Total deficit reduction contributions doubled when compared to the previous year, compared to dividend increases of 30%. For this group, deficit reduction contributions were around 7% of dividends.

Around 20% of FTSE 350 companies have some form of alternative funding in place.

A quarter of the companies that remained open to further accrual of DB benefits chose to close in 2016.

Schemes have continued to de-risk assets, with proportions in growth assets falling from 50% to 35% over the period 2008 to 2016. In addition, 60% of schemes make reference to matching liabilities through liability driven investments or other capital efficient hedging strategies.

Liability management activity through member options and **buy-in** transactions increased over the year, with 13% of companies undertaking an exercise.

New mortality projections suggest lower future improvements than previously anticipated and could reduce liabilities by as much as 4%.

Change in funding position

Typical asset allocations delivered returns of around 20%, but as pension liabilities increased by more than 25%, pension deficits, which are highly geared, more than doubled.

Discount rate

The average **discount rate** has fallen by 110 **bps** over the year, reflecting the 100+ bps fall in corporate bond yields.

31 December 2016: **2.7% pa**

31 December 2015: **3.8% pa**

The impact of the increase in the average discount rate is estimated to be a c20% increase in the value of pension obligations.

Inflation

Retail Prices Index (RPI)

The increase in the average **RPI** assumption reflects an increase in future expectations of long-term inflation, driven in part by the weakened pound.

31 December 2016: **3.3% pa**

31 December 2015: **3.1% pa**

Consumer Prices Index (CPI)

The average **CPI** assumption has increased, reflecting an increase in the average RPI assumption and a stable long-term RPI/CPI differential of 1% pa.

31 December 2016: **2.3% pa**

31 December 2015: **2.1% pa**

The impact of the increase in the average inflation is estimated to be a c2%-3% increase in the value of pension obligations.

Life expectancy for current 65-year-old males/females

Life expectancy assumptions reduced slightly over 2016, with the gap between males and females narrowing.

31 December 2016:
87.7/89.6 years

31 December 2015:
87.9/90.0 years

The impact of the reduction in life expectancy is estimated to be a c1% decrease in the value of pension obligations.

Notes: The averages quoted within the survey represent the mean assumption

The story of 2016

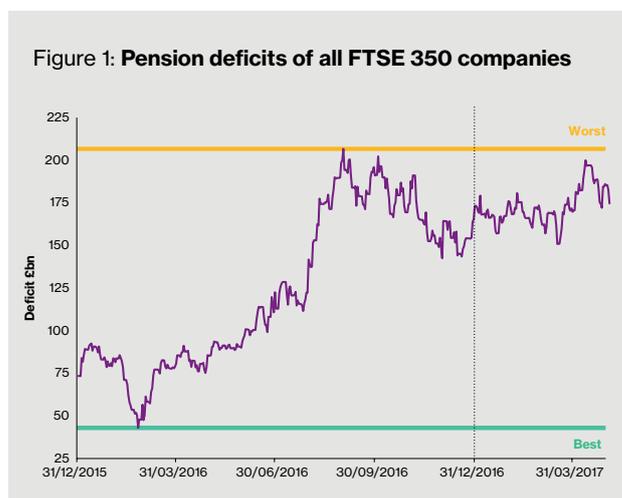
Volatility in funding position and pension costs throughout 2016 and the start of 2017

Funding

We estimate that, for the FTSE 350 as a whole (including those reporting at a date other than 31 December 2016), aggregate deficits soared to £170 billion at the end of 2016, more than doubling the £74 billion deficit seen at the end of 2015, as shown in Figure 1. Political changes over the year, including the conclusion of the EU referendum in June, the announcement on quantitative easing, the interest rate cut in August and the election of Donald Trump in November 2016, were just some of the drivers behind the volatility.

Pension scheme funding has seen mixed fortunes. Liabilities soared to all-time highs, with FTSE 350 liabilities nearing the £1 trillion mark in September as bond yields plummeted and expectations of future inflation increased. On the asset side, the low bond yields meant significant returns for those invested in bonds and those with a high overseas asset allocation benefited from the weakening pound. Overall, those schemes that were well matched were likely to have performed the most favorably.

Since 31 December 2016 deficits have remained high, fluctuating between £150 billion and £200 billion.



The aggregate pension scheme deficit for FTSE 350 companies at 31 December 2016 was more than double that at 31 December 2015.

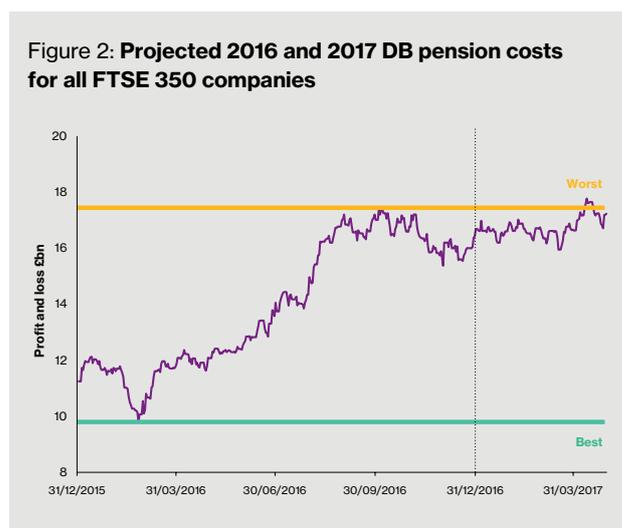
Pension costs

Pension costs (the amount recognised in the income statement in respect of the pension scheme) over a year are driven by market conditions prevalent at the start of the year. They include interest on the balance sheet position and the cost of active members building up further benefits.

The total expected pension cost over the following year is shown in Figure 2. For example, the pension cost at 31 December 2016 represents the expected total 2017 pension cost, based on market conditions at 31 December 2016. Figure 2 highlights the variability in prospective FTSE 350 pension costs over the following year, which are based on market conditions during 2016 and the start of 2017.

All else being equal, we estimate that those companies reporting for 2016/17 in February will see the lowest pension cost and those reporting in October will see the highest cost. This reflects the lower yield environment increasing the cost of providing additional benefits and interest on larger deficits.

In the post 31 December 2016 period, prospective pension costs peaked at £17.6 billion in mid-April 2017.



2017 DB pension costs for FTSE 350 companies are estimated to be 50% higher than 2016 costs, based on market conditions at 31 December 2016.

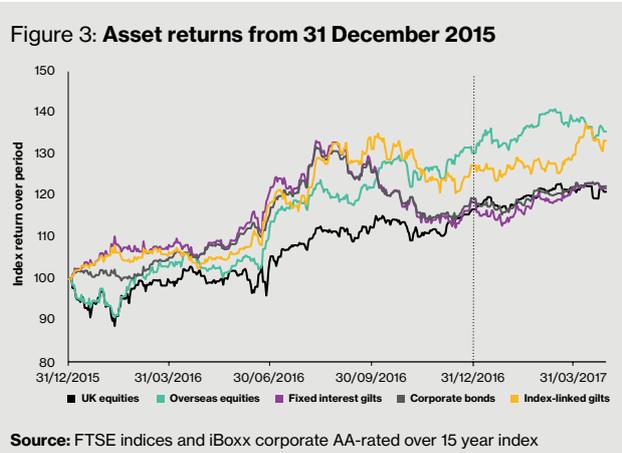
Assets and pension obligations over 2016 and the start of 2017

Scheme assets

Figure 3 sets out typical returns on different asset classes over the period since 31 December 2015. Volatility in asset returns persisted, with all asset classes generating positive returns, despite a slower first half of the year until the Brexit vote on 23 June amid political uncertainty. Those schemes investing in overseas assets benefited from the weakening pound where currency hedging wasn't in place, with returns of c30% over the year. Index-linked gilts weren't far behind, with favourable returns reflecting falling gilt yields and rising expectations of inflation.

Balance sheet positions and pension costs will be more volatile for those investing more in growth assets than those adopting a more matched asset strategy (for example, investing in corporate bonds).

Overall, returns struggled to keep pace with the rising pension obligations, particularly where there was a deficit.



For a typical scheme, assets increased by around 20% over the year to 31 December 2016.

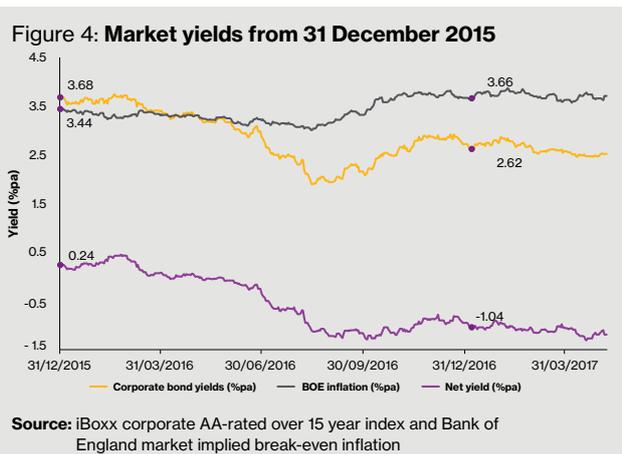
Defined Benefit Obligations (DBOs)

Pension deficits (or, less commonly, surpluses) are the difference between the value of the assets held by a pension scheme and the estimated cost of paying the pensions that have been promised (**DBOs**). It is usually relatively straightforward to value the assets, as these have a market price. To convert a company's best estimate of the pensions to be paid out each year into a comparable liability number, accounting standards require companies to discount these payments back using the yields on high-quality corporate bonds. As Figure 4 shows, the interest on these bonds is failing to compensate investors for inflation, with corporate bond yields falling below inflation from Q1 2016. These negative net interest rates result in high DBOs being disclosed in company accounts.

Following a more stable year in 2015, Figure 4 shows that corporate bond yields fell to all-time lows over 2016, with the **iBoxx index** falling to 1.89% on 11 August 2016, increasing the DBO. This was mainly due to falls in interest rates and a contraction of spreads following the Bank of England's £10 billion corporate bond and £60 billion government bond quantitative easing programme.

Increases in long-term expectations of future inflation further exacerbated this, with the net interest rate (corporate bond yield less inflation rate) falling by around 120 bps, resulting in DBOs increasing by over 25%. The net rate fell even more over the start of 2017, to around -130 bps during April, further pushing up DBOs.

However, on average FTSE 350 companies weathered the storm well versus general expectations, highlighting that these schemes may have had better diversified and hedged strategies.



Significant falls in bond yields and increases in inflation expectations drove DBOs up to all-time highs.

Around two-thirds of FTSE 350 companies reporting at 31 December 2016 saw a change of less than 5% in funding level since 31 December 2015, suggesting that liabilities are well hedged.

Around 15% of companies saw a worsening of 10% or more in funding level, suggesting asset strategies failed to keep pace with liability volatility.

Current issues

Amendments to accounting standards

Amendments to IAS 19 and IFRIC 14

In June 2015, the International Accounting Standards Board (IASB) set out a proposed change to accounting standards on which it invited comments. The two proposed changes covered amendments to remeasurements and **IFRIC 14**.

Amendments to remeasurements

The proposed changes require entities to calculate pension cost for the period after a special event based on market conditions and assumptions at the date of the special event rather than those at the start of the financial year.

The International Financial Reporting Standards Interpretations Committee (IFRS IC) reviewed the responses to the consultation and after further discussion at its meeting on 14 March 2017 agreed to the proposal and wording. It was acknowledged that the proposed change effectively divides the year (particularly the pension cost) into two parts, before and after the event date, and therefore should trigger an interim remeasurement.

The IASB will now need to confirm its agreement and consider the process, including transition, first-time adoption and effective date (currently expected to be for financial years beginning on or after 1 January 2019). We expect that the amended standards will be issued within the next six months.

IFRIC 14

The proposed changes, which the IASB agreed to implement in their December 2016 meeting, potentially affect the accounting treatment of any scheme where trustees have powers to augment members' benefits or to wind up the scheme without the consent of the sponsor. In the December 2016 meeting the IFRS IC proposed that the second requirement be reworded, requiring trustees to have the power to settle the liabilities in a single event, which may increase the number of schemes impacted. Companies will need to account for these trustee powers. For example, in cases where trustees can wind up schemes, it will no longer be possible to assume sponsors have an unconditional right to a refund after all the benefits have been paid out (this has been the typical way in which sponsors of UK schemes have justified recognising a surplus).

The consequences for sponsors of such schemes are potentially significant. Some companies will find that they can no longer recognise a surplus on their balance sheet. Others will find it necessary to recognise an additional balance sheet liability if they have agreed on a contribution schedule that exceeds the **IAS 19** deficit. Despite the Financial Reporting Council (FRC) urging companies to disclose how the exposure draft may affect them, only around 40% of companies made any comment about IFRIC 14 (up from around 35% at 31 December 2015). Currently around 10% of companies restrict assets by an average of 4% due to IFRIC 14. We expect the number of affected companies to rise once the final changes are issued. Depending on the final wording of the amendment there will be various possibilities for offsetting any potential impact.

Assumptions

Interest cost methodology

It has been traditional accounting convention for many years to use a single representative discount rate for calculating the DBO and pension cost. The discount rate is typically developed via the following process:

- A yield curve (or, alternatively, a bond selection model) is used to calculate a present value for each of the projected cash flows associated with members' past service.
- A single discount rate is derived, which, when applied to the series of projected cash flows, produces that same present value of past service obligations.
- That single discount rate is then used in determining the cost associated with newly earned benefits (service cost) and for determining the interest cost associated with all benefit amounts to be reflected in the fiscal year.

While this approach has been widely viewed as a reasonable way to recognise the cost associated with a given year, it arguably incorporates a simplified underlying methodology.

Alternative approaches to cost recognition have occasionally been proposed that are based on more granular methodology, which essentially utilises the rates across the full yield curve, applies them to the cash flows at each time period to measure the service cost and interest cost relating to benefits payable in each future year and then sums the results (instead of applying a single equivalent rate). As more companies adopt a yield-curve methodology for scheme funding valuations (30% of schemes advised by Willis Towers Watson adopted a yield curve for their most recent funding valuations), we may see more use of this in accounting valuations. Two FTSE 350 companies reported using a yield curve approach for their accounting disclosures as at 31 December 2016, however, it is worth noting that other companies may have adopted this approach but chose to disclose a single equivalent assumption.

The beneficial side effects of these more detailed calculations are generally lower service and interest costs (however, any reduction in interest on DBOs may potentially be offset by a reduction in the interest income on assets, assuming a similar approach is adopted). It should be noted that there is an argument that if this approach is adopted for the discount rate, a similar methodology should be used when deriving inflation rate assumptions, which may negate any impact of adopting this approach. More comprehensive detail on these alternative approaches and their corresponding advantages and disadvantages can be obtained from your usual Willis Towers Watson consultant.

Discount rate universe

The IFRS IC has received a query about how an entity determines the discount rate: namely which high-quality corporate bonds should underlie the derivation. The query raises interesting questions: namely whether there could be more flexibility in the choice of the corporate bond universe, for example applying judgement on what is a corporate bond and hence whether bonds like those associated with universities could be deemed as quasi-governmental instead. In addition, there are few if any corporate bonds at longer **durations** (typical for pension scheme liabilities) and there are various approaches that could be adopted to extrapolate out the derived corporate bond curve. These include assuming a flat curve or changes in line with the gilt curve (that is, a fixed credit spread). The relevance of the point and method of extrapolation is important when using alternative approaches as these can reduce the quality of the derived curve at the long end, and hence the stability too.

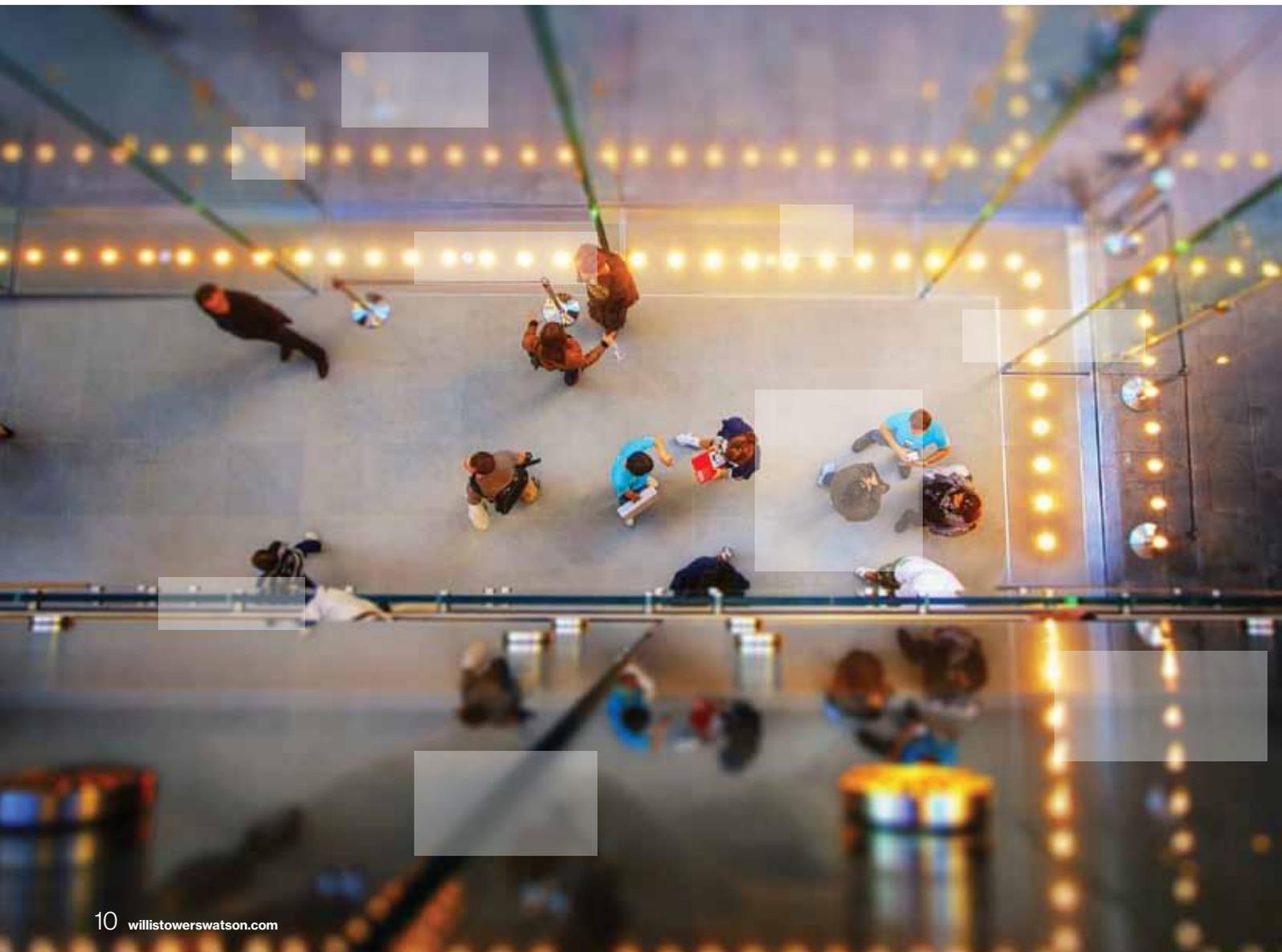
Allowing for GMP equalisation

The UK government published its latest consultation for occupational pension schemes on 28 November 2016. The consultation reaffirmed the government's view that schemes are required to equalise for the effects of **GMPs** and proposed a value-based approach. There was no indication that the government's position would change post Brexit - the default appears to be that it will continue to be necessary.

Allowing for GMP equalisation is likely to lead to an increase in DBOs of around 0.5% – 3%, dependent on the scheme's particular circumstances. We have observed that FTSE 350 companies reporting at 31 December 2016 did not make any explicit allowance within their accounts, perhaps unsurprising given that the government was still consulting on this issue at 31 December 2016.

The government subsequently responded to the consultation in March 2017. It did not provide a legal safe harbour for schemes moving forward with equalisation under their consultation's proposed approach and, in light of other outstanding uncertainties such as Brexit and a potential court case, there does not appear to be an immediate requirement for the potential costs of GMP equalisation to be recognised for accounting purposes at least.

On a more positive note the consultation approach proposes that GMPs are converted into a different (non-GMP) form of benefit. This should provide an opportunity to remove the burden of administering, communicating and investment-matching GMP benefits, which have been an unwelcome complication for the past 25+ years. It may also provide an opportunity for schemes to introduce other simplifications, for example, by running a **pension increase exchange** exercise or purchasing a **buy-in** policy with an insurer.



Wider considerations

Deficit and risk management

Figure 5 shows how DBOs and assets have increased over the past six years, ballooning during 2016's low bond-yield environment. The majority of companies saw their DBOs increase by 10% to 30%, with assets slightly behind at between 0% and 25% for the majority. Overall the majority of FTSE 350 companies saw a change in their net pension scheme deficit of between 0% and 15% of DBO, with the average being around a 5% increase.

Around 40% of the FTSE 350 companies note pensions as being a key risk and this becomes more marked as DBOs increase as a percentage of market cap. For those with DBOs which amount to 25% or higher of their market cap (around 50% of the FTSE 350), around 45% consider pensions to be a key risk. This is illustrated in Figure 6. This could be an indication that the remaining 55% of these companies have significant risk management and hedging arrangements in place, or possibly that they have underestimated pensions as being a key risk.

Asset strategy

Over the past eight years investment in return-seeking assets such as equities, property and diversified growth funds has decreased from around 50% of total assets to around 35%. To some extent this reflects companies de-risking and implementing diversified investment strategies. Around 60% of companies in our survey now make explicit reference in their accounts to using liability-driven investments, hedging or other matching of assets to pension scheme obligations within their investment strategies (noting that any bond holding will likely represent some form of matching asset). This includes around a quarter that have bought a bulk annuity policy with an insurer to cover part or all of their pension liabilities, representing an increase from 20% in 2015 as companies made the most of the competitive pricing available in 2016. This type of investment management is particularly common for those companies whose pension scheme is significant relative to the market cap of the company.

Figure 5: DBOs and assets of FTSE 350 companies over the past six years

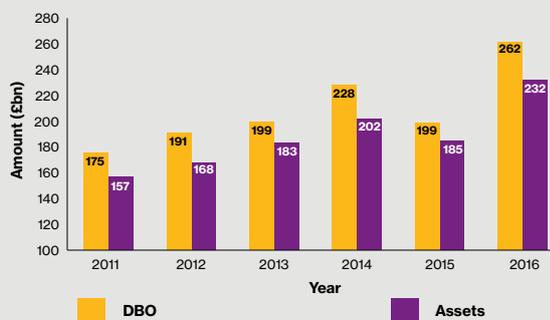
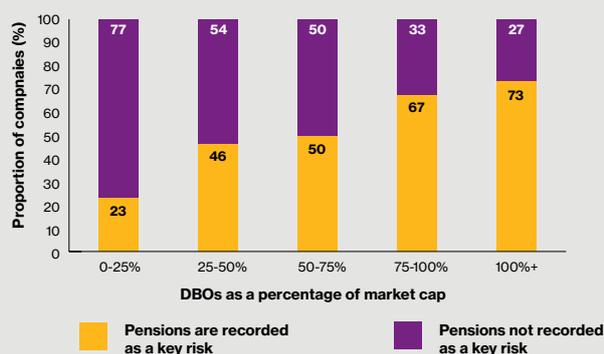


Figure 6: Companies that disclose pensions as a key risk against DBOs as a percentage of market cap



Liability management

We saw an increase in liability management activity over 2016, with four companies disclosing that they undertook a pension increase exchange exercise (only one the previous year), seven companies transacting with an insurer to buy an annuity policy, two undertaking a **bulk cash equivalent transfer value exercise** and one a **bulk small lump sum exercise**.

DB contributions

Total employer contributions over 2016 rose, which reverses the trend over the past few years, as is shown in Figure 7.

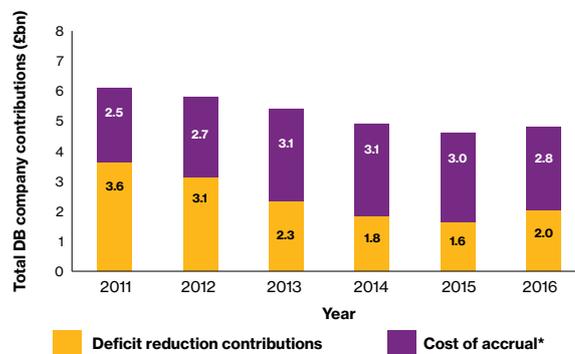
The increase in the calculated contributions required to fund any deficit (the purple blocks in Figure 7) is likely to reflect companies agreeing new Recovery Plans. If we extend this analysis to look at those companies in the FTSE 350 at 31 December 2015 and 31 December 2016, this increase is more pronounced, with deficit reduction contributions increasing twofold. Reasons for this increase include agreement of new schedules of contributions following a triennial valuation, companies choosing to accelerate payments due under their schedules of contributions and additional contributions following company restructures and pension scheme restructuring. For those that provide an estimate of 2017 DB pension contributions, these are expected to remain fairly stable when compared to 2016 levels, with an average increase of around 3%.

As a percentage of dividends, we saw deficit reduction contributions fall from a median of around 15% in 2011 to around 5% in 2015. This trend looks to have reversed somewhat in 2016 and 2017, with the average increasing back to around 7%. The Pensions Regulator's 2016 and 2017 annual statements both commented on the relationship between dividends and pension contributions, so it will be interesting to see whether we will continue to see an upwards trend. The figures, however, are still shy of the Regulator's 2017 annual statement expectations, with a weak correlation of the ratio of deficit reduction contributions against dividends, versus recovery plans. For schemes where the ratio of deficit reduction contributions versus dividends is greater than 50%, average recovery plans were nine years. This corresponds to five years for companies with a ratio less than 50%. Equally, there was no obvious correlation with accounting funding levels and deficit to dividend ratios, suggesting the importance around the underlying agreed technical provisions basis.

At 31 December 2016 around a quarter of companies were in surplus on an accounting basis, 45% could meet their deficit from less than one year's dividend payments and a further 15% could meet it in less than two years.

The total cost of future build-up of benefits (as indicated by the upper yellow blocks in Figure 7) fell slightly, reflecting a decreasing DB active membership and therefore salary roll to which the contribution rate applies. Offsetting this partly, the low gilt yields will drive an increase in the cash contribution rate demanded by

Figure 7: FTSE 350 companies' contributions over the past six years



*This has been estimated based on the service cost

scheme trustees to meet the cost of providing future benefits. However, as these tend to be updated every three years as part of the triennial funding valuation, it may take a few years for the impact of current market conditions to filter through into contributions payable.

Looking at individual levels and at percentages rather than monetary change, the table below shows that the average percentage change in deficit reduction contributions payable by FTSE 350 companies reporting at 31 December 2016 increased during the year. If we exclude step changes, for example as new recovery plans are agreed and/or one-off contributions are paid, contributions have remained relatively flat, as we would expect.

Percentage increase in deficit reduction contributions	2011 to 2012	2012 to 2013	2013 to 2014	2014 to 2015	2015 to 2016
All companies reporting at 31 December	16%	5%	31%	-1%	11%
Excluding those where changes exceeded +/-50%	-1%	-2%	-5%	-8%	0%

Of those providing information on funding deficits, a fifth had no further contributions due, suggesting that companies are managing deficits effectively.

In line with the Pension Regulator's Purple Book, deficit reduction contributions as a percentage of total liabilities are around 2%. As a percentage of deficits this was around 15% (similar to 31 December 2015), suggesting average recovery plans of around seven years.

Alternative funding

In order to manage company contributions paid into schemes, particularly with the restrictions on extracting any surplus in the future, companies are looking at alternative ways to meet the costs of pension schemes. Around a fifth of FTSE 350 companies have some form of alternative funding in place, with two companies implementing contingent assets over 2016. Three companies are paying contributions into **escrow** accounts, 11 have alternative **asset-backed funding** in place and eight refer to guarantees from parent companies or some other charge on assets in advance of other creditors.

DC contributions

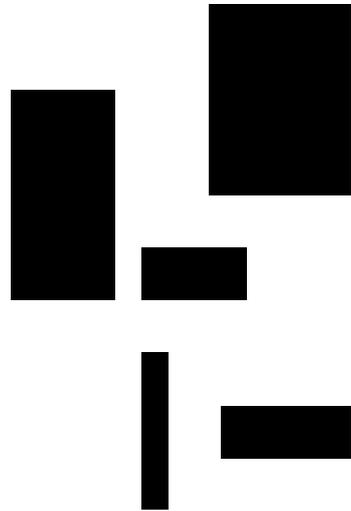
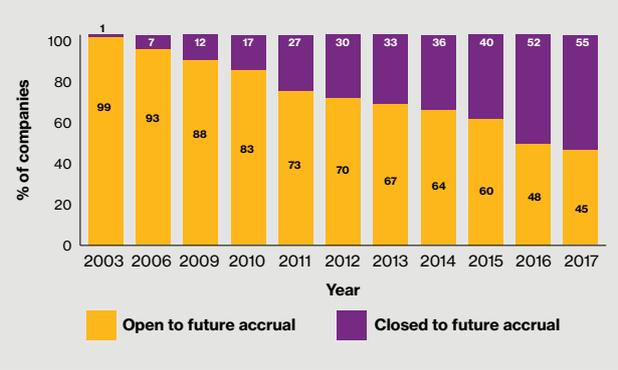
DC contributions increased by around 15% in 2016, following an increase of around 5% over 2015 for comparable companies. The higher increase is likely to reflect the significant number of companies who have moved to providing defined contribution benefits for future accrual for all employees.

Contracting-out

The cessation of contracting-out on 6 April 2016 led to an increase in National Insurance contributions and this prompted many employers to review their pension arrangements. Figure 8 shows that companies took this opportunity to reduce risks and costs associated with DB pension arrangements. A quarter of companies with DB pension schemes open to further accrual decided to close their schemes during 2016 or plan to do so during 2017, representing a significant increase from previous years. This means that 45% of FTSE 350 companies reporting at 31 December 2016 still have a DB pension arrangement open to future accrual. Of these, around 15% disclosed that they have taken steps to reduce future benefits through capped pensionable salaries or basing benefits on average salaries rather than final salaries.

FTSE 350 accounts also show that two other companies used the opportunity to manage future company costs, with one moving from final salary to career average benefits and another increasing employee contributions to help absorb the additional National Insurance contributions.

Figure 8: Future accrual status of FTSE 350 schemes



Pension flexibilities

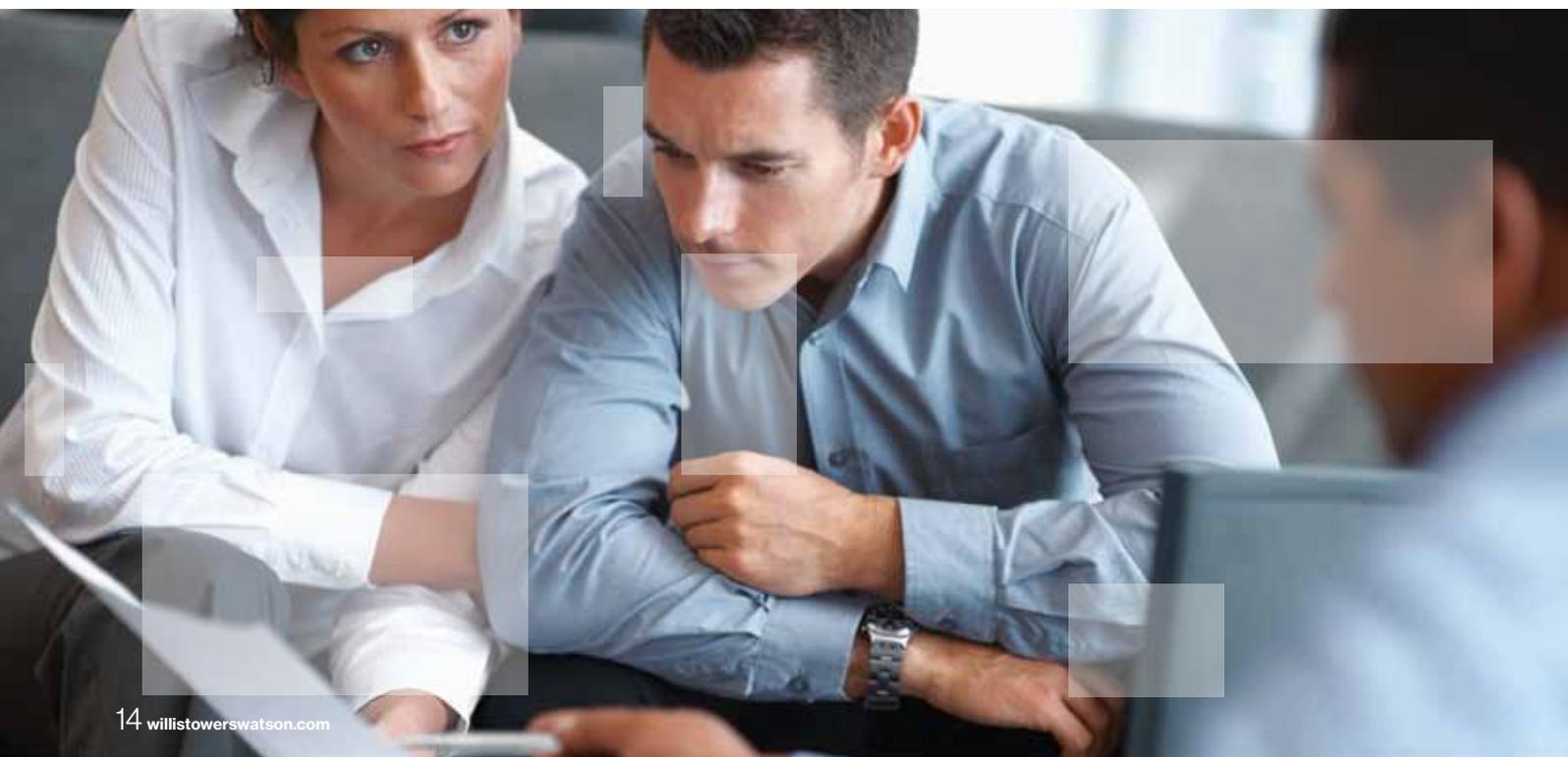
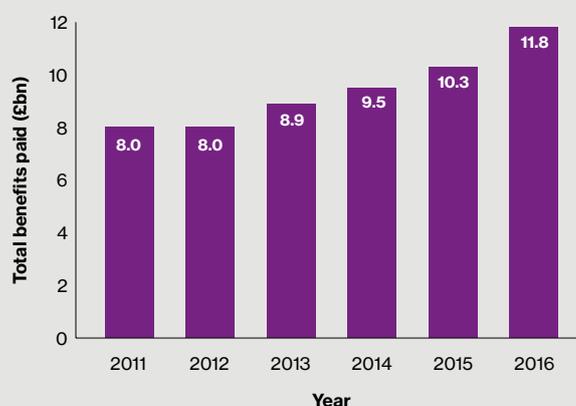
Increased pension flexibilities for DC savers came into effect on 6 April 2015 and allow members with DC benefits to access their retirement funds as desired, for example, as a cash sum or through a drawdown arrangement, rather than as a regular income. DB pension savers can access these flexibilities by transferring their DB benefits to a DC arrangement, subject to receiving financial advice if the value of the DB benefits exceeds £30,000.

Figure 9 shows that benefit payments have increased over the past six years as schemes mature. Last year we saw a more pronounced increase in benefit payments, with the average increase in benefits paid being around 25%. While still a higher increase than in previous years, this was perhaps more muted than some expected. Over 2016 we saw this percentage increase by a further average 15%, suggesting transfer activity remains high. However, as the level of benefits paid is also sensitive to member options (for example on exchanging pension for cash), it is difficult to draw a conclusion as to the precise level of transfer activity. If we look in more detail, over half of companies saw benefits increase by more than 10% and over a third by more than 20%, which may suggest an increase in transfer activity. Two companies referred to carrying out a bulk cash equivalent transfer exercise. A recent

Willis Towers Watson survey of our DB clients showed that the number of members transferring in January 2017 was around ten times the monthly average in the year before pension flexibility was announced.

It may still be too early to make an assumption about the level of future transfers as the new flexibilities bed in and no FTSE 350 companies reporting at 31 December 2016 made an explicit allowance in their accounts.

Figure 9: FTSE 350 company benefit payments over the past six years





Assumptions in depth

Discount rate

IAS 19 requires the discount rate used to convert future pension payments into a single DBO number to be set with reference to the yields available on high-quality corporate bonds. The maturity and currency of the bonds used must be consistent with the pension obligations.

How have corporate bond yields changed?

Figure 4, on page 7 showed how corporate bond yields have decreased significantly over 2016. Long-dated government and corporate bond yields both fell by around 30% during 2016. In particular, the iBoxx index yield decreased by around 106 bps, from 3.68% pa at 31 December 2015 to 2.62% pa at 31 December 2016 and the FTSE 15-year fixed interest government bond yield decreased from 2.42% at 31 December 2015 to 1.72% pa at 31 December 2016, meaning that the corporate bond spread (the additional return above government bond yields) reduced from around 1.25% pa at 31 December 2015 to 0.90% pa a year later.

Why is maturity so important when assessing pension scheme obligations?

The vast majority of companies set their discount rate by looking at the shape of the corporate bond yield curve and the expected timing of benefit payments from their pension scheme. Due to the lower discount rates, many schemes will have a longer duration of their liabilities, as more weight is placed on later cash flows.

Corporate bond yield curve

Figure 10 shows individual corporate bond yields by maturity at 31 December 2016. The curves show the Willis Towers Watson best fit to the individual yields, calculated using our RATE:Link model. It should be noted that there are very few bonds at the longer duration so alternative approaches can result in quite different curves. Possible options include:

- Fitting a curve to the corporate bonds available, but this means that the curve is very sensitive to a few bonds, and movements of such bonds in and out of the index can result in large shifts
- Fitting a curve in line with gilt yields, where there are more bonds at longer durations
- Assuming flat yields

Corporate bond yields fell significantly, by over 100 bps since 31 December 2015.

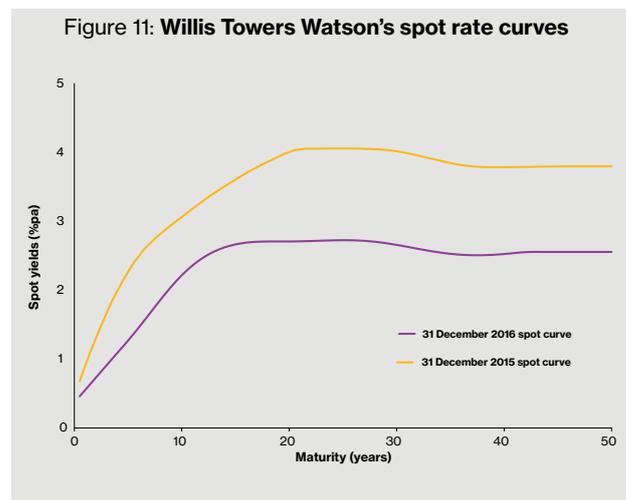
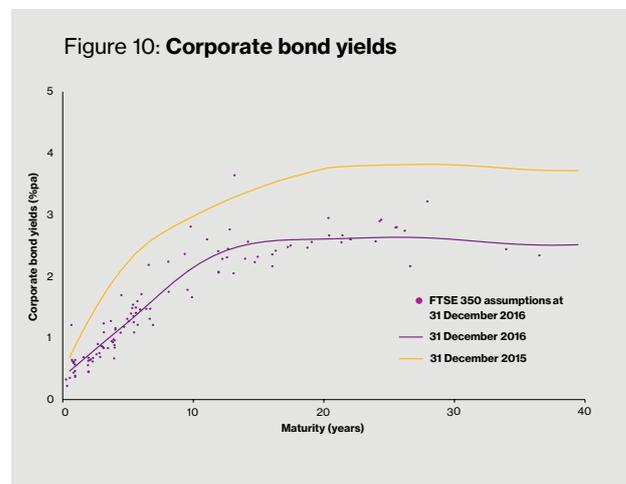
In the current low-yield environment we have observed that some companies are looking to explore these options in more detail and assess the impact on the resulting discount rate.

Over the year bond yields decreased significantly at all durations.

Corporate bond spot rate curve

From the corporate bond yield curve we derive a spot rate curve, representing the appropriate discount rate for a payment at the relevant duration (the impact of any coupon payments due on bonds has been removed).

Figure 11 shows that spot rates were lower at all durations. Overall we would expect discount rates to be around 1.1% pa lower at short-term durations, around 1.2% pa lower at medium-term durations and up to 1.3% pa lower at the longest durations.



Duration of pension scheme obligations

Figure 12 shows the approximate average **duration** of pension scheme obligations at 31 December 2016 and 31 December 2015. The average duration at 31 December 2016 was 19 years (18 years at 31 December 2015), with the increase reflecting lower discount rates, placing more weight on later cash flows.

Figure 13 shows the assumption adopted by each company at 31 December 2016, plotted against the approximate average duration of their pension scheme. Where the same assumption has been adopted for schemes with the same duration, a larger data point is shown. The graph suggests that durational impact over typical pension scheme durations (15 to 25 years) had a fairly minimal impact on the discount rate adopted.

Due to the relatively flat yield curve at 31 December 2016, using a cash-flow-based approach to set the discount rate is likely to result in similar discount rates across all durations.

Different discount rates for past benefits and future accrual of benefits?

The duration of benefits accruing in the future would be expected to be higher than past service benefits. Allowing for this difference in maturity could lead to a higher discount rate being adopted to value future pension promises and therefore result in a lower service cost. Given the slightly upward-sloping corporate bond yield curve and inflation curves, adopting this approach would be likely to lead to a similar **net discount rate** and a similar value being placed on future pension promises. Four FTSE 350 companies reported adopting a different discount rate to value benefits accruing in the future compared with past service benefits at 31 December 2016, or plan to do so in the future (see page 9 for further details).

Distribution of results

Figure 14 shows the discount rates adopted at 31 December 2015 and 31 December 2016.

Average discount rate assumption

31 December 2016: **2.7% pa**

31 December 2015: **3.8% pa**

Figure 12: Duration of FTSE 350 pension scheme liabilities at 31 December 2016 and 31 December 2015

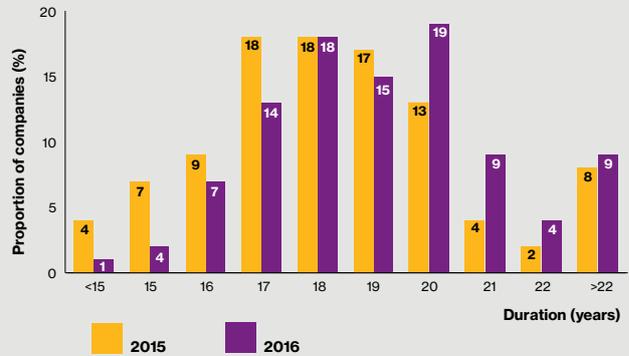


Figure 13: Discount rates adopted by companies at 31 December 2016, by duration

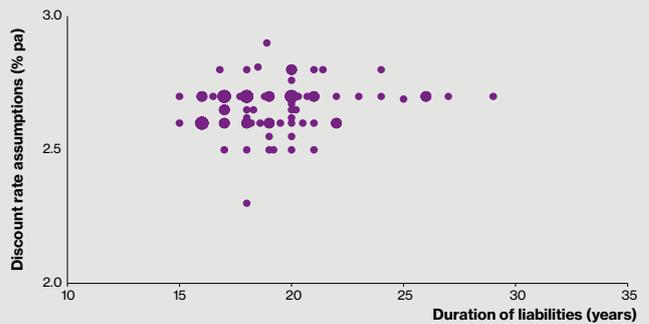
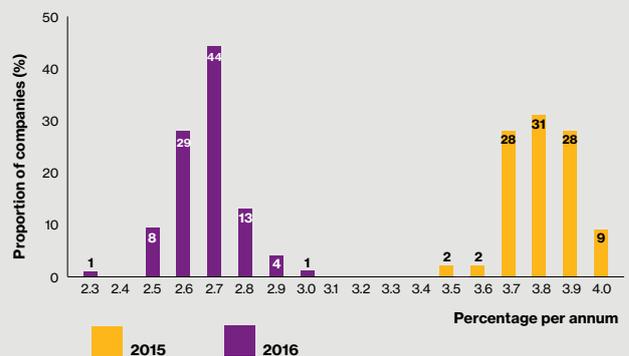


Figure 14: Discount rates adopted at 31 December 2016 and 31 December 2015



Assumptions in depth

Inflation

There are two measures of inflation that are currently used by companies when placing a value on the DBO for their accounts: the Retail Price Index (RPI) and the Consumer Price Index (CPI).

RPI

There are two main reasons why different companies will disclose different assumptions for RPI inflation. First, they all estimate average inflation rates over various time periods corresponding to when inflation-based pension increases will be awarded in their particular scheme.

Second, companies may have reached different judgments about the extent to which the inflation rates implied by gilt prices reflect expectations of what inflation will actually be, as opposed to the premium that pension funds and insurance companies will pay for inflation-linked assets that match their pension obligations. This is referred to as an inflation risk premium.

Figure 4 on page 7 showed how long-term expected future RPI inflation, as implied by gilt pricing, has increased during 2016.

Figure 15 shows how inflation is expected to increase, with increases at all durations, particularly shorter ones, compared with 12 months ago.

Inflation assumptions by duration at 31 December 2016

Figure 16 shows the assumptions adopted by each company at 31 December 2016, plotted against the approximate average duration of their pension scheme obligations. Where the same assumption has been adopted for multiple schemes with the same duration, a larger data point is shown.

We also show the inflation rates for model pension schemes with average durations ranging from 10 to 35 years, derived by applying the market break-even future inflation to sample pension scheme cash flows.

Net discount rate

The net discount rate decreased by a similar amount (between 100 and 150 bps) across all durations.

Figure 15: Future average annual RPI inflation implied by gilt pricing at 31 December 2016 and 31 December 2015, by duration

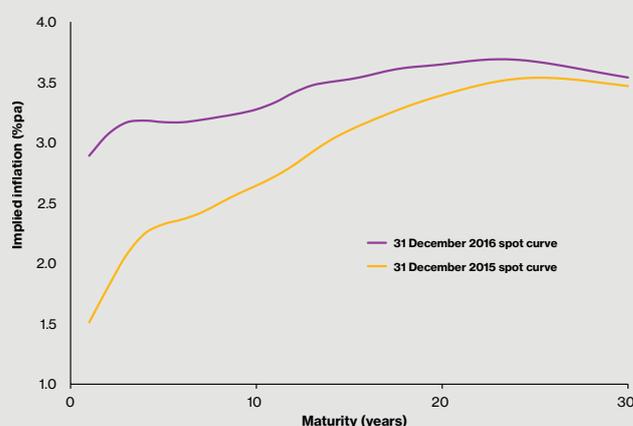
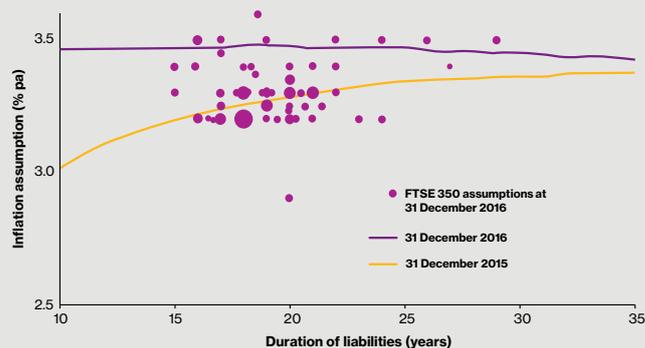


Figure 16: RPI inflation assumptions adopted by companies at 31 December 2016 and 31 December 2015, by duration



The RPI assumptions adopted tend to be lower than the inflation implied by gilt pricing, as companies generally assume the existence of an inflation risk premium as described above. Market expectations of inflation derived from gilt pricing are often considered to be overstated, reflecting the fact that buyers of index-linked gilts wishing to hedge inflation will pay in excess of the true expected levels of inflation. An allowance for an inflation risk premium aims to offset this.

A recent Willis Towers Watson survey showed that for those that adopted an inflation risk premium (70% of the companies surveyed), the average assumption adopted at 31 December 2016 was 0.2% pa (also the average at 31 December 2015).

Distribution of results

Figure 17 shows the assumption adopted by each company at 31 December 2016 and 31 December 2015.

Over the year, the average RPI assumption has increased, driven in part by the weakening pound.

RPI/CPI differentials

Companies typically set the CPI assumption by taking a margin relative to RPI, as there is no liquid market in CPI-linked instruments.

Figure 18 shows that the average RPI/CPI differential remained unchanged since 31 December 2015.

CPI inflation

Figure 19 shows the assumption adopted by each company at 31 December 2016 and 31 December 2015.

Over the year the average CPI assumption increased.

Average RPI assumption

31 December 2016: **3.3% pa**

31 December 2015: **3.1% pa**

Average RPI/CPI differential

31 December 2016: **1.0% pa**

31 December 2015: **1.0% pa**

Average CPI assumption

31 December 2016: **2.3% pa**

31 December 2015: **2.1% pa**

Figure 17: RPI inflation assumptions adopted at 31 December 2016 and 31 December 2015

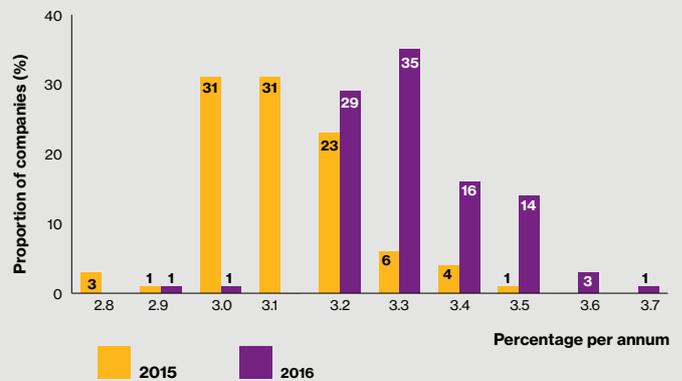


Figure 18: RPI/CPI differentials adopted by companies at 31 December 2016 and 31 December 2015

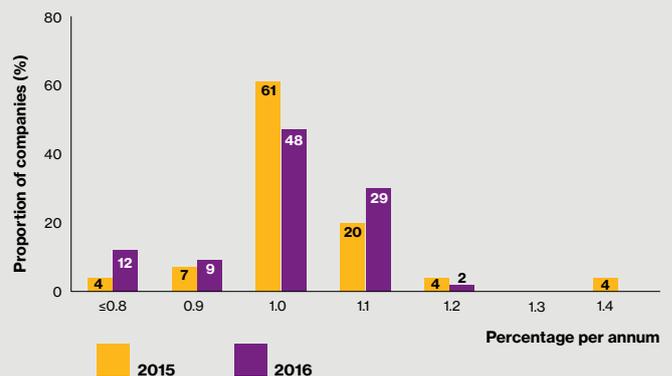
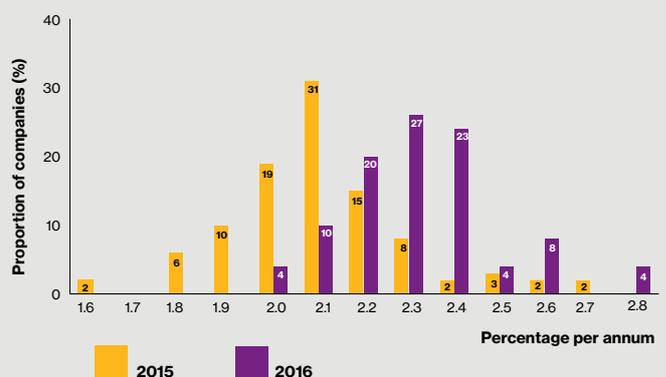


Figure 19: CPI inflation assumptions adopted by companies at 31 December 2016 and 31 December 2015



Assumptions in depth

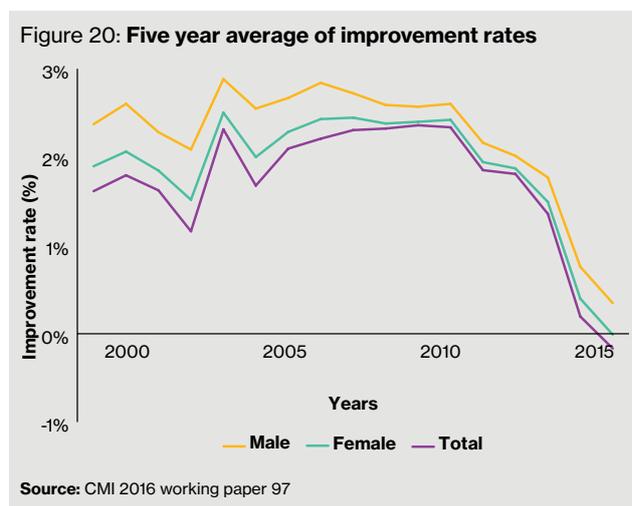
Recent experience creates continued uncertainty over future mortality rates, but the CMI's latest model provides an instant reduction in liabilities

As reported last year, 2015 saw the highest number of deaths in England and Wales since 2003, with nearly 530,000 people dying. Many commentators speculated at the time that the number of deaths in 2015 was a blip, driven by an unusually high number of winter deaths over 2014/15 and that it would not be repeated.

While not conclusive, what happened in 2016 went some way to invalidating the blip theory. Elevated numbers of deaths continued, with around 525,000 people registered as dying over the year (based on provisional data from the Office for National Statistics). While the number of deaths in 2016 is slightly lower than 2015, it is still significantly higher than the number of deaths registered in 2013 and 2014, each around 500,000.

What does this mean for mortality rates?

These latest figures show that mortality rates across all ages in 2016 were 1.8% lower than in 2015, only partly offsetting the 4% increase in rates we saw between 2014 and 2015. Despite the small improvement over the last year, the rate of mortality improvements has stalled – rates were broadly the same in 2016 as in 2011 and around 11% higher than they would have been had the improvements between 2000 and 2011 continued. Figure 20, displaying a five year average of improvement rates, illustrates this stall.

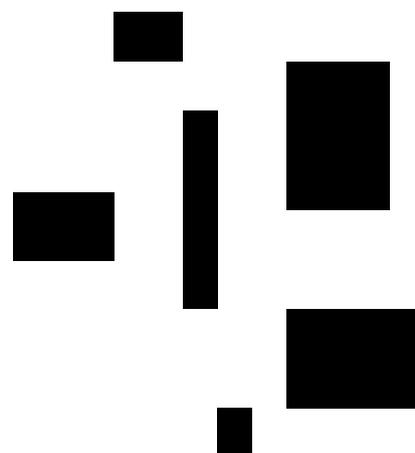


And our assumption for future improvements?

It is impossible to anticipate whether the stall in improvements will continue and it is hard to extrapolate the past into the future. Indeed while we seem to be in a period of low improvements, the period from 2000-2011 was exceptionally strong, with average improvements of over 2% pa, well above the long-term assumption used by most schemes. Nevertheless, employers should speak to their consultant about whether their long-term improvement rate assumption used for accounting disclosures – typically 1.25% or 1.5% per year – remains reasonable.

New CMI improvements projection model

In terms of life expectancy, the recently released Continuous Mortality Investigation (CMI) 2016 improvements model allows for the heavy mortality experience over 2016. A combination of 2016's data plus a number of methodology changes made by the CMI means that life expectancies for a 65 year old reduce by four months for males and six months for females (compared to the previous CMI 2015 model). These life expectancies would fall further if long-term improvement rates are also reduced.



Impact on company accounting

The impact on year-end accounting will depend on how regularly valuations are carried out using full membership data and whether mortality assumptions are updated for accounting purposes. For companies adopting the CMI 2016 model, the DBO is expected to reduce by around 2% when compared to the 2015 projection model. If projections are updated following a triennial funding valuation, which is more typical, the reduction could be up to 4% if switching from the 2013 projection model.

DBOs will reduce further for schemes deciding to reduce their long-term improvement rate assumption in light of recent experience. For example, if a scheme were to reduce its long-term improvement rate from 1.5% to 1.25%, the DBO could reduce by around 1%.

If the mortality change in the population of England and Wales is replicated in schemes, as was the case last year, the number of deaths may have been underestimated since the last valuation using full membership data. This may give rise to a small reduction in obligations when a full valuation is next carried out.

The new CMI projections also allow for additional flexibility in setting base tables (which set the current future expectations of mortality). This new flexibility allows a choice in how much new data is smoothed from year to year – the greater the level of smoothing the less sensitive the results are to a new year of death data. As an example, moving from a smoothing factor parameter of 7.5 to 8 could increase liabilities by

around 1%. Companies may wish to consider whether to make use of this new flexibility when setting their mortality assumptions.

Alternative ways to set mortality assumptions

In previous years it has been typical for corporates to set their mortality assumptions in line with those adopted for funding, in the majority of cases with the margins for prudence removed. Companies may wish to further consider how they assess the level of prudence, possibly by undertaking their own analysis.

Given the increased uncertainty trustees and sponsors will be looking for new ways to understand their scheme's mortality. One option now available is to better understand your scheme members' own health characteristics. Our medical underwriting service uses our Pulse Model to paint a biologically plausible picture of a scheme's mortality, based on members' current health status and views on the outlook for each major disease type informed by medical experts. Such a medical- or disease-based approach is more detailed and avoids the pitfalls of extrapolating from past trends. Another option – using stochastic techniques – allows trustees and sponsors to explore the possible variability in a scheme's future mortality outcomes. This enables a better understanding of longevity risk – the level of uncertainty in a scheme's assumptions, the materiality if it goes wrong and the effectiveness of longevity hedging solutions. We see these approaches playing a much greater role in pension scheme governance going forwards.



Life expectancy assumptions at 31 December 2016

Figure 21 shows the life expectancies assumed by FTSE 350 companies for males and females currently aged 65.

Figure 22 shows the additional life expectancies assumed from age 65 for males and females currently aged 45, relative to a current 65-year-old.

We would anticipate life expectancies to increase slightly each year, reflecting assumed future improvements. The average life expectancy assumption for current pensioners has slightly decreased, with the gap between male and female life expectancies narrowing to under two years. This may reflect the impact of the latest CMI projection models, as additional life expectancies for future retirees remain unchanged.

Figure 21: Assumed life expectancy for male and female members aged 65 at 31 December 2016

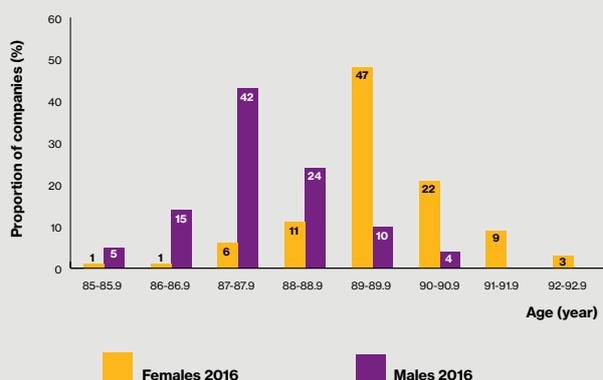


Figure 22: Assumed level of future improvements in life expectancy for males and females aged 45 on reaching 65, relative to current 65-year-olds at 31 December 2016



We are seeing a small fall in life expectancies as companies begin to use the latest CMI projections.

Average life expectancy for male/female pensioners aged 65 was:

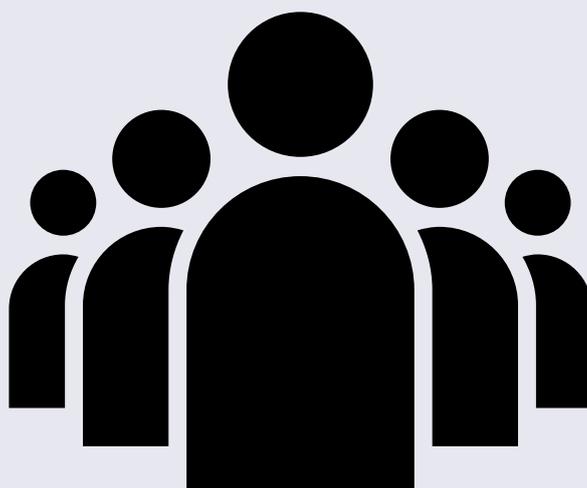
31 December 2016:
87.7/89.6 years

31 December 2015:
87.9/90.0 years

Additional life expectancy for a current 45-year-old male/female at age 65 was:

31 December 2016:
1.8/2.0 years

31 December 2015:
1.9/2.0 years



Willis Towers Watson's tools

Tracking your accounting position

Our market-leading Channel software, used to produce the graphs on page 6, helps companies:

- Monitor the financial position of their pension scheme on a daily basis
- Forecast how this might develop in future
- Produce year-end and interim disclosures
- Explore the effects of different economic scenarios

Please speak to Charles, Alex, Claire or your usual Willis Towers Watson consultant if you would be interested in a demonstration of our software.

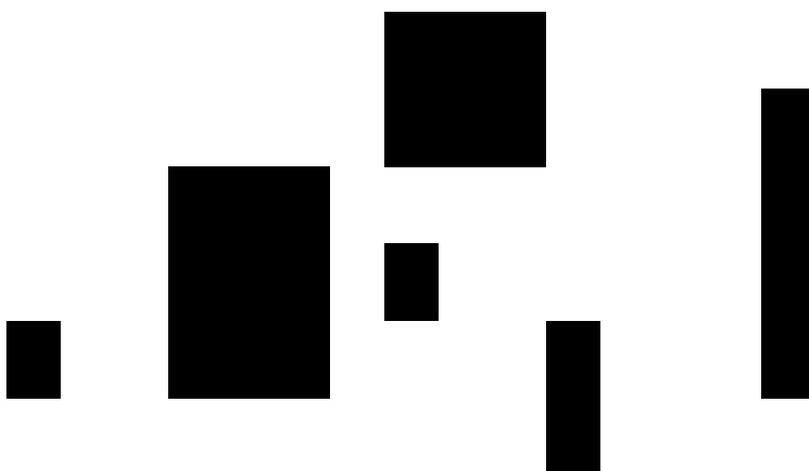
Benchmarking tools

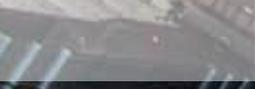
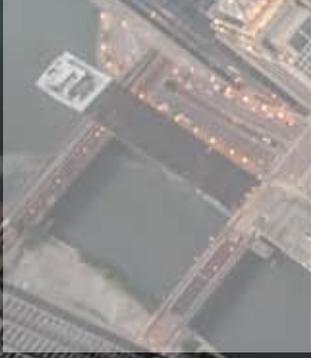
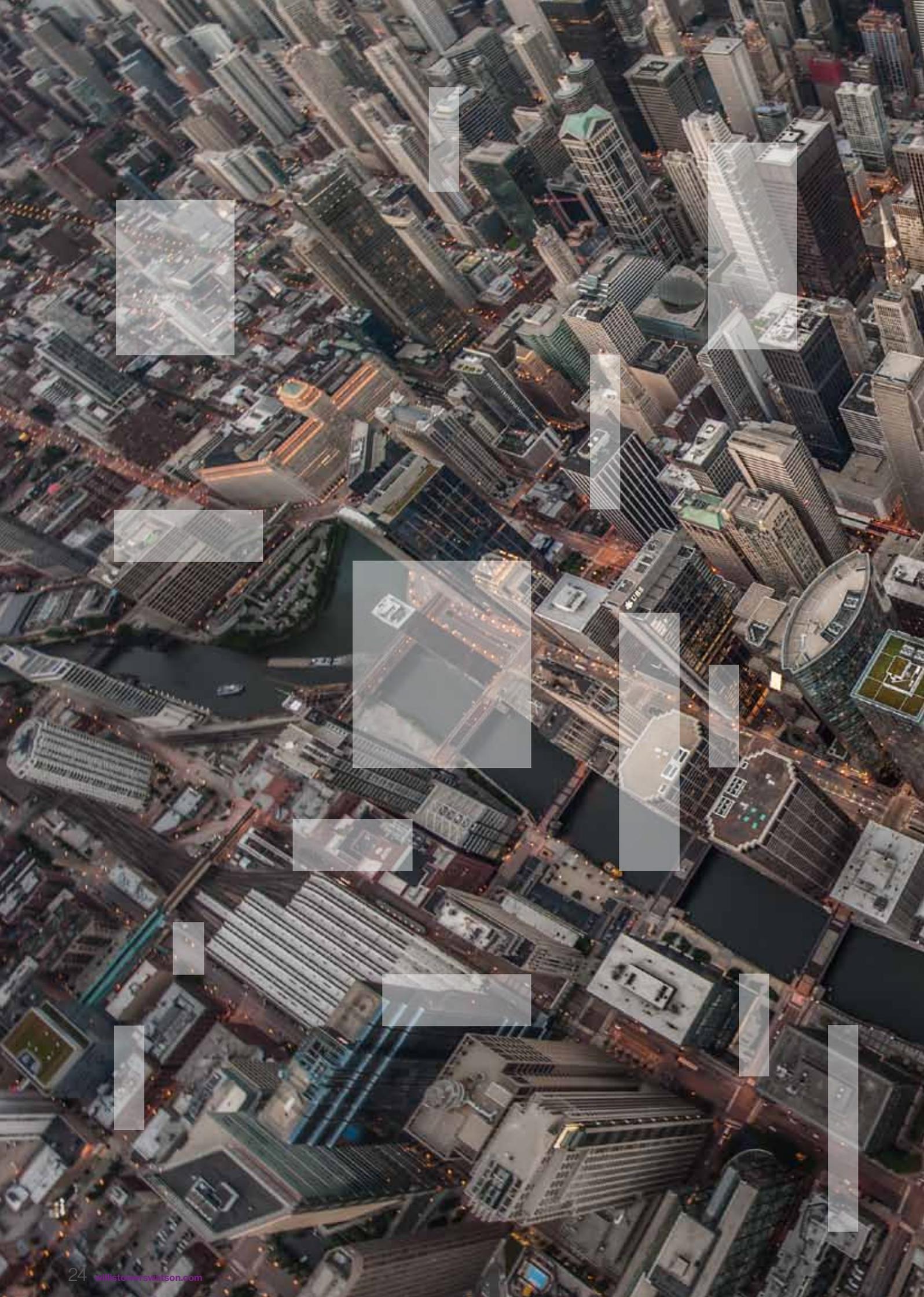
If you would like to consider, in more depth, how the information within this report may impact your scheme, Willis Towers Watson can produce a bespoke benchmarking report combining corporate and pension scheme financial data to provide a high-level overview of the potential risks within your pension scheme as well as comparing your position to peers within the FTSE 350, using information provided within company accounts. Please contact Charles, Alex, Claire or one of the Willis Towers Watson team if you would like further details on the information available.

Figure 23: **Output from Channel – pension cost experience over the year to date**



Figure 24: **Output from Channel – projected pension cost over the next 10 years**





Glossary of pension scheme terms

Asset-backed funding

A pension scheme's funding position can be improved by placing company assets into a special purpose vehicle. The assets provide a bond-like income to the scheme, thereby reducing the funding deficit and also act as a security for the scheme in the event of corporate default. Operational control of the assets remains with the company.

Bps

One basis point (bp) is 0.01%.

Bulk cash equivalent transfer value exercise

Members who are no longer building up further benefits and are not in receipt of their benefits have the option to take their pension in the form of a transfer value to another scheme. Some trustees/companies have undertaken an exercise to write to members to make them aware of this option.

Bulk small lump sum exercise

Following an increase in the triviality limits at which members can take benefits in the form of a one-off cash lump sum from a DB scheme, some trustees/companies have written to members to make them aware of the option. These exercises can help to remove risk from the scheme and reduce future administration costs.

Buy-in

Pension benefits are secured with an insurer and held in the name of the trustee (rather than of the member, in which case it would be a buyout). The risk of paying benefits is passed on to the insurer, for a fee. A range of buy-ins is available, including partial and medically underwritten buy-ins (the latter involves gathering medical and health data on the membership and may be considered when setting scheme-specific life expectancies).

CPI

CPI is the Consumer Prices Index. It is the UK version of the Harmonised Index of Consumer Prices and is calculated according to rules specified at a European level. CPI inflation is expected to be lower than RPI inflation over the long run, primarily because of differences in the formulae used to calculate the two indices.

DBO

DBO is the defined benefit obligation. This is the present value of expected future benefit payments from the scheme in respect of employee service up to the accounting date. It is calculated using the discount rate.

Discount rate

A lower discount rate means a higher value is placed on each future payment from the scheme, meaning a larger DBO. Of all the assumptions used to calculate the DBO, it is the discount rate that has the greatest impact.

Typically, companies will set discount rates for accounting disclosures based on one of two approaches:

- Index approach – in line with corporate bond yields as suggested by an index of bonds, taking account of the long-term nature of pension schemes by looking at an index of long-dated corporate bonds only
- Cash flow approach – more accurately reflecting the actual duration of their pension scheme by weighting actual corporate bond yields at each maturity by the expected cash flows from the pension scheme

Duration

The average duration of a pension scheme is the average discounted term until benefit payments are due, weighted by the size of the payment.

Escrow

An account containing cash or other secure assets which, in certain situations, can automatically be drawn on by the company or the scheme. This enables companies to reclaim the extra funds in the event of a surplus, rather than dealing with complex rules on reclaiming pension surplus directly from scheme trustees.

GMP

Guaranteed minimum pensions are a feature of pension schemes that were contracted out of the State earnings-related pension scheme between 1978 and 1997. In return for paying lower National Insurance contributions, the scheme provided a minimum level of benefits and GMPs formed part of this minimum requirement.

IAS 19

IAS 19 is the International Accounting Standard 19: Employee Benefits. It must be used for those companies that are listed in the European Union. Non-listed companies may account for pension obligations in accordance with their relevant local accounting standard. The objective of IAS 19 is to prescribe the accounting and disclosure requirements for employee benefits. The standard requires an entity to recognise:

- A liability when an employee has provided service in exchange for employee benefits to be paid in the future
- An expense when the entity consumes the economic benefit arising from service provided by an employee in exchange for employee benefits

iBoxx index

For the purpose of this report, the over 15-year sterling AA corporate bond index.

IFRIC 14

An official interpretation of IAS 19 dealing with the asset ceiling and in particular whether a surplus or an additional liability should be recognised.

Life expectancy

In their accounts companies disclose the average length of time for which they expect pensions to be paid to scheme members of a particular age. These projections draw on recently observed mortality rates but also factor in assumptions about how these will improve in future.

Net discount rate

The difference between the discount rate and the inflation rate assumption.

Pension cost

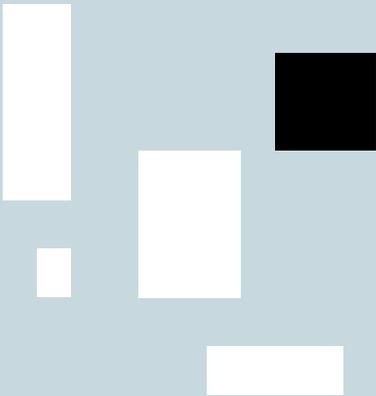
The pension cost is the amount recognised in the income statement in respect of the pension scheme. It includes interest on the balance sheet position and the cost of active members building up further benefits.

Pension increase exchange

An exercise where members are offered the option to exchange increasing pension benefits for an (initially higher) fixed pension.

RPI

RPI is the Retail Prices Index. Inflation statistics based on the RPI have been published since 1948. Many pension schemes have RPI-based increases hardcoded into their rules. Where this is the case, pension increases will still be based on RPI inflation, despite the government's decision to switch statutory increases to a CPI basis.



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