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LPFA Monthly Solvency Report as at 30 September 2018
Final Month End Data

Purpose and summary

This report is prepared for the LPFA Board. It provides an up to date estimate of funding level and sets out an analysis of LPFA solvency as at 30 September 2018, together with an analysis of change from the end of August 2018. It also gives an indication of the approximate sensitivity of funding level to changes in economic and demographic assumptions.

<u>Net Asset Values and LPFA Asset Mix at 30 September 2018:</u>

30 September 2018	Funds		Exposure		Policy Portfolio		
	£m	%	£m	%	Benchmark	Minimum	Maximum
Global Equities:	2,604	44.8%	2,813	48.4%	45.0%	35.0%	55.0%
Private Equity:	541	9.3%	541	9.3%	7.5%	5.0%	15.0%
Fixed Income:	220	3.8%	220	3.8%	2.5%	0.0%	15.0%
Infrastructure:	305	5.3%	305	5.3%	10.0%	5.0%	15.0%
Credit:	452	7.8%	452	7.8%	9.0%	0.0%	12.5%
Real Estate:	506	8.7%	506	8.7%	10.0%	5.0%	15.0%
Diversifying Strategies:	835	14.4%	835	14.4%	15.0%	0.0%	20.0%
Cash:	348	6.0%	139	2.4%	1.0%	0.0%	5.0%
Diversified Growth Fund:	*0.6*	*0.0%*	*0.6*	*0.0%*	*N/A*	*N/A*	*N/A*
Total	**5,811**	**100%**	**5,811**	**100%**	**100.0%**		

- The 30 September 2018 asset values are based on **final data** from the custodian Bank of New York Mellon received on 23 October 2018.

- In the Funds columns asset data from Bank of New York Mellon has been grouped by asset class.
    - Cash includes the mark to market (MTM) of the currency hedge and the Liability Driven Investment (LDI) portfolio
    - Global equities includes cash held in the Insight synthetic equity sub-portfolio

- The data in the Exposure columns has been produced by adjusting the Funds data:
    - Net synthetic equity exposure of £291m has been removed from the cash line and added to the equities line
    - Cash held in the Insight synthetic equity sub-portfolio has been added to the cash line and removed from the equities line
    - Derivative mark to market values, the Insight LDI fund and the currency hedge remain treated as being functionally equivalent to cash and included within the cash line

- The cash line in the Exposure columns includes the LDI portfolio. As at end September 2018 the LDI portfolio has a -£2.01m per basis point interest rate exposure (PV01) and a £1.94m per basis point inflation rate exposure (IE01). At 30 September 2018, if interest rate expectations fall by 0.1% p.a. the LDI portfolio will increase by approximately £20.1m. If inflation expectations fall by 0.1% p.a. the LDI portfolio will fall by approximately £19.4m. The Exposure data and interest rate and inflation rate exposure of the LDI portfolio have been used to produce the sensitivity information on page 6.

- The LPFA credit portfolio is invested 13% in emerging market debt funds, 21% in direct lending, 33% in debt secured on real assets and the remainder in credit funds. All these investments are unrated.

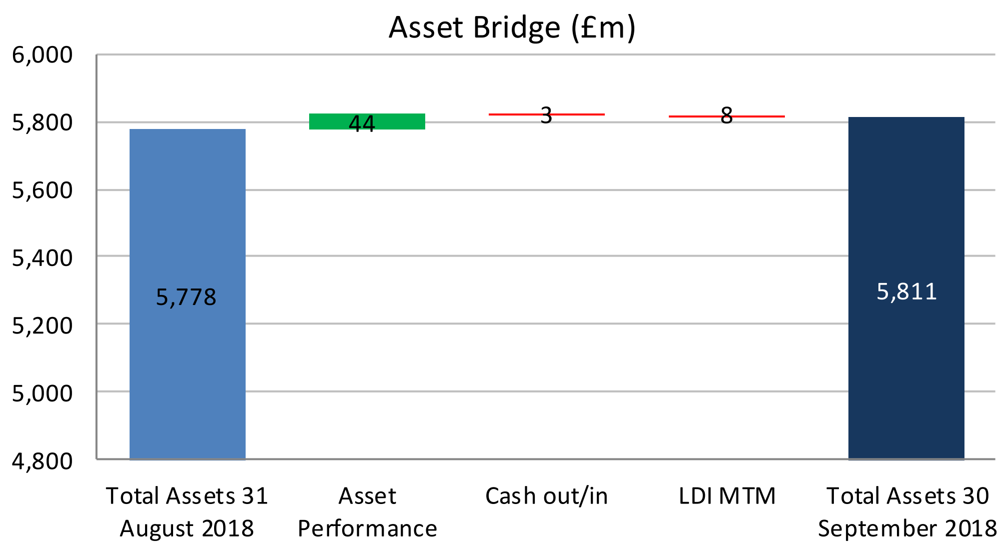
- Around 11% of Public and Private Equity is invested in the UK equity market, with the majority of equity exposure taken in the United States.

- LPFA has established a foreign exchange hedging program to reduce currency risk but overall, after allowance for that program, LPFA is short of around GBP2.3bn, mainly against USD.

- In the Exposure data, over September net cash has increased from c1% to c2.4%. The approximate movements in net cash and cash equivalents are detailed below:
    - LPFA redeemed £75m from the LPPI Global Equity Pool to increase their cash at bank balance.

	31 August 2018 £m	**30 September 2018 £m**	**Change over September £m**
Cash and cash equivalents:			
Cash at bank, custodian and GLA	49	123	74
Currency hedge (MTM)	-37	-20	18
Insight LDI portfolio (cash, bonds, swaps MTM)	253	244	-8
Synthetic Equity:			
Net synthetic equity exposure	-290	-290	-1
Cash held in synthetic equity account	80	81	2
Risk Exposure Cash Total	**54**	**139**	**85**

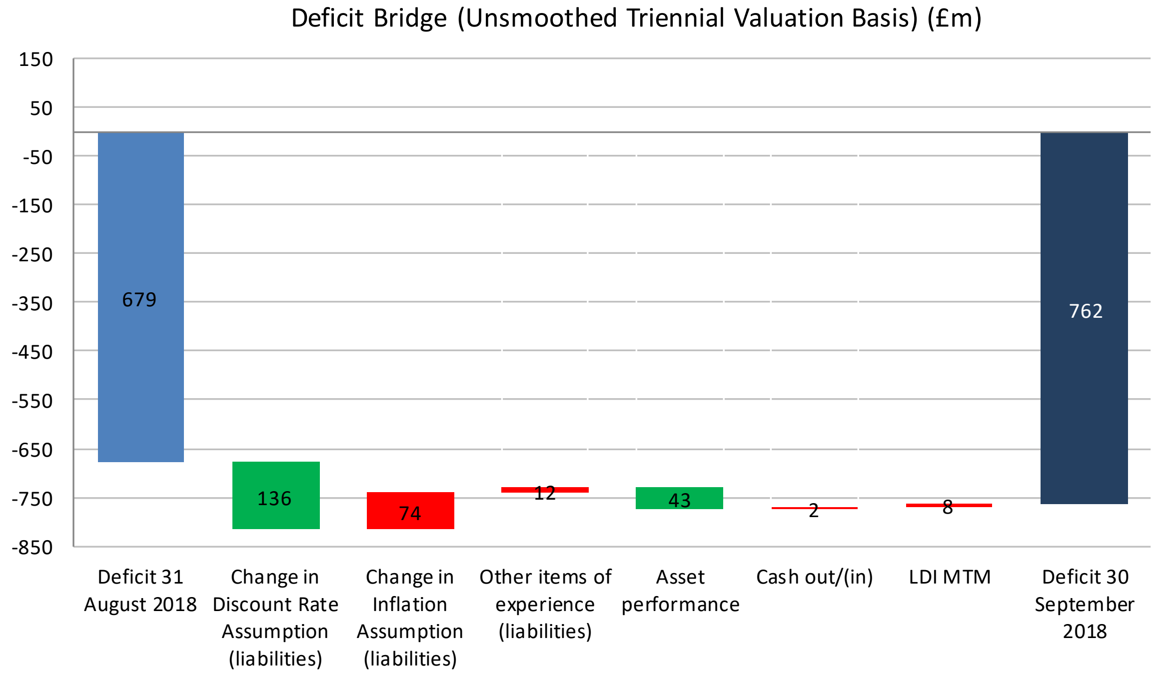
The change in total net asset value over September 2018 is explained as follows:



Balance Sheet Modelling

(Unsmoothed) Triennial Valuation Basis

	30 September 2018	31 August 2018
Estimated liabilities Triennial valuation basis	£5,049m	£5,099m
Final NAV	£5,811m	£5,778m
Deficit Triennial valuation basis	(£762m)	(£679m)
Estimated Triennial funding level (Barnett Waddingham basis)*	115.1%	113.3%



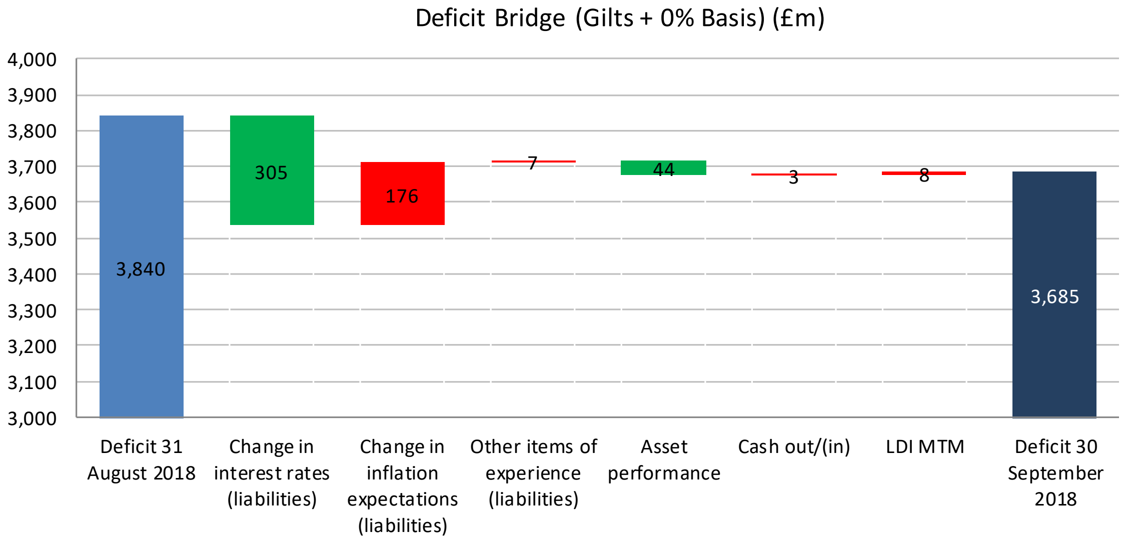
- **Unsmoothed 30 September 2018 Triennial valuation assumptions are supplied by Barnett Waddingham. The discount rate references the LPFA Fund's long term policy portfolio asset allocation benchmark (see table page 1).**
- During September 2018 the Triennial funding level increased from 113.3% to 115.1%. An increase in the assumed Triennial discount rate from 5.7% p.a. to 5.9% p.a. reduced the present value of the liabilities. Asset performance was also positive.
- The assumption for long term future RPI inflation, based on the 20 year point of the Bank of England implied inflation curve, increased from 3.5% p.a. to 3.6% p.a. This resulted in an increase in the assumption for long term CPI inflation from 2.6% to 2.7% p.a.
- This increase in inflation was the main driver for the increase in the Triennial discount rate over the month.

* *Estimated snapshot of funding level using 2016 Triennial valuation assumptions updated for changes in market conditions, without smoothing.*

Gilts Flat (Gilts + 0%) Basis

At the request of the Board and given the Fund's inflation hedge is now gilts-based, as well as reporting on the Triennial valuation basis we report results on a Gilts Flat basis. Please note that the primary focus of the LPFA Board is to manage the Fund's Triennial balance sheet.

	30 September 2018	31 August 2018
Estimated liabilities Gilts Flat basis	£9,496m	£9,618m
Final NAV	£5,811m	£5,778m
Deficit Gilts Flat basis	£3,685m	£3,840m
Estimated funding level Gilts Flat basis	61.2%	60.1%



- The Gilts Flat funding level increased by 1.1% during September 2018. There was an increase in gilts based interest rates at all durations along the curve (see appendix 2) which decreased the present value of the liabilities, this was partly offset by an increase in gilts based inflation expectations which increased the present value of the liabilities.
- The decrease in liabilities is also reflected in the negative mark to market movements experienced on the LDI portfolio over the month. It should be noted however that the real gilts-based inflation hedge is designed to hedge inflation risk in the context of the Triennial valuation basis. This translates to approximately 11% of the sensitivity of the liability cashflows to changes in gilts-based interest rates and inflation.

Approximate Risk Sensitivities

	Unsmoothed Triennial Valuation Basis	Gilts Flat Valuation Basis
Equities fall by 10%		
Assets	decrease by £308m	decrease by £308m
Liabilities	decrease by £152m	unchanged
Deficit	increases by £157m	increases by £308m
Interest rates (swaps and gilts) fall by 1%		
Assets	increase by £251m	increase by £251m
Liabilities	increase by £193m	increase by £1,940m
Deficit	decreases by £58m	increases by £1,689m
Inflation rises by 1%		
Assets	increase by £194m (LDI portfolio inflation hedge only)	increase by £194m (LDI portfolio inflation hedge only)
Liabilities	increase by £209m	increase by £1,950
Deficit	increases by £15m	increases by £1,756m
Long term rate of mortality improvement increases by 0.25%		
Assets	unchanged	unchanged
Liabilities	increase by £46m	increase by £180m
Deficit	increases by £46m	increases by £180m
10% decrease in member mortality rates		
Assets	unchanged	unchanged
Liabilities	increase by £132m	increase by £371m
Deficit	increases by £132m	increases by £371m
Property decreases by 10%		
Assets	decrease by £51m	decrease by £51m
Liabilities	unchanged	unchanged
Deficit	increases by £51m	increases by £51m
Sterling weakens by 10% against all other currencies		
Assets	increase by £240m	increase by £240m
Liabilities	unchanged	unchanged
Deficit	decreases by £240m	decreases by £240m

This analysis is based on the LPFA current asset allocation at 30 September 2018. As such, the Triennial sensitivities shown in the table are slightly inconsistent with the Triennial solvency results shown earlier. *The analysis considers the approximate funding level immediately after each event. Approximate allowance is made for changes to the assets and future asset class return assumptions used in the discount rate as a result of the market movements described. The discount rate reflects the asset allocation **assuming it has been rebalanced to the allocation in place immediately before the event.** No allowance is made for correlations between asset classes. The sensitivities shown would be different if the asset allocation was not re-balanced following each event.

Recommendations:

[1] LPFA Board is asked to note this report.

Report date: 1 November 2018 **Lead Officer:** Tom Richardson

Compliance Checks

Governance issues:

The monthly solvency report is provided to all Board Members and is published on LPFA's website monthly. It is a key document to track the financial development of the fund.

Equalities impact:

Scheme Members will have the opportunity to request alternative formats as required.

Financial implications:

Implicit in this report.

Social, environmental, health and ethical issues:

The move to greater online publication is in line with LPFA's environmental initiatives.

Legal implications:

None – The production of this report is voluntary in nature.

Communication issues:

The report is published monthly on the LPFA website.

Risk implications:

This report is part of the process to manage and monitor the key investment and financial risks facing the fund.

Other relevant / supporting documentation:

None.

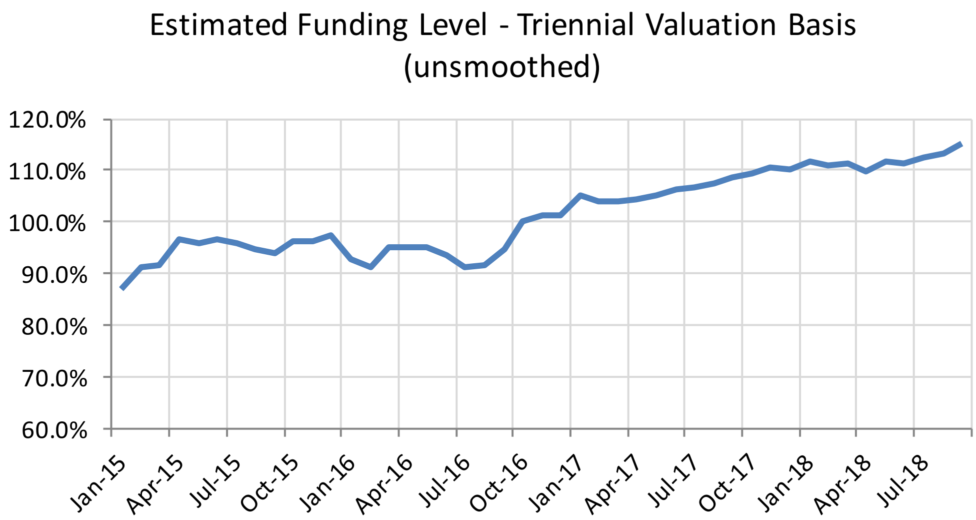
This report has been prepared for the LPFA Board to provide information regarding the Fund's solvency. It does not provide any advice on legal, taxation or investment matters and should not be relied upon for any such or other purposes.

The report is provided 'as is' without any warranty (express or implied) as to the accuracy or completeness of any information contained herein. Neither LPP, its affiliates nor any of their respective employees, directors and officers shall be liable howsoever to any person for any acts and/or omissions proclaimed to be based on this report or any part thereof.

This report complies with Technical Actuarial Standard 100 (TAS100) issued by the Financial Reporting Council.

Estimated Funding Position – 2016 Triennial Valuation Basis

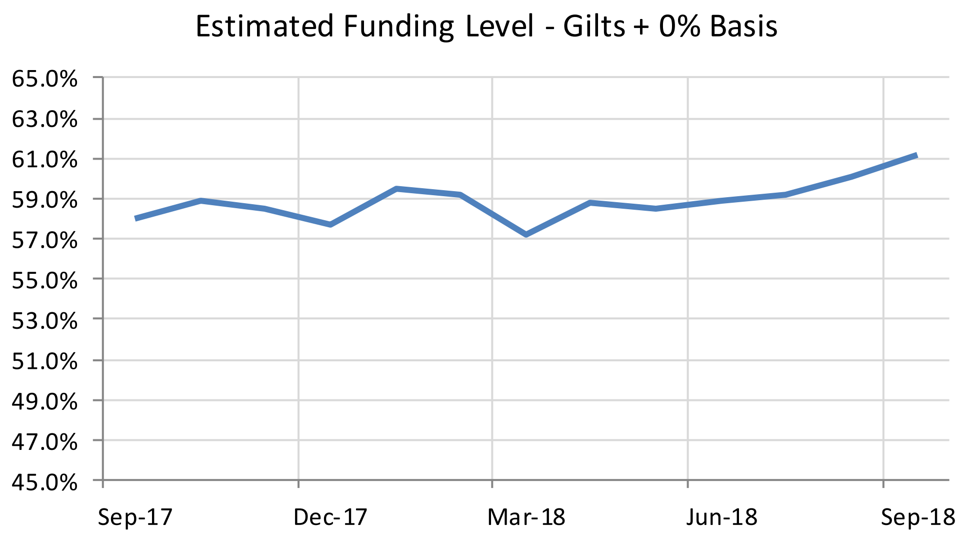
The graph below shows the estimated Triennial funding level since January 2015.



Details of the Triennial valuation assumptions are in appendix 2.

Estimated Funding Position – Gilts Flat Basis

The graph below shows the estimated Gilts Flat Basis funding level progression since September 2017.



The September Gilts Flat and (unsmoothed) Triennial liabilities were calculated using the Barnett Waddingham Valuations on Demand (VoD) system developed for LPFA.

Whilst the funding calculations allow for movements in assets and movements in liabilities resulting from changes in interest rates, inflation and membership information, the funding update information must only be viewed as approximate.

Data

The 30 September 2018 liabilities have been calculated using 31 January 2018 membership data. **During February 2018 Heywoods updated the membership data capture, which has produced erroneous membership data output. Whilst this problem is rectified, liabilities will be calculated using the 31 January 2018 membership data. The output from VoD has therefore been adjusted approximately to allow for the annual pension increase order effective 31 March 2018 and for estimated 31 March 2018 renewal data changes. Membership movements since January 2018 have therefore not been taken into account.**

Assets

The value of the assets used to calculate the funding level are final figures provided by Bank of New York Mellon of net asset value at the month end. Estimates of the assets used in prior months may be updated once the assets have been reconciled by the custodian.

Assumptions

2016 Triennial Valuation Basis (updated to reflect market conditions):

For the purpose of estimating the funding position on the Triennial Valuation basis the financial assumptions and assets have not been smoothed. For the formal Triennial valuation of the Fund at 31 March 2016 the financial assumptions and the assets are smoothed over the six month period from 31 December 2015 to 30 June 2016.

The unsmoothed financial assumptions at 30 September 2018 and 31 August 2018, **supplied by Barnett Waddingham** were as follows:

	30 September 2018	31 August 2018
Discount Rate	5.9% p.a.	5.7% p.a.
Retail Prices Index Inflation (RPI)*	3.6% p.a.	3.5% p.a.
Consumer Prices Index (CPI) Inflation	2.7% p.a.	2.6% p.a.
Long Term Salary Increases post 2020	4.2% p.a.	4.1% p.a.

The asset mix used to calculate the discount rate is based on the LPFA Fund's policy portfolio benchmark as detailed on page 1.

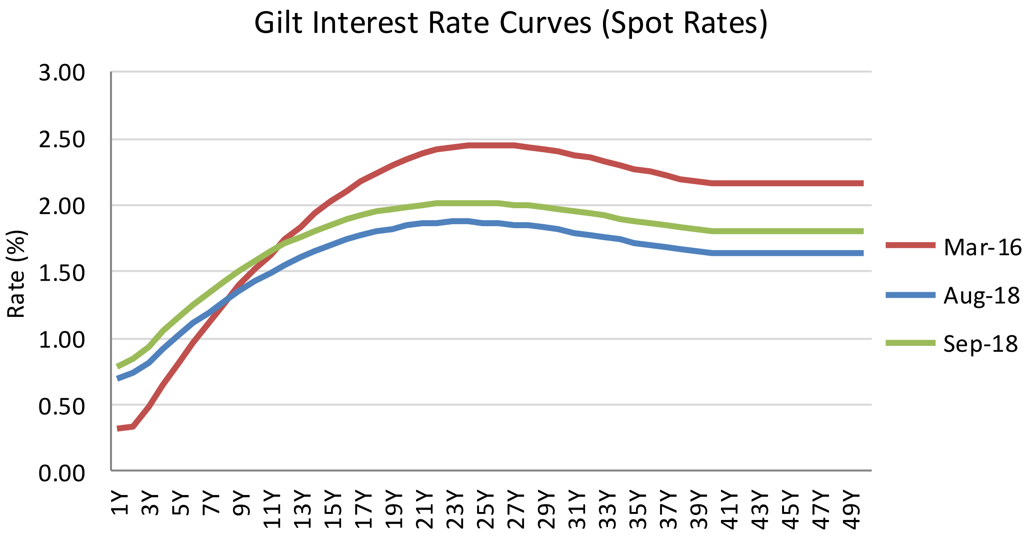
The demographic assumptions are those used for the 31 March 2016 Triennial Fund valuation.

Details of the financial and demographic assumptions are contained in Barnett Waddingham's final results paper dated 24 March 2017.

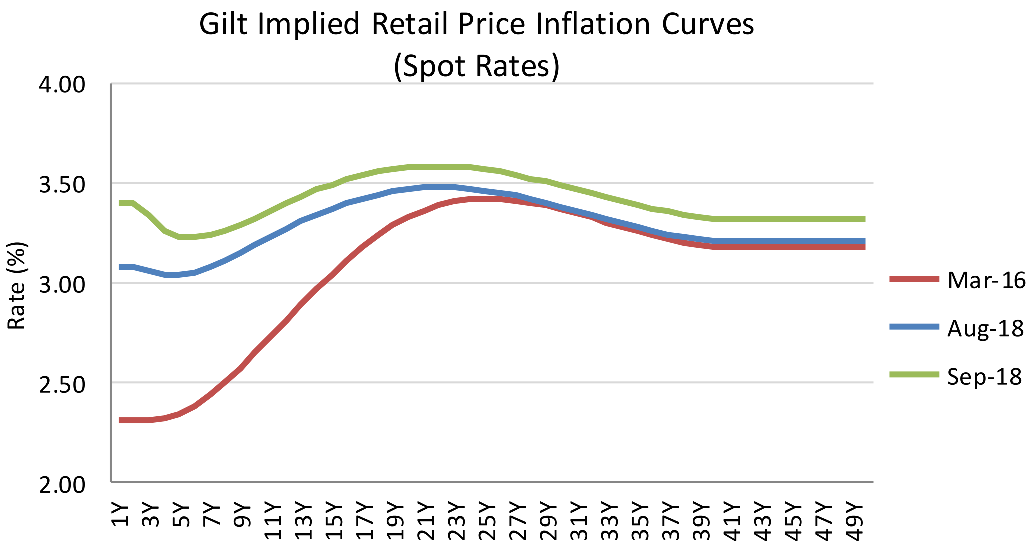
Gilts Flat (Gilts + 0%) Basis:

The liabilities are calculated by discounting expected future cashflows using a gilts yield curve (based on UK government bonds) obtained from the Bank of England website. Retail Price Inflation (RPI) has been based on the Bank of England UK implied inflation curve. The CPI assumption is equal to the RPI assumption with a deduction of 0.9% per annum. Demographic assumptions are those used for the LPFA Fund's 31 March 2016 Triennial valuation.

The graphs below show the current gilt yield and gilt implied retail price inflation curves (used to calculate the liabilities on the Gilts Flat basis) along with the curves from August 2018 and the previous Triennial valuation date, for comparison. The curves only exist for durations up to 40 years and it is assumed that the rates are flat beyond this point.



Source: Bank of England



Source: Bank of England

Liability Cashflows

The graphs below shows undiscounted expected future liability cashflows. These cashflows allow for future expectations of inflation as assumed in the Gilts Flat Basis. The cashflows if inflation was 0.1% p.a. higher at all points along the curve are also shown in order to show the cashflows' sensitivity to inflation.