TOWER HAMLETS

Meeting of the

PENSIONS COMMITTEE

Thursday, 29 November 2018 at 6.30 p.m.

SUPPLEMENTAL AGENDA PACK A

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safe to do so by the Senior Fire Marshall. The meeting will reconvene if it is safe to do so, otherwise it will stand adjourned."

Non-Executive Report of the: **Pensions Committee** 29 November 2018	TOWER HAMLETS
Report of: Neville Murton, Acting Corporate Director, Resources	**Classification:** Unrestricted
Investment and Fund Managers Performance Review for Quarter Ending 30th September 2018	

Originating Officer(s)	Bola Tobun, Investment & Treasury Manager
Wards affected	All wards

REASONS FOR URGENCY

The report was not published five clear days in advance of the meeting. Therefore, before this report can be considered at this meeting, the Chair would need to be satisfied that it is necessary to consider this report without that consideration being delayed to a later meeting. The Committee may also take the view that it is important that there is no delay in member oversight of the performance of the Pension Fund and its investment managers for the second quarter of 2018/19.

Summary

This report informs Members of the performance of the Pension Fund and its investment managers for the second quarter of 2018/19.

Fund outperformed over the quarter.	The Fund underperformed its benchmark return of 3.24% by 0.84% for the quarter.
Five mandates matched or achieved benchmark set.	For this quarter, five mandates matched or achieved returns above the set benchmark. The five that did not achieve the benchmarks were the mandates with *LCIV BG (DGF), LCIV BG (GE), Insight and +GSAM bond portfolios. Fund Valuation of £1.560bn, a £35m increase over the quarter.
Fund outperformed over twelve months.	For the twelve months to September 2018, the Fund returned 7.81% marginally underperforming the benchmark of 7.88%, the Fund is behind its benchmark by 0.08%.
Four mandates matched or achieved benchmark set.	Four mandates underperformed their respective benchmark. The mandates that underperformed their respective benchmarks were *LCIV RF lagged behind by 1.66%, *LCIV BG (DGF) lagged behind by 2.45%, +GSAM lagged behind by 6.34% and Insight by 7.82%.
Fund is broadly in line with the strategic benchmark weight.	Looking at the longer term performance, the three year return for the Fund was 12.45%, above its benchmark return by 0.54% for that period. Over the five years, the Fund posted a return of 9.42% outperforming the benchmark return of 9.19% by 0.23%. The Fund remains in line with its long term strategic equity asset allocation and the distribution of the Fund's assets amongst the different asset classes is broadly in line with the strategic benchmark weight.

*LCIV BG (DGF) – fund manager is Baillie Gifford and investment is Diversified Growth Fund, LCIV BG (GE)- fund manager is Baillie Gifford and investment is Global Equity, LCIV RF – fund manager is Ruffer, +GSAM – Goldman Sachs Asset Management

Recommendations:
Members are recommended to note the contents of this report.

1. REASONS FOR THE DECISIONS

1.1. The report informs the Pension Committee of the performance of pension fund managers and the overall performance of the Tower Hamlets Pension Fund.

2. ALTERNATIVE OPTIONS

2.1. The Pension Fund Regulations require that the Council establishes arrangements for monitoring the investments of the Pension Fund so there is no alternative but to report the performance of the Fund to the Pension Committee on a regular basis,

3. DETAILS OF REPORT

3.1. The Pension Fund Regulations require that the Council establishes arrangements for monitoring the investments of the Fund. It considers the

activities of the investment managers and ensures that proper advice is obtained on investment issues.

3.2. Officers and fund advisers meet regularly with investment managers to discuss their strategy and performance and if considered necessary may recommend that investment managers are invited to explain further to the Pensions Committee.

3.3. This report informs Members of the performance of the Fund and its investment managers for the quarter ending 30th September 2018.

3.4. **SUMMARY OF THE PENSIONS FUND INVESTMENTS**

i. London Common Investment Vehicle (LCIV)

The London CIV was formed as a voluntary collaborative venture by London Local Authorities in 2014 and has led the way in pooling of investments in the Local Government Pension Scheme (LGPS). The London CIV aims to be the investment vehicle of choice for London Local Authority Pension Funds through successful collaboration and delivery of compelling performance. The LCIV was launched in December 2015, as a fully authorised and regulated investment management company. The founding members are the London boroughs including the City of London Corporation. The LCIV has been established as a collective investment vehicle for their Local Government Pension Scheme funds. The current regulatory permission allows the London CIV to operate an Authorised Contractual Scheme Fund (the UK's version of a Tax Transparent Fund).

The London CIV currently manages four investment portfolios for Tower Hamlets (TH) pension fund which are listed below:

a) **The Baillie Gifford Diversified Growth Fund (BG - DGF)** the original TH mandate was opened in February 2011 with a contract value of £40m. £6.409m was added to this portfolio in June 2015. The performance target for this mandate is to outperform the benchmark (3% p.a. above the 3 month London Interbank Offered Rate (LIBOR) net of fees over rolling 5 years with annual volatility of less than 10%). This mandate was transferred to LCIV on 15 February 2016 at market value of £54.177m and named as **LCIV (BG) DGF***.* A further capital contribution of £70m was paid into this portfolio on 23 August 2017. The market value of assets as at 30 September 2018 was £135.032m. For this reporting quarter, the return of this portfolio was 0.07% with relative underperformance of -0.89% below benchmark return of 0.96%. The portfolio also underperformed the one year benchmark by -2.45%, but outperformed the three year benchmark return by 1.35% per annum and by 1.03% per annum over 5 years. The portfolio invests in a range of asset classes and further information on this portfolio is attached to this report as Appendix 2.

b) **The Baillie Gifford Global Alpha Equity Fund (BG GA**) had a value of £118.9m at the start of the mandate in July 2007. The performance target for this mandate is 2% to 3% above the benchmark (Morgan Stanley Composite Index All Country (MSCI AC) World Index gross of fees over a rolling 3-5 year period). This mandate was transferred to LCIV on 22 April 2016 at market value of £214.1m and named **LCIV (BG) GA.** The market value of the assets as of 30 September 2018 was £351.618m. The portfolio underperformed the benchmark by delivering a return of 3.04% compared to

a benchmark return of 5.57% over the quarter. But the portfolio outperformed the one year benchmark return by 1.80%, the three year benchmark return by 3.68% per annum and the 5 years benchmark return by 2.74% per annum. Baillie Gifford's Global equity performance had been very strong and this level of outperformance should not be expected to continue. Further information on this portfolio is attached to this report as Appendix 2.

c) **Ruffer LLP** manages an Absolute Return Fund; the value of this contract on the 28 February 2011 was £40m. £6.474m was added to this portfolio on 2 June 2015. The management of this portfolio was transferred to the LCIV on 20 June 2016 at market value of £54m and the portfolio is named ***LCIV Ruffer (AR).*** A capital contribution of £70m was added to this portfolio on 23 August 2017. The performance target for this mandate is to outperform the benchmark (3.5% p.a. above 3 month LIBOR) net of fees over rolling 5 years with annual volatility of less than 10%. The value of assets under management as of 30 September 2018 was £133.880m. The portfolio underperformed the benchmark by delivering a return of -0.33% compared to benchmark return of 0.96% over the quarter. Also underperformed the benchmark for one year by posting a return of 2.01% against a benchmark return of 3.66%. But for over 3 years the portfolio outperformed its benchmark by posting a return in excess of 1.65% per annum and also outperformed its benchmark in excess by 0.74% per annum for over 5 years period. Further information from LCIV for this portfolio is attached to this report as Appendix 2.

d) **LCIV (Multi Asset Credit) MAC Fund** – LCIV only invest in CQS Credit Multi Asset Fund with an objective to return London Interbank Offered Rate (LIBOR) +4-5% per annum over a 4-year rolling period and the expected volatility for this fund is 4-6% over a 4-year rolling period. *Multi Asset Credit (MAC) – are strategies that make investments in multiple areas of credit. This involves bonds and loans from non-government issuers. Investments can be held as long or short. A long position is when the portfolio manager hold assets the manager expected to rise in price. The short position is when the manager sell assets in advance as the manager expected a fall in price. The manager also uses this long / short positions to tailor risk exposures of the portfolio*. Tower Hamlets Pension Fund transferred £90m on 29 May 2018 to London CIV to invest in LCIV (CQS) MAC which was launched 31 May 2018. CQS MAC Fund had arguably been the London CIV's most successful fund launch to date. The portfolio had a market value of £91.260m at 30 September 2018 and outperformed the benchmark by delivering a return of 1.57% compared to benchmark return of 1.20% over the quarter. Further information on this portfolio is attached to this report as Appendix 2.

ii. **Goldman Sachs Asset Management (GSAM)**

On 4 April 2016, the fund invested £75m in Goldman Sachs Strategic Absolute Return Bond II (STAR II). The performance target is to outperform the benchmark (3 Month LIBOR) by 4.0% per annum net of fees over a rolling three year period. £24.5m was disinvested from this portfolio on 25 May 2018 to fund the LCIV (CQS) MAC portfolio. The portfolio had a market value of £51.64m at 30 September 2018. The portfolio underperformed the benchmark (3 month LIBOR plus 4%) in the reporting period by posting returns of -0.19% against a benchmark return of 1.20% and also underperformed the benchmark for one

year to reporting period considerably by -6.33%. GSAM performance has been disappointing and recent underperformance was predominantly due to the Manager, Currency and Emerging market debt selection strategies, whilst the Duration and Cross-Sector strategies contributed positively. Further information on this portfolio is attached to this report as Appendix 3.

iii. **Insight Investment Management**

On 1 July 2016, the fund invested £70m with Insight Investment Management in BNY Mellon Global Funds. £21.7m was disinvested from this portfolio on 25 May 2018 to fund the LCIV (CQS) MAC portfolio. The portfolio had a market value of £47.784m at 30 September 2018. The performance target is to outperform the benchmark (3 Month LIBOR) by 3-4% per annum net of fees over a rolling three year period. The portfolio underperformed the benchmark (3 month LIBOR plus 4%) in the reporting period by posting returns of -0.43% against a benchmark return of 1.20%, the portfolio also underperformed its benchmark significantly for one year to reporting period by -7.29%. Performance has been disappointing and recent underperformance was due to Long duration positions which was negative over the period, the Emerging market debt exposure driven by the sell-off over the period. Currency was also a detractor; this was due to USD versus Emerging market currencies. Further information on this portfolio is attached to this report as Appendix 4.

iv. **Legal & General Investment Management (LGIM)**

Legal & General was appointed on 2 August 2010 to manage passively UK Equity and UK Index-Linked Mandates. The UK Index-Linked Mandate benchmark is FTSE A Gov Index-Linked > 5 years. A decision was made at the September 2017 Pension Committee meeting following the outcome of the Fund investment strategy review to disinvest from the passive UK Equity mandate. From an investment perspective the committee felt that it was difficult to justify the overweight position to UK Equity market since 90% of revenues in this market are global. The Fund invested the redemption proceeds of the UK equity portfolio in Passive Global Equity and Low Carbon Passive Global Equity Fund as agreed by the Committee in December 2017.

LGIM Equity portfolio is as shown below:

Fund	**Allocation (30% of total LBTH Fund)**
FTSE All World Equity Index **(LGIM Global Equity)**	16.7%
FTSE All World Equity Index GBP Hedged **(LGIM Global Equity Hedged)**	33.3%
MSCI World Low Carbon Target Index GBP Hedged **(LGIM LC Global Equity)**	50.0%

At 30 September 2018, the Unhedged Passive Global Equity portfolio had a market value of £85.486m, the Low Carbon Passive Global Equity portfolio had a market value of £251.552m, the Hedged Passive Global Equity portfolio had a value of £23.340m and £142.4m was redeemed from this portfolio to support the Equity Protection Strategy (EPS) Collateralisation. Also the UK Index Linked Gilts portfolio of £72.26m was transferred to Schroders for EPS collateralisation management. As expected from a tracking manager, all the

portfolios matched the benchmark returns. Further information is attached to this report as Appendix 5.

v. **Schroder's Investment Management**

Schroder currently manage two investment portfolios for the Fund.

a) Property Investment - The value of this mandate on 20 September 2004 was £90m. The performance target for this mandate is to outperform the Investment Property Databank (IPD) UK Pooled Property Fund Indices All Balanced Funds Median benchmark by 0.75% net of fees over a rolling three year period. The market value of assets at 30 September 2018 was £159.324m. The portfolio outperformed its benchmark return of 1.60% by 0.59% for this reporting quarter. For twelve months to 30 September 2018, the portfolio made a return of 10.86%, this was 1.98% above the benchmark. And for longer term, the three years performance was 1.05% per annum above the benchmark return and for over five years, the portfolio outperformance was over the benchmark return by 0.46% per annum. Schroders are mindful of the key market risks facing the property sector (e.g. high street retail and Brexit concerns), which is clearly reflected in their portfolio by being underweight in Shopping Centres and Central London offices. The industrial sector remains the strongest driver of returns over recent periods. The portfolio sector structure continues to contribute positively to performance, with a benchmark relative underweight position to the retail sector and central London offices. Further information from the manager is attached to this report as Appendix 6.

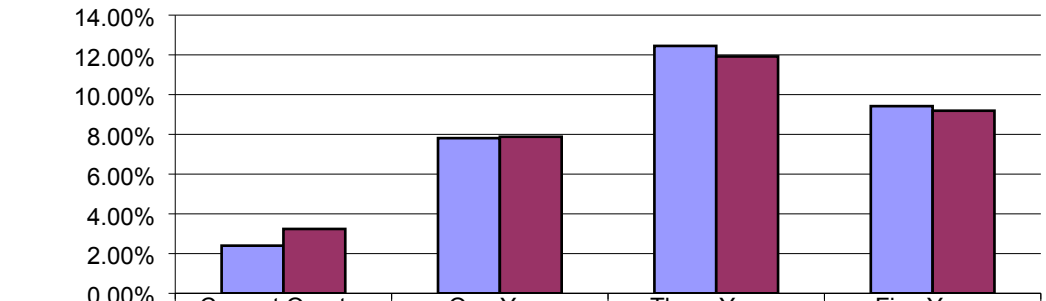
b) Equity Protection Investment – The Fund invested in Schroders Pooled Vehicle to implement and manage a downside risk management of £718m option overlay and to establish long synthetic equity positions of £142m with the following characteristics:

- Protecting against losses up to 2020 (on a price return basis)
- Financing the downside protection through sale of uncertain equity market upside
- Using a basket of over the counter (OTC) options on specific equity benchmark indices (in local currency)
- Aim to diversify counterparty exposure during the implementation of the strategy

£72.26m of gilts and £142.4m of equities redemption proceeds were transferred from the Tower Hamlets Pension Fund portfolios with LGIM to Schroders Pooled Fund, to be used as collateral to cover margin requirements under the protection contracts. The protection contracts require daily margin movements to cover gains or losses to the Fund or against the Fund. As at 30 September 2018 the value of the Fund position was £214.77m in the pooled investment strategy.

INVESTMENT PERFORMANCE

3.5. The overall value of the Fund at 30 September 2018 stood at £1,560.1m which is an improvement of £35m from its value of £1,525.3m as at 30 June 2018.



	Current Quarter	One Year	Three Years	Five Years
Fund	2.40%	7.81%	12.45%	9.42%
Bench Mark	3.24%	7.88%	11.92%	9.19%

3.6. The fund underperformed the benchmark this quarter by posting a return of 2.40% against benchmark return of 3.24%. The twelve month period sees the fund slightly behind its benchmark by 0.08%, as shown on the graph above.

MANAGER PERFORMANCES

3.7 The Fund underperformed its benchmark return of 3.24% by 0.84% for the quarter. For this quarter, five mandates matched or achieved returns above the set benchmark. The five that did not reach the benchmarks were the mandates with LCIV RF (AR), LCIV BG (DGF), LCIV BG (GA), GSAM and Insight.

3.8 For the twelve months to September 2018, the Fund returned 7.81% slightly underperforming the benchmark of 7.88%, the Fund is behind its benchmark by 0.08%. Four mandates underperformed their respective benchmark. The mandates that underperformed their respective benchmarks were LCIV RF lagged behind by 1.66%, LCIV BG (DGF) lagged behind by 2.45%, GSAM lagged behind by 6.34% and Insight by 7.82%.

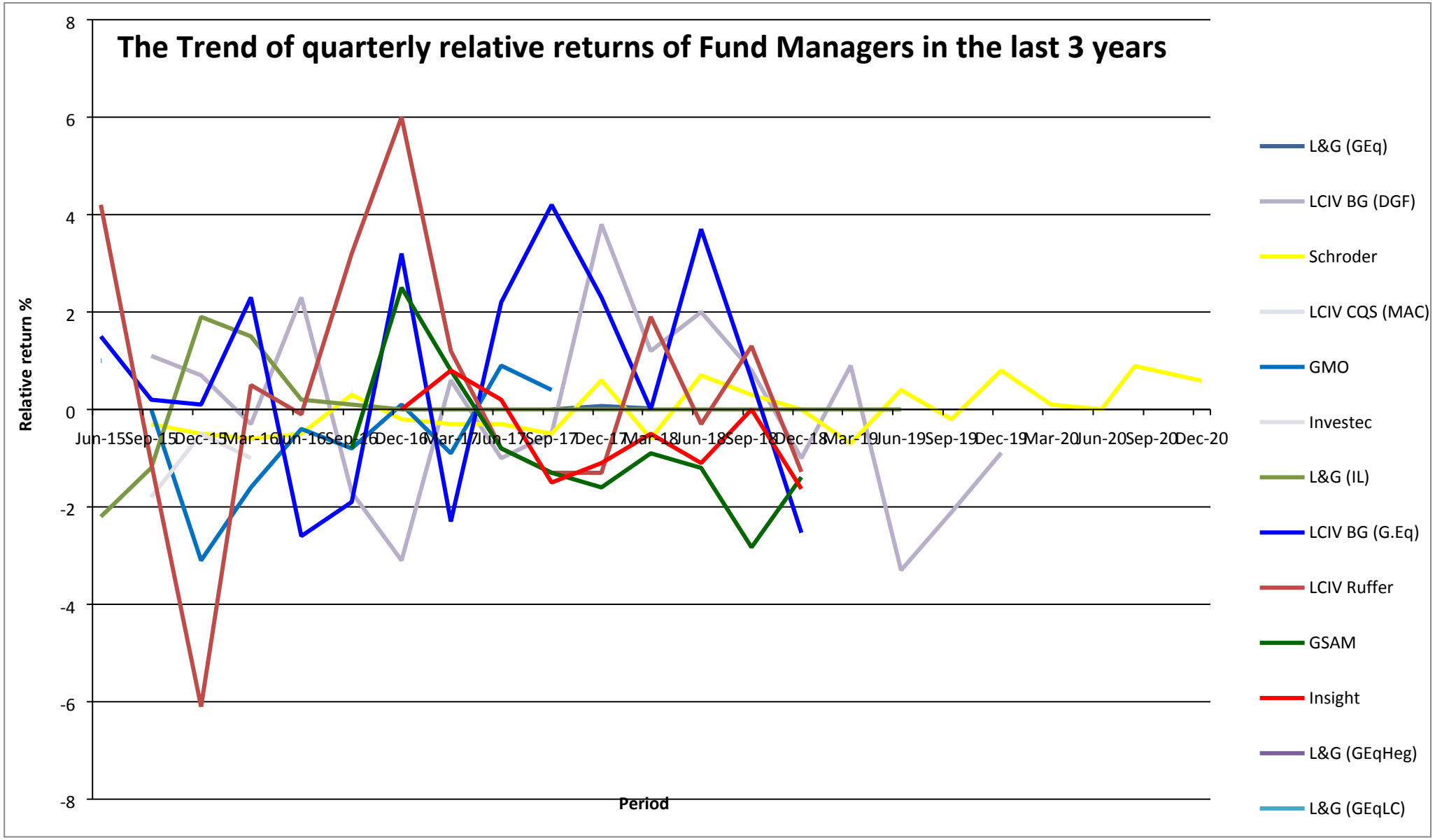
3.9 Looking at the longer term performance, the three years return for the Fund was 12.45%, which was 0.54% per annum ahead of the benchmark return. Over the five years, the Fund posted a return of 9.42% outperforming the benchmark return of 9.19% by 0.23% per annum.

3.10 The performance, net of fees of the individual managers relative to the appropriate benchmarks over the past five years is as set out in the table below. Each manager provides a report of the performance of their respective mandate and these are summarised as set out in Appendix 1 of this report.

Managers Investment Performance relative to benchmark as at 30th September 2018

		LCIV (BG) Global Equity	LGIM Low Carbon Global Equity	LGIM Hedged Global Equity	LGIM Unhedged Global Equity	Schroder Property	GSAM Absolute Return Bond	Insight Absolute Return Bond	LGIM Index Linked	LCIV (CQS) MAC	LCIV (BG) DGF	LCIV (Ruffer) DGF	Total Fund
Quarter %	***Fund***	3.0	5.2	4.7	5.7	2.2	(0.2)	(0.4)	N/A	1.6	0.1	(0.3)	2.4
	Benchmark	5.6	5.2	4.6	5.7	1.6	1.2	1.2	N/A	1.2	1.0	1.0	3.2
	Relative	(2.5)	0.0	0.1	0.0	0.6	(1.4)	(1.6)	N/A	0.4	(0.9)	(1.3)	(0.8)
12 month %	***Fund***	14.8	N/A	N/A	N/A	10.9	(1.7)	(3.2)	N/A	N/A	1.2	2.0	7.8
	Benchmark	13.0	N/A	N/A	N/A	8.9	4.7	4.7	N/A	N/A	3.7	3.7	7.9
	Relative	1.8	N/A	N/A	N/A	2.0	(6.3)	(7.8)	N/A	N/A	(2.5)	(1.7)	(0.1)
3 years (% p.a)	***Fund***	22.9	N/A	N/A	N/A	8.2	N/A	N/A	N/A	N/A	4.9	5.2	12.5
	Benchmark	19.2	N/A	N/A	N/A	7.1	N/A	N/A	N/A	N/A	3.5	3.5	11.9
	Relative	3.7	N/A	N/A	N/A	1.1	N/A	N/A	N/A	N/A	1.4	1.7	0.5
5 years (% p.a)	***Fund***	16.2	N/A	N/A	N/A	10.9	N/A	N/A	N/A	N/A	4.6	4.3	9.4
	Benchmark	13.5	N/A	N/A	N/A	10.4	N/A	N/A	N/A	N/A	3.5	3.5	9.2
	Relative	2.7	N/A	N/A	N/A	0.5	N/A	N/A	N/A	N/A	1.0	0.7	0.2

3.11 The graph below demonstrates the volatility and cyclical nature of financial markets relating to the fund's investment holdings. Over the three year period shown in the graph, the outcomes are within the range of expectations used by the Fund actuary in assessing the funding position. The Fund can take a long term perspective on investment issues principally because a high proportion of its pension liabilities are up to sixty years in the future.


The Trend of quarterly relative returns of Fund Managers in the last 3 years
Relative return %
8
6
4
2
0
-2
-4
-6
-8
Jun-15
Sep-15
Dec-15
Mar-16
Jun-16
Sep-16
Dec-16
Mar-17
Jun-17
Sep-17
Dec-17
Mar-18
Jun-18
Sep-18
Dec-18
Mar-19
Jun-19
Sep-19
Dec-19
Mar-20
Jun-20
Sep-20
Dec-20
Period
L&G (GEq)
LCIV BG (DGF)
Schroder
LCIV CQS (MAC)
GMO
Investec
L&G (IL)
LCIV BG (G.Eq)
LCIV Ruffer
GSAM
Insight
L&G (GEqHeg)
L&G (GEqLC)

3.12 The managers, mandate and portfolios held under management are set out below. The Fund was valued at £1,560million as at 30 September 2018. This includes cash held and being managed internally (LBTH Treasury Management), this stands at 1% of the total assets value, this constitutes investment in money market fund (MMF) of £10m and £5m working capital of the Fund.

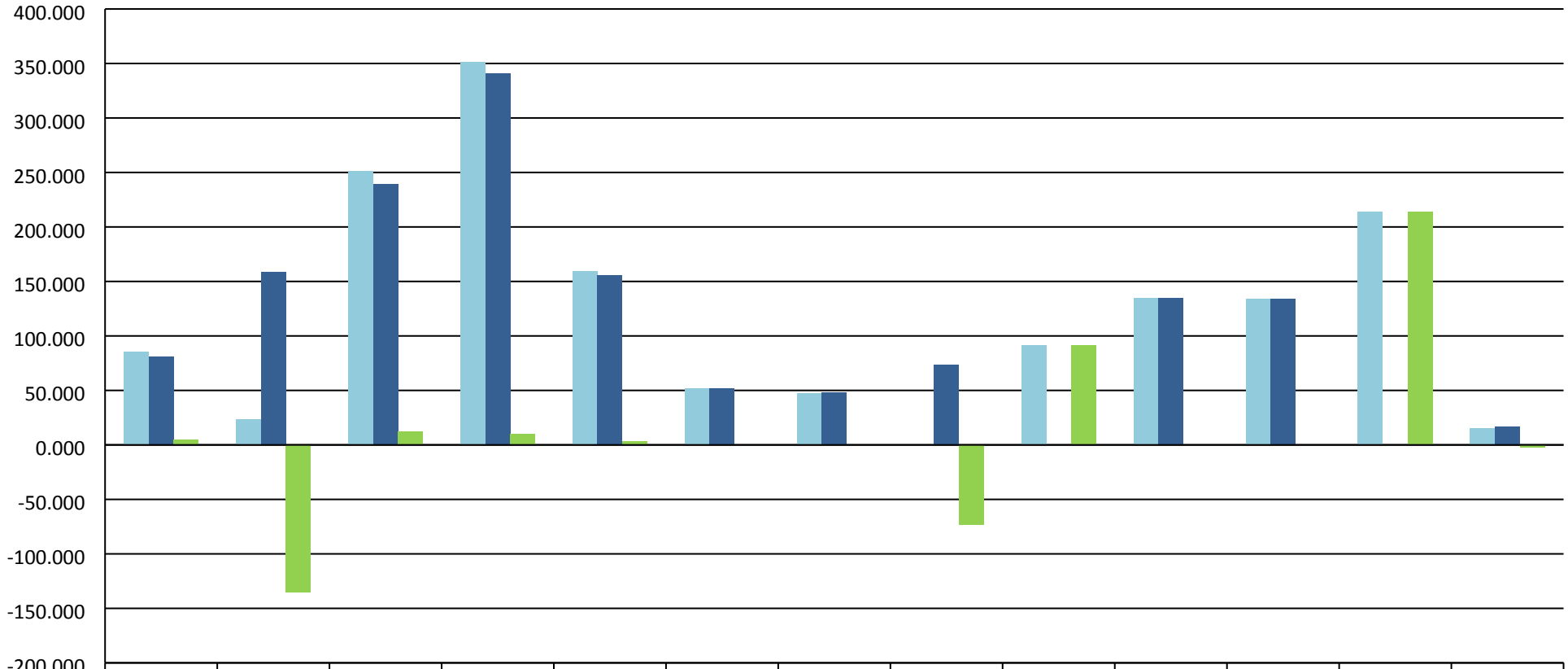
Manager	Mandate	Value at 30th September 2018 £m	Strategic Weight of FM AUM*	Actual Weight of FM AUM	Under/(Over) Weight Target	Date Appointed
L&G (Unhedged Global Equity)	Global Equity	85.486	5.00%	5.48%	0.48%	01- Dec-2017
L&G (Hedged GEq)	Global Equity	23.34	1.00%	1.50%	0.50%	01- Dec-2017
L&G (Low Carbon Global Equity)	Global Equity	251.552	15.00%	16.12%	1.12%	01- Dec-2017
LCIV BG (Global Equity)	Global Equity	351.618	20.00%	22.54%	2.54%	05-Jul-07 22 Apr 2016**
LCIV BG (Diversified Growth)	Absolute Return	135.032	10.00%	8.66%	-1.42%	22-Feb-11 15 Feb 2016**
LCIV Ruffer (Total Return Fund)	Absolute Return	133.88	10.00%	8.58%	-4.15%	08-Mar-11 15 Jun 2016**
LCIV CQS (MAC)	Multi Asset Credit	91.26	6.00%	5.85%	-2.70%	31 May 2018
Legacy Mandate	Global Equity	0.078	0.00%	0.00%	0.00%	01- Dec-2017
L & G Index Linked-Gilts	UK Index Linked	0	0.00%	0.00%	0.00%	02-Aug-10
GSAM	Bonds	51.545	3.00%	3.30%	0.30%	04-Apr-16
Insights	Bonds	47.784	3.00%	3.06%	0.06%	01-Jul-16
Schroder	Property	159.324	12.00%	10.21%	-1.79%	30-Sep-04
Schroder	Equity Protection Strategy	214.158	15.00%	13.73%	-1.27%	06 September 2018
Internal cash Management	Cash	15.001	0.00%	0.96%	0.96%	N/A
Total		**1,560.059**	**100.00%**	**100.00%**	**0.00%**	

* FM AUM is Fund Asset under Management with a Fund Manager
**The date asset ownership was transferred from LBTH Pension Fund to LCIV for management under the pooling arrangements.

3.13 The Committee agreed in February 2018 to pursue an equity protection strategy, in view of the significant and unexpected gains in global equity markets since the 2016 actuarial valuation. The aim of this is to protect the funding gains and reduce the risk of funding level deterioration which would otherwise result in an increased pension contribution requirement.

3.14 The graph below illustrates the portfolio value movement of each mandate for this quarter compared to the last quarter. The full redemption in specie of the Fund LGIM Index Linked Gilts portfolio of £72.26m and the disinvestment of £142.4m from the Fund's LGIM Global Equity (Hedged) portfolio which were transferred to Schroders to support the Equity Protection collateralisation management can be seen clearly in the graph below.

Fund Value by Manager as at 30 September 2018 compared to 30 June 2018



	L&G (uGEq)	L&G (hGEq)	L&G (lcEq)	LCIV BG (G.Eq)	Schroder Property	GSAM	Insight	L&G (IL)	LCIV CQS (MAC)	LCIV BG (DGF)	LCIV Ruffer	Schroder EPS	LBTH (Cash)
Value at 30/09/2018	85.564	23.340	251.552	351.618	159.324	51.545	47.784	0.000	91.260	135.032	133.880	214.158	15.001
Value at 30/06/2018	80.964	158.828	239.028	341.240	155.698	51.642	47.990	73.677	0.000	134.937	134.320	0.000	17.162
Gain/(Loss) of Value	4.600	(135.488)	12.524	10.378	3.626	(0.097)	(0.206)	(73.677)	91.260	0.095	(0.440)	214.158	(2.161)

INTERNAL CASH MANAGEMENT

3.15 Cash is held by the managers at their discretion in accordance with limits set in their investment guidelines, and internally by LBTH to meet working cashflow requirements, although transfers can be made to Fund managers to top up or rebalance the Fund.

3.16 The Pension Fund cash balance is invested in accordance with the Council's Treasury Management strategy agreed by Full Council in February 2018, which is delegated to the Acting Corporate Director, Resources to manage on a day to day basis within the agreed parameters.

3.17 The cash balance as at 30 September 2018, was £15m this constitutes investment in money market fund (MMF) of £10m and £5m working capital of the Fund.

ASSET ALLOCATION

3.18 The current benchmark of asset distribution and the fund position at 30 September 2018 are set out below:

Asset Class	Benchmark as at 21 September 2017	Fund Position as at 30 September 2018	Variance as at 30 September 2018
Global Equities	50.0%	45.6%	(4.4)%
Total Equities	**50.0%**	**45.6%**	**(4.4)%**
Property	12.0%	10.2%	(1.8)%
Pooled Bonds	6.0%	6.4%	0.4%
UK Index Linked and Bonds	6.0%	13.7%	7.7%
Alternatives	26.0%	23.1%	(2.9)%
Cash	0.0%	1.0%	1.0%
Total Equities	**100.0%**	**100.0%**	

3.19 The table above indicates the Fund is overweight by 1.0% in Cash and 7.7% in UK Index Linked and Bonds; but the Fund has underweight position of 4.4% in Global Equities, Property underweight position of 1.8%, and Alternatives is underweight by 2.9%. The underweight position of the global equities position and the overweight position of the UK Index Linked and Bonds are due to the Fund investments in equity Protection Strategy, so the UK Index Linked and Bonds serve as collateral for the OTC (over the counter) options. The Fund must have collateral fund not less than 30% of the strategy implemented. Officers are arranging rebalancing of portfolios in December 2018.

3.20 Asset allocation is determined by a number of factors including:-

i) The risk profile. Generally there is a trade-off between the returns obtainable on investments and the level of risk. Equities have higher potential returns but this is achieved with higher volatility. However, as the Fund remains open to new members and able to tolerate this it can seek long term benefits of the increased returns.

ii) The age profile of the Fund. The younger the members of the Fund, the longer the period before pensions become payable and investments have to be realised for this purpose. This enables the Fund to invest in more volatile asset classes because it has the capacity to ride out adverse movements in the investment cycle.

iii) The deficit recovery term. Most LGPS funds are in deficit because of falling investment returns and increasing life expectancy. The actuary determines the period over which the deficit is to be recovered and considers the need to stabilise the employer's contribution rate. The actuary has set a twenty year deficit recovery term for this Council which enables a longer term investment perspective to be taken.

3.20 Individual managers have discretion within defined limits to vary the asset distribution. The overweight position in equities has helped the fund's performance in recent months.

4. COMMENTS OF THE CHIEF FINANCE OFFICER

4.1 This is a noting report which fulfils the requirement to report quarterly performance of the Pension Fund investments portfolio to the Pensions Committee. There are no direct financial implications arising from this report, however the long term performance of the pension fund will impact upon pension contribution rates set by the Committee.

5. LEGAL COMMENTS

5.1 The Local Government Pension Scheme (Management and Investment of Funds) Regulations 2016 govern the way in which administering authorities should manage and make investments for the fund. There are no longer explicit limits on specified types of investment and instead administering authorities should determine the appropriate mix of investments for their funds. However, administering authorities must now adhere to official guidance; broad powers allow the Government to intervene if they do not. Under regulation 8, the Secretary of State can direct the administering authority to make changes to its investment strategy; invest its assets in a particular way; that the investment functions of the authority are exercised by the Secretary of State and that the authority complies with any instructions issued by the Secretary of State or their nominee.

5.2 The Council must take proper advice at reasonable intervals about its investments and must consider such advice when taking any steps in relation to its investments.

5.3 The Council does not have to invest the fund money itself and may appoint one or more investment managers. Where the Council appoints an investment manager, it must keep the manager's performance under review. At least once every three months the Council must review the investments that the manager has made and, periodically, the Council must consider whether or not to retain that manager.

5.4 One of the functions of the Pensions Committee is to meet the Council's duties in respect of investment matters. It is appropriate, having regard to these matters, for the Committee to receive information about asset allocation and the performance of appointed investment managers. The Committee's consideration of the information in the report contributes towards the achievement of the Council's statutory duties.

5.5 When reviewing the Pension Fund Investment Performance, the Council must have due regard to the need to eliminate unlawful conduct under the Equality Act 2010, the need to advance equality of opportunity and the need to foster good relations between persons who share a protected characteristic and those who don't (the public sector duty). The Committee may take the view that good,

sound investment of the Pension Fund monies will support compliance with the Council's statutory duties in respect of proper management of the Pension Fund.

6. ONE TOWER HAMLETS CONSIDERATIONS

6.1. The employer's contribution is a significant element of the Council's budget and consequently any improvement in investment performance will reduce the contribution and increase the funds available for other corporate priorities.

6.2. A viable pension scheme also represents an asset for the recruitment and retention of staff to deliver services to the residents.

7. BEST VALUE (BV) IMPLICATIONS

7.1. This report helps in addressing value for money through benchmarking the Council's performance against the WM Local Authority Universe of Funds.

8. SUSTAINABLE ACTION FOR A GREENER ENVIRONMENT

8.1. There is no Sustainable Action for A Greener Environment implication arising from this report.

9. RISK MANAGEMENT IMPLICATIONS

9.1. Any form of investment inevitably involves a degree of risk.

9.2. To minimise risk the Investment Panel attempts to achieve a diversification portfolio. Diversification relates to asset classes and management styles.

10. CRIME AND DISORDER REDUCTION IMPLICATIONS

10.1. There are no crime and disorder reduction implications arising from this report.

Linked Reports, Appendices and Background Documents

Linked Report

- [None]

Appendices

- Appendix 1 – Northern Trust Performance Review Report
- Appendix 2 - LCIV Sub-Funds Quarterly Report
- Appendix 3 – GSAM Investment Review for the Quarter
- Appendix 4 – Insight Investment Review for the Quarter
- Appendix 5 – LGIM Investment Review for the Quarter
- Appendix 6 – Schroders Property Investment Review for the Quarter

Local Government Act, 1972 Section 100D (As amended)
List of "Background Papers" used in the preparation of this report

Officer contact details for documents:

- Bola Tobun Investment &Treasury Manager x4733

NORTHERN TRUST

LB of Tower Hamlets

Investment Risk & Analytical Services

September 30, 2018

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SECTION 1

LB of Tower Hamlets

Investment Risk & Analytical Services

September 30, 2018

Investment Hierarchy

Account/Group	Ending Market Value GBP	Ending Weight	Policy Weight	% Rate of Return							Inception Date
				One Month	Three Months	Year to Date	One Year	Three Years	Five Years	Inception to Date	
LB of Tower Hamlets	**1,560,059,019**	**100.00**	**100.00**	**0.03**	**2.40**	**4.27**	**7.81**	**12.45**	**9.42**	**7.87**	**31/03/1987**
Total Plan Benchmark				*0.44*	*3.24*	*5.03*	*7.88*	*11.92*	*9.19*	*-*	*31/03/1987*
Excess Return				*-0.41*	*-0.84*	*-0.76*	*-0.08*	*0.54*	*0.23*	*-*	*31/03/1987*
Global Equities	**711,996,040**	**45.64**	**41.00**	**-0.33**	**4.18**	**-**	**-**	**-**	**-**	**9.63**	**31/03/2018**
Global Equities BM				*0.29*	*5.22*	*-*	*-*	*-*	*-*	*10.29*	*31/03/2018*
Excess Return				*-0.63*	*-1.03*	*-*	*-*	*-*	*-*	*-0.66*	*31/03/2018*
L&G FT All World Index GBP hdg	**23,339,742**	**1.50**		**0.60**	**4.65**	**5.02**	**-**	**-**	**-**	**6.06**	**30/11/2017**
FTSE All World GBP Hgd BM				*0.54*	*4.56*	*4.62*	*-*	*-*	*-*	*5.66*	*30/11/2017*
Excess Return				*0.06*	*0.09*	*0.40*	*-*	*-*	*-*	*0.40*	*30/11/2017*
L&G MSCI World Low Carbon	**251,551,867**	**16.12**		**0.56**	**5.24**	**6.02**	**-**	**-**	**-**	**6.76**	**30/11/2017**
MSCI World Low Carbon GBP Hedg				*0.57*	*5.20*	*5.72*	*-*	*-*	*-*	*6.46*	*30/11/2017*
Excess Return				*-0.01*	*0.04*	*0.30*	*-*	*-*	*-*	*0.30*	*30/11/2017*
LCIV BG Global Alpha	**351,618,339**	**22.54**		**-1.36**	**3.04**	**9.52**	**14.82**	**22.91**	**16.23**	**11.23**	**30/06/2007**
MSCI AC World ND				*0.10*	*5.57*	*7.78*	*13.02*	*19.23*	*13.49*	*8.71*	*30/06/2007*
Excess Return				*-1.46*	*-2.53*	*1.74*	*1.80*	*3.68*	*2.74*	*2.52*	*30/06/2007*
LGIM FTSE All World target	**85,486,091**	**5.48**		**0.19**	**5.67**	**8.03**	**-**	**-**	**-**	**8.92**	**30/11/2017**
FTSE All World Index				*0.18*	*5.65*	*7.94*	*-*	*-*	*-*	*8.84*	*30/11/2017*
Excess Return				*0.01*	*0.02*	*0.08*	*-*	*-*	*-*	*0.08*	*30/11/2017*
Pooled Bonds	**99,328,765**	**6.37**	**6.00**	**-0.08**	**-0.30**	**-2.76**	**-2.39**	**0.03**	**0.39**	**0.00**	**31/03/2010**
Pooled Bonds BM				*0.40*	*1.20*	*3.57*	*4.66*	*4.09*	*3.47*	*-*	*31/03/2010*
Excess Return				*-0.48*	*-1.50*	*-6.33*	*-7.05*	*-4.06*	*-3.09*	*-*	*31/03/2010*
GSAM Star II	**51,544,896**	**3.30**		**0.63**	**-0.19**	**-1.86**	**-1.68**	**-**	**-**	**0.67**	**31/03/2016**
LIBOR 3 Month +4%				*0.40*	*1.20*	*3.57*	*4.66*	*-*	*-*	*4.53*	*31/03/2016*
Excess Return				*0.23*	*-1.39*	*-5.44*	*-6.34*	*-*	*-*	*-3.86*	*31/03/2016*
Insight BNY Mellon Abslut Ret	**47,783,869**	**3.06**		**-0.84**	**-0.43**	**-3.72**	**-3.15**	**-**	**-**	**-0.63**	**30/06/2016**
LIBOR 3 Month +4%				*0.40*	*1.20*	*3.57*	*4.66*	*-*	*-*	*4.52*	*30/06/2016*
Excess Return				*-1.24*	*-1.63*	*-7.29*	*-7.82*	*-*	*-*	*-5.15*	*30/06/2016*
Index Linked	**0**	**0.00**	**0.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**31/03/1987**
Index Linked BM				*-*	*-*	*-*	*-*	*-*	*-*	*-*	*31/03/1987*
Excess Return				*-*	*-*	*-*	*-*	*-*	*-*	*-*	*31/03/1987*
L&G Over 5yr Index Linked Gilt	**0**	**0.00**		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**31/07/2010**
FTSE Govt Index-Link Over 5yr				*-*	*-*	*-*	*-*	*-*	*-*	*-*	*31/07/2010*
Excess Return				*-*	*-*	*-*	*-*	*-*	*-*	*-*	*31/07/2010*

Account/Group	Ending Market Value GBP	Ending Weight	Policy Weight	% Rate of Return							Inception Date
				One Month	Three Months	Year to Date	One Year	Three Years	Five Years	Inception to Date	
Property	**159,324,016**	**10.21**	**12.00**	**1.11**	**2.19**	**7.29**	**10.86**	**8.18**	**10.91**	**7.08**	**31/03/1989**
Property BM				*0.47*	*1.60*	*5.60*	*8.88*	*7.13*	*10.44*	*-*	*31/03/1989*
Excess Return				*0.64*	*0.59*	*1.68*	*1.98*	*1.05*	*0.46*	*-*	*31/03/1989*
Schroders Real Estate	**159,324,016**	**10.21**		**1.11**	**2.19**	**7.16**	**10.61**	**7.92**	**10.57**	**5.88**	**30/09/2004**
HSBC/IPD All Bal Funds Avg				*0.47*	*1.60*	*5.60*	*8.88*	*7.13*	*10.44*	*5.47*	*30/09/2004*
Excess Return				*0.64*	*0.59*	*1.56*	*1.73*	*0.79*	*0.13*	*0.40*	*30/09/2004*
Diversified Growth	**268,912,469**	**17.24**	**20.00**	**1.06**	**-0.13**	**-**	**-**	**-**	**-**	**0.44**	**31/03/2018**
Diversified Growth BM				*0.32*	*0.96*	*-*	*-*	*-*	*-*	*1.97*	*31/03/2018*
Excess Return				*0.74*	*-1.08*	*-*	*-*	*-*	*-*	*-1.53*	*31/03/2018*
LCIV BG Diversified Growth Fd	**135,032,255**	**8.66**		**1.64**	**0.07**	**-0.51**	**1.21**	**4.89**	**4.57**	**4.64**	**31/01/2011**
3 Month LIBOR +3%				*0.32*	*0.96*	*2.83*	*3.66*	*3.54*	*3.54*	*3.62*	*31/01/2011*
Excess Return				*1.32*	*-0.89*	*-3.34*	*-2.45*	*1.35*	*1.03*	*1.02*	*31/01/2011*
LCIV Ruffer Absolute Return Fd	**133,880,215**	**8.58**		**0.49**	**-0.33**	**-0.63**	**2.01**	**5.19**	**4.28**	**4.38**	**28/02/2011**
3 Month LIBOR +3%				*0.32*	*0.96*	*2.83*	*3.66*	*3.54*	*3.54*	*3.62*	*28/02/2011*
Excess Return				*0.17*	*-1.28*	*-3.46*	*-1.66*	*1.65*	*0.74*	*0.77*	*28/02/2011*
Residual	**78,361**	**0.01**		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**31/03/2018**
Legacy Mandates	**78,361**	**0.01**		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**31/03/2018**
Private Debt	**91,260,000**	**5.85**	**6.00**	**0.50**	**1.57**	**-**	**-**	**-**	**-**	**1.40**	**31/05/2018**
Private Debt Benchmark				*0.40*	*1.20*	*-*	*-*	*-*	*-*	*1.59*	*31/05/2018*
Excess Return				*0.09*	*0.37*	*-*	*-*	*-*	*-*	*-0.19*	*31/05/2018*
LCIV (CQS) MAC	**91,260,000**	**5.85**		**0.50**	**1.57**	**-**	**-**	**-**	**-**	**1.40**	**31/05/2018**
3 month LIBOR + 4%				*0.40*	*1.20*	*-*	*-*	*-*	*-*	*1.59*	*31/05/2018*
Excess Return				*0.09*	*0.37*	*-*	*-*	*-*	*-*	*-0.19*	*31/05/2018*
Cash	**15,001,196**	**0.96**		**0.00**	**0.00**	**0.00**	**0.00**	**0.71**	**0.75**	**4.10**	**31/03/1997**
Cash Benchmark				*0.05*	*0.12*	*0.30*	*0.39*	*0.36*	*0.35*	*5.85*	*31/03/1997*
Excess Return				*-0.05*	*-0.12*	*-0.30*	*-0.39*	*0.35*	*0.40*	*-1.75*	*31/03/1997*
Internal Cash Management	**15,001,196**	**0.96**		**0.00**	**0.00**	**0.00**	**0.00**	**0.71**	**0.75**	**4.10**	**31/03/1997**
7 Days LIBID GBP				*0.05*	*0.12*	*0.30*	*0.39*	*0.36*	*0.35*	*5.85*	*31/03/1997*
Excess Return				*-0.05*	*-0.12*	*-0.30*	*-0.39*	*0.35*	*0.40*	*-1.75*	*31/03/1997*
Strategy	**214,158,173**	**13.73**	**15.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-0.73**	**07/09/2018**
Schroders Blended BMK				*-*	*-*	*-*	*-*	*-*	*-*	*1.01*	*07/09/2018*
Excess Return				*-*	*-*	*-*	*-*	*-*	*-*	*-1.74*	*07/09/2018*
Schroders Equity Pro Strategy	**214,158,173**	**13.73**		**-**	**-**	**-**	**-**	**-**	**-**	**-0.73**	**07/09/2018**
Schroders Blended Benchmark				*-*	*-*	*-*	*-*	*-*	*-*	*1.01*	*07/09/2018*
Excess Return				*-*	*-*	*-*	*-*	*-*	*-*	*-1.74*	*07/09/2018*

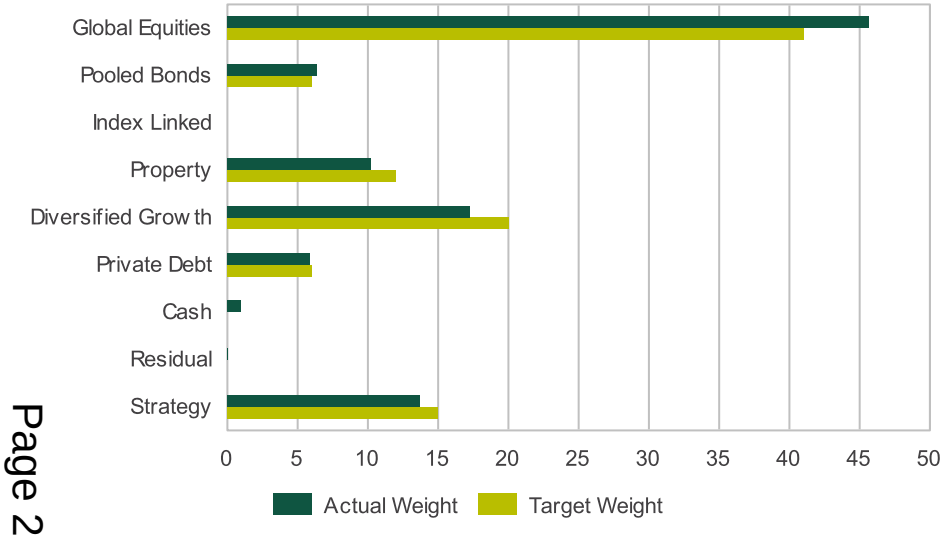
Market Value Summary - One Month

Account/Group	31/08/2018 Market Value	Net Contribution*	Income	Fees	Appreciation	30/09/2018 Market Value
LB of Tower Hamlets	**1,563,158,952**	**-3,553,518**	**4,539,002**	**1,770**	**-4,085,417**	**1,560,059,019**
Global Equities	**857,163,407**	**-142,400,000**	**1,075,096**	**0**	**-3,842,463**	**711,996,040**
L&G FT All World Index GBP hdg	165,226,132	-142,400,000	0	0	513,610	23,339,742
L&G MSCI World Low Carbon	250,149,887	0	0	0	1,401,980	251,551,867
LCIV BG Global Alpha	356,462,493	0	1,075,096	0	-5,919,250	351,618,339
LGIM FTSE All World target	85,324,894	0	0	0	161,197	85,486,091
Pooled Bonds	**99,410,314**	**0**	**20,215**	**0**	**-101,764**	**99,328,765**
GSAM Star II	51,219,859	0	20,215	0	304,822	51,544,896
Insight BNY Mellon Abslut Ret	48,190,455	0	0	0	-406,586	47,783,869
Index Linked	**73,509,525**	**-73,570,148**	**0**	**270**	**60,624**	**0**
L&G Over 5yr Index Linked Gilt	73,509,525	-73,570,148	0	270	60,624	0
Property	**157,573,345**	**0**	**618,715**	**1,500**	**1,131,955**	**159,324,016**
Schroders Real Estate	157,573,345	0	618,715	1,500	1,131,955	159,324,016
Diversified Growth	**266,082,351**	**0**	**2,702,798**	**0**	**127,320**	**268,912,469**
LCIV BG Diversified Growth Fd	132,850,628	0	2,054,895	0	126,731	135,032,255
LCIV Ruffer Absolute Return Fd	133,231,723	0	647,903	0	588	133,880,215
Residual	**55,297**	**0**	**23,178**	**0**	**-115**	**78,361**
Legacy Mandates	55,297	0	23,178	0	-115	78,361
Private Debt	**90,810,000**	**0**	**0**	**0**	**450,000**	**91,260,000**
LCIV (CQS) MAC	90,810,000	0	0	0	450,000	91,260,000
Cash	**18,554,713**	**-3,553,517**	**0**	**0**	**0**	**15,001,196**
Internal Cash Management	18,554,713	-3,553,517	0	0	0	15,001,196
Strategy	**0**	**215,970,147**	**98,999**	**0**	**-1,910,974**	**214,158,173**
Schroders Equity Pro Strategy	0	215,970,147	98,999	0	-1,910,974	214,158,173

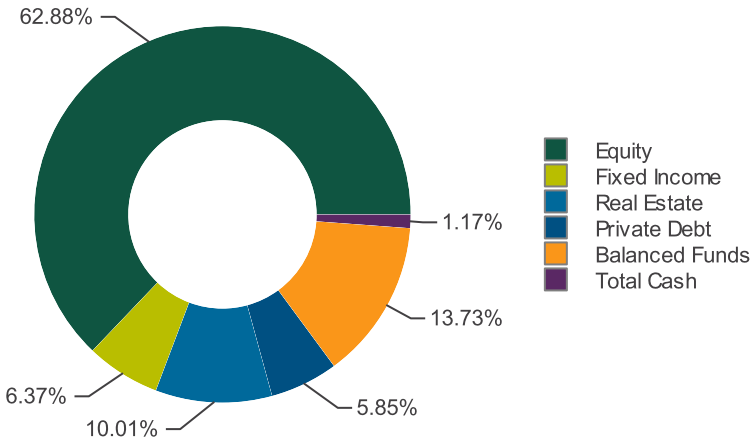
**Net Contributions include Cash Contributions/Distributions, Security Deliveries/Receipts, Fees/Fee Rebates, Inter Account transfers for Consolidations & Benefits Payments.*
Copied History or Backloaded Data may not display the correct Contributions/Withdrawals creating misrepresentation.

Asset Allocation Overview

PROGRAM ACTUAL WEIGHTS vs. TARGET WEIGHTS



LB OF TOWER HAMLETS ASSET CLASS WEIGHTS



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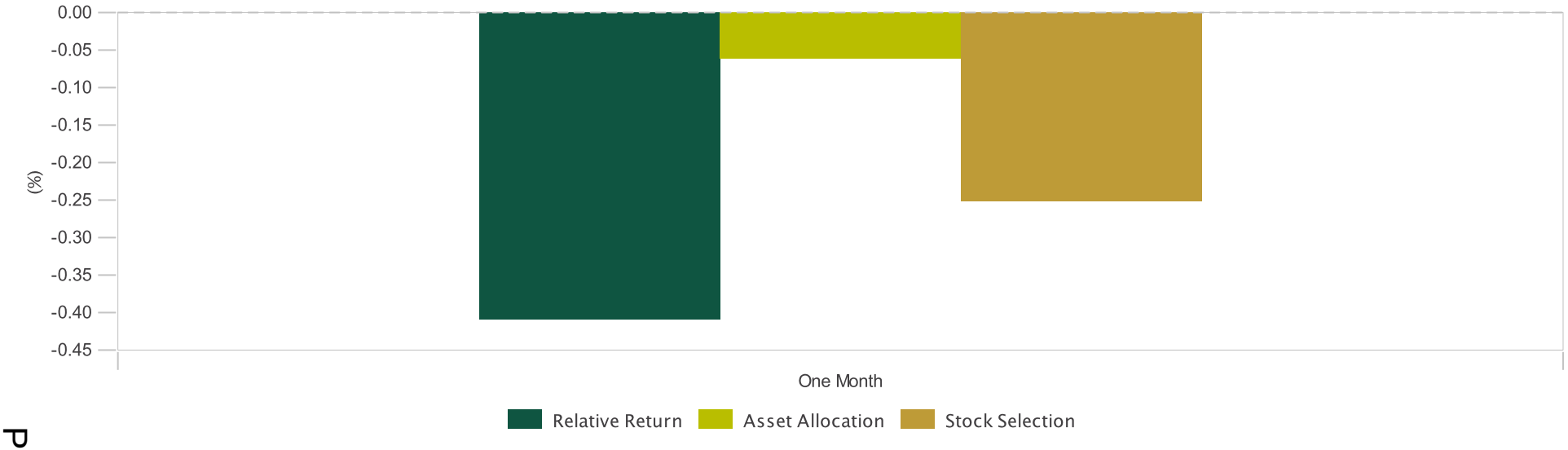
Program/Consolidation	Ending Market Value GOF GBP	Actual Weight	Target Weight	Equity	Fixed Income	Index Linked Gilts	Real Estate	Private Debt	Balanced Funds	Total Cash
Global Equities	711,996	45.64	41.00	711,996						0
Pooled Bonds	99,329	6.37	6.00		99,329					0
Index Linked	0	0.00	0.00			0				0
Property	159,324	10.21	12.00				156,150			3,174
Diversified Growth	268,912	17.24	20.00	268,912						0
Private Debt	91,260	5.85	6.00					91,260		
Cash	15,001	0.96								15,001
Residual	78	0.01		3						76
Strategy	214,158	13.73	15.00		0	0			214,158	-0
LB of Tower Hamlets	**1,560,059**	**100.00**	**100.00**	**980,911**	**99,329**	**0**	**156,150**	**91,260**	**214,158**	**18,251**
LB of Tower Hamlets Percent				62.88	6.37	0.00	10.01	5.85	13.73	1.17

**Market Values are represented in thousands.*
**Underlying assets of the fund have been included in the market value and allocation.*

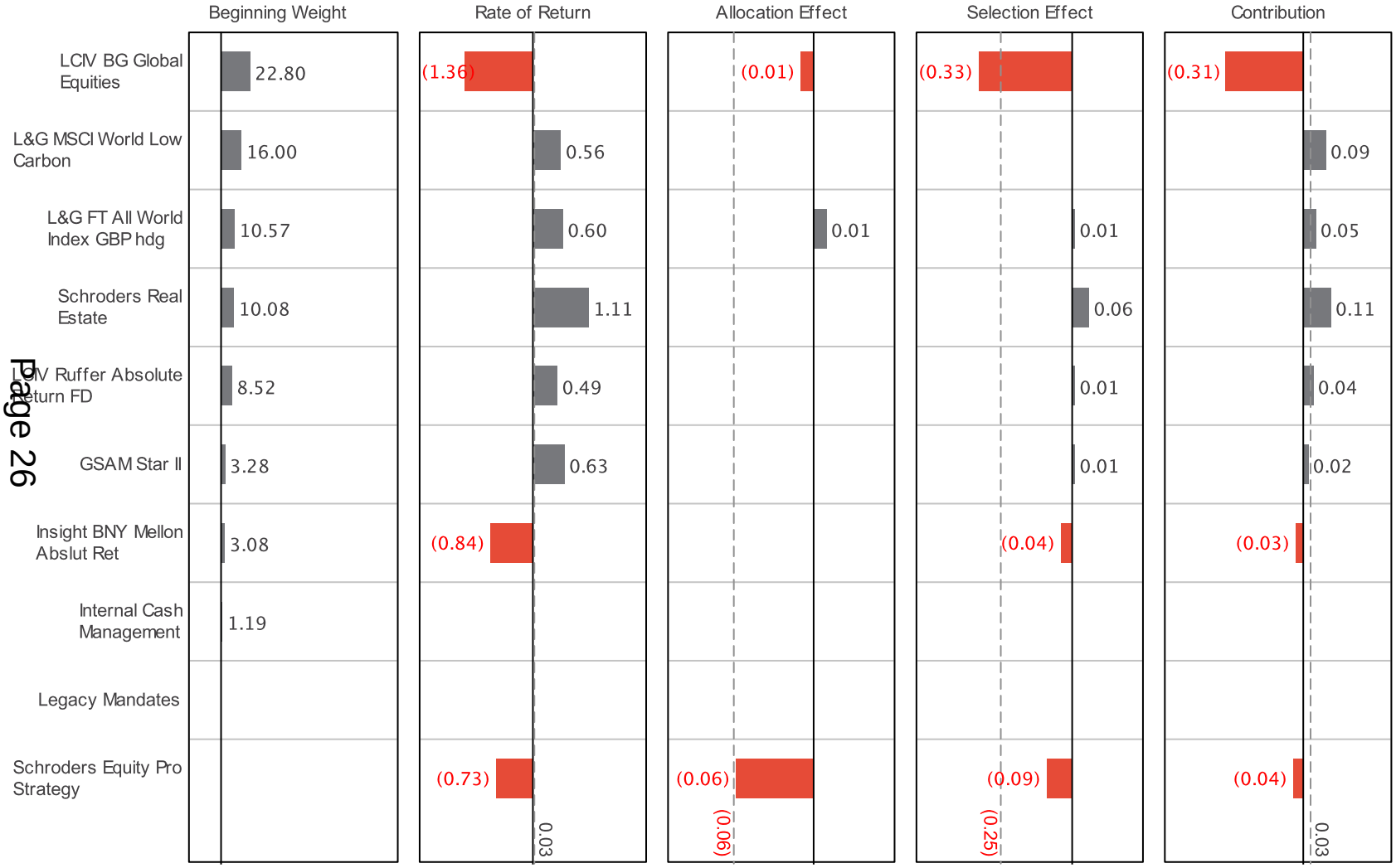
Policy Level Attribution Overview



Time Period	Rate of Return			Relative Asset Allocation	Relative Stock Selection	Residual
	Group	Index	Relative			
One Month	0.03	0.44	-0.41	-0.06	-0.25	-0.10

The above Attribution Model is based on the Geometric methodology.

Policy Level Attribution Detail - One Month



The above Attribution model is based on Geometric methodology. The chart depicts the Top & Bottom accounts/groups based on Beginning Weight. The vertical dotted line represents the total consolidated result for a given metric.

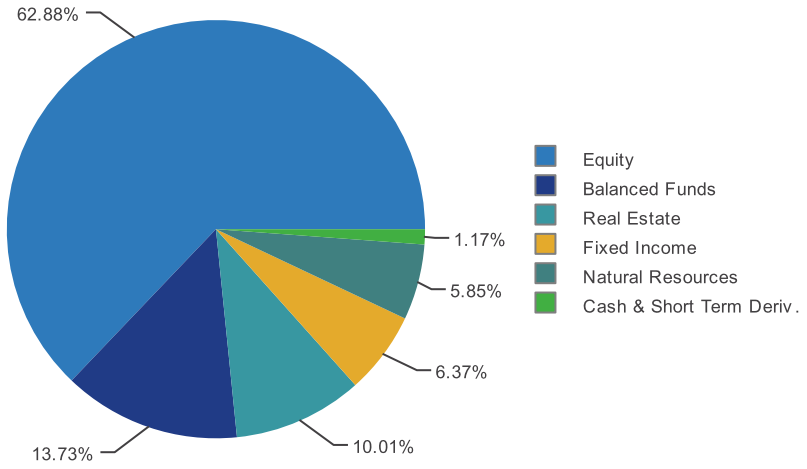
Policy Level Attribution - One Month

	Weights	Rate of Returns		Attribution Effects	
	Beginning Weights	Return	Contribution	Relative Asset Allocation	Relative Stock Selection
LB of Tower Hamlets	**100.00**	**0.03**	**0.03**	**-0.06**	**-0.25**
Total Plan Benchmark	*100.00*	*0.44*	*0.44*		
LCIV BG Global Equities	22.80	-1.36	-0.31	-0.01	-0.33
LBTH01 - MSCI AC World ND	*20.00*	*0.10*	*0.02*		
L&G FT All World Index GBP hdg	10.57	0.60	0.05	0.01	0.01
FTSE All World GBP Hgd BM	*1.00*	*0.54*	*0.01*		
LGIM FTSE All World target	5.46	0.19	0.01	-0.00	0.00
LBTH06 - FTSE All World Index	*5.00*	*0.18*	*0.01*		
L&G MSCI World Low Carbon	16.00	0.56	0.09	0.00	-0.00
LBTH05 - MSCI World Low Carbon	*15.00*	*0.57*	*0.09*		
Insight BNY Mellon Abslut Ret	3.08	-0.84	-0.03	-0.00	-0.04
LBTH09 - LIBOR 3 Month +4%	*3.00*	*0.40*	*0.01*		
GSAM Star II	3.28	0.63	0.02	-0.00	0.01
LBTH08 - LIBOR 3 Month +4%	*3.00*	*0.40*	*0.01*		
L&G Over 5Y Index Linked Guilt	4.70	0.14	0.00	-0.00	0.00
FTSE Govt Index-Link Over 5yr	*0.00*	-	*0.00*		
Schroders Real Estate	10.08	1.11	0.11	-0.00	0.06
HSBC/IPD All Bal Funds Avg	*12.00*	*0.47*	*0.06*		
LCIV BG Diversified Growth FD	8.50	1.64	0.14	0.00	0.11
LBTH02 - 3 Month LIBOR +3%	*10.00*	*0.32*	*0.03*		
LCIV Ruffer Absolute Return FD	8.52	0.49	0.04	0.00	0.01
LBTH03 - 3 Month LIBOR +3%	*10.00*	*0.32*	*0.03*		
Legacy Mandates	0.00	-	0.00	-	-
LCIV (CQS) MAC	5.81	0.50	0.03	0.00	0.01
LBTH12 - 3 month LIBOR + 4%	*6.00*	*0.40*	*0.02*		
Internal Cash Management	1.19	0.00	0.00	-0.00	0.00
Schroders Equity Pro Strategy	0.00	-0.73	-0.04	-0.06	-0.09
Schroders Blended Benchmark	*15.00*	*1.01*	*0.15*		

The above Attribution Model is based on the Geometric methodology.

Asset Class Performance

ASSET CLASS ENDING WEIGHTS



MARKET VALUE SUMMARY OVER TIME

	1 Mo
Beginning Market Value	1,563,159
Net Contribution	-3,554
Income	4,539
Fees	2
Appreciation	-4,085
Ending Market Value	1,560,059

**Market Values are in 000s.*

Asset Class	End MV	End Wt	1 Mo	3 Mos	YTD	1 Yr	3 Yrs	5 Yrs	ITD
Equity	**980,911,331**	**62.88**	**0.01**	**3.13**					
Common Stock	980,911,331	62.88	0.01	3.13					
Fixed Income	**99,328,765**	**6.37**	**-0.13**	**-0.35**					
Marketable Bonds	99,328,765	6.37	-0.08	-0.30					
Inflation Linked Bonds	0	0.00	-3.17						
Index Linked Gilts	**0**	**0.00**	**-2.32**	**-2.55**					
Balanced Funds	**214,158,184**	**13.73**	**-0.73**						
Real Estate	**156,149,878**	**10.01**	**0.91**	**1.77**					
Cash & Short Term Deriv.	**18,250,861**	**1.17**	**0.79**	**2.67**					
Pending Cash	**0**	**0.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Foreign Exchange	**0**	**0.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Private Debt	**91,260,000**	**5.85**	**0.50**	**1.57**					
Total Fund Net of Fees	**1,560,059,019**	**100.00**	**0.03**	**2.40**	**4.27**	**7.81**	**12.45**	**9.42**	**7.87**
Total Plan Benchmark			0.44	3.24	5.03	7.88	11.92	9.19	
Excess Return			*-0.41*	*-0.84*	*-0.76*	*-0.08*	*0.54*	*0.23*	

Excess is calculated using arithmetic methodology
**Fees are not represented as an Asset Class*

Growth Over Time - Inception to Date

SECTION 2

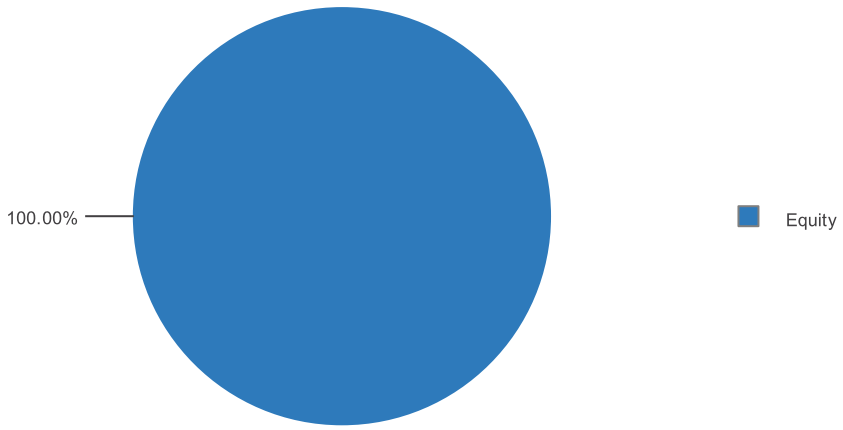
L&G FT All World Index GBP hdg

Investment Risk & Analytical Services

September 30, 2018

Asset Class Performance

ASSET CLASS ENDING WEIGHTS



MARKET VALUE SUMMARY OVER TIME

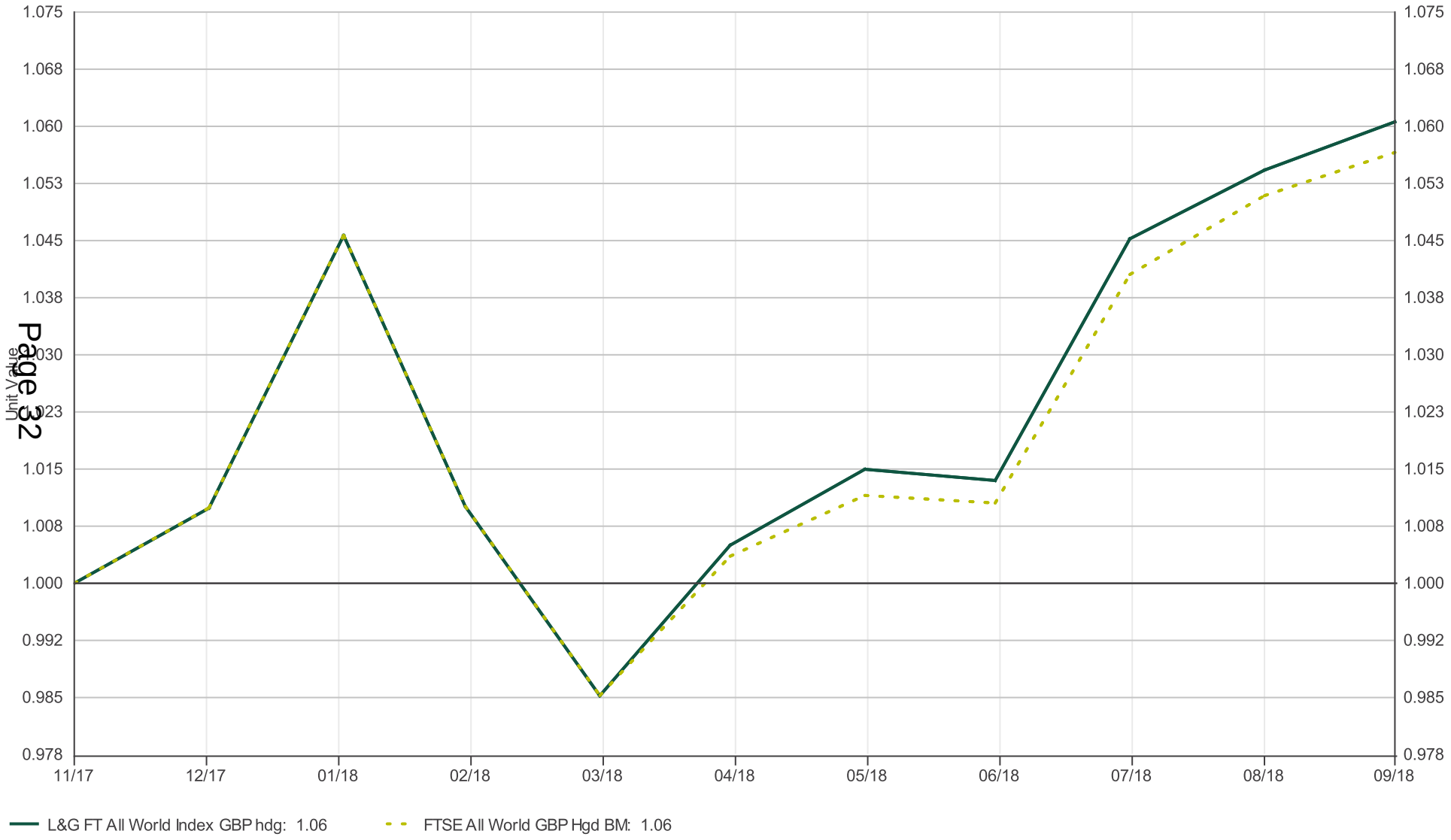
	1 Mo
Beginning Market Value	165,226
Net Contribution	-142,400
Income	0
Fees	0
Appreciation	514
Ending Market Value	23,340

**Market Values are in 000s.*

Asset Class	End MV	End Wt	1 Mo	3 Mos	YTD	1 Yr	3 Yrs	5 Yrs	ITD
Equity	**23,339,742**	**100.00**	**0.60**	**4.65**					
Common Stock	23,339,742	100.00	0.60	4.65					
Cash & Short Term Deriv.	**0**	**0.00**							
Pending Cash	**0**	**0.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total Fund Net of Fees	**23,339,742**	**100.00**	**0.60**	**4.65**	**5.02**				**6.06**
FTSE All World GBP Hgd BM			0.54	4.56	4.62				5.66
Excess Return			*0.06*	*0.09*	*0.40*				*0.40*

Excess is calculated using arithmetic methodology
**Fees are not represented as an Asset Class*

Growth Over Time - Inception to Date



SECTION 3

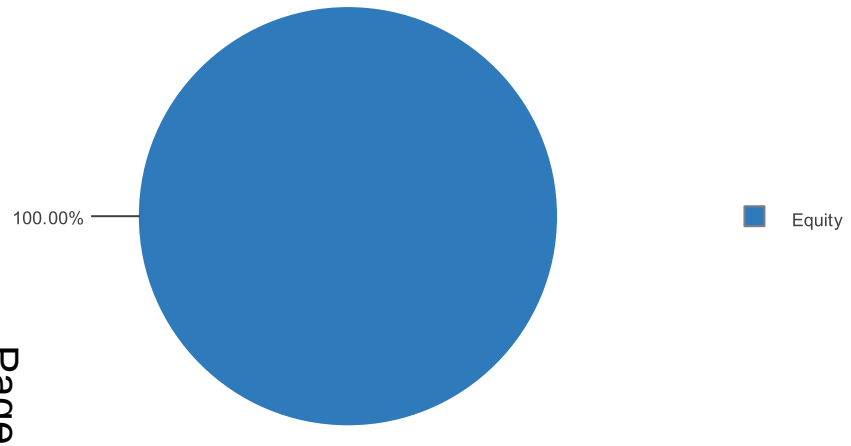
L&G MSCI World Low Carbon

Investment Risk & Analytical Services

September 30, 2018

Asset Class Performance

ASSET CLASS ENDING WEIGHTS



MARKET VALUE SUMMARY OVER TIME

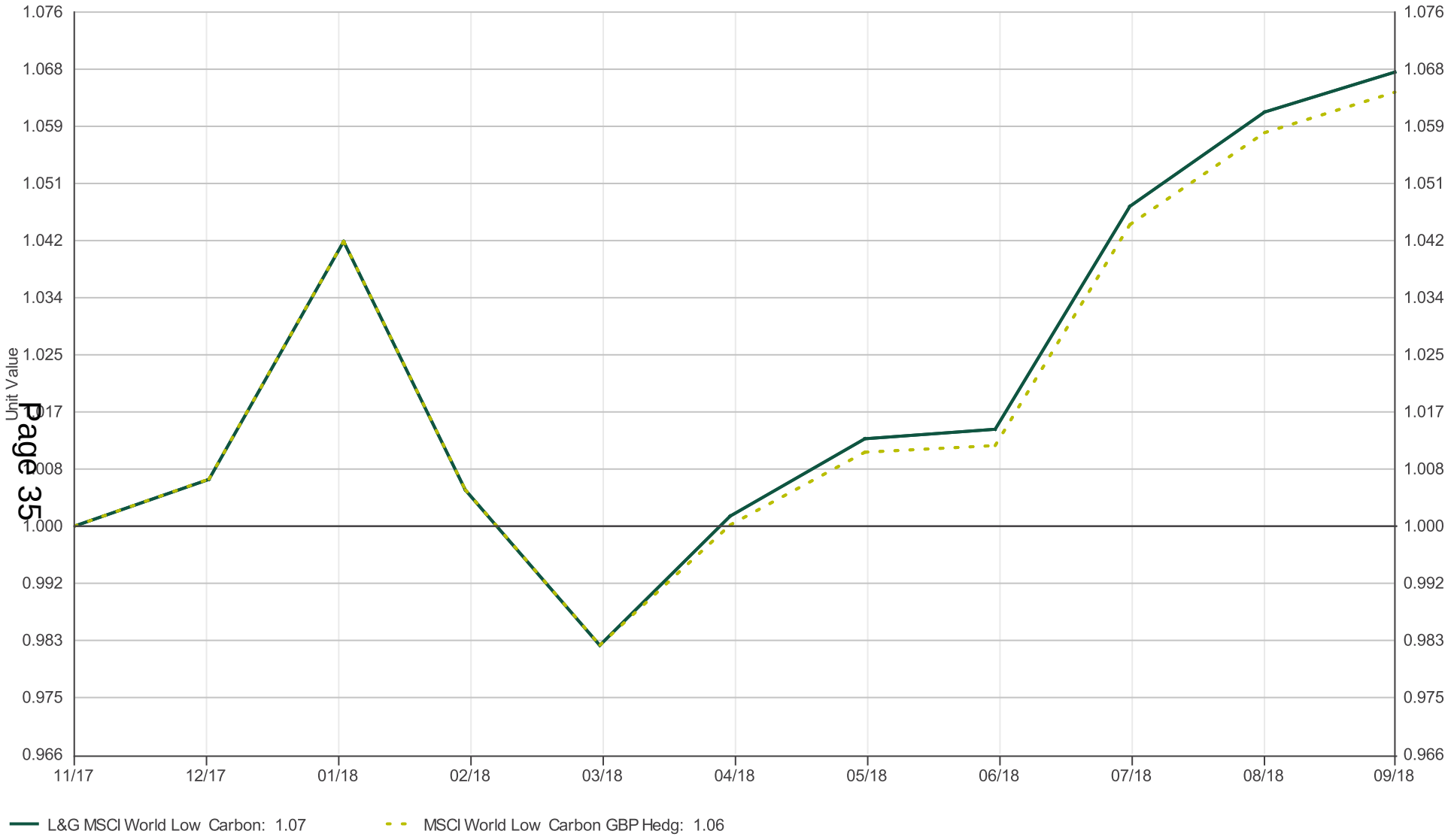
	1 Mo
Beginning Market Value	250,150
Net Contribution	0
Income	0
Fees	0
Appreciation	1,402
Ending Market Value	251,552

**Market Values are in 000s.*

Asset Class	End MV	End Wt	1 Mo	3 Mos	YTD	1 Yr	3 Yrs	5 Yrs	ITD
Equity	**251,551,867**	**100.00**	**0.56**	**5.24**					
Common Stock	251,551,867	100.00	0.56	5.24					
Total Fund Net of Fees	**251,551,867**	**100.00**	**0.56**	**5.24**	**6.02**				**6.76**
MSCI World Low Carbon GBP Hedg			0.57	5.20	5.72				6.46
Excess Return			*-0.01*	*0.04*	*0.30*				*0.30*

Excess is calculated using arithmetic methodology
**Fees are not represented as an Asset Class*

Growth Over Time - Inception to Date



SECTION 4

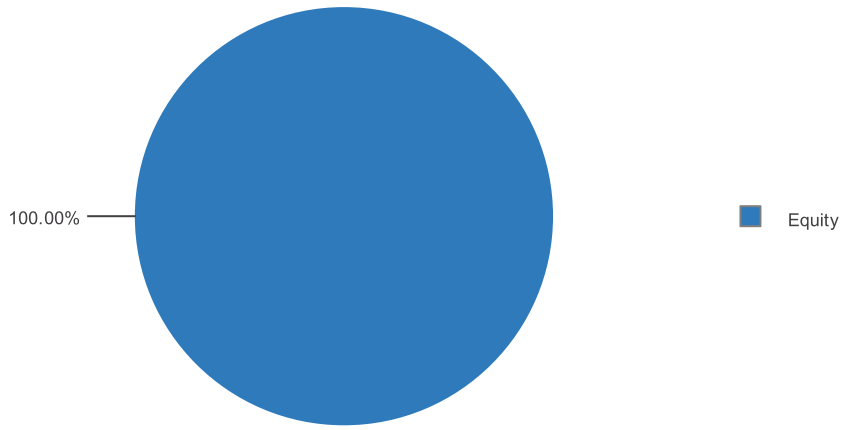
LCIV BG Global Alpha

Investment Risk & Analytical Services

September 30, 2018

Asset Class Performance

ASSET CLASS ENDING WEIGHTS



MARKET VALUE SUMMARY OVER TIME

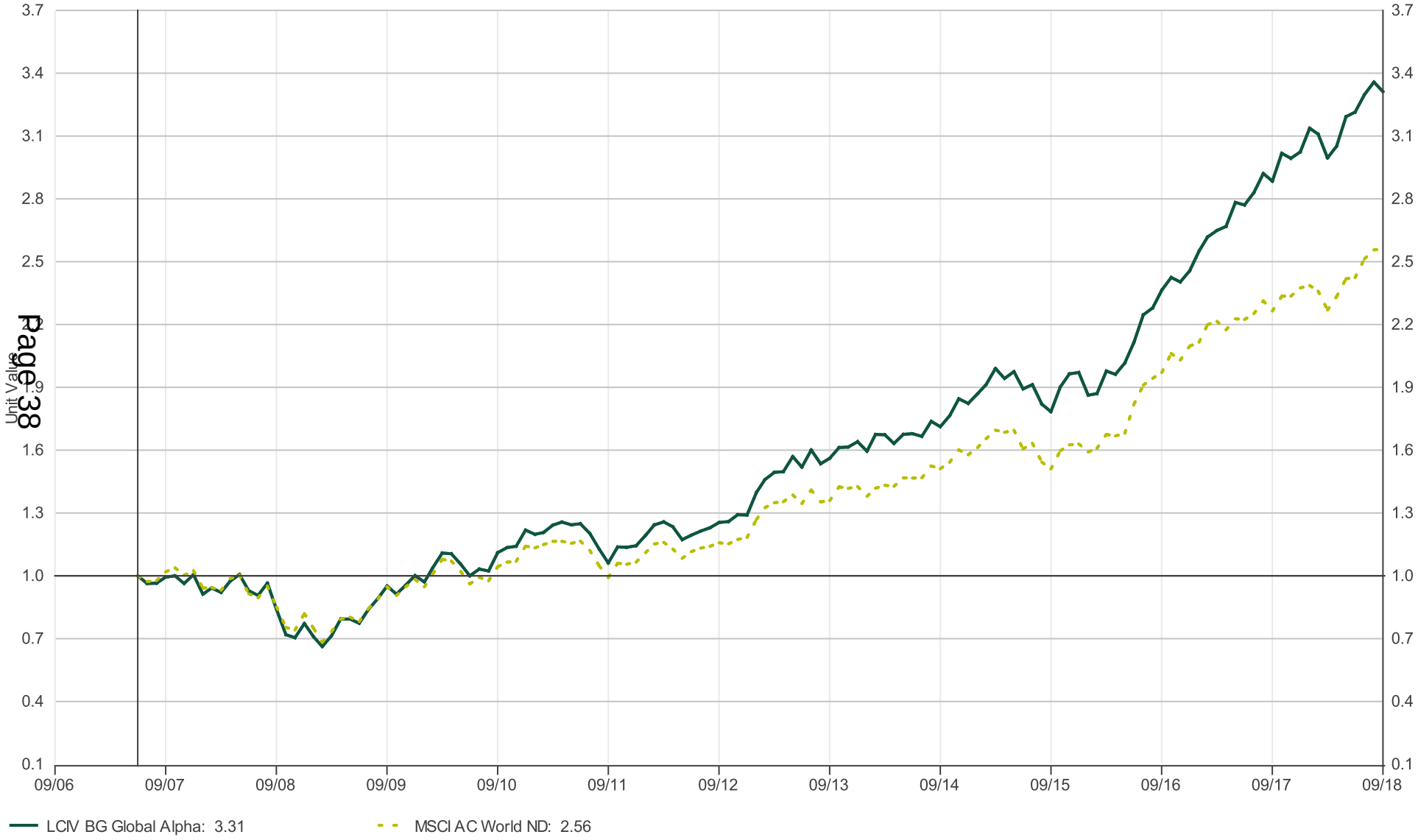
	1 Mo
Beginning Market Value	356,462
Net Contribution	0
Income	1,075
Fees	0
Appreciation	-5,919
Ending Market Value	351,618

**Market Values are in 000s.*

Asset Class	End MV	End Wt	1 Mo	3 Mos	YTD	1 Yr	3 Yrs	5 Yrs	ITD
Equity	**351,618,339**	**100.00**	**-1.36**	**3.04**					
Common Stock	351,618,339	100.00	-1.36	3.04					
Cash & Short Term Deriv.	**0**	**0.00**							
Pending Cash	**0**	**0.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total Fund Net of Fees	**351,618,339**	**100.00**	**-1.36**	**3.04**	**9.52**	**14.82**	**22.91**	**16.23**	**11.23**
MSCI AC World ND			0.10	5.57	7.78	13.02	19.23	13.49	8.71
Excess Return			*-1.46*	*-2.53*	*1.74*	*1.80*	*3.68*	*2.74*	*2.52*

Excess is calculated using arithmetic methodology
**Fees are not represented as an Asset Class*

Growth Over Time - Inception to Date



SECTION 5

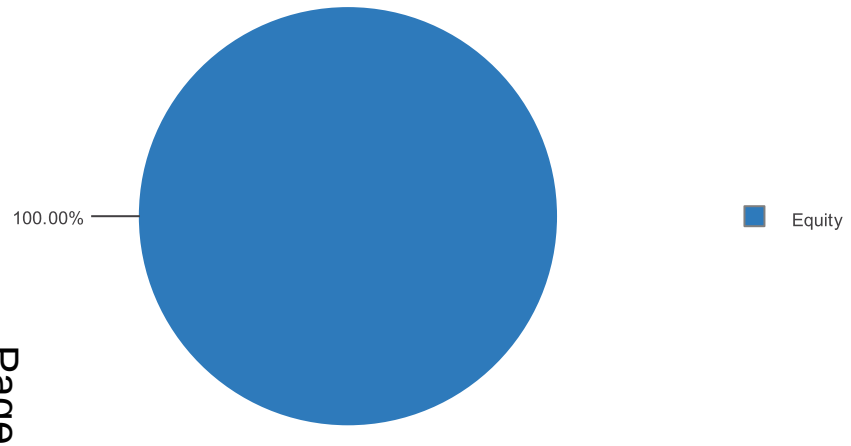
LGIM FTSE All World target

Investment Risk & Analytical Services

September 30, 2018

Asset Class Performance

ASSET CLASS ENDING WEIGHTS



MARKET VALUE SUMMARY OVER TIME

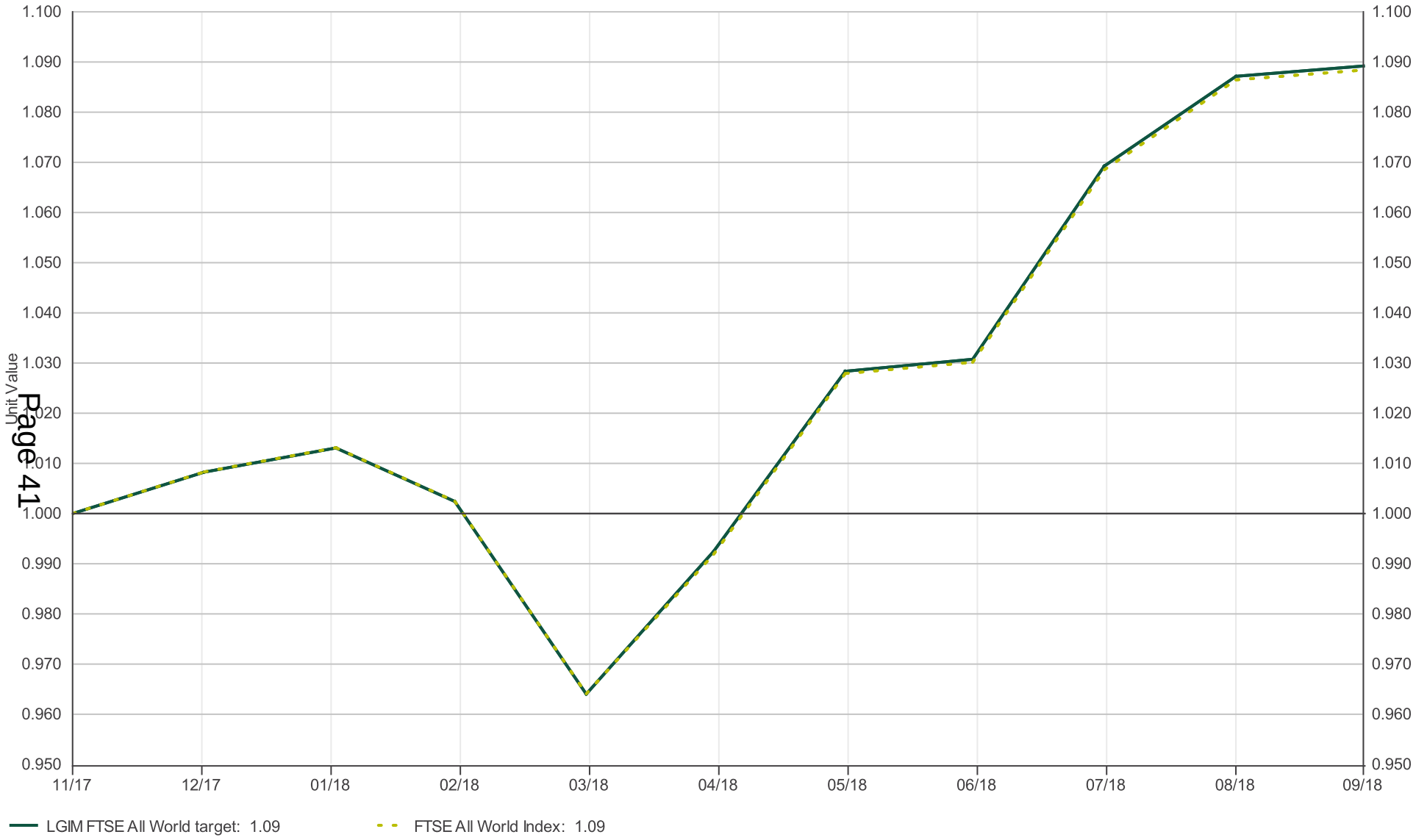
	1 Mo
Beginning Market Value	85,325
Net Contribution	0
Income	0
Fees	0
Appreciation	161
Ending Market Value	85,486

**Market Values are in 000s.*

Asset Class	End MV	End Wt	1 Mo	3 Mos	YTD	1 Yr	3 Yrs	5 Yrs	ITD
Equity	**85,486,091**	**100.00**	**0.19**	**5.67**					
Common Stock	85,486,091	100.00	0.19	5.67					
Total Fund Net of Fees	**85,486,091**	**100.00**	**0.19**	**5.67**	**8.03**				**8.92**
FTSE All World Index			0.18	5.65	7.94				8.84
Excess Return			*0.01*	*0.02*	*0.08*				*0.08*

Excess is calculated using arithmetic methodology
**Fees are not represented as an Asset Class*

Growth Over Time - Inception to Date



SECTION 6

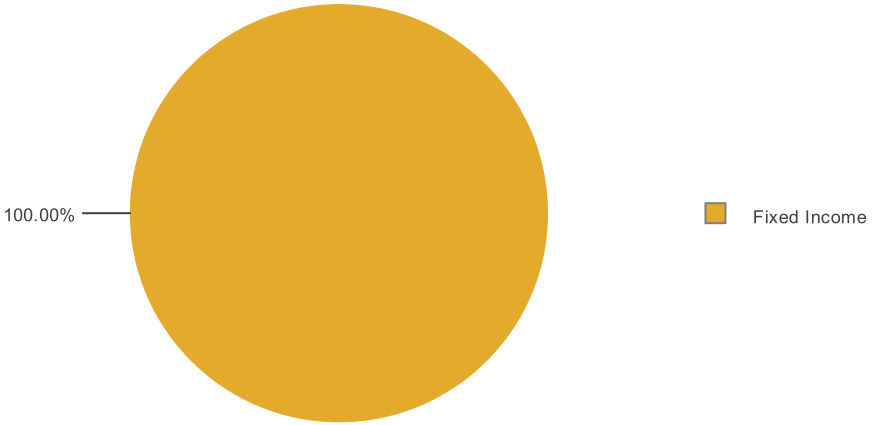
GSAM Star II

Investment Risk & Analytical Services

September 30, 2018

Asset Class Performance

ASSET CLASS ENDING WEIGHTS



MARKET VALUE SUMMARY OVER TIME

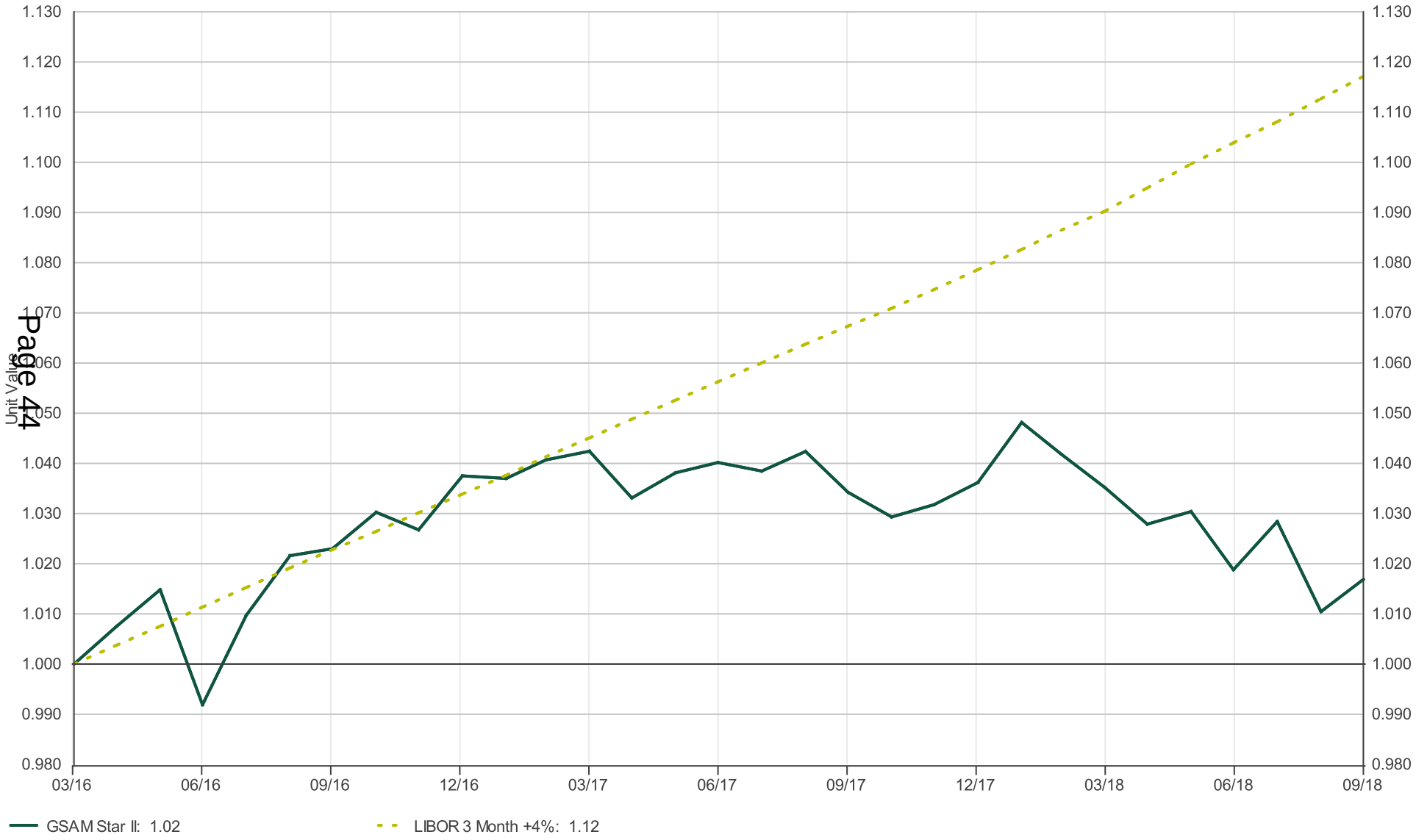
	1 Mo
Beginning Market Value	51,220
Net Contribution	0
Income	20
Fees	0
Appreciation	305
Ending Market Value	51,545

**Market Values are in 000s.*

Asset Class	End MV	End Wt	1 Mo	3 Mos	YTD	1 Yr	3 Yrs	5 Yrs	ITD
Fixed Income	**51,544,896**	**100.00**	**0.63**	**-0.19**					
Marketable Bonds	51,544,896	100.00	0.63	-0.19					
Cash & Short Term Deriv.	**0**	**0.00**							
Pending Cash	**0**	**0.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total Fund Net of Fees	**51,544,896**	**100.00**	**0.63**	**-0.19**	**-1.86**	**-1.68**			**0.67**
LIBOR 3 Month +4%			0.40	1.20	3.57	4.66			4.53
Excess Return			*0.23*	*-1.39*	*-5.44*	*-6.34*			*-3.86*

Excess is calculated using arithmetic methodology
**Fees are not represented as an Asset Class*

Growth Over Time - Inception to Date



SECTION 7

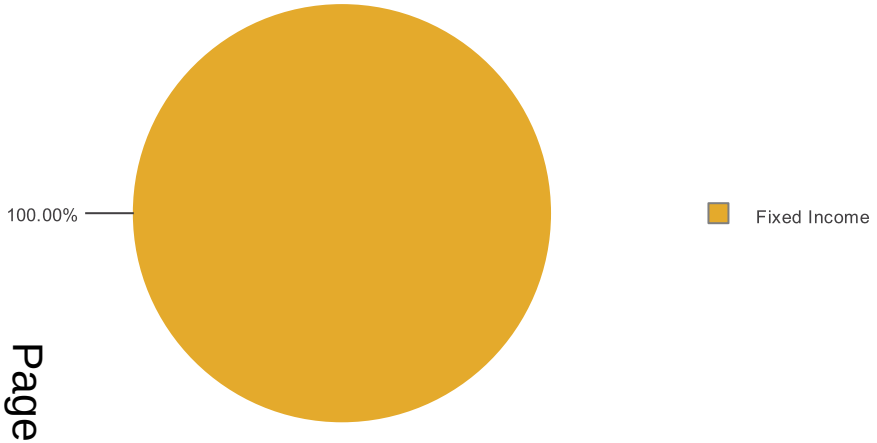
Insight BNY Mellon Abslut Ret

Investment Risk & Analytical Services

September 30, 2018

Asset Class Performance

ASSET CLASS ENDING WEIGHTS



MARKET VALUE SUMMARY OVER TIME

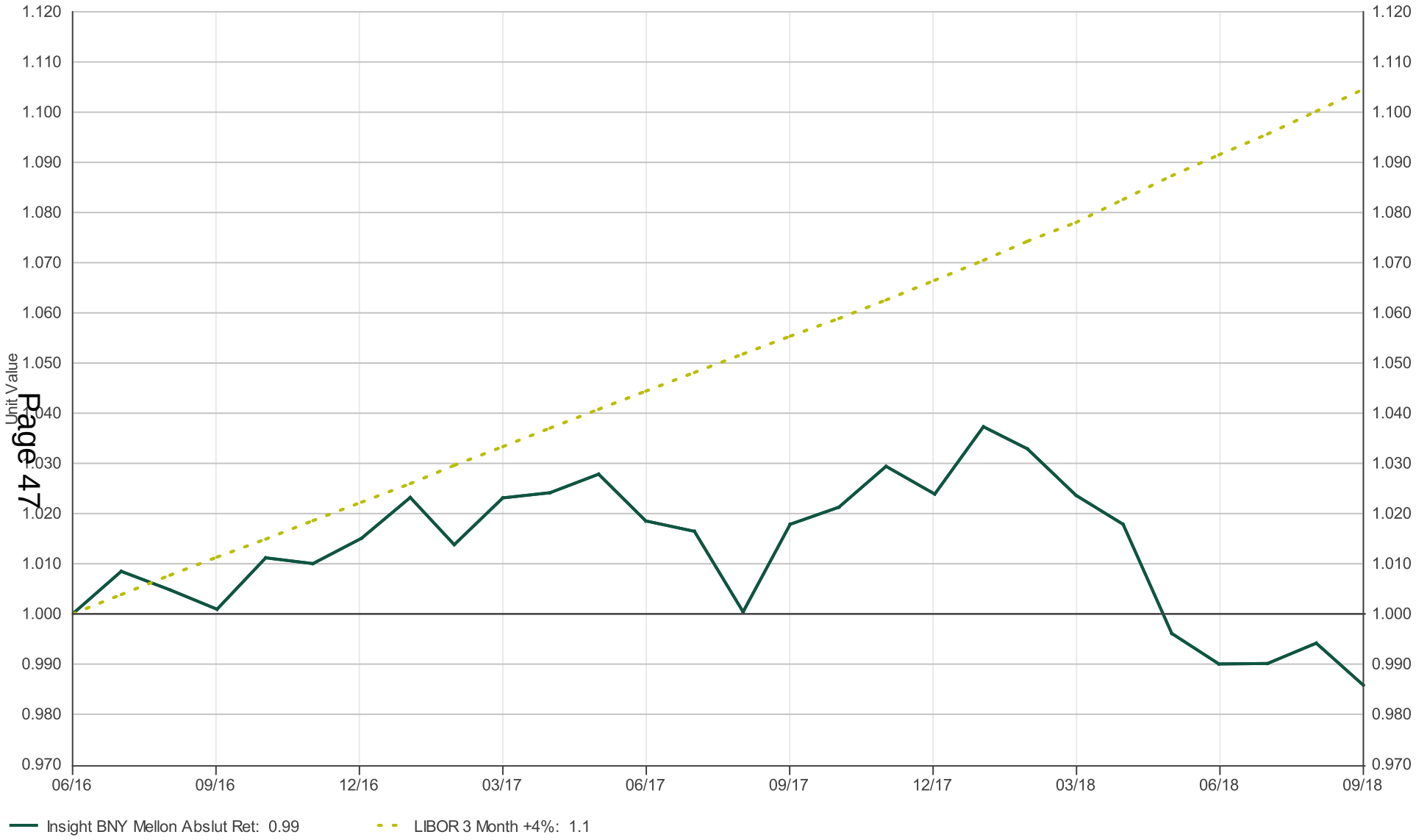
	1 Mo
Beginning Market Value	48,190
Net Contribution	0
Income	0
Fees	0
Appreciation	-407
Ending Market Value	47,784

**Market Values are in 000s.*

Asset Class	End MV	End Wt	1 Mo	3 Mos	YTD	1 Yr	3 Yrs	5 Yrs	ITD
Fixed Income	**47,783,869**	**100.00**	**-0.84**	**-0.43**					
Marketable Bonds	47,783,869	100.00	-0.84	-0.43					
Total Fund Net of Fees	**47,783,869**	**100.00**	**-0.84**	**-0.43**	**-3.72**	**-3.15**			**-0.63**
LIBOR 3 Month +4%			0.40	1.20	3.57	4.66			4.52
Excess Return			*-1.24*	*-1.63*	*-7.29*	*-7.82*			*-5.15*

Excess is calculated using arithmetic methodology
**Fees are not represented as an Asset Class*

Growth Over Time - Inception to Date



SECTION 8

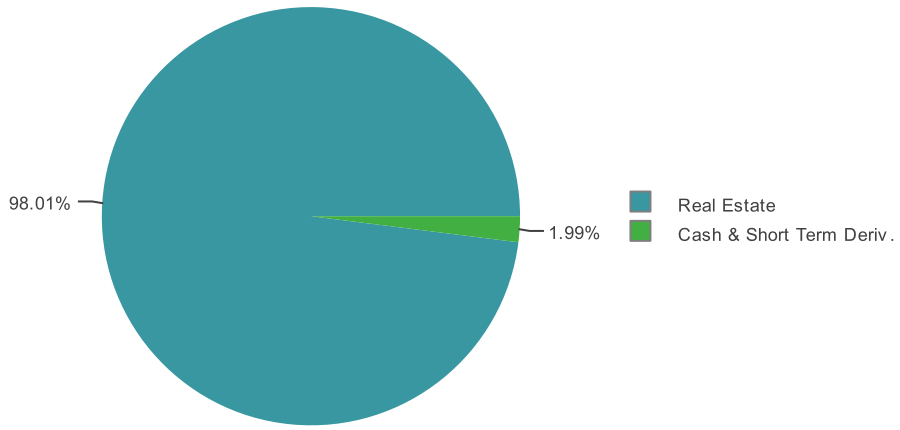
Schroders Real Estate

Investment Risk & Analytical Services

September 30, 2018

Asset Class Performance

ASSET CLASS ENDING WEIGHTS



MARKET VALUE SUMMARY OVER TIME

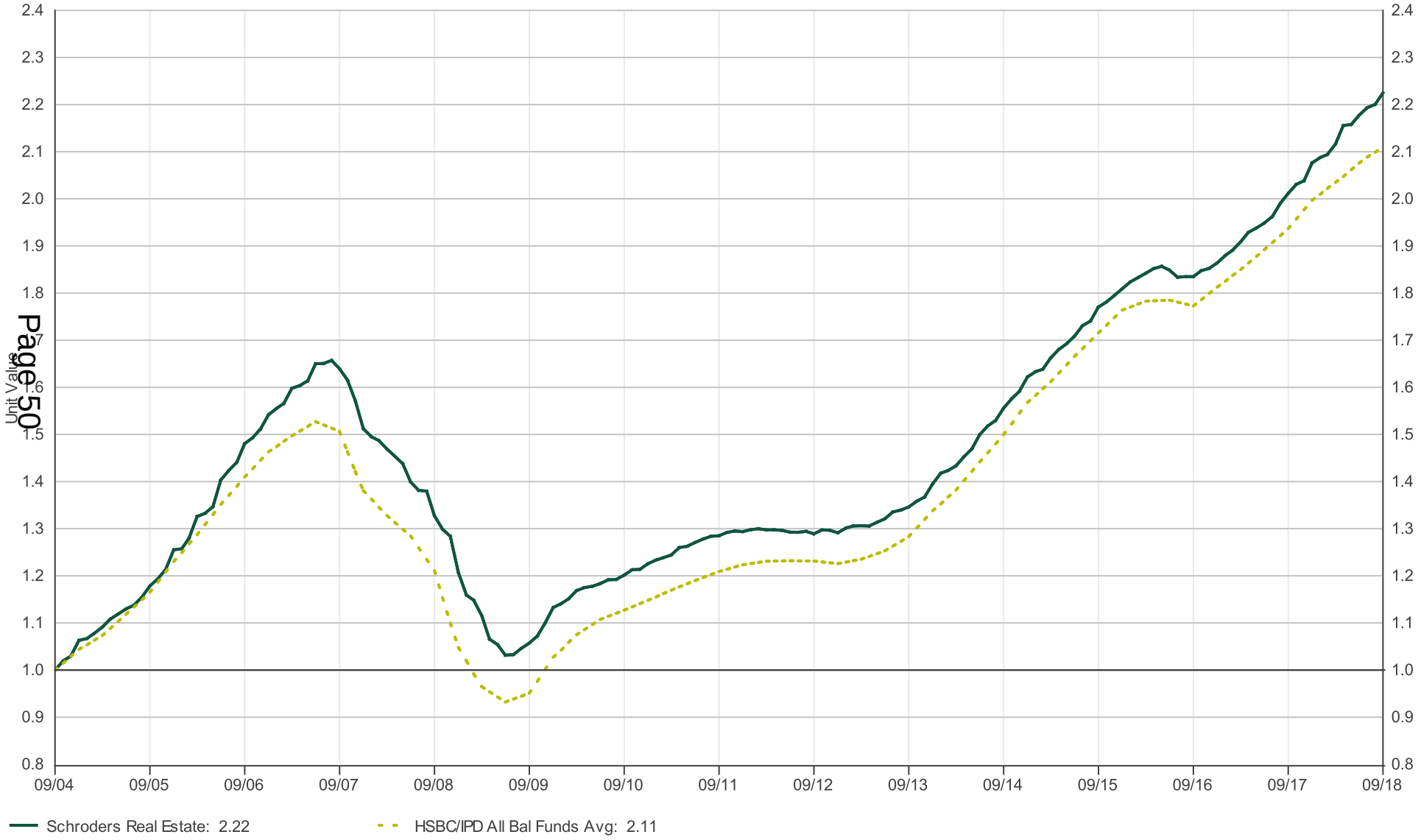
	1 Mo
Beginning Market Value	157,573
Net Contribution	0
Income	619
Fees	2
Appreciation	1,132
Ending Market Value	159,324

**Market Values are in 000s.*

Asset Class	End MV	End Wt	1 Mo	3 Mos	YTD	1 Yr	3 Yrs	5 Yrs	ITD
Real Estate	**156,149,878**	**98.01**	**0.91**	**1.77**					
Cash & Short Term Deriv.	**3,174,138**	**1.99**	**9.57**	**27.63**					
Pending Cash	**0**	**0.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Foreign Exchange	**0**	**0.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total Fund Net of Fees	**159,324,016**	**100.00**	**1.11**	**2.19**	**7.16**	**10.61**	**7.92**	**10.57**	**5.88**
HSBC/IPD All Bal Funds Avg			0.47	1.60	5.60	8.88	7.13	10.44	5.47
Excess Return			*0.64*	*0.59*	*1.56*	*1.73*	*0.79*	*0.13*	*0.40*

Excess is calculated using arithmetic methodology
**Fees are not represented as an Asset Class*

Growth Over Time - Inception to Date



SECTION 9

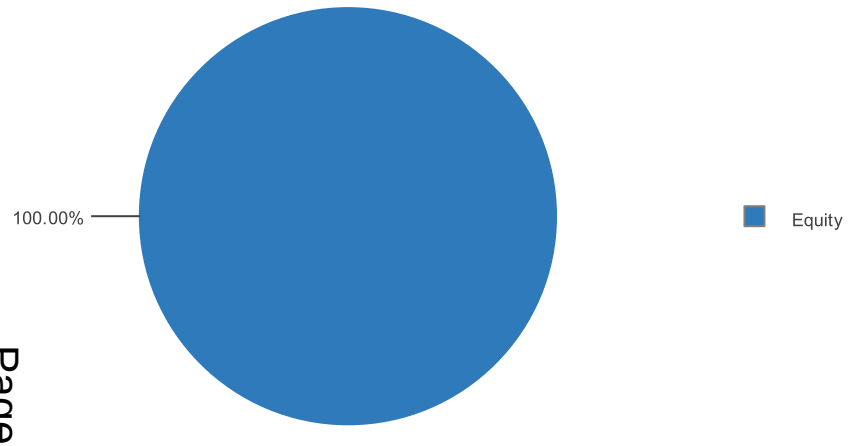
LCIV BG Diversified Growth Fd

Investment Risk & Analytical Services

September 30, 2018

Asset Class Performance

ASSET CLASS ENDING WEIGHTS



MARKET VALUE SUMMARY OVER TIME

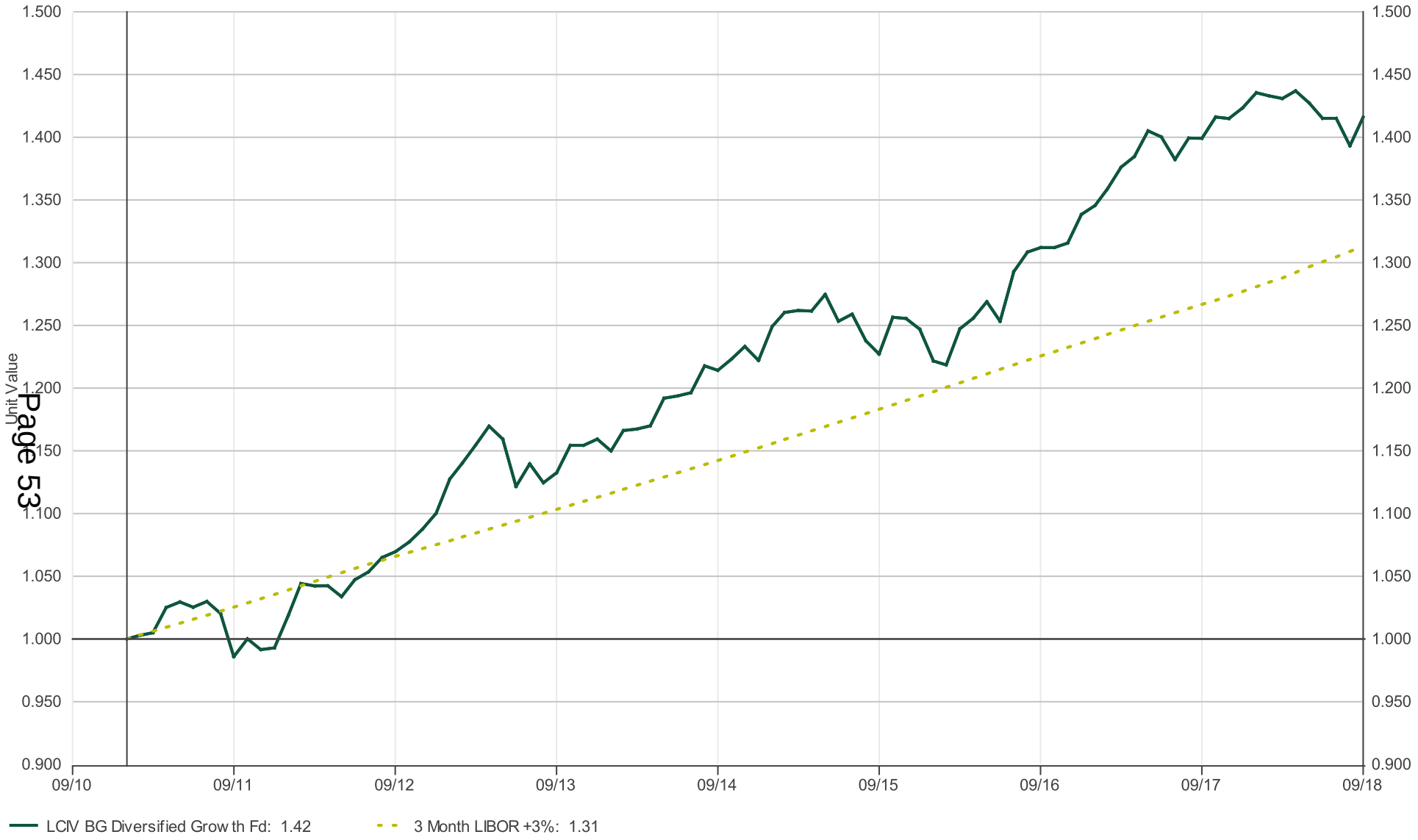
	1 Mo
Beginning Market Value	132,851
Net Contribution	0
Income	2,055
Fees	0
Appreciation	127
Ending Market Value	135,032

**Market Values are in 000s.*

Asset Class	End MV	End Wt	1 Mo	3 Mos	YTD	1 Yr	3 Yrs	5 Yrs	ITD
Equity	**135,032,255**	**100.00**	**1.64**	**0.07**					
Common Stock	135,032,255	100.00	1.64	0.07					
Cash & Short Term Deriv.	**0**	**0.00**							
Pending Cash	**0**	**0.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total Fund Net of Fees	**135,032,255**	**100.00**	**1.64**	**0.07**	**-0.51**	**1.21**	**4.89**	**4.57**	**4.64**
3 Month LIBOR +3%			0.32	0.96	2.83	3.66	3.54	3.54	3.62
Excess Return			*1.32*	*-0.89*	*-3.34*	*-2.45*	*1.35*	*1.03*	*1.02*

Excess is calculated using arithmetic methodology
**Fees are not represented as an Asset Class*

Growth Over Time - Inception to Date



SECTION 10

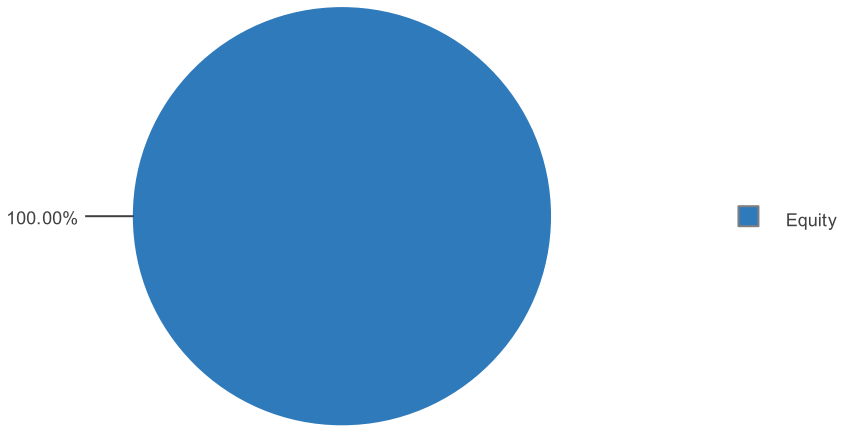
LCIV Ruffer Absolute Return Fd

Investment Risk & Analytical Services

September 30, 2018

Asset Class Performance

ASSET CLASS ENDING WEIGHTS



MARKET VALUE SUMMARY OVER TIME

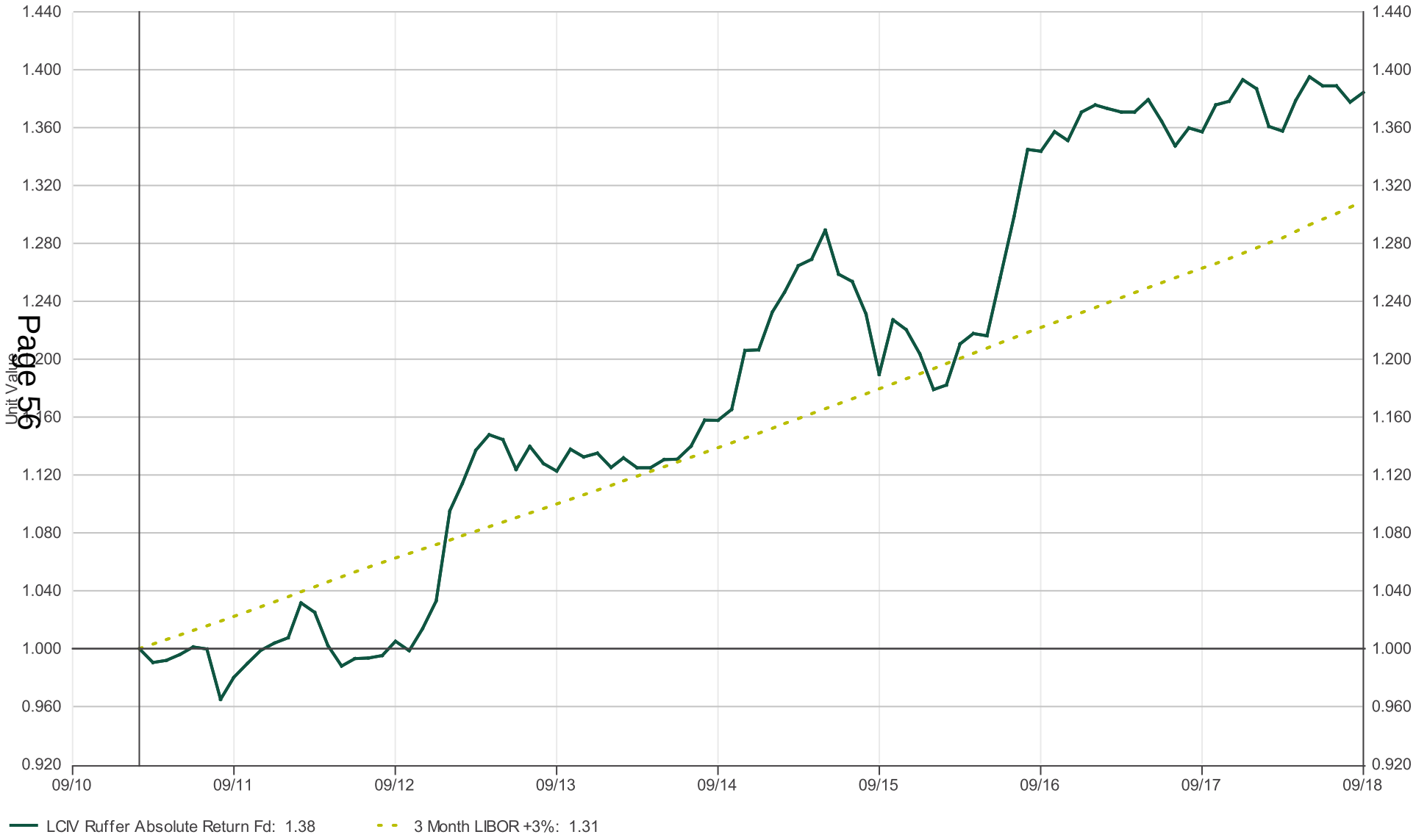
	1 Mo
Beginning Market Value	133,232
Net Contribution	0
Income	648
Fees	0
Appreciation	1
Ending Market Value	133,880

**Market Values are in 000s.*

Asset Class	End MV	End Wt	1 Mo	3 Mos	YTD	1 Yr	3 Yrs	5 Yrs	ITD
Equity	**133,880,215**	**100.00**	**0.49**	**-0.33**					
Common Stock	133,880,215	100.00	0.49	-0.33					
Cash & Short Term Deriv.	**0**	**0.00**							
Pending Cash	**0**	**0.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total Fund Net of Fees	**133,880,215**	**100.00**	**0.49**	**-0.33**	**-0.63**	**2.01**	**5.19**	**4.28**	**4.38**
3 Month LIBOR +3%			0.32	0.96	2.83	3.66	3.54	3.54	3.62
Excess Return			*0.17*	*-1.28*	*-3.46*	*-1.66*	*1.65*	*0.74*	*0.77*

Excess is calculated using arithmetic methodology
**Fees are not represented as an Asset Class*

Growth Over Time - Inception to Date



SECTION 11

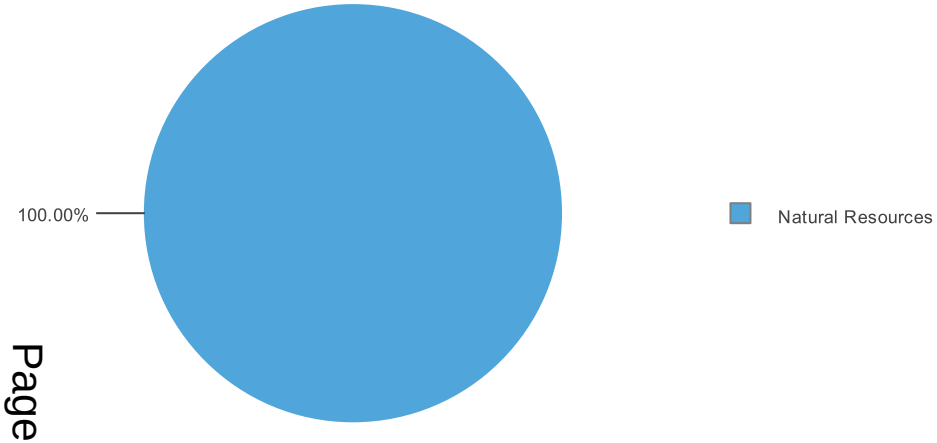
LCIV (CQS) MAC

Investment Risk & Analytical Services

September 30, 2018

Asset Class Performance

ASSET CLASS ENDING WEIGHTS



MARKET VALUE SUMMARY OVER TIME

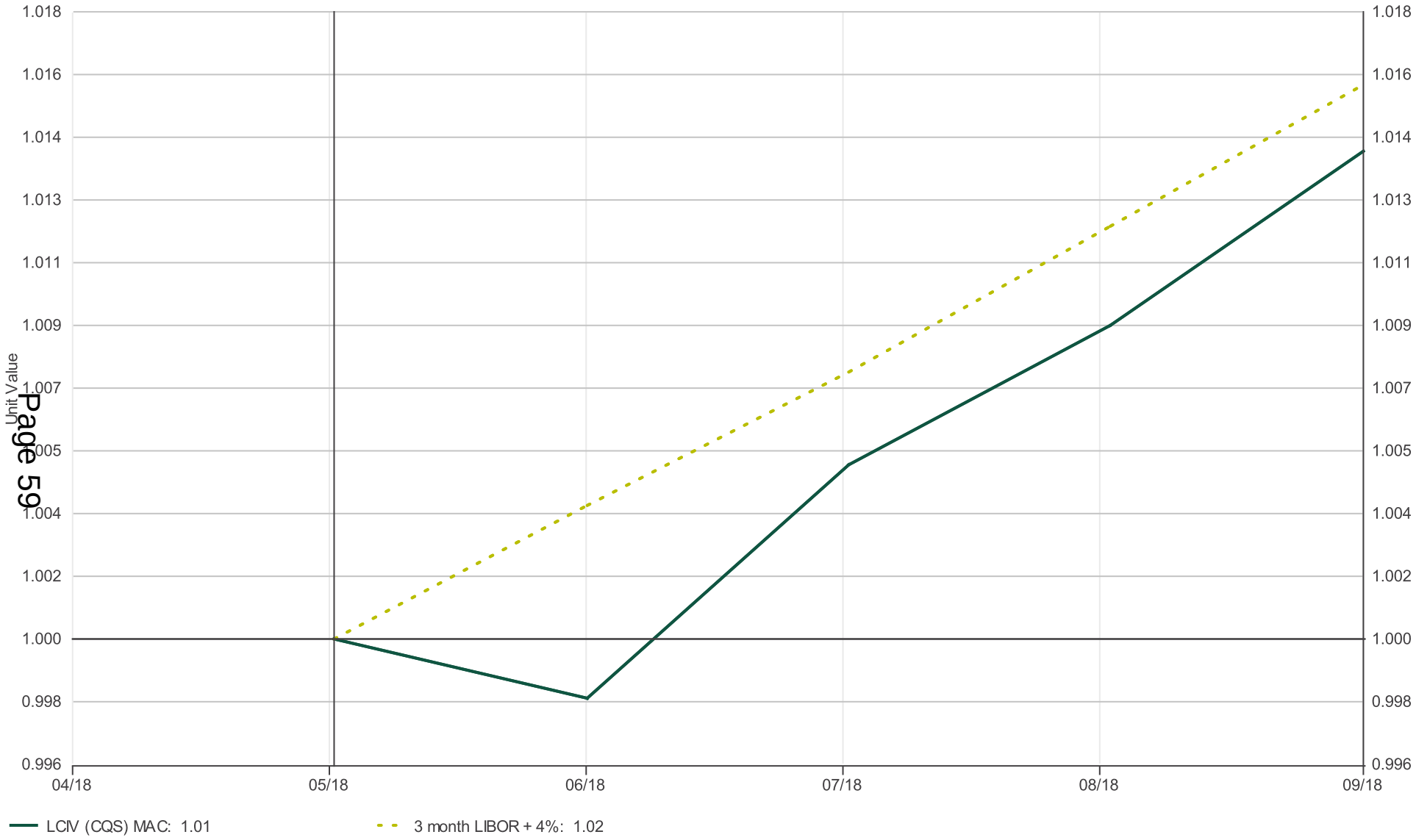
	1 Mo
Beginning Market Value	90,810
Net Contribution	0
Income	0
Fees	0
Appreciation	450
Ending Market Value	91,260

**Market Values are in 000s.*

Asset Class	End MV	End Wt	1 Mo	3 Mos	YTD	1 Yr	3 Yrs	5 Yrs	ITD
Private Debt	**91,260,000**	**100.00**	**0.50**	**1.57**					**1.40**
Total Fund Net of Fees	**91,260,000**	**100.00**	**0.50**	**1.57**					**1.40**
3 month LIBOR + 4%			0.40	1.20					1.59
Excess Return			*0.09*	*0.37*					*-0.19*

Excess is calculated using arithmetic methodology
**Fees are not represented as an Asset Class*

Growth Over Time - Inception to Date



SECTION 12

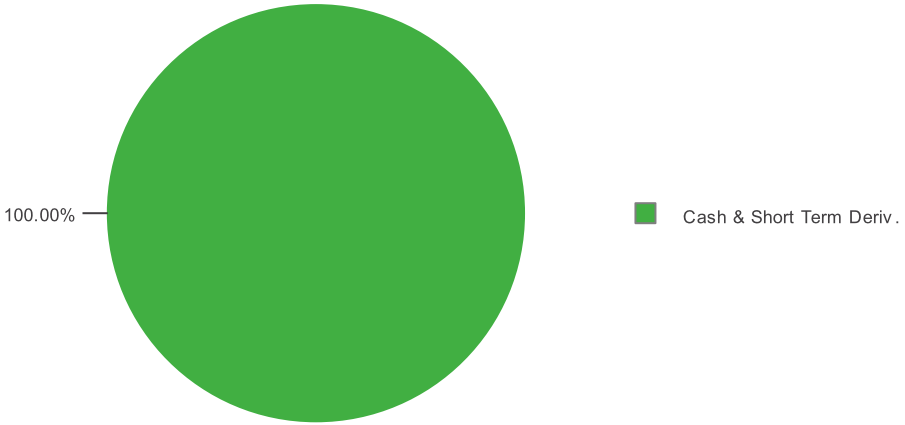
Internal Cash Management

Investment Risk & Analytical Services

September 30, 2018

Asset Class Performance

ASSET CLASS ENDING WEIGHTS



MARKET VALUE SUMMARY OVER TIME

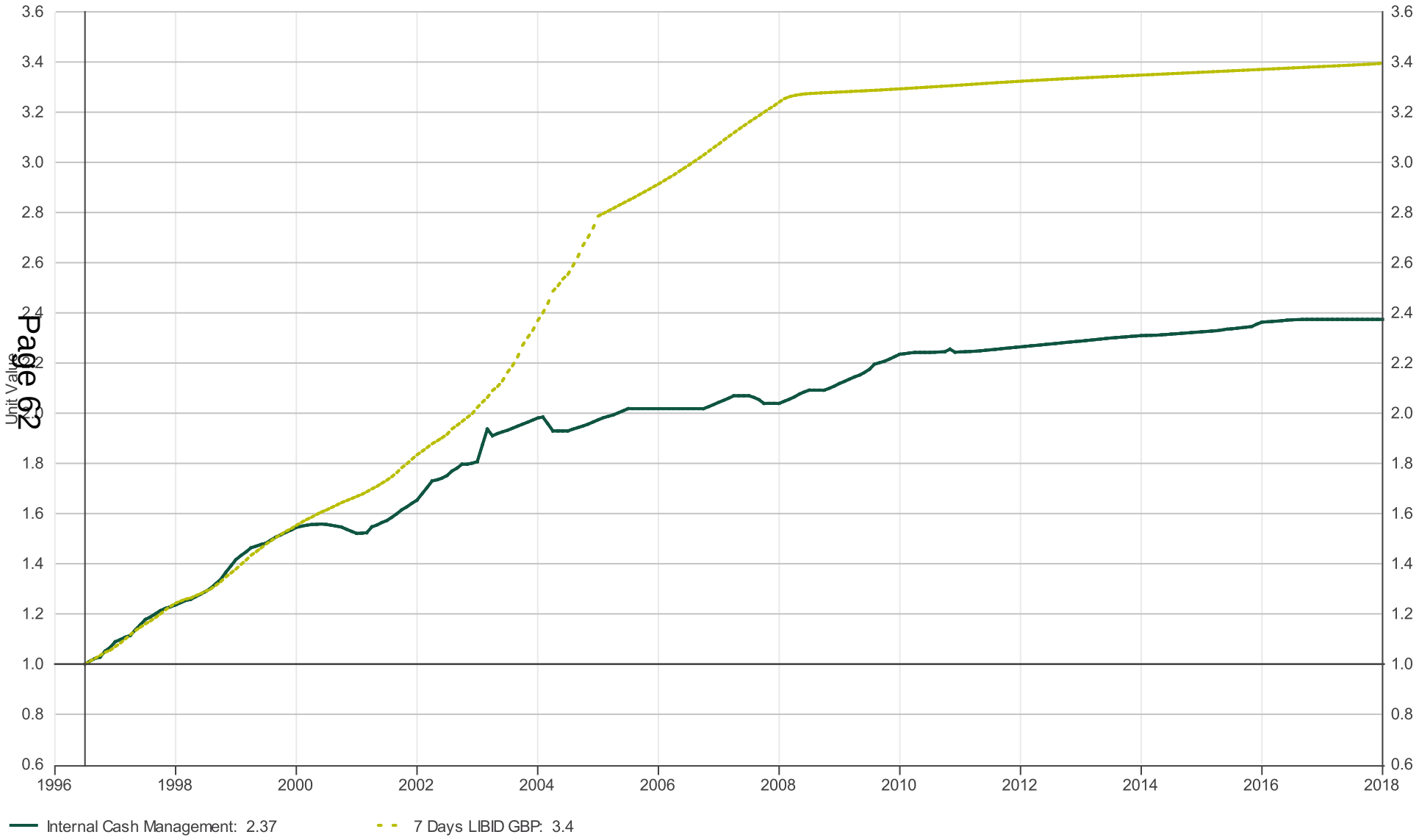
	1 Mo
Beginning Market Value	18,555
Net Contribution	-3,554
Income	0
Fees	0
Appreciation	0
Ending Market Value	15,001

**Market Values are in 000s.*

Asset Class	End MV	End Wt	1 Mo	3 Mos	YTD	1 Yr	3 Yrs	5 Yrs	ITD
Cash & Short Term Deriv.	**15,001,196**	**100.00**	**0.00**	**0.00**					
Total Fund Net of Fees	**15,001,196**	**100.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.71**	**0.75**	**4.10**
7 Days LIBID GBP			0.05	0.12	0.30	0.39	0.36	0.35	5.85
Excess Return			*-0.05*	*-0.12*	*-0.30*	*-0.39*	*0.35*	*0.40*	*-1.75*

Excess is calculated using arithmetic methodology
**Fees are not represented as an Asset Class*

Growth Over Time - Inception to Date



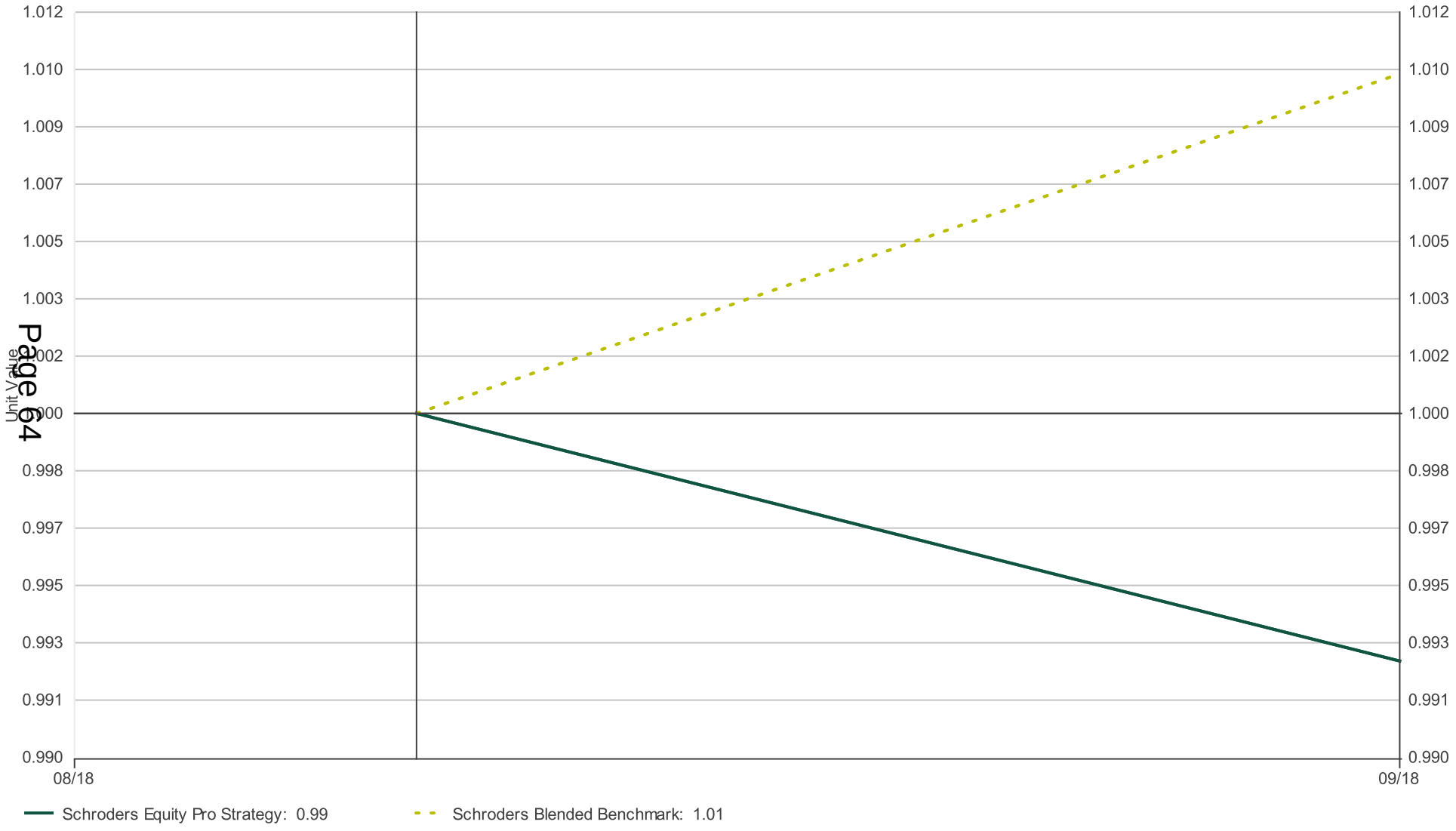
SECTION 13

Schroders Equity Pro Strategy

Investment Risk & Analytical Services

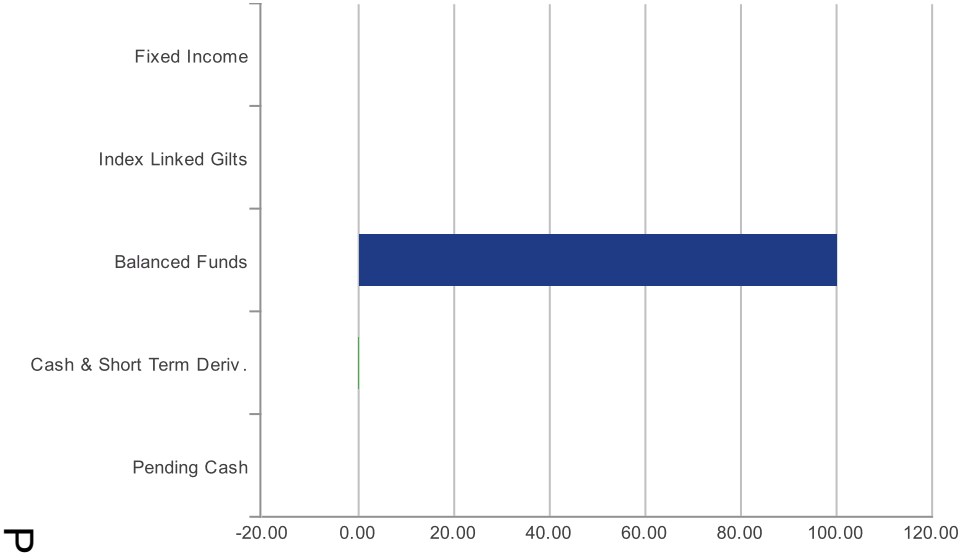
September 30, 2018

Growth Over Time - Inception to Date



Asset Class Performance

ASSET CLASS ENDING WEIGHTS



MARKET VALUE SUMMARY OVER TIME

	1 Mo
Beginning Market Value	
Net Contribution	
Income	
Fees	
Appreciation	
Ending Market Value	214,158

**Market Values are in 000s.*

Asset Class	End MV	End Wt	1 Mo	3 Mos	YTD	1 Yr	3 Yrs	5 Yrs	ITD
Fixed Income	**0**	**0.00**							**-3.17**
Inflation Linked Bonds	0	0.00							-3.17
Index Linked Gilts	**0**	**0.00**							**-3.20**
Balanced Funds	**214,158,184**	**100.00**							**-0.73**
Cash & Short Term Deriv.	**-12**	**-0.00**							**-0.00**
Pending Cash	**0**	**0.00**	-	-	-	-	-	-	-
Total Fund Net of Fees	**214,158,173**	**100.00**							**-0.73**
Schroders Blended Benchmark									1.01
Excess Return									*-1.74*

Excess is calculated using arithmetic methodology
**Fees are not represented as an Asset Class*

SECTION 14

Appendix

Investment Risk & Analytical Services

September 30, 2018

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LONDON CIV

LCIV Quarterly Investment Report

London Borough of Tower Hamlets Pension Fund

30 September 2018

Introduction

We are pleased to present the LCIV Quarterly Investment Report for the London Borough of Tower Hamlets Pension Fund for the quarter to 30 September 2018. The Report provides an Investment Summary with valuation and performance data of your Pension Fund's holdings. It inlcudes an update on activities at LCIV, a market update and Fund commentary from the LCIV Investment Team as well as key portfolio data and a summary of ESG activity during the quarter. We hope you find this report informative. Should you require any further information regarding any aspect of your investment, or about our service, please contact our Client Service Team via e-mail (clientservice@londonciv.org.uk).

Contents

Investment Summary

The table below shows the funds held by the London Borough of Tower Hamlets Pension Fund by asset class as at 30 September 2018 and how these have changed during the quarter.

	30 June 2018	Net Subscriptions / (Redemptions) /	Cash Distributions Paid	Net Market Move	30 September 2018
Active Investments	£	£	£	£	£
Global Equity					
LCIV Global Alpha Growth Fund	341,239,896	-	-	10,378,443	351,618,339
Multi Asset					
LCIV Diversified Growth Fund	134,937,287	-	-	94,968	135,032,255
LCIV Absolute Return Fund	134,319,823	-	-	(439,608)	133,880,215
Fixed Income					
LCIV MAC Fund	89,847,000	-	-	1,413,000	91,260,000
Total	**700,344,006**	**-**	**-**	**11,446,803**	**711,790,809**

The table below outlines the valuation of investments held per passive manager at the beginning and end of the quarter. A listing of the individual funds held can be found at the end of the Funds section of this report.

	30 June 2018	30 September 2018
Passive Investments †	£	£
LGIM	552,444,910	360,380,443

† Passive investments are managed in investment funds for which LCIV has no management or advisory responsibility and are shown for information purposes only.

Investment Summary

Please see below the performance for funds in which you are invested. Performance since inception is annualised where period since inception is over 12 months.

	Current Quarter (%)			1 Year (%)			Since Inception p.a. (%)		
Net Performance	**Fund Net**	**Benchmark***	**Relative**	**Fund Net**	**Benchmark***	**Relative**	**Fund Net**	**Benchmark***	**Relative**
LCIV Global Alpha Growth Fund	3.06	5.62	(2.56)	14.83	13.33	1.50	22.39	18.35	4.04
LCIV Diversified Growth Fund	0.06	n/a	0.06	1.25	n/a	1.25	4.75	n/a	4.75
LCIV Absolute Return Fund	(0.37)	n/a	(0.37)	1.97	n/a	1.97	3.98	n/a	3.98
LCIV MAC Fund	1.52	n/a	1.52	n/a	n/a	n/a	1.34	n/a	1.34

**For details of which benchmark is used for each fund please see the LCIV funds page towards the end of the report.*

LCIV Update

The third quarter of the year saw the LCIV's assets under management climb to just over £7.5 billion invested through the ACS platform. LCIV funds launched since January have now attracted almost £1 billion of investment. Passive assets managed by LGIM and Blackrock also grew during the period, aided by strong flows into low carbon tracker strategies, to reach a total of £9.7 billion across the two managers. This means that, at the end of the quarter, around 47% of London borough's pension fund assets are now 'pooled'.

The LCIV MAC Fund, which launched in May, saw continued inflows making it our most successful fund launch so far. Six London Local Authorities have now invested just under £500 million between them. Our plans for the LCIV infrastructure offering will be communicated to you shortly and we are holding an Infrastructure Forum at County Hall on Thursday, 8th November. Pension officers, Chairs and members are welcome to attend.

On the people front, we welcomed Maggie Abrahams back as Deputy Chief Operating Officer, Will McBean joined the client team and two new investment analysts, Umer Nazir and Pruthvi Odedra, started with the investment team. Chloe Crouch went on maternity leave and delivered a healthy baby girl, Poppy, in August.

The LCIV will be relocating to new offices during November. From Monday 19th November our new address will be Fourth Floor, 22 Lavington Street, SE1 0NX

Please contact us through clientservice@londonciv.org.uk

Market Update

Global equities made gains in the last quarter, primarily on the back of continuing strength of the U.S. market. As expected, global bond yields were broadly higher as central banks rhetoric was more hawkish over the Quarter.

The U.S. stock market remained buoyant, again pushing all-time highs, and this was all despite trade tension between the US and China. In fact, the recent equity bull market became the longest in history on August 22 at 113 months. The recent continuation of this run was led by investor confidence in the robust economic growth outlook and impressive earnings data as corporate profits jumped 16% year-on-year, on average. The Fed officially dropped its "accommodative" monetary policy approach and hiked the base rate by another 25 basis points, as anticipated. With the consumer price index rising 2.7%, wage growing at fastest rate since 2009 and industrial activity indicators showing little impact from the trade war, the Fed reaffirmed its gradual hike roadmap for 2019.There were some notable late cycle signs though, with some rotation at the sector and stock level. The IT market, in particular, was one which saw some rotation, as companies such as Tencent and Facebook retraced over the Quarter.

In Europe, companies posted positive quarterly profits, but the gains were modest against their U.S. counterparts which showed in indices' performances as well. Despite business activity ticking up and strong labour markets, export growth was slow and business confidence declined. European Central Bank reiterated that interest rates would remain on hold until the summer of 2019, although did begin their reduction in Quantitative Easing by halving monthly bond purchases in October. Trade tension effects were more apparent in Eurozone than in the U.S., as the auto sector and other major exporters were affected by fear of tariffs. Market concerns rose as Italian government proposed a budget deficit of 2.4%, much higher than anticipated. In addition to that, Turkish currency crisis put the bank shares across the continent under pressure.

FTSE All-Share fell 0.8% amid ongoing Brexit concerns – still a modest decline given that Prime Minister May faced rejection of her Chequers plan by the EU, raising prospects of a hard Brexit. BoE raised interest rates for the first time in ten years by 25 basis points, reversing the effect of August 2016 cut. Sterling also continued its downward trajectory.

Emerging markets faced a turbulent quarter with the MSCI Emerging Markets underperforming the MSCI World Index. The strength of U.S. Dollar and lower risk appetite of investors were the main contributors to the weak performance. China was among the worst performers as foreign investors began to withdraw from the market over credit bubble concerns. Argentina also continued to work through their recent liquidity crisis and formally requested aid from the IMF to help contain the crisis.

In Bonds, U.S. ten-year yields rose from 2.86% to 3.06%, with Bund and UK gilt rising from 0.30% to 0.47% and 1.42% to 1.57% respectively. Italian 10-year government bond yield rose from 2.68% to 3.15% due to political concerns. Global high yield (HY) returned 2.1% with U.S. HY producing 2.4% and Global Investment grade returned 0.6%. Emerging market dollar denominated debt underperformed while hard currency sovereign debt showed positive performance.

LCIV Global Alpha Growth Fund

Quarterly Summary as at 30 September 2018

Total Fund Value:

£2,371.3m

Inception date:	11/04/2016
Capacity*:	See note below
Price:	165.80p
Distribution frequency:	Quarterly
Next XD date:	01/10/2018
Pay date:	31/12/2018
Estimated ppu:	0.3248

Investment Objective

The objective of the Sub-fund is to exceed the rate of return of the MSCI All Country World Index by 2-3% per annum on a gross fee basis over rolling five year periods.

Tower Hamlets Valuation:

£351.6m

Tower Hamlets investment date: 18/04/2016

This is equivalent to 14.83% of the Fund

Distribution option: Reinvest

Est. distribution to be reinvested: £688,816

Net Performance	Current Quarter (%)	1 Year (%)	Since Inception p.a. (%)
Fund	3.06	14.83	23.58
Benchmark**	5.62	13.33	19.35
Relative to Benchmark	(2.56)	1.50	4.23

Net Performance	Current Quarter (%)	1 Year (%)	Since Inception p.a. (%)
Tower Hamlets	3.06	14.83	22.39
Benchmark**	5.62	13.33	18.35
Relative to Benchmark	(2.56)	1.50	4.04

**Total fund capacity as at 30 September 2018. Capacities may change, for details on remaining current capacity available for further investment please contact the Client Service Team at clientservice@londonciv.org.uk.*

*** Benchmark name: MSCI All Country World Gross Index*

LCIV Global Alpha Growth Fund

Quarterly Commentary

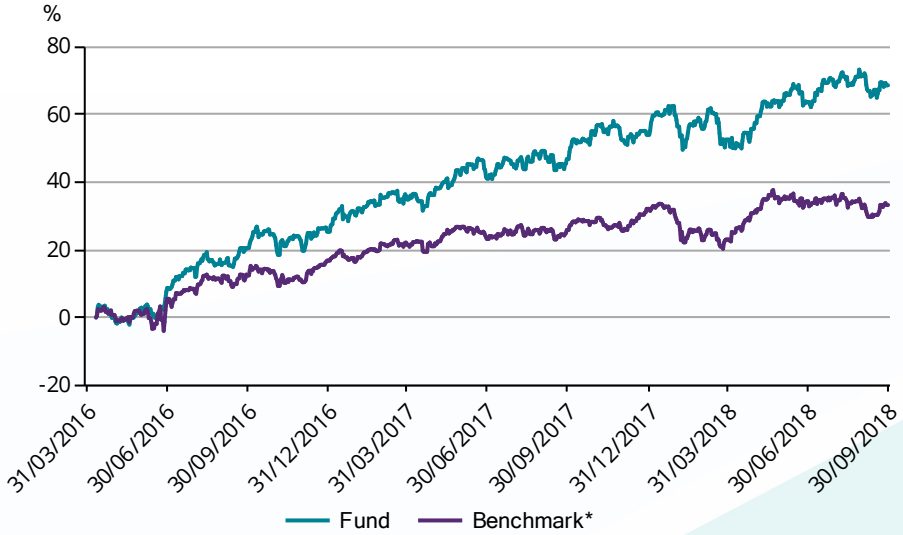
The fund delivered 3.06% return, underperforming the MSCI AC World Index by 2.56%. This was following consistently strong performance since inception.The underperformance was largely driven by the underweight to US, which was the strongest-performing index. This was a conscious decision by the portfolio managers, who were increasingly concerned over the valuations within US Cyclicals, in particular, and reducing their exposure to this area over the Quarter. Instead, the managers have over-weighted the Emerging Market exposure, holding over 18% in these markets, which suffered on the back of Trade concerns.

However, the main causes for the portfolio underperformance were due to stock specific factors. Naspers, the South African internet and media group who has a significant portion of revenues coming from Tencent, fell sharply on the back of the Chinese government's announcement that they would temporarily freeze licence approvals on new games. This detracted 0.6% from the fund. Ryanair also provided a headwind for the fund, as the pilot strikes and associated fines hurt the share price, cutting 0.2% off the overall performance of the fund.

Positive attribution was dominated by technology and internet-enabled businesses, including Amazon, Advanced Micro Devices, Taiwan Semiconductor Manufacturing and Grubhub. The manager has since reduced positions in all four of these stocks and has deployed capital in earlier stage opportunities.

The Fund suffered a weak quarter, but thus far long-term performance remains strong. The manager maintains its allocation in cyclical and high multiple stocks which positions it well for any rebound in global equities following a disappointing quarter but in case world markets face a slump, then this strategy can lead to adverse returns. The trading strategy remains late-cycle, content to take profits in the winners and recycle into other, less cyclical, opportunities. Nevertheless, the beta of the fund is still expected to be high, given the overall strategy of the fund. Should markets fall, there is a danger that this fund will fail to protect on the downside.

Performance since LCIV inception



Source: Fund prices calculated based on published NT prices. Benchmarks obtained from Bloomberg. All performance reported net of fees and charges with distributions reinvested.

**MSCI All Country World Gross Index*

The fund underperformed the index in Q3, driven primarily by stock specific factors. The underweight to US and IT provided a headwind, but holdings in Naspers, Ryanair, Apple were largely to blame for the underperformance. The recycling of old ideas into new is a reflection that the managers believe valuations are high and diversification is key to protecting returns. However, clients should not expect this fund to protect on the downside, as there is little margin of safety in many of the stocks within the portfolio should the market slide.

The team have welcomed Mir Azabhalyi to the desk as part of the graduate rotation cycle. There have been no changes to the process during the Quarter.

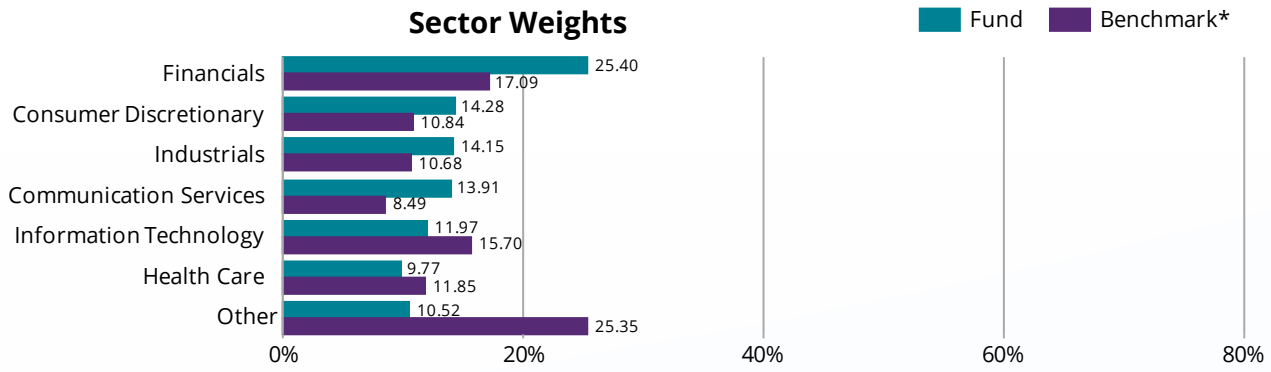
LCIV Global Alpha Growth Fund: Portfolio Characteristics

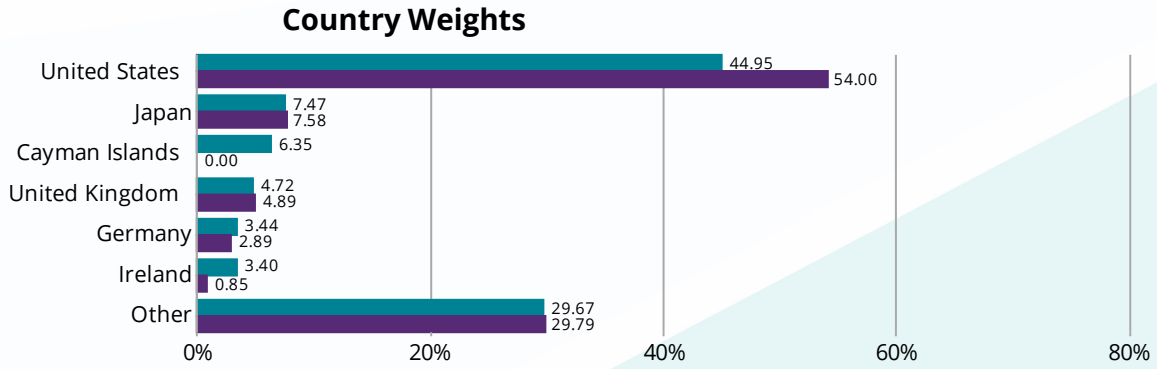
Key Statistics	
Number of Holdings	108
Number of Countries	26
Number of Sectors	10
Number of Industries	38

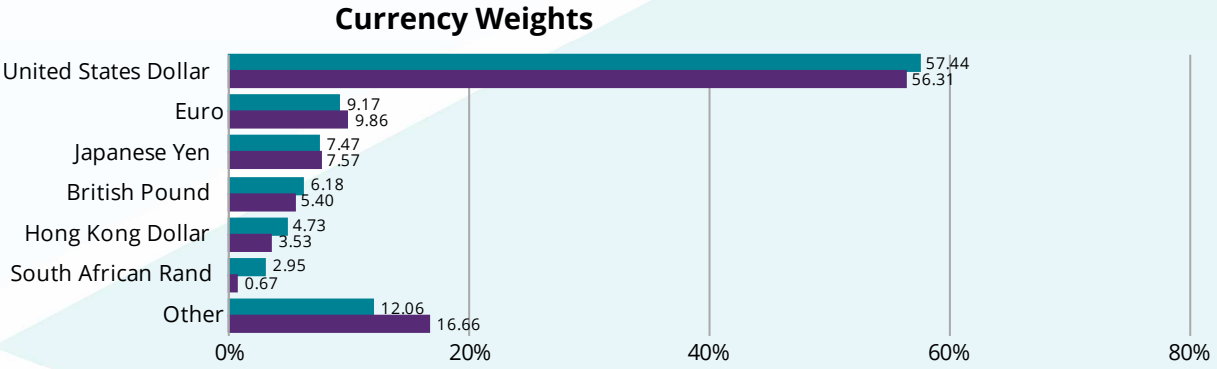
Source: Northern Trust Fund Accounting September 2018

Risk Statistics	
Active Risk	2.86
Total Risk	10.76
Beta	1.03

Source: Bloomberg PORT September 2018







Source: Northern Trust Fund Accounting and Bloomberg PORT September 2018

**MSCI All Country World Gross Index*

LCIV Global Alpha Growth Fund: Portfolio Characteristics

Top Ten Equity Holdings	
Security Name	**% of Portfolio**
Amazon Common Stock	4.39
Naspers Limited N Shares	2.95
Prudential plc	2.83
Anthem Inc	2.60
Apache Corp	2.39
Taiwan Semiconductor Manufacturing	2.34
SAP SE	2.14
Mastercard Inc	2.14
AIA Group Limited Ordinary Shares	2.14
Moody's Inc	2.10

Top Ten Contributors	
Security Name	**% Contribution**
Amazon Common Stock	+0.88
Taiwan Semiconductor Manufacturing	+0.50
Advanced Micro Devices Inc	+0.50
Anthem Inc	+0.40
GrubHub Inc	+0.33
Royal Caribbean Cruises Ltd	+0.28
Mastercard Inc	+0.28
Visa Inc A	+0.25
Schindler Holdings AG	+0.20
Thermo Fisher Scientific Inc	+0.19

Top Ten Detractors	
Security Name	**% Detraction**
Naspers Limited N Shares	(0.47)
Zillow Group Inc C	(0.27)
Alibaba Group Holdings Ltd ADS	(0.23)
Ryanair Holdings plc	(0.21)
Facebook Inc	(0.20)
Martin Marietta Materials Stock	(0.19)
Tesla Inc	(0.19)
CTRIP.COM International	(0.16)
Autohome Inc ADR	(0.15)
Housing Development Finance	(0.15)

New Positions During Quarter
Security Name
SERV. INTERNATIONAL/US
SPOTIFY TECH.
CHIPOTLE MEXICAN GRILL
MEITUAN DIANPING
SHOPIFY
JUST EAT

Completed Sales During Quarter
Security Name
Abiomed Inc
Lincoln Electric Holdings
MTN Group

Source: Northern Trust Fund Accounting and Bloomberg
PORT September 2018

LCIV Global Alpha Growth Fund: ESG Summary

Environmental

Social

Governance

Summary of ESG Policy

In addition to face to face meetings with management, the Underlying Manager will consider factors such as management turnover, capital allocation, remuneration policies and social and environmental factors. The Underlying Manager also has a specialised independent Governance & Sustainability team which, working alongside their investment teams, monitors the companies in which they invest and engages with companies where appropriate. Their full ESG policy can be provided by LCIV upon request.

The UK Stewardship Code rating of the Underlying Manager is tier 1.

Summary of ESG Activity for the Quarter

Examples of engagements of the Underlying Manager during Q3 2018 include:
Corporate Governance: ICICI Bank, Orica, Ryanair
Environmental/Social: Martin Marietta Materials, Tesla
AGM or EGM Proposals: Naspers

Link to Underlying Managers Voting Report for the Quarter

https://secure.londonciv.org.uk/funds/global-alpha-growth/#reports

Relevant Holdings

Sector		% of portfolio
Brewers		**0.20**
Tsingtao Brewery Co Ltd		
Casinos & Gaming		**0.35**
Sands China Ltd		
Distillers & Vintners		**1.02**
Pernod-Ricard		
Oil & Gas		**3.62**
Apache Corp	EOG Resources	
Total		**5.19**

Source: Northern Trust Fund Accounting September 2018

LCIV Diversified Growth Fund

Quarterly Summary as at 30 September 2018

Total Fund Value:

£637.1m

Inception date:	15/02/2016
Capacity*:	See note below
Price:	114.70p
Distribution frequency:	Semi-Annually
Next XD date:	01/10/2018
Pay date:	31/12/2018
Estimated ppu:	0.9084

Investment Objective

The Sub-funds objective is to achieve long term capital growth at lower risk than equity markets.

Tower Hamlets Valuation:

£135.0m

Tower Hamlets investment date: 15/02/2016

This is equivalent to 21.20% of the Fund

Distribution option: Reinvest

Est. distribution to be reinvested: £1,069,427

Net Performance	Current Quarter (%)	1 Year (%)	Since Inception p.a. (%)
Fund	0.06	1.25	6.83

Net Performance	Current Quarter (%)	1 Year (%)	Since Inception p.a. (%)
Tower Hamlets	0.06	1.25	4.75

**Total fund capacity as at 30 September 2018. Capacities may change, for details on remaining current capacity available for further investment please contact the Client Service Team at clientservice@londonciv.org.uk.*

LCIV Diversified Growth Fund

Quarterly Commentary

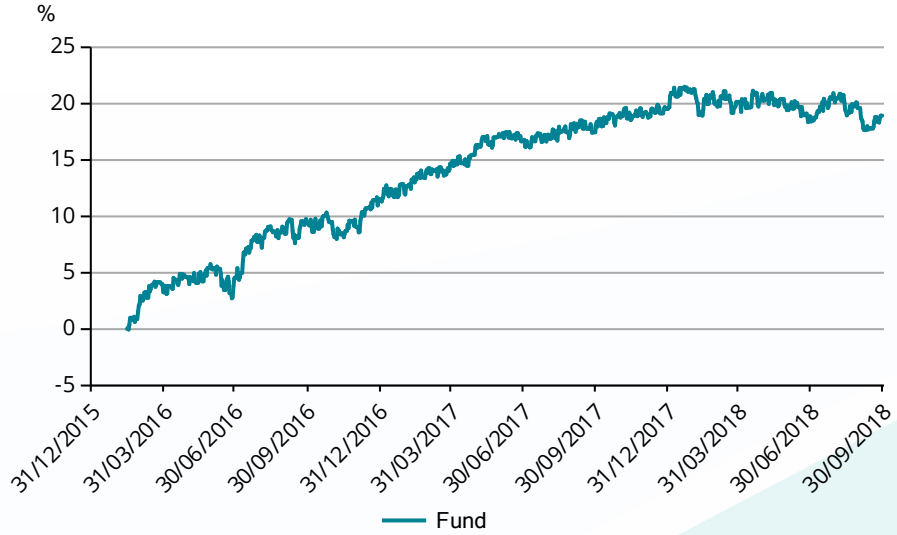
LCIV Diversified Growth Fund's performance was flat at 0.1% in Q3 2018. This is a decrease from Q2 2018 which returned 1.08%. In the recent Quarter most asset classes delivered a small positive return, with infrastructure the best performing asset class. Detractors to performance included commodities, active currency and emerging market bonds. Within commodities the funds position in nickel detracted on trade-related news-flow; emerging market bonds continued to have a difficult time, in particular the Diversified Growth Fund's exposure to Argentina; and in active currency the Japanese yen exposure detracted.

In view of increasing geopolitical risk caused by trade wars, Brexit, slowdown in US growth, and quantitative tightening, the fund manager has made small reductions to listed equities, property, loans and emerging market government bonds. Instead the fund added to volatility (VIX) futures, as well as government bond positions designed to protect against rising inflation in the US; and increased cash levels.

Whilst the underlying manager acknowledges the short-term pressures, it still likes the longer-term outlook for emerging markets, with attractive demographics and improving productivity supportive of better growth than that expected from developed markets. The fund therefore retains a meaningful position in emerging market bonds, but has reduced exposure to local currency-denominated bonds, and reinvested some of the proceeds in hard currency emerging market bonds (US dollar denominated).

Whilst not performing as well as some of its peers, the Diversified Growth Fund is recognising risks arising in global market conditions and is adjusting its portfolio to protect against volatility.

Performance since LCIV inception

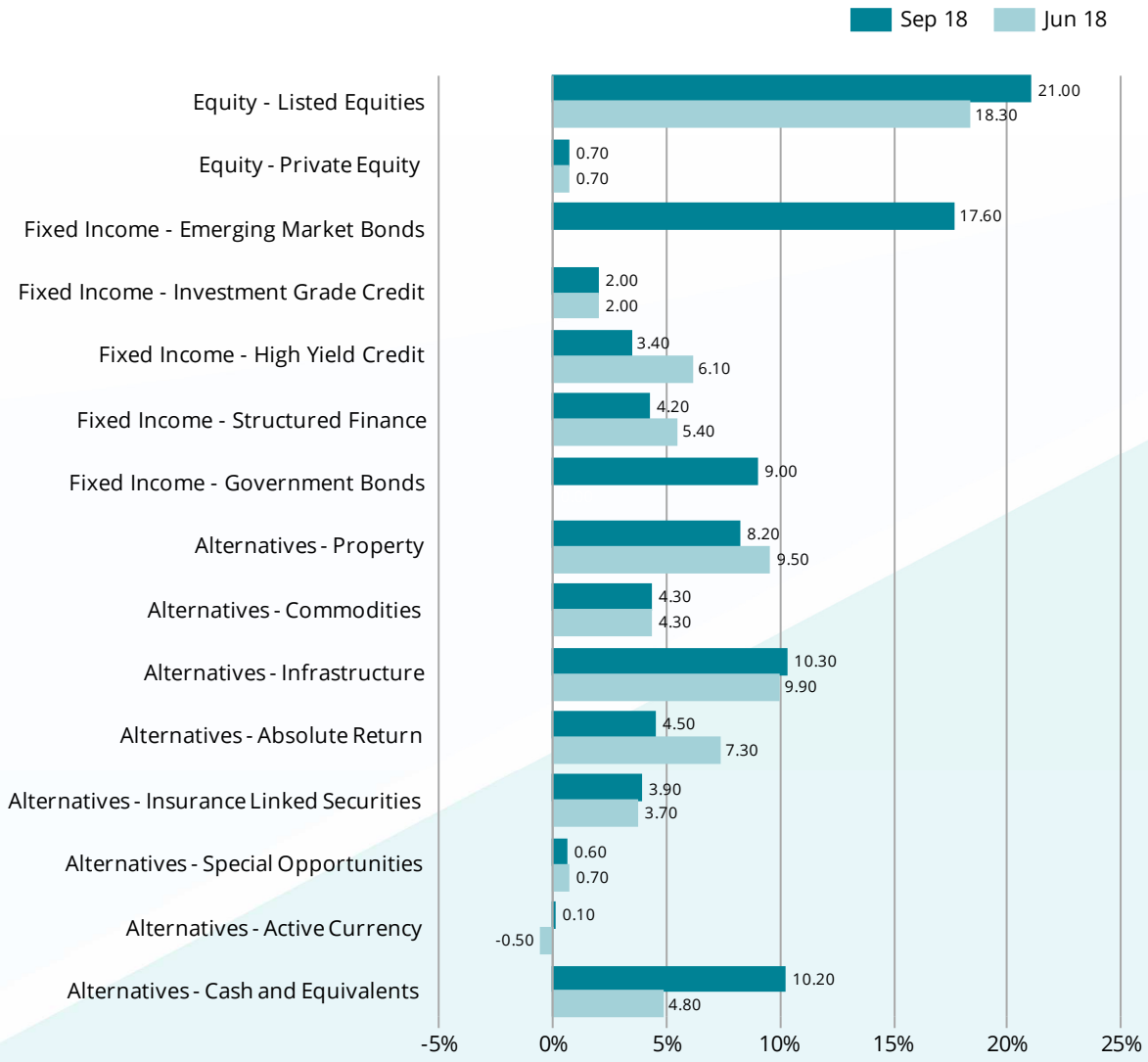


Source: Fund prices calculated based on published NT prices. All performance reported Net of fees and charges with distributions reinvested.

LCIV Diversified Growth Fund: Portfolio Characteristics

Key Statistics		
	30 June 2018	30 September 2018
Beta	0.21	0.27
Duration	1.52 years	1.28 years

Portfolio Exposures		
	30 June 2018	30 September 2018
Equity	**19.00**	**21.70**
Listed Equities	18.30	21.00
Private Equity	0.70	0.70
Fixed Income	**13.50**	**36.20**
Emerging Market Bonds	0.00	17.60
Investment Grade Credit	2.00	2.00
High Yield Credit	6.10	3.40
Structured Finance	5.40	4.20
Government Bonds	0.00	9.00
Alternatives	**39.70**	**42.10**
Property	9.50	8.20
Commodities	4.30	4.30
Infrastructure	9.90	10.30
Absolute Return	7.30	4.50
Insurance Linked Securities	3.70	3.90
Special Opportunities	0.70	0.60
Active Currency	(0.50)	0.10
Cash and Equivalents	4.80	10.20
Total	**72.20**	**100.00**



Source: Baillie Gifford & Co. Futures positions are included at their net exposure weight in the portfolio exposure column, and cash includes collateral held to back all long futures positions. Therefore total portfolio exposure may not sum to 100%.

LCIV Diversified Growth Fund: ESG Summary

Environmental

Social

Governance

Summary of ESG Policy

The Underlying Manager's Investment Team is responsible for engagement with the boards and management of companies and funds held directly within the Diversified Growth portfolio. A representative from their Governance & Sustainability Team provides a direct link with the investors, with regular meetings to oversee voting, support engagement and drive ESG analysis activities relevant to these investments. Their ESG Policy can be provided by LCIV upon request.

The UK Stewardship Code rating of the Underlying Manager is tier 1.

Summary of ESG Activity for the Quarter

Examples of engagements of the Underlying Manager in Q3 2018 include:
Votes Cast in Favour: Companies 24 / Resolutions 229
Votes Cast Against: Companies 7 / Resolutions 13
Votes Abstained/Withheld: Companies none / Resolutions none
No Vote: Companies 8 / Resolutions 27
Company Engagement:
AGM or EGM Proposals - British Land, Korea Electric Power Corporation, Sequoia Economic Infrastructure Income Fund Limited
Corporate Governance - Hydro One Limited, Sequoia Economic Infrastructure Income Fund Limited

Link to Underlying Managers Voting Report for the Quarter

https://secure.londonciv.org.uk/funds/diversified-growth/#reports

Relevant Holdings	
Sector	**% of Portfolio**
Oil & Gas	**0.456**
Antero Resources EDF Enquest	
Freeport McMoran	
Korea Electric Power	
Matador Resources	
Petroleos Mexicanos	
Range Resources Teck Resources	
Tenaga Nasional	
Casinos & Gambling	**0.004**
International Game Tech	
Total	**0.460**

Source: Baillie Gifford & Co

LCIV Absolute Return Fund

Quarterly Summary as at 30 September 2018

Total Fund Value:

£912.4m

Inception date:	21/06/2016
Capacity*:	£1500m
Price:	110.20p
Distribution frequency:	Semi-Annually
Next XD date:	01/10/2018
Pay date:	31/12/2018
Estimated ppu:	0.9297

Investment Objective

The Sub-funds objective is to achieve low volatility and positive returns in all market conditions. Capital invested in the Sub-fund is at risk and there is no guarantee that a positive return will be delivered over any one or a number of twelve-month periods.

Tower Hamlets Valuation:

£133.9m

Tower Hamlets investment date: 21/06/2016

This is equivalent to 14.67% of the Fund

Distribution option: Reinvest

Est. distribution to be reinvested: £1,129,478

Net Performance	Current Quarter (%)	1 Year (%)	Since Inception p.a. (%)
Fund	(0.37)	1.97	5.24

Net Performance	Current Quarter (%)	1 Year (%)	Since Inception p.a. (%)
Tower Hamlets	(0.37)	1.97	3.98

**Total fund capacity as at 30 September 2018. Capacities may change, for details on remaining current capacity available for further investment please contact the Client Service Team at clientservice@londonciv.org.uk.*

LCIV Absolute Return Fund

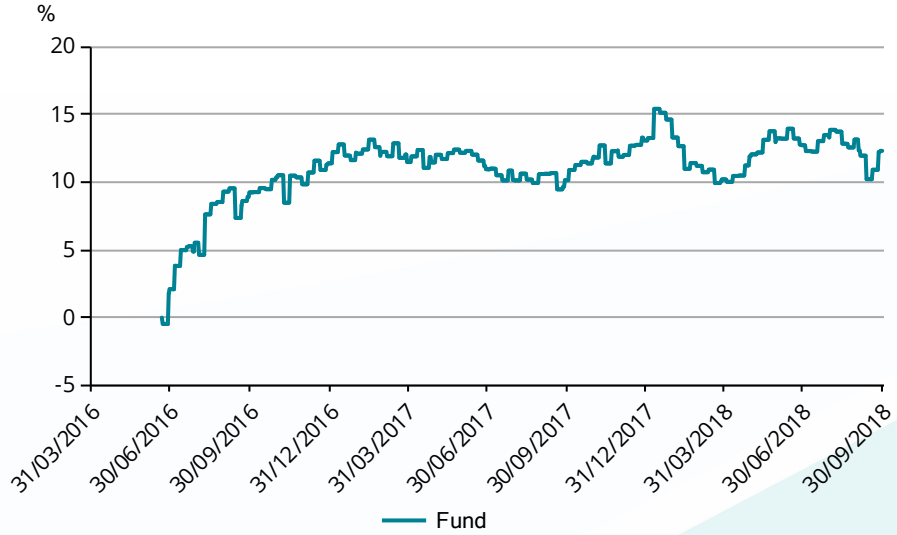
Quarterly Commentary

The LCIV Absolute Return Fund performance contracted in Q3 2018 with a return of -0.37%. This is a contrast to its solid performance in Q2 2018.

The fund's exposure to Japanese equities growth of 4.5% had a positive contribution to the portfolio however, gold related investments suffered and inflation-linked bonds sustained small loses cancelling out the equities gain. The underlying manager believes that it should maintain its defensive positions of holding large proportions of gilts and short dated bonds with Japanese financials as the fund manager questions whether the global economy is strong enough to tolerate higher interest rates and what the impact on financial markets will be as quantitative easing winds down.

Towards the end of Q3 the fund manager used the sharp drop in gold mining shares mentioned above to increase exposure there at the expense of the portfolio's holding in gold buillion. Positions in Barrick and Randgold amongst others were purchased, moves vindicated by the two companies announcing a merger shortly afterwards. A new position purchased for the portfolio is Cigna, the US-listed managed care provider, where concerns around its proposed takeover of Express Scripts had caused the shares to trade at a significant discount to its peers, and to its growth prospects. Its equity positioning continues to be a mixture of cyclical and financial equities alongside a selection of undervalued growth stocks, a combination the underlying manager feels to be appropriate in the mature stage of the equity cycle.

Performance since LCIV inception

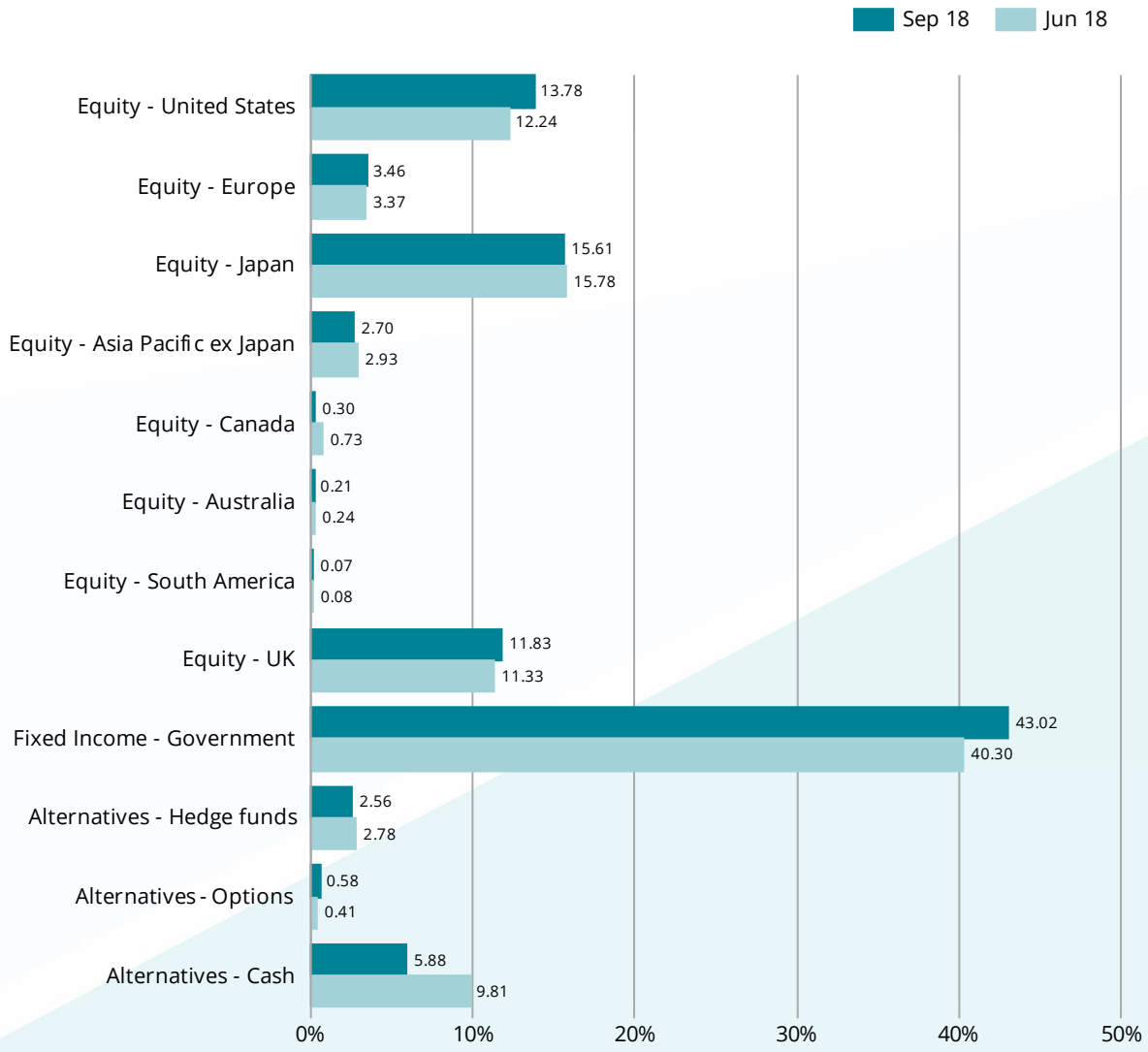


Source: Fund prices calculated based on published NT prices. All performance reported Net of fees and charges with distributions reinvested.

LCIV Absolute Return Fund: Portfolio Characteristics

Key Statistics		
	30 June 2018	30 September 2018
Beta	0.42	0.42
Duration	5.84	5.95

Portfolio Exposures		
	30 June 2018	30 September 2018
Equity	**46.70**	**47.96**
United States	12.24	13.78
Europe	3.37	3.46
Japan	15.78	15.61
Asia Pacific ex Japan	2.93	2.70
Canada	0.73	0.30
Australia	0.24	0.21
South America	0.08	0.07
UK	11.33	11.83
Fixed Income	**40.30**	**43.02**
Government	40.30	43.02
Alternatives	**13.00**	**9.02**
Hedge funds	2.78	2.56
Options	0.41	0.58
Cash	9.81	5.88
Total	**100.00**	**100.00**



Source: Ruffer LLP

LCIV Absolute Return Fund: ESG Summary

Environmental

Social

Governance

Summary of ESG Policy

ESG issues are integrated into the Underlying Manager's investment process from idea generation stage through to research review, front office review and conviction review. When ESG risks are identified they will endeavour to draft an active stewardship plan. Their ESG policy can be provided by LCIV upon request.
The UK Stewardship Code rating of the Underlying Manager is tier 1.

Summary of ESG Activity for the Quarter

Examples of engagements of the Underlying Manager during Q3 2018 include:
Research trip - Director for Responsible Investment and Head of Oil Group visited 5 US oil and oil services companies and attended the PRI in Person conference. Oil services companies - discussed greenhouse gas emissions reductions, climate-related scenario analysis and disclosure. Imperial Oil - met with company in Calgary to discuss its governance of risks relating to climate change, greenhouse gas emissions reductions targets and improving its disclosure. Wheaton Precious Metals - discussed remuneration and whether this is linked to sustainability criteria in recent meeting.

Link to Underlying Managers Voting Report for the Quarter

https://secure.londonciv.org.uk/funds/absolute-return/#reports

Relevant Holdings	
Sector	**% of Portfolio**
Fertilizers & Agricultural Chemicals	**1.55**
Yara	
DowDuPont	
Oil & Gas	**2.96**
BP	
Exxon	
Ultrapar	
Total	**4.51**

Source: Rufffer LLP

LCIV MAC Fund

Quarterly Summary as at 30 September 2018

Total Fund Value:

£492.1m

Inception date:	31/05/2018
Capacity*:	Unlimited
Price:	101.40p
Distribution frequency:	n/a
Next XD date:	n/a
Pay date:	n/a

Investment Objective

The Sub-funds objective is to seek to achieve a return of LIBOR+4-5%, with a net asset value volatility of 4-6%, on an annualised basis over a rolling 4 year period, net of fees.

Tower Hamlets Valuation:

£91.3m

Tower Hamlets investment date: 31/05/2018

This is equivalent to 18.54% of the Fund

Distribution option: Reinvest

Est. distribution to be reinvested: £-

Net Performance	Current Quarter (%)	1 Year (%)	Since Inception p.a. (%)
Fund	1.52	n/a	1.34

Net Performance	Current Quarter (%)	1 Year (%)	Since Inception p.a. (%)
Tower Hamlets	1.52	n/a	1.34

**Total fund capacity as at 30 September 2018. Capacities may change, for details on remaining current capacity available for further investment please contact the Client Service Team at clientservice@londonciv.org.uk.*

LCIV MAC Fund

Quarterly Commentary

The LCIV MAC fund was launched on 31st May 2018 with £343 million and has grown to £492m through both new commitments can capital appreciation over the quarter. The fund has a single holding in the CQS Credit Multi Asset Fund. The fund produced positive returns in each July (+0.61%), August (+0.38%) and September (+0.48%) to finish the quarter up 1.52%.

The main drag on performance over the quarter was hedging costs due to the GBP/USD interest rate differential which contributed -0.19% to return.

Asset Backed Securities

The Asset Backed Securities Book started the quarter slowly underperforming fixed rate corporate credit but ended the quarterly strongly contributing 0.07% to return in September. The asset type has remained a steady performer whilst elsewhere in the market volatility has been picking up on broader macro issues.

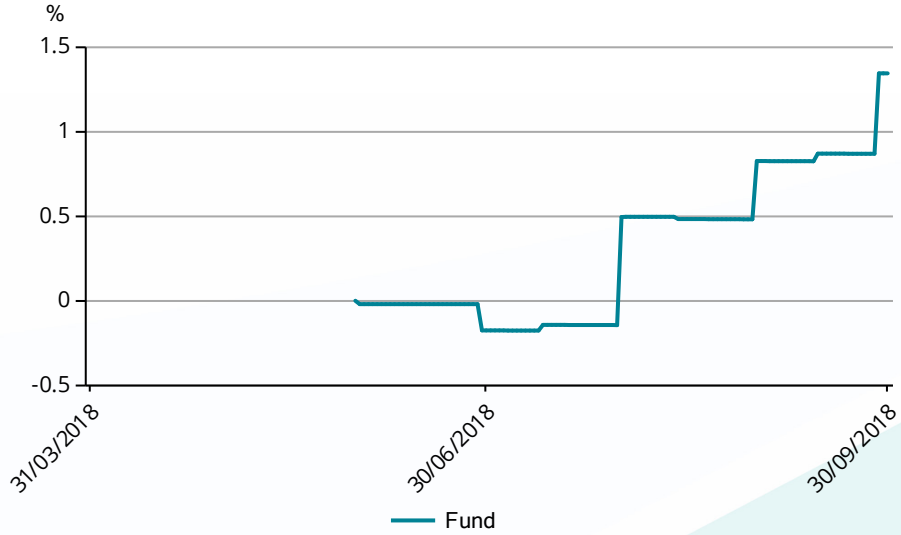
Corporate Bonds

Within Corporate Bonds both High Yield and Investment Grade experienced solid performance every month of the quarter adding 0.33% and 0.11% to performance respectively. The US market continued to outperform Europe particularly in August and September. Lower quality issuers B/CCC outperformed higher quality names particularly in the US despite increased politically driven market volatility.

Loans

The loans book was the strongest contributor to performance over the quarter adding 1.00% to overall performance with supply/demand dynamics driving market returns. Returns from this strategy are predominantly driven by interest income, with the portfolio delivering a spread to maturity of approximately 5.13% at the end of the quarter. The Underlying Manager increased total fund weighting to loans over the quarter from 53.7% to 56.2%. This is largely senior secured debt.

Performance since LCIV inception



Source: Fund prices calculated based on published NT prices. All performance reported Net of fees and charges with distributions reinvested.

Convertible Bonds

The convertible bonds portfolio was up 0.06% over the quarter driven primarily by strong US holdings early in the quarter and Asian and European names in September. Convertible Bonds holdings in the fund remain quite small at 4.6% of notional exposure.

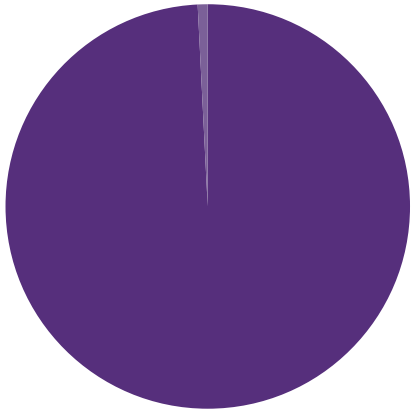
Outlook

LCIV remain confident in the positioning of the fund. The increasing market volatility creates good buying opportunities to invest in across all parts of the portfolio. The structure of the fund has meant that the Underlying Manager has been able to buy into a wide range of positions within their diversified approach without materially adding to risk.

LCIV MAC Fund: Portfolio Characteristics

Risk Highlights	
Weighted Average Rating	B+
% Long Bond Equivalent Exposure with Public Rating	84.43%
% of Investment with Public Rating	83.50%
Yield to Expected Maturity GBP	5.49%
Spread Duration	4.19
Interest Rate Duration	1.22

Liquidity Management



Level 2	99.2%
Level 3	0.8%

Stress Test

Asset Class	Equities -10%	Equities +10%	Credit -25%	Credit +25%	IR -100bps	ABS -10%	ABS +10%
ABS						(2.36%)	2.36%
Convertibles	(0.16%)	0.19%	0.03%	(0.03%)	0.09%		
Loans	(0.01%)	0.01%	3.03%	(3.03%)	0.38%		
High Yield			0.38%	(0.36%)	0.28%		
Investment Grade			0.14%	(0.14%)	0.16%		
Uncommitted Capital							

Source: CQS

LCIV MAC Fund: Portfolio Characteristics

Asset Classification

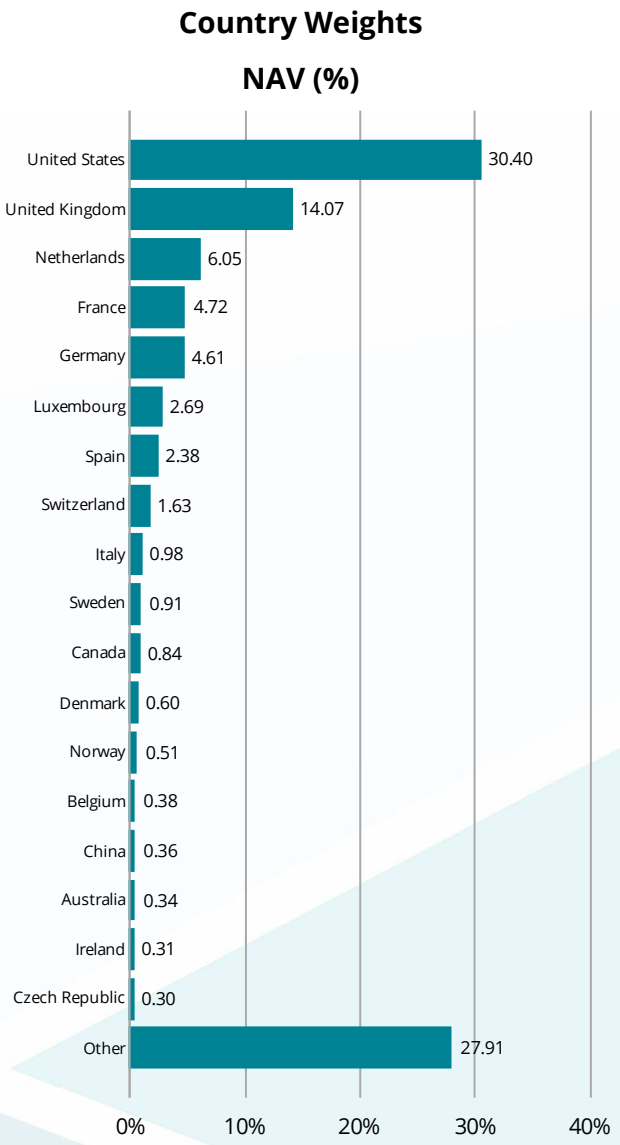
Classification	Nominal Exposure (%)	Contribution to Return (%)	Risk Weighted Exposure (%)
Loans	56.23	1.00	0.03
ABS	23.63	0.20	0.06
HY Corporate Bonds	9.41	0.33	0.02
Convertibles	4.62	0.06	0.02
IG Corporate Bonds	3.16	0.11	0.02
FX	2.94	(0.19)	(0.04)

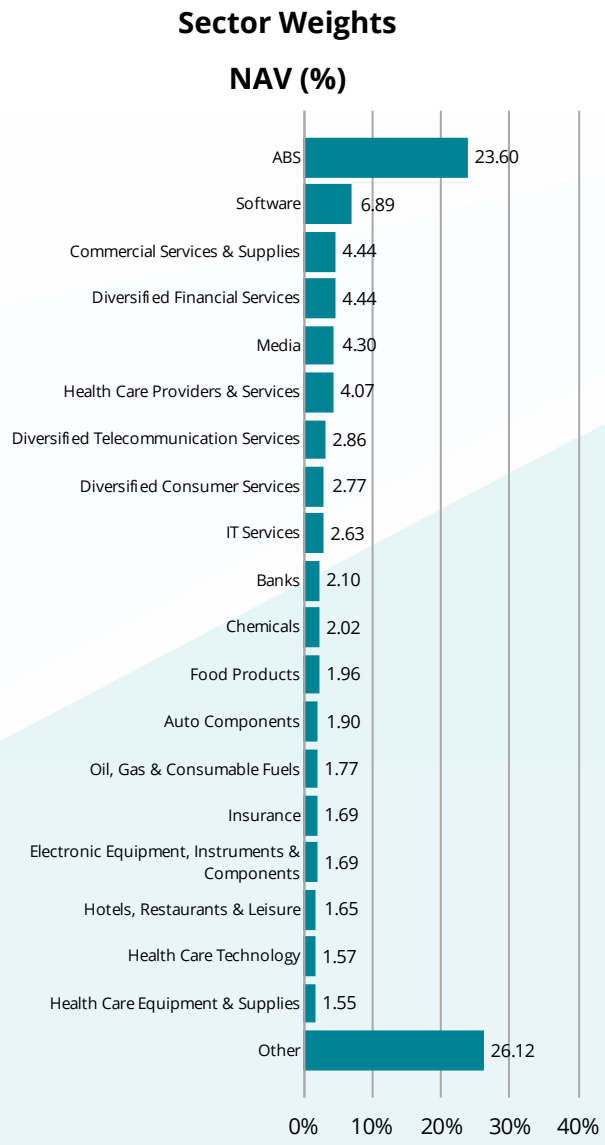
Top Contributors to Performance

Security Name	Nominal Exposure (%)	Contribution to Return (%)
ABS	23.63	0.18
Software & Services	7.40	0.27
Commercial & Prof Services	4.40	0.13
Energy	1.80	0.13

Bottom Contributors to Performance

Security Name	Nominal Exposure (%)	Contribution to Return (%)
Semiconductors & Equipment	0.27	(0.03)
Pharmaceuticals & Life Sciences	1.17	0.02
Food & Staples Retailing	2.15	0.01
Consumer Durables & Apparel	3.08	(0.09)





Source: CQS

LCIV MAC Fund: ESG Summary

Environmental

Social

Governance

Summary of ESG Policy

LCIV reviews the ESG policies of all holdings within the LCIV MAC Fund. The Underlying Manager has reduced net underlying exposure over the quarter from these sectors from 4.2% to 3.42%.

The Underlying Manager believes that ESG factors can influence the performance of companies and the value of their securities. While the these factors are typically skewed toward impacting equity security valuation more than the value of an issuer's debt, it is possible for these factors to affect an issuer's ability to meet its financial obligations as and when they fall due, potentially materially so.

The Underlying Manager assesses each of these factors as part of the fundamental research process that supports the investment process. Their research process considers both bottom-up and macro ESG factors in assessing investments. Where they perceive there may be material risk or opportunity resulting from company exposure to these matters, this is considered in constructing strategies.

Relevant Holdings	
Sector	**% of Portfolio**
Aerospace & Defence	0.52
Casinos & Gaming	0.71
Oil & Gas	1.77
Chemicals	0.42
Total	**3.42**

Source: CQS

Passive Investment Summary

The table below outlines the valuation of investments held per passive manager at the beginning and end of the quarter. For details on the performance of these funds please contact the passive managers directly.

	30 June 2018	30 September 2018
LGIM	**£**	**£**
MSCI World Low Carbon Target Index GBP Currency Hedged	239,027,802	251,551,867
All World Equity Index	80,898,622	85,486,091
All World Equity Index Currency Hedged	158,828,609	23,339,742
Transition CSUF STBP	12,724	2,743
Over 5yr Index-Link Gilts	73,677,153	0
Total	**552,444,910**	**360,380,443**

LCIV Fund Range

Please see below a summary of the LCIV funds, including both those in which you are invested, and those you are not. All performance is reported Net of fees and charges with distributions reinvested. For performance periods of more than a year performance is annualised.

	Size	Capacity*	Current Quarter (%)	1 Year (%)	Since Inception p.a. (%)	Inception Date	No. of Investors
UK Equity							
LCIV UK Equity Fund	**£526m**	**£1000m**	**(2.65)**	**3.20**	**2.37**	**18/05/2017**	**3**
Benchmark: FTSE All Share Index			*(0.82)*	*5.87*	*4.89*		
Performance Against Benchmark			**(1.83)**	**(2.67)**	**(2.52)**		
Global Equity							
LCIV Global Equity Alpha Fund	**£120m**	**Unlimited**	**5.40**	**13.82**	**18.24**	**02/12/2015**	**1**
Benchmark: MSCI World Index Total Return (Net) in GBP			*6.28*	*14.44*	*17.03*		
Performance Against Benchmark			**(0.88)**	**(0.62)**	**1.21**		
LCIV Global Alpha Growth Fund	**£2,371m**	**See note below**	**3.06**	**14.83**	**23.58**	**11/04/2016**	**12**
Benchmark: MSCI All Country World Gross Index			*5.62*	*13.33*	*19.35*		
Performance Against Benchmark			**(2.56)**	**1.50**	**4.23**		
LCIV Global Equity Fund	**£616m**	**Unlimited**	**7.22**	**15.86**	**12.30**	**22/05/2017**	**3**
Benchmark: MSCI All Country World Index Total Return (Gross)			*5.70*	*13.53*	*12.28*		
Performance Against Benchmark			**1.52**	**2.33**	**0.02**		
LCIV Global Equity Focus Fund	**£683m**	**£1500m**	**8.57**	**17.40**	**14.30**	**17/07/2017**	**4**
Benchmark: MSCI World Index Total Return (Net) in GBP			*6.28*	*14.44*	*12.22*		
Performance Against Benchmark			**2.29**	**2.96**	**2.08**		
LCIV Equity Income Fund	**£235m**	**£750m**	**4.59**	**n/a**	**1.87**	**08/11/2017**	**2**
Benchmark: MSCI World Index Total Return (Net) in GBP			*6.28*	*n/a*	*8.91*		
Performance Against Benchmark			**(1.69)**	**n/a**	**(7.04)**		
LCIV Emerging Market Equity Fund	**£186m**	**£1000m**	**(1.98)**	**n/a**	**(9.50)**	**11/01/2018**	**3**
Benchmark: MSCI Emerging Market Index (TR) Net			*0.13*	*n/a*	*(7.29)*		
Performance Against Benchmark			**(2.11)**	**n/a**	**(2.21)**		
LCIV Sustainable Equity Fund	**£283m**	**£1000M**	**5.27**	**n/a**	**12.99**	**18/04/2018**	**2**
Benchmark: MSCI World Index Total Return (Net) in GBP			*6.28*	*n/a*	*13.34*		
Performance Against Benchmark			**(1.01)**	**n/a**	**(0.35)**		

LCIV Fund Range (continued)

	Size	Capacity*	Current Quarter (%)	1 Year (%)	Since Inception p.a. (%)	Inception Date	No. of Investors
Multi Asset							
LCIV Global Total Return Fund	£315m	Unlimited	0.76	1.19	4.05	17/06/2016	5
LCIV Diversified Growth Fund	£637m	See note below	0.06	1.25	6.83	15/02/2016	8
LCIV Absolute Return Fund	£912m	£1500m	(0.37)	1.97	5.24	21/06/2016	10
LCIV Real Return Fund	£194m	Unlimited	2.06	2.06	3.21	16/12/2016	2
Fixed Income							
LCIV MAC Fund	£492m	Unlimited	1.52	n/a	1.34	31/05/2018	6
Total LCIV Assets Under Management	£7,572m			21			

**Total fund capacity as at 30 September 2018. Capacities may change, for details on remaining current capacity available for further investment please contact the Client Service Team at clientservice@londonciv.org.uk.*

Glossary of Terms

- **Reporting Date** All data and content within this report is as per the date noted on the front cover, unless otherwise noted. Where the reporting end date falls on a weekend or Bank holiday, data from the previous business day will be used.
- **Set up of the Sub–Funds** The London LGPS CIV Ltd ("London CIV" or "LCIV") is the Alternative Investment Fund Manager for the London LGPS CIV Authorised Contractual Scheme and manages the sub-funds on either a delegated or pooled basis.
    - Delegated: the sub-fund is structured as a delegated mandate with an appointed manager selecting individual securities overseen by the London CIV. The sub-funds directly own the assets which are held by the custodian. This is the case for the active global equity and UK equity sub-funds.
    - Pooled: The sub-fund holds units in collective investment schemes managed by other investment managers rather than directly holding the individual securities. This is the case for the multi-asset sub-funds.
- **Net Market Move** Change in valuation of the holding due to movement in the market rather than cash flows into or out of the portfolio.
- **Performance Calculation Basis** Fund performance is calculated net of all fees and expenses. Where a fund has been open for less than a year the performance will show as n/a. Performance is calculated in one of two ways depending which option is taken for reinvestment. Where distributions are reinvested fund performance is shown including the impact of this reinvestment. Where the cash option is taken distributions are included however no growth in distributions is included. Additional external flows such as subscriptions or redemptions are factored in on a Modified Dietz basis. This may mean that the performance for an LLA is different to the performance of the fund in total.
- **Since Inception Performance** For fund / LLAs that have been live for a period exceeding 12 months, figures are annualised taking into account the period the fund has been open.
- **Capacity** Total capacity of the fund. Further details can be found within the prospectus, funds may be limited by subscriptions into the fund or by the total fund valuation size. For queries on remaining capacity as at a relevant date, please contact the Client Service Team at clientservice@londonciv.org.uk.
- **XD Date** The date on which the distribution amount will be determined. Units purchased in the fund on its ex-dividend date or after, will not receive the next payment. Any units held in the fund before the ex-dividend date, receive the distribution.
- **Pay Date** The date on which the distribution amount will be paid in cash. If a reinvestment option is taken this will be reinvested on paydate –2 BD.
- **Estimated PPU** The estimated distribution pence per unit payment that will be made to unitholders at the next paydate.
- **Sectors and Industry Characteristics** The number of holdings in different sectors and industries is counted based on the classification to GICS categories of all individual portfolio holdings within the northern trust fund accounting system.
- **Country Characteristics** The number of holdings in different countries is counted based on the classification to countries of risk of all individual portfolio holdings within the northern trust fund accounting system.
- **Active Risk** A measure of the risk in an investment portfolio that is due to active management decisions made by the portfolio manager; it indicates how closely a portfolio follows the benchmark.
- **Total Risk** A measure of the total risk in an investment portfolio.

Glossary of Terms

- **Beta** Ex ante is a measure of the volatility, or systematic risk, of the portfolio in comparison to the benchmark. Ex-ante analysis helps to give an idea of future movements in price.
- **Top Ten Holdings** Largest ten holdings within the investment portfolio as at the reporting date.
- **Performance Attribution** For delegated portfolios the top ten contributors and detractors to performance are shown. This is to show how the structure of the portfolio contributed to the total performance.
- **New Positions** For delegated portfolios any new positions are shown. This is new holdings entered into during the quarter that were not held at the last quarter end. If there are more than ten it is limited to the largest ten as at the end of the quarter. This is not necessarily the same as the largest ten purchases for the quarter if pre-existing holdings have been topped up.
- **Completed Sales** For delegated portfolios any completed sales are shown. This is holdings held at the last quarter end which have been sold out of and are nolonger held as at the reporting date. If there are more than ten it is limited to the largest ten as at the end of last quarter. This is not necessarily the largest ten sales for the quarter.
- **ESG** This stands for Environmental, social and governance and refers to the three main areas of concern that have developed as central factors in measuring the sustainability and ethical impact of an investment in a company or business.
- **UK Stewardship Code** A code which aims to enhance the quality of engagement between investors and companies to help improve long-term risk-adjusted returns to shareholders. Asset managers who sign up are given a tier rating of one or two. Details of all signatories, with links to the statements on their websites are available on the FRC website https://www.frc.org.uk/investors/uk-stewardship-code
- **Relevant Holdings** This table highlights holdings within the investment portfolio in GIC sub-industries which may be considered relevant for ESG considerations. Specifically this calls upon sub-industries:
  - ✓ Aerospace & defence
  - ✓ Brewers
  - ✓ Casinos & Gaming
  - ✓ Distillers & Vintners
  - ✓ Fertilizers & Agricultural Chemicals
  - ✓ Integrated Oil & Gas
  - ✓ Oil & Gas drilling
  - ✓ Oil & Gas Equipment & Services
  - ✓ Oil & Gas Exploration & Production
  - ✓ Oil & Gas Storage & Transportation
  - ✓ Tobacco
- List of **Underlying Manager** per Fund
  - ✓ Allianz Global Investors for LCIV Global Equity Alpha Fund
  - ✓ Baillie Gifford & Co for LCIV Global Alpha Growth Fund and LCIV Diversified Growth Fund
  - ✓ Epoch Investment Partners for LCIV Equity Income Fund
  - ✓ Henderson Global Investors for LCIV Emerging Market Equity Fund
  - ✓ Longview Partners for LCIV Global Equity Focus Fund
  - ✓ Majedie Asset Management for LCIV UK Equity Fund
  - ✓ Newton Investment Management for LCIV Global Equity Fund and LCIV Real Return Fund
  - ✓ Pyrford International for LCIV Global Total Return Fund
  - ✓ RBC Global Asset Management (UK) Limited for LCIV Sustainable Equity Fund
  - ✓ Ruffer LLP for LCIV Absolute Return Fund
  - ✓ CQS for LCIV MAC Fund

Disclaimer

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Past performance is not a guide to future performance. The value of investments and the income from them may go down as well as up and you may not get back the amount you invest. Changes in the rates of exchange between currencies may cause the value of investments to diminish or increase. Fluctuation may be particularly marked in the case of a higher volatility fund and the value of an investment may fall suddenly and substantially. Levels and basis of taxation may change from time to time.

Subject to the express requirements of any other agreement, we will not provide notice of any changes to our personnel, structure, policies, process, objectives or, without limitation, any other matter contained in this document.

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Registered office: 70 Great Bridgewater Street, Manchester M1 5ES.

Goldman Sachs
Asset Management

London Borough of Tower Hamlets

GS Strategic Absolute Return Bond II Portfolio

Portfolio Review

GSAM Global Fixed Income and Liquidity Solutions

September 2018

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Goldman Sachs
Asset Management

Goldman Sachs
Asset Management

I. Executive Summary

Executive Summary

As of 30-Sep-2018

Goldman Sachs Asset Management

Account Summary

Account Name	GS Strategic Absolute Return Bond II Portfolio – London Borough of Tower Hamlets
Assets	GBP 52mn
Benchmark	3 Month GBP LIBOR
Target Tracking Error	500 – 600 bps
Target Excess Return	400-500 bps[1]
Performance Inception Date	04-Apr-2016

Performance Summary

	Portfolio Net (%)	Target (Benchmark+4%) (%)	Difference Net (bps)
3Q 2018	(0.19)	1.18	(137)
2018 YTD	(1.93)	3.49	(542)
Last 1 Year	(1.74)	4.63	(637)
Since Inception (Ann)[2]	0.35	4.49	(414)

Portfolio Summary

	Portfolio	Benchmark	Difference
Number of Countries	44	0	44
Yield to Maturity (%)	3.01	2.40	0.61
Yield to Worst (%)	3.00	2.40	0.60
Option Adjusted Duration (yrs)	0.26	0.25	0.01
OA Spread Duration (yrs)	0.35	0.25	0.10
Maturity (Bonds, yrs)	6.50	0.00	6.50
Average Life (Bonds, yrs)	3.12	0.00	3.12
Libor OAS (bps)	61	0	61

As of 30-Sep-2018. **Past performance does not guarantee future results, which may vary.** Targets are subject to change and are current as of the date of this presentation. Targets are objectives and do not provide any assurance as to future results. Please see additional disclosures. Portfolio holdings and/or allocations shown above are as of the date indicated and may not be representative of future investments. The holdings and/or allocations shown may not represent all of the portfolio's investments. Future investments may or may not be profitable. [1]Over a typical market cycle. [2]Performance inception date: 04-Apr-2016.

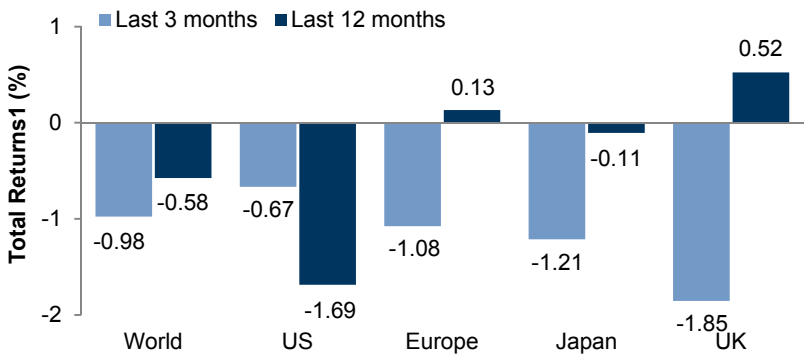
Goldman Sachs
Asset Management

II. Market Review

Market Review

Goldman Sachs Asset Management

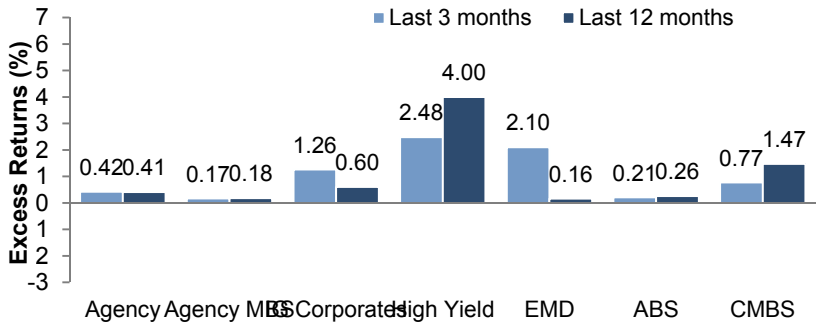
Global Government Markets – Local Currency



Source: Bloomberg

- Global government bonds posted negative returns during the third quarter of 2018. The Federal Open Market Committee (FOMC) delivered the third rate hike of 2018 at its meeting in September. The median dot plot points toward one further rate hike this year and three in 2019.
- The Bank of England (BoE) voted unanimously to raise its policy rate to 0.75% in August. Policymakers highlighted reduced slack in the economy and signs of wage growth, noting "ongoing tightening" would be appropriate if the economy evolves in line with its projections. Providing Brexit negotiations proceed in an orderly manner, we think the BoE's "gently rising path" could entail another rate hike in H1 2019. Recent market re-pricing reflects a dovish take on the ECB's July meeting where they noted rates will remain unchanged through Summer 2019. We expect a rate hike in Q3 2019 but do not expect the policy rate to move beyond 0% over the next couple of years given our subdued core inflation outlook.

Sector[3] Performance (in USD) – Excess Returns[2] Over Government Bonds



Source: Barclays, Bloomberg

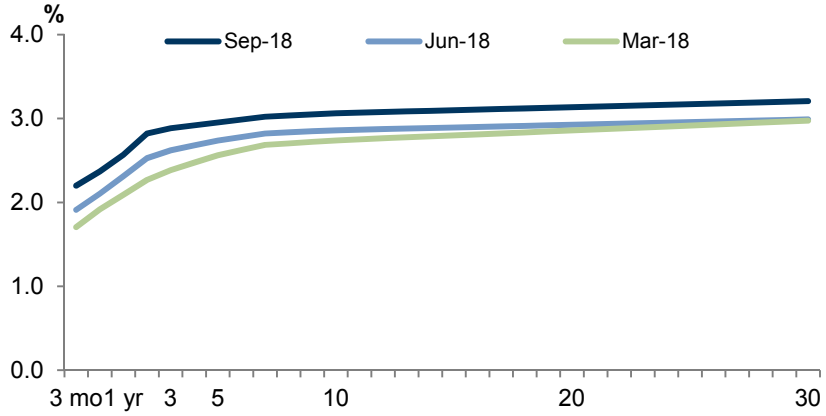
- In the third quarter, performance was positive across the spread sectors.
- High yield corporate credit returned the most as credit fundamentals for high yield issuers have been steadily improving. Firmer oil prices were supportive for Energy issuers, which tend to be high-yield rated.
- Investment Grade corporate credit returns were positive due to a combination of strong corporate fundamentals and improved risk sentiment.
- Emerging market debt rebounded after two consecutive quarters of negative performance driven by a relief rally in July and a series of positive events in September. Most notably, a rate hike in Turkey, progress on the US-Mexico NAFTA negotiations and a revised IMF program for Argentina bolstered market sentiments over the quarter.

[1] Total returns are calculated from the respective regions based off the JP Morgan Global Government Bond Index.[2] This is the excess return over swaps, and is based off GSAM's non-agency MBS factor return. All securities are denominated in US$.[3] Agency: Bloomberg Barclays Global Aggregate: Government Related Agencies; MBS: Bloomberg Barclays US MBS; IG Corporates: Bloomberg Barclays Global Aggregate Corporates; High Yield: Bloomberg Barclays US Corporate High Yield, EMD: Bloomberg Barclays EM (US$) Aggregate. **Past performance does not guarantee future results, which may vary.** As of September 28,2018

Market Review

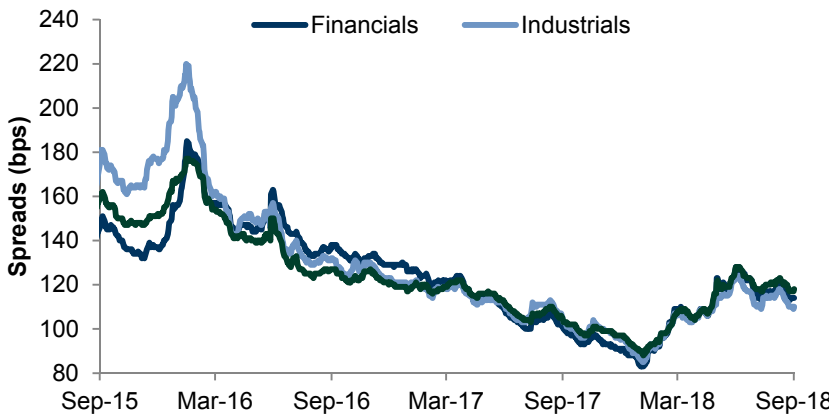
Goldman Sachs Asset Management

US Treasury Yields (%)



Source: Bloomberg

Global Investment Grade Corporate Spreads



Source: Bloomberg

- The US yield curve flattened further over the third quarter of 2018, as the spread between the 2-year and 30-year nodes of the curve decreased by 8bps to close at 39bps. 30-year yields increased by 22bps, whilst 2-year yields increased by 29bps.
- The Federal Open Market Committee (FOMC) delivered the third rate hike of 2018 at its meeting in September. The median policymaker projection points to one further rate hike this year and three in 2019. US CPI rose 2.7% year-over-year (YoY) in August, slowing from July's 2.9% largely due to downside surprise in volatile CPI components.

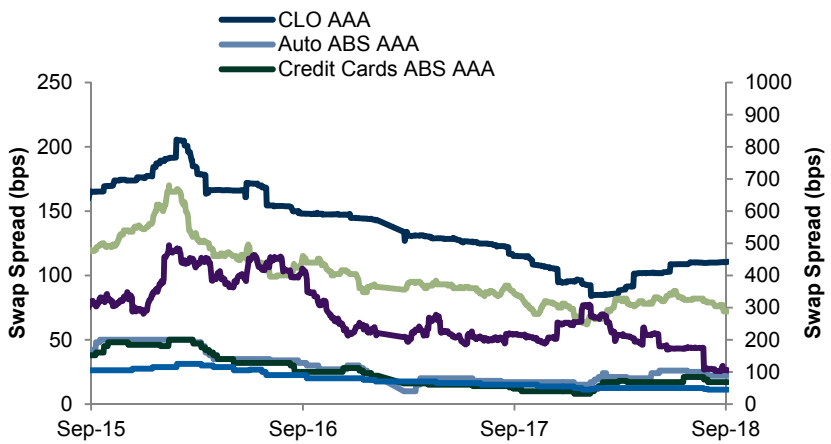
- Global investment grade corporate spreads tightened in the third quarter of the year, as spreads on the Bloomberg Barclays Global Aggregate Corporate index fell by 13bps to 112bps over sovereigns. This resulted from a combination of strong corporate fundamentals, evidenced by solid second quarter corporate earnings releases, as well as better risk sentiment, particularly in the month of July. Industrials led performance, tightening by 13bps, whilst Utilities lagged, tightening by 9bps. Financials tightened by 12bps. Regionally, the US led, tightening by 17bps to 106bps over Treasuries. Euro corporates tightened more modestly by 8bps to 114bps over sovereigns as concerns around Italian political risk remained.
- New issuance remained healthy in both the US and Europe in Q3 2018, with totals amounting to $272bn and €129bn respectively. New issuance was dominated by Financials in both regions, in contrast to Q1 and Q2 2018 when Industrials dominated.

As of September 28, 2018. **Past performance does not guarantee future results, which may vary.**

Market Review

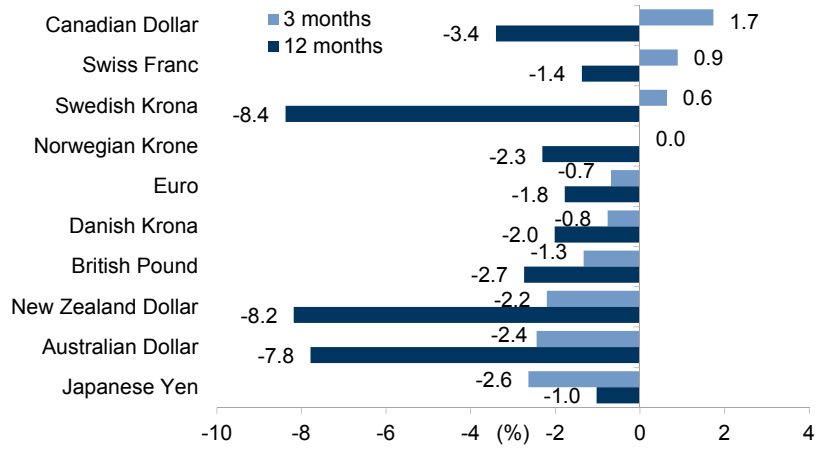
Goldman Sachs Asset Management

Securitised Credit



Source: JP Morgan, GSAM

Major Currency Movements vs. USD (%)



Source: Bloomberg

- Non-Agency RMBS continued its strong performance within securitized credit over Q3 2018 as prepayment rates on seasoned non-agency MBS collateral have generally increased, particularly for option-ARM collateral, as home prices continue to increase.
- Student Loan ABS and Auto ABS spreads have tightened over the third quarter as risky assets had a positive run mainly in July and September.
- YTD 2018, CMBS cash bonds have outperformed IG corporates, while the higher carry theme helped wider spread products (e.g., student loan ABS) to have higher returns than narrower spread products (e.g., auto loan ABS).

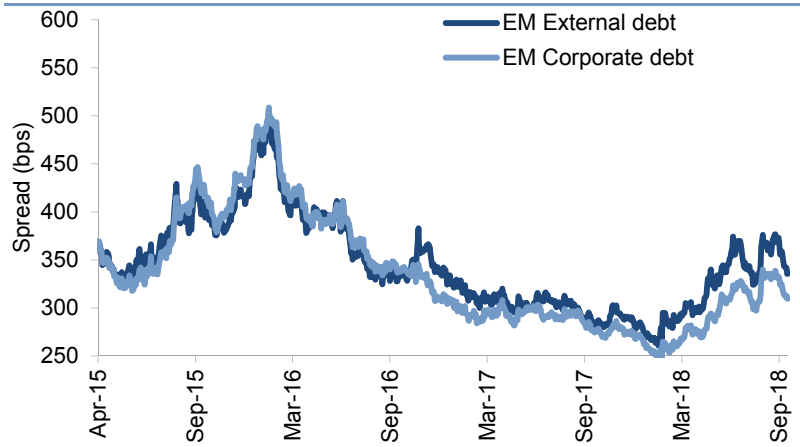
- Performance of G10 currencies vs the US dollar over the quarter was mixed. The Canadian dollar was the strongest performing G10 currency in the quarter, over the period the Bank of Canada increased interest rates and revised up their projections for economic growth, despite potential economic headwinds from increased US import tariffs on Steel and Aluminium.
- The Japanese yen was the weakest performing G10 currency over the quarter. The BoJ surprised markets by tweaking its policy framework to allow more flexibility in its long-term yield target, whilst leaving interest rates unchanged. Generally economic data has been softer over the period with softer inflation particularly of note.

Source: JP Morgan, GSAM, Bloomberg. CLO AAA : CLO Post AAA Portfolio discount margin; Credit Card ABS AAA : Credit Cards Fixed AAA – 3 Year spread to swap; Non-Agency RMBS AAA : ABX. HE. 07-1. AAA Cashflow spread (base case); Auto ABS AAA : Auto (Prime) Fixed AAA – 3 Year Spread to Swap; CMBS AAA : New issue CMBS 10 year on the run AAA Spread to Swap; Student Loan (FFELP) ABS AAA : Student Loans (FFELP) AAA – 5 year spread to Libor. As of September 28, 2018. **Past performance does not guarantee future results, which may vary.**

Market Review

Goldman Sachs Asset Management

External Emerging Market Debt Spreads

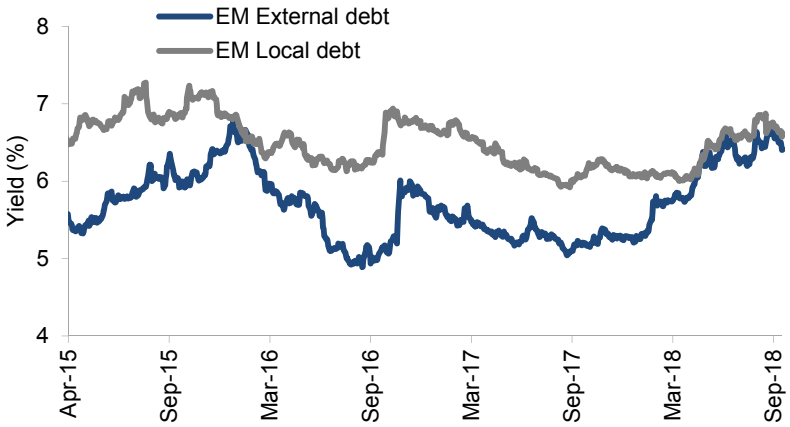


Source: Bloomberg

- Both EM external and EM Corporate spreads tighten over the quarter by 34bps and 17bps, respectively. Spreads on EM external debt ended at 335bps, while EM corporate spreads were 310bps at the end of the quarter. EM external debt returned 2.3% during the quarter while EM corporate debt returned 1.3%.

- The rebound in emerging markets was driven by a variety of positive factors such as progress on the US-Mexico NAFTA negotiations and a committed government in Argentina following orthodox policies while negotiating a revised IMF deal. EM assets and in particular EM currencies came under pressure in August amid country-specific developments. This included concerns around external funding needs in Turkey and Argentina, and doubts around economic reform progress in South Africa.

Local and External Emerging Market Debt Yields



Source: Bloomberg

- The JPMorgan GBI-EM Global Diversified Index (unhedged, in US dollars) returned -1.8% in Q3, comprising of -1.6% currency depreciation and -0.2% from local rates. Majority of the weakness in EM local markets over Q3 could be attributed to the events in Turkey and Argentina. Concerns around external funding needs in Turkey and Argentina, as well as credibility of the central banks put the currencies under intense pressure.

- Recent acute weakening of the Turkish lira is partly driven by a large current account deficit but more so by geo-political gyrations – domestic elections and relationship with the US. Turkish diplomatic relations with the US have been deteriorating with the US imposing sanctions on two top officials in an attempt to force Turkey to release an American pastor under detention, which further pressured the currency. In a bid to shore up its ailing currency, the central bank in Argentina raised its policy rate by 1,500bps to 60% and committed to maintain a highly restrictive monetary stance at least through to year-end. Argentine treasury minister Dujovne announced a revised fiscal plan aiming to restore investors' confidence, targeting a primary deficit of 2.6% of GDP this year (versus the 2.7% of GDP previously agreed with the IMF), a primary balance in 2019 and a 1.0% of GDP primary surplus in 2020.

EM External represented by the JPM EMBI Global Diversified. EM Local represented by the JPM GBI-EM Global Diversified. EM Corporate represented by JPM CEMBI Broad Diversified. Spreads quoted are over treasuries. **Past performance does not guarantee future results, which may vary.** As of September 28, 2018.

III. Performance and Attribution

London Borough of Tower Hamlets Performance

GS Strategic Absolute Return Bond II Portfolio (I Flat Acc. GBP Hedged Share Class)

Goldman Sachs Asset Management

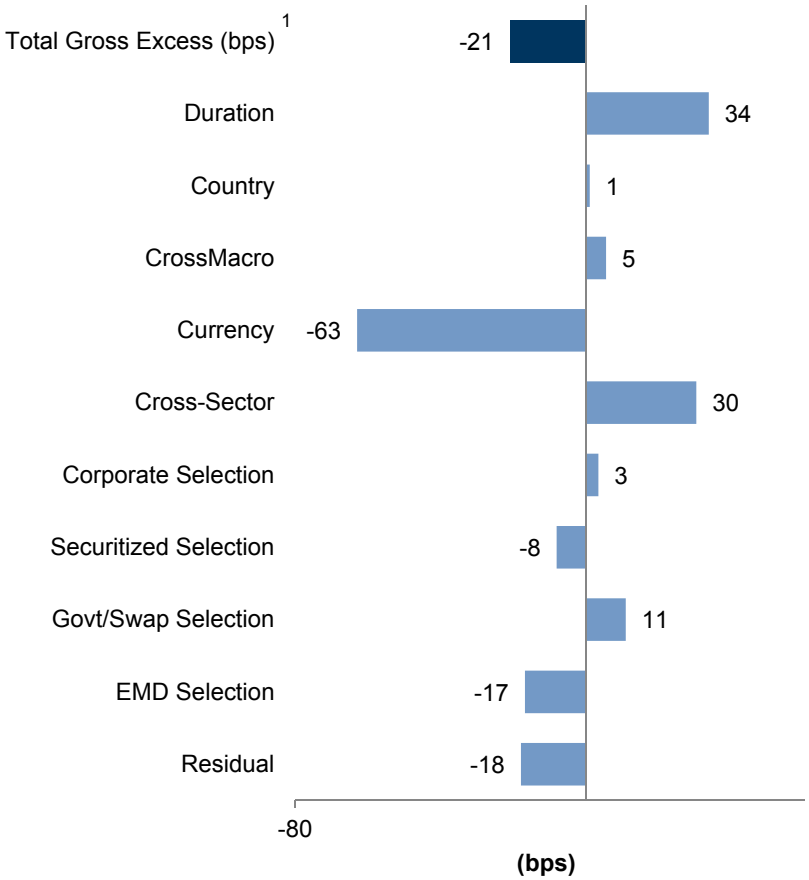
As Of September 30, 2018	(%) Portfolio (Net)	(%) Benchmark[1]	(%) Target (Benchmark +4%)	(bps) Difference vs Target (Net)
Trailing Periods				
Last 1 Year	-1.74	0.63	4.63	-637
Last 6 Months	-1.84	0.37	2.35	-418
Last 3 Months	-0.19	0.20	1.18	-137
Quarters				
1Q18	-0.10	0.14	1.12	-122
2Q18	-1.65	0.17	1.15	-281
3Q18	-0.19	0.20	1.18	-137
Months				
Apr-18	0.11	0.06	0.39	-28
May-18	-0.69	0.05	0.38	-107
Jun-18	-1.07	0.05	0.38	-145
Jul-18	0.94	0.06	0.39	55
Aug-18	-1.75	0.07	0.40	-214
Sep-18	0.63	0.07	0.39	24
Since Inception[2]				
Annualised Return	0.35	0.49	4.49	-414

[1] Benchmark: 3-Month LIBOR (GBP) Benchmark.
[2] Client performance inception date: 04-Apr-2016.
Past performance does not guarantee future results, which may vary.

Performance Attribution

3Q 2018

Goldman Sachs Asset Management



Primary drivers of performance

- The portfolio underperformed over the period. This was predominantly due to our Currency and Emerging market debt selection strategies, whilst the Duration and Cross-Sector strategies contributed positively.
- Currency strategy was the biggest detractor from performance. The primary detractor came from our long EM Currency position in the Argentine peso. Argentine assets have come under further pressure this quarter amid concerns on the Government's ability to implement fiscal consolidation. Argentine peso experienced pronounced weakness in August depreciating 30% versus the dollar
- Emerging Market Debt selection strategy also detracted due to our exposure to Argentina External debt as Argentine assets continued to weaken over the period amid soaring inflation, continued sell-off in the Argentine peso and concerns on weather President Macri can remain committed to his pro-business agenda. Our overweight external Venezuelan debt position also underperformed as bond prices continued to remain under pressure
- Our Duration strategy also contributed to performance due to our underweight at the US 5yr node. We are biased to be underweight front-end rates in the US given domestic strength and market under-pricing of Fed policy over the next 12-18 months. We think a move higher in longer-term rates is likely to be contained by strong demand from the pension community (which is a function of strong equity market performance, weak bond market performance and a recent increase in contributions). .
- The cross-sector strategy also contributed to performance driven by our overweight positioning in the Collateralized Loan Obligation securities.

[1]Gross Excess vs the Benchmark

Note: Allocations may not sum to total due to rounding. Residual/Other: The difference between the fixed income proprietary risk and attribution model and the official GSAM performance system may be due to varying pricing, valuation, and data sources, as well as ad hoc custodian and accounting reconciliations. Benchmark: 3 Month GBP LIBOR. **Past performance does not guarantee future results, which may vary.** Portfolio Holdings may not be representative of current or future investments. Future portfolio holdings may not be profitable. The returns presented herein are gross and do not reflect the deduction of investment advisory fees, which will reduce returns.

IV. Portfolio Positioning

GS Strategic Absolute Return Bond II Portfolio

Current Positioning and Opportunities - Details (Macro)

Goldman Sachs Asset Management

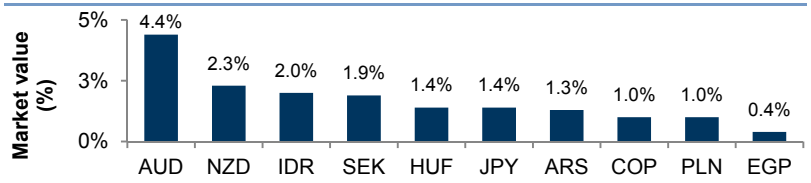
Interest Rate Duration

Total Portfolio Interest Rate Duration[1] :	0.24 years
Active Duration:	-1.07 years
Country:	0.49 years
Other[2] :	0.82 years

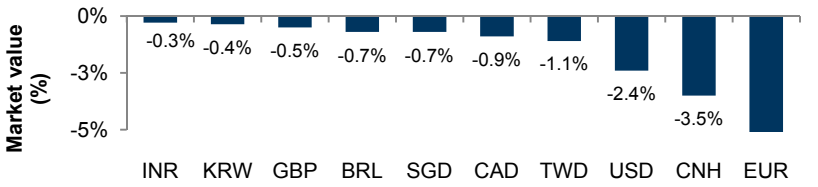
Active Duration Positioning

Active Duration:	-1.07 years
US: -0.10 years	UK: --
Europe: -- years	Sweden: -0.47 years

Top Net Currency Exposure



Bottom Net Currency Exposure



Country Strategy Positioning

Country Strategy:	0.49 years
US: 2.18 years	Canada: -0.04 years
UK: -1.79 years	Europe: 3.4 years
Sweden: -3.05 years	Other: -0.21 years

Key Cross Macro positions

Relative Financial Conditions:

Overly Restrictive	Too Accommodative	Expression
Europe	Sweden	Long EUR vs Short SEK Rates, Short EURSEK

Correlated Asset Relative Value:

UK vs Europe	Long GBP Rates vs Short EUR rates Short EURGBP
Norway vs Europe	Long NOK Rates vs Short EUR rates Short EURNOK
Long Italy/Spain vs short Main/Xover	Long Italy 2y/Spain 5y vs short 5y Main/Xover

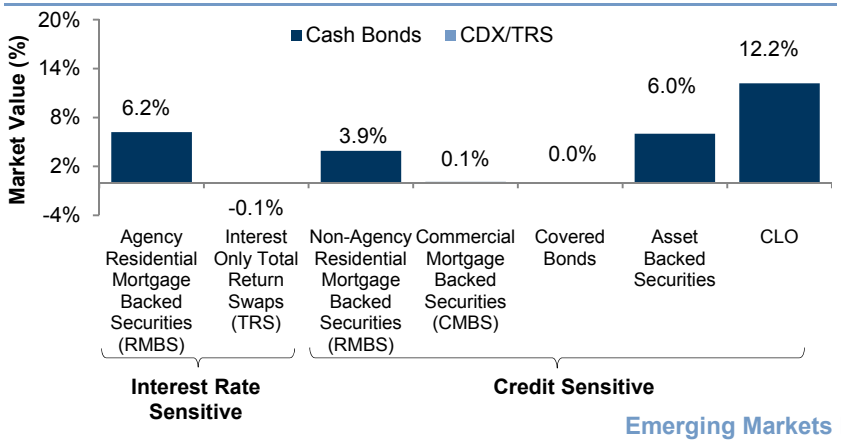
Source: GSAM. Data as of September 30, 2018 and subject to change. Any mention of an investment decision is intended only to illustrate our investment approach and/or strategy, and is not indicative of the performance of our strategy as a whole. It should not be assumed that any investment decisions shown will prove to be profitable, or that any investment decisions made in the future will be profitable or will equal the performance of the investments discussed herein. A complete list of past recommendations is available upon request. Please see additional disclosures. **Past performance does not guarantee future results, which may vary.** [1] Interest Rate Duration is a modified measure of Total Average Duration that has been estimated by GSAM. This modified measure seeks to take account of the different behaviours of different bond markets around the world by re-expressing all duration exposures to a common US market standard. The goal is to improve the estimate of the portfolio's sensitivity to changes in interest rates. This estimate is guided by historical market observations amongst markets which are themselves subject to change over time and may not necessarily be reflected by the actual outcome. This refers to the duration adjusted for volatility and not raw duration. [2] Others comprises of EMD, Cross Sector, Cross Macro and Gov./Swaps strategies. Portfolio holdings and/or allocations shown above are as of the date indicated and may not be representative of future investments. The holdings and/or allocations shown may not represent all of the portfolio's investments. Future investments may or may not be profitable.

GS Strategic Absolute Return Bond II Portfolio

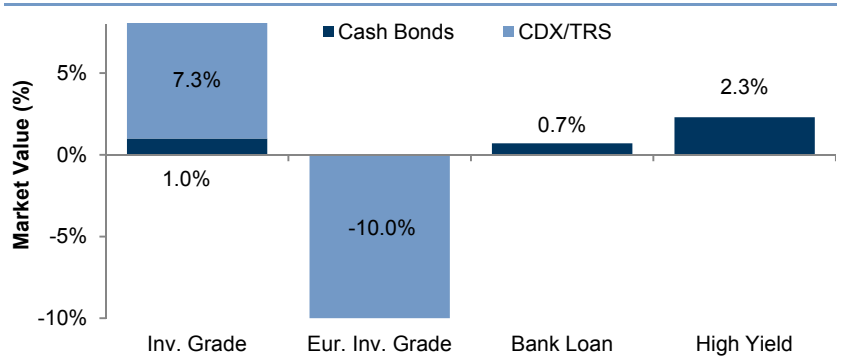
Current Positioning and Opportunities - Details (Sector)

Goldman Sachs Asset Management

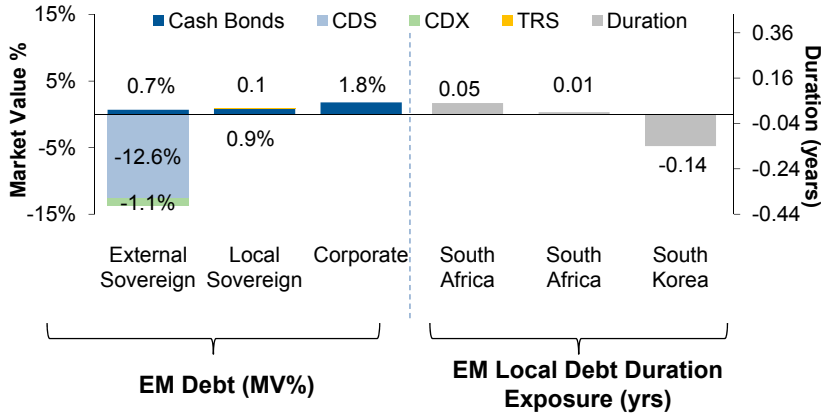
Securitized (28.2 by MV)



Corporate Credit (1.2% by MV)



Emerging Markets Debt (-10.2% by MV)



Source: GSAM. Data as of September 30, 2018 and subject to change. Any mention of an investment decision is intended only to illustrate our investment approach and/or strategy, and is not indicative of the performance of our strategy as a whole. It should not be assumed that any investment decisions shown will prove to be profitable, or that any investment decisions made in the future will be profitable or will equal the performance of the investments discussed herein. A complete list of past recommendations is available upon request. Please see additional disclosures.. **Past performance does not guarantee future results, which may vary.** Portfolio holdings and/or allocations shown above are as of the date indicated and may not be representative of future investments. The holdings and/or allocations shown may not represent all of the portfolio's investments. Future investments may or may not be profitable.

Risks

GS Strategic Absolute Return Bond II Portfolio

Goldman Sachs Asset Management

- **Market risk** - the value of assets in the Portfolio is typically dictated by a number of factors, including the confidence levels of the market in which they are traded.
- **Operational risk** - material losses to the Portfolio may arise as a result of human error, system and/or process failures, inadequate procedures or controls.
- **Liquidity risk** - the Portfolio may not always find another party willing to purchase an asset that the Portfolio wants to sell which could impact the Portfolio's ability to meet redemption requests on demand.
- **Exchange rate risk** - changes in exchange rates may reduce or increase the returns an investor might expect to receive independent of the performance of such assets. If applicable, investment techniques used to attempt to reduce the risk of currency movements (hedging), may not be effective. Hedging also involves additional risks associated with derivatives.
- **Custodian risk** - insolvency, breaches of duty of care or misconduct of a custodian or sub-custodian responsible for the safekeeping of the Portfolio's assets can result in loss to the Portfolio.
- **Contingent Convertible ("Coco") Bond Risk:** Investment in this particular type of bond may result in material losses to the Portfolio based on certain trigger events. The existence of these trigger events creates a different type of risk from traditional bonds and may more likely result in a partial or total loss of value or alternatively they may be converted into shares of the issuing company which may also have suffered a loss in value. Such trigger events may include a reduction in the issuers' capital ratio, determination by a regulator or the injection of capital by a national authority. Investors should be aware that in the event of a financial crisis that action by regulators or the companies themselves may cause concentrations of these trigger events across the Portfolio.
- **Interest rate risk** - when interest rates rise, bond prices fall, reflecting the ability of investors to obtain a more attractive rate of interest on their money elsewhere. Bond prices are therefore subject to movements in interest rates which may move for a number of reasons, political as well as economic.
- **Credit risk** - The failure of a counterparty or an issuer of a financial asset held within the Portfolio to meet its payment obligations will have a negative impact on the Portfolio.
- **Derivatives risk** - certain derivatives may result in losses greater than the amount originally invested.
- **Counterparty risk** - a party that the Portfolio transacts with may fail to meet its obligations which could cause losses.
- **Emerging markets risk** - emerging markets are likely to bear higher risk due to lower liquidity and possible lack of adequate financial, legal, social, political and economic structures, protection and stability as well as uncertain tax positions.
- **High yield risk** - high-yield instruments, meaning investments which pay a high amount of income generally involve greater credit risk and sensitivity to economic developments, giving rise to greater price movement than lower yielding instruments.
- **Leverage risk -** the Portfolio may operate with a significant amount of leverage. Leverage occurs when the economic exposure created by the use of derivatives is greater than the amount invested. A leveraged Portfolio may result in large fluctuations in the value of the Portfolio and therefore entails a high degree of risk including the risk that losses may be substantial.

For full description of risks please refer to the Prospectus.

Goldman Sachs
Asset Management

V. Macro Outlook

Macro Backdrop

Goldman Sachs Asset Management

Global Growth

Expansionary but…

Global growth is slower and less synchronized but still expansionary

US growth remains on solid footing despite being 10 months away from the longest expansion on record

Idiosyncratic EM volatility has been relatively contained

…with downside risks

European growth and politics remain fragile; Italian fiscal sustainability and Brexit are centre-stage

US-China trade tensions have intensified

Inflation

Gradual normalization continue

Philips curve relationship of tight labour markets resulting in wage growth is becoming more evident

US inflation is at target

Europe and Japan are notable exceptions; core inflation in both regions is subdued with few signs of a near- to medium-term pickup

Monetary Policy

More monetary tightening ahead

The Fed has company on its hiking path – the UK and Canada have raised rates this past year and Nordic economies look set to join soon

Risk assets can digest monetary tightening if it is gradual, well-telegraphed and providing growth holds up.

Source: GSAM. As of October 1, 2018.

Key Investment Views

Goldman Sachs Asset Management

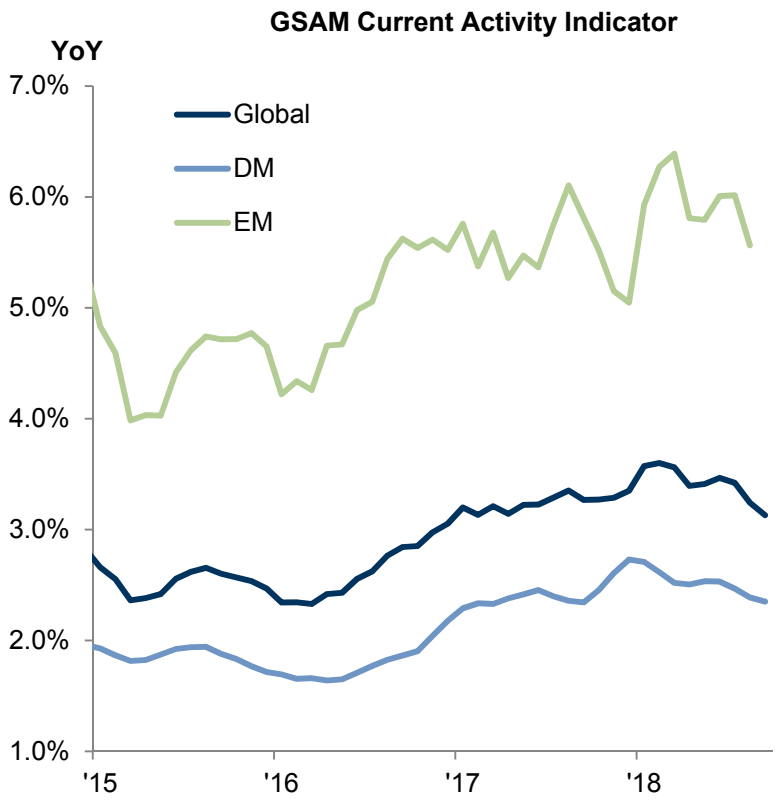
	Key positions/views
Rates – Directional Views	Bearish front-end US rates given domestic macro strength and market under-pricing of near-term Fed policy Bullish long-end US rates amid firm pension demand
Rates – Relative Value Views	Overweight rates in Europe vs DMs where we anticipate monetary tightening to occur earlier and for longer (we expect the ECB to raise rates in late-2019 but we see limited scope for rates to move beyond 0% in this cycle)
Currencies	Modestly overweight EM currencies – awaiting renewed growth momentum and attractive valuations to add exposure Overweight cyclical European currencies (HUF, PLN) vs EUR Neutral USD given medium-term twin deficit concerns and extended investor overweight positioning
Cross Macro	Positioned for tighter Swedish and US financial conditions relative to Europe[1].
Spread Sectors	**US Corporate Credit** – Near-term constructive due to healthy fundamentals (e.g. strong earnings with positive momentum) and signs of deleveraging **EMD** – Modestly overweight external debt with idiosyncratic exposure to EM Corporate and Local debt **Securitized Credit** - Overweight high-quality, short duration securitized credit. Underweight agency MBS (given headwinds posed by reduced Fed reinvestments)

Source: GSAM. As of October 1, 2018. [1] Positioning for tighter financial conditions involves relative value positions whereby we are underweight rates and overweight the currency.

Growth: Global picture – slower pace but still expansionary

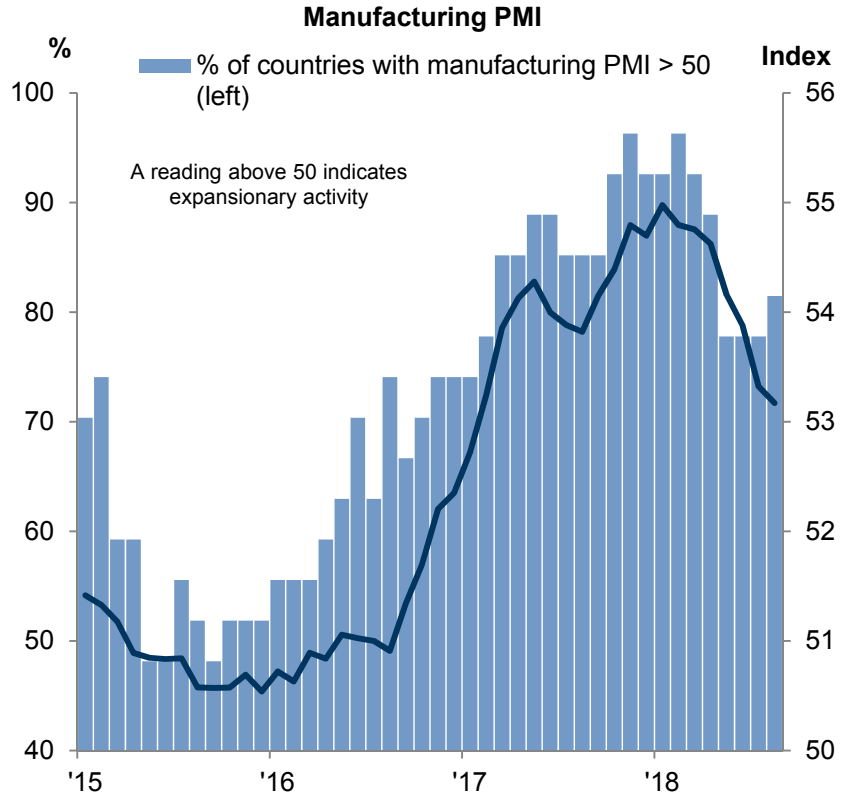
Goldman Sachs Asset Management

Slower pace of global growth…



Source: GSAM, 3 month moving averages. Global and DM as of September 2018. EM as of August 2018. Current Activity Indicators provide us with a timely read of economic activity. We identify data which is released ahead of GDP figures and likely to be highly correlated with economic activity to predict GDP.

…but most economies are still expanding

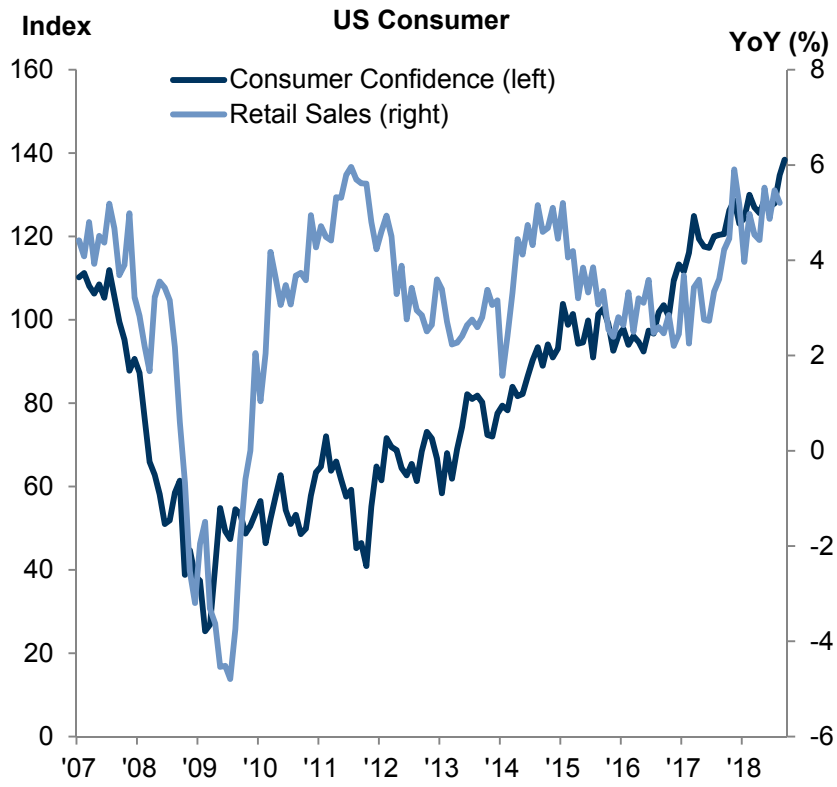


Source: Macrobond. As of August 2018. Based on readings for 26 countries (G10 + 16 EM).

Growth: US exceptionalism remains intact

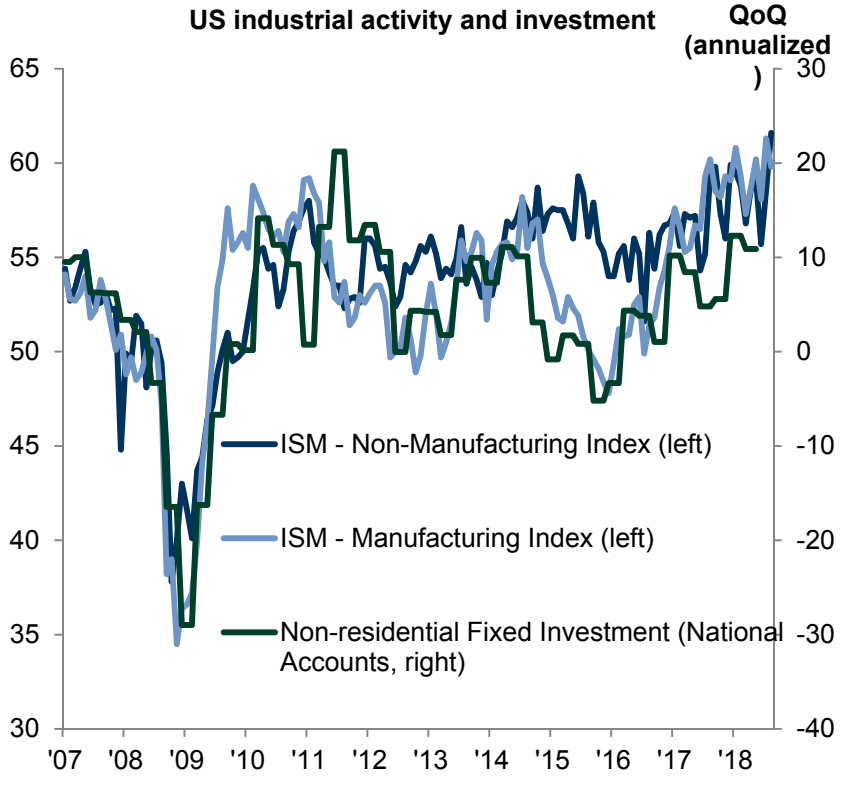
Goldman Sachs Asset Management

Cycle-high consumer confidence and activity…



Source: Macrobond. Consumer confidence as of September 2018. Retail sales (control group) as of August 2018.

…similar story for business activity

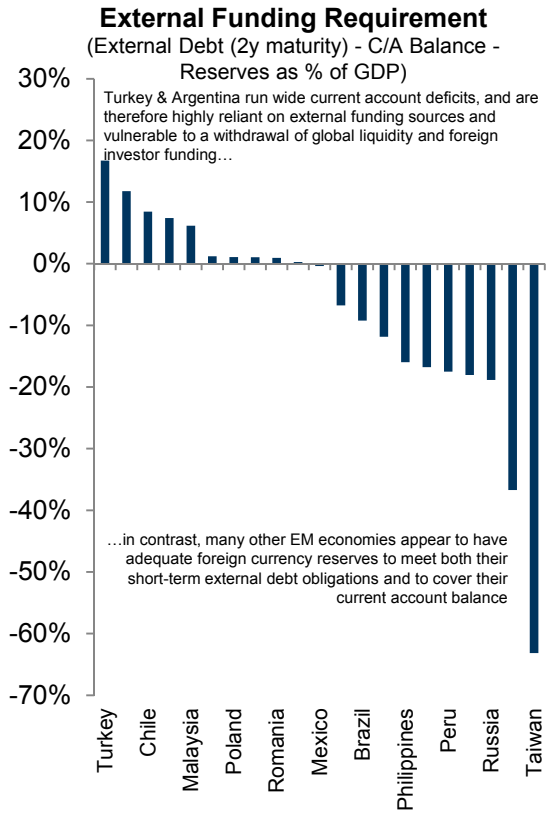


Source: Macrobond. ISM Index data as of September 2018. Non-residential fixed investment as of Q2 2018.

Growth: EM volatility – idiosyncratic not systemic

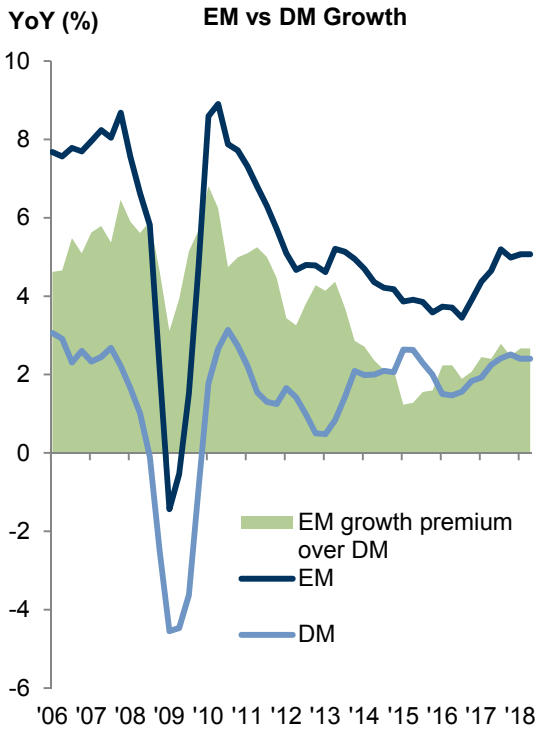
Goldman Sachs Asset Management

Economies with macro imbalances have sold off…



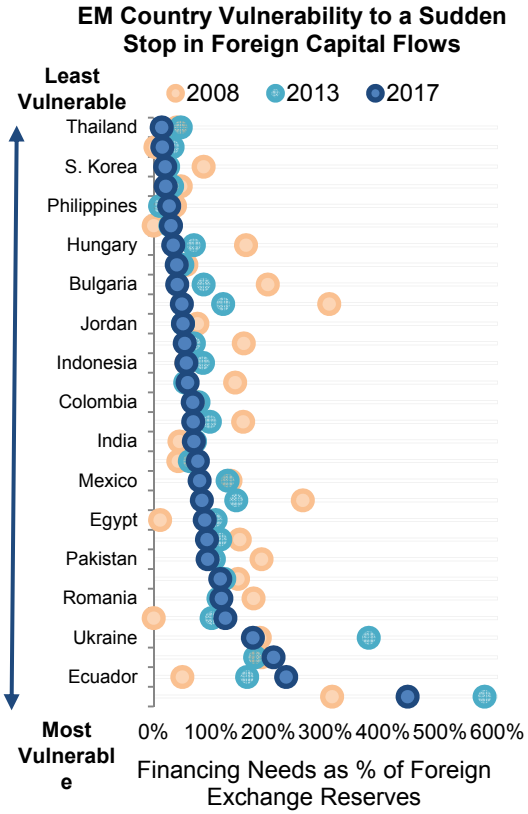
Sources: Haver Analytics, Goldman Sachs Global Investment Research, as of Q1 2018. Positive value represents external funding needs in excess of foreign currency reserves.

…but the EM growth premium remains intact…



Source: Macrobond. As of Q2 2018. GSAM calculations. Nominal GDP-weighted series for 22 EM economies and 10 DM economies. Most recent reading is approximated based on countries that have reported Q2 GDP.

…and resilience in most countries has improved in recent years

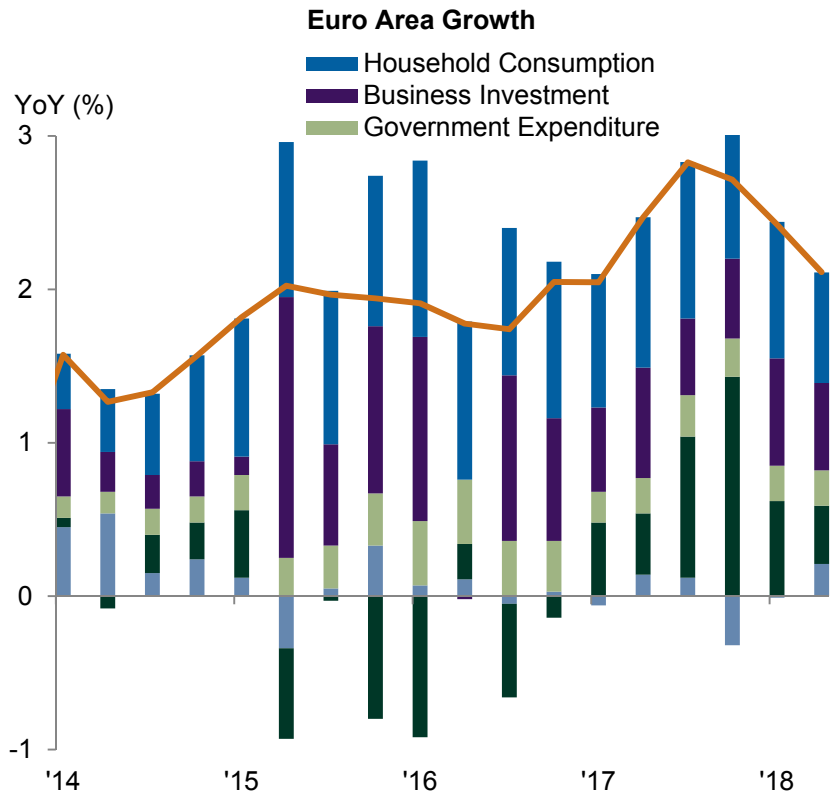


Source: Citigroup, GSAM. As of December 2017. Note: For illustration purposes, 2008 data has been rounded to zero for China (-6%) and Malaysia (-7%). Foreign financing needs are calculated in line with the expanded Greenspan-Guidotti rule, consisting of short-term debt minus current account balance.

Growth: Euro area - reverting to a trend-like pace

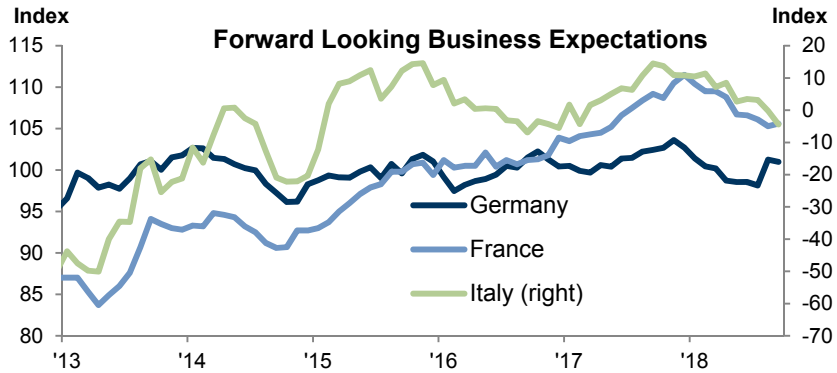
Goldman Sachs Asset Management

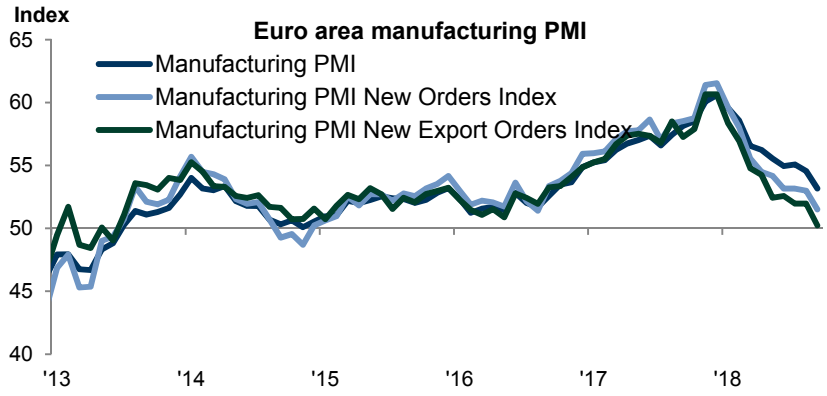
Growth moderation has been broad-based



Source: Macrobond. As of Q2 2018.

Leading indicators have decelerated



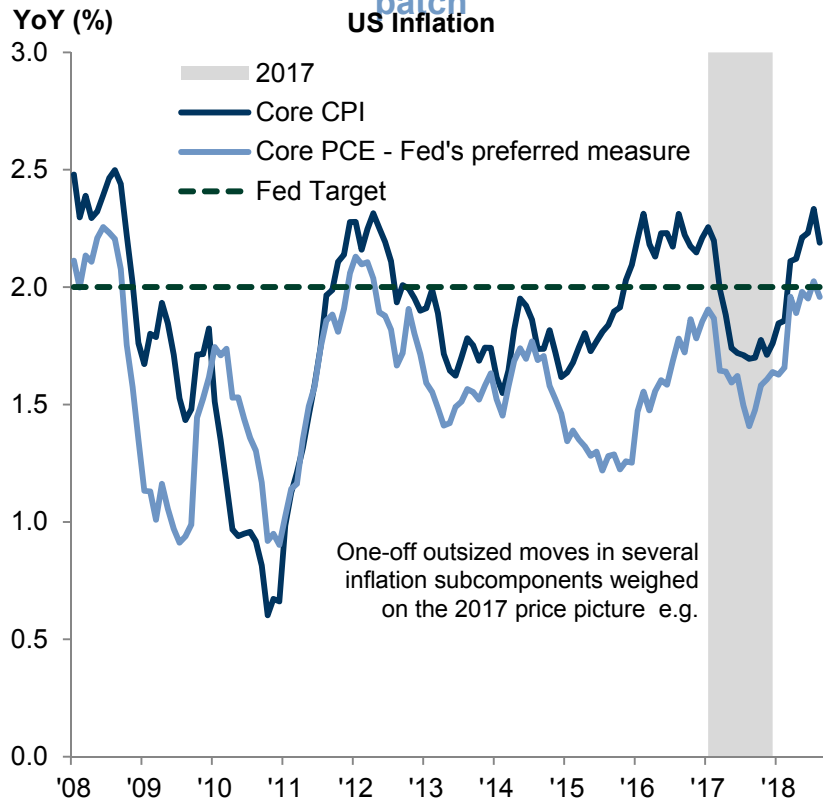


Source: Macrobond. Top chart – as of September 2018. Bottom chart - Manufacturing PMI as of September 2018.

Inflation: US is at target with upside risks ahead

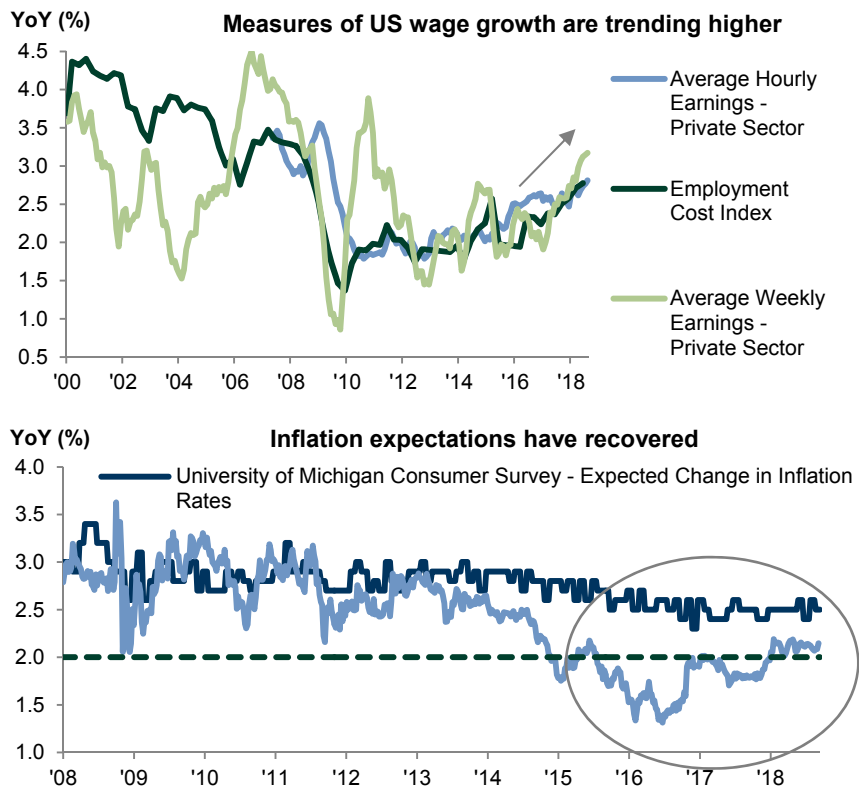
Goldman Sachs Asset Management

US inflation has normalized post its 2017 soft patch



Source: Macrobond. As of August 2018.

Macro factors present upside risks

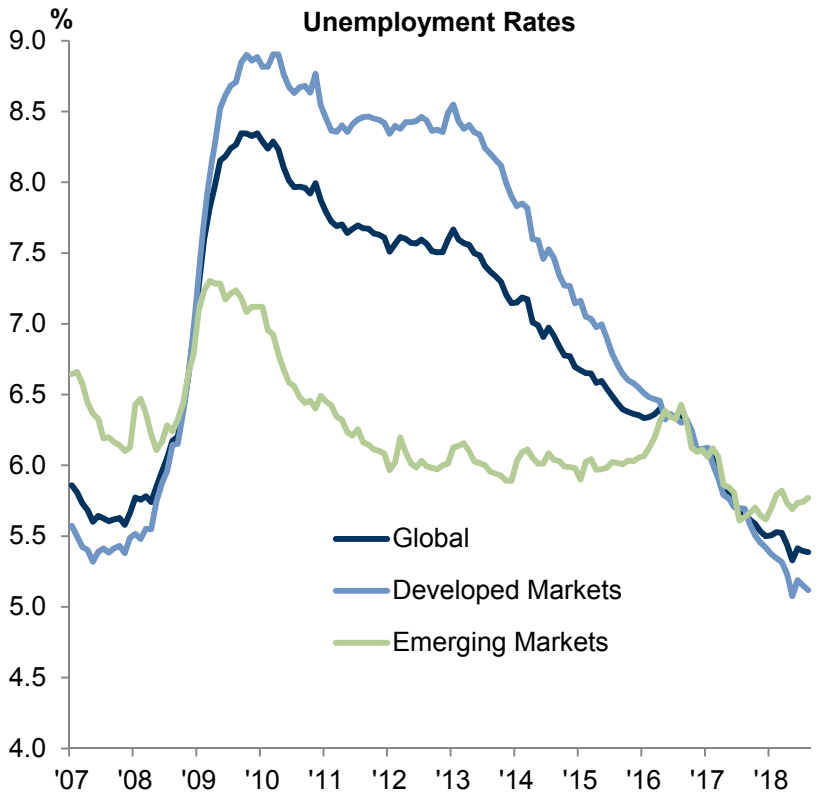


Source: Macrobond. Top chart - average hourly and weekly earnings as of August 2018, ECI as of July 2018. Bottom chart – inflation expectations as of September 28, 2018.

Inflation: Philips curve relationship appears to hold

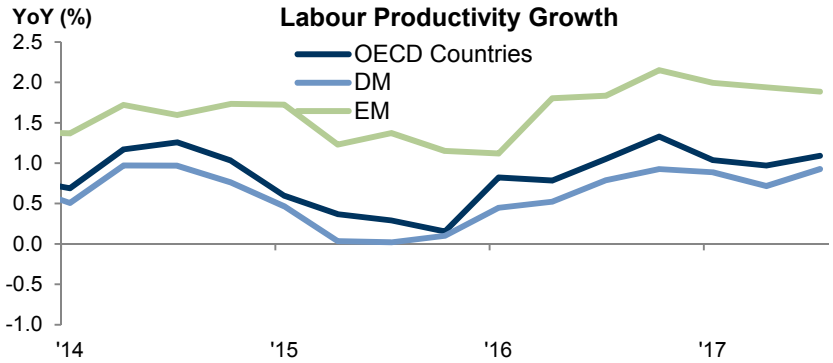
Goldman Sachs Asset Management

Global labour market continues to tighten

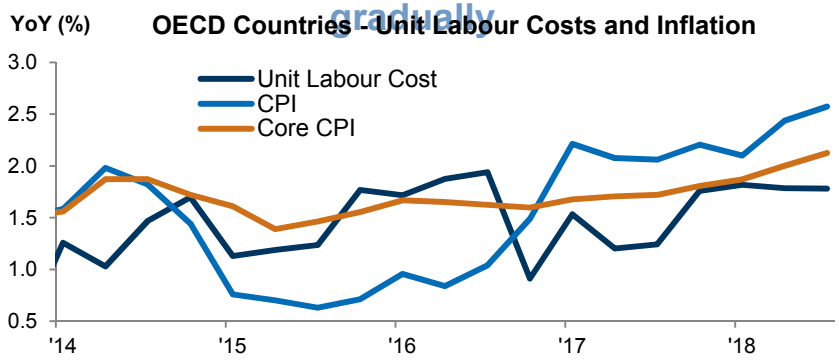


Source: Macrobond, GSAM. As of August 2018.

A pick up in productivity and wage growth…



…is feeding through to core inflation, albeit gradually

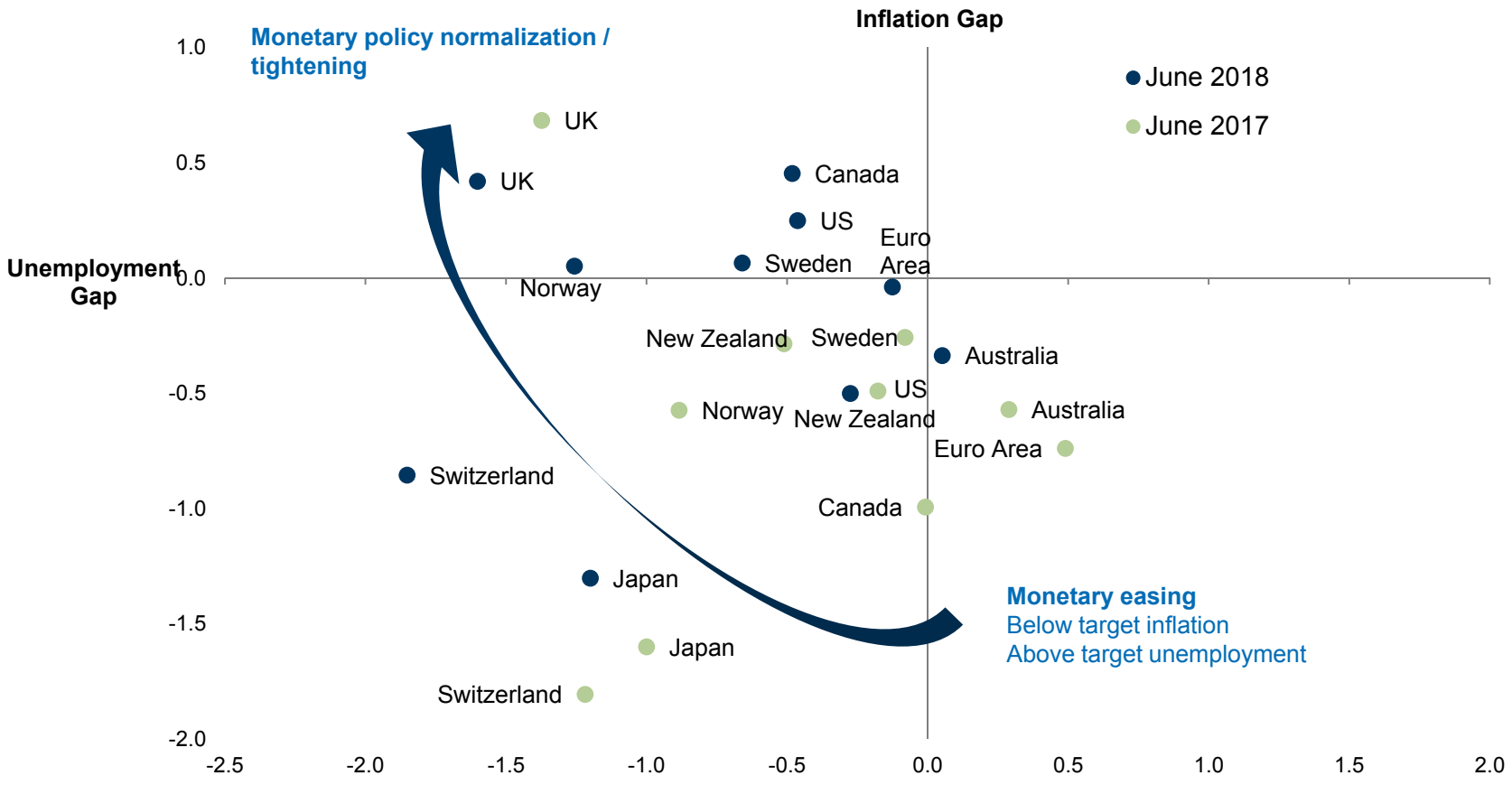


Source: Macrobond, DM and EM labour productivity (GDP per hour) are GSAM calculations, as of Q2 2018.

The Philips curve reflects an inverse relationship between rates of unemployment and a corresponding rise in wages within an economy, which can generate broader price pressures. Most key developed market (DM) central banks subscribe to this relationship. Wage growth is a function of the labour share of total income in an economy and productivity, thus higher productivity can generate higher wages and further reinforce broader price pressures.

Policy: More economies are now in a position to normalize policy

Goldman Sachs Asset Management

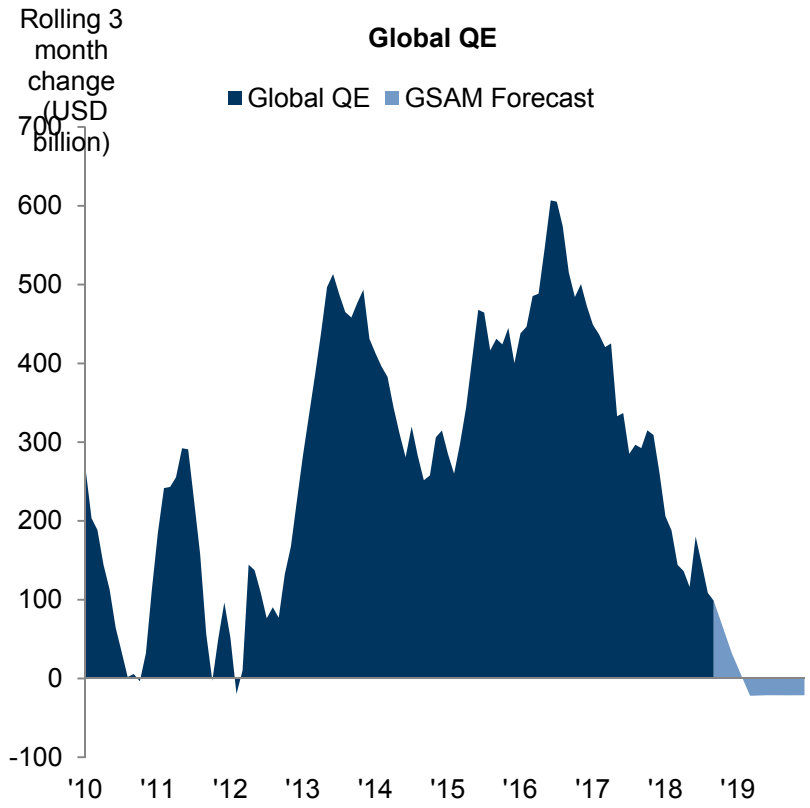


Source: GSAM. Unemployment gap = unemployment rate – OECD estimate of long-run structural unemployment (NAIRU). Inflation gap = Headline inflation – central bank target (mid-point where target is a range). As of Q2 2018 as Antipodean markets report inflation on a quarterly rather than a monthly basis.

Policy: Liquidity withdrawal–gradual and well-telegraphed (so far)

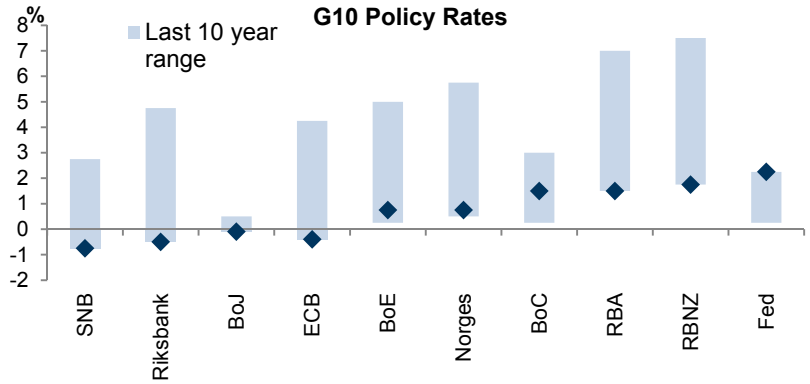
Goldman Sachs Asset Management

QE set to turn negative in 2019 and…

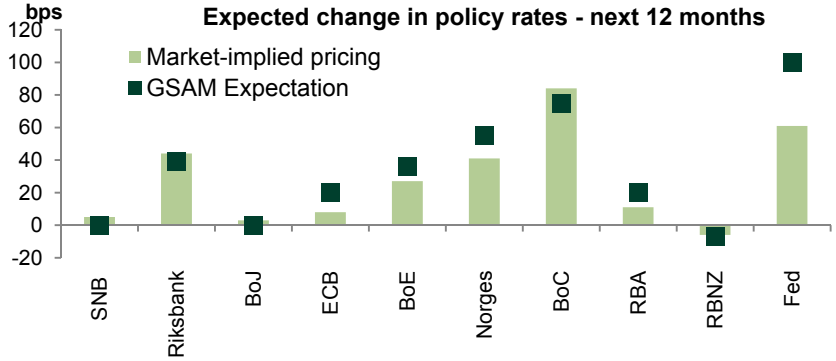


Source: Macrobond. Based on central bank balance sheets for the Fed, ECB, BoJ, BoE and Riksbank) as of August 2018. GSAM forecasts as of September 2018.

…policy rates are moving beyond decade lows…



…but at a gradual and well-telegraphed pace

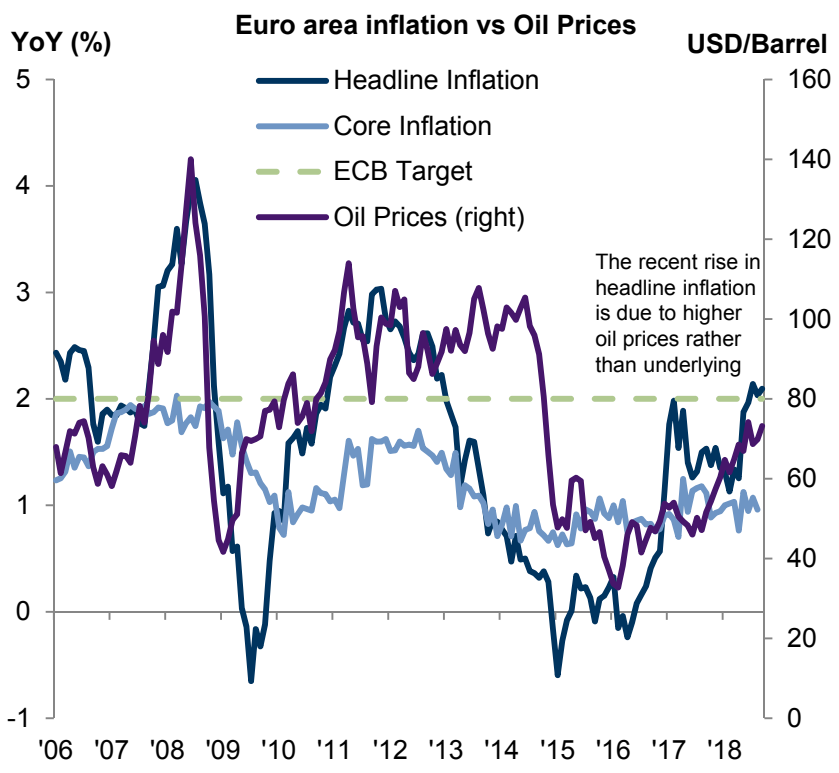


Source: Macrobond, GSAM, Bloomberg. Top chart as of October 1, 2018. Bottom chart – market-implied pricing as of October 1, 2018, GSAM expectations as of September 2018.

Policy: ECB and BoJ to buck the tightening trend

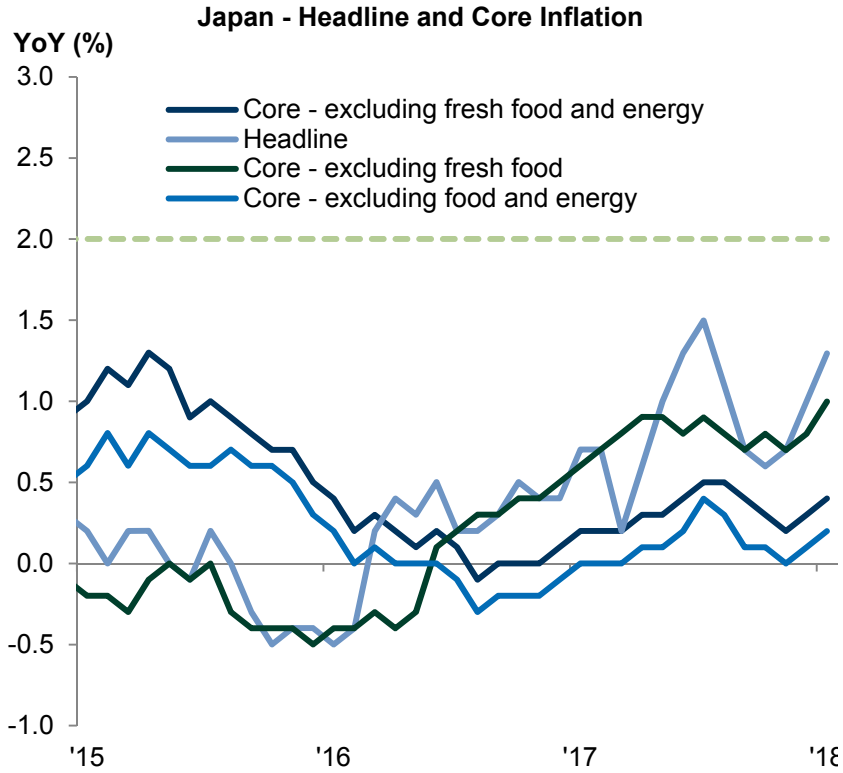
Goldman Sachs Asset Management

Euro area underlying inflation remains weak



Source: Macrobond. Headline inflation and oil prices as of September 2018 and core inflation as of August 2018.

Low Japanese prices…however you measure it

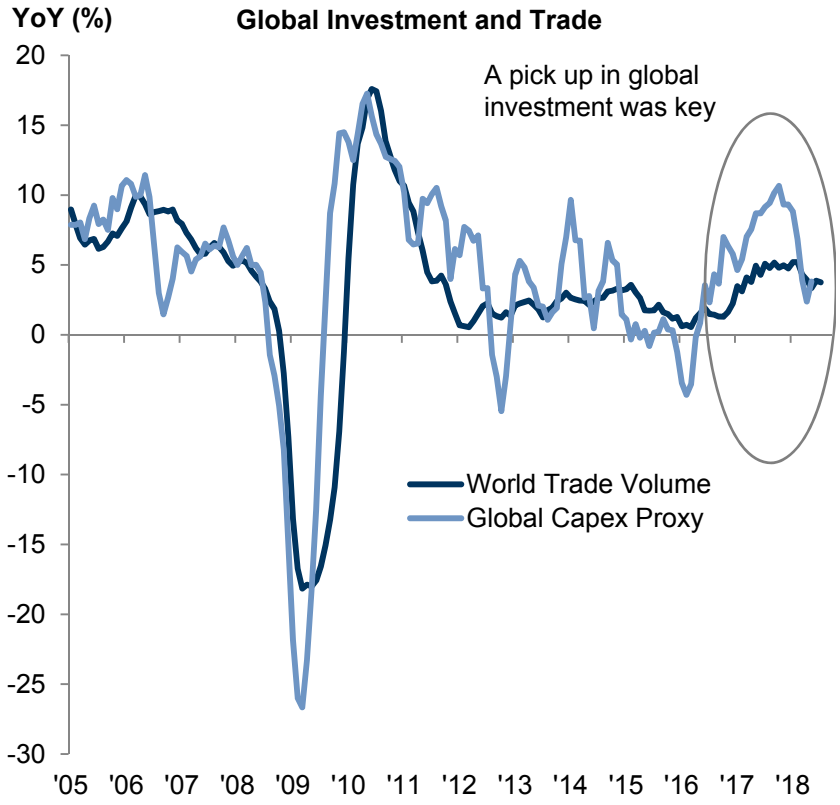


Source: Macrobond, as of August 2018.

Risks: Trade tensions have intensified

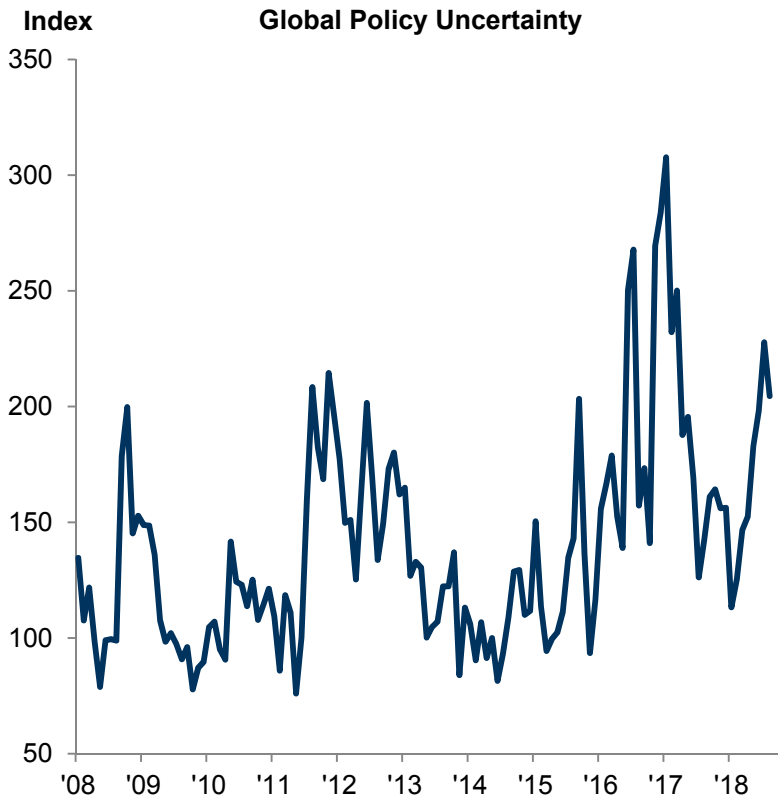
Goldman Sachs Asset Management

A slowdown in global investment and trade…



Source: Macrobond, GSAM, J.P.Morgan G3 capital goods shipments (Japan, US, Germany) + Global ex-China capital goods imports – as of June 2018.

…is likely linked to policy uncertainty

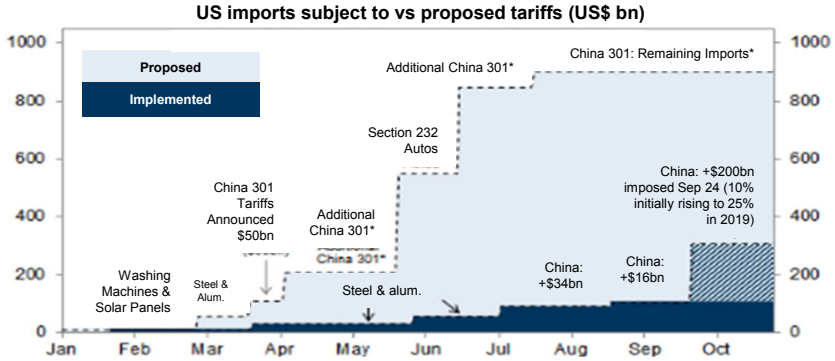


Source: Macrobond. As of September 2018.

Risks: Trade tensions have intensified

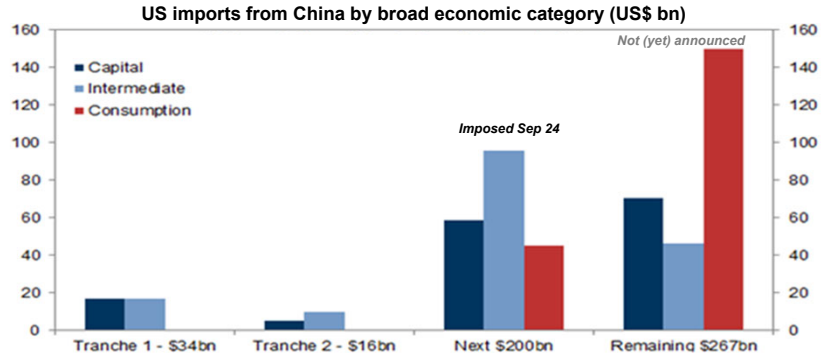
Goldman Sachs Asset Management

Tariff threats are becoming reality and are set…



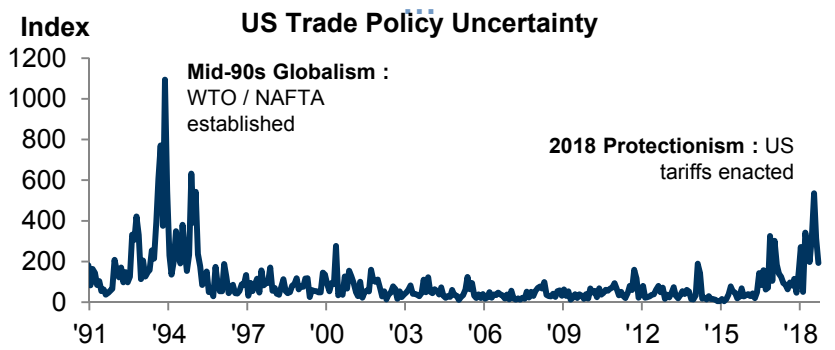
Source: Goldman Sachs Global Investment Research

… to impact US consumers alongside producers



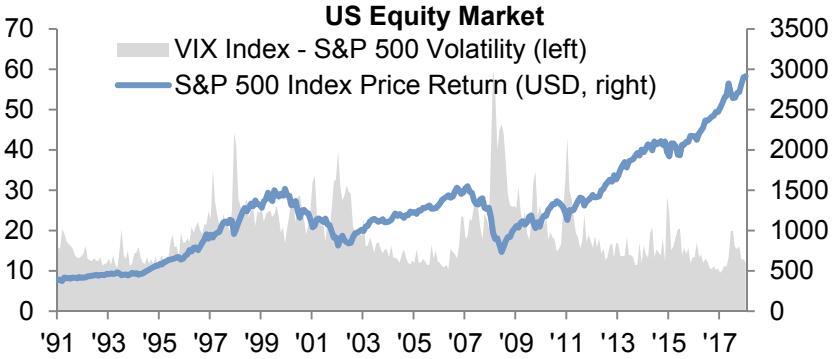
Source: USITC, United Nations, Goldman Sachs Global Investment Research.

US trade policy is at a multi-decade high but this



Source: Macrobond. As of September 2018.

… is not reflected in risk asset valuations (ex EM)



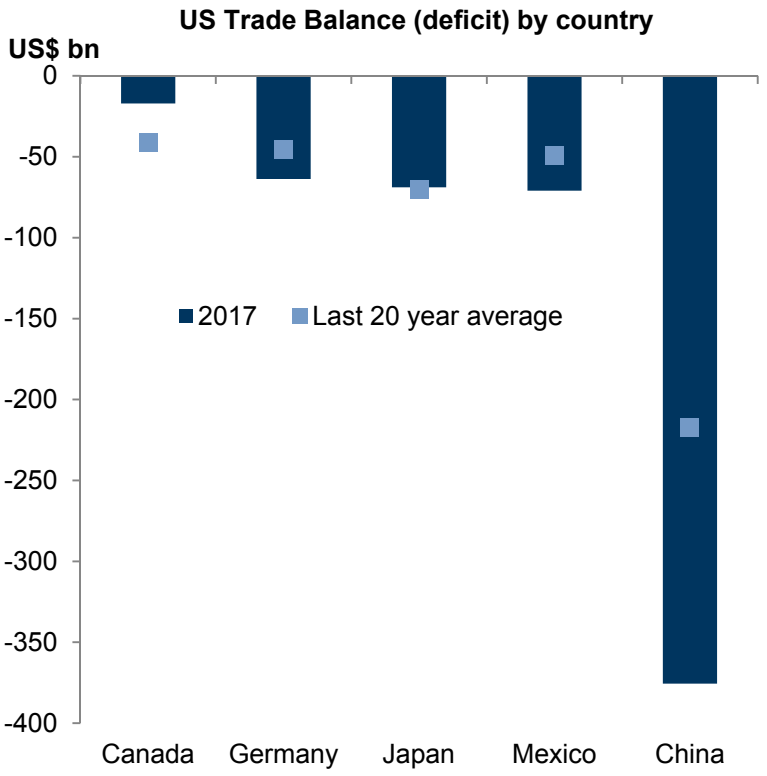
Source: Macrobond. As of September 2018.

*In April, the White House proposed tariffs on additional $100bn in imports in response to China's retaliation. This supplemental proposal was increased to $400bn on June 18 and to all remaining imports on July 20.

Risks: Trade tensions have intensified

Goldman Sachs Asset Management

Continuation of targeted tariffs is likely



Source: Macrobond. Annual data - as of 2017.

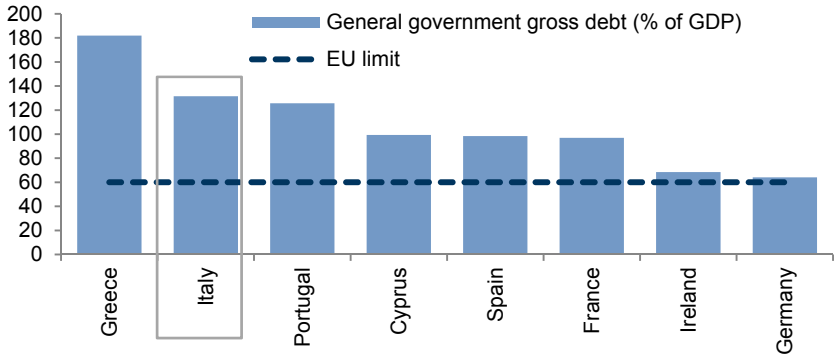
Survey data suggests trade will moderate further

Source: Macrobond. Manufacturing PMI as of September 2018. Global trade volume as of July 2018.

Risks: Italy is vulnerable to higher rates and lower growth

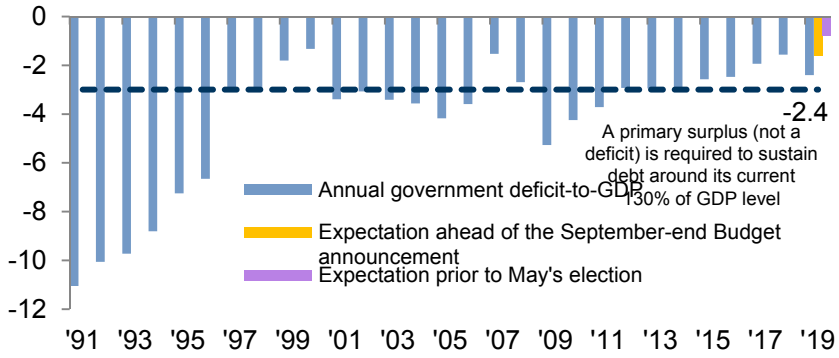
Goldman Sachs Asset Management

Europe has many fiscal rule breakers…



Source: IMF. Annual data as of 2017.

…but Italy's annual fiscal plans are particularly concerning…



Source: IMF. Annual data as of 2017. 2019 blue bar reflects September 28, 2018 announcement.

…which alongside its weak growth outlook results in…

Primary balance-to-GDP ratio required to keep public debt-to-GDP at its 2017 level (slightly above 130% of GDP) under various assumed combinations of nominal GDP growth and interest rates

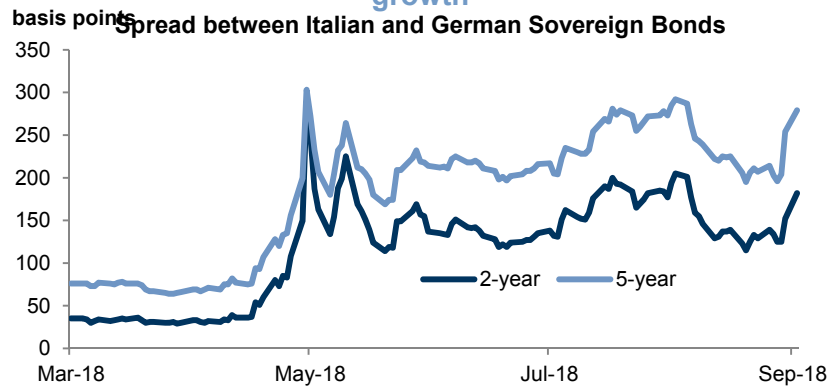
Example: A **1.3% primary surplus-to-GDP ratio** is required to stabilise public debt at its current 130% level when nominal GDP growth is 2% and the nominal interest rate is 3%.

Italy's **primary deficit-to-GDP ratio for 2019 is -2.4%**, nominal GDP growth target is 3.1% and 10-year borrowing rates are in excess of 3%. High frequency activity indicators suggest growth will be weaker than projected.

Nominal growth \ Nominal interest rate	0%	0.75%	1.50%	2.25%	3%	3.75%	4.50%	5.25%
-1%	1.3	2.3	3.3	4.3	5.3	6.3	7.3	8.3
0%	0	1	2	3	3.9	4.9	5.9	6.9
1%	-1.3	-0.3	0.7	1.6	2.6	3.6	4.6	5.5
2%	-2.6	-1.6	-0.6	0.3	1.3	2.3	3.2	4.2
3%	-3.8	-2.9	-1.9	-1	0	1	1.9	2.9
4%	-5.1	-4.1	-3.2	-2.2	-1.3	-0.3	0.6	1.6

Source: Goldman Sachs Global Investment Research, Haver Analytics

…higher rates, creating a negative feedback loop for growth

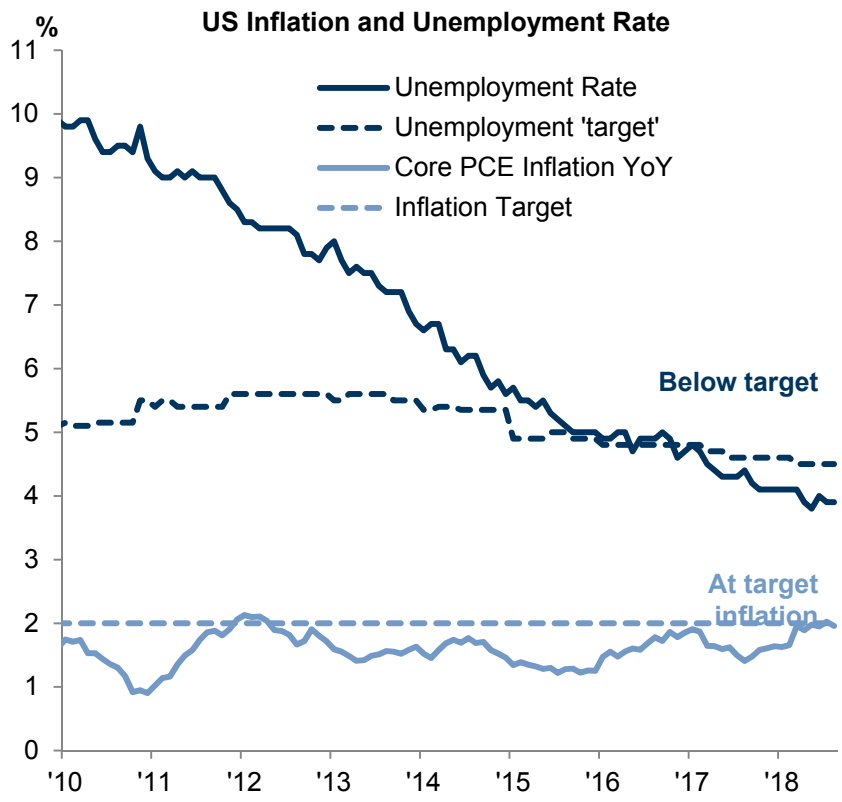


Source: Macrobond, as of October 1, 2018.

Investment Views: Bearish front-end US rates

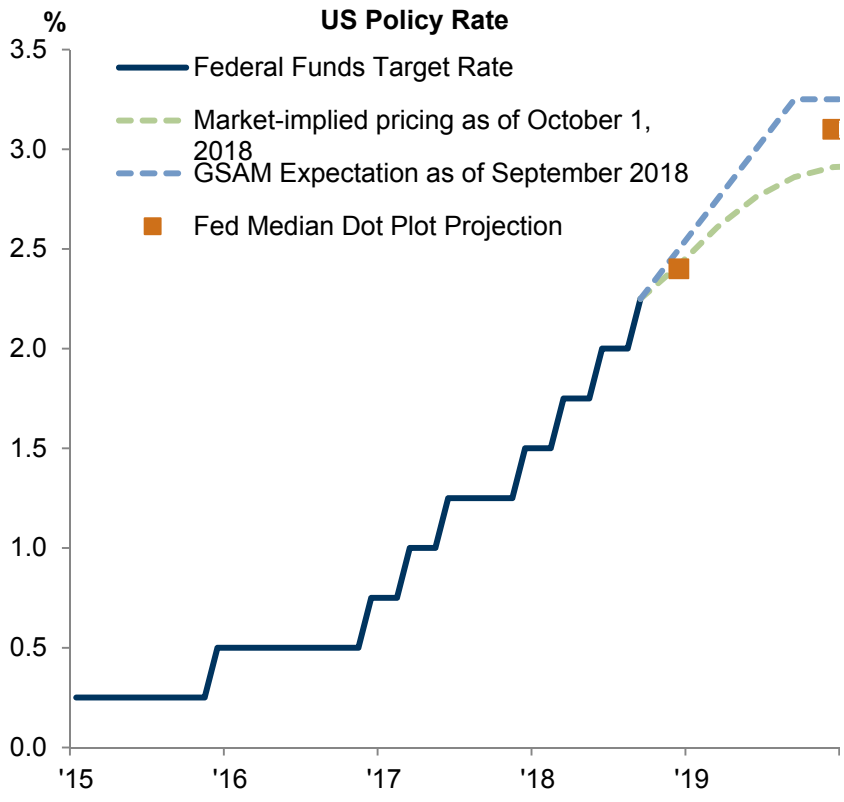
Goldman Sachs Asset Management

Fed has more-or-less achieved its dual mandate



Source: Macrobond. As of August 2018. Unemployment 'target' reflects the Feds estimate of long-run structural unemployment.

Near-term Fed policy looks under-priced

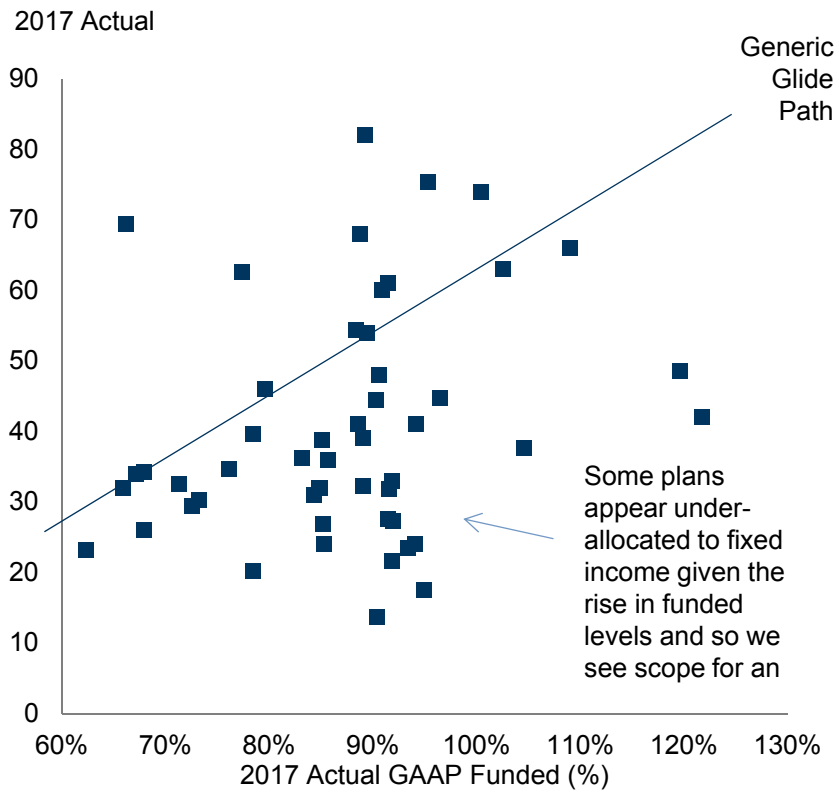


Source: Macrobond, GSAM, Bloomberg.

Investment Views: Bullish long-end US rates

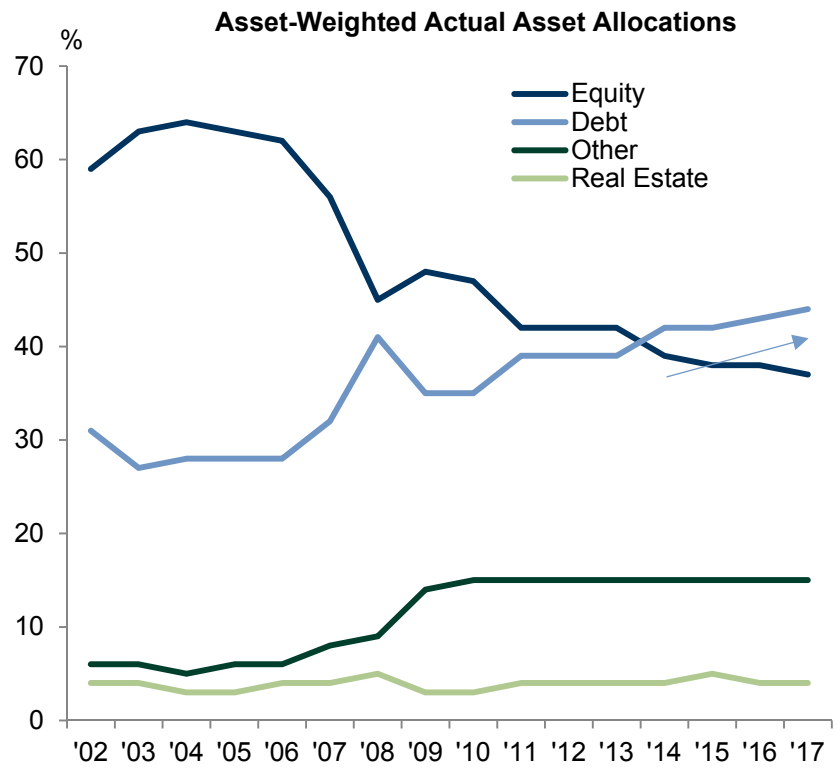
Goldman Sachs Asset Management

Improved funding ratios are positively correlated…



Source: GSAM 2017 Pension Review, March 2018. Past correlations are not indicative of future correlations, which may vary.

…with an increased allocation to fixed income

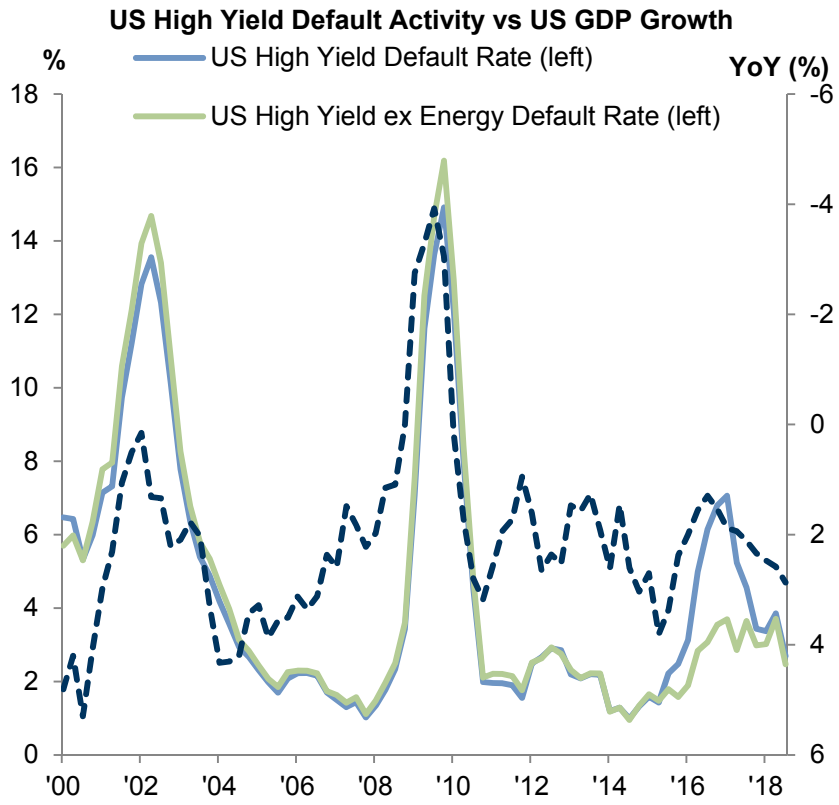


Source: GSAM 2017 Pension Review, March 2018.

Investment Views: Near-term constructive on US corporate

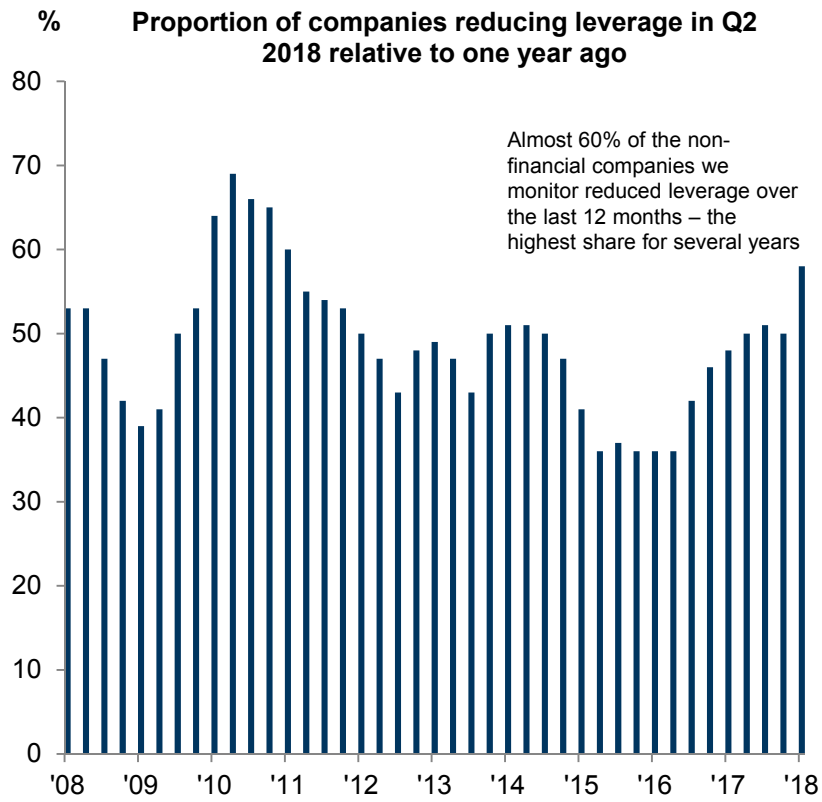
Goldman Sachs Asset Management

High growth, low default backdrop



Source: BofA Merrill Lynch Global Research, as of Aug. 31, 2018. Default rate is based on ICE BofAML indices and calculated on an issuer level on an LTM basis. US GDP data as of Q2 2018.

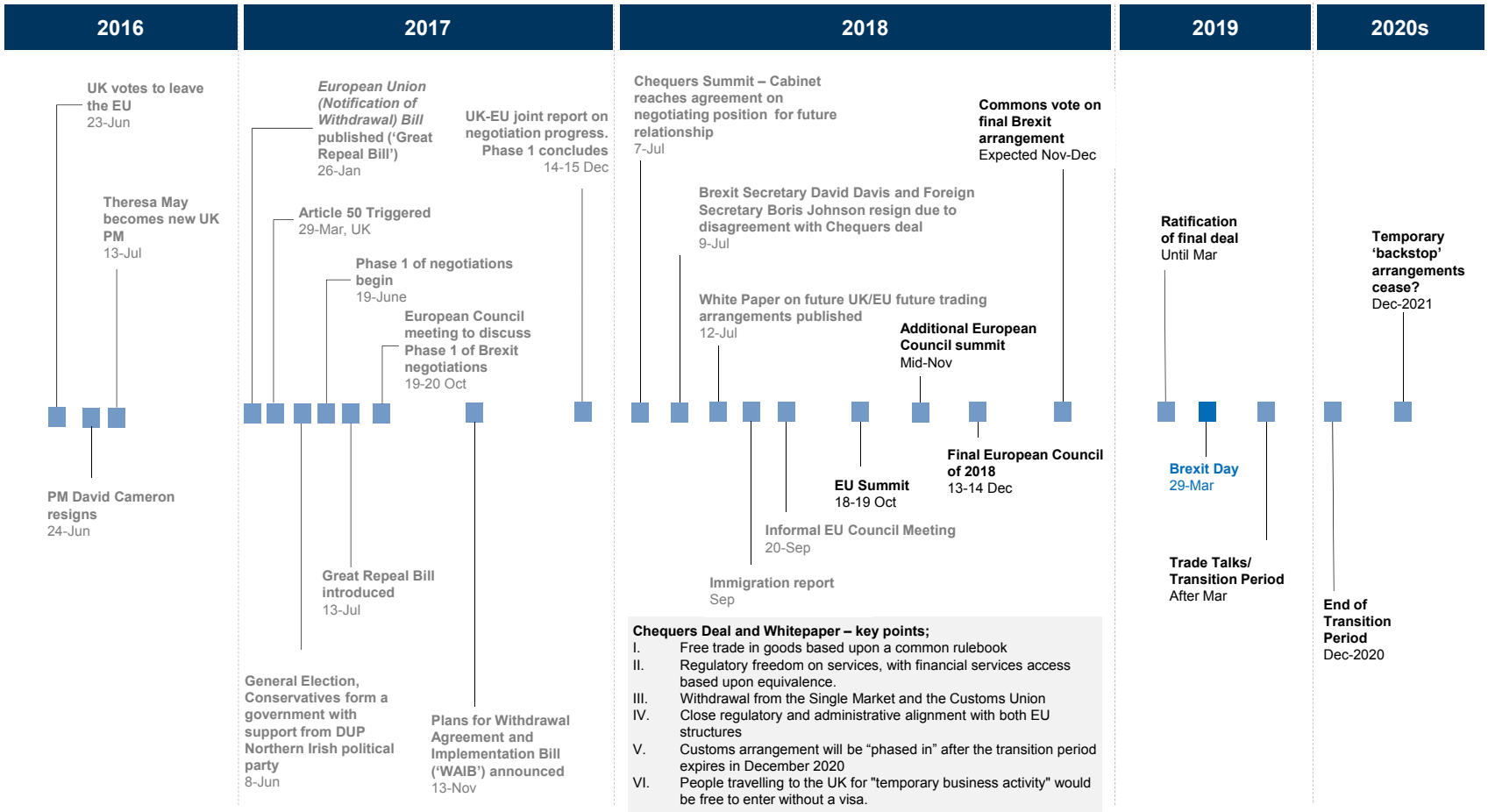
Encouraging signs of leverage reduction



Source: GSAM, Bloomberg, as of Q2 2018

Brexit: Timeline of Key Events

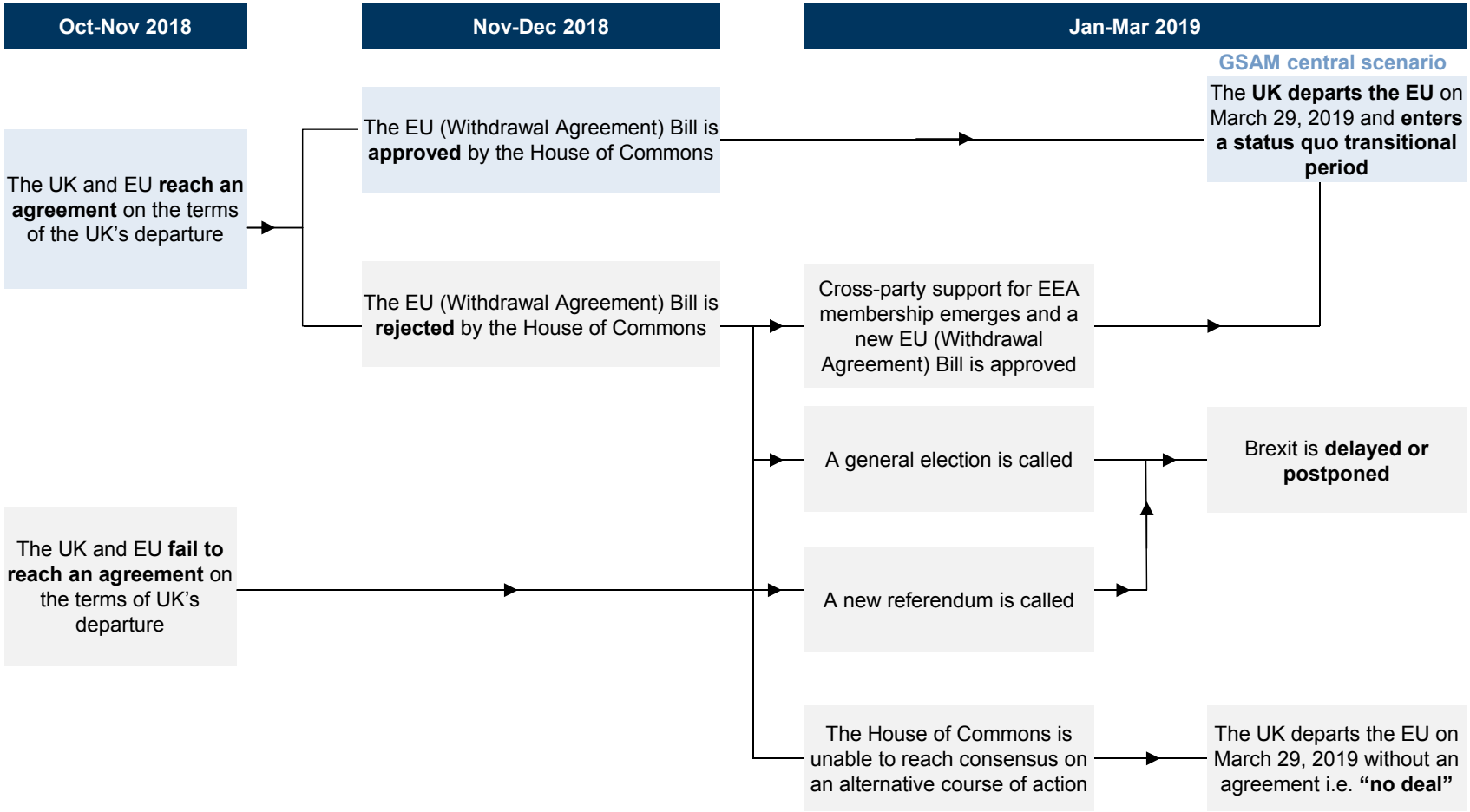
Goldman Sachs Asset Management



Source: GSAM, UK Parliament Briefings, Goldman Sachs Global Investment Research. As of October 1, 2018.

Brexit: Scenario analysis (eventual outcome remains uncertain)

Goldman Sachs Asset Management



Source: GSAM. As of October 1, 2018.

Brexit: Central Brexit Scenario and Economic Framework Options

Goldman Sachs Asset Management

GSAM Central Scenario - Overview

i. **March 2019:** UK departs the EU and enters a status-quo transitional period

ii. **March 2019-December 2020**: Negotiations over the detailed terms of the UK's future economic relationship with the EU continue throughout the transition period

Source: GSAM. As of October 1, 2018.

Existing and Potential Economic Frameworks Options for a Post-Brexit UK

	Customs Union	Single Market for Goods	Single Market for Services	Free movement of labour	Contribution to EU Budget	Common Agricultural Policy	Adherence to EU product rules and regulations	Involvement in formulating EU product rules and regulations	Tariff Barriers	Non-Tariff Barriers
EU Membership	Yes	Yes	Yes	Yes	Yes	Yes	Complete	Yes	No	No
European Economic Area (EEA) [1]	No	Yes	Yes	Yes	Yes	No	Complete	Minor	No	Some
Switzerland	No	No	No	Yes	Yes (minimal)	No	Complete	No	Some	Some
Comprehensive Economic and Trade Agreement (CETA) "Plus" [2]	No	No	Partial	No	No	No	Light	No	Limited[3]	Some
Chequers / White Paper	No	No	No	No	No	No	Strong	No	No	No
CETA	No	No	Partial	No	No	No	Light	No	Limited[3]	Yes
Turkey	Partial	No	No	No	No	No	No	No	No	Yes
World Trade Organisation (WTO)	No	No	No	No	No	No	No	No	Yes	Yes

[1] Norway, Iceland and Lichtenstein.
[2] CETA is a free-trade trade agreement between the EU and Canada.
[3] Mainly for agriculture/food

Macroeconomic Outlook

Customs Union Common system of tariffs and import quotas applied to non-members i.e. a common external tariff (CET).

Single Market Free movement of goods, services, capital and labour.

At present, these proposals have not been agreed by the EU.

Source: GSAM. As of October 1, 2018.

Brexit: Macro forecasts

Goldman Sachs Asset Management

In event of Brexit "central scenario"

GDP Growth

2018: 1.3%

2019: 1.8%. A continued decline in unemployment alongside wage growth should help underpin household consumption which we expect to be the key driver of growth over the next year.

Inflation

2018: 2.5%

2019: 2.2%. Upward inflation impulse from post-referendum GBP weakness is fading – this will temper core good price inflation, while core services inflation may pick up modestly on strength in domestic consumption.

Source: GSAM. As of October 1, 2018.

In event of a "no deal" outcome

GDP Growth

2018: 1.3%

2019: We see scope for growth to be around 2% lower in 2019, with the UK growth contracting for two consecutive quarters i.e. the UK economy entering recession.

Inflation

2018: 2.5%

2019: Headline inflation could be 1-2% higher depending on the degree of GBP depreciation, upward price pressure from the imposition of tariffs (assuming the UK reverts to WTO) and the counteracting downside inflation impact from reduced domestic demand (which would largely weigh on domestic services and rent prices).

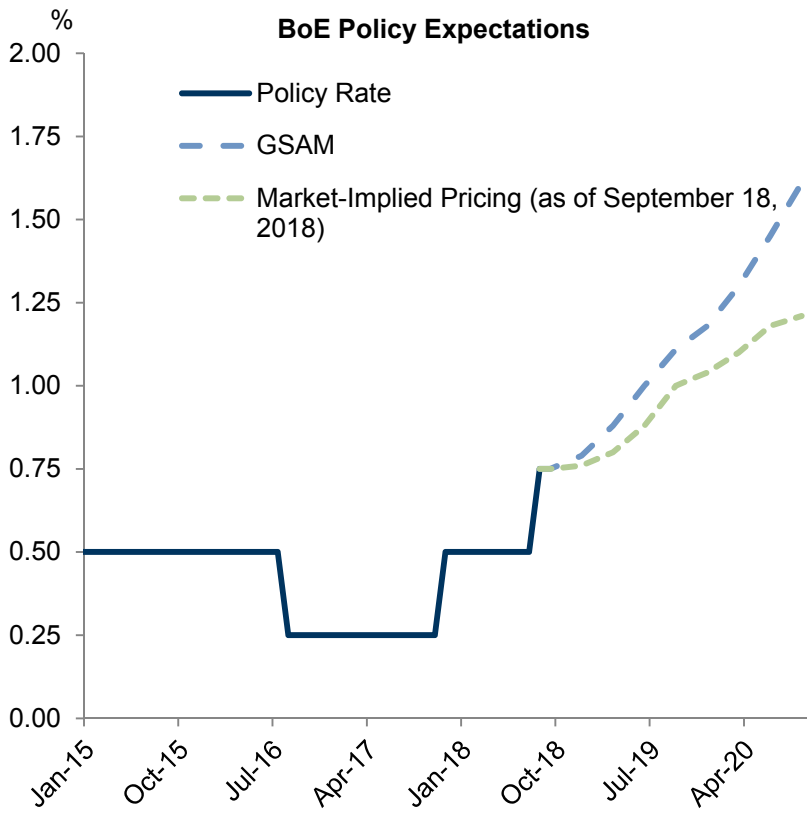
Source: GSAM. As of October 1, 2018.

The economic and market forecasts presented herein are for informational purposes as of the date of this presentation. There can be no assurance that the forecasts will be achieved. Please see additional disclosures at the end of this presentation.

Brexit: BoE Outlook

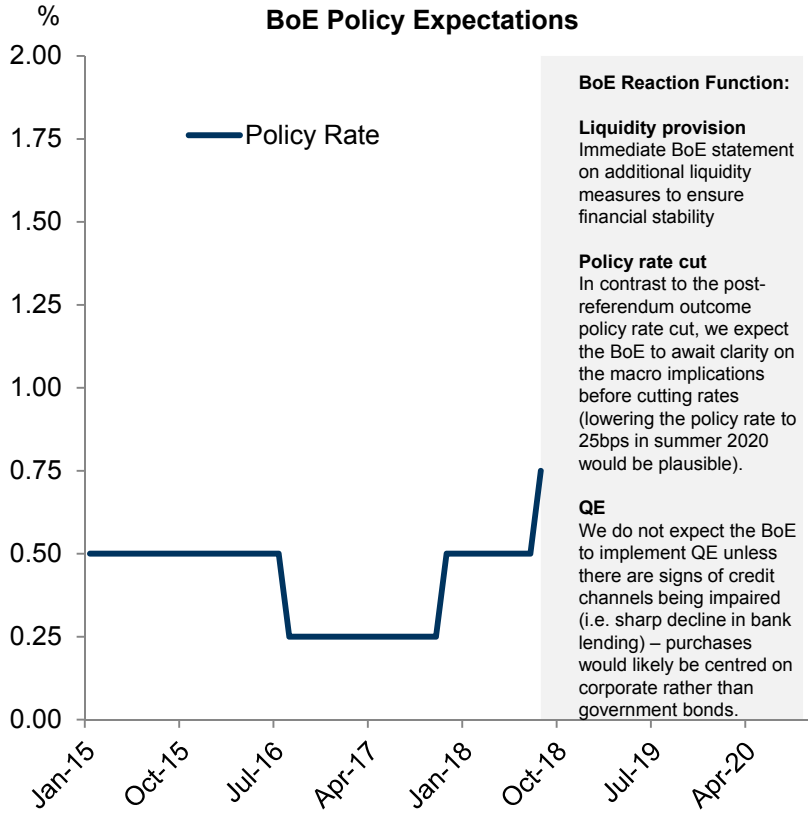
Goldman Sachs Asset Management

In event of Brexit "central scenario"



Source: GSAM, Macrobond, Bloomberg. As of September 19, 2018.

In event of a "no deal" outcome



BoE Reaction Function:

Liquidity provision
Immediate BoE statement on additional liquidity measures to ensure financial stability

Policy rate cut
In contrast to the post-referendum outcome policy rate cut, we expect the BoE to await clarity on the macro implications before cutting rates (lowering the policy rate to 25bps in summer 2020 would be plausible).

QE
We do not expect the BoE to implement QE unless there are signs of credit channels being impaired (i.e. sharp decline in bank lending) – purchases would likely be centred on corporate rather than government bonds.

Source: Macrobond, GSAM. As of September 19, 2018.

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Brexit: UK Fixed Income Outlook

Goldman Sachs Asset Management

In event of Brexit "central scenario"

Rates

Based on our central scenario expectation, and in turn our BoE outlook, we think front-end UK rates appear expensive at current levels. We would expect front end UK rates to underperform relative to core European rates if the BoE proceeds with its gradual, albeit, limited hiking path.

GBP

Our fair value estimate for GBP vs USD is around 1.36-1.37.

In event of a "no deal" outcome

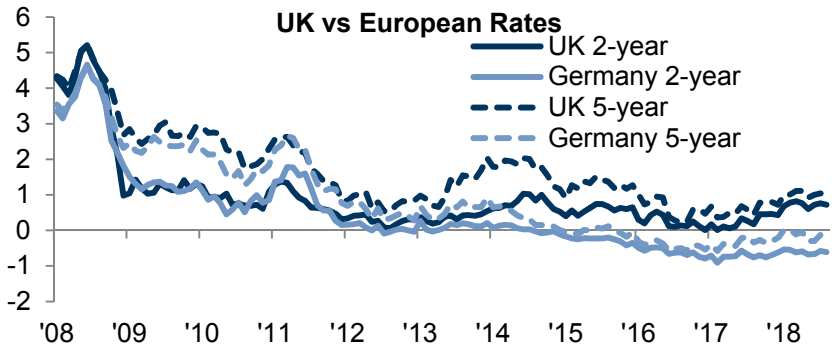
Rates

UK gilt curve would likely steepen; lower front-end yields on monetary easing with limited move at the long-end due to structural allocations from investors with a low propensity to respond to near-term political uncertainties.

GBP

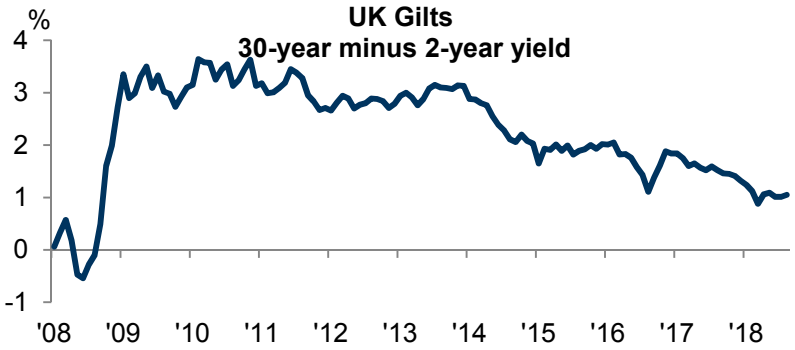
We would expect the currency to depreciate around 5-10% versus the US dollar to around 1.20.

We would expect front-end UK rates to underperform



Source: Macrobond. As of August 2018.

We would expect the UK yield curve to steepen



Source: Macrobond. As of August 2018.

Source: GSAM views as of October 1, 2018. The economic and market forecasts presented herein are for informational purposes as of the date of this presentation. There can be no assurance that the forecasts will be achieved. Please see additional disclosures at the end of this presentation.

Appendix

Global Fixed Income and Liquidity Solutions

Goldman Sachs Asset Management

CIO & Co-Head: Jonathan Beinner
Co- Head: Andrew Wilson[1]

Deputy Co-CIO: Sam Finkelstein & Ashish Shah[2]

FISG
11 Investors

Jonathan Beinner
Andrew Wilson
Jonathan Bayliss
Simon Dangoor
Sam Finkelstein
Chris Hogan
Iain Lindsay
Ashish Shah
Michael Swell
Mark Van Wyk
Whitney Watson

24+ yrs avg experience*

Oversees portfolio strategy, key risk positions, investment process, medium to long-term themes and outlook

Top-Down Strategy Teams

Macro Rates (Jonathan Bayliss)

Duration

Jonathan Bayliss
+4 professionals
18+ yrs avg experience*

Anticipates direction of markets and changing shape of yield curve using fundamental, quantitative and technical analysis

Country

Simon Dangoor
+4 professionals
14+ yrs avg experience*

Develops individual country views using a "balance sheet" research approach, using quantitative tools as an overlay to the process

Cross-Macro

Gilberto Marcheggiano
+6 professionals
20+ yrs avg experience*

Invests across asset classes to take advantage of market inefficiencies arising from investor segmentation between assets & to get efficient exposure to specific macro themes via a basket of assets

Currency / Commodities (Sam Finkelstein)

Currency

Sam Finkelstein
+7 professionals
15+ yrs avg experience*

Employs a flexible, economics-based process to determine the relative attractiveness of currencies

Commodities

Michael Johnson
+1 professionals
15+ yrs avg experience*

Alpha strategies: timing, curve shape, relative value, and volatility trades
Beta strategies: seek exposure to commodities index and manage roll on futures or enhanced swaps

Cross-Sector

Jonathan Beinner
Ashish Shah[3]
+5 professionals
22+ yrs avg experience*

Employs top-down fundamental analysis in allocating capital to bottom-up strategies

Portfolio Managers

Multi/Single Sector

Michael Swell
Iain Lindsay
Ronald Arons
Angus Bell
Hugh Briscoe
Jeremy Cave
Sabriyah Denham
Russell Gao
Rachel Golder
Michael Goosay
Matthew Kaiser
Michael Kashani
Nini Lakew
Alex Lawson
Matthew Maciaszek
Avik Mittal
Philip Moffitt
Jonathon Orr
Owi Ruivivar
Jasper Sagoo
Diana Sands
Paul Seary
Jason Singer
Ben Trombley
Jonathan Tung
Tetsuya Ukai
Ayumu Urata
Weiliang Zhang

Global Portfolio Construction & Risk

Whitney Watson
+7 professionals
6+ yrs avg experience*

Monitors portfolio construction and provide risk oversight

Product Management

Alicia Keenan
+45 professionals
Provides product support across all strategies

Bottom-Up Strategy Teams

Securitized

Chris Creed / Chris Hogan
+8 professionals
15+ yrs avg experience*

Agency mortgage selection and analysis
Securitized credit selection and analysis

Government / Swaps

Mark Van Wyk
+12 professionals
12+ yrs avg experience*

Duration & curve
Relative Value
Issuer /Issue Selection
Interest rate hedging

Municipals

Ben Barber
+16 professionals
16+ yrs avg experience*

Taxable & tax-exempt
Tax adjusted return and income
Rates and curve strategies
Municipal credit analysis

EMD

Sam Finkelstein
+24 professionals
13+ yrs avg experience*

External and local sovereign, quasi-sovereign, corporate debt and EM currencies
Fundamental research of country balance sheets
Long-term orientation

Liquidity Solutions

Dave Fishman
+15 professionals
13+ yrs avg experience*

Provide investment solutions for all liquidity tiers
Incorporate liquidity issues with strategic view to determine optimum curve exposure

Liquidity Solutions

Dave Fishman
+5 professionals
19+ yrs avg experience*

Portfolio construction and customized investment solutions

Insurance

Matthew Armas
+16 professionals
14+ yrs avg experience*

Portfolio construction and customized investment solutions for insurance clients

Quantitative Research and Strategists

Ersen Bilgin
Fred van der Wyck
+22 professionals
Build proprietary research and analysis platforms to support investment teams

Global Corporate Credit Team (Ashish Shah)

Investment Grade

PM / Trading
Ben Johnson
+11 professionals
12+ yrs avg experience*

Research
Stephen Waxman
+16 professionals
14+ yrs avg experience*

High Yield & Bank Loan

PM / Trading
Michael Goldstein / Rachel Golder
+13 professionals
18+ yrs avg experience*

Research
Rob Magnuson
+18 professionals
15+ yrs avg experience*

Stable Value

David Westbrook
+4 professionals
18+ yrs avg experience*

Customized capital preservation solutions for retirement plans and other investors

Source: GSAM. As of October 2, 2018. *Average years of experience includes investment professionals, VP and above.
[1]Andrew Wilson will become the head of the Global Fixed Income & Liquidity Solutions organization effective January 2019
[2] Sam Finkelstein and Ashish Shah will become co-CIOs for the Global Fixed Income business effective January 2019
[3] Ashish Shah will become the head of the Cross-Sector Team effective January 2019

Additional notes

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Asset Management

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Additional notes

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Additional notes

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The portfolio risk management process includes an effort to monitor and manage risk, but does not imply low risk.

Portfolio Holdings may not be representative of current or future investments. The securities discussed may not represent all of the portfolio's holdings and may represent only a small percentage of the strategy's portfolio holdings. Future portfolio holdings may not be profitable.

High-yield, lower-rated securities involve greater price volatility and present greater credit risks than higher-rated fixed income securities.

Emerging markets securities may be less liquid and more volatile and are subject to a number of additional risks, including but not limited to currency fluctuations and political instability.

The currency market affords investors a substantial degree of leverage. This leverage presents the potential for substantial profits but also entails a high degree of risk including the risk that losses may be similarly substantial. Such transactions are considered suitable only for investors who are experienced in transactions of that kind. Currency fluctuations will also affect the value of an investment.

The strategy may include the use of derivatives. Derivatives often involve a high degree of financial risk because a relatively small movement in the price of the underlying security or benchmark may result in a disproportionately large movement in the price of the derivative and are not suitable for all investors. No representation regarding the suitability of these instruments and strategies for a particular investor is made.

Economic and market forecasts presented herein reflect a series of assumptions and judgments as of the date of this presentation and are subject to change without notice. These forecasts do not take into account the specific investment objectives, restrictions, tax and financial situation or other needs of any specific client. Actual data will vary and may not be reflected here. These forecasts are subject to high levels of uncertainty that may affect actual performance. Accordingly, these forecasts should be viewed as merely representative of a broad range of possible outcomes. These forecasts are estimated, based on assumptions, and are subject to significant revision and may change materially as economic and market conditions change. Goldman Sachs has no obligation to provide updates or changes to these forecasts. Case studies and examples are for illustrative purposes only.

Any mention of an investment decision is intended only to illustrate our investment approach or strategy, and is not indicative of the performance of our strategy as a whole. Any such illustration is not necessarily representative of other investment decisions.

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Goldman Sachs Business Principles

Goldman Sachs
Asset Management

1. Our clients' interests always come first. Our experience shows that if we serve our clients well, our own success will follow
2. Our assets are our people, capital and reputation. If any of these is ever diminished, the last is the most difficult to restore. We are dedicated to complying fully with the letter and spirit of the laws, rules and ethical principles that govern us. Our continued success depends upon unswerving adherence to this standard
3. Our goal is to provide superior returns to our shareholders. Profitability is critical to achieving superior returns, building our capital, and attracting and keeping our best people. Significant employee stock ownership aligns the interests of our employees and our shareholders
4. We take great pride in the professional quality of our work. We have an uncompromising determination to achieve excellence in everything we undertake. Though we may be involved in a wide variety and heavy volume of activity, we would, if it came to a choice, rather be best than biggest
5. We stress creativity and imagination in everything we do. While recognising that the old way may still be the best way, we constantly strive to find a better solution to a client's problems. We pride ourselves on having pioneered many of the practices and techniques that have become standard in the industry
6. We make an unusual effort to identify and recruit the very best person for every job. Although our activities are measured in billions of dollars, we select our people one by one. In a service business, we know that without the best people, we cannot be the best firm
7. We offer our people the opportunity to move ahead more rapidly than is possible at most other places. Advancement depends on merit and we have yet to find the limits to the responsibility our best people are able to assume. For us to be successful, our men and women must reflect the diversity of the communities and cultures in which we operate. That means we must attract, retain and motivate people from many backgrounds and perspectives. Being diverse is not optional; it is what we must be
8. We stress teamwork in everything we do. While individual creativity is always encouraged, we have found that team effort often produces the best results. We have no room for those who put their personal interests ahead of the interests of the Firm and its clients
9. The dedication of our people to the Firm and the intense effort they give their jobs are greater than one finds in most other organisations. We think that this is an important part of our success
10. We consider our size an asset that we try hard to preserve. We want to be big enough to undertake the largest project that any of our clients could contemplate, yet small enough to maintain the loyalty, the intimacy and the esprit de corps that we all treasure and that contribute greatly to our success
11. We constantly strive to anticipate the rapidly changing needs of our clients and to develop new services to meet those needs. We know that the world of finance will not stand still and that complacency can lead to extinction
12. We regularly receive confidential information as part of our normal client relationships. To breach a confidence or to use confidential information improperly or carelessly would be unthinkable
13. Our business is highly competitive, and we aggressively seek to expand our client relationships. However, we must always be fair competitors and must never denigrate other firms
14. Integrity and honesty are at the heart of our business. We expect our people to maintain high ethical standards in everything they do, both in their work for the firm and in their personal lives

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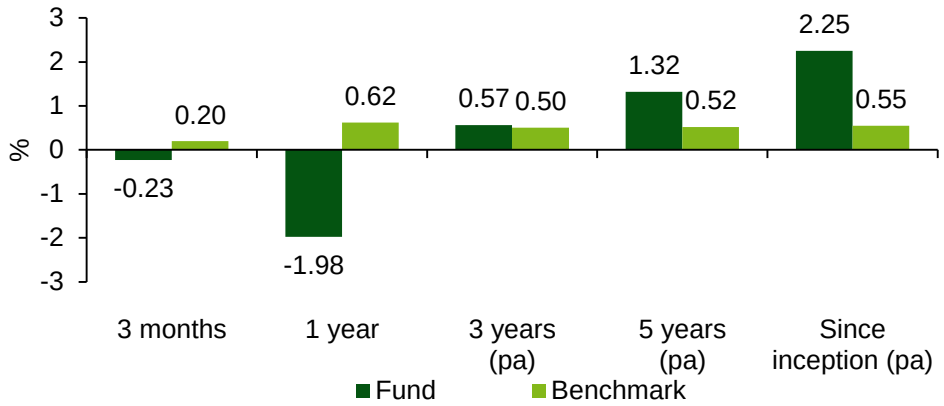
BNY Mellon Absolute Return Bond Fund

Portfolio summary as at 30 September 2018

Fund summary[1]

- A diversified fixed income absolute return fund
- Utilises broad fixed income opportunity set, e.g. government, inflation linked, corporate, emerging market debt, high yield, loans, asset backed securities and currency
- Launched in 2012, asset size £1,153m
- Target is to outperform benchmark by 3% pa on a rolling annualised three year basis before fees

Fund performance (GBP share class)



Performance attribution (3 years)[1]	bp
Country allocation, inflation, duration and yield curve	-310
Investment grade credit	210
Asset backed securities	156
High yield & Loans	-17
Emerging market debt	-13
Currency	-82

Risk statistics[1]	
Information ratio (3 years)	0.02
Tracking error pa (3 years)	3.08%

The BNY Mellon Absolute Return Bond Fund is gross of fees and in GBP. All returns over one year are annualised. Benchmark: 3 Month GBP LIBOR. Inception date: 9 March 2012. Fund size converted to GBP. [1] Fund data.

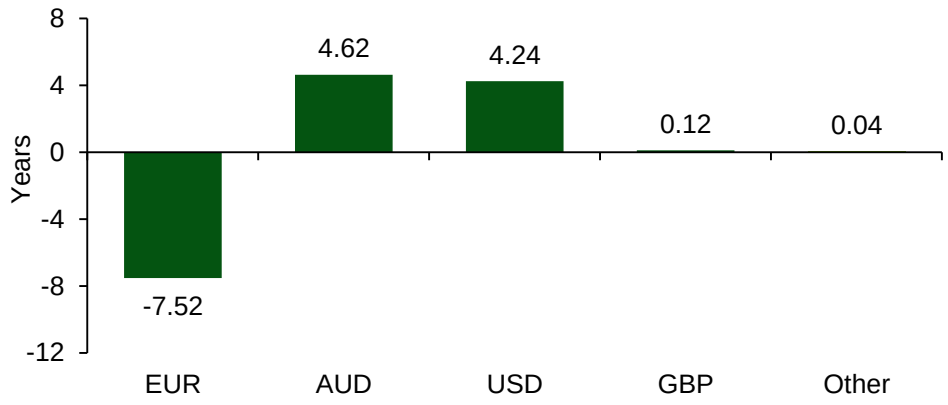
BNY Mellon Absolute Return Bond Fund

Portfolio summary as at 30 September 2018

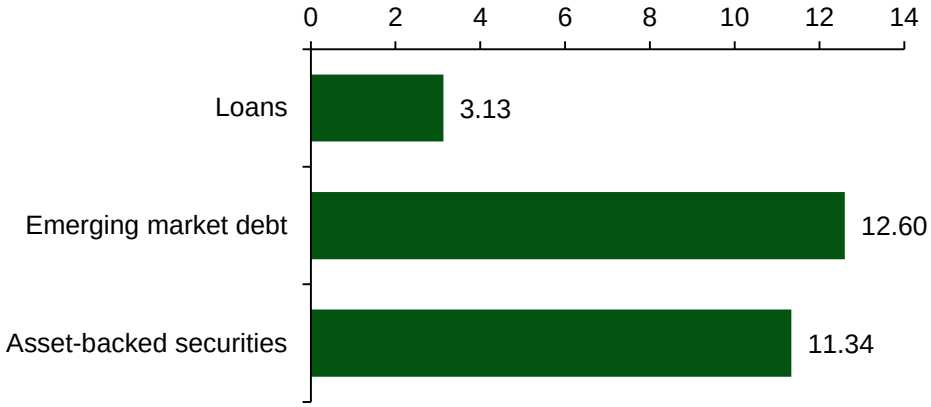
Key statistics

Yield (%)[2]	-0.14
Spread over swaps (bp)	29
Overall duration (yrs)	1.50
Inflation-linked duration (yrs)	2.35
Credit spread duration (yrs)	0.20
Investment grade (yrs)	*-0.80*
High yield (yrs)	*0.11*

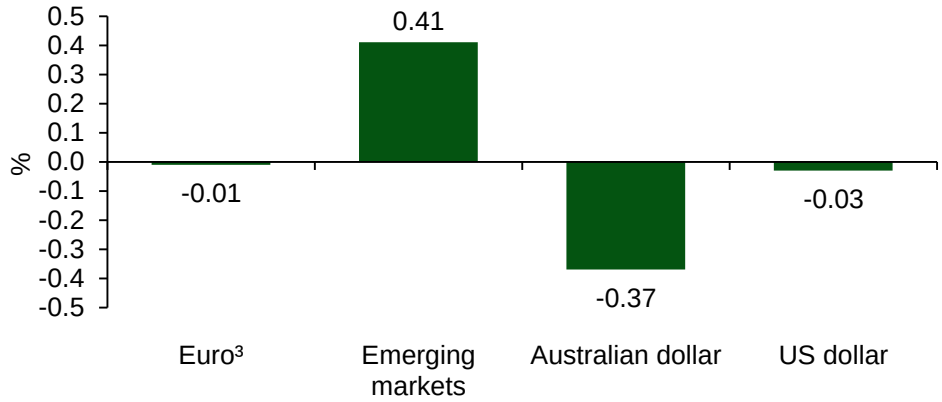
Duration exposure by currency (yrs)[1]



Allocation to other fixed income markets (%)[1]



Largest relative currency exposures (%)[1]



[1] Fund data. [2] The yield on the Fund includes the real yield of index-linked assets and therefore is likely to understate the conventional yield equivalent of the Fund. [3] Euro exposure is shown relative to the base currency of the Fund.

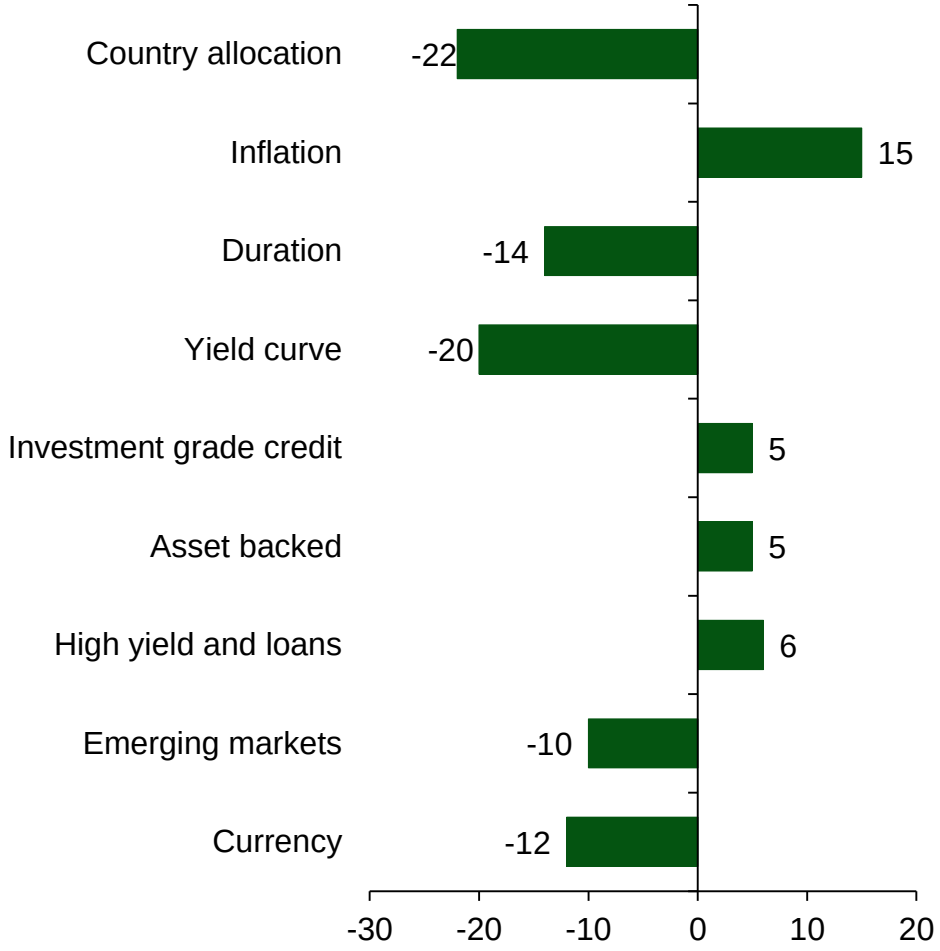
BNY Mellon Absolute Return Bond Fund

Performance attribution

Q3 2018

- The fund underperformed over the quarter
- Country allocation was negative. This was driven largely by being short Germany versus long the US. A short Germany versus long Australia position was beneficial. A tactical long Spain versus short Italy position was also a small positive.
- The 30yr US inflation position in US TIPS was positive.
- Long duration positions was negative over the period.
- Yield curve, a tactical US yield curve flattener (short 2yr versus long 10yr) detracted as the yield curve steepened.
- The contribution from investment grade credit was positive as a small positive from a long cash bonds positions outweighed the negative return of CDS hedges on investment grade and high yield cash bonds.
- A small positive from short-dated high yield and loans.
- ABS was a small positive, benefitting from low risk “carry” yield.
- Emerging market debt exposure was negative, this was driven by the sell-off over the period.
- Currency was also a detractor, this was due to USD versus Emerging market currencies.

Contribution by investment decision (bp)

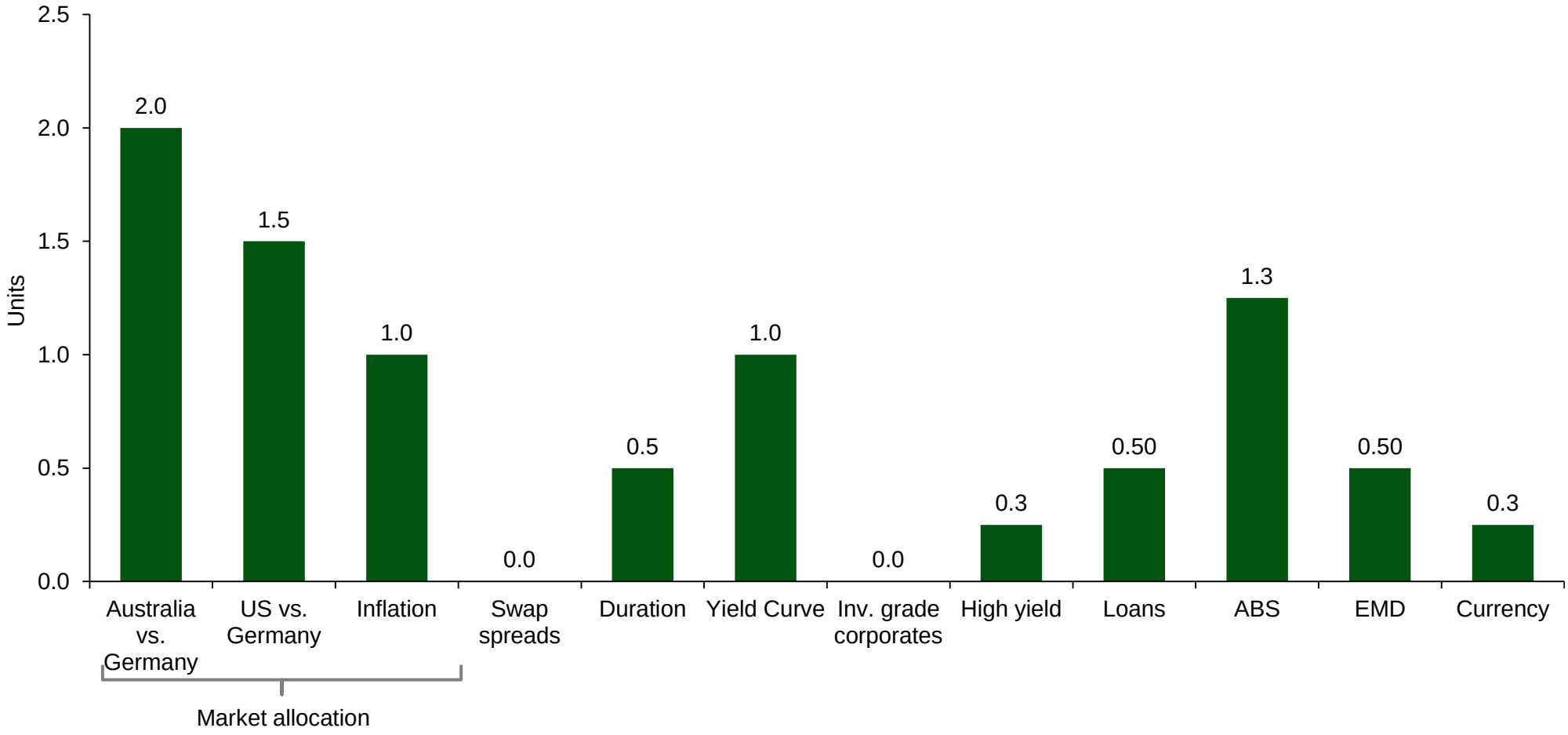


As at 30 September 2018. Attribution shown gross of fees.

Insight's institutional absolute return strategy

Units of risk: allocation

As at 30 September 2018



Quarterly Investment Report - Q3 2018

London Borough of Tower Hamlets Pension Fund

Legal & General
INVESTMENT MANAGEMENT

Contents

Executive summary as at 30 September 2018

London Borough of Tower Hamlets Pension Fund

Fund overview

The Fund's assets are managed by investing in the pooled funds shown in the table below.

Important update

On-fund costs (OFC) deducted from the unit price of the Fund

Please use the link to access our latest Local Government Pension Scheme thought piece, LGPS Intelligence: www.lgim.com/lgpsintelligence

Funds held

Fund	Market index
London Borough of Tower Hamlets	
All World Equity Index (OFC)	FTSE All-World NetTax (UKPN)
MSCI World Low Carbon Target Index Fund-GBP Currency Hedged (OFC)	MSCI World Low Carbon GBP Hedged
All World Equity Index Fund - GBP Currency Hedged (OFC)	Composite
London Borough Tower Hamlets Temp	
Transition CSUF STBP	-

Fund performance (%)

Period	Fund (gross of fees)
Q3 2018	4.67
1 Year	8.17
3 Years	11.82
5 Years	8.49
Since inception	9.56

Inception date: 30 Jul 2010

Performance figures shown for periods in excess of one year are annualised

Fund cashflows

	GBP
Value at start of quarter	552,444,910
Net transactions	(215,970,418)
Value at end of quarter	360,380,443

Pricing basis: mid

Source: Legal & General Investment Management

Valuation summary as at 30 September 2018

London Borough of Tower Hamlets Pension Fund

To instantly view and download all valuations, transaction statements, performance, pricing and quarterly reports please log into our client portal www.lgimconnect.com. A breakdown of any investments, disinvestments and switches is also detailed in the Transaction Statements which have been issued to your nominated recipients.

Fund	Value at start of quarter			Net transactions (GBP)	Value at end of quarter		
	GBP (mid)	Total (%)	Distribution (%)		GBP (mid)	Total (%)	Distribution (%)
London Borough of Tower Hamlets							
All World Equity Index (OFC)	80,898,622		16.90	-	85,486,091		23.72
MSCI World Low Carbon Target Index Fund-GBP Currency Hedged (OFC)	239,027,802		49.92	-	251,551,867		69.80
All World Equity Index Fund - GBP Currency Hedged (OFC)	158,828,609		33.18	(142,390,000)	23,339,742		6.48
Total London Borough of Tower Hamlets Assets	**478,755,033**	**86.66**	**100.00**	**(142,390,000)**	**360,377,700**	**100.00**	**100.00**
London Borough Tower Hamlets Temp							
Over 5y Index-Linked Gilts (OFC)	73,677,153		99.98	(73,570,418)	-		-
Transition CSUF STBP	12,724		0.02	(10,000)	2,743		100.00
Total London Borough Tower Hamlets Temp Assets	**73,689,877**	**13.34**	**100.00**	**(73,580,418)**	**2,743**	**0.00**	**100.00**
Total	**552,444,910**	**100.00**	**-**	**(215,970,418)**	**360,380,443**	**100.00**	**-**

Source: Legal & General Investment Management

Performance summary as at 30 September 2018

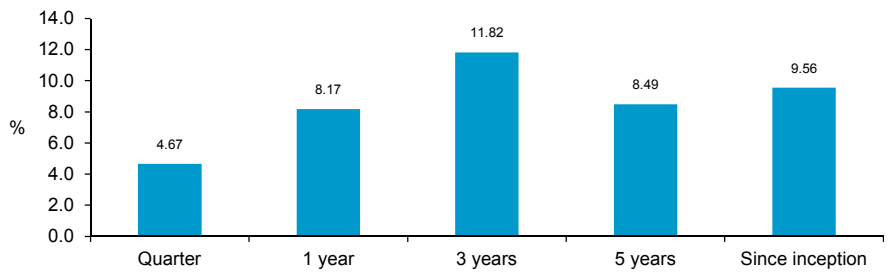
London Borough of Tower Hamlets Pension Fund

Performance to date (%)

	Quarter	1 year	3 years	5 years	Since inception
Fund (gross of fees)	4.67	8.17	11.82	8.49	9.56

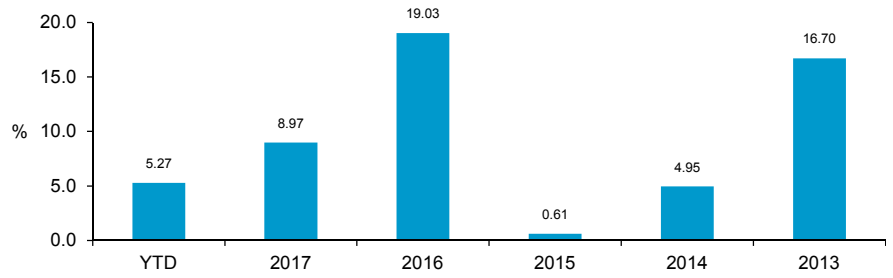
Inception date: 30 Jul 2010

Performance figures shown for periods in excess of one year are annualised



Calendar year performance (%)

	Year to date	2017	2016	2015	2014	2013
Fund (gross of fees)	5.27	8.97	19.03	0.61	4.95	16.70



Notes:

The performance tables/charts above show the time-weighted returns i.e. taking out the effects of cash flow, for the total Fund and where applicable its benchmark. Performance figures for any externally managed funds are excluded unless managed on the LGIM investment only platform. All performance returns are for the entire period stated, except where a bought or (sold) date denotes part period, as detailed on the following page.

Source: Legal & General Investment Management

Legal & General INVESTMENT MANAGEMENT

Performance summary as at 30 September 2018

London Borough of Tower Hamlets Pension Fund

	Bought/(Sold) date*	Quarter's performance (%)			1 Year's performance (%)			3 Year's performance (%)		
		Fund	Index**	Relative	Fund	Index**	Relative	Fund	Index**	Relative
London Borough of Tower Hamlets										
All World Equity Index (OFC)		5.67	5.64	0.03	-	-	-	-	-	-
MSCI World Low Carbon Target Index Fund-GBP Currency Hedged (OFC)		5.24	5.15	0.09	-	-	-	-	-	-
All World Equity Index Fund - GBP Currency Hedged (OFC)		4.65	4.61	0.04	-	-	-	-	-	-
Total London Borough of Tower Hamlets Assets		**5.12**	**-**	**-**	**9.78**	**-**	**-**	**12.37**	**-**	**-**
London Borough Tower Hamlets Temp										
Over 5y Index-Linked Gilts (OFC)	(06 Sep 2018)	(0.14)	(0.14)	0.00	-	-	-	-	-	-
Transition CSUF STBP		0.09	-	-	-	-	-	-	-	-
Total London Borough Tower Hamlets Temp Assets		**(0.83)**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Total		**4.67**	**-**	**-**	**8.17**	**-**	**-**	**11.82**	**-**	**-**

*All performance returns are for the entire period stated, except where a bought or (sold) date denotes part period.

** For some funds a comparator will be shown instead of an Index. Comparators are shown for information purposes and the fund is not managed against these.

Notes:

The performance summary table shows the returns for each fund compared with the total return of the relevant market index, composite index or comparator. The Total line(s) show the time-weighted returns i.e. taking out the effects of cash flow, for the total Fund and where applicable its benchmark. All fund returns are shown before the deduction of charges except those marked '(Net)', '(chgs)' or '(charges included)'. Some index returns are net of fees. Performance figures shown for periods in excess of one year are annualised. Externally managed funds, where applicable, are excluded. Additional information on fund level performance can be found in the fund sections later in the report.

Where applicable, the performance shown takes into account the return of funds held prior to the inception of the OFC funds.

Source: Legal & General Investment Management

Our views

Thought leadership

Fundamentals – What the battle against plastic means for oil demand

Governments around the world have committed to reducing the consumption of single-use plastic and increasing their rate of recycling. We believe that the market has missed what the consequences of using less plastic will be for petrochemical companies and, crucially, the long-term demand for oil.

http://www.lgim.com/uk/en/insights/our-thinking/long-term-thinking/what-the-battle-against-plastic-means-for-oil-demand.html

Broadening the universe: The strategic case for alternative credit

The falls over the past two years in high yield and emerging market debt credit spreads, along with indications of late-cycle behaviour in the US, has led some investors to be nervous about allocating to these areas. But should pension schemes reconsider?

http://www.lgim.com/uk/en/insights/our-thinking/client-solutions/broadening-the-universe-the-strategic-case-for-alternative-credit.html

Can better financial wellbeing lead to higher savings?

The DC pensions industry has moved forward since auto-enrolment was introduced, with many more saving into a pension. This is great news, but challenges remain. How do we help individuals see the value in saving more for a future that seems a long way off?

http://www.lgim.com/uk/en/insights/our-thinking/client-solutions/can-better-financial-wellbeing-lead-to-higher-savings.html

Market views

CIO Outlook – Expect the bumpy journey to continue

Investors have been buffeted by a large number of negative headlines in 2018. We remain of the view that tightening global liquidity conditions are likely to exacerbate market volatility – weighing on sentiment and influencing the timing of the next downturn.

http://www.lgim.com/uk/en/insights/our-thinking/market-insights/expect-the-bumpy-journey-to-continue.html

Good growth, poor politics

The latest market outlook from LGIM's Asset Allocation team, which outlines how developments in trade tensions, emerging economies and European politics may determine the trajectory of markets over the coming months.

http://www.lgim.com/uk/en/insights/our-thinking/market-insights/good-growth-poor-politics.html

The Future World Blog

The Future World Blog is about sharing our thinking across all investment types, whether they are pensions-specific or multi-asset solutions, alongside thoughts from our distribution and sales teams driven by our conversations with you as clients. Through this blog, we're incredibly excited to be pushing towards having more robust and honest conversations that allow us to be fluid in our approach and therefore better invest in the future, together.

https://futureworldblog.lgim.com/home

Source: Legal & General Investment Management

LGIM news

Company news

Legal & General H1 2018 results: Consistent delivery of growth from all divisions

"Legal & General again delivered consistent, positive results, with five of our six businesses increasing their operating profits for the first half of 2018. Operating profit from divisions increased 7% to £1.1 billion and RoE was 20.3%. We are confident that Legal & General is strongly positioned for growth in H2 and beyond."

Nigel Wilson, Group Chief Executive

https://www.legalandgeneralgroup.com/media-centre/press-releases/h1-2018-consistent-delivery-of-growth-from-divisions/

Double win for LGIM real assets at AREF awards

LGIM Real Assets has had a clean sweep for the Investment Performance awards at The Association of Real Estate (AREF) Annual Dinner and Awards 2018, which took place on Wednesday 26 September.

https://www.legalandgeneralgroup.com/media-centre/press-releases/double-win-for-lgim-real-assets-at-aref-awards/

Our investment solutions

Legal & General Mastertrust surpasses £5 billion in AUM

Legal & General announced that its Mastertrust has surpassed £5 billion in assets under management, reflecting the continuing appeal of the structure for Defined Contribution (DC) schemes looking to ease administrative burdens and ultimately achieve better investment outcomes for their employees.

https://www.legalandgeneralgroup.com/media-centre/press-releases/legal-general-mastertrust-surpasses-5-billion-in-aum/

Legal & General's Leisure Fund grows to over £600m

Legal & General announced that it has acquired Broadway Plaza in Birmingham, on behalf of its Leisure Fund, from Aviva Investors for £46.95 million, growing the fund to over £600 million.

https://www.legalandgeneralgroup.com/media-centre/press-releases/legal-generals-leisure-fund-acquires-birminghams-broadway-plaza/

Awards for excellence

corporate adviser AWARDS 18 WINNER Best ESG Asset Manager

2018 Property Awards Winner

PROFESSIONAL PENSIONS UK PENSIONS AWARDS 2018 WINNER Property Manager of the Year

PROFESSIONAL PENSIONS UK PENSIONS AWARDS 2017 WINNER 20 Years of Excellence in Investment Management

European Pensions AWARDS 2018 WINNER Investment Manager of the Year

LAPF INVESTMENTS AWARDS 2018 WINNER Transition Manager of the Year www.lapfinvestmentsawards.com

Source: Legal & General Investment Management

Legal & General INVESTMENT MANAGEMENT

Global equities: market background

Global equity markets

Despite continued volatility, global equity markets extended their march upwards in the third quarter of the year, with the MSCI World Index reversing all of the losses seen at the beginning of the year **(Figure 1).** The global trade war has transformed into a bilateral dispute between the US and China when talks deteriorated, but it alleviated pressure on Europe, as well as Mexico and Canada.

In the US, economic data reading were strong and indices reached new all-time highs. Mainland European stocks were broadly flat as investors focused on the well-publicised political risks surrounding Italy. The Italian government tensions had a negative impact on risk assets after the government agreed a higher deficit target for 2019. Political turmoil also dampened sentiment in the UK as prime minister Theresa May's proposal framework for leaving the European Union was strongly opposed by Brussels' chief negotiator Michel Barnier.

Emerging market equities also lost ground over the period **(Figure 2)** following a dramatic turn of events for Turkey and Argentina, with significant falls in their respective currencies. Tensions eased in September but Chinese equities still weakened following the announcement that the US was to place 10% tariffs on around $200 billion of imports from China, with the percentage set to rise to 25% next year.

Figure 1: Global equities march higher

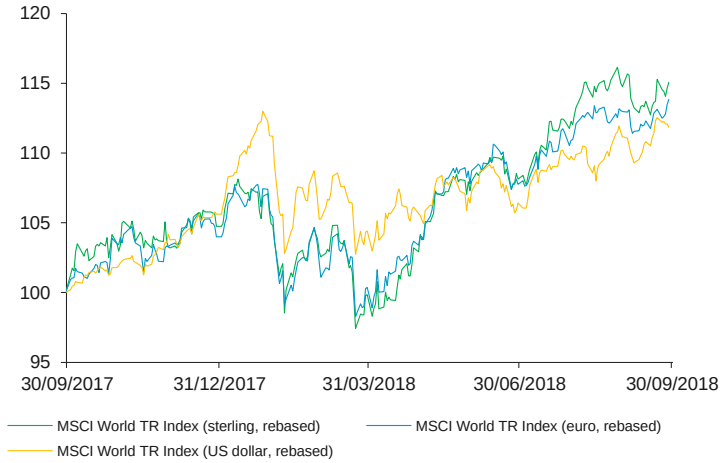
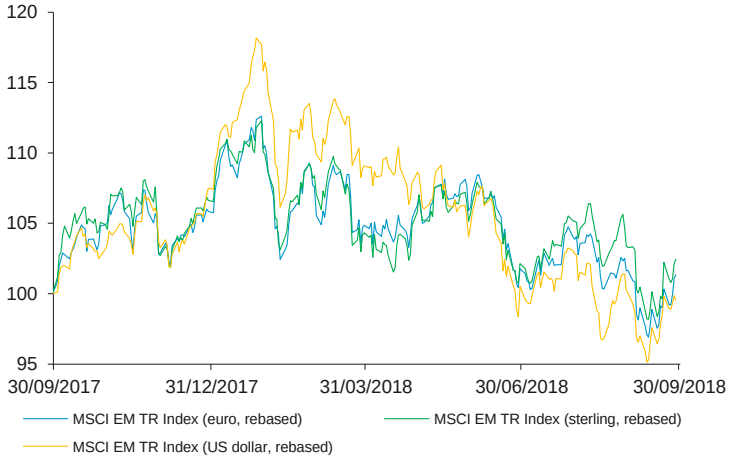


Figure 2: Emerging markets continue to weaken



Source: Legal & General Investment Management

Global government bonds: market background

Global sovereign markets

Global government 10-year bond yields edged up over the third quarter **(Figure 3)**. As the market had been expecting, the Federal Reserve (Fed) chose to raise rates to 2.25% **(Figure 4)**. Strong US economic indicators, including consumer confidence and non-farm payrolls data, supported the rise. The market expects a further increase in December.

In Europe, Mario Draghi delivered a positive assessment of economic growth. However, despite the hawkish rhetoric, the market concluded that the European Central Bank is unlikely to raise rates sooner than late 2019.

In the UK, the Bank of England performed in line with market expectations and raised rates in August to 0.75% **(Figure 4)**. The Monetary Policy Committee communicated that in order to meet the bank's inflation target further monetary tightening would be required, although they also stressed that this scenario is subject to change as a result of ongoing Brexit negotiations.

Figure 3: 10-year yields edge higher

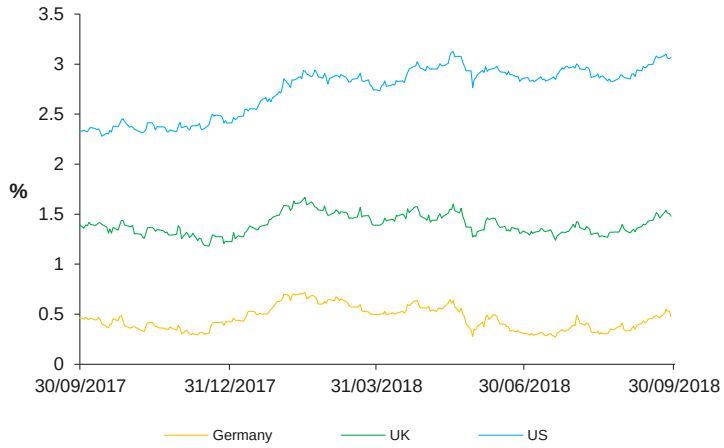
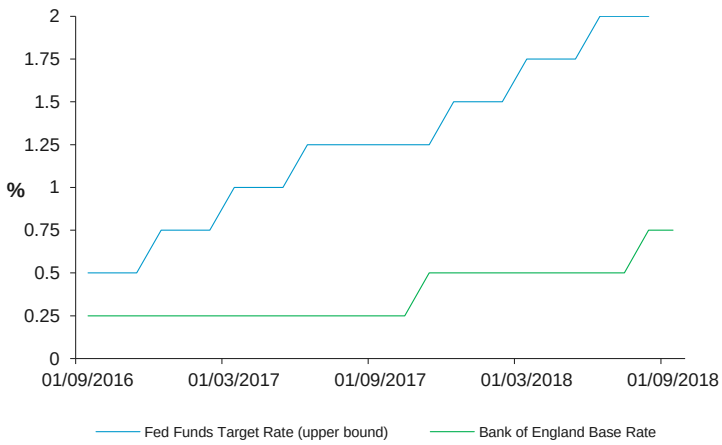


Figure 4: Fed and Bank of England raise rates



Source: Legal & General Investment Management

Global corporate bonds: market background

Global credit markets

Major corporate bond markets had another positive quarter amid a continued backdrop of improving global economic growth. Credit spreads (the additional yield available on corporate bonds compared to government bonds from the same region) fell slightly across major developed markets **(Figure 5)**.

Global corporate bonds continued to be undeterred by hawkish sentiment from central banks, with investors judging that rising interest rates were a function of continued global economic strength. US consumer confidence hit a new expansion high, in part a reflection of strong data on the number of jobless claims **(Figure 6)**.

In Europe, business investment across the region continued to grow at a healthy pace, supported by loose credit conditions and, low interest rates. Global high yield bonds performed well in the third quarter, with spreads falling significantly, although emerging market bonds were weak given the financial and political turmoil in Turkey and Argentina.

Figure 5: Credit spreads tighten modestly

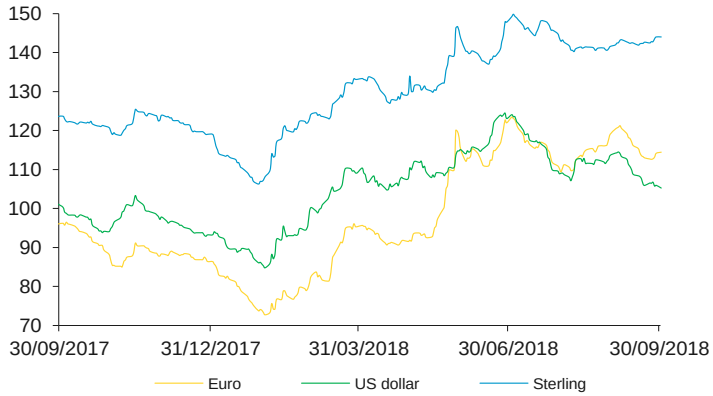
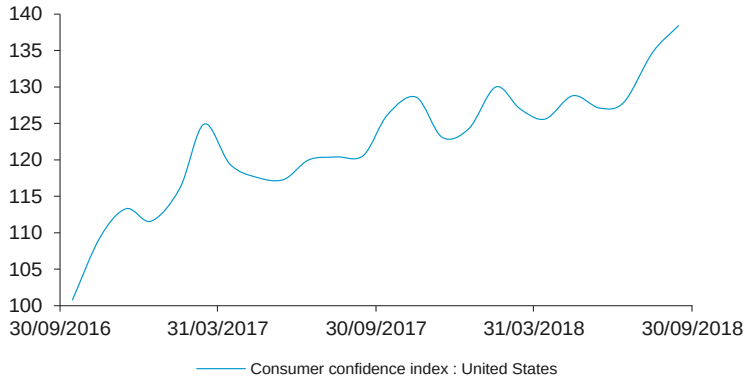


Figure 6: US consumer confidence rises



Source: Legal & General Investment Management

Currencies: market background

Currency markets

The US dollar continued to push higher on the back of particularly strong domestic economic data and relative weakness in emerging markets **(Figure 7).** The US Federal Reserve raised interest rates late in the quarter and continued its hawkish rhetoric, with its statement no longer including the phrase that the stance of monetary policy remains accommodative.

Sterling remained broadly stable over the quarter against the euro and the dollar as the prospect of 'no deal' Brexit continued to dominate headlines and high-profile members of the cabinet tendered their resignations. This was despite the Bank of England delivering a well-anticipated rate rise in August and chief negotiator Barnier stating that the EU was willing to offer the UK a close relationship after Brexit.

Emerging market currencies were weak over the quarter as a result of a number of high profile negative incidents, particularly in relative terms to the dollar's strength. The Turkish lira was especially weak, falling more than 17% in a single day due to a widening of its current account deficit and following the US decision to increase tariffs on Turkish steel and aluminium imports. This was helped slightly in September when the central bank raised rates to 24% in order to restore credibility.

Figure 7: US dollar index rises

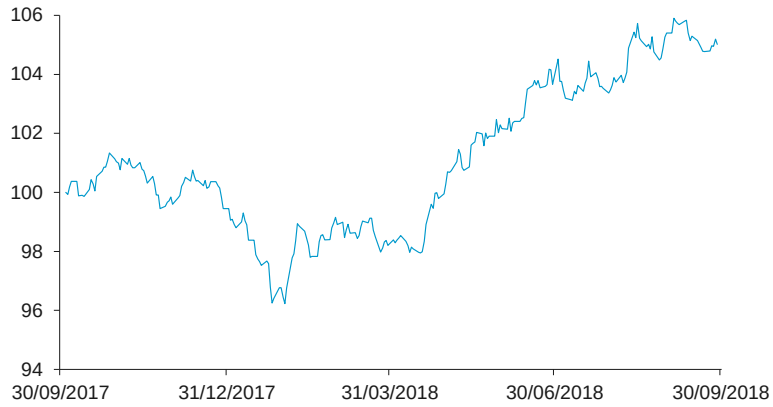


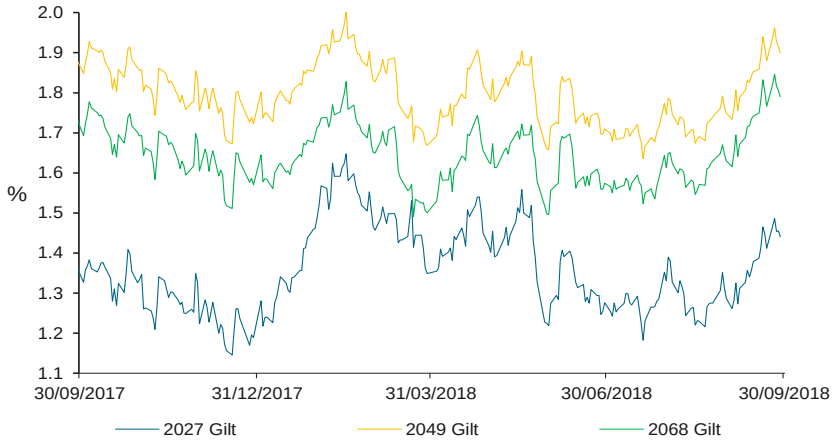
Figure 8: Sterling stabilises

Source: Legal & General Investment Management

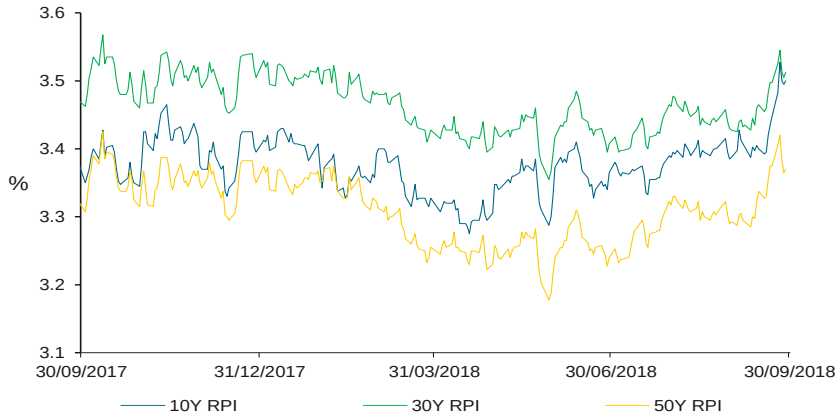
LDI Market Background

Sterling interest rate and inflation market background

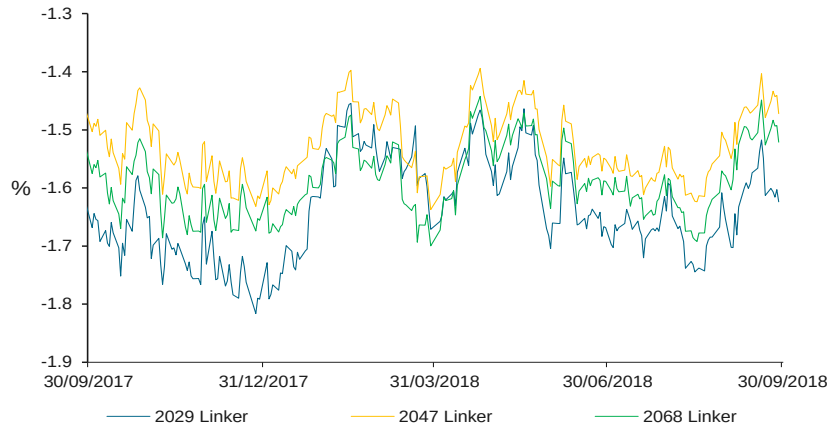
Nominal yields



Swap-based inflation



Real yields



Sterling LDI markets

In the third quarter of 2018, the Bank of England performed in line with market expectations and raised rates in August to 0.75%. The Monetary Policy Committee communicated that in order to meet the bank's inflation target further monetary tightening would be required, although they also stressed that this scenario is subject to change as a result of ongoing Brexit negotiations.

Nominal yields rose across the board following more upbeat economic data. Meanwhile, inflation expectations have picked up again following, amongst other things, Brexit-related sterling weakness and slightly higher-than-expected inflation prints Real yields increased across the board as nominal yields increased by more than inflation expectations.

Source: Legal & General Investment Management

Fund reports performance as at 30 September 2018

	Price series	Quarter		Year to date		1 year		3 years		5 years	
		Fund	Index**	Fund	Index**	Fund	Index**	Fund	Index**	Fund	Index**
MSCI World Low Carbon Target Index Fund-GBP Currency Hedged (OFC)	Weekly close	5.24	5.15	5.94	5.60	11.31	10.87	-	-	-	-
All World Equity Index Fund - GBP Currency Hedged (OFC)	Weekly close	4.65	4.61	4.90	4.83	10.55	10.49	13.65	13.61	-	-
Transition CSUF STBP	Weekly close	0.09	-	(8.19)	-	-	-	-	-	-	-
All World Equity Index (OFC)	Weekly close	5.67	5.64	7.93	7.86	13.41	13.35	19.82	19.75	-	-

** For some funds a comparator will be shown instead of an Index. Comparators are shown for information purposes and the fund is not managed against these.

Notes:

The performance summary table shows the returns for each fund compared with the total return of the relevant market index, composite index or comparator. All fund returns are shown before deduction of charges except those marked '(Net)', '(chgs)' or '(charges included)'. Some index returns are net of fees. Externally managed funds, where applicable, are excluded.

Where applicable, the performance shown takes into account the return of funds held prior to the inception of the OFC funds.

Source: Legal & General Investment Management

MSCI World Low Carbon Target Index Fund

30 September 2018

Fund characteristics

	Fund
Number of holdings	1,238

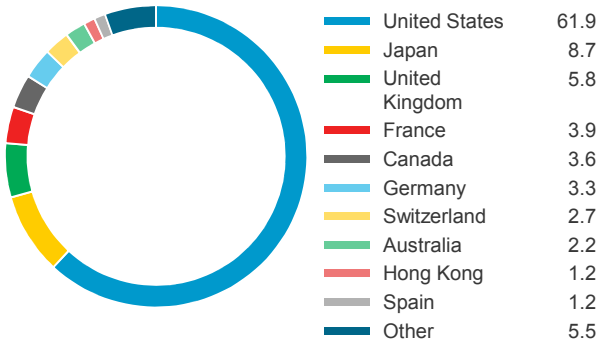
Sector breakdown (%)

	Fund
Information Technology	19.2
Financials	17.4
Industrials	13.0
Health Care	12.9
Consumer Discretionary	12.8
Consumer Staples	8.2
Energy	4.7
Materials	3.4
Communication Services	3.0
Real Estate	2.8
Other	2.6
Total	**100.0**

Top 10 holdings (%)

	Fund
Apple Inc	2.8
Microsoft Corporation	2.1
Amazon.com	2.0
Alphabet	1.8
Johnson & Johnson	0.9
Facebook Class A	0.9
JPMorgan Chase & Co	0.9
Bank of America	0.7
VISA	0.7
Pfizer	0.7
Total	**13.5**

Country breakdown (%)



Totals may not sum due to rounding

For factsheets and other key information please visit our website http://www.fundslibrary.co.uk/FundsLibrary.BrandedTools/Lgim/FundCentral

Source: Legal & General Investment Management

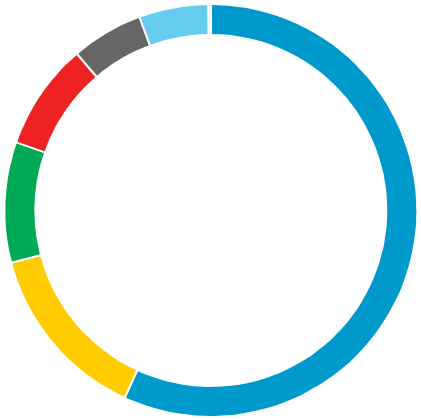
Legal & General INVESTMENT MANAGEMENT

All World Equity Index Fund

30 September 2018

Asset allocation (%)

	Fund	Benchmark
UK (World) Equity Index Fund	5.63	5.68
North America Equity Index Fund	56.86	56.81
Europe (ex UK) Equity Index Fund	14.06	14.19
Japan Equity Index Fund	8.39	8.34
Asia Pacific (ex Japan) Developed Equity Index Fund	5.43	5.41
Middle East/Africa Developed Equity Index Fund	0.19	0.18
World Emerging Markets Equity Index Fund	9.44	9.39
Total	**100.00**	**100.00**



North America Equity Index Fund	56.9
Europe (ex UK) Equity Index Fund	14.1
World Emerging Markets Equity Index Fund	9.4
Japan Equity Index Fund	8.4
UK (World) Equity Index Fund	5.6
Asia Pacific (ex Japan) Developed Equity Index Fund	5.4
Middle East/Africa Developed Equity Index Fund	0.2

Totals may not sum due to rounding

For factsheets and other key information please visit our website http://www.fundslibrary.co.uk/FundsLibrary.BrandedTools/Lgim/FundCentral

Source: Legal & General Investment Management

Corporate Governance - Thought Leadership

Action and impact

LGIM's Non-Executive Director Breakfast event

LGIM held its third non-executive director event in September, which gathered 82 non-executive directors, board chairs and company secretaries of FTSE 350 companies.

Our discussions focussed on the importance of corporate transparency for companies as expectations on their role have evolved. We discussed how important they also are for investors given that they are themselves under pressure from their clients and the government to evaluate and integrate Environmental, Social and Governance (ESG) considerations into their investments. This was illustrated in our discussion around the importance of diversity and how this data is used by LGIM at investment level.

The corporate governance team was joined by an expert from the University of Oxford who presented on how new technologies can help develop ESG data.

Lastly, we presented on what we learned from the 2018 voting season on topics such as overboarding, pay ratios, pre-emption resolutions and activism. We also discussed how to prepare for the 2019 vote season, especially given the recent review of the UK Corporate Governance Code.

A summary of our discussion is available on our website at:
https://www.events-lgim.com/LGIM/media/uploaded/EVLGIM/event_106/LGIMs_Annual_Non-Executive_Director_Breakfast_-_2018__2_.pdf

Publication of four guides on key governance topics

As a large and mainstream investor, we are committed to promote governance best practice as we believe this is an essential element of a company's long-term success. We published this quarter a series of 2-pager guides on the following topics to help companies better align with international best practice:

- The separation of the roles of CEO and board chair
- Board oversight in Mergers and Acquisitions
- The role of the Lead Independent Director
- The nomination of board chairs

These thought-pieces are available on our website at:
http://www.lgim.com/uk/en/capabilities/corporate-governance/influencing-the-debate/

Principles for Responsible Investment (PRI) in-person conference 2018

LGIM attended the PRI conference in San Francisco. We spoke on a panel on how to embed diversity in corporate strategy and culture. We also spoke on a panel along with experts at the Public Funds Forum in California on issues facing investors protecting their rights around the world.

Unilever – engagement success

This quarter, Unilever announced its intention to unify their dual corporate structure and move their headquarters to the Netherlands. This required approval of 75% of shareholders. LGIM took the unusual step of pre-declaring our voting intention ahead of the company's extraordinary shareholder meeting due to be held at the end of October.

Our Director of corporate governance Sacha Sadan commented to the press on LGIM's decision to vote against these proposals:

"We understand Unilever has explored a number of alternatives in reaching its final decision. However, we do not believe Unilever has made a compelling case for many PLC shareholders to support the recommendation in favour of Dutch incorporation. Therefore, we intend to vote against Unilever's proposed resolution." We also explained our position to our clients in a detailed briefing statement.

Our vote decision was covered by the main national media including the BBC and the Financial Times. On 5th October, the board announced it had decided to withdraw its proposal given that it did not receive support from a significant group of shareholders.

Expansion of voting coverage

LGIM expanded its voting coverage to the following nine new markets this quarter: Chile, Colombia, Czech Republic, Greece, Pakistan, Philippines, Qatar, Turkey, United Arab Emirates.

Our voting covered 97% of FTSE All Share in 2017 and we aim to continue to further expand our coverage where it is possible to do so. Please note that our global voting policy applies to these new markets, for more information please consult our website at: https://documentlibrary.lgim.com/documentlibrary/library_55458.html

New joiners

Our corporate governance team expanded this quarter with the appointment of John Hoeppner as Head of US Stewardship and Sustainable Investments of LGIM America. John is working in our Chicago office in liaison with the team in London and helps develop our ESG activity at LGIMA.

James Malone also joined the team in London as a Corporate Governance Analyst and supports the team in its voting and engagement activities globally.

For more information, please go to: www.lgim.com/cgupdate

Source: Legal & General Investment Management

Dealing costs as at 30 September 2018

London Borough of Tower Hamlets Pension Fund

Costs of dealing in units during quarter

	Total unit transactions (GBP)*	Total dealing costs (GBP)**	Average dealing costs (%)**
Excluding Assets	142,787,423	139,743	0.10
Including Assets	215,990,418	139,743	0.06

*Unit transactions represent the sum of all activity and may not match total net transactions figures displayed elsewhere in the report

**Where applicable, figures shown in brackets represent total savings made rather than costs incurred

Fund dealing cost during quarter (%)

Fund	Explicit dealing costs (% within fund)
MSCI World Low Carbon Target Index Fund-GBP Currency Hedged (OFC)	Less than 0.01%
All World Equity Index Fund - GBP Currency Hedged (OFC)	less than 0.01%
All World Equity Index (OFC)	Less than 0.01%

*Fees are deducted from within the Fund - the fee scale is shown in your proposal form

#Custody and administration costs are borne by the Fund where applicable

Notes to this disclosure - client specific information for pooled fund clients

Proportion of portfolio covered by the Code at period end: All asset classes are covered with the exception of Property which is outside of the Code.
Fund management fees: The fees applicable to your arrangements are shown in your quarterly invoice (unless otherwise stated).
Custody costs borne directly by the fund: Custody costs are included in the fund management fees and are, therefore, not borne directly by the pooled fund (except in the circumstances stated opposite).
Transaction values/explicit dealing costs: There are two tables within this dealing cost section. The first give details of the total cost to the scheme of dealing in units during the reporting period calculated by comparing the actual value of the units dealt with their mid value. The second table provides an estimate of the total explicit dealing costs incurred by each of the pooled funds during the quarter, after allowing for the dealing costs received by the pooled fund through the bid/offer spread from the dealing in units. In the second table, only the explicit dealing costs are shown.
Underwriting/sub-underwriting commissions received: Any commissions received are credited to the funds that underwrote the share issue.
Stock lending: Stock lending occurs in limited number of overseas equities index funds. All income arising from stock lending less the custodian/administrator's costs are credited to the funds lending the stocks. LGIM does not receive any revenue from the stock lending.
Taxation: Any UK stamp duty and overseas taxes are included in the costs shown. VAT is not payable on the fund management fees under current legislation.

Source: Legal & General Investment Management

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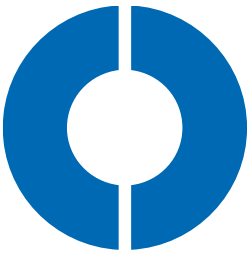
Source: Legal & General Investment Management

Schroders

For professional investors only



The London Borough of Tower Hamlets Superannuation Fund

Q3 2018

Investment Report

Schroder Real Estate Capital Partners

This quarterly investment report is provided to you in supplement to your monthly performance report and other monthly investment reporting. It must be read in conjunction with your monthly performance report, which provides full details in a standard reporting format of the performance of your investment. This supplemental reporting is intended to provide you with an overview of portfolio activity during the period and should not be relied upon to make investment decisions or otherwise.

Q3/2018

Schroders

The London Borough of Tower Hamlets Superannuation Fund

In this report

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Overview

Portfolio Objective

To achieve a return of 0.75% pa net of fees over rolling three year periods above the AREF/IPD UK Quarterly Property Funds Indices - All Balanced Funds Weighted Average (benchmark).

Portfolio Valuation

Value at 30 Jun 2018	GBP	158,982,625
Net cash flow	GBP	-
Value at 30 Sep 2018	GBP	161,978,177

Performance

Periods to 30 Sep 2018

Total returns GBP	3 months %	12 months %	3 years % pa	5 years % pa	10 years % pa
Portfolio (gross)	1.9	9.6	7.6	10.4	5.2
Portfolio (net)	**1.8**	**9.3**	**7.4**	**10.2**	**5.0**
AREF/IPD UK Quarterly Property Fund Index All Balanced Funds Weighted Average	1.6	8.8	7.1	10.4	5.7
Difference	**+0.3**	**+0.5**	**+0.3**	**-0.2**	**-0.8**

Breakdown of performance					
UK Investments (Gross)	2.0	10.1	7.8	11.2	5.6
European Investments (Gross)	-7.8	-5.0	31.5	17.5	5.2

Source: Schroders & AREF/IPD UK Quarterly Property Fund Index, 30 September 2018.

The portfolio's returns are calculated on the basis that units in open-ended funds are valued at their mid price and closed-ended funds at their NAV price. Figures may be subject to rounding.

Summary

There were two purchases over the quarter and one disposal. The portfolio acquired units in Industrial Property Investment Fund (circa £600,000) and Regional Office Property Unit Trust (circa £1.1 million).

£1.0 million of Standard Life Pooled Pension Property Fund was sold in Q3, reducing exposure to a poorly performing investment.

Performance is above benchmark over three months (+0.3%), twelve months (+0.5%) and three years (+0.3% per annum). Performance is below benchmark over five (-0.2% per annum) and ten years (-0.8% per annum) mainly due to the impact of the holdings in continental Europe. The industrial sector remains the strongest driver of returns over recent periods.

Portfolio Strategy

The portfolio sector structure continues to contribute positively to performance, with a benchmark relative underweight position to the retail sector and central London offices.

At quarter end there was circa £3.1 million of cash on account, representing 1.9% of portfolio value. There are undrawn commitments of circa £2.3 million to Regional Office PUT which we expect to be drawn in Q4. There is circa £760,000 of uncommitted cash, equating to 0.5% of portfolio value.

UK Property Market Summary

After a slow start to this year, UK economic growth accelerated over the summer, driven by consumer spending and a rebound in housebuilding and inventories. Schroders forecasts that GDP will grow by 1.2% in 2018 and 1.3% in 2019 and that the Bank of England will gradually raise interest rates to 2% in 2020. This assumes that there is a Brexit deal and that the UK retains access to the EU single market until the end of 2020. While there will be a lot of political jockeying over the next few months, it is in both sides' interests to agree a soft border between Northern Ireland and Ireland and the principles for free trade in agriculture and goods. What is less clear is how much access UK financial and professional services will have to the EU single market after 2020.

As expected, although average capital values are continuing to increase, there is significant polarisation between the sectors due to both structural and cyclical factors.

Despite the growth in retail sales, several retailers and restauranteurs have fallen into administration, or entered into a company voluntary arrangement (CVA) in 2018 and other profitable chains are closing stores. More than 4,000 units have been affected and 1 in 8 is vacant. While this has been blamed on numerous factors (e.g. the rise in the national minimum wage, private equity-backed owners, rising business rates, a decline in materialism), the most important has been the failure of many retailers to adapt to an omni-channel world. The internet's share of total retail sales has jumped from 5% in 2008 to 18% and estimates suggest it could climb to 30% in 10 years' time. Retail rents in most locations are likely to fall over the next couple of years. On the upside, the shake-out will create opportunities to bring successful retailers into schemes and increase the mix of residential and other uses in town centres.

By contrast, industrial rents in the year to August rose by 6% in London and the South East, and by 3% in the rest of the country. In part the gap reflects that manufacturing is still an important driver of warehouse demand in the Midlands and the North, despite the boost from online retail. It also probably reflects the greater loss of industrial estates to housing in the South. In response, the Mayor of London's draft plan recommends that any further demolitions are balanced by new provision elsewhere, including multi-storey warehouses. Looking ahead, we expect that industrial rental growth will slow over the next couple of years, as the developers build more big distribution warehouses and as second hand space from failed retailers comes back to the market.

Office markets appear well placed to weather any slowdown in the economy. In most cities demand and supply are in equilibrium and the total amount of office space is only growing modestly, as new building is offset by residential conversions, particularly in southern England. As a result, we expect office rents in the South East and big regional cities to be broadly flat, or rise slightly over the next couple of years. The exception is the City of London where the total amount of office space will increase by around 7% over the three years to end-2020. While many schemes are pre-let, a lot of second-hand space will become vacant once occupiers move and we expect City office rents to fall by 10% through 2018-2020. Inevitably, this will have a knock on effect on the West End and Inner London, although office rents there should be more defensive given less new development.

Provisional figures suggest that the total value of investment deals fell by 15% over the first nine months of 2018 compared with the same period in 2017. Unsurprisingly, much of the decline has been in the retail sector where a number of potential deals have fallen through. There have also been fewer sales of big City offices, possibly because of the uncertainty created by Brexit. Conversely, the regional office and industrial investment markets have remained very competitive and yields have continued to edge down. There is also a lot of interest in private rented housing, despite the low level of yields.

Capital values in the main commercial markets are now moving in opposite directions for the first time in 15 years, demonstrating that there is no such thing as a single UK real estate cycle with regular peaks and troughs. For example, some secondary shopping centre values could fall by more than 20% over the next two years, whereas industrial and regional office capital values should increase or hold steady. Our main focus for diversified portfolios is on industrial / logistics serving large population centres and offices in winning cities such as Bristol, Leeds and Manchester. Certain parts of the London office market benefiting from structural change (e.g. Crossrail stations, Shoreditch) remain attractive. We are also investing opportunistically in certain niche sectors and strategies (e.g. self-storage, real estate debt and residential land) which should be less correlated with the main commercial markets.

Continental European Property Market Summary

Growth in the eurozone remains above trend which is filtering through to active leasing and investment markets. Going forward however, Schroders forecasts that eurozone economic growth will slow albeit slightly to 1.75-2.0% p.a. through 2018-2019. Consumer spending should be supported by an increase in employment and rising real wages and most eurozone governments can afford to loosen fiscal policy. However, there are signs that the decline in unemployment is starting to put upward pressure on wages, particularly in Germany, and while the European Central Bank (ECB) has announced it will halt quantitative easing (QE) at the end of the year, Schroders expects the ECB to raise interest rates gradually from the second half of next year. In addition, while the EU has so far avoided a trade war with the US, the slowdown in China and other emerging markets is likely to dampen growth in eurozone exports. We expect the Netherlands, Spain and Sweden to see the fastest economic growth over the next few years, followed by France and Germany. There is an outside risk of a new sovereign debt crisis, if the coalition between far right and far left parties in Italy unravels.

Office take-up was strong across continental Europe in the first half of 2018. While the main driver is the growth in employment, demand is also being propelled by two other trends. First, the expansion of serviced office providers, although that is to some extent cannibalising lettings to smaller occupiers. Second, many larger companies are upgrading their offices, not to impress clients, but to attract and retain skilled staff and improve their wellbeing and productivity. As a result, we are now seeing a simultaneous increase in prime and average grade office rents, not only in the big German cities and Stockholm which initially led the upswing, but also in Amsterdam, Brussels, Madrid and Paris. While there is a risk that this increase in rents will trigger a building boom, in most cities the upturn in development has so far been in step with demand, adding less than 1% p.a. to total floorspace. Also, many markets continue to see very low levels of vacancy, particularly for quality space.

The logistics market in continental Europe is also enjoying strong demand, thanks to the upturn in manufacturing, the growth of online retail and a structural increase in contracting-out to third-party providers. Third party logistics (3PLs) and online retailers accounted for 45% and 15% of take-up respectively, in the first half of 2018 (source: JLL). However, on the supply side, developers have been quick to respond with build-to-suit projects, with the result that prime logistics rents in most locations have been flat this year. The exceptions are Paris, Lyon, Hamburg and southern Germany where development land is scarcer and rents have

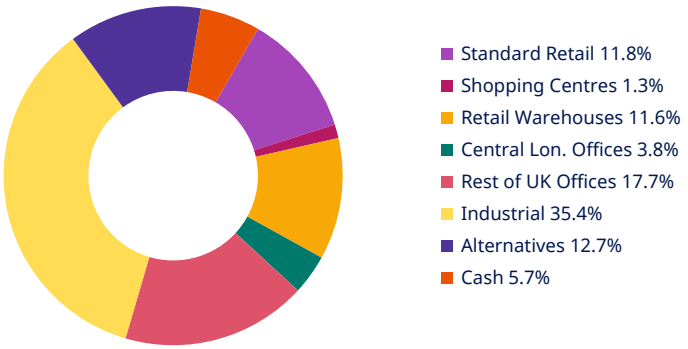
started to increase. Looking ahead, we expect more cities to see an increase in prime logistics rents, with growth typically running around 2% p.a.

By contrast, retail real estate markets are polarising, as consumers buy more online and prioritise experiences over goods. The trend is clearest in northern Europe where online sales now account for over 10% of total sales and the number of people visiting stores in France and Germany is falling. In most countries shopping centres are suffering higher vacancy than retail parks because internet penetration in clothing is higher than in bulky goods; shopping centre rents are higher relative to sales than retail park rents and retail parks tend to be more accessible by car. In general food anchored schemes are also relatively defensive, although the success of individual formats varies from country to country, with hypermarkets struggling in France and Spain, but gaining market share in Sweden.

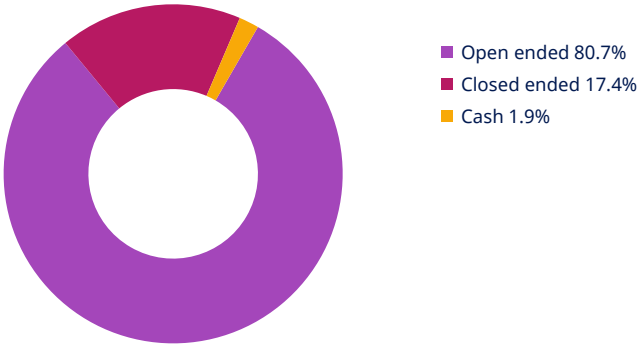
The total value of investment transactions in continental Europe fell by 20% in the first half of 2018 compared with the same period in 2017. Although superficially this decline can be attributed to one-off factors such as a shortage of big portfolio deals, or concerns about potential tax changes in Germany and Sweden, the bigger picture is that investors are starting to factor in an increase in bond yields over the medium term. Schroders expects that the yield on German 10-year bonds will rise to 2.5% by 2022. While that will put upward pressure on eurozone real estate yields, we think that the increase in office and logistics yields between end-2019 and end-2022 will be limited to 0.25-0.4%, assuming that the eurozone economy continues to grow and prospects for rental growth remain favourable. The exception could be the retail sector where investors' concerns about online diversion and future rental growth could lead to an earlier and sharper increase in yields.

Portfolio Analysis

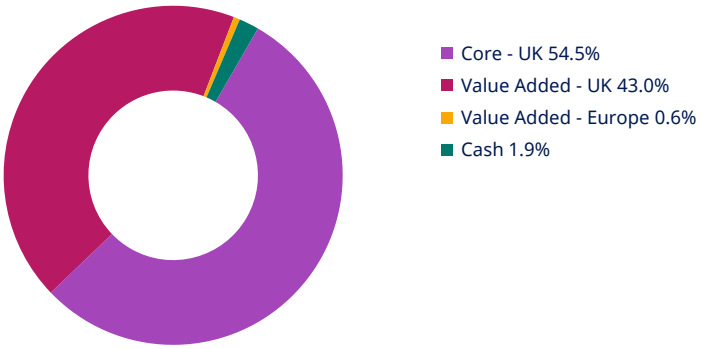
UK Portfolio sector exposure (including cash held by underlying property funds)



Open/closed-ended exposure



Fund style exposure



Source: Schroders & AREF/IPD UK Quarterly Property Fund Index, 30 Sep 2018. Totals subject to rounding. Cash includes look through cash in underlying holdings in the top chart.

Largest Stock Positions at 30 Sep 2018

Largest Positions	Style	% of NAV
SCHRODER UK REAL ESTATE FUND	Core	12.1
MAYFAIR CAPITAL PROPERTY UNIT TRUST	Core	11.4
METRO PROPERTY UNIT TRUST	Core	10.6
SCHRODER REAL ESTATE REAL INCOME FUND	Value-added	10.3
INDUSTRIAL PROPERTY INVESTMENT FUND	Value-added	10.2
HERMES PROPERTY UNIT TRUST	Core	8.3
BLACKROCK UK PROPERTY FUND	Core	7.9
MULTI-LET INDUSTRIAL PROPERTY UNIT TRUST	Value-added	7.0
REGIONAL OFFICE PROPERTY UNIT TRUST	Value-added	6.1
STANDARD LIFE POOLED PENSION PROPERTY FUND	Core	4.3

Full details of holdings can be found in the Appendix.

Performance Review

Performance is above benchmark over three months (+0.3%), twelve months (+0.5%) and three years (+0.3% per annum). Performance is below benchmark over five (-0.2% per annum) and ten years (-0.8% per annum) mainly due to the impact of the holdings in continental Europe. The industrial sector remains the strongest driver of returns over recent periods.

Returns were above benchmark over the quarter (+0.3%). Core funds (+0.2%) and value add funds (+0.2%) made a positive contribution to performance whilst cash has had a neutral impact. Continental Europe (-0.1%) made a small negative contribution to returns.

Industrial Property Investment Fund (IPIF) and Metro PUT (Metro) were the strongest positive contributors to performance in the quarter. Hercules Unit Trust (Hercules) and Schroder Real Estate Fund of Funds Continental European Fund I (CEF I) were the weakest contributing funds over three months.

Returns were strong over one year, outperforming the benchmark by +0.5%. Funds with exposure to the industrial sector have generally performed strongly and funds with retail exposure have performed poorly. Value add funds (+0.7%) have contributed very strongly and core funds also made a positive contribution (+0.5%). Cash (-0.3%) and Continental Europe (-0.1%) have both detracted from returns.

IPIF and Metro were again the strongest contributors at stock level over one year. Hercules was again the weakest contributor, followed by cash and Standard Life Pooled Pension Property Fund (Standard Life).

Three-year performance was above benchmark (+0.3% per annum). Continental Europe made a broadly neutral contribution, whilst cash holdings (-0.3% per annum) detracted from performance. Value add funds (+0.7% per annum) and, to a lesser extent, core funds (+0.1% per annum) both made positive contributions to three year returns.

IPIF, Metro and Hermes PUT are the strongest performing holdings over three years. Standard Life, a fund with a high exposure to the retail sector and London offices, was the weakest performing holding over three years.

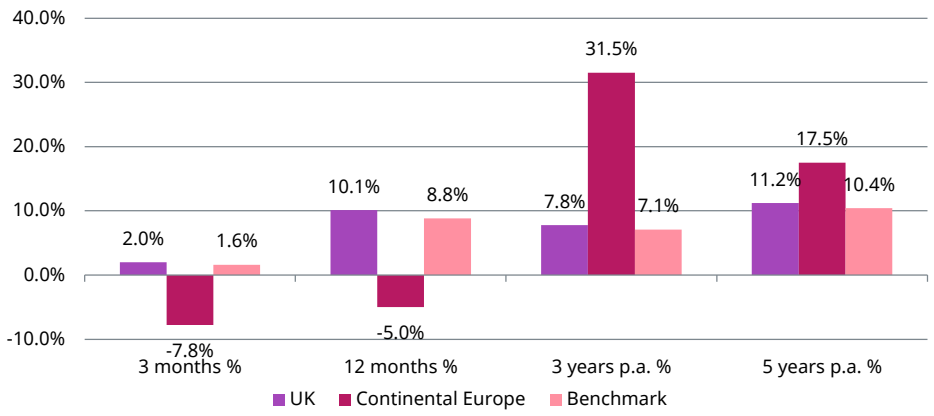
Returns are marginally below benchmark over five years (-0.2% per annum). Underperformance is driven by continental Europe and cash (both -0.3% per annum). Value add funds (+0.6% per annum) have made a very strong contribution to returns, whilst core style

funds have tracked the benchmark.

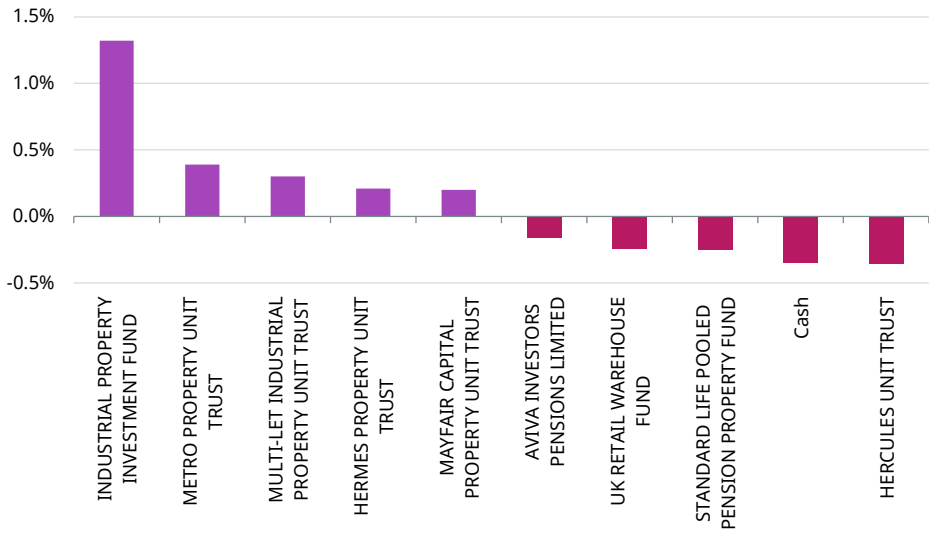
IPIF and Hermes PUT were the strongest drivers of performance over a five year period. After CEF I and cash holdings, Hercules was the weakest performer.

Ten year returns are -0.8% per annum below benchmark. Value add funds (+0.4% per annum) and core style funds (+0.3% per annum) have both contributed positively. Continental Europe has negatively impacted returns by -0.6% per annum. Cash (-0.2% per annum) and opportunity funds (-0.4% per annum) have also diluted returns.

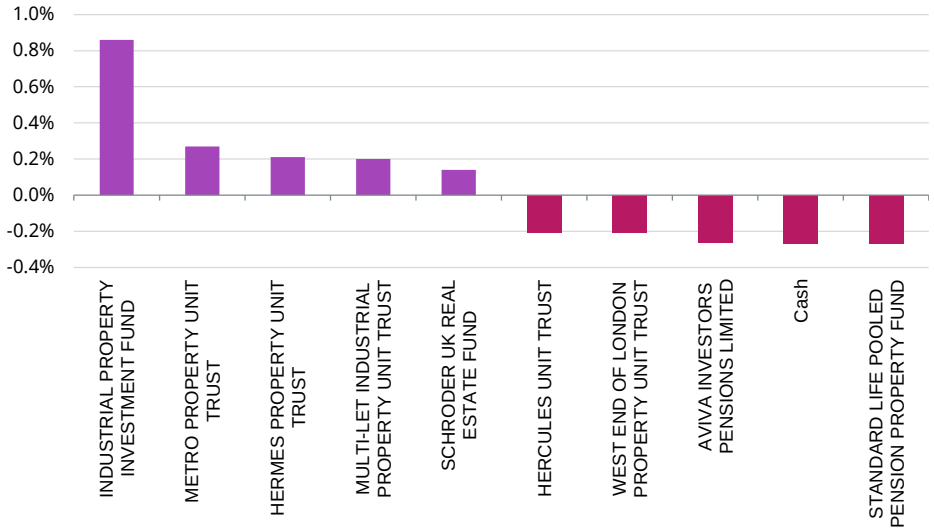
Total return by region
Periods to end 30 Sep 2018



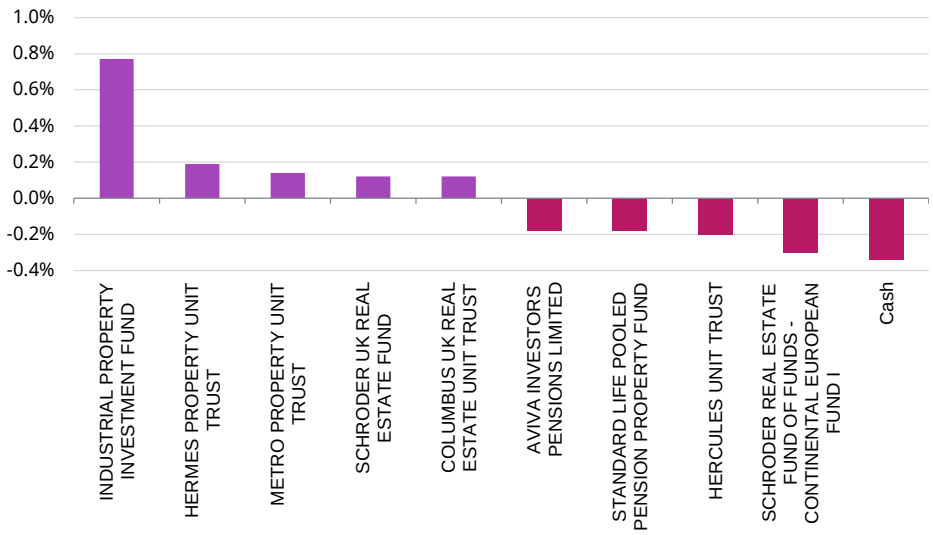
Total return attribution relative to benchmark top & bottom five contributors
12 months to 30 Sep 2018



Total return attribution relative to benchmark top & bottom five contributors
3 years to 30 Sep 2018



Total return attribution relative to benchmark top & bottom five contributors 5 years to 30 Sep 2018



Benchmark is AREF/IPD UK Quarterly Property Fund Index All Balanced Funds Weighted Average.
Source: Schroders & AREF/IPD UK Quarterly Property Index.
Note: Stock and fund style attribution is presented gross of fees. Periods over 12 months are annualised. Totals may be subject to compounding.

Portfolio Activity

There were two purchases over the quarter and one disposal. The portfolio acquired units in Industrial Property Investment Fund (circa £600,000) and Regional Office Property Unit Trust (circa £1.1 million).

£1.0 million of Standard Life Pooled Pension Property Fund was sold in Q3, reducing exposure to a poorly performing investment.

Purchases

Fund	Investment GBP	No. of units	Entry cost/(discount) (%)
INDUSTRIAL PROPERTY INVESTMENT FUND	84,284	71.04	3.5
INDUSTRIAL PROPERTY INVESTMENT FUND	517,216	435.97	3.5
REGIONAL OFFICE PROPERTY UNIT TRUST	1,054,179	960.10	3.8

Sales

Fund	Disinvestment GBP	No. of units	Realised loss/gain GBP
STANDARD LIFE POOLED PENSION PROPERTY FUND	1,000,000	-12,604.89	407,730

Stock Activity
3 months to 30 Sep 18

Purchases	
Industrial Property Investment Fund	Units were acquired in two transactions at a 3.5% premium to the June valuation.

Sales	
Standard Life Pooled Pension Property Fund	Units were redeemed at bid price to reduce exposure to this poorly performing fund.

Return of Capital
None

Drawdown	
Regional Office Property Unit Trust	Funds were drawn to purchase an office property in Richmond.

Redemptions Outstanding

Fund	Curr	Est. proceeds	No. of units	Date proceeds expected	Notice date
None					

Portfolio Commitments

Fund	Curr	Total commitment	Drawn	Balance	Latest possible drawdown
REGIONAL OFFICE PROPERTY UNIT TRUST	GBP	11,895,000	9,550,635	2,344,365	Q4 2018

Strategy

The portfolio sector structure continues to contribute positively to performance, with a benchmark relative underweight position to the retail sector and central London offices.

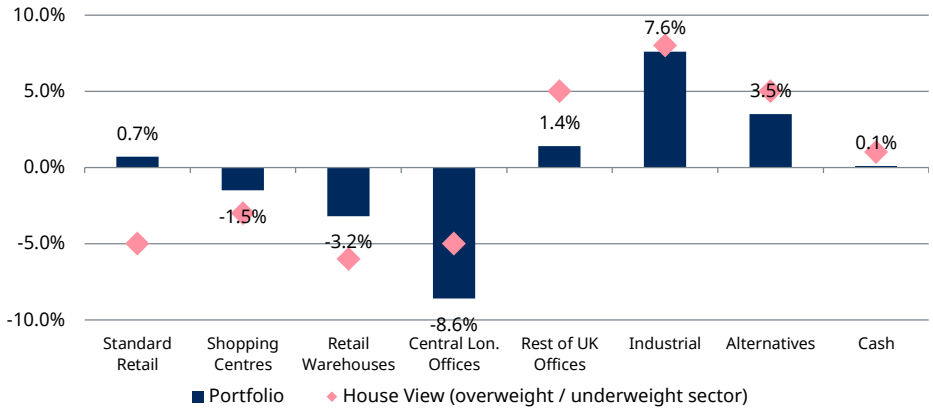
We continue to have concerns about the retail sector, with the exception of convenience retail which appears to be resilient to the effects of e-commerce. We will maintain an underweight position to the retail sector overall.

The take-up of the new City office supply pipeline is encouraging, although it is expected that tenant incentives are becoming more generous. As new space is let up, there is likely to be a commensurate increase in second-hand space coming back to the market which may prove difficult to re-let. We will look to maintain an underweight position to central London offices.

The strong overweight position to the industrial sector has been the most significant positive driver of recent returns. We will look to maintain / add to the exposure to industrials, regional offices and alternatives.

At quarter end there was circa £3.1 million of cash on account, representing 1.9% of portfolio value. There are undrawn commitments of circa £2.3 million to Regional Office PUT which we expect to be drawn in Q4. There is circa £760,000 of uncommitted cash, equating to 0.5% of portfolio value.

UK portfolio sector weightings relative to benchmark



Source: Schroders & AREF/IPD UK Quarterly Property Fund Index, 30 Sep 2018.

Governance

Investment	Date	Voting Recommendation
Resolution		
Hermes PUT	11 Jul 2018	In favour
1. To receive the Reports of the Trust Manager and Auditors and Statement of Accounts for the year ended 25 March 2018. 2. To elect members of the Appointments Committee. 3. To re-appoint Pricewaterhouse Coopers LLP as auditors of the Trust, to hold office until the conclusion of the next annual general meeting at which Financial Statements are laid before the unit holders and that their remuneration be fixed by the Appointments Committee. 4. To approve the appointment of NatWest Trustee & Depository Services Limited as Trustee of Hermes Property Unit Trust as successor to National Westminster Bank plc.		

Sustainability

Last quarter we reported the first results of our Sustainability Survey. We confirmed that 13 out of the 21 UK funds we surveyed have comprehensive real estate sustainability policies that include objective and measurable targets to assess Environmental, Social and Governance (ESG) performance across all aspects of portfolio management. This has now risen to 14 funds following the recent submission of data from another fund. All of these funds participate in the Global Real Estate Sustainability Benchmark (GRESB), a measurement tool that assesses and evaluates the ESG performance of institutional real estate portfolios. This quarter we explain GRESB in more detail and summarise the 2018 results of these 14 funds.

Global Real Estate Sustainability Benchmark (GRESB)

In the 2018, 903 property companies, real estate investment trusts (REITs), funds and developers participated in GRESB. The assessment covers more than 79,000 assets across 64 countries, with a total value in excess of $3.6 trillion. Sustainability initiatives are scored across eight GRESB Aspects and then aggregated to produce an overall GRESB score. The eight Aspects are outlined in the table below:

	GRESB Aspect	Description
1	Management	Looks at how the sustainability policy is implemented in the context of overall business strategy. Does the organisation have a dedicated sustainability resource? Who makes decisions on sustainability issues? Are sustainability factors included in annual performance targets?
2	Policy and Disclosure	How the organisation communicates its ESG performance to investors. Is it disclosed in the annual report and on the company website? Is sustainability policy aligned with industry frameworks / guidelines and reviewed by a third party? Does the policy cover a range of environmental, social and governance issues? Is there a stakeholder engagement policy and an employee policy?
3	Risks and Opportunities	How risks are dealt with such as bribery, corruption, climate change, environmental legislation, market risks and material sustainability risks. How are opportunities to improve identified? Are there risk assessments of standing investments and new purchases and do these include energy, water and waste management efficiency measures?
4	Monitoring and Environmental Management Systems (EMS)	Measuring and monitoring of consumption and generation. How is performance measured? Is it checked by a third party? Are systems aligned with or have third party certification? Is there an Environmental Management System (EMS), a data management system and is consumption monitored?

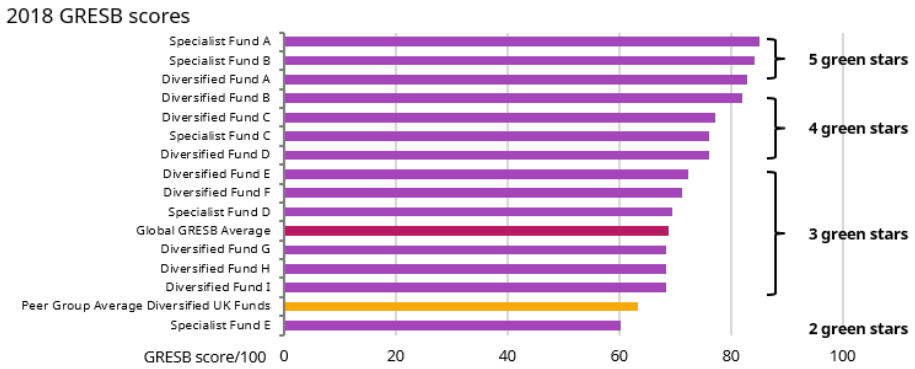
5	Performance Indicators	Measures energy and water consumption, greenhouse gas (GHG) emissions and waste management. Assessed on both absolute footprints and like for like changes over the year. Are reduction targets in place?
6	Building Certifications	Use of green building certifications and energy ratings. Are individual assets designed or operated in ways that are consistent with independently developed sustainability criteria?
7	Stakeholder Engagement	How does the fund / organisation engage with employees, tenants, direct third-party suppliers and the community? Is there commitment from senior management to improve the sustainability performance of the portfolio? Is there commitment from and involvement of tenants, suppliers, employees and the local community?
8	New Construction and Major Renovations	Measures and addresses ESG issues throughout the design, construction and renovation process. This Aspect is only applicable if the participant is in the process of development of new construction or major renovation projects.

GRESB scores

The global average GRESB score in 2018 was 68 and the European average was 66. Both scores are out of a possible 100. 78% of global participants attained Green Star status which is achieved by scoring higher than 50 on two dimensions: Implementation and Management; and Management and Policy. High scores on both signal an integrated approach towards both measurement and management of ESG performance. All scores are collated and divided into quintiles with representation in each quintile shown by the number of stars awarded. Scores in the highest quintile achieve five-star status and scores in the lowest quintile achieve one-star status.

Fund GRESB results

The results of the 14 UK funds we surveyed that participate in GRESB are summarised in the chart below:



Source: Schroders September 2018

Appendix

Investment Restrictions

Parameters	Restriction	Current status
Max. exposure to any common investment fund (CIS)	30%	12.1%
Max. in Schroder in-house funds (Manager & Adviser)	60%	18.8%
Min. exposure to open-ended funds	45%	82.6%
Max. exposure to opportunity funds	20%	0.0%
Max. exposure to property index certificates	20%	0.0%
Max. exposure to listed property securities	10%	0.0%
Max. exposure to Continental Europe	20%	0.6%

Source: Schroders, to 30 September 2018.

Notes:

Valuation data represents value calculated as at the final business day of the quarter to which this Investment Report relates. Pricing occurs 10 days following quarter end. Accordingly, the above noted column entitled "current status" refers to the quarter end valuation data.

The Investment Management Agreement (as amended from time to time) constitutes the final record of applicable investment restrictions incumbent on Schroder Real Estate Investment Management Limited. In the event of any inconsistency between the Investment Restrictions appearing in this Investment Report and the Investment Management Agreement, the Investment Management Agreement shall prevail.

Appendix

Portfolio Valuation
MID and NAV values

Fund	Description	Value at 30 Jun 2018 GBP	Value at 30 Sep 2018 GBP	Portfolio Value %
BLACKROCK UK PROPERTY FUND	Core	12,738,054	12,857,207	7.9
HERMES PROPERTY UNIT TRUST	Core	13,150,099	13,403,134	8.3
MAYFAIR CAPITAL PROPERTY UNIT TRUST	Core	18,297,684	18,387,176	11.4
METRO PROPERTY UNIT TRUST	Core	16,835,073	17,137,209	10.6
SCHRODER UK REAL ESTATE FUND	Core	19,349,633	19,572,438	12.1
STANDARD LIFE POOLED PENSION PROPERTY FUND	Core	7,904,162	6,926,924	4.3
Sub total Core		**88,274,705**	**88,284,088**	**54.6**
HERCULES UNIT TRUST	Value Add	4,583,947	4,469,883	2.8
INDUSTRIAL PROPERTY INVESTMENT FUND	Value Add	15,239,706	16,468,453	10.2
LOCAL RETAIL FUND	Value Add	4,593,295	4,588,992	2.8
MULTI-LET INDUSTRIAL PROPERTY UNIT TRUST	Value Add	11,319,163	11,383,853	7.0
REGIONAL OFFICE PROPERTY UNIT TRUST	Value Add	8,669,410	9,857,930	6.1
SCHRODER REAL ESTATE REAL INCOME FUND A UNITS	Value Add	16,543,923	16,627,074	10.3
UK RETAIL WAREHOUSE FUND	Value Add	4,270,418	4,205,162	2.6
UNITE UK STUDENT ACCOMMODATION FUND	Value Add	2,046,779	2,052,803	1.3
Sub total Value Add		**67,266,641**	**69,654,150**	**43.1**
SCHRODER REAL ESTATE FUND OF FUNDS - CONTINENTAL EUROPEAN FUND I (I UNITS)	Europe	1,012,660	933,763	0.6
Sub total Europe		**1,012,660**	**933,763**	**0.6**
EUR CASH	Cash	34	34	0.0
GBP CASH	Cash	2,428,586	3,053,706	1.9
GBP INCOME RECEIVABLES	Cash	0	52,436	0.0
Sub total Cash		**2,428,619**	**3,106,176**	**1.9**
Total		**158,982,625**	**161,978,177**	**100.0**

Totals may be subject to rounding.

Portfolio valuations are calculated on the basis that units in open-ended funds are valued at their mid price and closed-ended funds at their NAV price.

Source: Schroders, periods to 30 September 2018.

The exchange rate as at 30 September 2018 was £1 to €1.12273.

Appendix

Partnership Fund Transactions

Fund	Mayfair Capital PUT
Transaction Type	Acquisition
Sector	Standard Retail
Address	Co-Op Service Station, Amesbury
Price	£3,500,000 (5.2% Net Initial Yield)
Principal Tenant(s)	Co-Operative Foodstores

Fund	Mayfair Capital PUT
Transaction Type	Acquisition
Sector	Industrial
Address	Fullarton Drive, Cambuslang, Glasgow
Price	£8,000,000 (5.3% Net Initial Yield)
Principal Tenant(s)	Scottish Power

Fund	Metro PUT
Transaction Type	Acquisition
Sector	Rest of UK Offices
Address	Cambridge School of Performing Arts, Howard Mallet Centre, Cambridge
Price	£9,500,000 (3.5% Net Initial Yield)
Principal Tenant(s)	Cambridge Arts & Sciences Limited

Fund	Multi-Let Industrial PUT
Transaction Type	Acquisition
Sector	Industrial
Address	Europa 2000 & 3000, Heathcote Way, Leamington Spa
Price	£6,740,000 (4.3% Net Initial Yield)
Principal Tenant(s)	Dennis Eagle Ltd

Fund	Multi-Let Industrial PUT
Transaction Type	Acquisition
Sector	Industrial
Address	Units 1 & 2, Newmarket Trade Park, Newmarket
Price	£3,650,000 (5.2% Net Initial Yield)
Principal Tenant(s)	Howden Joinery, Idexx Technologies, Wolseley UK, Chubb Fire

Fund	Multi-Let Industrial PUT
Transaction Type	Acquisition
Sector	Industrial
Address	Units 15-18, Brick Knoll Park, St Albans
Price	£6,660,000 (4.2% Net Initial Yield)
Principal Tenant(s)	Brick Knoll Park Warehouse Ltd, Anglian Windows, Hertfordshire Overnight, Ether NDE

Fund	Regional Office PUT
Transaction Type	Acquisition
Sector	Rest of UK Offices
Address	Richmond Brewery Stores, Richmond
Price	£5,000,000 (6.0% Net Initial Yield)
Principal Tenant(s)	TRO Group

Appendix

Retail Occupier Update

In the last investment report we made reference to the ongoing CVAs and administrations within the retail sector. Since that report the retail sector has received further bad press however, during the quarter, there has been only one event worthy of scrutiny. In August DIY retailer Homebase announced plans to shut over 40 stores as part of its proposed CVA. We have been in contact with the managers of your various holdings and can confirm that your portfolio has exposure to **7** Homebase stores of which **5** are subject to closure or rental deduction. We estimate that **0.23%** of portfolio rental income has been lost due to the Homebase CVA.

Further failures are likely and we continue to monitor the sector closely.

Notes

Responsible Investment: Schroders Socially Responsible Investment and Corporate Governance policies can be found on our website http://www.schroders.com/global/about-schroders/corporate-responsibility/responsible-investment/. We also publish regular articles on Socially Responsible Investing, which can be found on Schroders Talking Point www.schroders.com/talkingpoint.

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Non-Executive Report of the: **Pensions Committee** 29 November 2018	TOWER HAMLETS
Report of: Neville Murton, Acting Corporate Director, Resources	**Classification:** Unrestricted
Independent Advisor Report on Market Outlook and Fund Assets Performance for Quarter Ending 30 September 2018	

Originating Officer(s)	Bola Tobun, Investment & Treasury Manager
Wards affected	All wards

REASONS FOR URGENCY

The report was not published five clear days in advance of the meeting. Therefore, before this report can be considered at this meeting, the Chair would need to be satisfied that it is necessary to consider the views of the Independent Adviser without that consideration being delayed to a later meeting. The Committee may also take the view that it is important that there is no delay in member oversight of the views of the Independent Adviser.

Summary

This report presents the views of the Independent Adviser (Colin Robertson) in respect of the performance of the markets and the Fund Assets for the second quarter of 2018/19.

The Independent Adviser will also be present at the meeting to take questions from Members.

Recommendations:

Members are recommended to note the contents of this report

1. REASONS FOR THE DECISIONS

1.1. The report presents the Pensions Committee with the views of the Fund's Independent Adviser on markets and the performance of the Fund pension fund managers and the overall performance of the Tower Hamlets Pension Fund. This is intended to assist Members with their considerations on relevant issues.

1.2. The governance role of the Pensions Committee requires that they ensure that they take proper advice at reasonable intervals about its investments and must consider such advice when taking any steps in relation to its investments.

1.3. Understanding and being aware of the financial markets and its economics dynamics will assist the Committee in considering the longer term financial impact of its strategy for the Pension Fund and the investment decisions it makes as a consequence.

1.4.

2. ALTERNATIVE OPTIONS

2.1. The Pension Fund Regulations require that the Council establishes arrangements for monitoring the investments of the Pension Fund and to engage the use of an expert in gaining required knowledge and advice. .

2.2. The Fund employs professional investment advisors to undertake that role (Mercers) but also uses an independent advisor to provide challenge and support on the advice and direction of the fund on investment and other relevant matters. It could adopt alternative arrangements provided that it satisfies itself that this was reasonable in the circumstances.

3. MARKETS AND ECONOMICS UPDATE (Quarter to 30 September 2018) FROM THE INDEPENDENT ADVISER TO THE FUND – Colin Robertson

Market performance

3.1 Equity markets performed strongly over the 3 months to 30 September 2018, following good performance in the previous quarter. Improved investor confidence in economic growth and strong reported corporate earnings pushed equities up despite the US / China trade dispute and discouraging news from some emerging markets and Italy. The variation in performance across markets was significant with UK and Emerging Market equities broadly flat while US, especially large technology / social media, and Japanese stocks rose sharply.

3.2 However, equity markets across the board have fallen sharply since the end of the quarter. As is usually the case in these situations, there is no one cause of the fall but a sharp increase in bond yields, the imposition of tariffs, concerns that economic growth has peaked, together with the European issues of Brexit and the Italian budget deficit, doubtless all played their part.

3.3 Bond yields rose pretty much everywhere during the third quarter. In the UK, this could be partly attributed to raised expectations for future inflation but generally the driver of the upward move was a rise in 'real" (after inflation has been deducted) yields. Reduced economic concern and the ongoing withdrawal

of central bank support for bond markets are likely causes. Since the end of the quarter, US yields have continued to rise whereas European / UK yields have fallen somewhat.

Economics and markets

3.4 Economic growth in the US has now continued for close to 10 years without a recession and there has been growing concern that this cycle is very long in the tooth. Nevertheless, US growth has remained robust with stimulus provided by the Trump administration's tax cuts. Elsewhere there have been distinct slowdowns in growth but these have been considered temporary, caused in Japan by the extreme summer weather, in the Eurozone by a change in car regulations and in the UK by uncertainty over Brexit. The problem is that interest rates remain at extremely low levels outside of the US so cannot be cut meaningfully when recession inevitably looms, while budget deficits limit the scope to increase public spending or cut taxes.

3.5 The slowdown in Chinese growth has been a worry for some but it appears that actions taken by the authorities in a centrally managed economy will at least stabilise the situation. In other emerging economies, new Presidents in Mexico and Brazil have led to some apprehension. However, the relative underperformance of Emerging Markets equities and bonds would seem to indicate that investors have already priced in this uncertainty.

3.6 Against this backdrop, quoted company earnings growth in 2018 remains robust in the US and, although expectation have been lowered, decent growth is still expected in Europe and Japan this year. The high single figure growth in earnings anticipated in 2019 is likely to prove rather a stretch but positive growth should still be achievable in the absence of a recession. This has left equity market valuations at similar or more attractive levels than 3 months ago. Equity valuations are rather high from an historical perspective, making equities vulnerable, but almost all asset classes are expensive so that equity valuations are not unduly demanding relative to the valuations of other asset classes.

3.7 Unemployment has fallen to very low levels in the US and UK but wages have not risen as one might have expected. This has been a source of consternation for central bankers who have struggled to bring inflation up to the widely adopted 2% target. However the latest quarter has seen some increase in wage growth, leading to interest rate increases in the US and UK with a further US increase expected in December. Combined with the end of 'quantitative easing' in these countries and reduced purchases of Eurozone bonds by the European Central Bank, this should mean that the upward trend in bond yields (and downward trend in bond prices) is unlikely to be reversed.

Asset allocation

3.8 The risks to equity markets abound. Many of these are political, for example US isolationism, the regulation of social media, Brexit and the strange alliance in Italy of populist left and right fighting together against the European authorities. As such it may require an economic agent to trigger material damage to markets but with the economic cycle being already so extended and money much less plentiful now that the central banks have started tightening policy, the situation is fragile. Therefore the equity protection strategy which has been

put in place to partly hedge the fund's very sizeable underlying equity exposure continues to look justified.

3.9 For many years equities and bonds have tended to be negatively correlated, meaning that if the price of one went up, then the price of the other would go down. This is now being questioned as the withdrawal of central bank liquidity is liable to cause all asset classes to move in the same direction simultaneously, leaving nowhere to hide. This has encouraged investment in fund manager products focussed on manager skill, as distinct from investments which are susceptible to changes in market levels. Unfortunately, manager skill has often not been evident in these products (see below) and a reappraisal of the fund's specific investments of this nature may be in order.

Investment Managers Performance Review

3.10 I have not commented on the passive funds for which I do not as yet have performance statistics but which should in any case not be contentious given the nature of the funds involved.

Active Equity Fund

3.11 The remarkable outperformance of its benchmark by the LCIV Baillie Gifford Global Equity fund was interrupted in the latest quarter when it underperformed its benchmark by 2.6% over the quarter. The fund has held an above average exposure to Emerging Markets (EM) equities for some time but had still managed to match its benchmark in the previous quarter despite the poor performance of EM equities. However on this occasion the continuing poor EM equity relative performance, combined with an underweight to the US market which performed particularly well, was more problematic. Individual stock selection within markets was also unhelpful.

3.12 Baillie Gifford have been quite aware of the fund's sensitivity to the economic cycle and to a reversal in performance of their highly valued top performing stocks. Accordingly, they have continued to reduce the size of their holdings in top performing stocks and the exposure to cyclical stocks was also reduced over the quarter.

Diversified Growth Funds

3.13 The LCIV Baillie Gifford fund rose by a very meagre 0.1% over the quarter, leaving it up by 1.25% over the last year. Funds which aim to outperform cash by set amounts, typically 3%-5%, have found market conditions very difficult in recent years. Consequently, while Baillie Gifford's Diversified Growth Fund performance is disappointing, it is better than that of many similarly targeted funds. Factors restraining the fund's performance were varied and included exposure to nickel and Argentine bonds.

3.14 The LCIV Ruffer fund performed poorly, falling by 0.4% over the quarter. This was surprising given that the fund's performance is sensitive to equity market movements and equities performed strongly over the quarter. This can be partly attributed to the significant exposure to the UK equity market which did not perform well but the fund also has a significant exposure to Japanese equities which did perform well. Negative factors are reported to have been the large holding of index-linked gilts and the investment in gold. I understand that Ruffer

have now hedged the interest rate component of the index-linked gilts holding, but not the inflation component.

Absolute Return Bond Funds

3.15 The Insight and GSAM Absolute Return Bond funds had yet another poor quarter with both funds falling by 0.2% over the 3 month period. Over the last year, the Insight and GSAM funds have fallen short of their targets by 5.0% and 6.4% respectively. GSAM has a 1% tougher target so actual performance has been similar.

3.16 In both cases, positions which had already cost them dearly again contributed to underperformance. For GSAM, this was a positive view on Argentine and Venezuelan bonds and also on the Argentine peso, which more than offset all the positive contributors to performance. For Insight, this was a negative stance on German bonds, partly offset by a positive stance on US bonds, both legs of which have done badly. Worryingly, there were significant negative contributions from 5 of the 9 sources of potential outperformance. Interestingly, GSAM do not use 'stop losses' at all for their product while Insight do not use 'stop losses' when the view is 'strategic'. 'Stop losses' are a commonly used technique to prevent investment views which have gone wrong becoming an ongoing burden for the fund. In short, risk management is an issue at both companies.

Multi Asset Credit Fund

3.17 The LCIV CQS Multi Asset Credit Fund was launched only in May 2018 so it is too soon to make a meaningful comment on performance. However, the fund has got off to an encouraging start, rising 1.3% from launch and 1.5% over the quarter with each sub asset class within the fund making a positive contribution to performance.

Property Fund

3.18 The Schroder Real Estate Capital Partners fund continued its solid performance, outperforming its benchmark by 0.3% over the quarter, by 0.5% over the year and by 0.3% over 3 years. There was nothing new here: an overweighting of the strongly performing industrial sector and an underweighting of the poorly performing Central London offices sector again drove performance and no change in strategy is envisaged. Not for the first time, the small Continental European exposure made a minor negative contribution to performance). The more sustained trends have been for US Treasury yields to rise (prices fall), German yields to fall and UK gilt yields to be fairly stable.

4. COMMENTS OF THE CHIEF FINANCE OFFICER

4.1. This report has been produced independently by Colin Robertson to inform the Committee's knowledge and understanding of a wide range of issues relating to the Pension Funds investment activiity. There are no other direct financial implications arising from this report.

5. LEGAL COMMENTS

5.1. In accordance with the Local Government Pension Scheme (Management and Investment of Funds) Regulations 2016, the Council must take proper advice about its investments and must consider such advice when taking any steps in relation to its investments. Where the Council appoints an investment manager, it must keep the manager's performance under review. At least once every three months the Council must review the investments that the manager has made and, periodically, the Council must consider whether or not to retain that manager. One of the functions of the Pensions Committee is to meet the Council's duties in respect of investment matters. It is appropriate, having regard to these matters, for the Committee to receive information about the performance of the markets and the performance of appointed investment managers. The Committee's consideration of the information in the report contributes towards the achievement of the Council's statutory duties.

5.2 When reviewing the Pension Fund Investment Performance, the Council must have due regard to the need to eliminate unlawful conduct under the Equality Act 2010, the need to advance equality of opportunity and the need to foster good relations between persons who share a protected characteristic and those who don't (the public sector duty). The Committee may take the view that good, sound investment of the Pension Fund monies will support compliance with the Council's statutory duties in respect of proper management of the Pension Fund.

6. ONE TOWER HAMLETS CONSIDERATIONS

6.1. The employer's contribution is a significant element of the Council's budget and consequently any improvement in investment performance will reduce the contribution and increase the funds available for other corporate priorities.

6.2. A viable pension scheme also represents an asset for the recruitment and retention of staff to deliver services to the residents.

7. BEST VALUE (BV) IMPLICATIONS

7.1. This report helps in addressing value for money through benchmarking the Council's performance against the WM Local Authority Universe of Funds.

8. SUSTAINABLE ACTION FOR A GREENER ENVIRONMENT

8.1. There is no Sustainable Action for A Greener Environment implication arising from this report.

9. RISK MANAGEMENT IMPLICATIONS

9.1. Any form of investment inevitably involves a degree of risk.

9.2. To minimise risk the Council attempts to achieve a diversification portfolio. Diversification relates to asset classes and management styles.

10. CRIME AND DISORDER REDUCTION IMPLICATIONS

10.1. There are no crime and disorder reduction implications arising from this report.

Linked Reports, Appendices and Background Documents

Linked Report

- [None]

Appendices

- [None]

Local Government Act, 1972 Section 100D (As amended)
List of "Background Papers" used in the preparation of this report

- [None]

Officer contact details for documents:

- Bola Tobun Investment &Treasury Manager x4733

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Non-Executive Report of the: **PENSIONS COMMITTEE** **29 November 2018**	TOWER HAMLETS
Report of: Neville Murton, Acting Corporate Director of Resources	**Classification:**
Responsible Investment and ESG Considerations for Tower Hamlets Pension Fund	

Originating Officer(s)	Bola Tobun, Investment and Treasury Manager
Wards affected	All

REASONS FOR URGENCY

The report was not published five clear days in advance of the meeting. Therefore, before this report can be considered at this meeting, the Chair would need to be satisfied that it is necessary to consider the Funds current position on responsible investments without that consideration being delayed to a later meeting. The Committee may also take the view that it is important that there is no delay in member oversight of the Funds current position on responsible investments.

Summary
This report outlines the Funds current position on responsible investments, and discusses the Environmental, Social and Governance (ESG) issues currently dominating Pension Fund investment debate. The report also considers what other LGPS funds are doing and recommends alternative ways in which the London Borough of Tower Hamlets Pension Fund (LBTHPF) can further promote the integration of ESG issues into its investment decision making.

Recommendations:

The Pensions Committee is recommended to:

i) Note the LBTHPF regulatory obligations in respect of responsible investments (para. 3.6);

ii) Note the LBTHPF's current responsible investment stance (para. 3.7);

iii) Maintain the Fund's current engagement activities which the Local Authority Pension Fund Forum (LAPFF) carry out on behalf of the Fund (para. 3.13 - 3.14);

iv) Note the outcome of carbon foot print analysis as at 31st March 2018 as set out in paragraph 3.33;

v) Develop and agree a policy (recommendations as set out in paragraph 3.43) regarding the LBTH Pension Fund's approach to fossil fuel investment with a view to incorporating this within the Fund's Investment Strategy Statement;

vi) Note the returns delivered by LCIV (BG) GA portfolio as set out in paragraph 3.40;

vii) Consider and agree to switch half (10%) of the LBTHPF's active global equity mandate equally to Fossil Fuel Free mandate (5%) and Renewable Energy Strategy (5%); and

viii) Delegate authorities to the Acting Corporate Director, Resources and the Interim Divisional Director of Finance in consultation with the Chair and Deputy Chair of the Committee to determine which Fossil Fuel Free mandate and Renewable Energy Strategy is appropriate for the fund in meeting its liabilities.

1. REASONS FOR THE DECISIONS

1.1 The Pensions Committee act in the role of quasi trustees for the Pension Fund and are therefore responsible for the management of £1.56 billion worth of assets and for ensuring the effective and efficient running of the Pension Fund. The management of the Fund's investment portfolio and the investment returns that the Fund is able to deliver have significant financial implications, not just for the Fund itself but also on the Fund's employers in terms of the level of contributions they are required to make to meet the Fund's statutory pension obligations.

1.2 The Fund recognises that investment in fossil fuels and the associated exposure to potential 'stranded assets' scenarios may pose material financial risks. These risks apply not only to the Fund's investment portfolio but also long term global economic growth.

1.3 In recognising the risks that climate change and stranded assets scenarios could pose to the Fund, the Committee needs to understand where these risks might apply and how they can best be mitigated within the LGPS investment management framework. The recommendations provided on this report are aimed at developing both a greater understanding of the risks and a set of strategies to help mitigate them.

1.4 The costs involved will very much depend on future investment strategy decisions. Climate change risk will be integrated into the forthcoming new Investment Strategy Statement to ensure that it is considered as part of the Committee's asset allocation decisions, rather than in isolation. Potential costs that could be incurred through development of the recommendations above include additional fees from using low carbon indices; however, any such costs would need to be considered against the potential for risk mitigation and the performance of the mandate as a whole.

2. ALTERNATIVE OPTIONS

2.1 No alternative.

3. DETAILS OF REPORT

3.1 A key distinction should be made between socially responsible investments (SRI) and responsible investment (RI). RI is an approach that takes into account ESG

factors and considers how the risks posed by the non-sustainability of companies invested in can impact the financial wellbeing of the Fund. Therefore responsible investment is driven more by how sustainable factors can have financial consequences rather than ethical or moral implications which can be very subjective.

3.2 There is increasing pressure being placed on Pension Funds by stakeholders to ensure that ESG factors are considered when making investment decisions. This pressure is coming from lobby groups, other stakeholders, the Bank of England and even the Pensions Regulator has warned that savers face long term financial risks because trustees are failing to take climate change, responsible business practices and corporate governance into account when making investments.

3.3 The LBTH Fund has not been immune from this ongoing pressure. Annual reviews of the LBTHPF's ESG stance and carbon footprint of the Fund have been carried out to date, however this year Members are being asked to consider a number of new ways in which they can better integrate ESG factors into the investment decision making.

3.4 There are many facets to responsible investments and they cannot all be covered within the scope this report. The most common term that is used when referring to responsible investment is Environmental, Social and Governance (ESG) Issues. This term is used to describe a group of risks that are explicitly acknowledged and incorporated into the investment research and decision making process. The below list is some example of factors falling within each category.

Environmental	**Social**	**Governance**
Climate Change	Human Rights	Board Structure
Waste & Recycling	Diversity Issues	Employee Relations
Energy Usage/Conservation	Employee Relations	Executive Compensation
Sustainability	Consumer protection	Shareholder rights
Carbon Emissions	Community relations	Vision and Strategy
Supply Chain Management	Animal Welfare	Voting procedures

3.5 The long term nature of Pension Funds means that factors that can impact the investments in many years to come have to be considered. There are a number of ways in which Pension Funds can opt to demonstrate their commitment to ESG ranging from engagement with companies right the way through to divestment. Below is the funds current stance in regards to ESG.

ESG obligations of LGPS administering authorities and Fiduciary Responsibility

3.6 LGPS regulations issued by DCLG in September 2016, guidance attached (**Appendix 1**) requires Investment Strategies of LGPS funds to outline its policy on how ESG considerations are taken into account within investment decision making. This marked a shift in the LGPS as a whole.

- **Regulation 7(2)(e)** requires funds to follow pertinent advice and act prudently when making investment decisions, *"…a prudent approach to investment can be described as a duty to discharge statutory responsibilities with care, skill, prudence and diligence".* They must consider any factors that are financially material to the performance of their investments, including **ESG factors** contemplating the time horizon of the liabilities along with their approach to social investments.

- **Regulation 7(2)(f)**, emphasises that *"administering authorities are encouraged to consider the best way to engage with companies to promote their long-term success, either directly, in partnership with other investors or through their investment managers, and explain their **policy on stewardship** with reference to the Stewardship Code. "*

- *Administering authorities are strongly encouraged to either vote their shares directly or ask their fund managers to vote in line with their policy under the Regulation 7(2)(f) and to publish a report of **voting activities** as part of their pension fund annual report under Regulation 57 of the 2013 Regulations.*

3.7 The role of the Council as administering authority for the LBTHPF is to maintain administer and invest the funds and to this end powers have been delegated to the to the Pensions Committee (PC). The regulations do not impose any legal obligation on the Committee to take ESG considerations into account. The PC acting in a quasi-trustee capacity have to act as fiduciary capacity meaning that they have to act in the best financial interest of the fund.

3.8 According to legal advice obtained by the LGPS Scheme Advisory Board (SAB) and summarised on the SAB website, the fund can take ESG factors into consideration provided that pension fund members do not suffer significant financial loss. LBTHPF Investment Strategy Statement attached as Appendix 1 and ESG position as set out of section 9 of this statement.

3.9 There is a body of thought supported by the findings of recent studies to suggest that companies with sustainable business models deliver improved financial returns, so investors who invest integrating ESG factors can deliver better risk adjusted performance.

3.10 Though ESG to date focused on listed assets, strategies are being developed to aid the integration of ESG aspects across all asset classes.

3.11 **Relevance of ESG across some asset classes**

- **Listed Equities** – Poor management of ESG risks can impact the long term performance of a company, hence it is important to establish from

the fund's investment managers how they are taking these factors into account in their investment decision making.

- **Sovereign Bonds** - Carry political and ESG risks
- **Corporate Bonds** – Valuation of the bond and default of the company in the worst case scenario can impact the investment
- **Real Estate and Infrastructure**: Major environmental implications, energy efficient buildings can see valuations enhanced
- **Private Equity**: these typically have long term time horizons and can carry significant reputational risk to investors. Managers appointed by the fund should have the relevant skills to analyse and mitigate ESG risks.

Engagement

3.12 This involves taking an active interest in the companies and tackling poor ESG standards by challenging management decisions deemed not to be in the best interests of the company. Ideally engagement should be robust with planned outcomes The LBTHPF is a member of the Local Authority Pension Fund Forum (LAPFF) a collaboration of more than 60 LGPS funds. Their collaboration and engagement are important in managing and mitigating risks associated with investments within the LBTHPF's invested companies. Members and Officers attend business meetings. LAPFF identify strategic ESG risks for engagements and have engaged with companies across a number of cross cutting themes and have jointly filed resolutions.

3.13 Some of LAPFF's engagement includes meeting with Rio Tinto to discuss their climate change report in response to a shareholder issued resolutions they were involved in filing. They have engaged with Shell and welcomed Shell's move to divest oil sands assets and continue to put pressure on Shell and other oil companies to migrate towards the lower carbon future that is fast approaching.

Voting

3.14 Equity share ownership in majority of companies gives investor the right to vote and the LBTHPF can use their vote to influence company behaviour. LBTHPF has delegated voting to asset managers. The managers we have appointed engage with companies on ESG issues and have detailed voting policies which set out how they will vote. The Council can also override this by issuing voting direction on advice from the LAPFF.

3.15 Some funds appoint stewardship firms who assist in formulating a voting policy for the Fund and vote the shares on behalf of the Fund in accordance with the policy. These additional services are likely to be a cost to the fund.

Integration of ESG in Decision Making

3.16 There are a number of ways in which the Council can further integrate ESG factors without completely divesting from sectors. This can involve screening off or avoiding companies that fail to meet minimum ESG criteria and towards those who meet the higher standards, on the basis that financial or risk adjusted returns will be better when invested in companies with good ESG standards.

3.17 The Fund invested 30% of its assets in a passive global equity mandate with Legal and General Asset Management (LGIM). 50% is being invested in FTSE World Developed Index which means that the manager invests in all the shares within this opportunity set (i.e. the universe of the selected index). And the other 50% in the LGIM MSCI World Low Carbon Target Index Fund. As policymakers and governments place a greater focus on addressing climate change there is a financial risk that the oil companies we invest in are unprepared for the transition to lower carbon economy, therefore MSCI and FTSE have developed indices that help to manage this risk.

Data

3.18 Reliable ESG data is important to investors if they are to measure risk and reward of best practice in ESG by investee companies. The key to reliable data is that it should be independent, objective and publicly-sourced.

3.19 Companies invested in usually have ESG scores which is an expression of all its ESG and other key factors. These scores can then be aggregated to establish a portfolio score. Numerous underlying factors are obtained from a range of data points. Data vendors are able to acquire and validate underlying ESG company data. ESG scores are one of the metrics used by fund managers to assess the sustainability of investee companies.

3.20 Data Vendors who provide this information for asset managers can also provide information for underlying Investors who want to acquire and ESG score across their whole portfolio. Obtaining an ESG score across all investments from all asset managers can allow investor to better understand their ESG risk by comparing the Fund's portfolio score to standard market ESG benchmarks.

3.21 Members are asked to consider whether this is a service they wish to subscribe to or explore further by receiving a presentation at a future meeting.

Climate Change and Fossil Fuel Divestment

3.22 A number of lobby groups have been pressuring LGPS funds including LBTHPF to divest or have a plan to divest from fossil fuels on the basis that coal, oil and gas consumption are contributing heavily to climate change and global warming to which some scientists have attributed responsibility for the increase in the incidence of natural disasters such as storms, floods heatwaves in recent times.

3.23 LGPS funds have continued to come under criticism for investing in controversial stocks such as oil, tobacco, alcohol producers, gambling firms, and payday lenders. Some local authority including Tower Hamlets Pension Fund, the London Boroughs of Islington, Haringey, Southwark and the Environment Agency have committed to reducing their exposure to carbon and some have gone on to state when they expect to be fully divested.

3.24 However many LGPS funds have opted to retain their investments in companies with significant carbon footprints on the basis that being invested

enables them to continue to lobby the companies to reduce their CO2 emissions. The LAPFF working with a group of other investors successfully lobbied Shell to concede to a number of demands on climate change by lodging a shareholder resolution. The cost of immediate divestment will be substantial based on the returns on some of the companies alleged to be ESG offenders.

3.25 The share price returns excluding dividends for companies such as Tesco, VW, BP, and Shell have been substantial over the last two years. If they had been completely excluded from LBTHPF portfolio, the funds returns would have been financially impacted

Carbon and Environmental Footprints Outcome

3.26 The carbon and environmental footprint analysis was carried out on the Fund equity holdings with LGIM (FTSE), LGIM (MSCI), BG (GE), Ruffer and BG (DGF).

3.27 Carbon footprint analysis quantifies greenhouse gas emissions (GHG) embedded within the Fund presenting these as tonnes of carbon dioxide equivalents (tCO2e). This compares the total GHG emissions of each holding relative to annual revenue, gives a measure of carbon intensity that enables comparison between companies, irrespective of size or geography.

3.28 The Fund Investment Consultant, Mercer ran a carbon footprinting analysis as at 31 March 2017 and 31 March 2018 for the Fund's equity exposure (both direct exposure and through the DGF allocation). This demonstrated that the total Fund was 31% more carbon efficient than the benchmark as at 31 March 2017 and 38% lower in carbon exposure relative to the MSCI ACWI.

3.29 As expected the weighted average carbon intensity (WACI) is concentrated within the below three listed sectors. The largest sector contributions from our Fund to carbon intensity as at 31st March 2018 were:

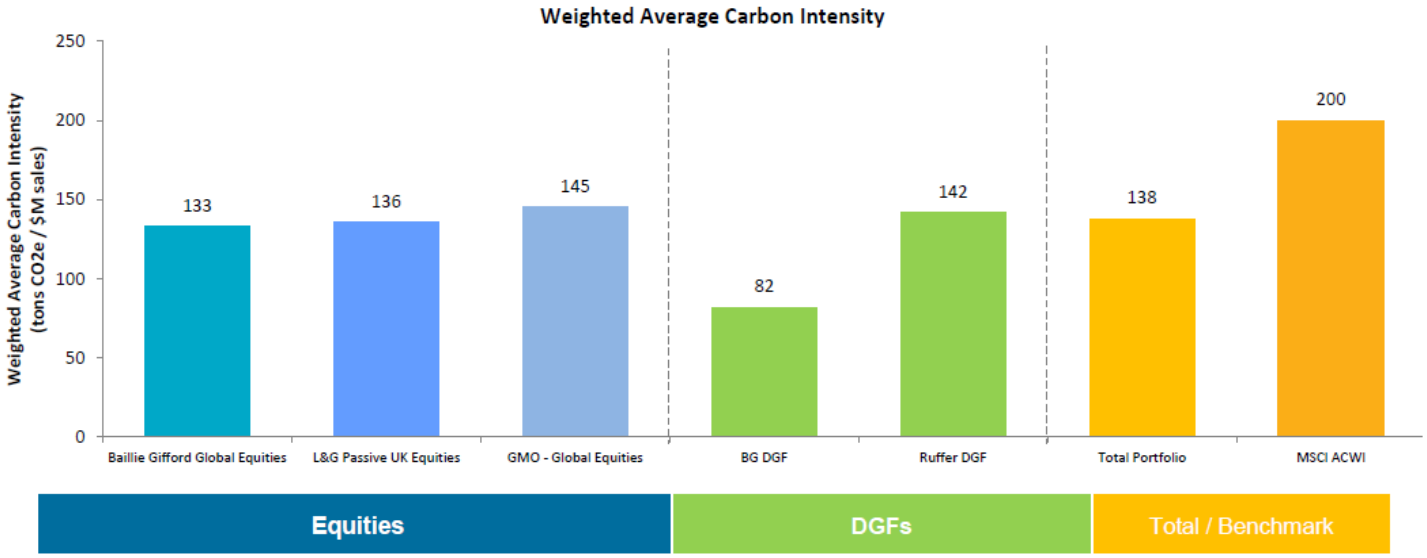
i) Materials holdings: c.23%

ii) Energy holdings: c.20%

iii) Utilities holdings: c17%

3.30 The below chart illustrates the Carbon Footprint Analysis as at 31st March 2017 for Tower Hamlets Equity Portfolio. This shows that the LBTHPF has a lower carbon footprint than other funds in the benchmark group.

CARBON FOOTPRINT ANALYSIS
31 MARCH 2017 PORTFOLIO



3.31 It can be seen from the above graph that the overall Equity portfolio had 138 tCO2e, which is approximately 31% less carbon exposure than the MSCI ACWI benchmark of 200 tCO2e and each Equity mandate held by the Fund contribute to carbon efficient of the Fund as follows:

i) Baillie Gifford Global Equities: 34% reduction in carbon exposure vs the MSCI ACWI benchmark

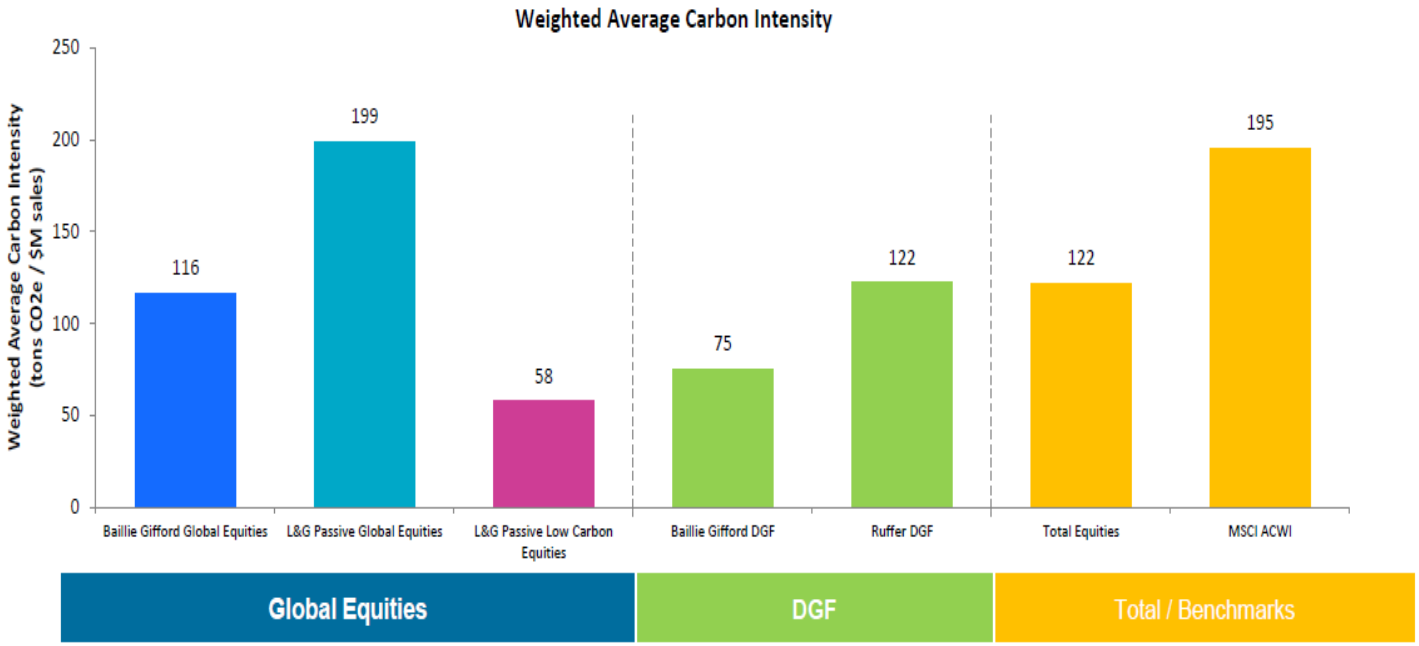
ii) L&G UK Passive Global Equities: This passive equity fund demonstrates very similar carbon intensity to its benchmark. The UK index had a 32% reduction in carbon exposure vs. the global benchmark.

iii) GMO Global Equities: 27% reduction in carbon exposure vs. the MSCI ACWI benchmark.

iv) Ruffer & Baillie Gifford DGFs: These funds do not have a broad equity market benchmark.

3.32 The below chart from Mercer, illustrates the Carbon Footprint Analysis as at 31st March 2018 for Tower Hamlets Equity Portfolio.

CARBON FOOTPRINT ANALYSIS
31 MARCH 2018 PORTFOLIO



3.33 it can be seen from the above graph that the overall Equity portfolio exhibits 122tCO2e which is approximately 38% lower carbon exposure relative to the MSCI ACWI benchmark of 195tCO2e and each Equity mandate held by the Fund contributes to carbon efficiency of the Fund as follows:

i) Baillie Gifford Global Equities: c. 40% reduction in Carbon exposure relative to the MSCI ACWI benchmark

ii) L&G Passive Global Equities: This passive equity fund demonstrates a very similar carbon intensity to its benchmark.

iii) L&G Passive Low Carbon Global Equities: This passive equity fund demonstrates a very similar carbon intensity to its benchmark but has a 72% reduction in carbon exposure vs. the MSCI ACWI benchmark.

iv) Ruffer & Baillie Gifford DGFs: Please note that these funds do not have a broad equity market benchmark.

3.34 One approach investors can take is to reduce the carbon intensity of their portfolios over time, is “portfolio decarbonisation”. The benefits of this approach include:

i) A portfolio that is less susceptible to increasing carbon pricing, stranded assets and/or related regulation.

ii) Supports the flow of capital to a resilient low-carbon economy and may help to address the market mispricing of carbon.

iii) Produces a market signal that incentivises companies to develop and invest in low carbon and clean technologies, influences policymakers and also helps to catalyse a new standard for other institutional investors.

3.35 The alternative to reducing carbon exposure is an exclusionary approach (i.e. fossil fuel free), however:

i) This approach removes the potential to positively influence companies and help them transition to a lower carbon footprint.

ii) The actual reduction in carbon footprint can be lower, as relatively few companies are excluded (typically the big oil and mining companies), whilst companies that make heavy use of these commodities remain in the portfolio.

3.36 The table below illustrates how the World Low Carbon Target Index which the Fund invests in with LGIM, compares to the wider market cap index and other environmentally focused indices with regards to carbon intensity, carbon emissions and allocations to coal and fossil fuels.

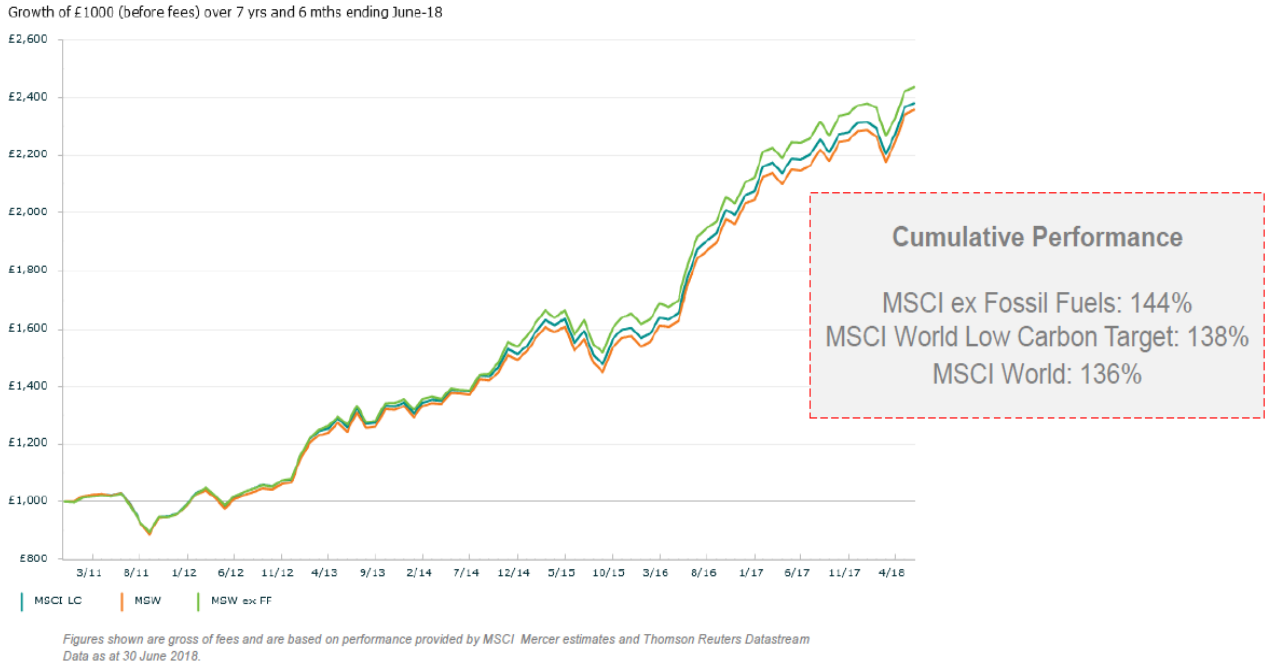
	MSCI World Index	World ex Coal	World ex Fossil Fuels	World Low Carbon Leaders	World Low Carbon Target
	Previous Index	An Alternative	An Alternative	An Alternative	Fund's Strategy
Carbon Intensity (vs MSCI World Index)	100%	-4%	-19%	-50%	-64%
Potential Carbon Emissions (vs MSCI World Index)	100%	-7%	-96%	-52%	-83%
Coal Reserves (% index weight)	2.6%	0.0%	0.0%	1.0%	0.0%
Fossil Fuel Reserves (% index weight)	8.4%	8.0%	0.0%	5.5%	4.1%

3.37 The Fund's Low Carbon Target Index compares favourably versus other environmentally focused indices with regards to carbon intensity.

3.38 in order to aid with the decision of disinvestment from certain asset class or sectors it is worth looking at returns and risk profile of certain indices and asset class.

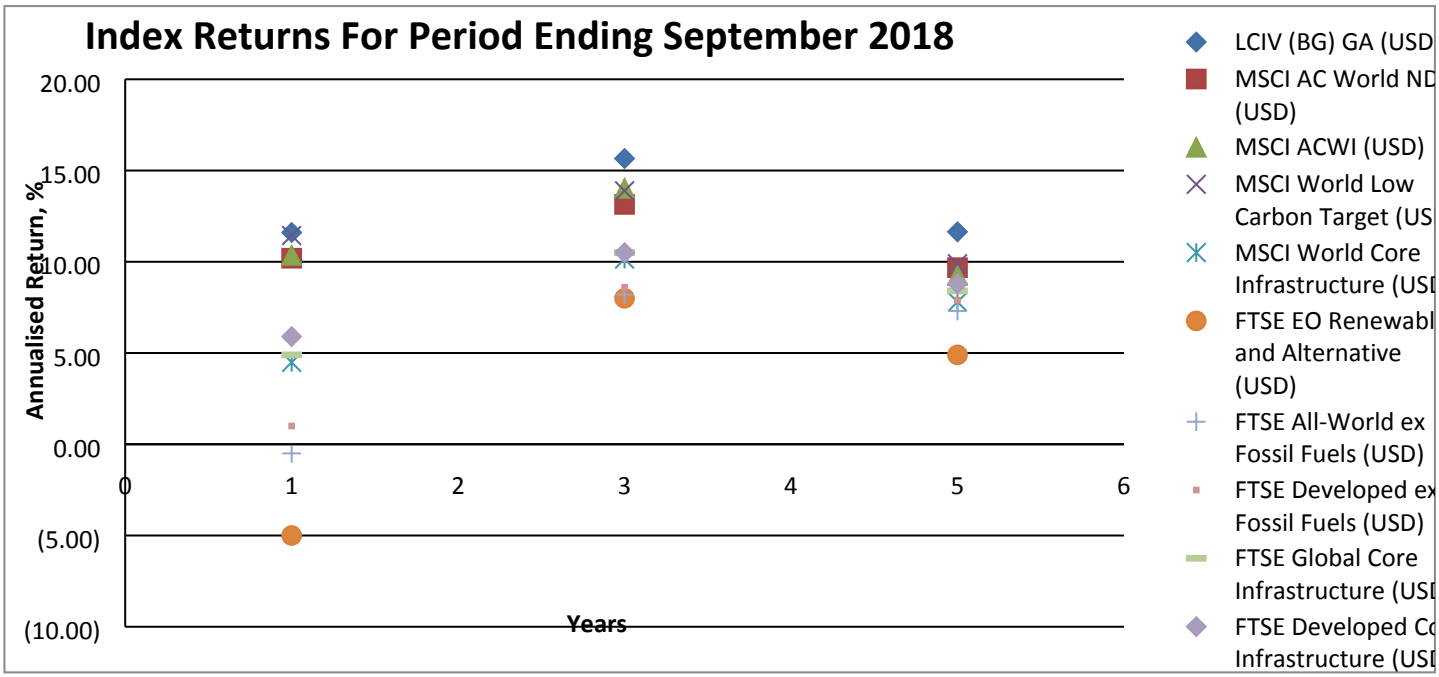
3.39 Looking at the cumulative performance graph shown below, produced by the Fund Investment Consultant Mercer, it demonstrate the Low Carbon Target and ex Fossil Fuels indices have both outperformed the broader equity market on a cumulative basis since 2011.

Growth of £1,000 since inception of Low Carbon indices



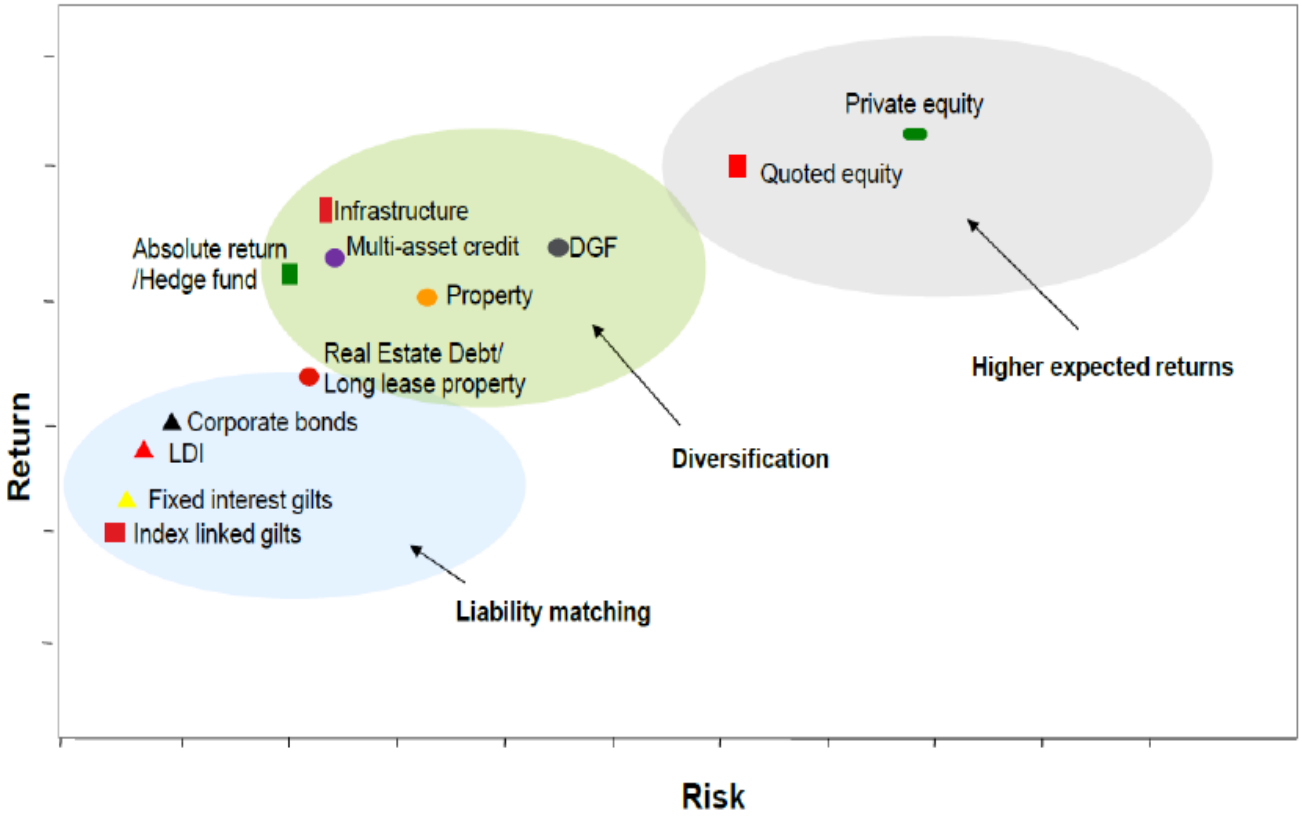
3.40 The below table and graph compares different indices returns to the Fund active global equity manager (LCIV (BG) GA) returns. It can be seen that LCIV (BG) GA delivered better returns than any other comparator index return.

	Annualised return, %		
Year	1	3	5
LCIV (BG) GA (USD)	11.61	15.66	11.64
MSCI AC World ND (USD)	10.20	13.14	9.68
MSCI ACWI (USD)	10.35	14.02	9.25
MSCI World Low Carbon Target (USD)	11.44	13.89	9.89
MSCI World Core Infrastructure (USD)	4.49	10.15	7.80
FTSE EO Renewable and Alternative (USD)	-5.00	8.00	4.90
FTSE All-World ex Fossil Fuels (USD)	-0.50	8.20	7.30
FTSE Developed ex Fossil Fuels (USD)	1.00	8.60	7.90
FTSE Global Core Infrastructure (USD)	4.90	10.50	8.40
FTSE Developed Core Infrastructure (USD)	5.90	10.50	8.80



3.41 The below graph demonstrated the general risk and return profile of some assets, for example the expected return from private equity investments is very high and the risk involved in investing in this asset class is equally high. Also the expected return on Index linked gilts is very low and the risk in investing in this asset class is equally very low.

Risk and return



3.42 An exclusionary approach removes the potential to positively influence companies and the Fund Investment consultant prefers a decarbonisation approach. It is not recommended that the LBTHPF divest fully from fossil fuels at this point. It is however recommended that Members should continue reducing fossil fuel investments by deploying assets to alternative investment such as renewable energy, infrastructure long lease asset and some allocation more into Low Carbon Target or into ex Fossil Fuel indices, with the aim of reducing carbon intensity of the Fund significantly by 2022. This approach is known as Fund decarbonisation. The benefits of this approach include:

a) Portfolio will be less susceptible to increasing carbon pricing, stranded assets and/or related regulation.
b) Supports the flow of capital to a resilient low-carbon economy and may help to address the market mispricing of carbon.
c) Produces a market signal that incentivises companies to develop and invest in low carbon and clean technologies, influences policymakers and also helps to catalyse a new standard for other institutional investors.
d) The alternative to reducing carbon exposure is an exclusionary approach (i.e. fossil fuel free), however:
    i) This approach removes the potential to positively influence companies and help them transition to a lower carbon footprint.
    ii) The actual reduction in carbon footprint can be lower, as relatively few companies are excluded (typically the big oil and mining companies), whilst companies that make heavy use of these commodities remain in the portfolio.

3.43 If the above is agreed, it is recommended that members:

a) Set and approve a target for overall Equity portfolio to be 60% lower in carbon exposure relative to the MSCI ACWI benchmark and or;

b) Set and approve a target to reduce the Fund's relative exposure to future emissions from fossil fuel reserves (measured in tCO2e – million tonnes of CO2 emissions) by 50% over 2 valuation cycles (6 years);

c) Measure the reduction relative to the Fund's position as at March 2018 (138 tCO2e) and adjusted for Assets Under Management;

d) Review target periodically to ensure that it remains consistent with the risks associated with investment in carbon assets and with the Committee's fiduciary duties; and

e) Delegate authorities to the Acting Corporate Director, Resources and the Interim Divisional Director of Finance in consultation with the chair and deputy chair of the Pensions Committee to review and determine the most appropriate Sustainable Fund and or Renewable Energy Fund.

4. COMMENTS OF THE CHIEF FINANCE OFFICER

4.1 The performance of the Fund affects the level of contribution to the Fund required for employer's contribution (i.e. the Council's contribution towards employees' pensions).

4.2 The returns achieved by the Fund for the three years beginning 1 April 2016 will impact on the next valuation as at 31 March 2019. It is important to ensure that any direct investment in ESG investment does not have a financial impact on the Fund.

5. LEGAL COMMENTS

5.1 The Committee has legal responsibilities for the prudent and effective stewardship of the Pension Fund and a clear fiduciary duty in the performance of its functions. The LGPS (Management and Investment of Funds) Regulations 2016 require Administering Authorities to state the extent to which they comply with the Guidance given by the Secretary of State. In accordance with regulation 7(2)(e) the authority must set out in its Investment Strategy Statement, its policy on how social, environmental and corporate governance considerations are taken into account in the selection, non-selection, retention and realisation of investments.

5.2 Updated Statutory Guidance on preparing and maintaining an investment strategy statement was published on the 15th September 2016. Having a policy in place covering the authority's approach to ethical, social and governance issues will enable to authority to meet its statutory duties in this regard. The recommendations discussed in this report are in line with both the Committee's terms of reference and legal responsibilities.

5.3 When exercising its functions, the Pensions Committee, must have due regard to the need to eliminate unlawful conduct under the Equality Act 2010, the need to advance equality of opportunity and the need to foster good relations between persons who share a protected characteristic and those who do not (the public sector duty).

6. ONE TOWER HAMLETS CONSIDERATIONS

6.1 The management of the Fund's investment portfolio and the investment returns that the Fund is able to deliver have significant financial implications, not just for the Fund itself but also on the Fund's employers in terms of the level of contributions they are required to make to meet the Fund's pension undertakings, which are underwritten by statute.

6.2 The employer's contribution is a significant element of the Council's budget and consequently any improvement in investment performance will reduce the contribution and increase the funds available for other corporate priorities.

6.3 A viable pension scheme also represents an asset for the recruitment and retention of staff to deliver services to the residents.

7. BEST VALUE (BV) IMPLICATIONS

7.1 The costs involved will very much depend on future decisions made around investment strategy. Climate change risk will be integrated into the forthcoming new Investment Strategy Statement to ensure that it is considered as part of the Committee's asset allocation decisions, rather than in isolation.

8. SUSTAINABLE ACTION FOR A GREENER ENVIRONMENT

8.1 The Fund through its participation with Local Authority Pension Fund Forum (LAPFF) supported progress towards an orderly transition to a low carbon economy. This is by actively working with other asset owners, fund managers, companies, academia, policy makers and others in investment industry.

9. RISK MANAGEMENT IMPLICATIONS

9.1 The Fund recognises that investment in fossil fuels and the associated exposure to potential 'stranded assets' scenarios may pose material financial risks. These risks apply not only to the Fund's investment portfolio but also, when considered on a wider scale, to long term global economic growth.

9.2 In recognising the risks that climate change and stranded assets scenarios could pose to the Fund, the Committee needs to understand where these risks might apply and how they can best be mitigated within the investment management framework within which LGPS funds operate. The recommendations provided on this report are aimed at developing both a greater understanding of the risks and a set of strategies to help mitigate them.

10. CRIME AND DISORDER REDUCTION IMPLICATIONS

10.1 There are no crime and disorder reduction implications arising from this report.

Linked Reports, Appendices and Background Documents

Linked Report - None

Appendices - None

Local Government Act, 1972 Section 100D (As amended)
List of "Background Papers" used in the preparation of this report

- As listed above as appendices

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TOWER HAMLETS

The London Borough of Tower Hamlets Pension Fund

Investment Strategy Statement

Revised March 2018

Investment Strategy Statement (March 2018)

1. Introduction and background

1.1 This is the Investment Strategy Statement ("ISS") of the Tower Hamlets Pension Fund ("the Fund"), which is administered by Tower Hamlets Council, ("the Administering Authority"). The ISS is made in accordance with Regulation 7 of the Local Government Pension Scheme (Management and Investment of Funds) Regulations 2016.

1.2 The Administering Authority has delegated all its functions as administering authority to the Pensions Committee ("the Committee"). The ISS, which was approved by the Committee on 29th November 2017, is subject to periodic review at least every three years and without delay after any significant change in investment policy. The Committee has consulted on the contents of the Fund's investment strategy with such persons it considers appropriate – for example, pensions board, independent adviser, local authority employers such as admitted bodies and scheduled bodies.

1.3 The Committee will invest in accordance with the ISS, any Fund money that is not needed immediately to make payments from the Fund.

1.4 The Pensions Committee is charged with the responsibility for the governance and stewardship of the Fund. The Fund has adopted a prudent, risk aware investment strategy, which is kept continually under review. Asset allocation decisions are taken in the best long term interest of Fund employers and member beneficiaries.

1.5 The ISS should be read in conjunction with the Fund's Funding Strategy Statement, which sets out how solvency risks will be managed with regard to the underlying pension liabilities.

2.0 Long-term view of investments

2.1 The Fund's primary investment objective is to ensure that over the long term the Fund will have sufficient assets to meet all pension liabilities as they fall due. This funding position will be reviewed at each triennial actuarial valuation, or more frequently as required.

2.2 The Committee aims to fund the Fund in such a manner that, in normal market conditions, all accrued benefits are fully covered by the value of the Fund's assets and that an appropriate level of contributions is agreed by the employers to meet the cost of future benefits accruing. For employee members, benefits will be based on service completed but will take account of future salary and/or inflation increases.

2.3 The strength of the respective employers' covenant and the present cash flow positive nature of the Fund allow a long-term deficit recovery period and enable the Fund to take a long-term view of investment strategy.

2.4 The most important aspect of risk is not the volatility of returns, but the risk of absolute loss, and of not meeting the objective of facilitating low, stable

contribution rates for employers. Illiquidity and volatility are risks which offer potential sources of additional compensation to the long term investor. Although, it is more important to avoid being a forced seller in short term market setbacks.

2.5 Participation in economic growth is a major source of long term equity return. Over the long term, equities are expected to outperform other liquid assets, particularly government bonds and cash. Well governed companies that manage their business in a responsible manner will likely produce higher returns over the long term.

2.6 The Committee has translated its objectives into a suitable strategic asset allocation benchmark for the Fund. (See section 5.6) This benchmark is consistent with the Committee's views on the appropriate balance between generating a satisfactory long-term return on investments whilst taking account of market volatility and risk and the nature of the Fund's liabilities.

2.7 The Fund carried out an Asset Outperformance Assumption modelling exercise in conjunction with the 2016 actuarial valuation. The Committee set a target range of 66%-75% chance of achieving their long term funding target – returning to a fully funded position within the next 20 years. (The probability required for each employer to reach its funding target within its time horizon. In general, higher probabilities of success are achieved by paying higher contributions and relying less on volatile investment returns. The probability required for each employer is largely based on each employer's assessed covenant. For instance, a lower probability of success (e.g. 66%) may be required for a secure body as they may be considered to be able to pay higher contributions (or current rates for longer) should they not reach their funding target over their time horizon.

2.8 This approach helps to ensure that the investment strategy takes due account of the maturity profile of the Fund (in terms of the relative proportions of liabilities in respect of pensioners, deferred and active members), together with the level of disclosed surplus or deficit (relative to the funding bases used).

2.9 In line with the above overall objective the Fund will invest money in a wide variety of investments, having assessed the suitability of particular investments; the investment objectives, the impact of different economic scenarios on achieving required total Fund returns, and the resulting diversity across the whole Fund. Prior to any such decisions being made the Fund will take appropriate external independent advice.

2.10 The Committee also monitors the Fund's actual allocation on a regular basis to ensure it does not notably deviate from the target allocation. The Fund will invest in accordance with its investment strategy, any Fund money that is not needed immediately to make payments from the Fund. Any deviations within guidelines from the agreed strategy will be reported to the Pensions Committee, the Pensions Board and the Section 151 Officer so that appropriate corrective actions can be undertaken.

3.0 The investment objectives of the Fund

a) The long-term objective is for the Fund to achieve a funding level of 100% over a maximum fund recovery period of 20 years from April 2016. This target will be reviewed following each triennial actuarial valuation and consultation with Fund employers.

b) The outcome of the last valuation carried out as at 31st March 2016:

- The funding level has improved from 71.8% to 82.7%.
- In monetary terms the deficit has reduced by £130m from £365m (at March 2013) to £235m (March 2016). This was based on the Fund having assets of £1,126m and liabilities of £1,361m.

c) The actuarial valuation, at 31 March 2016, was prepared on the basis of an expected real return on assets of 2% over the long term, a nominal return of 4.2% assuming inflation (CPI) to be 2.2%.

d) The Fund's objective is to perform in line with this target over 10 years, by investing in a diversified portfolio of return-generating assets.

e) In order to monitor the investment objective, the Pensions Committee requires the provision of detailed performance measurement of the Fund's investments. This is provided by the Fund's custodian, State Street, on a quarterly basis. In addition, the Pensions Committee conducts a formal annual performance review of each of its investment managers.

f) The actuarial funding target is reviewed after periodic actuarial valuations and consultation with Fund employers and may undergo a partial or full review at other times should circumstances warrant it.

4. Strategy Review and Strategic Benchmark

4.1 A full Strategic Investment Review will be undertaken by the Fund every three to six years by specialist professional advisors. The investment strategy (including the core investment objectives and asset allocations) will be sufficiently flexible to meet longer term prevailing market conditions and address any short term cash flow requirements. Interim reviews may be undertaken to ensure that the Strategy remains appropriate.

4.2 The Fund will operate a fund-specific benchmark for the investment portfolio, with long-term allocations to the various investment asset classes, which reflect the circumstances of the Fund.

4.3 As is appropriate all asset classes and products will be kept under continual review. In addition to considering the benefits of individual products and asset classes for introduction into the strategy, consideration will be given to how the inclusion affects the overall risk/return characteristics of the total portfolio.

Before any investment decisions are made by the Pensions Committee, professional advice will be sought. If there are any instances where advice received is not to be acted upon reporting to both the Committee and the Pensions Board will ensue.

Asset classes

4.4 The Fund may invest in quoted and unquoted securities of UK and overseas markets including equities and fixed interest and index linked bonds, cash, property, infrastructure and commodities either directly or through pooled funds. The Fund may also make use of contracts for differences and other derivatives either directly or in pooled funds investing in these products for the purpose of efficient portfolio management or to hedge specific risks.

4.5 The Committee reviews the nature of Fund investments on a regular basis, with particular reference to suitability and diversification. The Committee seeks and considers written advice from a suitably qualified person in undertaking such a review. If, at any time, investment in a security or product not previously known to the Committee is proposed, appropriate advice is sought and considered to ensure its suitability and diversification.

4.6 The Fund's target investment strategy is set out below. The table also includes the maximum percentage of total Fund value that it will invest in these asset classes. In line with the Regulations, the authority's investment strategy does not permit more than 5% of the total value of all investments of Fund money to be invested in entities which are connected with that authority within the meaning of section 212 of the Local Government and Public Involvement in Health Act 2007.

4.7 The Committee also monitors the Fund's actual allocation on a regular basis to ensure it does not notably deviate from the target allocation, s151 officer and her officers have the delegated authority to rebalance the Fund to its strategic asset allocation.

Asset class	Targeted Strategic Asset Allocation %	Investments Range (%)
Global equities	50%	(45% - 55%)
Total equities	**50%**	**(45% - 55%)**
Property	12%	(10% - 15%)
Diversified Growth Funds	20%	(15% - 25%)
Absolute Return Bonds	12%	(10% - 15%)
Index Linked Gilts	6%	(3% - 9%)
Total	**100%**	**100%**

5. *Restrictions on investment*

5.1 The Regulations do not permit more than 5% of the Fund's value to be invested in entities which are connected with that authority within the meaning of section 212 of the Local Government and Public Involvement in Health Act 2007(e). The investment policy of the Fund does not permit any employer-related investment, other than is necessary to meet the regulatory requirements with regards to pooling.

5.2 The Pensions Committee believes that the Fund's portfolio is adequately diversified, and has taken professional advice to this effect from their investment consultant and independent advisor.

5.3 The strategic asset allocation includes ranges for each asset class within which the asset allocation can vary. In the event that any asset class range is breached, the Pensions Committee will be informed and the Fund's officers will endeavour to bring the asset allocation back within the range within an appropriate period of time.

5.4 The Pensions Committee reviews the suitability of the asset allocation of the Fund on a yearly basis, following advice from the officers, investment consultant and independent advisor.

5.5 It is intended that the Fund's investment strategy will be reviewed at least every three years, following the latest actuarial valuation of the Fund. The investment strategy takes due account of the maturity profile of the Fund and the current funding position.

5.6 The Pensions Committee has set the following benchmark against which performance of the Fund will be measured:

Asset class	Benchmark
Equities	
Passive Global Equity	FTSE All World Equity Index
Passive Global Equity Hedged	FTSE All World Equity Index GBP Hedged
Passive Global Equity Low Carbon Hedged	MSCI World Low Carbon Target Index GBP Hedged
Active Global Equity	MSCI AC World Index
Bonds and Cash	
UK Index Linked Gilts Over 5 Years	FTSE UK Gilts Index-Linked Over 5 Years Index
Absolute Return Bonds (Insight)	3 Months LIBOR plus 3%

Absolute Return Bonds (GSAM)	3 Months LIBOR plus 4%
Cash	LIBID 7 Day
Alternatives	
Property Unit Trusts	UK IPD Monthly Index Property
Diversified Growth Funds	3 Months LIBOR plus 3%

6.0 Managers

6.1 The Committee has appointed a number of investment managers all of whom are authorised under the Financial Services and Markets Act 2000 to undertake investment business.

6.2 The Committee, after seeking appropriate investment advice, has agreed specific benchmarks with each manager so that, in aggregate, they are consistent with the overall asset allocation for the Fund.

6.3 The Fund's investment managers will hold a mix of investments which reflect their views relative to their respective benchmarks. Within each major market and asset class, the managers will maintain diversified portfolios through direct investment or pooled vehicles.

6.4 The manager of the passive funds in which the Fund invests holds a mix of investments within each pooled fund that reflects their respective benchmark indices as set out in section 5.6.

6.5 The Fund's current structure and performance targets are set out in the table below.

Current Managers and Mandates				
Manager	**Mandate**	**Benchmark Allocation**	**Investment Ranges**	**Performance Target**
LCIV (Baillie Gifford)	Global Equities (Active & Growth)	20%	15%-25%	Outperform benchmark by 2-3% over a rolling 3 year period
	Diversified Growth	10%	7.5%-12.5%	3 Months LIBOR +3% per annum
Insight	Pooled Bonds (Absolute Return)	3%	2%-4%	3 Months LIBOR +3% per annum

Goldman Sachs	Pooled Bonds (Absolute Return)	3%	2%-4%	3 Months LIBOR +4% per annum
LCIV MAC (CQS)	Multi Asset Credit	6%	4%-8%	3 Months LIBOR +4% per annum
Legal & General	UK Index Linked (Passive) Global Equities (Passive) Global Equities (Passive Low Carbon)	6% 15% 15%	3%-9% 12%-18% 12%-18%	FTSE A Gov Index Linked >5yrs 33% FTSE All World Equity Index, 67% FTSE All World Equity Index GBP Hedged MSCI World Low Carbon Target Index GBP Hedged
LCIV (Ruffer)	Diversified Growth	10%	7.5%-12.5%	3 Months LIBOR +3% per annum
Schroders	Property	12%	10%-15%	Outperform benchmark by 0.75% over a rolling 3 year period

7.0 The approach to risk

7.1 The Committee is aware that the Fund has a need to take risk (e.g. investing in growth assets) to help it achieve its funding objectives. It has a programme in place that aims to help it identify the risks being taken and put in place processes to manage, measure, monitor and (where possible) mitigate the risks being taken.

7.2 The principal risks affecting the Fund and the Fund's approach to managing these risks and the contingency plans that are in place are set below:

Funding risks

- Financial mismatch – The risk that Fund assets fail to grow in line with the developing cost of meeting the liabilities.
- Changing demographics –The risk that longevity improves and other demographic factors change, increasing the cost of Fund benefits.
- Systemic risk - The possibility of an interlinked and simultaneous failure of several asset classes and/or investment managers, possibly compounded by financial 'contagion', resulting in an increase in the cost of meeting the Fund's liabilities. (The impacts is reducing the value of investments/assets and requiring increased employer's contributions).

7.3 The Committee measures and manages financial mismatch in two ways. As indicated above, the Committee has set a strategic asset allocation benchmark for the Fund. This benchmark was set taking into account asset liability modelling which focused on probability of success and level of downside risk.

7.4 The Committee assesses risk relative to the strategic benchmark by monitoring the Fund's asset allocation and investment returns relative to the benchmark. The Committee also assesses risk relative to liabilities by monitoring the delivery of benchmark returns relative to liabilities.

7.5 The Committee also seeks to understand the assumptions used in any analysis and modelling so they can be compared to their own views and the level of risks associated with these assumptions to be assessed.

7.6 The Committee seeks to mitigate systemic risk through a diversified portfolio but it is not possible to make specific provision for all possible eventualities that may arise under this heading.

7.7 Asset risks

- Concentration - The risk that a significant allocation to any single asset category and its underperformance relative to expectation would result in difficulties in achieving funding objectives.
- Illiquidity - The risk that the Fund cannot meet its immediate liabilities because it has insufficient liquid assets.
- Currency risk – The risk that the currency of the Fund's assets underperforms relative to Sterling (i.e. the currency of the liabilities).
- Environmental, social and governance ("ESG") – The risk that ESG related factors reduce the Fund's ability to generate the long-term returns.
- Manager underperformance - The failure by the fund managers to achieve the rate of investment return assumed in setting their mandates.

7.8 The Committee measure and manage asset risks as follows:

a) The Fund's strategic asset allocation benchmark invests in a diversified range of asset classes. The Committee has delegated rebalancing arrangements to s151 officer and her officers to ensure the Fund's "actual allocation" does not deviate from its maximum limits. The Fund invests in a range of investment mandates each of which has a defined objective, performance benchmark and manager process which, taken in aggregate, help reduce the Fund's asset concentration risk. By investing across a range of assets, including liquid quoted equities and bonds, as well as property; the Committee has recognised the need for access to liquidity in the short term.

b) The Fund invests in a range of overseas markets which provides a diversified approach to currency markets; in addition, the Committee has agreed to hedge 50% of the overseas currency exposure relating to the global equity allocation. This is achieved by investing in pooled

currency hedged funds managed by LGIM. Detail of the Fund's approach to managing ESG risks is set out later in this document.

c) The Committee has considered the risk of underperformance by any single investment manager and have attempted to reduce this risk by appointing more than one manager and having a proportion of the Scheme's assets managed on a passive basis. The Committee assess the Fund's managers' performance on a regular basis, and will take steps, including potentially replacing one or more of their managers, if underperformance persists.

7.9 Other provider risk

- Transition risk - The risk of incurring unexpected costs in relation to the transition of assets among managers. When carrying out significant transitions, the Committee seeks suitable professional advice.
- Custody risk - The risk of losing economic rights to Fund assets, when held in custody or when being traded.
- Credit default - The possibility of default of a counterparty in meeting its obligations.

7.10 The Committee monitors and manages risks in these areas through a process of regular scrutiny of its providers, and audit of the operations it conducts for the Fund, or has delegated such monitoring and management of risk to the appointed investment managers as appropriate (e.g. custody risk in relation to pooled funds). The Committee has the power to replace a provider should serious concerns exist.

7.11 A more comprehensive breakdown of the risks to which the Fund is exposed and the approach to managing these risks is set out in the Fund's risk register and policy documents.

8. Pooling of investments

8.1 The Fund is a participating scheme in the London Collective Investment Vehicle (LCIV) Pool. The proposed structure and basis on which the LCIV Pool will operate was set out in the July 2016 submission to Government.

8.2 The London CIV has been operational for some time and is in the process of opening a range of sub-funds covering liquid asset classes, with less liquid asset classes to follow.

8.3 The Fund has already transitioned assets into the London CIV with current allocation of 46% of total assets, and will look to transition further liquid assets as and when there are suitable investment strategies available on the platform that meet the needs of the Fund.

8.4 The Fund has a target allocation of 36% in life funds and these are outside of the London CIV in accordance with government guidance on the retention of life funds outside pools for the time being.

8.5 The Fund is monitoring developments and the opening of investment strategy funds on the London CIV platform with a view to transitioning liquid assets across to the London CIV as soon as there are suitable sub-funds to meet the Fund's investment strategy/ asset allocation requirements.

8.6 Any assets not currently invested in the Pool will be reviewed at least annually to determine whether the rationale remains appropriate, and whether it continues to demonstrate value for money.

Structure and governance of the LCIV Pool

8.7 The July 2016 submission to Government of the LCIV Pool provided a statement addressing the structure and governance of the Pool, the mechanisms by which the Fund can hold the Pool to account and the services that will be shared or jointly procured.

8.8 The below diagrams sets out the governance structure for the London CIV. The governance structure of the CIV has been designed to ensure that there are both formal and informal routes to engage with all the Authorities as both shareholders and investors. This is achieved through a combination of the London Councils' Sectoral Joint Committee, comprising nominated Member representatives from the London Local Authorities (in most cases the Pensions Committee Chair), and the Investment Advisory Committee ("IAC") formed from nominated borough officers, which includes both London Local Authority Treasurers and Pension Officers from a number of Authorities.

8.9 As an AIFM, London CIV must comply with the Alternative Investment Manager Directive ("AIFMD") and falls under the regulatory scrutiny and reporting regime of the Financial Conduct Authority ("FCA"). This includes the requirement for robust systems and processes and for these to be documented appropriately in policies and manuals. Risk management is a particular focus for the FCA and London CIV has developed a risk framework and risk register covering all areas of its operations, including fund management.

8.10 The Pensions Sectoral Joint Committee ("PSJC") has been established under the governing arrangements of London Councils. The PSJC effectively fulfils two roles, one is as a mechanism for convening elected Member representation from each borough (generally the borough's Pension Committee Chair), and the other is as the route to convening the Authorities as shareholders in London CIV. This Committee will provide scrutiny and oversight of the CIV for the Authorities, with each Borough represented on the Committee with voting rights.

8.11 Borough Pension Committees – In most instances the Chair of the Pensions Committee at a Borough level will be the delegated representative on the PSJC and will be able to provide an overview back to the individual Committee on the work of the London CIV and its effectiveness from attending the PSJC. In addition the London CIV will provide regular updates to Authorities through its written reports and will also attend Committee meetings

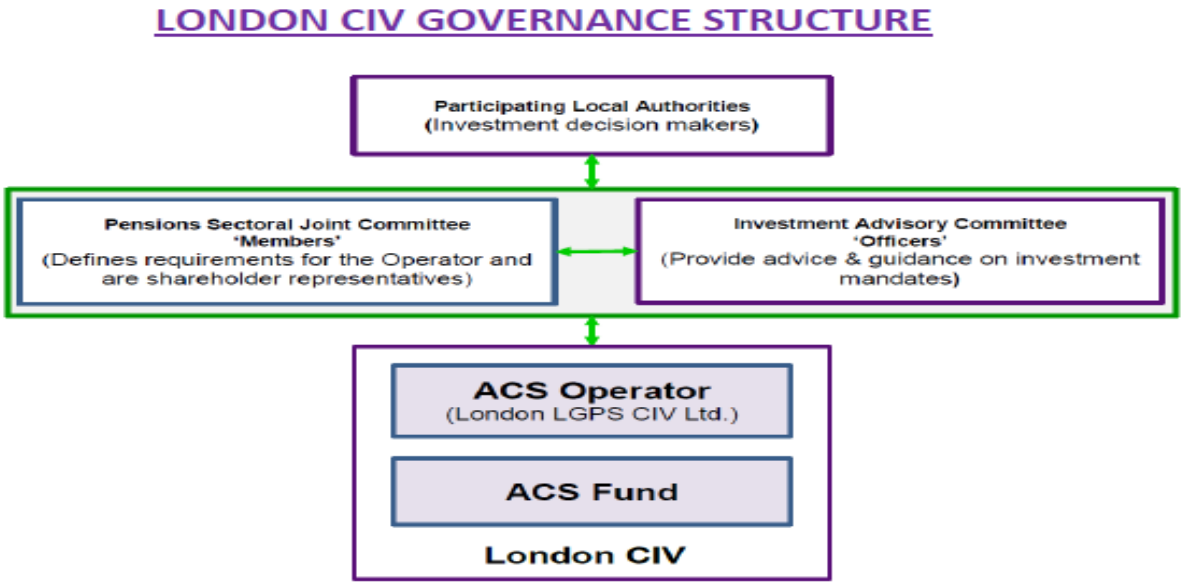
as and when required and in this way will help to ensure that the individual Pensions Committee are able to provide scrutiny of the London CIV.

8.12 The Investment Advisory Committee (IAC) was formed in September 2015 with the remit to:

- To support the Joint Committee in the investment decision making process
- To liaise with the Fund Operator of the CIV in defining Shareholders' investment needs.

8.13 Membership of the IAC was renewed in July 2016 with London Treasurers being asked to nominate themselves and or their officers, 24 nominations were received. Whilst this was greater than allowed for under the Terms of Reference, after consideration, it was agreed that the full complement of nominations should be included in the Committee.

8.14 This was to ensure at a time of rapid development for the London CIV, as many Pension Funds could be engaged fully in the process and that this would also enable a wide range of pension managers to work closely alongside officers of the CIV. The new Committee comprised 9 London Treasurers and 15 Pension Managers.

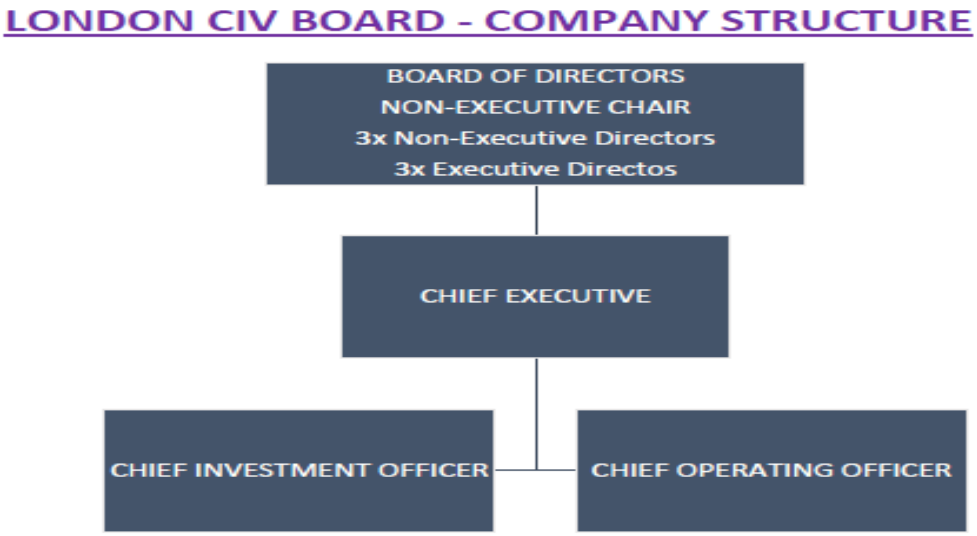


8.15 At the company level for London CIV, it is the Board of Directors that is responsible for decision making within the company, which will include the decisions to appoint and remove investment managers. The Board of the CIV has ultimate responsibility for all aspects of management of the Company. The board will at all times retain and exercise overall control. As a result the board composition seeks to achieve a balance of skills, competencies and expertise to govern on behalf of the shareholders.

8.16 The board will challenge the business, has a strong focus on oversight of both the organisation and third parties, and understands its duties as a regulated

Company. The board have a mix of relevant investment, operational and financial experience having held senior roles at regulated entities combined with a strong understanding of local government and the requirements of its shareholders. The governance practices will be commensurate with the business and nature of the investment funds it manages.

8.17 The board is comprised of seven members both executive and non-executive with a range of skills. The non-executive directors are independent third parties with experience gained from either local government or careers in financial services and each have in-depth understanding of their respective fields. The executive team are responsible for the day-to-day operations of the business and setting the strategic direction of the Company. The non-executive directors will provide independent judgment and challenge to the board based on their respective experience.



Performance measurement

8.18 Fund performance is measured at a number of different levels. The objective of the Fund is to outperform the actuarial discount rate. The policy portfolio is selected by the Committee, with advice from the Fund Investment Advisers and Officers, and investment managers including LCIV, is expected to generate returns above the discount rate.

8.19 The performance of the pooling arrangements is monitored via regular reporting and through periodic meetings. Performance for LCIV is measured against the policy portfolio. LCIV seeks to outperform the policy portfolio on a risk adjusted basis, via active sub-funds creation/selection and or selecting the best managers for each of the sub-funds and by implementing investments in a low cost manner. Performance for the investment sub-funds is measured against widely used and transparent benchmarks.

8.20 Where performance falls short of expectations the Committee, Officers and the Investment Advisers for the Fund will identify the cause of this underperformance and will respond appropriately either to alter its policy

portfolio (where asset allocation is the underlying cause) or to require changes to the management of the sub fund vehicles (where management skill within LCIV is the underlying cause).

9. Social, Environmental and Corporate Governance

9.1 It is recognised that ESG factors can influence long term investment performance and the ability to achieve long term sustainable returns. The Committee consider the Fund's approach to responsible investment in two key areas:

- *Sustainable investment / ESG factors* – considering the financial impact of environmental, social and governance (ESG) factors on its investments.
- *Stewardship and governance* – acting as responsible and active investors/owners, through considered voting of shares, and engaging with investee company management as part of the investment process.

Sustainable investment / ESG

9.2 The Fund is committed to being a long term steward of the assets in which it invests and expects this approach to protect and enhance the value of the Fund in the long term. In making investment decisions, the Fund seeks and receives proper advice from internal and external advisers with the requisite knowledge and skills. In addition the Pensions Committee undertakes training on a regular basis and this will include training on and information sessions on matters of social, environmental and corporate governance.

9.3 The Fund requires its investment managers to integrate all material financial factors, including corporate governance, environmental, social, and ethical considerations, into the decision-making process for all fund investments. It expects its managers to follow good practice and use their influence as major institutional investors and long-term stewards of capital to promote good practice in the investee companies and markets to which the Fund is exposed.

9.4 The Fund expects its external investment managers (and specifically the London Collective Investment Vehicle through which the Fund will increasingly invest) to undertake appropriate monitoring of current investments with regard to their policies and practices on all issues which could present a material financial risk to the long-term performance of the fund such as corporate governance and environmental factors. The Fund expects its fund managers to integrate material ESG factors within its investment analysis and decision making.

9.5 Effective monitoring and identification of these issues can enable engagement with boards and management of investee companies to seek resolution of potential problems at an early stage. Where collaboration is likely to be the most effective mechanism for encouraging issues to be addressed, the Fund expects its investment managers to participate in joint action with other institutional investors as permitted by relevant legal and regulatory codes. The

Fund monitors this activity on an ongoing basis with the aim of maximising its impact and effectiveness.

9.6 The Fund will invest on the basis of financial risk and return having considered a full range of factors contributing to the financial risk including social, environment and governance factors where these present financial risks to the delivery of portfolio objectives and therefore impact on the sustainability of the Fund's returns.

9.7 Where appropriate, the Committee considers how it wishes to approach specific ESG factors in the context of its role in asset allocation and investment strategy setting. The Committee considers exposure to carbon risk in the context of its role in asset allocation and investment strategy setting The exposure that the Fund has to fossil fuels is largely through investments in equity portfolios which aim to outperform, or track the performance of, broad market indices which themselves include allocations to companies that are responsible for carbon emissions.

9.8 Taking into account the ratification in October 2016 of the Paris Agreement, the Committee considers that significant exposure to fossil fuel reserves within the Fund's portfolio could pose a material financial risk. In spring 2017, a Carbon Risk Audit for the Fund was carried out, quantifying the Fund's exposure through its equity portfolio to fossil fuel reserves and power generation and where the greatest risks lie.

9.9 When a full review of the investment strategy was undertaken, as a result of this strategic review, the following changes to the equity portfolio was agreed, and implemented:

- A reduction in the total equity exposure from 60% to 50% of total assets. With the proceeds invested into multi-asset funds with much lower equity holdings (and hence lower exposure to carbon-intensive assets).
- Of the remaining 50% of the equity portfolio, 15% has been invested into a Low Carbon index-tracking strategy which aims to reduce the carbon exposure of the portfolio by around 70%, relative to the broad market index, whilst still expecting to perform broadly in line with the wider market over the long term

9.10 This will be periodically reviewed to ensure that it remains consistent with the risks associated with investment in carbon assets and with the Committee's fiduciary duties.

9.11 Where necessary, the Fund will also engage with its Investment Managers and or the London CIV to address specific areas of carbon risk. The Fund expects its investment managers to integrate financially material ESG factors into their investment analysis and decision making and may engage with managers and the London CIV to ensure that the strategies it invests in remain appropriate for its needs. However, the Fund does not at this time operate a blanket exclusion policy in respect of specific sectors or companies.

9.12 At the present time the Committee does not take into account non-financial factors when selecting, retaining, or realising its investments. The Committee reviews its approach to nonfinancial factors periodically, taking into account relevant legislation and the Law Commission's guidance on when such factors may be considered. Additionally, the Committee monitors legislative and other developments with regards to this subject and will review its approach in the event of material changes.

9.13 The Fund does not exclude investments in order to pursue boycotts, divestment and sanctions against foreign nations and UK defence industries, other than where formal legal sanctions, embargoes and restrictions have been put in place by the Government.

9.14 The Fund does not at the time of preparing this statement hold any assets which it deems to be social investments; however, this ISS places no specific restrictions on the Fund in respect of such investments beyond those of suitability within the Investment Strategy as a whole and compatibility with the Committee's fiduciary duties. In considering any such investment in the future, the Committee will have regard to the Guidance issued by the Secretary of State and to the Law Commission's guidance on financial and non-financial factors.

9.15 The Fund in preparing and reviewing its Investment Strategy Statement will consult with interested stakeholders including, but not limited to Fund employers, investment managers, Local Pension Board, advisers to the Fund and other parties that it deems appropriate to consult with.

Voting rights

9.16 The Fund recognises the importance of its role as stewards of capital and the need to ensure the highest standards of governance and promoting corporate responsibility in the underlying companies in which its investments reside. The Fund recognises that ultimately this protects the financial interests of the Fund and its ultimate beneficiaries.

9.17 The Fund has a commitment to actively exercising the ownership rights attached to its investments reflecting the Fund's conviction that responsible asset owners should maintain oversight of the companies in which it ultimately invests recognising that the companies' activities impact upon not only their customers and clients, but more widely upon their employees and other stakeholders and also wider society.

9.18 The Committee has delegated the exercise of voting rights to the investment manager(s) on the basis that voting power will be exercised by them with the objective of preserving and enhancing long term shareholder value. The managers are strongly encouraged to vote in line with voting alerts issued by the Local Authority Pension Fund Forum (LAPFF) as far as practically possible to do so and will hold managers to account where they have not voted in accordance with the LAPFF directions in respect of all resolutions at annual and extraordinary general meetings of companies under Regulation 7(2) (f). The Committee has elected to monitor the voting decisions made by all its investment managers on a regular basis.

9.19 The Fund's investments through the London CIV are covered by the voting policy of the CIV which has been agreed by the Pensions Sectoral Joint Committee. Voting is delegated to the external managers and monitored on a quarterly basis. The CIV will arrange for managers to vote in accordance with voting alerts issued by the Local Authority Pension Fund Forum (LAPFF) as far as practically possible to do so and will hold managers to account where they have not voted in accordance with the LAPFF directions.

9.20 The Fund will incorporate a report of voting activity as part of its Pension Fund Annual report which is published on the Council / Pension Fund website.

Stewardship

9.21 The Fund complies with the UK Stewardship Code ('the Code') and is preparing a formal statement of commitment with the Code for assessment. The current draft is set out in Appendix A.

9.22 The Fund expects its external investment managers to be signatories of the Stewardship Code and reach Tier One level of compliance or to be seeking to achieve a Tier One status within a reasonable timeframe. Where this is not feasible the Fund expects a detailed explanation as to why it will not be able to achieve this level.

9.23 In addition, the Fund expects its investment managers to work collaboratively with others if this will lead to greater influence and deliver improved outcomes for shareholders and more broadly.

9.24 The Committee recognises that taking a collaborative approach with other investors can help to achieve wider and more effective outcomes.
The Fund:

(a) is a member of the Local Authority Pension Fund Forum (LAPFF) and in this way joins with other LGPS Funds to magnify its voice and maximise the influence of investors as asset owners;

(b) is a member of the Pension and Lifetime Savings Association (PLSA) and in this way joins with other investors to magnify its voice and maximise the influence of investors as asset owners;

(c) gives support to shareholder resolutions where these reflect concerns which are shared and represent the Fund interest; and

(d) joins wider lobbying activities where appropriate opportunities arise.

Myners principles for investment decision making

9.25 The old regulation requiring administering authorities to state the extent to which they comply with Myners principles for investment decision making no longer applies. However, they should still have regard to the guidance. This section has been kept in this document as Appendix B for Tower Hamlets Funds, with some small amendments to keep the responses current.

Full compliance

The Fund's annual report includes all of the Fund's policies including the governance policy statement, governance policy compliance statement, communications policy statement, responsible investment and stewardship policy, funding strategy statement and statement of investment principles. The annual report can be found on the council's website.

Quarterly reports to the Pensions Committee and Pensions Board on the management of the Fund's investments are publicly available on the council's website. http://democracy.towerhamlets.gov.uk/mgCommitteeDetails.aspx?ID=392

Prepared by: - Bola Tobun (Investment & Treasury Manager)
(For and on behalf of LBTH Pensions Committee)

Appendices

Appendix A – Draft Statement of Commitment with the UK Stewardship code
Appendix B – Myners Investment Principles – Compliance Statement

Appendix A - ***Draft Statement of Commitment with the UK Stewardship Code***

Principle 1: ***Institutional investors should publicly disclose their policy on how they will discharge their stewardship responsibilities.***

The Fund takes its responsibilities as a shareholder seriously and has made a commitment to the informed exercise of its ownership rights as detailed in the Fund's Investment Strategy Statement.

The Fund invests via pooled funds and therefore expects its underlying investment managers to exercise voting and engagement rights on its behalf. The Fund encourages its underlying investment managers to comply with the UK Stewardship Code.

The Fund is subject to the ESG and voting policies of its underlying investment managers. The Pensions Committee ('the Committee') considers these policies when appointing a new manager and when monitoring investment managers, the Fund's Officers consider whether each manager's actions and engagement activities have been appropriate and in keeping with the Fund's policy.

In considering its stewardship activities, the Fund monitors the activities of its investment managers with regard to the following:

- The exercise of voting rights
- The integration and management of Environmental, Social and Corporate Governance (ESG) issues
- Engagement activities and progress

The Fund is a long-term investor and is committed to being an active owner. It wishes to promote a policy of dialogue on responsible investment issues, through its investment managers, with company management.

The Committee has identified the following ESG issues as a focus for engagement:

- Environmental issues: including conserving energy, promoting alternative energy sources, recycling, avoiding pollution and using environmentally friendly and sustainable resources
- Human rights: including child labour issues in foreign subsidiaries of UK companies or operations in countries with oppressive regimes
- Employment standards: including equal opportunities, health and safety, trade union recognition and employee participation

The Fund recognises that taking a collaborative approach with other investors can help to achieve wider and more effective outcomes and is a member of the Local Authority Pension Fund Forum (LAPFF), which aims to promote best practice on corporate governance and RI issues through co-operative action with other local authority funds.

The Fund regularly reviews its approach to responsible investment and the exercise of its stewardship activities.

Principle 2: ***Institutional investors should have a robust policy on managing conflicts of interest in relation to stewardship and this policy should be publicly disclosed.***

The Fund expects its investment managers to have effective policies addressing potential conflicts of interest related to stewardship.

In respect of potential conflicts of interest within the Fund, the Committee members are required to make declarations of interest prior to panel meetings.

All declarations are captured in the minutes of the meeting, which are publicly available, potential conflicts, based on declarations, are managed accordingly by the Chair of the Committee.

Principle 3: ***Institutional investors should monitor their investee companies.***

While the day-to-day responsibility for managing the Fund's equity holdings is delegated to the Fund's appointed investment managers, the Fund recognises that it cannot delegate its stewardship obligations. The Fund's Committee and Officers monitor the Fund's investment managers on a regular and ongoing basis, including with respect to stewardship activities.

As such the Fund expects its investment managers to monitor investee companies, intervene where necessary, and report back regularly on activity undertaken. This may be via written reports, phone calls, or meetings with the Officers and the Committee.

In addition, the Committee receives an annual report from the Fund's investment consultant on the ESG credentials, including active ownership, of its investment managers.

Principle 4: ***Institutional investors should establish clear guidelines on when and how they will escalate their activities as a method of protecting and enhancing shareholder value.***

Responsibility for day-to-day interaction with companies is delegated to the Fund's investment managers, including the escalation of engagement when necessary.

The Fund's Officers and Committee monitor the escalation activities undertaken by the Fund's investment managers through the regular reporting provided by the Fund's managers.
On occasion, the Fund may itself choose to escalate activity; this will typically be through its membership of LAPFF or via one of the underlying investment managers.

Escalation activities undertaken by LAPFF may include writing a letter to the board or additional meetings with company management.

Principle 5: ***Institutional investors should be willing to act collectively with other investors where appropriate.***

The Fund seeks to work collaboratively with other institutional shareholders in order to maximise the influence that it can have on individual companies.

The Fund undertakes collective engagement activities through its membership of LAPFF as well as through initiatives proposed by the Fund's investment managers or advisors.

In addition, the fund has formally agreed to join the London Collective Investment Vehicle (CIV) and regularly collaborates with other members of the CIV with respect to ESG and stewardship issues.

Principle 6: ***Institutional investors should have a clear policy on voting and disclosure of voting activity.***

The Fund invests via pooled funds and is therefore subject to the underlying investment managers' policies. The Fund expects its investment managers to exercise all votes associated with the Fund's equity holdings where practicable. The Fund encourages its investment managers to publicly disclose their voting records.

Generally, the Fund expects its investment managers to support resolutions that are consistent with the UK Corporate Governance Code and represent best practice. In overseas markets, the Committee expects the managers to take account of local best practice principles.

Where resolutions or issues fall short of the expected standards, the Committee expects managers will either abstain or vote against, depending on the individual circumstances of the company and the issues presented. The Committee expects the investment managers to report on their voting activities on a regular basis and the Fund's Officers consider whether each manager's actions and engagement activities have been appropriate and in keeping with the Fund's policy.
The policy is reviewed at least annually in order to take account of regulatory developments and timely or controversial issues may be discussed at Committee meetings.

Principle 7: ***Institutional investors should report periodically on their stewardship and voting activities.***

The Fund expects its underlying investment managers to report regularly to both the Officers and the Committee with respect to voting and engagement activities, including examples of company engagement, progress on engagement over time and collaborative activities. The Fund encourages its investment managers to publicly report on their stewardship activities.

The Fund will report on its stewardship activity to the Committee on an annual basis. In addition, quarterly reports of voting actions are posted as part of the funds reporting to Committee and are available on the Council's website: http://democracy.towerhamlets.gov.uk/ieListMeetings.aspx?CommitteeId=392
The Committee will provide an annual report on how the Fund satisfies its UK Stewardship Code obligations requirements, which will be made available publicly.

This statement has been approved by the Committee on 16 March 2017.

Compliance and monitoring
The investment managers are required to adhere to the principles set out in this Investment Strategy Statement. The Pensions Committee will require an annual written statement from the investment managers that they have adhered to the principles set out in this statement.

If you have any questions on this statement or the Fund's approach to stewardship, please contact Bola Tobun, Investments and Treasury Manager by e-mail at the following address Bola.Tobun@towerhamlets.gov.uk

Appendix B - Myners Investment Principles – Compliance Statement

Principle 1: Effective Decision-making

Administering authorities should ensure that:

- decisions are taken by persons or organisations with the skills, knowledge, advice and resources necessary to make them effectively and monitor their implementation; and
- those persons or organisations have sufficient expertise to be able to evaluate and challenge the advice they receive, and manage conflicts of interest.

Full compliance

The Pensions Committee and Pensions Board are supported in their decision making/assisting roles by the Corporate Director, Resources and the Investment and Treasury Manager.

Members of the both Committee and Board participate in regular training delivered through a formal programme. Training is provided at every quarterly meeting.

Principle 2: Clear Objectives

An overall investment objective should be set out for the fund that takes account of the scheme's liabilities, the potential impact on local taxpayers, the strength of the covenant for non-local authority employers, and the attitude to risk of both the administering authority and scheme employers, and these should be clearly communicated to advisors and investment managers.

Full compliance

The Fund's overall objectives are defined in the Funding Strategy Statement and are directly linked to the triennial actuarial valuation. The investment objectives are clearly stated in the Statement of Investment Principles/Investment Strategy Statement.

The content of the Funding Strategy Statement reflects discussions held with individual scheme employers during the actuarial valuation process. Employers understand that contribution rates are set, having given consideration to the key tenets of affordability, sustainability and stability but also with the understanding that any decisions made must be prudent. To this end, the strength of the employer covenant is considered when setting contribution rates.

Principle 3: Risk and liabilities

In setting and reviewing their investment strategy, administering authorities should take account of the form and structure of liabilities. These include the implications for the local taxpayers, the strength of the covenant for participating employers, the risk of their default and longevity risk.

Full compliance

The Fund's actuary reviews the funding position of each employer every three years and this valuation includes an assessment of the gap between the employer's share of the Fund assets and the liabilities specific to each employer. The strength of the employer covenant is considered when setting contribution rates.

The Fund's investment strategy is reviewed following each triennial valuation to ensure that the investment strategy will achieve the expected returns assumed during the valuation process.

As a member of Club Vita, a bespoke set of assumptions are specifically tailored to fit the membership profile of the Tower Hamlets Fund. The assumptions selected are intended to make an appropriate allowance for future improvements in longevity, based on the actual experience of the Fund.

Principle 4: Performance assessment

Arrangements should be in place for the formal measurement of performance of the investments, investment managers and advisors.

Administering authorities should also periodically make a formal assessment of their own effectiveness as a decision-making body and report on this to scheme members.

Full compliance

Each manager's performance is measured quarterly against benchmark targets, which are specified in the contract between the Fund and the manager. The Fund's global custodian produces performance data for each manager and for the Fund as a whole. The target outperformance for the Fund as a whole is specified within the Statement of Investment Principles/Investment Strategy Statement. The Fund performance is also assessed with reference to the local authority peer group.

Performance data is reported to the Committee on a quarterly basis. Fund managers present to the officers or the Committee on at least an annual basis and officers hold four additional meetings with managers per quarter to discuss the portfolio composition, strategy and performance.

Consideration has been given to quantitative measures to assess the performance of the Committee, although options other than measuring meeting attendance and the success of the Committee's implemented strategies are limited.

Principle 5: Responsible ownership

Administering authorities should:

- Adopt, or ensure their investment managers adopt, the Stewardship Code.

- Include a statement of their policy on responsible ownership in the statement of investment principles.
- Report periodically to scheme members on the discharge of such responsibilities.

Full compliance

All new investment mandates will be expected to include a statement of a manager's adoption of the Stewardship Code.

The Council wishes to have an active influence on issues of environmental or ethical concern with companies in which the Pension Fund is a shareholder. It will seek to codify its approach with Fund Managers and will use the services of specialist agencies as necessary to identify issues of concern.

The Council requires the Fund Managers to take into account the implications of substantial "extra financial" considerations, e.g., environmental, social or reputational issues that could bring a particular investment decision into the public arena.

The Fund wishes to be an active shareholder and exercise its voting rights to promote and support good corporate governance principles. In addition, the Fund is a member of the Local Authority Pension Fund Forum (LAPFF), thus demonstrating a commitment to sustainable investment and the promotion of high standards of corporate governance and responsibility.

All of the Fund's managers are signed up to the Stewardship Code, which provides a framework for investors to consider environmental, social and corporate governance issues when making investment decisions.

Principle 6: Transparency and reporting

Administering authorities should:

- Act in a transparent manner, communicating with stakeholders on issues relating to their management of investments, its governance and risks, including performance against stated objectives
- Provide regular communication to scheme members in the form they consider most appropriate

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Non-Executive Report of the: **Pensions Committee** 29 November 2018	TOWER HAMLETS
Report of: Neville Murton, Acting Corporate Director of Resources	**Classification:** Unrestricted
Section 13 Valuation Results based on 31st March 2016 Triennial Valuation of Pension Schemes	

Originating Officer(s)	Bola Tobun, Investment and Treasury Manager
Wards affected	All wards

REASONS FOR URGENCY

The report was not published five clear days in advance of the meeting. Therefore, before this report can be considered at this meeting, the Chair would need to be satisfied that it is necessary to consider the Section 13 analysis completed by the Government Actuary's Department (GAD) using the 2016 valuations without that consideration being delayed to a later meeting. The Committee may also take the view that it is important that there is no delay in member oversight of the Section 13 analysis

Summary
This report provides Members with information on the Section 13 analysis completed by the Government Actuary's Department (GAD) using the 2016 valuations.

This is the first formal section 13 report, a 'Dry Run' was produced in respect of the 2013 valuations and published in 2016	The Government Actuary has been appointed by the Department of Communities and Local Government (DCLG) to report under section 13 of the Public Service Pensions Act 2013 in connection with the Local Government Pension Scheme ("LGPS" or "the Scheme") in England and Wales.
This report is based on the actuarial valuations of the 91 LGPS funds	Section 13 requires the Government Actuary (GAD) to report on whether the following aims are achieved: • compliance • consistency • solvency • long term cost efficiency
Significant progress has been made by a number of funds that were highlighted in the 2013 valuation dry run.	In aggregate, the LGPS is in a strong financial position and funds have made significant progress since the 2013 valuation. On GAD best estimate basis, the LGPS was in surplus in aggregate at 2016 (funding level approximately 106%), and around 60 of the 91 individual funds were in surplus. This means that GAD expect on average, a greater than 50% chance that existing assets would be sufficient to cover benefits in respect of accrued service when they fall due.
For this review Tower Hamlets Fund improved significantly, no amber or red flags.	For the 2013 dry run, Tower Hamlets Fund had two amber flags on solvency measures; asset shock and liability shock which basically indicate inability of employers to pay the required future and past contributions into the Fund.

Recommendations:
The Pensions Committee is recommended to note the content of this report.

1. REASONS FOR THE DECISIONS

1.1 The LGPS is a funded scheme and periodic assessments are needed to ensure the fund has sufficient assets to meet its liabilities. Employer contribution rates may change depending on the results of valuations. Scheme regulations set out when valuations are to be carried out.

1.2 Each LGPS pension fund is required to appoint its own fund actuary, who carries out the fund's valuation. The fund actuary uses a number of assumptions to value the liabilities of the fund. Liabilities are split between those that relate to the past (the past service cost), and those that relate to the future (the future service cost). The results of the valuation may lead to changes in employer contribution rates for both future and past service costs.

1.3 The report is based on the actuarial valuations of the 91 funds, with data provided by the funds and their actuaries, and a significant engagement exercise with affected funds. GAD is committed to preparing a section 13

report that makes practical recommendations to advance the reporting aims. Also expecting that their approach to section 13 will continue to evolve to reflect ever-changing circumstances and feedback received.

2. ALTERNATIVE OPTIONS

2.1 There are no alternative options.

3. DETAILS OF REPORT

3.1 The Government Actuary (GAD) has been appointed by the Ministry of Housing, Communities and Local Government (MHCLG) to report under section 13 of the Public Service Pensions Act 2013 in connection with the actuarial valuations of the 91 funds in the Local Government Pension Scheme in England and Wales ('LGPS' or 'the Scheme').

3.2 This is the first formal section 13 report, a 'Dry Run' was produced in respect of the 2013 valuations and published in 2016. Section 13 applies for the first time to the valuations as at 31 March 2016 and requires the Government Actuary (GAD) as the person appointed by MHCLG to report on whether the following four main aims are achieved:

a. **compliance**: whether the fund's valuation is in accordance with the scheme regulations

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

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

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

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

a) the report may recommend remedial steps

b) the scheme manager must:

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

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

c) the responsible authority may

iii) require the scheme manager to report on progress in taking remedial steps

iv) direct the scheme manager to take such remedial steps as the responsible authority considers appropriate

3.3 GAD looked at a range of metrics to identify potential issues in respect of solvency and long term cost efficiency. Each fund's score under each measure is colour coded or flagged, where:

a) **GREEN** - indicates that there are no material issues that may contribute to a recommendation for remedial action in order to ensure solvency or long term cost efficiency

b) **AMBER** - indicates a potential issue should be recognised, but in isolation would not usually contribute to a recommendation for remedial action in order to ensure solvency or long term cost efficiency

c) **RED** - indicates a potentially material issue that may contribute to a recommendation for remedial action in order to ensure solvency or long term cost efficiency

3.4 The trigger points for these flags are based on a combination of absolute measures and measures relative to the bulk of the funds in scope. Whereby GAD had regard to particular circumstances of some potential exceptions, following engagement with the administering authority and the fund actuary.

3.5 In total, 70 out of 89 funds tested had green flags on all solvency and long term cost efficiency metrics. This is a significant improvement compared with the previous dry run report (52 out of 90). There are a total of 20 amber and 2 red flags, which is again a significant improvement compared with the dry run (58 amber, 5 red).

3.6 The trigger points for these flags should not represent targets, these measures and flags helps GAD to determine whether a more detailed review is required, for example, we might have concern where multiple measures are triggered amber for a given fund.

3.7 In broad terms, amber flags are advisory signals that may indicate action and a need for further investigation through engagement with the relevant administering authority and their actuary. It should be noted that these flags are intended to highlight areas where risk may be present, or further investigation is required. Where an amber flag remains following that engagement, this then become an area of issue that administering authorities and pension boards should be mindful of. There is no implication that the administering authority was previously unaware of the issue.

3.8 A green flag (i.e. the absence of a red or amber flag) does not necessarily indicate that no risk is present and similarly the fact that the GAD are not specifically suggesting remedial action does not mean that scheme managers should not consider actions.

GAD findings on each of the four aims and their recommendations.

3.9 **Compliance** - GAD selected one Fund as a representative example from each of the firms of actuarial advisors. The review indicated that fund valuations were compliant with relevant regulations.

3.10 **Consistency** – GAD interpreted 'not inconsistent' to mean that methodologies and assumptions used, in conjunction with adequate disclosure in the report, should facilitate comparison by a reader of the reports. It is noted that readers

of the actuarial valuations face two difficulties in making meaningful comparisons between the reports:

a) presentational: information is presented in different ways in different reports (e.g. funding levels), and sometimes information is contained in some reports but not others (e.g. life expectancies), so readers may have some difficulties in locating the information they wish to compare. This is called presentational inconsistency

b) evidential: even when the reader has located the relevant information (e.g. funding levels), differences in the underlying methodology and assumptions mean that it is not possible to make a like-for-like comparison. This is called evidential inconsistency. GAD believe that local circumstances may merit different assumptions (e.g. financial assumptions are affected by the current and future planned investment strategy, different financial circumstances leading to different levels of prudence adopted). However, in some areas, it appears that the choice of assumptions is more dependent on the house view of the particular firm of actuaries advising the fund, than on the local circumstances of the fund.

3.11 There has been an improvement in consistency of presentation of contribution rates emerging from the 2016 valuations. However, despite this welcome improvement, inconsistencies remain, both presentational and evidential.

3.12 The recommendations are designed to:

a) encourage the presentation of results in a consistent way which is easy to understand and compare across the whole LGPS

b) move towards an assumption set that differs from one fund to another only where local conditions justify it, rather than being dependent on the house view of a particular actuarial advisor

3.13 **Solvency** – under this element, GAD tested the following five metrics:

- SAB funding level
- Open fund
- Non Statutory members
- Asset Shock
- Employer default

3.14 For open funds, solvency is dependent on employers being able to pay contributions as required, knowing that these contributions may increase or decrease significantly in future. Considering the LGPS as a whole, our long term expectation is that contributions will fall below their current levels as remaining deficits are paid off. However there is a significant chance that contributions remain at their current levels or even increase further in the long term, and in the short term there is always the risk that contributions need to increase or decrease following actuarial valuations.

3.15 At a fund level, GAD has expressed their stress tests in terms of the relative effects of an adverse stress to asset values on core spending power for English local authorities, and financing data for Welsh local authorities. They find that if asset values were to fall by 15%, then there is a range of impacts

on different funds and, on the basis of their assumptions, three funds could face increases in contribution over 3% of their core spending. Funds should be aware of this risk, and consider if any action should be taken to manage it. For the avoidance of doubt, GAD does not consider that this risk implies that the aims of section 13 are not achieved.

3.16 **Long term cost efficiency** – a series of relative and absolute considerations were developed to help assess whether the contributions met the aims of section 13 under long term cost efficiency. The below listed measures were used:

- Deficit Period
- Required Return
- Repayment Shortfall
- Return Scope
- Deficit Reconciliation

3.17 As set out in CIPFA's Funding Strategy Statement Guidance, GAD consider that the rate of employer contributions has been set at an appropriate level to ensure long term cost efficiency if it is sufficient to make provision for the cost of current benefit accrual, with an appropriate adjustment to that rate for any surplus or deficit in the fund.

3.18 It was evident that a number of funds highlighted in the Dry Run have made progress, with their employers increasing contributions following the 2016 valuation.

3.19 CIPFA's Funding Strategy Statement Guidance states "Administering authorities should avoid continually extending deficit recovery periods at each and subsequent actuarial valuations. Over time and given stable market conditions, administering authorities should aim to reduce deficit recovery periods." In the dry run, GAD established the deficit reconciliation measure so that funds could confirm that the deficit recovery plan can be demonstrated to be a continuation of the previous plan, after allowing for actual fund experience.

3.20 GAD considers that reconciliation of the deficit recovery plan is an important component of section 13 for all funds. Through this exercise, they identified and engaged with a number of funds that have extended their deficit recovery end points, but have not concluded that this implies the aims of section 13 are not achieved, however they do recommend that all funds review their funding strategy and consider whether this is in accordance with the CIPFA guidance referred to above.

Conclusion

3.21 In total, 70 out of 89 funds tested had green flags on all solvency and long term cost efficiency metrics. This is a significant improvement compared with the previous dry run report (52 out of 90). There are a total of 20 amber and 2 red flags, which is again a significant improvement compared with the dry run (58 amber, 5 red).

3.22 So good news for Tower Hamlets Fund no amber or red flags from this review, signifying significant improvement for our fund when compared to the 2013 dry run whereby Tower Hamlets Fund had two amber flags on solvency measures; asset shock and liability shock which basically underpinned inability of employers to pay the required future and past contributions into the Fund.

3.23 The Committee has to be mindful of this information when making decision on employer contributions. The valuation process for 31st March 2019 commences soon and the Committee would be required to make decisions and approve new contribution rates for Fund employers which would be effective from 1st April 2020 for the next three years up to 31st March 2023.

4. COMMENTS OF THE CHIEF FINANCE OFFICER

4.1 There are no immediate finance implications arising from this report.

4.2 The employers' contribution rate for the London Borough of Tower Hamlets was set at 15.8% for 2013 valuation. This was increase to 19.9% as a result of the 2016 triennial review. The Council will still continue to pay this rate up until 31 March 2020. However the next valuation exercise will occur in March 2019 with the results taking effect from 1 April 2020, for the next three years. The outcome of this process could then have a positive or a negative impact on the general fund depending if there is a reduction or a rise to the level of contribution the Council has to pay to the Fund.

5. LEGAL COMMENTS

5.1 The Local Government Pension Scheme Regulations 2013, Regulation 62, requires an Administering Authority to obtain an actuarial valuation of its fund as at 31st March 2016, and as at 31st March every third year thereafter. The documents obtained by the administering authority must include a report by an actuary in respect of the valuation, and a rates and adjustments certificate provided by the actuary. The report must contain a statement of the demographic assumptions used in producing the valuation, and how these assumptions relate to events which have actually occurred in relation to the scheme membership. These documents must be received before the first anniversary of the valuation date.

5.2 Regulation 66 also requires the Administering Authority to supply copies of any valuation report, rates and contributions certificates to the Secretary of State, employing authorities participating in the Fund and any other bodies liable to make payments to it.

5.3 When exercising its functions, the Pensions Committee, must have due regard to the need to eliminate unlawful conduct under the Equality Act 2010, the need to advance equality of opportunity and the need to foster good relations between persons who share a protected characteristic and those who do not (the public sector duty).

6. ONE TOWER HAMLETS CONSIDERATIONS

6.1 The Pension Fund Accounts demonstrate financial stewardship of the fund's assets. A financially viable and stable pension fund is a valuable recruitment and retention incentive for the Council.

7. BEST VALUE (BV) IMPLICATIONS

7.1 The level of funding for the Pension Fund and the requirement to fund employee pension benefits, both past and current can directly impact on the level of resources available for other Council services. The valuation outcome is sensitive to both the actuarial and financial assumptions made within the valuation and any significant variations to those assumptions could impact upon Fund's financial position.

7.2 The understanding of the Pension Fund in terms of its investments, the Fund's liabilities both short and long term and the profile of its members between actuarial valuations determines the financial status of the pension fund, its funding level and the contributions that employers need to make into the Fund for the following three years.

8. SUSTAINABLE ACTION FOR A GREENER ENVIRONMENT

8.1 There is no Sustainable Action for A Greener Environment implication arising from this report.

9. RISK MANAGEMENT IMPLICATIONS

9.1 The valuation outcome is sensitive to both the actuarial and financial assumptions made within the valuation and any significant variations to those assumptions could impact upon Fund's financial position. Therefore a prudent approach is crucial in minimising the key risks involved in managing the Pension Fund.

10. CRIME AND DISORDER REDUCTION IMPLICATIONS

10.1 There are no any Crime and Disorder Reduction implications arising from this report.

Linked Reports, Appendices and Background Documents

Linked Report

- NONE

Appendices

- Appendix 1 – Standardising Local Valuation Results
- Appendix 2 – Section 13 Review of the Actuarial Valuations of Funds as at 31 March 2016

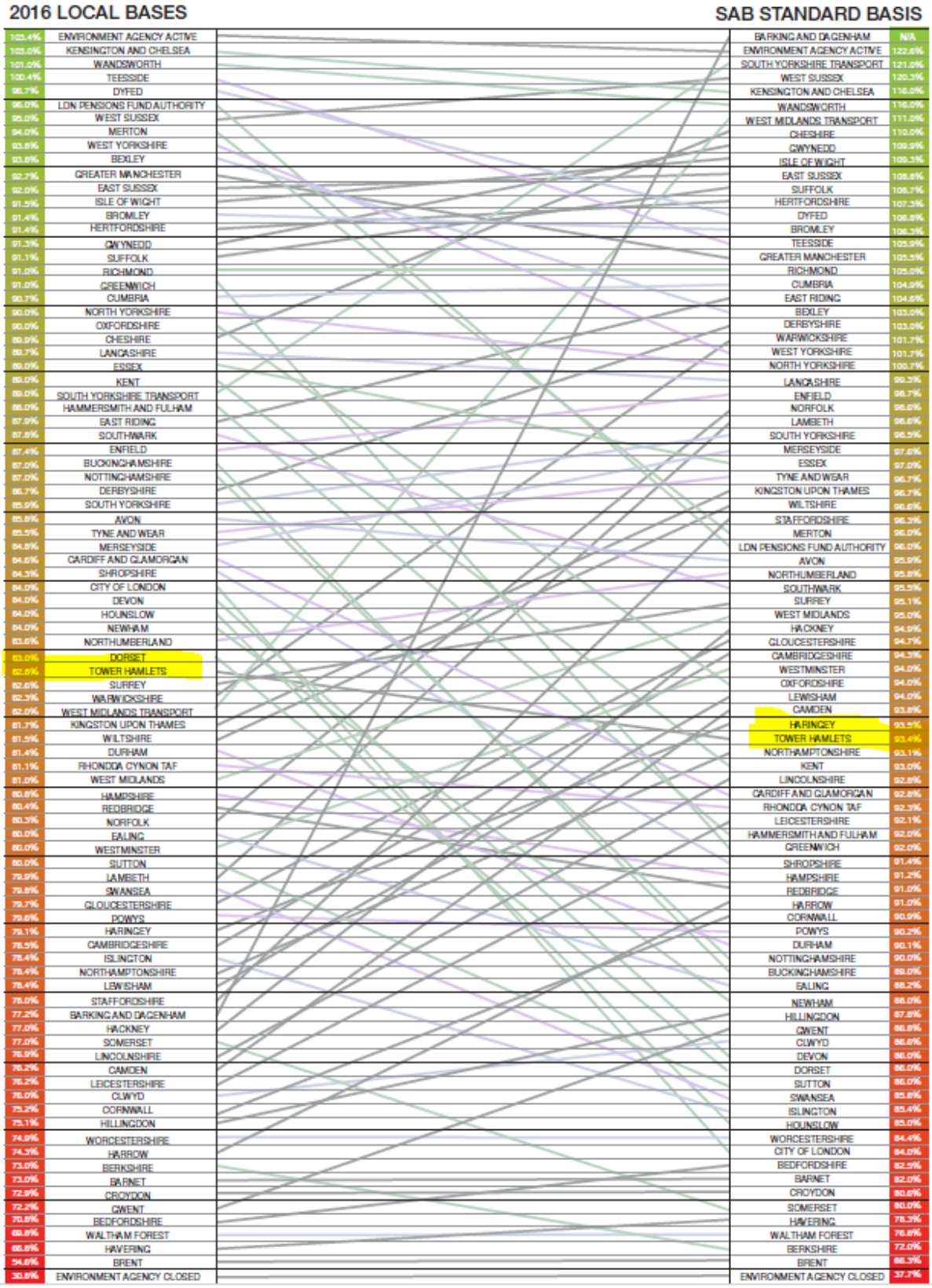
Local Government Act, 1972 Section 100D (As amended)
List of "Background Papers" used in the preparation of this report

- As shown in appendices above.

Officer contact details for documents:
Bola Tobun(Investment & Treasury Manager) x4733

Appendix 1

Chart B1: Standardising Local Valuation Results



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Government Actuary's Department

Local Government Pension Scheme England and Wales

Review of the Actuarial Valuations of Funds as at 31 March 2016 pursuant to Section 13 of the Public Service Pensions Act 2013

Appendices

Date: 27 September 2018

Author: Martin Clarke, John Bayliss

Contents

Appendix A: Compliance

A.1 In this appendix we set out checks we conducted to determine whether the actuarial valuations of the 91 Local Government Pension Scheme (LGPS) funds have been completed in accordance with the scheme regulations.

Statement of Compliance

A.2 GAD selected one fund as a representative example from each of the firms of actuarial advisors. The following statements of compliance were contained within the chosen reports by each firm:

Compliance with valuation regulations

Actuarial Valuation Reports Regulation 62 (1 - 2)

A.3 Regulation 62 (1) requires the administering authority to obtain an actuarial valuation report on the assets and liabilities of each of its pension funds, including a rates and adjustments certificate, as at 31st March 2016 and on 31st March in every subsequent valuation year. Regulation 62 (2) requires that the above documents be obtained by the first anniversary of the date at which the valuation is made, namely, 31 March 2017 in the case of the 2016 valuation.

Publication

A.4 Each chosen fund was published in accordance with regulations. The following table sets out dates of publication of the actuarial report.

Table A1: Statement of Compliance

Fund	Statement of Compliance
Merseyside (Mercer)	This report is addressed to the Administering Authority of the Merseyside Pension Fund ("the Administering Authority") and is provided to meet the requirements of Regulation 62 of the Local Government Scheme Regulations 2013 (as amended) ("the Regulations").
Haringey (Hymans Robertson)	We have carried out an actuarial valuation of the London Borough of Haringey Pension Fund ("the Fund") as at 31 March 2016 under Regulation 62 of The Local Government Pension Scheme Regulations 2013 ("the Regulations").
Hampshire (Aon)	This report was … produced in compliance with Regulation 62 of the Local Government Pension Scheme Regulations 2013
Berkshire (Barnett Waddingham)	In accordance with Regulation 62 of the Local Government Pension Scheme (LGPS) Regulations 2013 (as amended), we have been asked by Royal Borough of Windsor and Maidenhead to prepare an actuarial valuation of the Royal County of Berkshire Pension Fund (the Fund) as at 31 March 2016 as part of their role as the Administering Authority to the Fund.

Table A2: Publication Date

Fund	Publication Date
Merseyside (Mercer)	31 March 2017
Haringey (Hymans Robertson)	29 March 2017
Hampshire (Aon)	31 March 2017
Berkshire (Barnett Waddingham)	31 March 2017

Demographic Assumptions

A.5 Regulation 62 (3) states that the actuarial valuation report must contain a statement of the demographic assumptions that have been used in making the valuation, and must show how these assumptions reflect the experience that has actually occurred during the period since the last valuation. Each valuation report contains a section on demographic assumptions including all the assumptions that we would expect in an actuarial valuation report.

Table A3: Demographic Assumptions

Demographic	Merseyside (Mercer)	Haringey (Hymans Robertson)	Hampshire (Aon)	Berkshire (Barnett Waddingham)
Pre-retirement mortality	✓	✓	✓	✓
Post-retirement mortality	✓	✓	✓	✓
Dependant mortality	✓	✓	✓	✓
Ill health retirement	✓	✓	✓	✓
Normal health retirements	✓	✓	✓	✓
Withdrawal	✓	✓	✓	✓
Promotional salary scale[1]		✓	✓	✓
Family details (partners and dependants)	✓	✓	✓	✓
50:50 option take-up	✓	✓	✓	✓
Commutation	✓	✓	✓	✓

[1] Mercer combine promotional salary scale into their general pay increase assumption.

Local Experience

A.6 The regulation requires that the reports "must *show how* the assumptions relate to the events which have actually occurred in relation to members of the Scheme since the last valuation." Most reports have *stated that* the assumptions have been updated to reflect experience. All funds have shown differences between expectations and experiences for the inter-valuation period, and the impact of these differences on the funding position. We note that this information may be contained in supporting (non-public) reports/advice.

Contribution Rates

A.7 Regulation 62 sets out that employer contributions are separated into two components: primary rates which meet the cost of ongoing accrual for current active members and secondary rates, which are mainly established to repay deficit or eliminate surplus over a given period (the deficit/surplus recovery period).

A.8 Regulation 62 (6) states that when setting the contribution rates the actuary must have regard to —

- the existing and prospective liabilities arising from circumstances common to all those bodies,
- the *desirability* of maintaining as nearly constant a common rate as possible,
- the current version of the administering authority's funding strategy mentioned in regulation 58 (funding strategy statements), and
- the *requirement* to secure the solvency of the pension fund and the long term cost efficiency of the Scheme, so far as relating to the pension fund.

A.9 Regulation 62 (4) states that the rates and adjustments certificate must specify both the primary rate of the employer's contribution and the secondary rate of the employer's contribution, for each year of the period of three years beginning with 1st April in the year following that in which the valuation date falls.

A.10 Each valuation report must set out primary and secondary employer contribution rates.

Primary Rates

A.11 Regulation 62 (5) defines the primary rate of an employer's contribution as "the amount in respect of the cost of future accruals which, in the actuary's opinion, should be paid to a fund by all bodies whose employees contribute to it so as to secure its solvency", and specifies that this must be expressed as a percentage of the pay of their employees who are active members.

A.12 The following table shows the primary rate of employer contribution for the administering authorities whole fund:

Table A4: Primary Contribution Rates

Fund	Primary rate of Employer Contribution
Merseyside (Mercer)	15.4%
Haringey (Hymans Robertson)	17.6%
Hampshire (Aon)	17.1%
Berkshire (Barnett Waddingham)	14.3%

A.13 Each primary rate of employer contribution has been calculated to cover the cost of future benefits accrued by their employees. Each valuation also provides a breakdown of the primary rate for each employer. Each valuation provides a secondary rate for each employer (expressed as a cash amount and/or percentage of pay for each employer).

Secondary Rates

A.14 Regulation 62 (7) states that the secondary contribution rate may be expressed as either a percentage or a monetary amount. Each valuation provides a secondary rate for each employer (expressed as a cash amount and/or percentage of pay for each employer). The secondary rates of employer contributions for each valuation have been defined to be adjustments to the primary rate as required. In all cases, the secondary rates have been provided for the next three years for each employer.

Table A5: Whole Fund Secondary Contribution Rates

	Whole fund secondary contribution rates		
Fund	**2017**	**2018**	**2019**
Merseyside (Mercer)	£136,300,000 less 0.9% of pensionable pay	£52,500,000 less 0.4% of pensionable pay	£53,600,000 plus 0.1% of pensionable pay
Haringey (Hymans Robertson)	£9,252,000	£8,612,000	£9,554,000
Hampshire (Aon)	£75,680,400 less 2.9% of pensionable pay	£81,548,300 less 1.9% of pensionable pay	£87,248,800 less 0.9% of pensionable pay
Berkshire (Barnett Waddingham)	£21,017,000 or 5.3% of pensionable pay	£27,468,000 or 6.7% of pensionable pay	£34,075,000 or 8.2% of pensionable pay

Rates and Adjustments Certificate Regulation 62 (8)

A.15 Regulation 62 (8) states that the rates and adjustments certificate must contain a statement of the assumptions on which the certificate is given as respects— (a) the number of members who will become entitled to payment of pensions under the provisions of the Scheme; and (b) the amount of the liabilities arising in respect of such members, during the period covered by the certificate.

A.16 In the following table we set out where the assumptions for each valuation can be found.

A.17 Each Rates and Adjustments Certificate contains a statement detailing the assumptions on which the certificate has been given and where to find them.

Regulation 62 (9)

A.18 Regulation 62 (9) States that the administering authority must provide the actuary preparing a valuation or a rates and adjustments certificate with the consolidated revenue account of the fund and such other information as the actuary requests.

A.19 Each valuation shows evidence of having received relevant data from the administering authority, including cash flows for the years 2014, 2015 and 2016.

Table A6: Location of assumptions

Fund	Statement in Rates and Adjustments Certificate	Location of assumptions in Valuation Report
Merseyside (Mercer)	✓	Appendix A
Haringey (Hymans Robertson)	✓	Appendix E
Hampshire (Aon)	✓	Appendix 5
Berkshire (Barnett Waddingham)	✓	Appendix 2 and Funding Strategy Statement

Appendix B: Consistency

B.1 In this appendix we set out analysis we undertook in relation to whether the actuarial valuations were carried out in a way which is not inconsistent with other valuations completed under the scheme regulations. This appendix contains comments and a number of charts referring to the following aspects:

- Key information
- Funding levels
- Discount rates
- Demographic assumptions

Key Information

B.2 Based on one report from each actuarial firm, table B1 sets out the outcomes for key information that we would expect to see in each valuation.

Table B1: Key Information

Demographic	Hampshire (Aon)	Berkshire (Barnett Waddingham)	Haringey (Hymans Robertson)	Merseyside (Mercer)
Funding level (assets/liabilities)	81%	73%	79%	85%
Market value of assets	£5.2b	£1.6b	£1.0b	£6.9b
Value of liabilities	£6.5b	£2.2b	£1.3b	£8.1b
Surplus (Deficit)	(£1.2b)	(£0.6b)	(£0.3b)	(£1.2b)
Deficit recovery end point*	2036	2040	2036	2035
Primary contribution rate (average for the fund)	17.1%	14.3%	17.6%	15.4%
Secondary contribution rate (average for the fund)	See below			
Employee contribution rate	6.5%	6.5%	6.5%	6.6%
Discount rate(s)	4.5%	5.7%**	4.0%	4.2%
Life expectancies	Given	Not given	Given	Given
Funding level on SAB basis***	Not given	Not given	94%	Not given

* derived from deficit recovery period; Berkshire stated as "illustrative", Haringey in Funding Strategy Statement
** Discount rate – Unitaries = 5.7%, discount rate Non-Unitaries = 5.5%
*** we note that it was agreed with SAB this need not be presented. We recommend this be reconsidered.

B.3 Most information was included for most funds, with some exceptions. All firms of actuarial advisors provide a detailed breakdown of the secondary contribution rates by employer for each of the next three years in their Rates and Adjustments Certificates. However, the summary statistics provided for the funds as a whole varied significantly between actuarial advisors. A standardised dashboard could help the reader make comparisons. We note that this information may be contained in supporting (non-public) reports/advice.

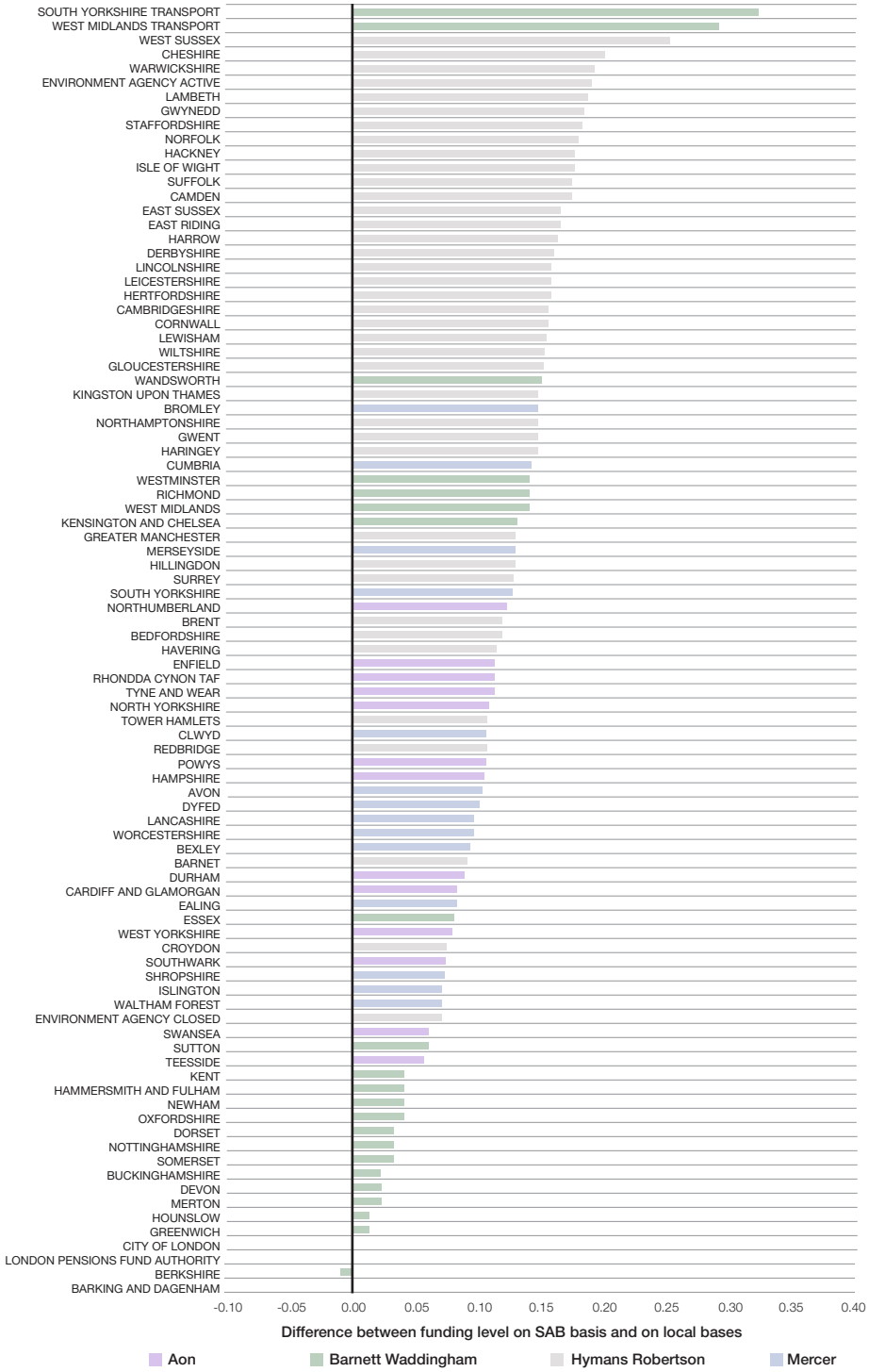
Funding Levels

B.4 Chart B1 shows how the ranking of local funding levels varies when results are restated onto the SAB standardised basis. We might expect the rankings of funding levels when calculated on the local bases to correspond roughly to the rankings of funding levels when calculated on the SAB standard basis. We would therefore expect the lines in Chart B1 joining each fund in the column on the left with itself in the column on the right to be roughly horizontal. However, we see that there is no clear correlation between how funds rank on local bases and how they rank on the SAB standard basis. To choose a typical example, Warwickshire is ranked mid-table on the local basis but is towards the top quartile of the table on the SAB standard basis, indicating that their local fund basis is, relatively, more prudent than other funds.

Chart B1: Standardising Local Valuation Results

2016 LOCAL BASES		SAB STANDARD BASIS	
103.4%	ENVIRONMENT AGENCY ACTIVE	BARKING AND DAGENHAM	N/A
103.0%	KENSINGTON AND CHELSEA	ENVIRONMENT AGENCY ACTIVE	122.6%
101.0%	WANDSWORTH	SOUTH YORKSHIRE TRANSPORT	121.0%
100.4%	TEESSIDE	WEST SUSSEX	120.3%
96.7%	DYFED	KENSINGTON AND CHELSEA	116.0%
96.0%	LDN PENSIONS FUND AUTHORITY	WANDSWORTH	116.0%
95.0%	WEST SUSSEX	WEST MIDLANDS TRANSPORT	111.0%
94.0%	MERTON	CHESHIRE	110.0%
93.8%	WEST YORKSHIRE	GWYNEDD	109.9%
93.8%	BEXLEY	ISLE OF WIGHT	109.3%
92.7%	GREATER MANCHESTER	EAST SUSSEX	108.8%
92.0%	EAST SUSSEX	SUFFOLK	108.7%
91.5%	ISLE OF WIGHT	HERTFORDSHIRE	107.3%
91.4%	BROMLEY	DYFED	106.8%
91.4%	HERTFORDSHIRE	BROMLEY	106.3%
91.3%	GWYNEDD	TEESSIDE	105.9%
91.1%	SUFFOLK	GREATER MANCHESTER	105.5%
91.0%	RICHMOND	RICHMOND	105.0%
91.0%	GREENWICH	CUMBRIA	104.9%
90.7%	CUMBRIA	EAST RIDING	104.6%
90.0%	NORTH YORKSHIRE	BEXLEY	103.0%
90.0%	OXFORDSHIRE	DERBYSHIRE	103.0%
89.9%	CHESHIRE	WARWICKSHIRE	101.7%
89.7%	LANCASHIRE	WEST YORKSHIRE	101.7%
89.0%	ESSEX	NORTH YORKSHIRE	100.7%
89.0%	KENT	LANCASHIRE	99.3%
89.0%	SOUTH YORKSHIRE TRANSPORT	ENFIELD	98.7%
88.0%	HAMMERSMITH AND FULHAM	NORFOLK	98.6%
87.9%	EAST RIDING	LAMBETH	98.6%
87.8%	SOUTHWARK	SOUTH YORKSHIRE	98.5%
87.4%	ENFIELD	MERSEYSIDE	97.6%
87.0%	BUCKINGHAMSHIRE	ESSEX	97.0%
87.0%	NOTTINGHAMSHIRE	TYNE AND WEAR	96.7%
86.7%	DERBYSHIRE	KINGSTON UPON THAMES	96.7%
85.9%	SOUTH YORKSHIRE	WILTSHIRE	96.6%
85.8%	AVON	STAFFORDSHIRE	96.3%
85.5%	TYNE AND WEAR	MERTON	96.0%
84.8%	MERSEYSIDE	LDN PENSIONS FUND AUTHORITY	96.0%
84.6%	CARDIFF AND GLAMORGAN	AVON	95.9%
84.3%	SHROPSHIRE	NORTHUMBERLAND	95.8%
84.0%	CITY OF LONDON	SOUTHWARK	95.5%
84.0%	DEVON	SURREY	95.1%
84.0%	HOUNSLOW	WEST MIDLANDS	95.0%
84.0%	NEWHAM	HACKNEY	94.9%
83.6%	NORTHUMBERLAND	GLOUCESTERSHIRE	94.7%
83.0%	DORSET	CAMBRIDGESHIRE	94.3%
82.8%	TOWER HAMLETS	WESTMINSTER	94.0%
82.6%	SURREY	OXFORDSHIRE	94.0%
82.3%	WARWICKSHIRE	LEWISHAM	94.0%
82.0%	WEST MIDLANDS TRANSPORT	CAMDEN	93.8%
81.7%	KINGSTON UPON THAMES	HARINGEY	93.5%
81.5%	WILTSHIRE	TOWER HAMLETS	93.4%
81.4%	DURHAM	NORTHAMPTONSHIRE	93.1%
81.1%	RHONDDA CYNON TAF	KENT	93.0%
81.0%	WEST MIDLANDS	LINCOLNSHIRE	92.8%
80.8%	HAMPSHIRE	CARDIFF AND GLAMORGAN	92.8%
80.4%	REDBRIDGE	RHONDDA CYNON TAF	92.3%
80.3%	NORFOLK	LEICESTERSHIRE	92.1%
80.0%	EALING	HAMMERSMITH AND FULHAM	92.0%
80.0%	WESTMINSTER	GREENWICH	92.0%
80.0%	SUTTON	SHROPSHIRE	91.4%
79.9%	LAMBETH	HAMPSHIRE	91.2%
79.8%	SWANSEA	REDBRIDGE	91.0%
79.7%	GLOUCESTERSHIRE	HARROW	91.0%
79.6%	POWYS	CORNWALL	90.9%
79.1%	HARINGEY	POWYS	90.2%
78.5%	CAMBRIDGESHIRE	DURHAM	90.1%
78.4%	ISLINGTON	NOTTINGHAMSHIRE	90.0%
78.4%	NORTHAMPTONSHIRE	BUCKINGHAMSHIRE	89.0%
78.4%	LEWISHAM	EALING	88.2%
78.0%	STAFFORDSHIRE	NEWHAM	88.0%
77.2%	BARKING AND DAGENHAM	HILLINGDON	87.8%
77.0%	HACKNEY	GWENT	86.8%
77.0%	SOMERSET	CLWYD	86.6%
76.9%	LINCOLNSHIRE	DEVON	86.0%
76.2%	CAMDEN	DORSET	86.0%
76.2%	LEICESTERSHIRE	SUTTON	86.0%
76.0%	CLWYD	SWANSEA	85.8%
75.2%	CORNWALL	ISLINGTON	85.4%
75.1%	HILLINGDON	HOUNSLOW	85.0%
74.9%	WORCESTERSHIRE	WORCESTERSHIRE	84.4%
74.3%	HARROW	CITY OF LONDON	84.0%
73.0%	BERKSHIRE	BEDFORDSHIRE	82.5%
73.0%	BARNET	BARNET	82.0%
72.9%	CROYDON	CROYDON	80.6%
72.2%	GWENT	SOMERSET	80.0%
70.8%	BEDFORDSHIRE	HAVERING	78.3%
69.8%	WALTHAM FOREST	WALTHAM FOREST	76.8%
66.8%	HAVERING	BERKSHIRE	72.0%
54.6%	BRENT	BRENT	66.3%
30.8%	ENVIRONMENT AGENCY CLOSED	ENVIRONMENT AGENCY CLOSED	37.7%

Chart B2: Difference Between Funding Level on SAB Standardised Basis and Funding Level on Local Bases



Discount Rates

B.5 Each firm of actuarial advisors applies a different method for calculating discount rates as shown in the table below[2]:

Table B2: Discount Rate Methodology

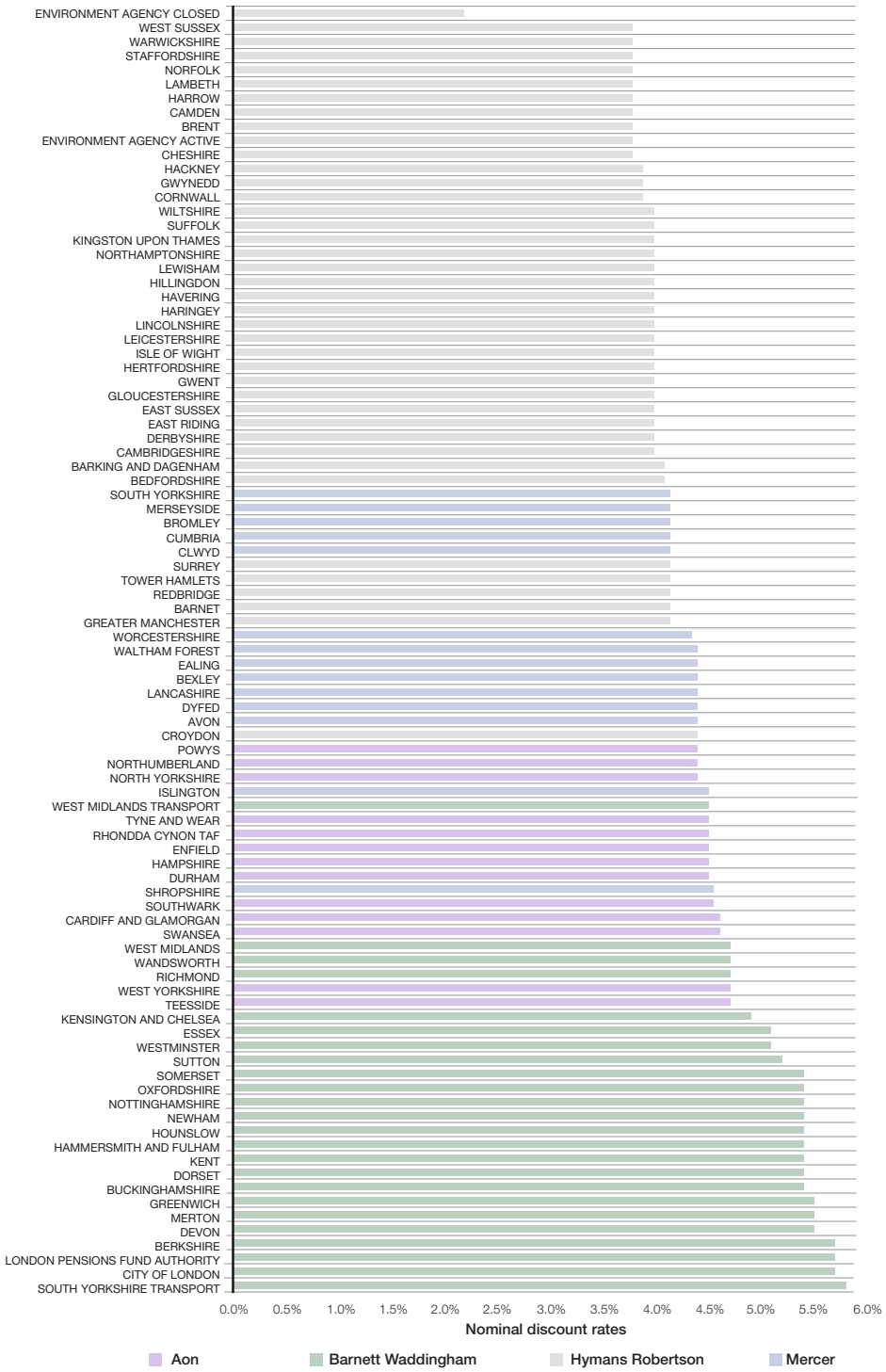
Firm of actuarial advisors	Discount rate methodology
Aon	Stochastic Method
Barnett Waddingham	Weighted average expected return on assets classes
Hymans Robertson	Gilts +
Mercer	CPI + real discount rate derived using stochastic modelling

B.6 Chart B3 shows the pre-retirement discount rate used to assess past service liability[3] applied in the actuarial valuations for each fund. The discount rates set by each fund are likely to be linked to the mix of assets held by the fund, and we would therefore expect to see differences in discount rate from fund to fund. Hymans Robertson and Mercer use different methods and/or discount rates for future contribution requirements.

[2] Note: the method of deriving discount rate is not shown in all reports, but was provided by each firm as part of GAD's data request.

[3] Note that some funds used different discount rates to assess past service liabilities and future service contribution rates, we consider only the former here.

Chart B3: Pre-retirement Discount Rates

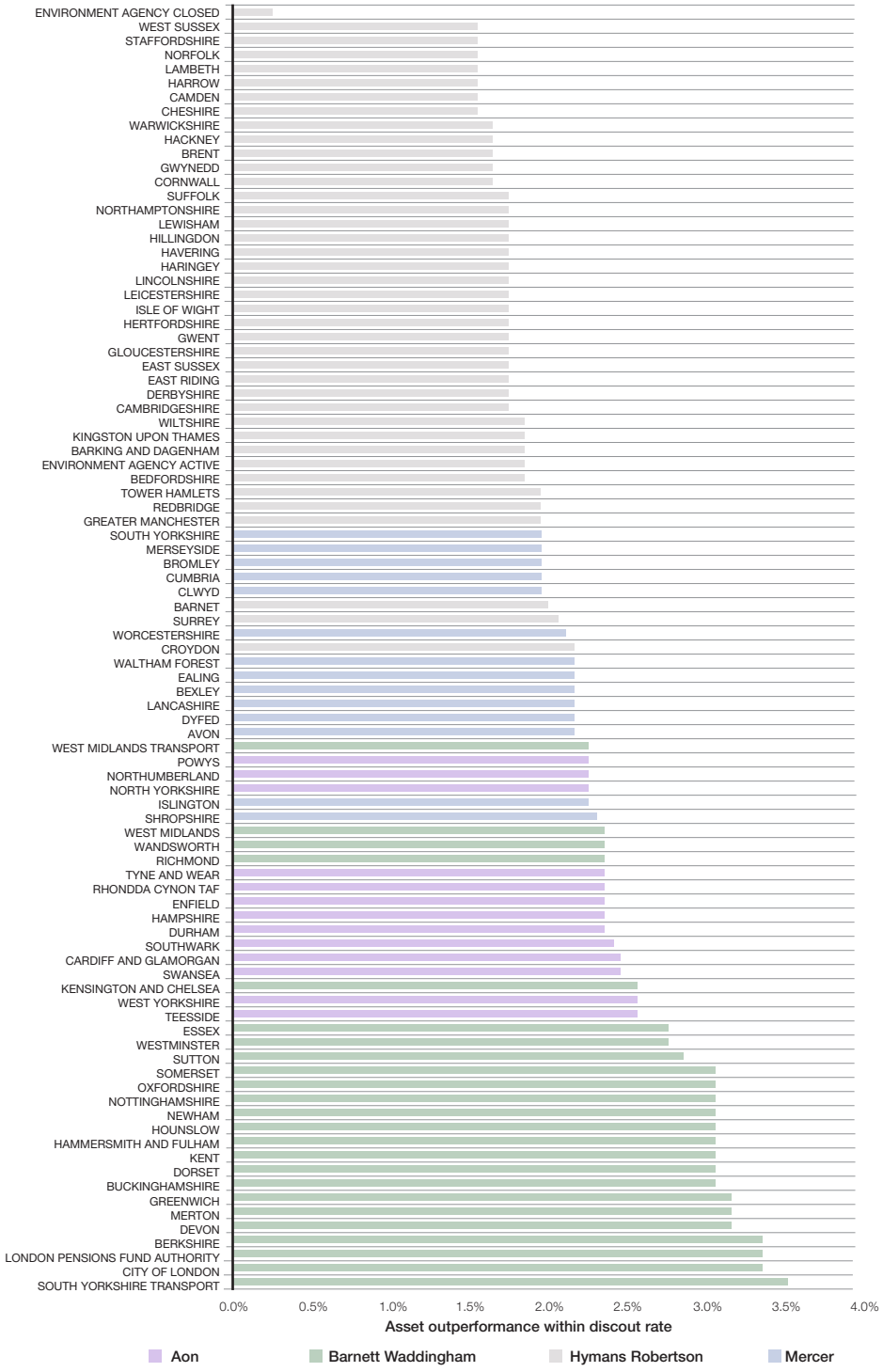


B.7 We assess implied asset outperformance as discount rate less risk free rate less RPI, where the risk free rate is taken to be the real 20 year Bank of England spot rate as at 31 March 2016 (-0.96%). Chart B4 shows the assumed asset out performance ("AOA") over and above the risk free rate, where AOA is calculated as the fund's nominal discount rate ("DR") net of:

- The RFR – the real 20 year Bank of England spot rate as at 31 March 2016
- Assumed CPI – as assumed by the fund in their 2016 actuarial valuation
- The excess of assumed RPI inflation over assumed CPI inflation ("$RPI–CPI$") – as assumed by the fund in their 2016 actuarial valuation

i.e. $AOA = DR–RFR–RPI$. (Chart B4 shows the implied rate of asset outperformance for each fund.)

Chart B4: Assumed Asset Outperformance within Discount Rate

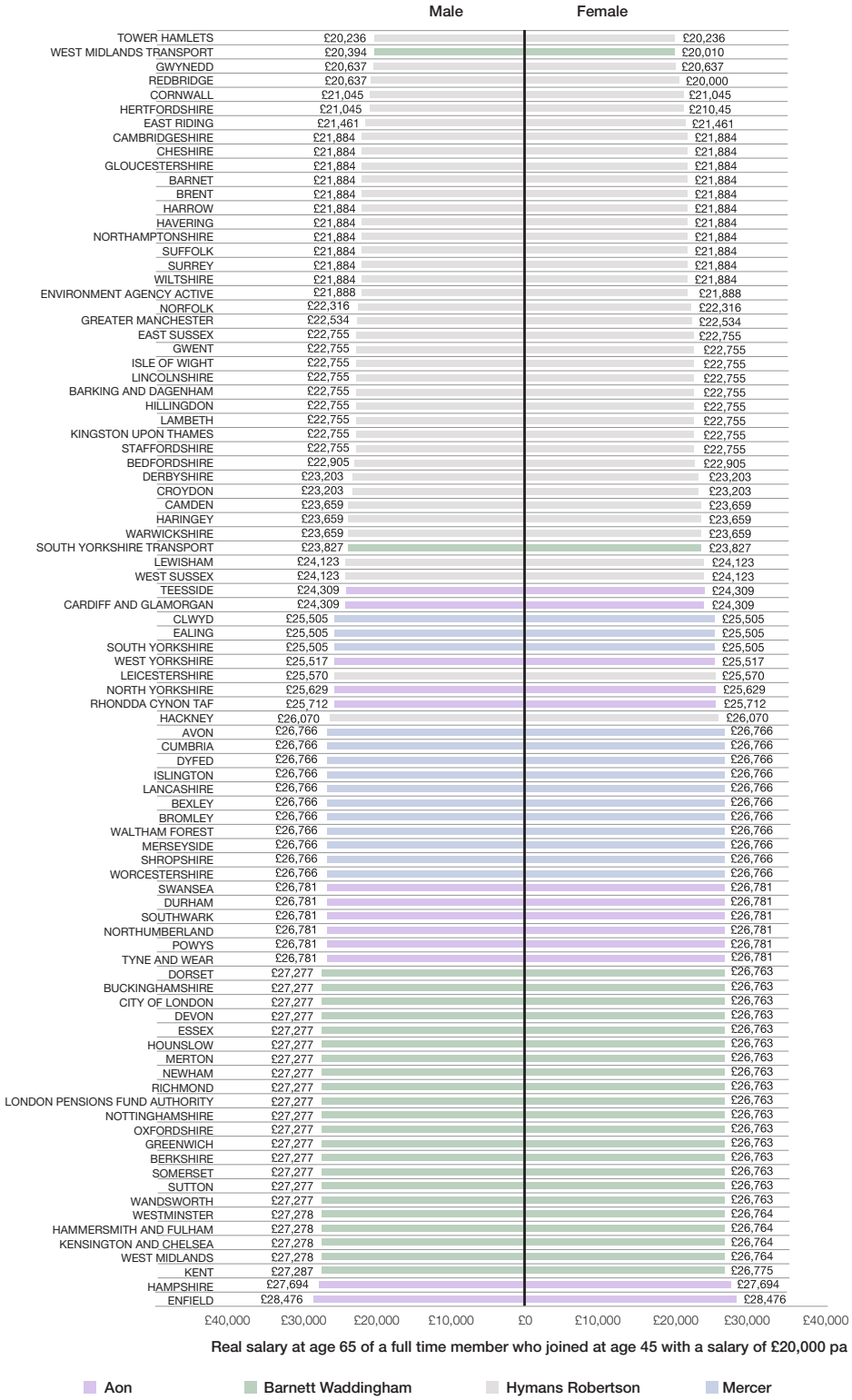


Demographic assumptions

B.8 Chart B5 shows the projected salary in present day terms at age 65 for a 45 year old currently earning £20,000 per year.

B.9 The chart indicates that assumed salary increases appear to follow a house view rather than explicitly reflecting local variations. We note that NJC pay bargaining affects all local councils.

Chart B5: Projected Real Salary at age 65 for a 45 year old currently earning £20k pa



B.10 Commutation assumptions (the extent to which members on average exchange pension in favour of a tax free cash benefit) are set as the percentage of the maximum commutable amount that a member is assumed to take on retirement. Chart B6 shows the assumed percentages for both pre 2008 and post 2008 pensions, which may be set separately.

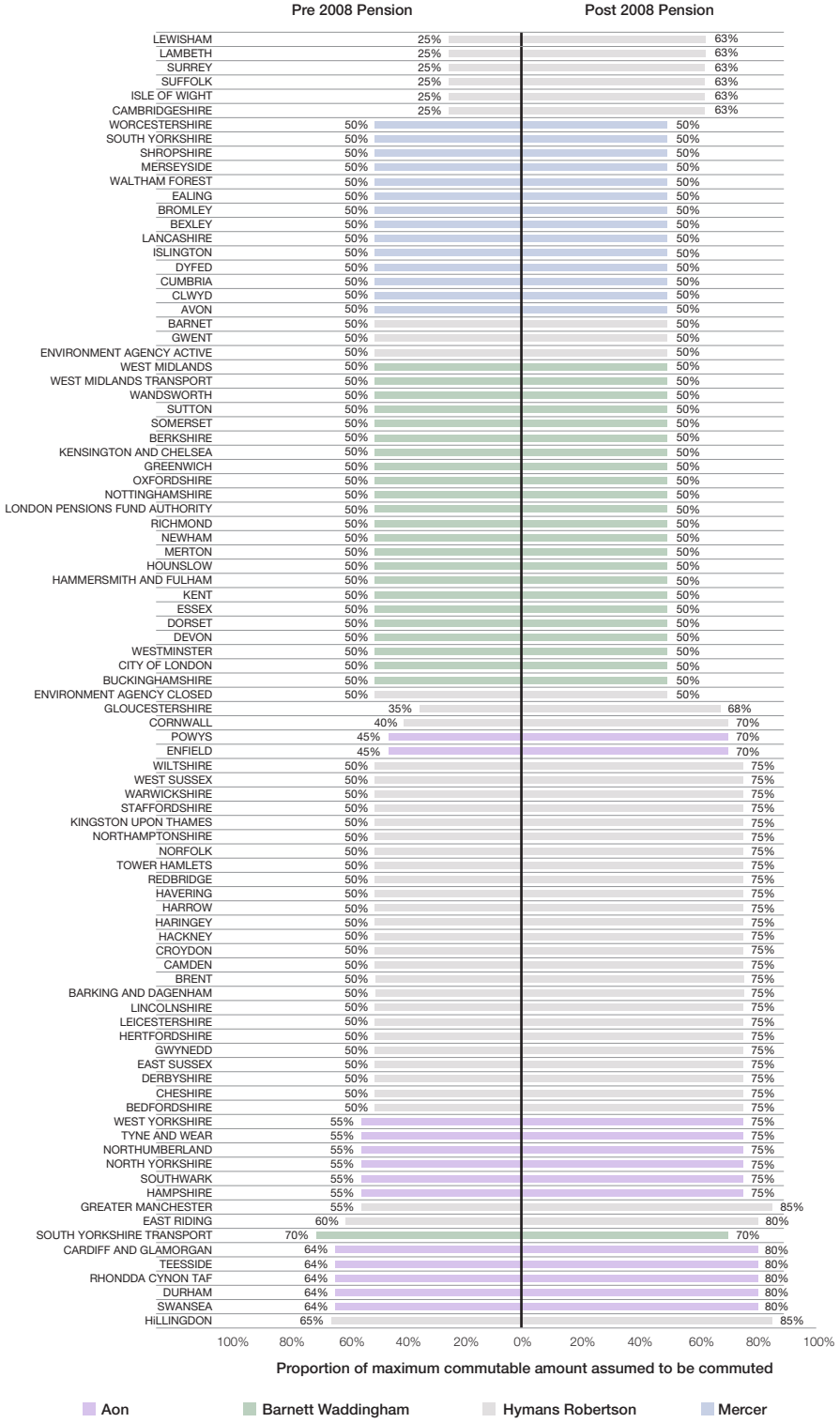
B.11 Other things being equal, it is more prudent to assume a lower rate of commutation, because the cost of providing a pension benefit is higher than the commutation factor. In addition, cash was provided as of right in the LGPS prior to 2008; whereas for benefits accrued after that date, cash was available only by commutation of pension.

B.12 The chart shows that all the funds advised by Mercer and most funds advised by Barnett Waddingham assume that members commute 50% of the maximum allowable amount. Funds advised by Aon assume that their members commute at least 70% of the maximum allowable amount for post 2008. There is more variation in the commutation assumptions made by funds advised by Hymans Robertson, but with a large cluster of funds assuming 50% for pre 2008 pensions and 75% for post 2008.

B.13 If it is the case that firms of actuarial advisors find that there is insufficient data to make assumptions on a fund by fund basis, then it would be reasonable for them to make the assumption based on scheme wide data. However, each advisor only has access to the data from the funds that it advises, and therefore can only base their assumptions on the data from those funds. Another firm of actuarial advisors has access to the data for a different collection of funds and therefore might draw a different conclusion as to what the scheme wide average commutation rate is.

B.14 The result is that each firm of actuarial advisors takes a “house view” on commutation assumptions rather than an approach clearly based on local conditions, which calls into question whether the consistency criterion of Section 13 has been met.

Chart B6: Commutation Assumptions for Pre and Post 2008 Pensions



Appendix C: Solvency

C.1 In this appendix we set out analysis we undertook in relation to whether the rate of employer contributions to the LGPS pension fund is set at an appropriate level to ensure the solvency of the pension fund. This appendix contains a description of:

- Solvency considerations
- Core Spending Power
- Mapping of solvency considerations to measures adopted
- Methodology used for solvency measures
- Table of outcomes for each fund

Potential for default

C.2 In the context of the LGPS:

- Our understanding based on confirmation from MHCLG is that, in contrast to employers in the private sector, there is no insolvency regime for local authorities
- Therefore, for the purposes of our analysis we assume that local authority sponsors cannot default on their pension liabilities through failure
- Members' benefits are therefore dependent on the assets of the scheme and future contributions from employers including local authorities

Solvency considerations

C.3 In assessing whether the conditions for solvency are met, we will have regard to:

Risks already present:

- funding level on the SAB standard basis
- whether or not the fund continues to be open to new members. If the fund is closed to new members or is highly mature, we will focus on the ability to meet additional cash contributions
- the ability of tax raising authorities to meet employer contributions

Emerging risks:

- the risks posed by changes to the value of scheme assets (to the extent that these are not matched by changes to the scheme liabilities)
- the proportion of scheme employers without tax raising powers or without statutory backing

C.4 We express the emerging risks in the context of Core Spending Power[4] (for English local authorities, described below) or financing data (for Welsh local authorities).

Core Spending Power

C.5 GAD's stress tests are designed to test the ability of the underlying tax raising employers to meet a shock in the fund; one that results in a sustained reduction of the funding position, requiring remedial action from those employers in the form of long term additional contributions.

[4] For some funds, employers do not include local authorities with Core Spending Power or financing data, in which case we have followed the same approach used in the dry run.

C.6 The purpose is to put this in the context of the financial resources available to those tax raising employers. In order to do that, MHCLG has pointed to an objective, well used and publicly available measure referred to as Core Spending Power. This applies for all local authorities across England and is published here[5].

C.7 Core Spending Power has the following components:

- Modified Settlement Funding Assessment
- Estimated Council Tax excluding Parish Precepts
- Potential additional Council Tax revenue from Adult Social Care flexibility
- Potential additional Council Tax revenue from £5 referendum principle for districts with lower quartile Band D Council Tax levels
- Proposed Improved Better Care Fund
- New Homes Bonus
- Rural Services Delivery Grant

C.8 GAD have referenced Core Spending Power for 2016-17 (to be consistent with the effective date of the data provided for Section 13) as the measure of financial resource of the underlying (tax raising) employers, and amalgamated these up to the fund level, in order to compare like with like.

C.9 Core Spending Power is not a measure of total local authority income. It does not include commercial income, sales fees and charges, or ring-fenced grants (except improved Better Care Fund). Core Spending Power includes an assumed modelled amount of locally retained business rates and as such does not include growth (or falls) in actual retained business rates. In some authorities, non-uniformed police employees participate in the LGPS, but their funding comes from Home Office. On the basis that the majority of this applies to uniformed police officers, no adjustment is made for it. Similarly DfE funding for academies is not included.

C.10 Because Core Spending Power is publicly available and objective, MHCLG have advised it is the best such measure available currently.

C.11 Core Spending Power does not apply to Welsh local authorities. For Welsh funds GAD have used "financing of gross revenue expenditure" ("financing data"), which is broadly comparable with Core Spending Power, following discussions with Welsh Government. This applies for all local authorities in Wales and is published here[6].

C.12 Financing data has the following components which GAD have included for the purpose of Section 13 analysis:

- Adjustments (including amending reports)
- Council tax reduction scheme (including RSG element)
- Discretionary non-domestic rate relief
- General government grants
- Share of re-distributed non-domestic rates
- Amount to be collected from council tax

[5] https://www.gov.uk/government/publications/core-spending-power-final-local-government-finance-settlement-2018-to-2019
[6] https://www.gov.uk/government/publications/core-spending-power-final-local-government-finance-settlement-2018-to-2019

C.13 Financing data also has the following components which we have not included for the purpose of Section 13 analysis:

- Specific grants
- Appropriations from(+) / to(-) reserves

C.14 We have referenced financing data for 2016-17 (to be consistent with the effective date of the data provided for Section 13) as the measure of financial resource of the underlying (tax raising) employers, and amalgamated these up to the fund level, in order to compare like with like.

C.15 Similarly to Core Spending Power, financing data excludes income from sales, fees and charges.

C.16 Similarly to Core Spending Power, We have excluded police funding from the analysis.

Solvency measures

C.17 For the 2016 exercise, we have tested the following five metrics under solvency. We developed other measures but have not used them. For example, we considered that liability shock did not add value under current circumstances beyond what was already measured under asset shock.

Table C1: 2016 Solvency measures

Consideration	Measure Used
Risks already present:	
The relative ability of the fund to meet its accrued liabilities	**SAB funding level:** A fund's funding level using the SAB standard basis, as set out in Appendix D
The extent to which the fund continues to be open to new members. If a fund is closed to new members or is highly mature, we will focus on the ability to meet additional cash contributions	**Open fund:** Whether the fund is open to new members
The proportion of scheme employers without tax raising powers or without statutory-backing	**Non-statutory members:** The proportion of members within the fund who are/were employed by an employer without tax raising powers or statutory backing
Emerging risks:	
The cost risks posed by changes to the value of scheme assets (to the extent that these are not matched by changes to the scheme liabilities)	**Asset shock:** The change in average employer contribution rates expressed as a percentage of Core Spending Power (or financing data) after a 15% fall in value of return-seeking assets
The impact that non-statutory employers defaulting on contributions would have on the income of sponsoring employers as a whole	**Employer default:** The change in average employer contribution rates as a percentage of Core Spending Power (or financing data) if all employers without tax raising powers or statutory backing default on their existing deficits

C.18 Emerging risk measures require assumptions. We used best estimate assumptions for this purpose, details of which can be found in Appendix G. Details of the methods used to calculate scores under each measure and the criteria used to assign a colour code can be found in this chapter.

Funds with no or low core spending

C.19 There were six funds with no or low core spending

- Environmental Agency Active Fund
- Environmental Agency Closed Fund
- West Midlands Integrated Transport Authority Pension Fund
- South Yorkshire Passenger Transport Authority Pension Fund
- London Pension Fund Authority Pension Fund
- City of London Corporation Pension Fund

C.20 For each of these funds, we have reverted to the dry run methodology for asset and liability shock, which expressed the resulting additional contributions to meet the emerging deficit as a percentage of pensionable pay.

Solvency measures – methodology

C.21 This Appendix details the methodology behind the measures used to assess a fund's solvency position. Some of the measures listed below were calculated using a market consistent set of assumptions. For more information on this best estimate basis please see Appendix G.

SAB funding level: *A fund's funding level using the SAB standard basis*

C.22 This measure highlights possible risks to a fund as a result of assets being significantly lower than liabilities, where liabilities are those estimated on the SAB standard basis detailed in Appendix G.

C.23 A fund in deficit will need to pay additional contributions in order to meet the liabilities that have already been accrued.

C.24 This measure assesses the relative funding levels of individual funds. All funds have been ordered by this measure (highest funding level first) and the ten funds ranked 81 to 90 out of 91 (i.e. not including Environment Agency Closed Fund) are assigned an amber colour code. All other funds are assigned a green colour code.

Open fund: *Whether the fund is open to new members*

C.25 A scheme that is closed to new members will be closer to maturity than a scheme which is still open. This creates a possible risk to sponsoring employees as there is less scope to make regular contributions and receive investment returns on those contributions. Additionally, if problems do occur with the scheme funding level, the reduced time to maturity of the scheme means that additional contributions must be spread over a shorter timeframe, and could be more volatile as a result.

C.26 This measure is a *'Yes'* when a fund is still open to new members and a *'No'* otherwise. A *'Yes'* results in a green colour code, while a *'No'* results in a red colour code.

Non-statutory members: *The proportion of members within the fund who are employed by an employer without tax raising powers or statutory backing*

C.27 We have considered tax payer-backed employers of stronger covenant value than other employers. It is important, in this context, that administering authorities and other employers understand the potential cost that may fall on taxpayers in the future if employers without statutory backing or tax raising powers are unable to meet their required contributions and those with such powers become responsible for the accrued costs.

C.28 Data for this measure has been taken from the publicly available ***'Local government pension scheme funds local authority data: 2016 to 2017'*** published by DCLG[7]. The data contains the number of employees within each fund by employer group, where:

- Group 1 refers to local authorities and connected bodies
- Group 2 refers to centrally funded public sector bodies
- Group 3 refers to other public sector bodies and
- Group 4 refers to private sector, voluntary sector and other bodies

C.29 For the purposes of this measure, and unless information has been provided to the contrary, it has been assumed that employers listed under groups 1 and 2 are those ***with*** tax raising powers or statutory backing and that employers listed under groups 3 and 4 are those ***without*** tax raising powers or statutory backing.

C.30 The measure therefore gives the proportion of members within the fund that are/were employed by group 1 and 2 employers as a proportion of all members within the fund.

C.31 Under this measure a fund has been allocated a red colour code if its proportion of members who are employed by an employer without tax raising powers or statutory backing is greater than 50%.

C.32 A fund has been allocated an amber colour code if its proportion of members who are employed by an employer without tax raising powers or statutory backing is between 25% and 50%, and a green colour code in all other cases.

Asset shock: *The change in average employer contribution rates as a percentage of Core Spending Power or financing data after a 15% fall in value of return-seeking assets*

C.33 This measure shows the effect on total employer contribution rates of a one-off decrease in the value of a fund's return seeking assets equal to 15% of the value of those assets expressed as a percentage of Core Spending Power or financing data. Defensive assets are assumed to be unaffected.

C.34 For the purposes of this measure liabilities have restated on the standardised best estimate basis and deficit recovery periods have been standardised using a period of 20 years to ensure that results are comparable. Where a fund is in surplus under the standardised best estimate basis, the surplus is assumed to be paid back to the employer over a period of 20 years. However, where the fund is in surplus after the shock, we have not applied a flag.

C.35 Return-seeking asset classes are assumed to be:

- Overseas Equities
- UK Equities
- Other Investments
- Property
- Other return seeking assets

[7] https://www.gov.uk/government/collections/local-government-pension-scheme

Defensive asset classes are assumed to be:

- Cash
- Gilts
- Corporate Bonds
- Other defensive assets

C.36 We calculated the emerging deficit from the shock following a 15% fall in return seeking assets applying to tax raising employers (local authorities and connected bodies & other public sector bodies):

$$New\ Defecit = (Pre\ stress\ asset\ value - post\ stress\ asset\ value) \times \%\ Tax\ raising\ employers$$

C.37 We spread this over 20 years of annual payments and express as a percentage of Core Spending Power (or financing data for Welsh funds)

$$\frac{New\ Defecit}{\bar{a}_{20} \times Core\ Spending\ Power}$$

C.38 Where:

- new deficit is calculated on the standardised best estimate basis as at 31 March 2016
- $\bar{a}_{20}$ is a continuous annuity over the 20 year deficit recovery period at the rate of interest equal to $\frac{1+i}{1+e} - 1$.
- i is the nominal discount rate assumption on the standardised best estimate basis.
- e is the general earnings inflation assumption on the standardised best estimate basis

C.39 A fund is allocated an amber colour code if its result is above 3% and a green colour code otherwise.

C.40 For those funds with no/low core spending, the change of contribution rate was expressed as a percentage of pensionable pay, with an amber flag raised if that was greater than 5%. No results are available for the Environment Agency Closed Fund as there are no remaining active members within the fund with which to calculate contribution rates.

Funds in surplus after shock

C.41 The asset shock resulted in a reduction to the funding level of the scheme on GAD's best estimate basis. However if the fund was in surplus post shock (the funding level was in excess of 100% after the shock) the fund would not receive a flag.

C.42 However, the risk remains that such an event could bring forward the need to increase contributions for the following funds:

- East Riding Pension Fund
- Greater Manchester Pension Fund
- Royal Borough of Kensington and Chelsea Pension Fund
- Teesside Pension Fund
- Wandsworth Council Pension Fund

Equity Protection Strategy

C.43 South Yorkshire Pension Fund has recently added a protection strategy to attempt to limit downside risk from its equity portfolio. The intention of this strategy is to protect £2.6bn of the equity portion of the fund against falls in total return of between 5% and 30%, by giving up total returns above 14.25% over a two year period.

C.44 The strategy has been implemented through buying and selling options and giving up sufficient upside to reduce the net cost to zero. On implementation there was actually a net gain to the scheme of £73k. The structure has been implemented in four parts based on four indices: S&P 500 (c£1bn), FTSE 100 (c£0.9bn), Euro Stoxx 50 (c£0.6bn), Nikkei 225 (c£0.2bn).

C.45 We have not adjusted our asset shock outcomes to reflect this strategy. Although we consider such a strategy may benefit funds wishing to protect their downside risk, and which may mean the premise for our asset shock could change, we would need to understand this in more detail, and that may be appropriate if the strategy is maintained or extended through to the next valuation.

Employer default: *The change in average employer contribution rates as a percentage of payroll if all employers without tax raising powers or statutory backing default on their existing deficits*

C.46 LGPS regulations require employers to pay contributions set in the valuation. DCLG has confirmed that:

- there is a guarantee of LGPS pension liabilities by a public body;
- that public body is incapable of becoming insolvent; and
- the governing legislation is designed to ensure the solvency and long term economic efficiency of the Scheme.

C.47 It is important, in this context, that administering authorities and other employers understand the potential cost that may fall on taxpayers in the future if employers without statutory backing or tax raising powers are unable to meet their required contributions and those with such powers become responsible for the accrued costs.

C.48 For the purposes of this measure liabilities have been restated on the standardised best estimate basis and deficit recovery periods have been standardised using a period of 20 years to ensure that results are comparable. Where a fund is in surplus under the standardised best estimate basis, the surplus is assumed to be paid back to the employer over a period of 20 years. However, where the fund is in surplus after the shock, we have not applied a flag.

C.49 A fund's deficit will not change as a result of the default, but as the deficit is spread over a smaller number of employers, the contribution rate for each remaining employer will increase.

C.50 If an employer defaults when the fund is in surplus, the risk is mitigated, so we have not considered funds in surplus on the standardised best estimate basis for this measure.

C.51 We calculated the amount of deficit from the default of other public sector bodies & private sector, voluntary sector and other bodies:

$$Share\ of\ Defecit = Defecit \times \%\ non\text{-}tax\ raising\ employers$$

C.52 We spread this over 20 years of annual payments and express as a percentage of Core Spending Power (or financing data for Welsh funds)

$$\frac{Share\ of\ Defecit}{\bar{a}_{20} \times Core\ Spending\ Power}$$

C.53 Where:

- Share of deficit is calculated on the standardised best estimate basis as at 31 March 2016
- $\bar{a}_{20}$ is a continuous annuity over the 20 year deficit recovery period at the rate of interest equal to $\frac{1+i}{1+e} - 1$.
- i is the nominal discount rate assumption on the standardised best estimate basis.

- e is the general earnings inflation assumption on the standardised best estimate basis

C.54 A fund is allocated an amber colour code if its result is greater than 3% and a green colour code otherwise.

Covenant review comments

C.55 We are aware that a significant amount of work goes on by fund managers in relation to covenant of employers.

C.56 Specific covenant reviews are conducted each year in respect of the employers in the WMITA fund.

C.57 We have discussed this covenant work with a range of fund managers, as well as the Pensions Regulator. It helps protect each fund against the risk of the employer defaulting on its obligations to the fund.

C.58 We include a measure for high proportion of non-tax backed employees as a proxy for the risk that their employers do default. We also do a stress test on this item to see if it has a material impact on the finances of the local authorities that may retain any residual deficit in relation to those employers. By doing these tests, it is not our intention to comment on the covenant work that goes on, rather to highlight that there remains some risk.

C.59 This risk exists because those employers have a different potential impact on the funds, and the tax raising employers retain the risk should an employer default.

Solvency measures – by fund

Table C2: Solvency measures by fund

	2016 solvency measures				
Pension fund	**Open fund**	**SAB funding level**	**Non-Statutory employees**	**Asset shock**	**Employer default**
Avon Pension Fund	Yes	95.9%	5.5%	2.0%	Surplus
Bedfordshire Pension Fund	Yes	82.5%	4.2%	1.8%	0.1%
Buckinghamshire County Council Pension Fund	Yes	89.0%	4.8%	1.9%	0.0%
Cambridgeshire Pension Fund	Yes	94.3%	3.8%	2.2%	Surplus
Cardiff and Vale of Glamorgan Pension Fund	Yes	92.8%	6.7%	1.5%	Surplus
Cheshire Pension Fund	Yes	110.0%	7.6%	Surplus	Surplus
City and County of Swansea Pension Fund	Yes	85.8%	10.2%	1.4%	0.1%
City of London Corporation Pension Fund *	Yes	84.0%	10.6%	3.6%*	1.1%
City of Westminster Pension Fund	Yes	94.0%	0.0%	2.9%	Surplus
Clwyd Pension Fund	Yes	86.6%	2.4%	0.9%	0.0%
Cornwall Pension Fund	Yes	90.9%	6.3%	1.1%	Surplus
Cumbria Local Government Pension Scheme	Yes	104.9%	7.2%	Surplus	Surplus
Derbyshire Pension Fund	Yes	103.0%	4.5%	Surplus	Surplus
Devon County Council Pension Fund	Yes	86.0%	24.9%	2.5%	0.3%
Dorset County Pension Fund	Yes	86.0%	4.9%	1.9%	0.1%
Durham County Council Pension Fund	Yes	90.1%	3.8%	2.1%	0.0%
Dyfed Pension Fund	Yes	106.8%	3.8%	Surplus	Surplus
East Riding Pension Fund	Yes	104.6%	3.0%	Surplus	Surplus
East Sussex Pension Fund	Yes	108.8%	1.7%	Surplus	Surplus
Essex Pension Fund	Yes	97.0%	9.6%	2.1%	Surplus
Gloucestershire County Council Pension Fund	Yes	94.7%	9.6%	2.0%	Surplus
Greater Gwent (Torfaen) Pension Fund	Yes	86.8%	7.3%	1.5%	0.0%
Greater Manchester Pension Fund	Yes	105.5%	22.8%	Surplus	Surplus
Gwynedd Pension Fund	Yes	109.9%	3.4%	Surplus	Surplus
Hampshire County Council Pension Fund	Yes	91.2%	3.5%	1.9%	Surplus
Hertfordshire County Council Pension Fund	Yes	107.3%	5.8%	Surplus	Surplus
Isle of Wight Council Pension Fund	Yes	109.3%	2.7%	Surplus	Surplus
Islington Council Pension Fund	Yes	85.4%	5.9%	2.6%	0.1%
Kent County Council Pension Fund	Yes	93.0%	8.7%	2.1%	Surplus
Lancashire County Pension Fund	Yes	99.3%	7.9%	2.7%	Surplus
Leicestershire County Council Pension Fund	Yes	92.1%	5.0%	2.1%	Surplus

Pension fund	2016 solvency measures				
	Open fund	SAB funding level	Non-Statutory employees	Asset shock	Employer default
Lincolnshire Pension Fund	Yes	92.8%	2.6%	2.1%	Surplus
London Borough of Barking and Dagenham Pension Fund	Yes	90.6%	2.9%	2.3%	0.0%
London Borough of Barnet Pension Fund	Yes	82.0%	11.8%	1.7%	0.2%
London Borough of Bexley Pension Fund	Yes	103.0%	5.7%	1.9%	Surplus
London Borough of Brent Pension Fund	Yes	66.3%	13.4%	1.2%	0.6%
London Borough of Bromley Pension Fund	Yes	106.3%	2.4%	Surplus	Surplus
London Borough of Camden Pension Fund	Yes	93.8%	8.7%	2.6%	Surplus
London Borough of Croydon Pension Fund	Yes	80.6%	3.6%	1.3%	0.1%
London Borough of Ealing Pension Fund	Yes	88.2%	11.0%	1.8%	0.1%
London Borough of Enfield Pension Fund	Yes	98.7%	1.5%	1.4%	Surplus
London Borough of Hackney Pension Fund	Yes	94.9%	0.0%	2.2%	Surplus
London Borough of Hammersmith and Fulham Pension Fund	Yes	92.0%	13.2%	2.4%	Surplus
London Borough of Haringey Pension Fund	Yes	93.5%	0.0%	2.5%	Surplus
London Borough of Harrow Pension Fund	Yes	91.0%	1.7%	1.9%	0.0%
London Borough of Havering Pension Fund	Yes	78.3%	1.1%	1.3%	0.0%
London Borough of Hillingdon Pension Fund	Yes	87.8%	1.2%	1.6%	0.0%
London Borough of Hounslow Pension Fund	Yes	85.0%	12.6%	1.8%	0.2%
London Borough of Lambeth Pension Fund	Yes	98.6%	0.0%	1.9%	Surplus
London Borough of Lewisham Pension Fund	Yes	94.0%	5.8%	2.1%	Surplus
London Borough of Merton Pension Fund	Yes	96.0%	2.4%	1.7%	Surplus
London Borough of Newham Pension Fund	Yes	88.0%	1.3%	2.4%	0.0%
London Borough of Redbridge Pension Fund	Yes	91.0%	10.5%	1.2%	0.0%
London Borough of Richmond Upon Thames Pension Fund	Yes	105.0%	3.8%	Surplus	Surplus
London Borough of Southwark Pension Fund	Yes	95.5%	3.2%	2.3%	Surplus
London Borough of Tower Hamlets Pension Fund	Yes	93.4%	0.0%	2.3%	Surplus
London Borough of Waltham Forest Pension Fund	Yes	76.8%	3.1%	1.3%	0.1%
Merseyside Pension Fund	Yes	97.6%	12.7%	3.0%[8]	Surplus
Norfolk Pension Fund	Yes	98.6%	8.7%	2.1%	Surplus
North Yorkshire Pension Fund	Yes	100.7%	2.0%	2.6%	Surplus
Northamptonshire Pension Fund	Yes	93.1%	1.6%	2.0%	Surplus
Northumberland County Council Pension Fund	Yes	95.8%	4.5%	2.4%	Surplus
Nottinghamshire County Council Pension Fund	Yes	90.0%	6.2%	2.8%	0.0%
Oxfordshire County Council Pension Fund	Yes	94.0%	4.4%	2.5%	Surplus

[8] Unrounded figure is less than 3%

Pension fund	2016 solvency measures				
	Open fund	SAB funding level	Non-Statutory employees	Asset shock	Employer default
Powys County Council Pension Fund	Yes	90.2%	5.1%	1.2%	0.0%
Rhondda Cynon Taf County Borough Council Pension Fund	Yes	92.3%	5.9%	2.0%	Surplus
Royal Borough of Greenwich Pension Fund	Yes	92.0%	6.8%	1.7%	Surplus
Royal Borough of Kensington and Chelsea Pension Fund	Yes	116.0%	7.1%	Surplus	Surplus
Royal Borough of Kingston Upon Thames Pension Fund	Yes	96.7%	13%	2.5%	Surplus
Royal County of Berkshire Pension Fund	Yes	72.0%	5.5%	1.5%	0.2%
Shropshire County Pension Fund	Yes	91.4%	9.8%	1.8%	Surplus
Somerset County Council Pension Fund	Yes	80.0%	21.9%	2.7%	0.7%
South Yorkshire Pension Fund	Yes	98.5%	9.6%	3.0%	Surplus
Staffordshire Pension Fund	Yes	96.3%	6.6%	2.9%	Surplus
Suffolk Pension Fund	Yes	108.7%	24.5%	Surplus	Surplus
Surrey Pension Fund	Yes	95.1%	5.1%	2.0%	Surplus
Sutton Pension Fund	Yes	86.0%	4.4%	1.3%	0.0%
Teesside Pension Fund	Yes	105.9%	9.7%	Surplus	Surplus
Tyne and Wear Pension Fund	Yes	96.7%	11.8%	3.5%	Surplus
Wandsworth Council Pension Fund	Yes	116.0%	8.9%	Surplus	Surplus
Warwickshire Pension Fund	Yes	101.7%	5.9%	2.2%	Surplus
West Midlands Pension Fund	Yes	95.0%	4.1%	2.7%	Surplus
West Sussex County Council Pension Fund	Yes	120.3%	5.7%	Surplus	Surplus
West Yorkshire Pension Fund	Yes	101.7%	13.4%	3.7%	Surplus
Wiltshire Pension Fund	Yes	96.6%	21.8%	2.6%	Surplus
Worcestershire County Council Pension Fund	Yes	84.4%	9.0%	2.2%	0.1%
Environment Agency Active Fund*	Yes	122.6%	N/A	Surplus*	N/A
Environment Agency Closed Fund	No	37.7%	N/A	N/A	N/A
South Yorkshire Passenger Transport Pension Fund*	No	121.0%	100.0%	Surplus*	N/A
West Midlands Integrated Transport Authority Pension Fund*	No	111.0%	100.0%	Surplus*	N/A
London Pensions Fund Authority Pension Fund*	Yes	96.0%	19.7%	7.4%*	N/A

Notes:

1. Funding levels are on the SAB standard basis.
2. The liability value and salary roll figures in the maturity indicator are as at 31 March 2016. The liability value was calculated on the standardised best estimate basis.
3. For funds marked * against asset shock we have assessed the shock as a percentage of pensionable pay (as we did in the dry run)

Appendix D: Long term cost efficiency

D.1 We developed a series of relative and absolute considerations to help assess whether the contributions met the aims of section 13 under long term cost efficiency. This appendix contains a description of:

- Mapping of long term cost efficiency considerations to measures adopted
- Methodology used for long term cost efficiency measures
- Table of outcomes for each fund

Table D1: Long Term Cost Efficiency Considerations and Measures

Consideration	Measure Used
Relative considerations:	
The implied deficit recovery period	**Deficit Period:** Implied deficit recovery period calculated on a standardised best estimate basis (SAB key indicator 3)
The investment return required to achieve full funding	**Required Return:** The required investment return rates to achieve full funding in 20 years' time on a standardised best estimate basis (SAB key indicator 4(i))
The pace at which the deficit is expected to be paid off	**Repayment Shortfall:** The difference between the actual deficit recovery contribution rate and the annual deficit recovery contributions required as a percentage of payroll to pay off the deficit in 20 years, where the deficit is calculated on a standardised best estimate basis
Absolute Considerations:	
The extent to which the required investment return above is less than the estimated future return being targeted by a fund's investment strategy	**Return Scope:** The required investment return rates as calculated in required return (i.e. SAB key indicator 4(i)), compared with the fund's expected best estimate future returns assuming current asset mix maintained (SAB key indicator 4(ii))
The extent to which any deficit recovery plan can be reconciled with, and can be demonstrated to be a continuation of, the previous deficit recovery plan, after allowing for actual fund experience	**Deficit Reconciliation:** Confirmation that the deficit period can be demonstrated to be a continuation of the previous deficit recovery plan, after allowing for actual fund experience.

D.2 For the 2016 report, we have removed some measures which represented the same information in a slightly different way to make the report more succinct.

D.3 Three of these measures were selected from the KPIs defined by the SAB[9]. The selected SAB measures have been augmented with two additional measures which we believe are appropriate in helping to assess whether the aims of section 13 are met.

D.4 The analyses and calculations carried out under these long term cost efficiency measures are approximate. They rely on the accuracy of the data provided by the respective local firms of actuarial advisors.

D.5 Although the calculations are approximate, we consider they are sufficient for the purposes of identifying which funds are a cause for concern. While the measures should not represent targets, these measures help us determine whether a more detailed review is required; for example, we would have concern where multiple measures are triggered amber for a given fund.

Long term cost efficiency measures – methodology

D.6 We detail the methodology behind the measures used to assess a fund's long term cost efficiency position below. Some of the measures listed were calculated using a best estimate set of assumptions. For more information on this best estimate basis please see Appendix G.

Deficit period: *The implied deficit recovery period calculated on a standardised best estimate basis*

D.7 This measure is based on SAB key indicator 3. However, as the SCAPE discount rate used in the SAB standard basis is not market-related, the calculations are done on a standardised best estimate basis.

D.8 The implied deficit recovery period on the standardised best estimate basis was found by solving the following equation for x:

$$\bar{a}_x = \frac{\textit{Defecit on standardised BE basis}}{\textit{Annual defecit recovery payment on standardised BE basis}}$$

D.9 Where:

- x is the implied deficit recovery period.
- $\bar{a}_x$ is a continuous annuity over x years at the rate of interest equal to $\frac{1+i}{1+e} - 1$.
- i is the nominal discount rate assumption on the standardised best estimate basis.
- e is the general earnings inflation assumption on the standardised best estimate basis.
- The deficit on the standardised best estimate basis is as at 31 March 2016.
- The annual deficit recovery payment on the standardised best estimate basis is calculated as the difference between the average employer contribution rate for the years 2017/18 – 2019/20, allowing for both contributions paid as a percentage of salary and fixed monetary contributions into the fund, where deficit contributions are fixed (i.e. the fixed monetary contributions, if any, have been converted so that they are quoted as a percentage of salary roll), and the employer standard contribution rate on the standardised best estimate basis for the years 2017/18 – 2019/20 (which is assumed to be equal to the future cost of accrual of that particular fund).

[9] http://committees.westminster.gov.uk/documents/s15058/11%20-%20Appendix%201%20-%20KPI%20Guidance.pdf

D.10 Funds that were in surplus or where the implied deficit recovery period was less than 10 years were flagged as green. Those with recovery periods greater than or equal to 10 years were flagged as amber. If there were any funds that were paying contributions at a level that would result in an increase in deficit, they would have been flagged as red.

Required return: *The required investment return rates to achieve full funding in 20 years' time on the standardised best estimate basis*

D.11 This measure is based on SAB key indicator 4(i). However, as the SCAPE discount rate used in the SAB standard basis is not market-related, the calculations are done on a standardised best estimate basis. No amber or red flags were raised under this measure.

D.12 The following assumptions were made for the purposes of this calculations:

- Time 0 is 31 March 2016.
- Time 20 is 31 March 2036.
- A_0 is the value of the fund's assets at time 0, and was obtained from the data provided by the local firms of actuarial advisors.
- A_{20} is the value of the fund's assets at time 20.
- L_0 is the value of the fund's liabilities at time 0, and was obtained from the data provided by the local firms of actuarial advisors.
- L_{20} is the value of the fund's liabilities at time 20.
- C_0 is one year's employer contributions paid from time 0.
- $C_{0\text{-}20}$ is the total employer contributions payable over the period time 0 – 20, assumed to occur mid-way between time 0 and time 20 (i.e. at time 10).
- B_0 is the value of one year's benefits paid (excluding transfers) from time 0.
- $B_{0\text{-}20}$ is the total value of benefits payable (excluding transfers) over the period time 0 – 20, assumed to occur mid-way between time 0 and time 20 (i.e. at time 10).
- SCR_0 is the standard contribution rate payable from time 0 to time 1 and was calculated by restating the standard contribution rates on the local fund bases using the best estimate basis.
- $SCR_{0\text{-}20}$ is the standard contribution rate payable from time 0 – 20, assumed to occur mid-way between time 0 and time 20 (i.e. at time 10).
- Sal_0 is the salary roll at time 0 and was obtained from the data provided by the local firms of actuarial advisors.
- i is the nominal discount rate assumption on the standardised best estimate basis.
- e is the general earnings assumption on the standardised best estimate basis.
- x is the required investment return that is to be calculated.

D.13 The membership profile is assumed to be constant.

D.14 The assets and liabilities at time 20 were then equated and the resulting quadratic equation solved to find the required rate of investment return to achieve full funding, i.e.:

$$A_{20} - L_{20} = 0$$

Where:

- $A_{20} = [A_0 \times (1+x)^{20}] + [(C_{0\text{-}20} - B_{0\text{-}20}) \times (1+x)^{10}]$
- $L_{20} = [L_0 \times (1+i)^{20}] + [(SCR_{0\text{-}20} - B_{0\text{-}20}) \times (1+x)^{10}]$
- $C_{0\text{-}20} = C_0 \times 20 \times (1+e)^{10}$
- $B_{0\text{-}20} = B_0 \times 20 \times (1+e)^{10}$
- $SCR_{0\text{-}20} = Sal_0 \times SCR_0 \times 20 \times (1+e)^{10}$

D.15 Where the required investment return was higher than the nominal discount rate on the standardised best estimate basis (i.e. i where i = 5.59%) funds would be classified as amber, whereas funds were classified as green if the required return was less than i.

Repayment shortfall: *The difference between the actual deficit recovery contribution rate and the annual deficit recovery contributions required as a percentage of payroll to pay off deficit in 20 years, where the deficit is calculated on a standardised best estimate basis*

D.16 This measure extends the deficit period measure. We calculate the required annual deficit recovery contribution rate on a standardised best estimate basis to pay off the deficit in 20 years' time, and then work out the difference between the actual deficit recovery contribution rate and this rate.

D.17 The 20 year deficit recovery period is based on the SAB key indicator 4(i).

D.18 The required annual deficit recovery contribution rate to be paid on a standardised best estimate basis is equal to:

$$\frac{Defecit\ on\ standardised\ best\ estimate\ basis}{\bar{a}_{20} \times Salary\ Roll}$$

Where:

- The deficit on the standardised best estimate basis is as at 31 March 2016.
- $\bar{a}_{20}$ is a continuous annuity over the 20 year deficit recovery period at the rate of interest equal to $\frac{1+i}{1+e} - 1$.
- i is the nominal discount rate assumption on the standardised best estimate basis.
- e is the general earnings inflation assumption on the standardised best estimate basis.
- The salary roll is as at 31 March 2016 and has not been adjusted.

D.19 The difference in deficit recovery contribution rates is then defined as:

$$(Avg\ ER\ cont\ rate\ paid - ER\ SCR\ on\ BE\ basis) - \frac{Defecit\ on\ BE\ basis}{\bar{a}_{20} \times Salary\ Roll}$$

Where:

- The average employer contribution rate is for the years 2017/18 – 2019/20, allowing for both contributions paid as a percentage of salary and fixed monetary contributions into the fund where deficit contributions are fixed ((i.e. the fixed monetary contributions, if any, have been converted so that they are quoted as a percentage of salary roll).
- The employer standard contribution rate on the standardised best estimate basis is for the years 2017/18 – 2019/20. It is assumed that the standard contribution rate is equal to the future cost of accrual of that particular fund.

D.20 The data required for each of the funds to carry out the above calculation was provided by their respective firms of actuarial advisors.

D.21 Where appropriate data has been restated on the standardised best estimate basis.

D.22 Funds where the difference in deficit recovery contribution rates is greater than 0% are flagged as green. Where the difference between contribution rates is between 0% and -3%, the funds would be flagged as amber. If the difference in deficit recovery contribution rates is less than -3%, then the fund would be flagged as red. No amber or red flags were raised under this measure.

Return scope: *The required investment return rates as calculated in required return, compared with the fund's expected best estimate future returns assuming current asset mix maintained*

D.23 This measure is based on SAB key indicator 4(ii).

D.24 The required investment return (x) calculated in the required return measure was compared against the best estimate investment return expected from the fund's assets held on 31 March 2016.

D.25 The asset data used in this calculation was provided by each fund's respective firm of actuarial advisors.

D.26 Funds where the best estimate future returns were higher than the required investment return by 0.5% or more were flagged as green. Those funds where this difference was between 0% and 0.5% would be flagged as amber, whilst those where the best estimate returns were lower than the required investment returns were flagged as red.

Deficit reconciliation: *Confirmation that the deficit period can be demonstrated to be a continuation of the previous deficit recovery plan, after allowing for actual fund experience*

D.27 This measure is used to monitor the change in the deficit recovery end point set locally by the fund at each valuation and what the underlying reasons are for any adverse changes in this period.

D.28 This measure considers the following:

- Whether contributions have decreased since the previous valuations (reducing the burden on current tax payers)
- Whether the deficit recovery end point has moved further into the future, compared with the previous valuation (increasing the burden on future tax payers)

Funds where both of the above have occurred are flagged amber; otherwise funds are flagged green.

Long term cost efficiency measures – by fund

Table D2: Long term cost efficiency measures by fund

		2016 long term cost efficiency measures				
		Relative considerations			Absolute considerations	
Pension fund	**Maturity (rank)**	**Deficit period**	**Required return**	**Repayment shortfall**	**Return scope**	**Deficit Reconciliation**
Avon Pension Fund	6 (54)	Surplus	3%	11%	2.2%	Green
Bedfordshire Pension Fund	5.5 (82)	4	3%	11%	2.3%	Green
Buckinghamshire County Council Pension Fund	5.3 (88)	0	3%	9%	2.1%	Green
Cambridgeshire Pension Fund	5.8 (71)	Surplus	3%	11%	2.8%	Green
Cardiff and Vale of Glamorgan Pension Fund	6.1 (48)	Surplus	3%	13%	3.1%	Green
Cheshire Pension Fund	6.6 (32)	Surplus	1%	14%	3.5%	Green
City and County of Swansea Pension Fund	5.6 (75)	3	3%	10%	2.4%	Green
City of London Corporation Pension Fund	7.1 (20)	6	4%	7%	1.8%	Green
City of Westminster Pension Fund	8.8 (5)	Surplus	1%	26%	4.9%	Green
Clwyd Pension Fund	6.5 (35)	2	2%	15%	2.6%	Green
Cornwall Pension Fund	5.9 (60)	Surplus	3%	14%	2.0%	Green
Cumbria Local Government Pension Scheme	7 (21)	Surplus	3%	10%	2.2%	Green
Derbyshire Pension Fund	5.6 (76)	Surplus	3%	8%	2.4%	Green
Devon County Council Pension Fund	6.3 (42)	4	4%	7%	1.7%	Green
Dorset County Pension Fund	5.7 (72)	4	4%	7%	1.4%	Green
Durham County Council Pension Fund	6.8 (23)	0	3%	13%	1.5%	Green
Dyfed Pension Fund	5.9 (56)	Surplus	3%	5%	2.3%	Green
East Riding Pension Fund	5.7 (73)	Surplus	2%	13%	3.7%	Green
East Sussex Pension Fund	6 (52)	Surplus	2%	10%	3.6%	Green
Environment Agency Active Fund	5.9 (62)	Surplus	3%	7%	3.0%	Green
Environment Agency Closed Fund	0 (N/A)	N/A	N/A	N/A	N/A	Green
Essex Pension Fund	5.6 (80)	Surplus	3%	10%	3.1%	Green
Gloucestershire County Council Pension Fund	5.9 (58)	Surplus	1%	19%	4.3%	Green
Greater Gwent (Torfaen) Pension Fund	6 (53)	3	4%	8%	1.9%	Green
Greater Manchester Pension Fund	6.9 (22)	Surplus	3%	9%	3.0%	Green
Gwynedd Pension Fund	5.4 (86)	Surplus	2%	10%	3.4%	Green
Hampshire County Council Pension Fund	5.5 (84)	Surplus	3%	12%	2.2%	Green
Hertfordshire County Council Pension Fund	5.8 (69)	Surplus	2%	12%	3.3%	Green
Isle of Wight Council Pension Fund	7.2 (17)	Surplus	2%	12%	3.7%	Green
Islington Council Pension Fund	7.3 (16)	5	4%	7%	1.1%	Green

		2016 long term cost efficiency measures				
		Relative considerations			Absolute considerations	
Pension fund	**Maturity (rank)**	**Deficit period**	**Required return**	**Repayment shortfall**	**Return scope**	**Deficit Reconciliation**
Kent County Council Pension Fund	5.8 (70)	Surplus	3%	10%	2.6%	Green
Lancashire County Pension Fund	6.4 (37)	Surplus	3%	9%	2.8%	Green
Leicestershire County Council Pension Fund	5.4 (85)	Surplus	2%	13%	3.0%	Green
Lincolnshire Pension Fund	5.8 (66)	Surplus	3%	12%	3.0%	Green
London Borough of Barking and Dagenham Pension Fund	5.6 (79)	0	2%	14%	3.3%	Green
London Borough of Barnet Pension Fund	5.9 (61)	4	3%	11%	2.4%	Green
London Borough of Bexley Pension Fund	7.2 (18)	Surplus	3%	8%	3.1%	Green
London Borough of Brent Pension Fund	7.3 (15)	10	4%	10%	1.8%	Green
London Borough of Bromley Pension Fund	6.6 (33)	Surplus	2%	11%	3.4%	Green
London Borough of Camden Pension Fund	8.1 (7)	Surplus	2%	21%	3.9%	Green
London Borough of Croydon Pension Fund	6.1 (51)	6	4%	8%	2.1%	Green
London Borough of Ealing Pension Fund	6.8 (24)	2	3%	12%	2.3%	Green
London Borough of Enfield Pension Fund	5.8 (67)	Surplus	2%	12%	3.0%	Green
London Borough of Hackney Pension Fund	6.1 (50)	Surplus	0%	23%	5.0%	Green
London Borough of Hammersmith and Fulham Pension Fund	9.1 (4)	Surplus	4%	13%	2.0%	Green
London Borough of Haringey Pension Fund	7.4 (12)	Surplus	3%	11%	2.0%	Green
London Borough of Harrow Pension Fund	6.5 (34)	0	3%	11%	2.4%	Green
London Borough of Havering Pension Fund	6.3 (43)	6	3%	9%	2.1%	Green
London Borough of Hillingdon Pension Fund	5.8 (65)	2	3%	10%	2.1%	Green
London Borough of Hounslow Pension Fund	6.2 (44)	4	4%	8%	1.5%	Green
London Borough of Lambeth Pension Fund	8.5 (6)	Surplus	2%	18%	3.5%	Amber
London Borough of Lewisham Pension Fund	7.5 (9)	Surplus	3%	13%	2.6%	Green
London Borough of Merton Pension Fund	6.1 (49)	Surplus	4%	7%	1.6%	Amber
London Borough of Newham Pension Fund	6.4 (39)	2	4%	8%	1.6%	Amber
London Borough of Redbridge Pension Fund	6.3 (41)	0	3%	12%	1.3%	Green
London Borough of Richmond Upon Thames Pension Fund	6.7 (25)	Surplus	3%	11%	2.2%	Green
London Borough of Southwark Pension Fund	6.7 (28)	Surplus	3%	11%	2.4%	Green
London Borough of Tower Hamlets Pension Fund	7.2 (19)	Surplus	2%	20%	3.8%	Green
London Borough of Waltham Forest	7.5 (11)	9	4%	8%	1.8%	Green
London Pensions Fund Authority Pension Fund	9.2 (3)	Surplus	3%	10%	2.4%	Green
Merseyside Pension Fund	7.7 (8)	Surplus	3%	13%	2.8%	Green

		2016 long term cost efficiency measures				
		Relative considerations			Absolute considerations	
Pension fund	**Maturity (rank)**	**Deficit period**	**Required return**	**Repayment shortfall**	**Return scope**	**Deficit Reconciliation**
Norfolk Pension Fund	6.7 (29)	Surplus	2%	14%	3.1%	Green
North Yorkshire Pension Fund	5.4 (87)	Surplus	3%	10%	2.5%	Green
Northamptonshire Pension Fund	6.2 (46)	Surplus	3%	13%	2.7%	Green
Northumberland County Council Pension Fund	7.5 (10)	Surplus	2%	15%	3.2%	Green
Nottinghamshire County Council Pension Fund	5.6 (74)	1	4%	7%	1.6%	Green
Oxfordshire County Council Pension Fund	5.5 (83)	Surplus	4%	8%	2.3%	Green
Powys County Council Pension Fund	6.1 (47)	0	3%	12%	2.5%	Green
Rhondda Cynon Taf County Borough Council Pension Fund	5.8 (63)	Surplus	3%	13%	2.9%	Green
Royal Borough of Greenwich Pension Fund	5.6 (78)	Surplus	4%	7%	0.8%	Green
Royal Borough of Kensington and Chelsea Pension Fund	7.4 (13)	Surplus	3%	6%	3.5%	Green
Royal Borough of Kingston Upon Thames Pension Fund	5.2 (90)	Surplus	2%	13%	3.5%	Amber
Royal County of Berkshire Pension Fund	5.3 (89)	13	5%	3%	1.2%	Green
Shropshire County Pension Fund	6.6 (31)	Surplus	3%	10%	1.9%	Green
Somerset County Council Pension Fund	5.6 (77)	6	4%	8%	2.0%	Green
South Yorkshire Passenger Transport Pension Fund	32.7 (1)	Surplus	N/A	77%	N/A	Green
South Yorkshire Pension Fund	6.6 (30)	Surplus	3%	11%	2.6%	Green
Staffordshire Pension Fund	6.4 (40)	Surplus	3%	13%	3.1%	Green
Suffolk Pension Fund	5.9 (59)	Surplus	1%	14%	4.2%	Green
Surrey Pension Fund	5.5 (81)	Surplus	3%	12%	3.0%	Green
Sutton Pension Fund	6.4 (36)	2	3%	12%	2.0%	Green
Teesside Pension Fund	6.7 (27)	Surplus	4%	4%	2.4%	Green
Tyne and Wear Pension Fund	6.4 (38)	Surplus	2%	14%	3.4%	Green
Wandsworth Council Pension Fund	7.4 (14)	Surplus	2%	6%	3.9%	Green
Warwickshire Pension Fund	5.8 (64)	Surplus	3%	10%	2.8%	Green
West Midlands Integrated Transport Authority Pension Fund	30.5 (2)	Surplus	N/A	64%	N/A	Green
West Midlands Pension Fund	6.7 (26)	Surplus	2%	16%	3.5%	Green
West Sussex County Council Pension Fund	5.9 (57)	Surplus	2%	12%	4.2%	Green
West Yorkshire Pension Fund	6 (55)	Surplus	4%	6%	2.1%	Green
Wiltshire Pension Fund	5.8 (68)	Surplus	2%	13%	3.3%	Green
Worcestershire County Council Pension Fund	6.2 (45)	3	3%	12%	3.0%	Green

Notes:

1. The liability value and salary roll figures in the maturity indicator are as at 31 March 2016. The liability value was calculated on the standardised best estimate basis.
2. The 'Required Return' and 'Return Scope' measures were not calculated for South Yorkshire PTA and West Midlands ITA as these are closed funds. They were also not calculated for the Environment Agency Active Fund as the DCLG SF3 statistics did not contain data for the fund.
3. The 'Deficit Reconciliation' measure was not calculated for South Yorkshire PTA and West Midlands ITA as information on deficit recovery periods was not applicable.

Appendix E: Asset Liability Modelling Exercise

Why perform an Asset Liability Modelling (ALM) exercise?

E.1 An ALM allows us to simultaneously project the assets and liabilities of the scheme under a range of scenarios, using stochastic techniques to investigate possible outcomes for key variables and metrics. Modelling the scheme in this way allows us to understand not only central, expected outcomes but also the wider range of possible outcomes and associated probabilities.

E.2 A common use of ALM studies is to help scheme managers and sponsors determine investment, contribution and funding policy by illustrating the impact of changing policy on key variables, such as the funding level (i.e. ratio of assets to liabilities), of the scheme under a range of scenarios.

E.3 For this piece of work, we modelled the whole Scheme rather than individual funds and our focus was on variations of the employer contribution rates as a broad measure of long term cost efficiency and sustainability. We are primarily interested in the extent to which contributions can vary from current levels. Consequently we have assumed that the investment policy remains constant over the projection period.

E.4 Stochastic modelling techniques allow us to simulate thousands of economic scenarios – with different outturns and paths of key parameters and variables. The simulations are calibrated to reflect views on expected returns and relative behaviours between key variables, but importantly include an element of randomness in order to capture volatility observed in financial markets. By running the scenario generator many times, the spread of different possible outcomes can be illustrated and the probability of certain outcomes can be estimated.

E.5 As with all models, the outcomes are a function of the assumptions adopted, and the outcomes are not intended to be predictors of the future but can illustrate the range of possible outcomes. Our study models changes in economic outcomes only – we have not looked at demographic changes, including mortality, nor management changes such as changes to the investment approach.

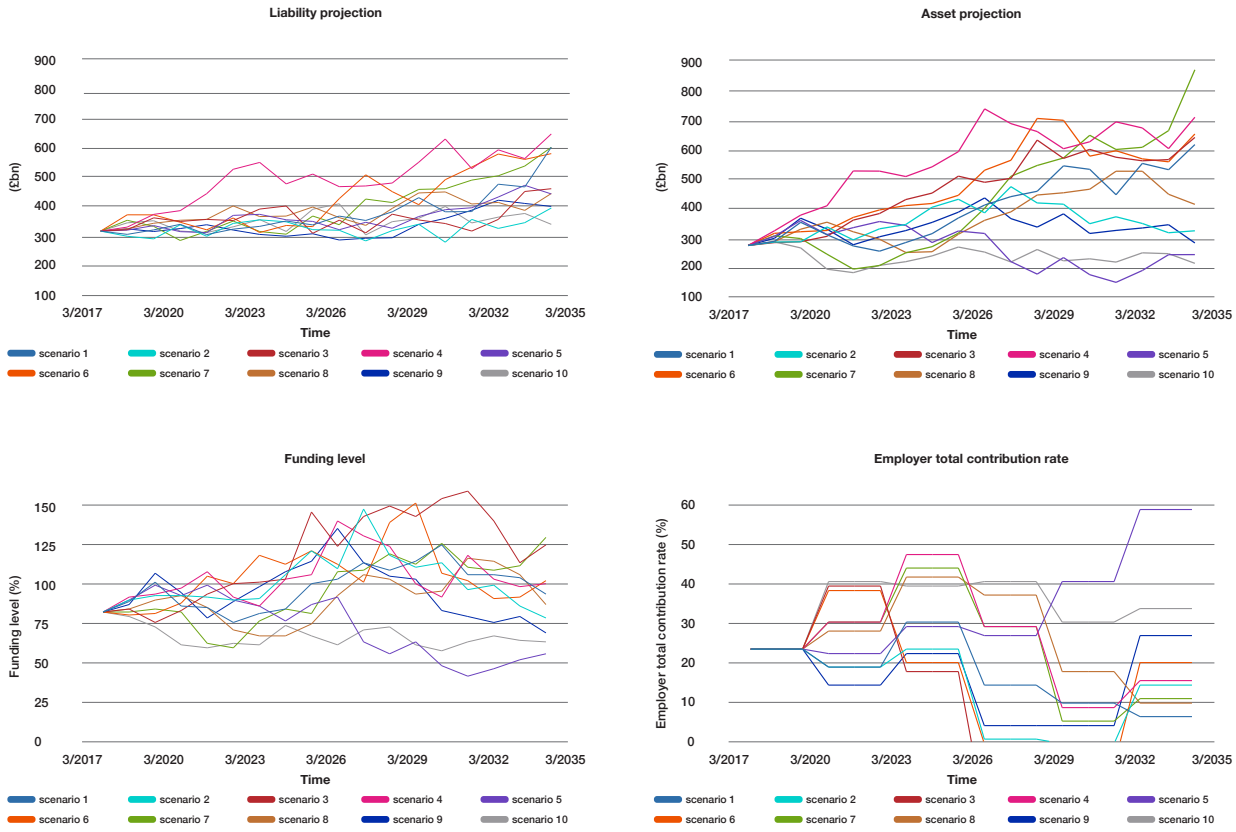
Outcomes of our modelling

E.6 The ALM exercise provides underlying projections, under thousands of scenarios, for a number of key variables and metrics of interest – including:

- The scheme's assets
- The scheme's liabilities
- The scheme's funding level and
- The contribution rate

E.7 For example, the charts below provide an illustration of these projected variables for the first 10 scenarios.

Chart E1: Simulated scenarios within the ALM

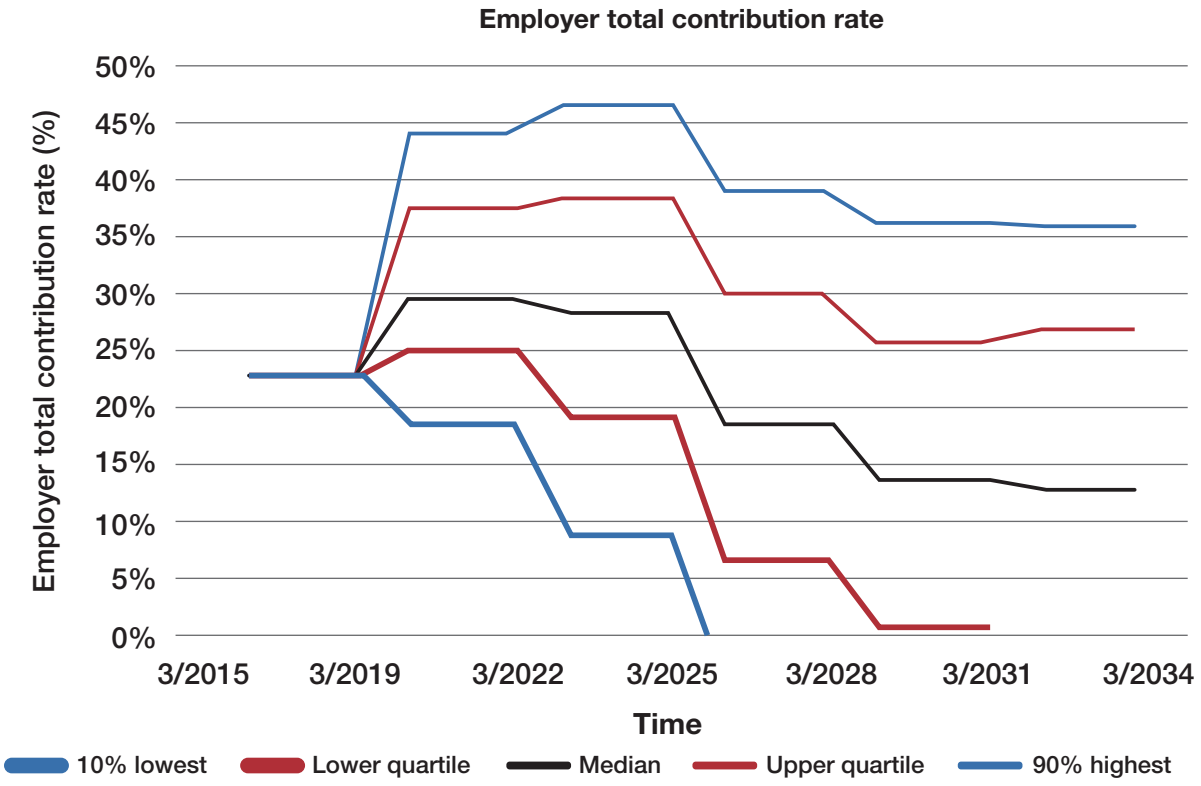


E.8 As demonstrated in these charts, there is a wide range of potential outcomes and there is a significant degree of volatility – demonstrating the risks taken by the Scheme.

E.9 In order to identify the projected trends of the scheme and assess the probability of extreme events, we instead consider different percentiles of the projected employer total contribution rates emerging at each future valuation.

E.10 Chart E2 shows the median value (black), upper and lower quartiles (red, 75th and 25th percentile respectively) and 90th highest, 10th lowest (blue, 90th and 10th percentile respectively) for the employer contribution rate, which allow for both the cost of benefit accrual and deficit contributions and are net of member contributions.

Chart E2: Employer total contribution rate

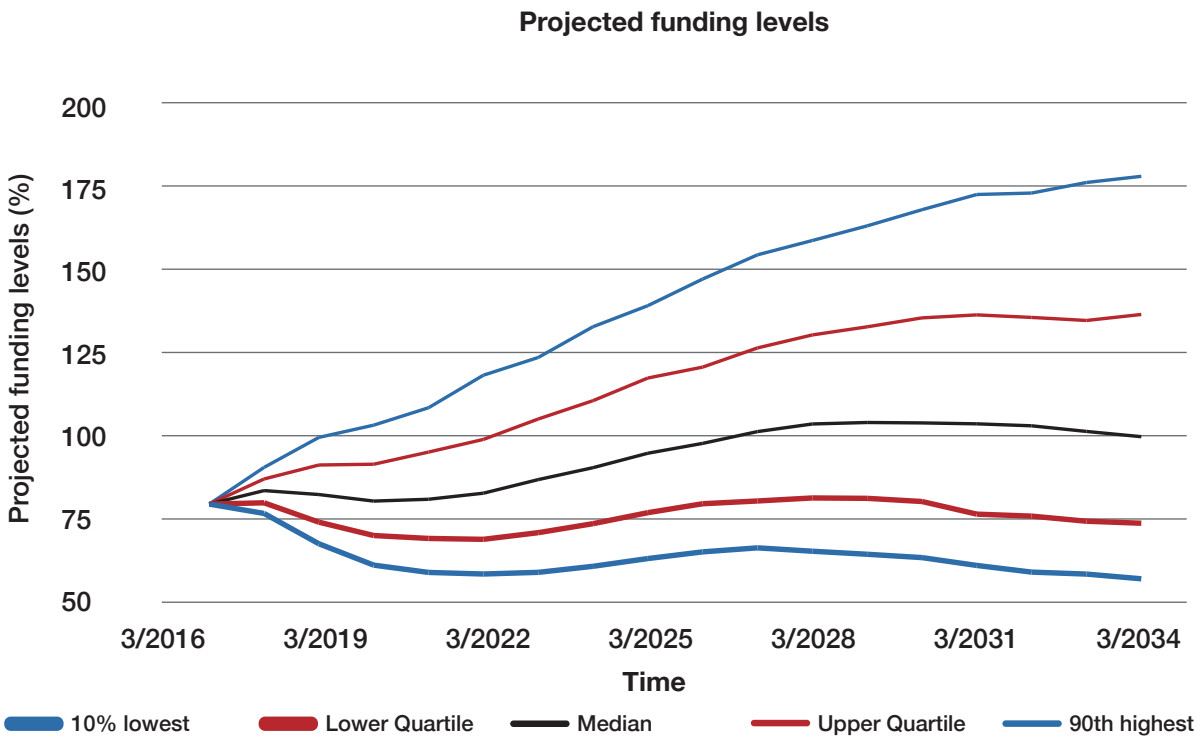


E.11 Note that none of the lines shown on this chart represent any simulated scenario – instead they are intended to represent the distribution of possible outcomes and how the range of simulated scenarios changes over the projection period.

E.12 The flipside to the projected contribution rate is the projected funding level of the scheme which is shown below.

E.13 Chart E3 shows that, under the parameters of the model, the funding level could range between 60% and 180% (10th and 90th percentile outcomes) but the median outcome tends towards a funding level of just above 100% over the projection period.

Chart E3: Projected funding levels



E.14 The key messages from the charts above show:

- In the short term, the model predicts upwards pressure on employer contributions at the next valuation cycle.
- In the medium to longer term, employer contributions are expected to fall, such that they are expected to be lower than current contribution levels.
- However there remains a significant risk that contributions are materially higher than current levels, throughout the projection period.
- Whilst the path of expected contribution rates is relatively smooth, the significant variation within each scenario demonstrates the sensitivity of the contribution rate and the extent to which it could swing from valuation to valuation.
- This should not be regarded as a prediction of the changes in future employer contribution rates, because it's highly unlikely that the assumptions made will be borne out in practice and adjustments might be made to manage such pressures as discussed below.

Short term cost pressure

E.15 Volatility of asset returns and economic conditions may place significant pressures on future rate of employer contributions. We performed an asset liability study to help quantify these risks.

E.16 For the purpose of assessing liabilities and determining contributions, assumptions are needed on how the set of assumptions used to carry out an actuarial valuation at each future point in time is updated. In our modelling we have assumed that:

- Changes to the financial assumptions will reflect market conditions at the valuation date (specifically, long term gilt yields)
- The length of the recovery period is fixed at 20 years
- Demographic experience is as assumed in the underlying valuations

E.17 The output of the model is the upward or downward pressure on contribution rates assuming that the impact of changes in economic conditions feed through directly to contribution setting.

E.18 In practice we might not expect these pressures to feed directly into changes in employer contribution rates, because for example if there was a downward (or upward) cost pressure the following adjustments might be considered:

- Asset strategy might be made more defensive which would be expected to reduce future volatility but would reduce the scope for reducing contributions (conversely, if there was an upward cost pressure, assets strategy might be made more return seeking)
- The length of the recovery period might be reduced (conversely, if there was an upward cost pressure, the length of recovery periods might be increased)
- The level of prudence might be increased, which could reduce the chance that future experience was worse than assumptions, but could also limit the scope for reducing contributions (conversely, if there was an upward cost pressure, the level of prudence might be increased)

E.19 The output of the model should not therefore be regarded as a prediction of changes in future employer contribution rates, but rather potential pressures on the employer contribution rates that might need to be managed in some way. It should be noted that any change to manage down employer contribution rates in the short term do not alter the long term cost of the scheme (which depends on the level of scheme benefits and scheme experience, including asset returns) and more generally might have some other less desirable outcomes, for example:

- increasing the length of recovery periods transfers costs onto future generations;
- choosing a more return seeking asset strategy would be expected to increase volatility and risk

E.20 The model is based on certain parameters and assumptions which drive projected assets, liabilities and contributions. The key assumptions and methodology are discussed in detail below, but the key drivers of the projected increase in contributions rates are:

- A fall in gilt yields, since the last valuation date (31 March 2016), which is assumed to feed through to lower discount rates in the valuation basis
- The fall in gilt yields affects both the cost of providing ongoing benefits and increases the deficit in the Scheme, leading to higher deficit recovery contributions being required
- This is partially offset by strong investment returns, in particular in equity markets in 2016 and 2017

Longer term reduction in costs

E.21 In the longer term, the median outcome is that employer contributions come back to below current levels. The key drivers of this are:

- An assumed increase in gilt yields from currently low levels. This is assumed to feed through to higher valuation discount rates, which affects both the cost of providing ongoing benefits and lower deficit recovery contributions
- Deficit repair contributions paid by the employers leading to an improvement in the funding position of the Scheme and a reduction in the overall level of contributions payable
- The assumed investment return – reflecting the investment strategy that is heavily weighted towards equities and other growth assets

Risks of materially higher contribution rates

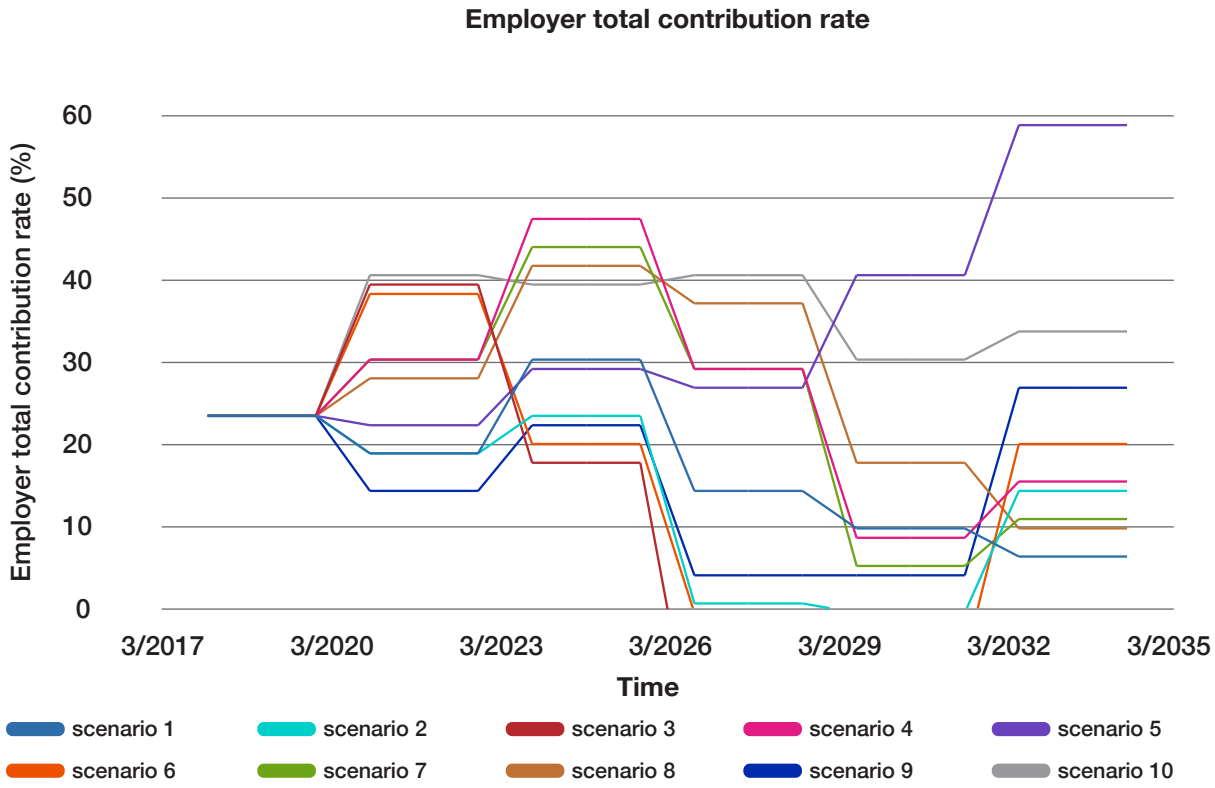
E.22 Despite the projected fall in contribution rates at the average level, the charts above demonstrate the potential for pressure on employer contributions relative to current rates. In particular, they demonstrate that there is roughly a 25% chance that contribution rates remain above 25% throughout the projection, and a 10% chance that they remain above 35%, before allowing for the management of those pressures discussed above.

E.23 The drivers of these scenarios is discussed in more detail below and reflects the key risk factors that the Scheme is running.

Contribution risk/volatility

E.24 Chart E2 represents the relevant percentile outcome at each point in time. As this is the percentile of all simulated scenarios, the lines shown do not represent particular scenarios or simulated outcomes. In the following chart we illustrate a series of contribution rate "paths" that the Scheme could experience according to our model. These show somewhat more apparent variation.

Chart E4: Individual employer contribution rate paths



E.25 This chart indicates that contribution rates can vary significantly from valuation to valuation under the model parameters.

E.26 Looking across all simulated scenarios and after removing the average trend in the projected future contribution rate, we estimate that there is around a 30% chance of potential pressure on the contribution rate of more than 8%, not allowing for management actions.

E.27 Again, the key drivers of this volatility are gilt yields and investment returns:

- Projected changes in gilt yields result in changes to the valuation basis which affect both the ongoing cost of accrual and the level of surplus or deficit in the Scheme.
- The significant investment exposure to risky assets (e.g. equities) which results in a volatile returns and funding levels.

Scheme risks

E.28 Whilst the charts and analysis outlined above give an indication of the range of plausible outcomes and the risk of material potential pressure on employer contributions, they do not explain the factors that might cause such increases.

E.29 As part of section 13, under solvency, we model (deterministically) some stress tests to evaluate whether fund employers are able to meet the additional contributions generated in relation to stress events. These stresses help quantify and illustrate each fund sensitivity to different risk factors.

E.30 In this section we further illustrate two of the key risk factors that can contribute to material increases in employer contribution rates – namely equity returns and future expected returns. We illustrate the risk factors by comparing experience of key variables in the scenarios with large contribution rates and how this compares to other scenarios.

Equity risks

E.31 With an investment strategy weighted towards growth assets, the return on equities is clearly a key risk factor in determining future contribution rates. As a result, one of the stress tests included in our solvency chapter captures an "asset shock", in which return seeking assets are stressed by 15% relative to the liabilities.

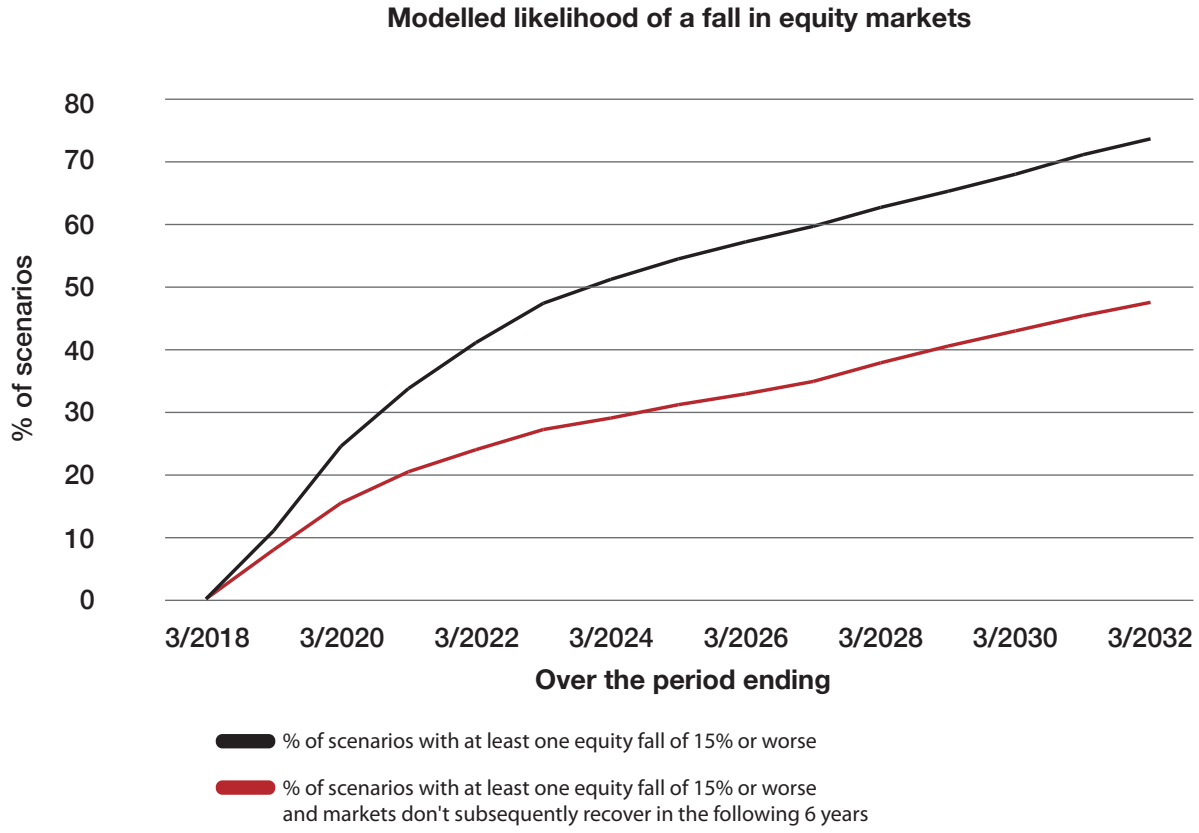
E.32 Investing in equities and other growth assets inevitably comes with volatile returns and the potential for significant downturns in asset values and returns. As a long term investor, the Scheme should be able to ride out short term volatility in returns. However, there remains significant risk of deeper and longer lasting shocks to equity markets.

E.33 The following chart helps to illustrate the possibility of this by showing:

- The proportion of simulated scenarios that experience at least one equity market fall by more than 15% over 12 months (black line) and
- The proportion of these scenarios that do not make a subsequent recovery[10] in the following 6 year period (red line)

[10] Defined as the equity total return index still being less than the pre-crash level 6 years after the fall.

Chart E5: Modelled likelihood of a fall in equity markets



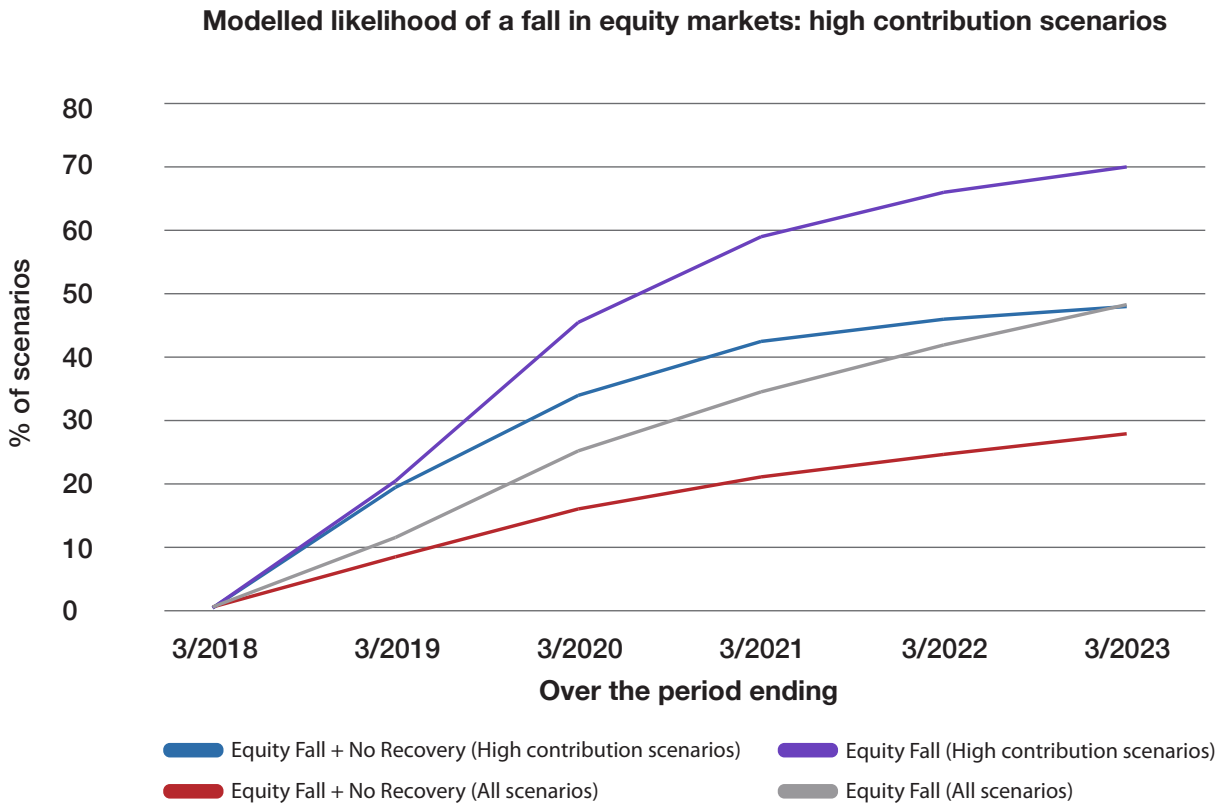
E.34 The chart shows that by 2023, roughly 50% of scenarios are simulated to experience a significant equity downturn, of which 30% of those scenarios do not make a subsequent recovery.

E.35 The chart above is populated for all scenarios. Generally speaking, scenarios which have material potential pressure on employer contributions are more likely to have experienced a significant equity downturn – reflecting the high level of equity risk being run in the scheme.

E.36 This is shown in the chart below, which filters on the scenarios with large simulated contribution rates in 2023[11] and shows the proportion of scenarios which are simulated to experience a downturn significantly increases.

[11] Defined as the scenarios which have a contribution rate at the 90th percentile or higher.

Chart E6: Modelled likelihood of a fall in equity markets: high contribution scenarios



E.37 In the scenarios with high contribution levels roughly 70% of scenarios are simulated to experience a significant equity downturn (vs 50% for all scenarios), of which 50% of those scenarios do not make a subsequent recovery (vs 30% for all scenarios).

E.38 This demonstrates that equity returns are a key driver of contribution rates.

Expected future returns

E.39 Equity returns are a key risk factor as they influence the returns achieved by the Scheme's assets and hence influence funding and valuation outcomes. Another key driver of contribution rates is the discount rate assumed in the valuation – which will be primarily driven by assumed future returns on investments.

E.40 In our ALM study, we have assumed that firms of actuarial advisors will update their views on expected future returns in line with projected changes in long term gilt yields (see below). Whilst we appreciate this is unlikely to be the approach adopted by the firms of actuarial advisors in practice, market expectation theory suggests that changes in gilt yields do provide an indication of the change in market expectations for future economic conditions.

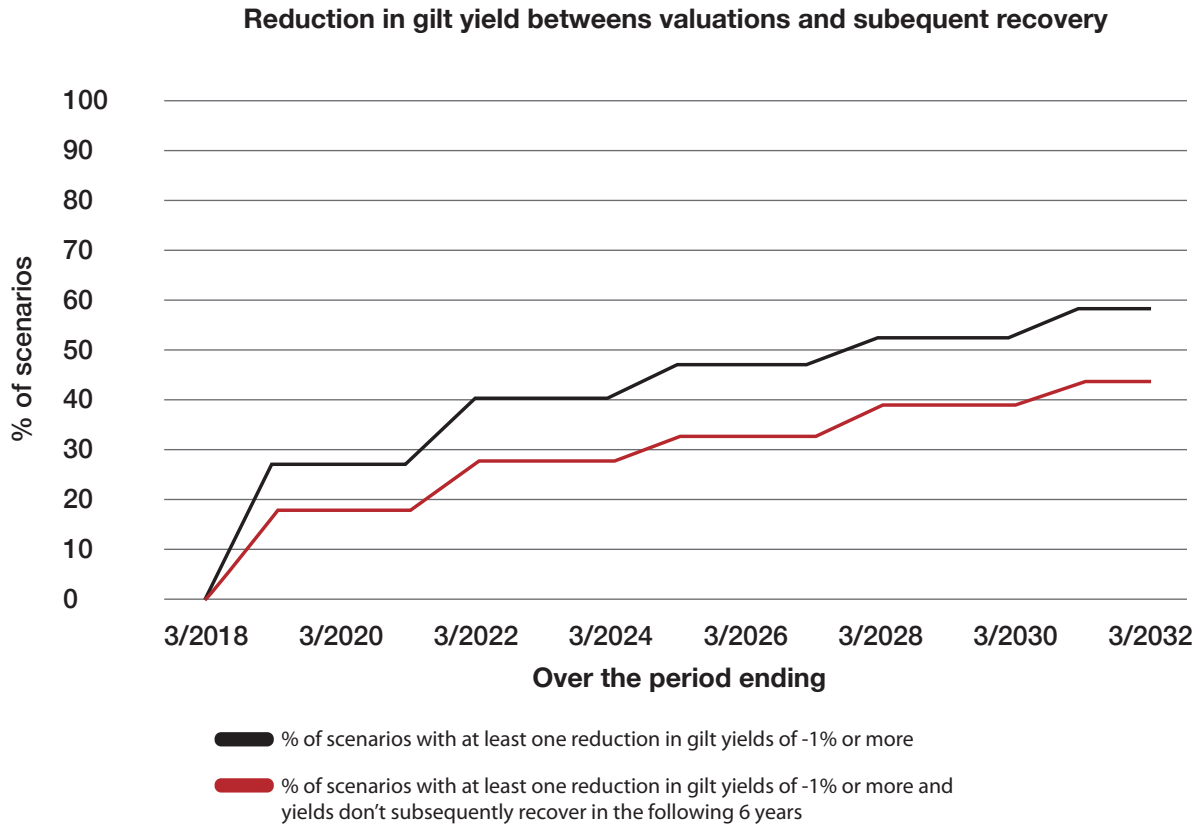
E.41 As a result, large reduction in gilt yields are likely to coincide with reduction in expected future returns which in turn would be expected to lead to higher contributions.

E.42 The following chart helps to illustrate the possibility of this by showing:

- The proportion of simulated scenarios that experience at least one significant reduction in expected future returns between valuations[12] (black line); and
- The proportion of these scenarios where expected returns do not revert[13] in the next two valuations (red line).

E.43 The chart shows that by 2023 around 50% of scenarios are simulated to experience a significant reduction in expected future returns, of which just over 30% of those scenarios do not experience a reversion in expectations in the next two valuations.

Chart E7: Modelled likelihood of a fall in gilt yields



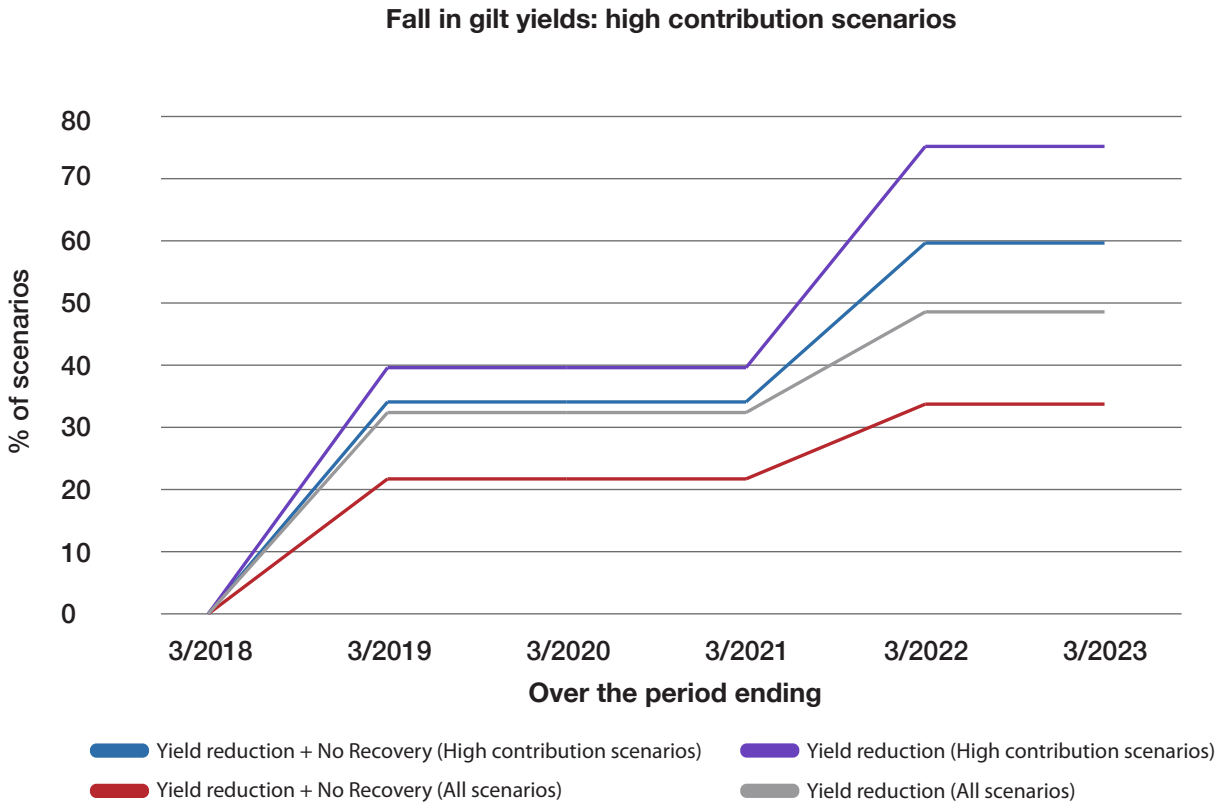
[12] Defined as a reduction in gilt yields of 1% or more between valuation cycles.

[13] Defined as the gilt yield still not returning to previous levels after two valuations.

E.44 The chart above is populated for all scenarios. Generally speaking, scenarios which have material potential pressure on employer contributions are more likely to have experienced a significant reduction in expected returns.

E.45 This is shown in the chart below, which filters on the scenarios with large simulated contribution rates in 2023[14] and shows the proportion of scenarios which are simulated to experience a reduction in expected returns significantly increases.

Chart E8: Modelled likelihood of a fall in gilt yields: high contribution scenarios



E.46 In the scenarios with high contribution levels roughly 75% of scenarios are simulated to experience a significant reduction in expected future returns (vs 50% for all scenarios), of which 60% of those scenarios do not experience a reversion in expectations in the next two valuations (vs 30% for all scenarios).

E.47 This demonstrates that future expected returns are a significant driver in determining contribution rates.

[14] Defined as the scenarios which have a contribution rate at the 90th percentile or higher.

Assumptions and methodology

Model

E.48 For this purpose we used our third party Asset Liability Model ('ALM') developed by Ortec Finance called GLASS (Global Liability and Asset Scenario Simulator). GLASS is based on a total balance sheet approach, meaning that assets, liabilities and contributions are consistently projected into the future.

E.49 GLASS takes scheme cash flow projections (that is benefit payments in respect of current active and non-active members of the Scheme) together with current asset values as its base input. To fully determine future cash flows over the future projection period, the scheme cash flows above are overlaid with:

- Additional cash flows in respect of new accrual in respect of both current and new active members.
- Projected revaluation and pension increases made to accrued pensions.

E.50 The initial assets within the scheme are projected forwards allowing for:

- Contributions paid by both members and employers.
- Pensions payable to retired members.
- Investment returns.

E.51 One of the key model inputs is the economic scenario generator (ESG) which is calibrated to current conditions and expectations for the future, and specifies how key economic variables such as inflation, wage growth and asset returns may vary (stochastically, according to probability distributions) in future.

E.52 Using these inputs and overlaying methodology, GLASS can be used to estimate future contribution rates, assets and liability values and hence funding levels in a dynamic projection process.

E.53 For this purpose we have used Ortec's "Lower for Longer" calibration that has been adjusted slightly in line with our house views. Ortec does provide alternative calibrations, but the Lower for Longer calibration, along with our adjustments aligns most closely with our own views.

Assumptions required

E.54 An ALM produces a broader amount of information than a traditional deterministic actuarial valuation. Consequently, we need to make more detailed assumptions to simplify the calculations involved in the projections and make it practical to analyse all the key outcomes we are interested in.

E.55 To project the development of the scheme we must make assumptions about:

- Key economic variable and financial assumptions – for example price inflation, salary growth and returns on assets held. These are determined from the ESG
- The way in which the Scheme invests its assets and whether and how this might change in the future
- The way in which liabilities will evolve – for example, the rate at which current active liabilities "migrate" to being non-active (i.e. deferred/pensioner liabilities) over time or the extent to which active liabilities are driven by CPI inflation and wage inflation at each point in time
- The way in which liabilities are assessed; and
- The way in which contributions are determined – both in respect of ongoing accrual and in respect of any surplus or deficit that arises

E.56 For the purpose of assessing liabilities and determining contributions we needed to assume what set of assumptions will be used by the firms of actuarial advisors to carry out an actuarial valuation at each future point in time being considered.

E.57 In practice, the firms of actuarial advisors are likely to set the discount rate with regards to the expected return on each fund's investments and are required to use prudence in setting these assumptions.

E.58 In our modelling we have assumed that changes to the valuation basis will be made in accordance with changes in long term gilt yields. The extent of the margin above gilt yields included in the valuation may, in practice, vary according to prevailing conditions, but we have not attempted to model this. That is we assume that the margin above gilt yields is constant relative to prevailing conditions at each valuation date.

E.59 Our model projects the entire Scheme in one go. The assumed asset strategy and future valuation assumptions are an average of those for the individual funds.

E.60 Full details of the calibration and projection and future valuation assumptions adopted for this exercise are available on request.

Appendix F: Data provided

F.1 At the request of the Ministry for Housing, Communities and Local Government ('MHCLG') the Government Actuary's Department ('GAD') has collected data from each fund's 2016 valuation report. These actuarial funding valuations were conducted by four firms of actuarial advisors:

- Aon
- Barnett Waddingham
- Hymans Robertson
- Mercer

F.2 Data was received from the relevant firm of actuarial advisors for all 91 pension funds. Information for both the Environment Agency Closed Fund and South Yorkshire Passenger Transport Authority Pension Fund have been taken directly from firms of actuarial advisors. Additional date was provided at an employer level in relation to Academies.

F.3 Limited checks, consisting of spot checks to make sure that data entries appear sensible, have been performed by GAD and the data received appears to be of sufficient quality for the purpose of analysing the 2016 valuation results. These checks do not represent a full, independent audit of the data supplied. The analysis contained in this report relies on the general completeness and accuracy of the information supplied by the administering authority or their firms of actuarial advisors.

F.4 In addition, data has been collated from the '*Local government pension scheme funds local authority data*', which is published annually by DCLG. This published data may be referred to elsewhere as SF3 statistics.

F.5 Unless otherwise stated the data detailed above has been used to inform the analysis contained in the LGPS England and Wales Section 13 2016 Report.

F.6 The information provided to GAD is, in many instances, more detailed than that provided in the actuarial valuation reports.

F.7 There was some inconsistency in the information provided to GAD. For example, membership details were not always split by gender as requested. However, this did not have a material impact on the analysis that GAD was able to complete (we assumed the average male female breakdown for these funds).

F.8 Table F1 shows instances where material information was not provided by the fund on time. These gaps in information forced us to implement a work around that could cast doubt on the outcomes of our work for those funds.

Table F1: Missing or late Information

Fund	Missing or late Information
London Borough of Barnet Pension Fund	No valuation data was provided to GAD as at 2016
Environmental Agency Closed/ Active Funds	Valuation data was provided to GAD as at 2016, but after the deadline specified
London Borough of Barking and Dagenham Pension Fund	No value of liabilities and funding level on the SAB standardised basis were provided.

F.9 We had no alternative but to assume an average profile for these funds, which limits the reliance that can be placed on the analysis.

F.10 Our engagement has highlighted that some funds have provided incorrect data for statutory data returns to MHCLG[15], particularly in relation to the proportion of non-statutory members. It would be helpful if funds ensured that correct information was provided in these returns.

[15] These returns are known as SF3 returns, https://www.gov.uk/government/statistics/local-government-pension-scheme-funds-for-england-and-wales-2016-to-2017

Contribution rate data

F.11 Primary and secondary rates have now replaced common contribution rate (CCRs) in legislation. We now have data that gives an overview of total employer contributions to the fund, which we have used. In contrast, CCRs from 2013 valuations did not always reflect employer contribution rates actually paid, so primary and secondary rates are more useful. However, we have also compared contribution rates between 2013 and 2016 valuations. There is a transitional issue, as 2013 valuations CCRs don't always reflect average employer contribution rates and alternative data were not available. In some cases therefore we have used dry run data for 2014/15 contributions (see table below). However, we expect that this will not be a material issue for future section 13 reports, as it should be possible to compare primary and secondary rates between the 2016 and 2019 valuations.

- For example, in the Wiltshire Pension Fund 2016 Valuation Report, Hymans Robertson stated "The table below shows the Fund "common contribution rate" as at 31 March 2013 for information purposes. The change in regulatory regime and guidance on contribution rates means that a direct comparison to the Whole Fund rate at 2016 is not appropriate.[16]"

F.12 In the following table we set out the 2013 common contribution rate, the 2014-15 actual contribution rate and the 2016 recommended contribution rates to illustrate the variation between actual rates and disclosed (common contribution rates) which could lead to incorrect interpretations being drawn.

Table F2: Contribution comparison

Pension fund	Firm of actuarial advisors	2013 common contribution rate*	Average employer contribution rate actually paid**	Difference	2016 standard contribution rate*
Avon Pension Fund	Mercer	23%	21%	-2%	23%
Bedfordshire Pension Fund	Hymans Robertson	28%	23%	-5%	26%
Buckinghamshire County Council Pension Fund	Barnett Waddingham	20%	19%	0%	21%
Cambridgeshire Pension Fund	Hymans Robertson	31%	20%	-11%	23%
Cardiff and Vale of Glamorgan Pension Fund	Aon	22%	23%	1%	23%
Cheshire Pension Fund	Hymans Robertson	27%	23%	-4%	27%
City and County of Swansea Pension Fund	Aon	22%	22%	0%	25%
City of London Corporation Pension Fund	Barnett Waddingham	17%	17%	0%	21%
City of Westminster Pension Fund	Barnett Waddingham	30%	20%	-10%	29%
Clwyd Pension Fund	Mercer	28%	26%	-2%	28%
Cornwall Pension Fund	Hymans Robertson	30%	21%	-9%	27%
Cumbria Local Government Pension Scheme	Mercer	24%	21%	-3%	21%
Derbyshire Pension Fund	Hymans Robertson	28%	20%	-8%	20%
Devon County Council Pension Fund	Barnett Waddingham	19%	19%	0%	21%
Dorset County Pension Fund	Barnett Waddingham	19%	18%	0%	21%
Durham County Council Pension Fund	Aon	21%	21%	0%	25%
Dyfed Pension Fund	Mercer	18%	16%	-2%	17%

[16] No alternative figure was provided to facilitate comparison

Pension fund	Firm of actuarial advisors	2013 common contribution rate*	Average employer contribution rate actually paid**	Difference	2016 standard contribution rate*
East Riding Pension Fund	Hymans Robertson	29%	24%	-6%	24%
East Sussex Pension Fund	Hymans Robertson	27%	20%	-7%	22%
Environment Agency Active Fund	Hymans Robertson	24%	14%	-10%	19%
Environment Agency Closed Fund	Hymans Robertson	0%	0%	0%	0%
Essex Pension Fund	Barnett Waddingham	22%	23%	1%	22%
Gloucestershire County Council Pension Fund	Hymans Robertson	33%	28%	-5%	33%
Greater Gwent (Torfaen) Pension Fund	Hymans Robertson	23%	23%	0%	22%
Greater Manchester Pension Fund	Hymans Robertson	22%	18%	-4%	21%
Gwynedd Pension Fund	Hymans Robertson	24%	23%	-1%	21%
Hampshire County Council Pension Fund	Aon	22%	20%	-1%	25%
Hertfordshire County Council Pension Fund	Hymans Robertson	26%	22%	-4%	24%
Isle of Wight Council Pension Fund	Hymans Robertson	31%	23%	-9%	24%
Islington Council Pension Fund	Mercer	28%	20%	-8%	21%
Kent County Council Pension Fund	Barnett Waddingham	20%	21%	1%	20%
Lancashire County Pension Fund	Mercer	23%	20%	-3%	20%
Leicestershire County Council Pension Fund	Hymans Robertson	28%	21%	-8%	25%
Lincolnshire Pension Fund	Hymans Robertson	32%	20%	-12%	24%
London Borough of Barking and Dagenham Pension Fund	Hymans Robertson	31%	23%	-8%	25%
London Borough of Barnet Pension Fund	Hymans Robertson	24%	24%	0%	27%
London Borough of Bexley Pension Fund	Mercer	24%	21%	-3%	21%
London Borough of Brent Pension Fund	Hymans Robertson	39%	28%	-11%	35%
London Borough of Bromley Pension Fund	Mercer	26%	25%	-1%	23%
London Borough of Camden Pension Fund	Hymans Robertson	35%	28%	-7%	33%
London Borough of Croydon Pension Fund	Hymans Robertson	31%	23%	-8%	25%
London Borough of Ealing Pension Fund	Mercer	28%	22%	-6%	24%
London Borough of Enfield Pension Fund	Aon	21%	21%	0%	23%
London Borough of Hackney Pension Fund	Hymans Robertson	35%	38%	3%	33%
London Borough of Hammersmith and Fulham Pension Fund	Barnett Waddingham	22%	22%	0%	23%
London Borough of Haringey Pension Fund	Hymans Robertson	36%	24%	-12%	24%
London Borough of Harrow Pension Fund	Hymans Robertson	34%	20%	-14%	25%
London Borough of Havering Pension Fund	Hymans Robertson	38%	23%	-15%	29%
London Borough of Hillingdon Pension Fund	Hymans Robertson	29%	22%	-7%	24%
London Borough of Hounslow Pension Fund	Barnett Waddingham	19%	20%	1%	21%
London Borough of Lambeth Pension Fund	Hymans Robertson	36%	35%	-1%	28%

Pension fund	Firm of actuarial advisors	2013 common contribution rate*	Average employer contribution rate actually paid**	Difference	2016 standard contribution rate*
London Borough of Lewisham Pension Fund	Hymans Robertson	36%	18%	-18%	22%
London Borough of Merton Pension Fund	Barnett Waddingham	21%	36%	15%	19%
London Borough of Newham Pension Fund	Barnett Waddingham	25%	24%	-1%	21%
London Borough of Redbridge Pension Fund	Hymans Robertson	28%	25%	-4%	25%
London Borough of Richmond Upon Thames Pension Fund	Barnett Waddingham	28%	26%	-2%	24%
London Borough of Southwark Pension Fund	Aon	21%	22%	1%	21%
London Borough of Tower Hamlets Pension Fund	Hymans Robertson	36%	31%	-5%	29%
London Borough of Waltham Forest	Mercer	27%	24%	-4%	27%
London Pensions Fund Authority Pension Fund	Barnett Waddingham	20%	23%	3%	20%
Merseyside Pension Fund	Mercer	25%	23%	-1%	24%
Norfolk Pension Fund	Hymans Robertson	30%	22%	-8%	27%
North Yorkshire Pension Fund	Aon	21%	21%	0%	21%
Northamptonshire Pension Fund	Hymans Robertson	32%	23%	-10%	24%
Northumberland County Council Pension Fund	Aon	25%	25%	0%	27%
Nottinghamshire County Council Pension Fund	Barnett Waddingham	19%	19%	0%	20%
Oxfordshire County Council Pension Fund	Barnett Waddingham	19%	20%	1%	19%
Powys County Council Pension Fund	Aon	23%	23%	0%	27%
Rhondda Cynon Taf County Borough Council Pension Fund	Aon	21%	21%	0%	24%
Royal Borough of Greenwich Pension Fund	Barnett Waddingham	19%	19%	1%	18%
Royal Borough of Kensington and Chelsea Pension Fund	Barnett Waddingham	18%	18%	0%	18%
Royal Borough of Kingston Upon Thames Pension Fund	Hymans Robertson	31%	25%	-6%	23%
Royal county of Berkshire Pension Fund	Barnett Waddingham	19%	19%	0%	22%
Shropshire County Pension Fund	Mercer	25%	19%	-6%	22%
Somerset County Council Pension Fund	Barnett Waddingham	20%	18%	-3%	23%
South Yorkshire Passenger Transport Pension Fund	Barnett Waddingham	23%	23%	0%	31%
South Yorkshire Pension Fund	Mercer	24%	21%	-3%	22%
Staffordshire Pension Fund	Hymans Robertson	31%	20%	-11%	26%
Suffolk Pension Fund	Hymans Robertson	28%	26%	-3%	26%
Surrey Pension Fund	Hymans Robertson	31%	22%	-9%	23%
Sutton Pension Fund	Barnett Waddingham	35%	23%	-12%	26%
Teesside Pension Fund	Aon	13%	15%	2%	16%
Tyne and Wear Pension Fund	Aon	24%	26%	2%	25%
Wandsworth Council Pension Fund	Barnett Waddingham	19%	19%	0%	18%

Pension fund	Firm of actuarial advisors	2013 common contribution rate*	Average employer contribution rate actually paid**	Difference	2016 standard contribution rate*
Warwickshire Pension Fund	Hymans Robertson	29%	17%	-12%	23%
West Midlands Integrated Transport Authority Pension Fund	Barnett Waddingham	22%	52%	30%	84%
West Midlands Pension Fund	Barnett Waddingham	26%	26%	0%	28%
West Sussex County Council Pension Fund	Hymans Robertson	26%	24%	-2%	25%
West Yorkshire Pension Fund	Aon	16%	16%	0%	19%
Wiltshire Pension Fund	Hymans Robertson	31%	21%	-11%	27%
Worcestershire County Council Pension Fund	Mercer	26%	25%	-1%	26%

*The sum of primary contribution rate and contribution rate in respect of surplus/ deficit

**For Mercer clients, this represents the average employer contribution rate paid over the intervaluation period submitted with the 2016 data. For other funds, this represents the average 2014/15 employer contribution rate submitted in the data for the 2013 dry run.

Data specification

1) MEMBERSHIP DATA

Data split by gender.

a) Active members: number of members, average age (weighted as appropriate), average period of membership, total rate of annual actual pensionable pay at 31 March 2016 and 31 March 2013, total rate of annual FTE pensionable pay at 31 March 2016 and 31 March 2013,

b) Pensionable pay definition, has the 2008 or 2014 definition been used to assess pensionable pay for both 31 March 2016 and 31 March 2013

c) Deferred members: number of members, average age (weighted as appropriate), total annual preserved pension revalued to 31 March 2016 for both 31 March 2016 and 31 March 2013. Note this should exclude undecided members.

d) Pensioners (former members): number of members, average age (weighted as appropriate), total annual pensions in payment at 31 March 2016 and 31 March 2013

e) Pensioners (dependants including partners and children): number of members, average age (weighted as appropriate), total annual pensions in payment at 31 March 2016 and 31 March 2013

2) FINANCIAL ASSUMPTIONS

f) Provide assumptions used for past service liabilities these have been given for both as at 31 March 2016 and 31 March 2013.

i) Nominal discount rate (pre & post retirement separately if applicable)

ii) RPI inflation

iii) CPI inflation rate

iv) Earnings inflation

g) Provide assumptions used for future contributions, these have been given for both as at 31 March 2016 and 31 March 2013.

i) Nominal discount rate (pre & post retirement separately if applicable)

ii) RPI inflation

iii) CPI inflation rate

iv) Earnings inflation

h) Provide a method by which the discount rates are derived

i) CPI+

ii) Gilts

iii) Weighted Average expected return on assets classes

iv) Other (please specify)

i) Asset Outperformance assumption for both 31 March 2016 and 31 March 2013.

j) Short term assumptions used in the valuation for year 2016-17,2017-18,2018-19,2019-20

i) CPI

ii) Salary Increases

iii) Discount Rate

If different assumptions were adopted, there was a separate tab (called Alternative Assumptions) for these other assumptions.

ALTERNATIVE FINANCIAL ASSUMPTIONS

a) Provide assumptions used for past service liabilities these have been given for both as at 31 March 2016 and 31 March 2013.

i) Nominal discount rate (pre & post retirement separately if applicable)

ii) RPI inflation

iii) CPI inflation rate

iv) Earnings inflation

b) Provide assumptions used for future contributions, these have been given for both as at 31 March 2016 and 31 March 2013.

i) Nominal discount rate (pre & post retirement separately if applicable)

ii) RPI inflation

iii) CPI inflation rate

iv) Earnings inflation

c) Provide a method by which the discount rates are derived

i) CPI+

ii) Gilts

iii) Weighted Average expected return on assets classes

iv) Other (please specify)

d) Asset Outperformance assumption for both 31 March 2016 and 31 March 2013.

e) Short term assumptions used in the valuation for year 2016-17,2017-18,2018-19,2019-20

i) CPI

ii) Salary Increases

iii) Discount Rate

3) DEMOGRAPHIC ASSUMPTIONS

Rates to be provided at sample ages split by gender

Each could be split further in Group 1, Group 2, Group 3, Group 4, and Group 5

a) Assumed life expectancy

i) Pensioner members aged 65 (for members retiring on normal health) (to 2dp)Rates of Ill-health Retirement from Active service

ii) Pensioner members aged 65 (for members retiring on ill health) (to 2dp)

iii) Pensioner members aged 65 (for dependants) (to 2dp)

iv) Active / deferred members at age 65 if they are currently aged 45 (for members retiring on normal health) (to 2dp)

v) Active / deferred members at age 65 if they are currently aged 45 (for members retiring on ill health) (to 2dp)

b) Post-retirement Mortality

i) Baseline (e.g. 100% S1NMA)

ii) Future improvements (e.g. CMI 2012)

iii) Long term rate of future improvement (%)

c) Commutation

i) Pre 2008 pension Commutation Assumptions (as % of maximum lump sum allowed under HMRC rules)*

ii) Post 2008 pension Commutation Assumptions (as % of maximum lump sum allowed under HMRC rules)*

*For example, maximum proportion of pension that may be commuted under the 2008 scheme is 35.71%. This will give a lump sum equal to the permitted maximum and thus if the member is assumed to commute this amount of pension, the entry in the table above is 100%.

* For pre2008 service, members already receive a lump sum = 3/80ths x pre 2008 pensionable service x final pensionable salary. Please specify the pre 2008 assumption as the proportion of the permitted maximum that is expected to be commuted over and above the 3/80ths lump sum.

d) Promotional Salary Scale (if not included in earnings inflation assumption), this is further split by ages increasing in multiples of 5 from age 20 to 65

If included in earnings assumption, indicate Y

4) ASSETS

These are split to provide information for 31 March 2016 and 31 March 2013

a) Value of Assets (market value)

b) Actual Asset Distribution split into the following:

i) Proportion of assets held in Bonds (fixed interest government bonds, fixed interest non-government bonds, inflation linked bonds)

ii) Proportion of assets held in Equities (UK equities, overseas equities, unquoted or private equities

iii) The rest in Property, Insurance Policies, Fully insured annuities, Deferred or immediate fully insured annuities, Hedge funds, Cash and net current assets, Commodities, ABC arrangements, Infrastructure – debt type, Infrastructure* – equity type "Other" investments – defensive*, "Other" investments – return seeking

* Please provide details of infrastructure projects undertaken since 1 April 2013, and further plans to increase this on a separate sheet.

** Please provide information on whether local housing stock is held within the property portfolio, and any future plans to add this asset class.

c) Value of assets used in valuation

d) Is a smoothed asset value used? If Yes, an explanation is included

5) LIABILITIES AND FUTURE CONTRIBUTION RATE

These are split to provide information for 31 March 2016 and 31 March 2013;

i) Local assumptions

a) Past service liability – split between Actives, Deferred, Pensioners and Total

b) Funding level

c) Surplus / deficit

d) Deficit recovery period

e) Past service liability (on a low risk / gilts basis) – split between Actives, Deferred, Pensioners and Total

Future contribution rates

f) Primary contribution rate

g) If primary contribution rate include deficit recovery contributions

h) Standard contribution rate

i) Contribution rate in respect of surplus or deficit

j) Assumed member contribution yield

k) Expenses, split by administration and investment (if not included implicitly in discount rate)

l) Pensionable Pay definition (2008 or 2014 scheme definition)

m) Is a smoothed liability value used? If Yes, an explanation is included

ii) SAB standardised basis (only relevant for England and Wales)

a) Past service liability – split between Actives, Deferred, Pensioners and Total

b) Funding level

c) Surplus / deficit

d) Deficit recovery period

Future contribution rates

h) Standard contribution rate

i) Contribution rate in respect of surplus or deficit

j) Assumed member contribution yield

6) REVENUE ACCOUNTS

a) Value of assets at last valuation (after any smoothing or other adjustments)

b) Value of assets at this valuation (after any smoothing or other adjustments)

c) Total Income: Employee contributions, normal employer contributions, special employer contributions, transfers in, investment income, other income

d) Total Expenditure: Pensions paid, retirement lump sums paid, other lump sums paid, transfers out, investment expenses, administration expenses, other outgoings

7) ANALYSIS OF SURPLUS (PAST SERVICE LIABILITY)

a) Surplus / deficit at last valuation

b) Interest on surplus/deficit

c) Difference between contribution paid and cost of benefits accrued

d) Total experience gains and losses (of which: investment return experience, salary increase experience, pension increase experience, pensioner mortality experience, other demographic experience)

e) Total change in assumptions (of which: financial assumptions, mortality assumptions, other demographic assumptions)

f) Other

g) Surplus / deficit at this valuation

8) ANALYSIS OF CHANGE IN FUTURE SERVICE CONTRIBUTION RATE

a) Future service rate at last valuation

b) Total effect of change in assumptions (Of which: financial assumptions, mortality assumptions, other demographic assumptions)

c) Change due to introduction new benefit design from April 2014

d) Other

e) Change in definition of pensionable pay

f) Future service rate at this valuation (common contribution rate)

9) DEFICIT RECONCILIATION

Complete the three yearly deficit repayments from the last valuation and from this valuation to demonstrate continuity of deficit recovery plan.

a) Nominal deficit contributions expected to be paid in the three year period for the current valuation (March 2016), previous valuation (March 2013) and the difference: for 2013-2016, 2016-2019, 2019-2022, 2022-2025, 2025-2028, 2028-2031, 2031-2034, 2034-2017, 2037+. The nominal difference should also be included.

b) Present value of deficit contributions expected to be paid in the three year period: the current valuation (March 2016), previous valuation (March 2013) and the difference: for 2013-2016, 2016-2019, 2019-2022, 2022-2025, 2025-2028, 2028-2031, 2031-2034, 2034-2017, 2037+, Sum of present values, Original deficit disclosed.

10) AVERAGE EMPLOYER CONTRIBUTION RATE

For years 2017/18, 2018/19 and 2019/20

a) Average employer contribution rate, current benefit accrual (%pay)

b) Total deficit contributions payable (where expressed as a fixed monetary amount (£)

c) Projected total deficit contributions (where expressed as a percentage of pay (% pay)

d) Total deficit contributions (£)

e) Total deficit contributions (expressed as a % of pay) (% pay)

f) Average employer contribution rate (% pay)

g) Total projected pay (£)

h) Pensionable Pay definition (2008 or 2014 scheme definition)

i) Long Stepping Periods – If a longer stepping period than three years, then it should be indicated and an explanation included.

11) POST 2014 SCHEME

a) Proportion of members assumed to be in 50/50 scheme split by gender

12) DOCUMENTATION REQUIRED

a) Valuation Report @ 31 March 2016

b) Relevant related reports

c) Compliance Extract

d) Statement of Investment Strategy

e) Funding Strategy Statement

f) Other

Explanatory notes

1 **Membership data:** Average ages should be unweighted, weighted by salary/pension and weighted liability as available. Accrued pensions should include the 2016 Pension Increase Order.

3 **Demographic Assumptions:** We expect this to be shown at sample ages only which will be specified in our template. For example promotional salary scale we intend to use five-year intervals from 20 to 65.

3c **Commutation:** Maximum proportion of pension that may be commuted under the 2008 scheme is 35.71%. This will give a lump sum equal to the permitted maximum and thus if the member is assumed to commute this amount of pension, the entry in the table above is 100%. For pre2008 service, members already receive a lump sum = 3/80ths x pre 2008 pensionable service x final pensionable salary. Please specify the pre 2008 assumption as the proportion of the permitted maximum that is expected to be commuted over and above the 3/80ths lump sum.

5j **Assumed member contribution yield:** This is the contribution yield that members are assumed to pay over the valuation period. It will vary by authority due to the tiered member contribution rates.

4b **Infrastructure - debt type:**

Infrastructure - equity type: Whether local housing stock is held within the property portfolio

10 The average employer contribution rate should be calculated as projected employer contributions in 2017/18 divided by projected pensionable pay in 2017/18. The rate for 2018/19 and 2019/20 should be calculated by the same method. We request the following:

10a **Average employer contribution rates –** current benefit accrual (% pay): weighted average of cost of current accruals (net of employee contributions)

10b **Total deficit contributions payable** (where fixed monetary amount) (£): Sum of deficit contribution where expressed as a fixed monetary amount. Ignore deficit contributions paid as a proportion of pay for this item

10c **Projected total deficit contributions payable** (where expressed as a percentage of pay) (£): Projected payment in £ terms – will require an assumption about projected pay. Ignore deficit contribution paid as a fixed monetary amount

10d **Total deficit contributions (£):** The sum of 10b) and 10c)

10e **Total deficit contributions expressed a percentage of pay (% pay):** Row 10d) re-expressed as a percentage of pay by dividing by projected pay across the whole fund (i.e. 10d) divided by 10g))

10f **Average employer contribution rate (% pay):** Sum of 10a) and 10e)

10g **Projected pay (£): Total projected pay (£):** For all employers in the fund

Since projected pensionable pay (10g)) acts only as the weightings in these weighted averages, it is acceptable to use a simple projection of pensionable pay (eg based on actual pensionable pay at 31 Mar 2016 with a simple factor for increases up to 2020).

Appendix G: Assumptions

G.1 Each section of analysis contained in the main report is based on one of three sets of assumptions:

- The local fund assumptions, as used in the fund's 2016 actuarial valuation
- The SAB standardised set of assumptions, or SAB standard basis
- A best estimate set of assumptions

G.2 Details of local fund assumptions can be found in each fund's actuarial valuation report as at 31 March 2016. Details of the SAB standard basis and the standardised best estimate basis can be found in the table below. Differences are highlighted.

Table G1: SAB standard basis[17] and best estimate basis

ASSUMPTION	SAB standard basis	Best estimate basis
Methodology	Projected Unit Methodology with 1 year control period	Projected Unit Methodology with 1 year control period
Rate of pension increases	2% per annum	1.9% per annum
Public sector earnings growth	3.5% per annum	3.9% per annum
Discount rate	5.06% per annum	5.59% per annum
Pensioner baseline mortality	Set locally based on Fund experience	
Mortality improvements	Long term reduction in mortality rates of up to 1.5% per annum	
Changes to state pension age	As legislated	
Age retirement	Set locally based on Fund experience	
Ill health retirement rates	Set locally based on Fund experience	
Withdrawal rates	Set locally based on Fund experience	
Death before retirement rates	Set locally based on Fund experience	
Promotional salary scales	None	Set locally based on Fund experience
Commutation	SAB future service cost assumption of 65% of the maximum allowable amount.	
Family statistics	Set locally based on Fund experience	

G.3 The financial assumptions for the best estimate basis are based on GAD's neutral assumptions for long term inflation measures and asset returns, and the split of LGPS assets held as at 31 March 2016. These neutral assumptions are not deliberately optimistic nor pessimistic and do not incorporate adjustments to reflect any desired outcome. We believe there is around a 50% chance of outcomes being better and a 50% chance of outcomes being worse than these assumptions imply.

G.4 Future asset returns are uncertain and there is a wide range of reasonable views on what future asset returns will be and therefore the best estimate discount rate should be. We have presented GAD's house view above, but there are other reasonable best estimate bases which may give materially different results.

[17] Details can be found in the Scheme Advisory Board's Cost Management Process at: http://www.lgpsboard.org/images/PDF/CMBDANov2016/AI5-SABCMP2.pdf. This document specifies assumptions, some of which have been approximated for the purposes of this exercise (as set out in Table G1).

Table G2: Implied[18] Life Expectency best estimate basis

	Implied weighted average life expectency best estimate basis (years)
Current pensioners	
Male aged 65	22.4
Female aged 65	24.9

[18] This is the weighted average life expectancy of locally derived figures, weighted by pensioner liability. Some actuaries combined ill health pensioners with normal health in their life expectancy calculations. We have not adjusted for this.

Appendix H: Section 13 of the Public Service Pensions Act 2013[19]

13 Employer contributions in funded schemes

(1) This section applies in relation to a scheme under section 1 which is a defined benefits scheme with a pension fund.

(2) Scheme regulations must provide for the rate of employer contributions to be set at an appropriate level to ensure—

(a) the solvency of the pension fund, and

(b) the long term cost efficiency of the scheme, so far as relating to the pension fund.

(3) For that purpose, scheme regulations must require actuarial valuations of the pension fund.

(4) Where an actuarial valuation under subsection (3) has taken place, a person appointed by the responsible authority is to report on whether the following aims are achieved—

(a) the valuation is in accordance with the scheme regulations;

(b) the valuation has been carried out in a way which is not inconsistent with other valuations under subsection (3);

(c) the rate of employer contributions is set as specified in subsection (2).

(5) A report under subsection (4) must be published; and a copy must be sent to the scheme manager and (if different) the responsible authority.

(6) If a report under subsection (4) states that, in the view of the person making the report, any of the aims in that subsection has not been achieved—

(a) the report may recommend remedial steps;

(b) the scheme manager must—

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

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

(c) the responsible authority may—

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

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

(7) The person appointed under subsection (4) must, in the view of the responsible authority, be appropriately qualified.

[19] http://www.legislation.gov.uk/ukpga/2013/25/section/13

Appendix I: Extracts from other relevant regulations

Regulations 58 and 62 of 'The Local Government Pension Scheme Regulations 2013[20]'

Funding strategy statement

58.–(1) An administering authority must, after consultation with such persons as it considers appropriate, prepare, maintain and publish a written statement setting out its funding strategy.

(2) The statement must be published no later than 31st March 2015.

(3) The authority must keep the statement under review and, after consultation with such persons as it considers appropriate, make such revisions as are appropriate following a material change in its policy set out in the statement, and if revisions are made, publish the statement as revised.

(4) In preparing, maintaining and reviewing the statement, the administering authority must have regard to—

(a) the guidance set out in the document published in March 2004 by CIPFA, the Chartered Institute of Public Finance and Accountancy and called "CIPFA Pensions Panel Guidance on Preparing and Maintaining a Funding Strategy Statement (Guidance note issue No. 6)[21]"; and

(b) the statement of investment principles published by the administering authority under regulation 12 of the Local Government Pension Scheme (Management and Investment of Funds) Regulations 2009.

Actuarial valuations of pension funds

62.–(1) An administering authority must obtain—

(a) an actuarial valuation of the assets and liabilities of each of its pension funds as at 31st March 2016 and on 31st March in every third year afterwards;

(b) a report by an actuary in respect of the valuation; and

(c) a rates and adjustments certificate prepared by an actuary.

(2) Each of those documents must be obtained before the first anniversary of the date ("the valuation date") as at which the valuation is made or such later date as the Secretary of State may agree.

(3) A report under paragraph (1)(b) must contain a statement of the demographic assumptions used in making the valuation; and the statement must show how the assumptions relate to the events which have actually occurred in relation to members of the Scheme since the last valuation.

(4) A rates and adjustments certificate is a certificate specifying—

(a) the primary rate of the employer's contribution; and

(b) the secondary rate of the employer's contribution,

for each year of the period of three years beginning with 1st April in the year following that in which the valuation date falls.

(5) The primary rate of an employer's contribution is the amount in respect of the cost of future accruals which, in the actuary's opinion, should be paid to a fund

[20] http://www.legislation.gov.uk/uksi/2013/2356/contents/made

[21] ISBN Number 085299 996 8; copies may be obtained from CIPFA at 3 Robert Street, London, WC2N 6RL

by all bodies whose employees contribute to it so as to secure its solvency, expressed as a percentage of the pay of their employees who are active members.

(6) The actuary must have regard to—

(a) the existing and prospective liabilities arising from circumstances common to all those bodies;

(b) the desirability of maintaining as nearly constant a common rate as possible;

(c) the current version of the administering authority's funding strategy mentioned in regulation 58 (funding strategy statements); and

(d) the requirement to secure the solvency of the pension fund and the long term cost efficiency of the Scheme, so far as relating to the pension fund.

(7) The secondary rate of an employer's contributions is any percentage or amount by which, in the actuary's opinion, contributions at the primary rate should, in the case of a Scheme employer, be increased or reduced by reason of any circumstances peculiar to that employer.

(8) A rates and adjustments certificate must contain a statement of the assumptions on which the certificate is given as respects—

(a) the number of members who will become entitled to payment of pensions under the provisions of the Scheme; and

(b) the amount of the liabilities arising in respect of such members,

during the period covered by the certificate.

(9) The administering authority must provide the actuary preparing a valuation or a rates and adjustments certificate with the consolidated revenue account of the fund and such other information as the actuary requests.