



London Borough of Hillingdon

Investment Risk & Analytical Services

December 31, 2017

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Client Commentary

Total Scheme Commentary

Total Scheme Commentary

All major developed economies enjoyed increasing growth over 2017 and the signs are that momentum will accelerate into the start of 2018 as inflationary pressure remains weak. Global Equity valuations remain elevated at 21.6 times earnings, some way above the historical average of 17.8. Emerging Market equities appear inexpensive by comparison. It is the lack of volatility that has been the most remarkable characteristic of equity markets in 2017. Returning 23% growth in USD over the year, global equities only suffered 2 days of >1% losses and enjoyed just 1 day of >1% gains. Disney's purchase of most of 21st Century Fox was just the latest acquisition across the business spectrum from retailing through healthcare to packaged food and car making as the old guard tries to prevent being displaced by young upstarts.

Brexit talks and the anticipation of further interest rate increases weighed heavily on sterling and gilt yields. The UK 10-year gilt bid-yield ended the quarter at 1.19% whilst the rate-sensitive two-year gilt bid-yield jumped to 0.44%. The FTSE All-Stock index delivered a total return of 1.97% in Sterling terms over the quarter whilst the ML Sterling Non-Gilts index returned 1.85% for the same period.

In the UK, Q4 2017 saw Sterling strengthen against the Dollar and Yen. The Bank of England raised the official bank rate from 0.25% to 0.50%, the first rate increase since July 2007. It is now back at the level it was at prior to the cut in August 2016. The vote was 7-2 in favour of the rate rise citing low unemployment, rising inflation and stronger global economic growth as justification. The consumer price index rose by 3.1% in the year to November 2017, the highest year-on-year rise since March 2012. The main upward contributors were from air fares and the rising prices for computer games, toys and hobbies.

Within this environment the London Borough of Hillingdon returned 3.08% which was below the Total Plan benchmark of 3.53%. In monetary terms this is a growth in assets of £30 million and the value of the combined scheme now stands at £1,009 million as at 31st December 2017. Looking further into the analysis the results seen were caused by stock selection effects, the most notable impacts were the negative effects of UBS although this was partially reversed by the positive impacts in London CIV Ruffer.

The Scheme's one year return of 8.75% is 0.72% behind the benchmark of 9.53% following four consecutive quarters of underperformance. While over the longer periods, with ten positive quarters over the last 3 years, the Scheme has outperformed, producing a return of 10.07% over three year versus 9.43%. Then the excess marginally decreases to 0.54% for the 5 year period where we see figures of 10.10% versus 9.50% per annum. Then since inception in September 1995, the Fund remains ahead of target by 12 basis points with an annualised return of 7.24% against a target of 7.11%.

Manager Commentary

AEW UK

Over the fourth quarter AEW UK Property produced a growth of 2.82%, which was 0.27% below the IPD UK PPFI All Balanced Funds index figure of 3.10%. They remain ahead of target over the year, and continue to be ahead over the three year period returning 11.02% against the benchmark of 8.89%. This translates as a +1.96% relative return. However, with positive absolute returns in all but one period and only four quarters in the red on a relative basis, growth ahead of benchmark is seen since the fund inception. Since the funds inception date of July 2014, the fund return is 11.97%, leading to an outperformance of 1.61% when compared to the IPD figure of 10.19%.

JP Morgan

In the latest quarter JP Morgan produces a growth in assets of 0.76% leading to an underperformance of 0.06% when compared to the 0.83% target for the 3 Month LIBOR + 3% p.a. Then with good results in the four of the last six quarters, the one year return of 5.87% is ahead of the 3.41% target by 2.38%. Then over three and five years they post returns closer to the benchmark with figures of 4.65% vs 3.61% and 3.63% vs 3.58% respectively. Since the mandate funded their return of 4.22% is +56 basis points above the target return of 3.64% on an annualised basis.

Legal & General 1

Over the last three months the Legal & General No. 1 mandate post a return of 4.55% against 4.53% for the custom fixed weight blended benchmark, a slight outperformance of +1 basis points. In the short period since inception in October 2016, they return 10.25%, which is just -2 basis points down on the benchmark return 10.27%. Further analysis demonstrates the passive strategy with all funds neutral when compared to the benchmark weights and in line with their respective benchmark returns.

Legal & General 2

During February 2017 the new Legal & General mandate was funded, now in its eleventh month of investment they post a return of +4.57% against +4.58% for the fourth quarter against the custom fixed weight blended benchmark consisting of FTSE Global Equity Hedged and Emerging Markets, FTSE Index Linked 15+ years and iBoxx UK Non-Gilts. In the short period since inception, they return 8.41% against 8.72% for the benchmark.

Client Commentary (cntd)

Manager Commentary

London CIV Ruffer

This quarter assets within the London CIV Ruffer portfolio saw a positive gain reversing the last two consecutive falls in value, meaning the +2.65% return when compared to the LIBOR 3 Month GBP figure of 0.09%, leads to a relative return of +2.56%. This has improved the results over 2017 and the one year period exhibits a modest growth of 1.47% against the target of 0.41%. Outperformance remains in the longer periods. This is seen in a three year return of 5.54% versus 0.60%, then similarly for the five years with figures of 6.85% against 0.60%, culminating in since inception (May 2010) figures of 6.02% versus 0.82% per annum, which translates as a relative return of 5.16%. This manager shows the largest outperformance of all the schemes managers over the since inception period.

M&G Investments

For the third consecutive period M&G posted gains (albeit small) in Q4 by producing a return of 0.61% against the 3 Month LIBOR +4% p.a. target of 1.07%, demonstrating an underperformance of 0.45%. Coupled with the previous good results, the full year return leads the benchmark by 1.97%, coming from figures of 6.47% against 4.41%. Over the three and five year the account registers figures of 11.36% vs 4.60% and 9.22% vs 4.58% respectively; since inception (May 2010) return falls slightly to 7.60% pa whilst the benchmark is 4.67% pa. Although the since inception Internal Rate of Return moves further ahead of target with a figure of 8.74% opposed to the comparator of 4.42%.

Macquarie

Over the last three months, Macquarie produced a growth of 2.30%, against the 0.83% for the 3 Month LIBOR +3% p.a. this translates as an outperformance of 1.46%. With twelve consecutive quarters of positive absolute and relative returns, outperformance is seen in all longer periods. Over the rolling year a growth of 10.36% beats the target of 3.41% by 6.71%, similarly the three year result of 17.86% versus 3.60% exhibits the best relative return at 13.76%. The annualised return over 5 years falls to 12.90%, but still ahead of the 3.58% seen for the benchmark; then since inception (September 2010) the 4.64% is ahead of the target of 3.67%. Although the since inception Internal Rate of Return for this portfolio jumps to 12.41%, which is ahead of the benchmark figure of 3.59%.

Newton

During the month of October, Newton was terminated and a total of 141m was transferred to the transition account. The proceeds were then invested into the new Epoch account in November

Manager Commentary

Premira Credit

The Premira Credit Fund saw a growth of 1.71% over the fourth quarter of 2017, this compares favourably with the 3 Month LIBOR +4% p.a. target of 1.07%. All four quarter's over the last year are still ahead of target, leading to an outperformance of 3.66%, created from figures of 8.23% against 4.41%. Then since the start of December 2014 when the fund inceptioned, the fund posts a return of 9.41% against the benchmark of 4.55%, leading to a relative position of 4.64%.

UBS

During Q4 the UBS UK Equity investments returned 3.90%, trailing behind the 4.96% for the FTSE All Share. Looking into the attribution analysis this underperformance was a result of Selection effects, the most significant being the effects in Consumer Services (-57bps) and Utilities (-40 bps), while the largest positive impact comes from Basic Materials (+22 bps). Allocation decisions were also notable and made a positive impact with the most significant being overweight in Basic Materials (+27 bps) as well as an overweighting in Oil & Gas (+25 bps) and being underweight HealthCare (+16 bps). The manager is now behind over the one year, figures of 12.49% vs 13.10% translates as a relative return of -0.54%. This is largely attributable to selection effects again, the biggest impacts come from both selection in the Utilities sector (-0.70%) and Consumer services (-0.53%); while the largest positive impact was from Basic Materials (+0.78%) . The longer time periods show a positive picture, with three and five years ahead of the index, culminating in a since inception (January 1989) return of 10.37% versus 9.01% on an annualised basis.

UBS Property

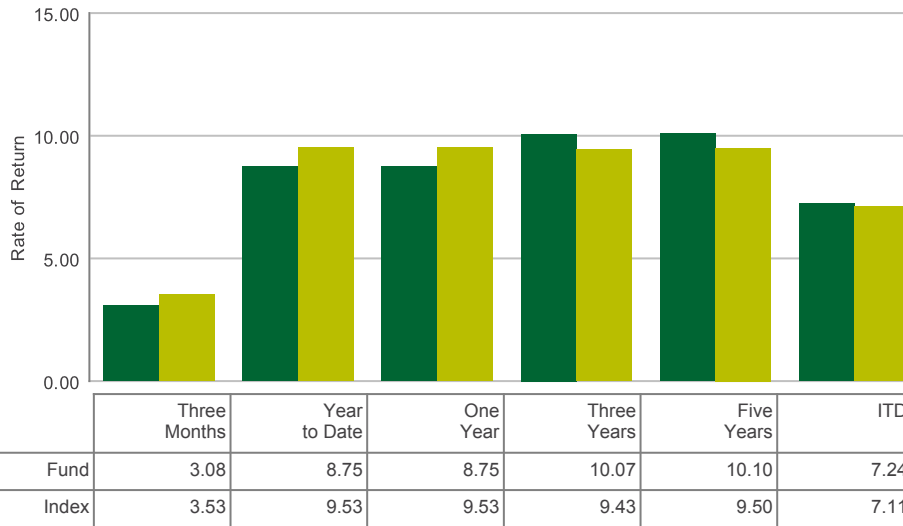
Continuing on from the previous period, in the latest quarter the UBS Property posted an outperformance with +0.12%, generated from a return of 3.22% against the IPD UK PPFI All Balanced Funds index of 3.1%. Over the one year a deficit is recorded, with a full year return of 9.19% falling -0.86% behind the IPD target of 10.13%. However, the previous good run of results prior to the last year leads to high absolute returns staying ahead of the IPD target over the longer periods, peaking over the three year with a return of 9.52% against 8.38%. Then since inception, in March 2006, the fund return falls to 3.93% per annum which manages to stay just ahead of the benchmark figure of 3.86%.

Private Equity

The private equity assets saw a 3.09% rise in value for LGT. Adam Street saw an increase of 2.94%. Over the longer periods, the outlook over which private equity investments should be measured, returns remain positive. LGT maintain a run of over 3 years of growth with figures of 16.39%, 21.23% and 15.92% for the one, three and five year periods respectively, while Adam Street posted 0.96%, 14.68% and 16.00% over the same periods. Although they fall short of the proxy benchmark of MSCI AC World +4% p.a. which shows 17.84%, 19.24% and 18.88%. One exception being LGT's return over the 3 year period where they have outperformed by 1.67%. Then since their respective inceptions in January 2005 and May 2004, Adam Street drops to 6.40% pa, while LGT sees a slight dip to 10.97%.

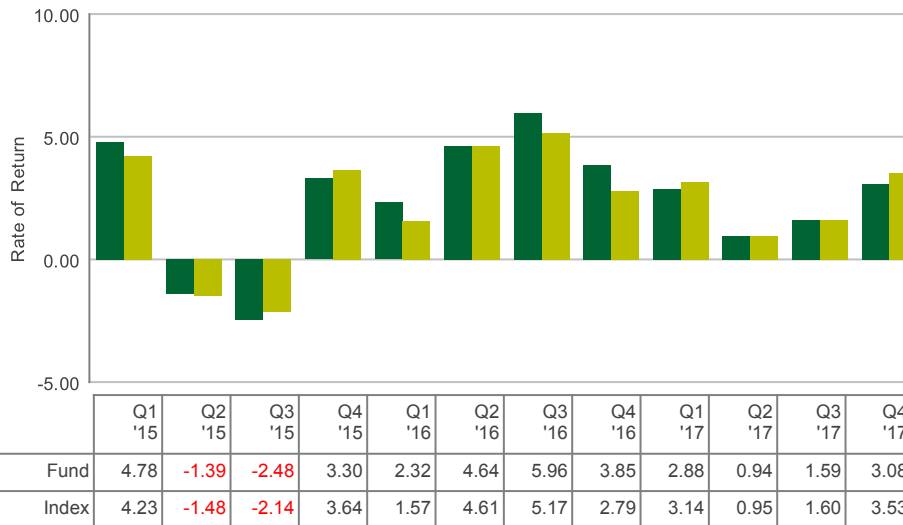
Executive Summary

LONDON BOROUGH OF HILLINGDON TOTAL FUND GROSS OF FEES



Index: Total Plan Benchmark

LONDON BOROUGH OF HILLINGDON ROLLING QUARTERS TOTAL FUND GROSS OF FEES



Index: Total Plan Benchmark

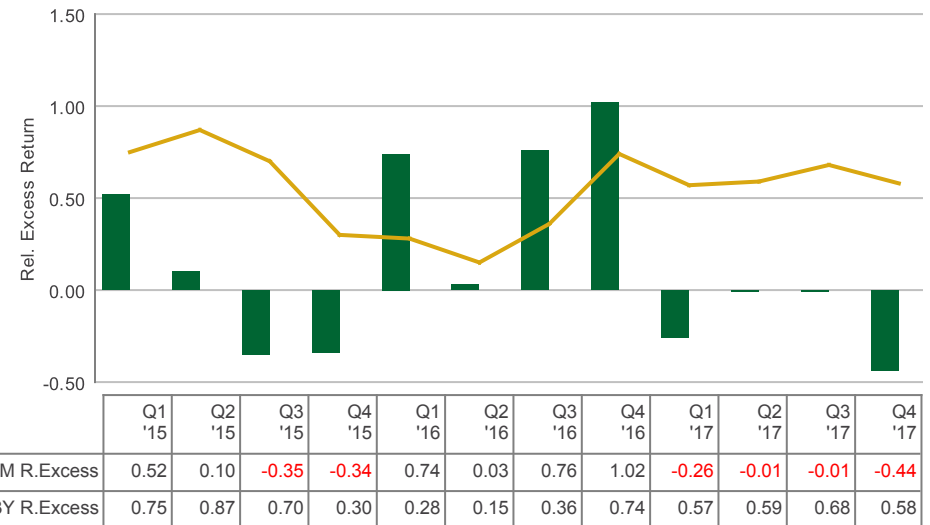
RISK STATISTICS

	1 Yr	3 Yrs	5 Yrs
Return	8.75	10.07	10.10
Index Return	9.53	9.43	9.50
Relative Excess Return	-0.72	0.58	0.54
Standard Deviation	3.67	5.08	5.17
Index Standard Deviation	3.43	4.74	4.85
Tracking Error	0.75	1.18	1.07
Information Ratio	-1.05	0.54	0.55
Sharpe Ratio	2.27	1.86	1.84
Index Sharpe Ratio	2.66	1.86	1.84
Sortino Ratio	-	-	3.56
Treynor Ratio	7.94	9.08	9.11
Jensen's Alpha	-1.16	0.23	0.19
Relative Volatility (Beta)	1.05	1.04	1.04
R Squared	0.96	0.95	0.96

Index: Total Plan Benchmark. Risk Free Index: JP Morgan 3 month Cash (GBP)

Category: Total Fund Gross of Fees. Calculation Frequency: Monthly

LONDON BOROUGH OF HILLINGDON ROLLING QUARTERS TOTAL FUND GROSS OF FEES



Index: Total Plan Benchmark

Investment Hierarchy

Account/Group -% Rate of Return	Ending Market Value GBP	Ending Weight	Three Months			Year to Date			One Year		
			Port	Index	Relative Excess	Port	Index	Relative Excess	Port	Index	Relative Excess
London Borough of Hillingdon	1,008,836,599	100.00	3.08	3.53	-0.44	8.75	9.53	-0.72	8.75	9.53	-0.72
Total Plan Benchmark											
AEW UK	53,072,998	5.26	2.82	3.10	-0.27	13.57	10.13	3.12	13.57	10.13	3.12
LBH22 AEW Benchmark											
JP Morgan	56,529,035	5.60	0.76	0.83	-0.06	5.87	3.41	2.38	5.87	3.41	2.38
LBH15 JPM LIBOR +3%pa											
Legal & General 1	238,916,988	23.68	4.55	4.53	0.01	11.10	11.10	-0.00	11.10	11.10	-0.00
LBH26 L&G Benchmark											
Legal & General 2	67,428,860	6.68	4.57	4.58	-0.01	-	-	-	-	-	-
LBH27 L&G Benchmark											
M&G Investments	15,103,419	1.50	0.61	1.07	-0.45	6.47	4.41	1.97	6.47	4.41	1.97
LBH10 3 Month LIBOR +4%pa											
Macquarie	27,071,739	2.68	2.30	0.83	1.46	10.36	3.41	6.71	10.36	3.41	6.71
LBH14 Macquarie LIBOR +3%pa											
Newton	0	0.00	-	-	-	-	-	-	-	-	-
LBH19 FTSE World Index +2%											
Premira Credit	55,632,218	5.51	1.71	1.07	0.63	8.23	4.41	3.66	8.23	4.41	3.66
LBH24 Premira LIBOR +4%pa											
UBS	139,662,286	13.84	3.90	4.96	-1.01	12.49	13.10	-0.54	12.49	13.10	-0.54
LBH04 UBS Benchmark											
UBS Property	73,960,152	7.33	3.22	3.10	0.12	9.19	10.13	-0.86	9.19	10.13	-0.86
LBH06 UBS Property Benchmark											
Adam Street	14,382,397	1.43	2.94	5.75	-2.65	0.96	17.84	-14.33	0.96	17.84	-14.33
Adam Street PE Bmark											
LGT	7,594,764	0.75	3.09	5.75	-2.51	16.39	17.84	-1.23	16.39	17.84	-1.23
LGT PE Bmark											
Epoch Investment P Income	140,383,728	13.92	-	-	-	-	-	-	-	-	-
LBH11001 MSCI World ND											
London CIV Ruffer	105,977,118	10.50	2.65	0.09	2.56	1.47	0.41	1.05	1.47	0.41	1.05
LBH11003 Ruffer BM Libor											

Investment Hierarchy(2)

Account/Group -% Rate of Return	Three Years			Five Years			Inception to Date			Inception Date
	Port	Index	Relative Excess	Port	Index	Relative Excess	Port	Index	Relative Excess	
London Borough of Hillingdon Total Plan Benchmark	10.07	9.43	0.58	10.10	9.50	0.54	7.24	7.11	0.12	30/09/1995
AEW UK LBH22 AEW Benchmark	11.02	8.89	1.96	-	-	-	11.97	10.19	1.61	30/06/2014
JP Morgan LBH15 JPM LIBOR +3%pa	4.65	3.61	1.00	3.63	3.58	0.04	4.22	3.64	0.56	08/11/2011
Legal & General 1 LBH26 L&G Benchmark	-	-	-	-	-	-	10.25	10.27	-0.02	31/10/2016
Legal & General 2 LBH27 L&G Benchmark	-	-	-	-	-	-	8.41	8.72	-0.28	22/02/2017
M&G Investments LBH10 3 Month LIBOR +4%pa	11.36	4.60	6.46	9.22	4.58	4.43	7.60	4.67	2.80	31/05/2010
Macquarie LBH14 Macquarie LIBOR +3%pa	17.86	3.60	13.76	12.90	3.58	9.00	4.64	3.67	0.94	30/09/2010
Newton LBH19 FTSE World Index +2%	-	-	-	-	-	-	-	-	-	24/01/2013
Premira Credit LBH24 Premira LIBOR +4%pa	9.68	4.60	4.86	-	-	-	9.41	4.55	4.64	30/11/2014
UBS LBH04 UBS Benchmark	12.11	10.07	1.86	13.01	10.26	2.50	10.37	9.01	1.25	31/12/1988
UBS Property LBH06 UBS Property Benchmark	9.52	8.38	1.05	11.08	10.24	0.76	3.93	3.86	0.07	31/03/2006
Adam Street Adam Street PE Bmark	14.68	19.24	-3.82	16.00	18.88	-2.42	6.40	-	-	31/01/2005
LGT LGT PE Bmark	21.23	19.24	1.67	15.92	18.88	-2.49	10.97	-	-	31/05/2004
Epoch Investment P Income LBH11001 MSCI World ND	-	-	-	-	-	-	-0.90	-0.42	-0.48	08/11/2017
London CIV Ruffer LBH11003 Ruffer BM Libor	5.54	0.60	4.91	6.85	0.60	6.22	6.02	0.82	5.16	28/05/2010

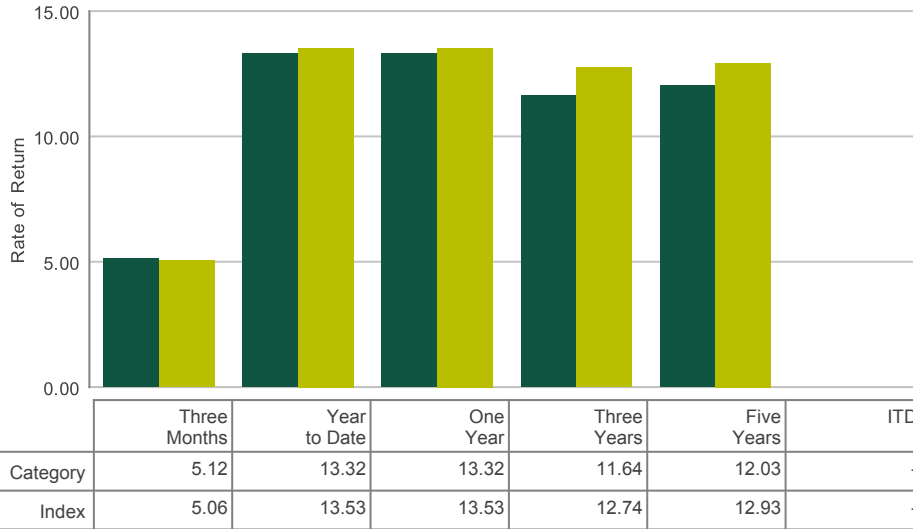
Market Value Summary - Three Months

Account/Group	30/09/2017 Market Value	30/09/2017 Weight	Net Contribution*	Income	Fees	Appreciation	31/12/2017 Market Value	31/12/2017 Weight	Change in Weight
London Borough of Hillingdon	978,183,943	100.00	483,136	2,917,735	-1,583,134	27,251,785	1,008,836,599	100.00	0.00
AEW UK	51,617,689	5.28	0	581,024	0	874,286	53,072,998	5.26	-0.02
JP Morgan	56,101,422	5.74	0	0	0	427,613	56,529,035	5.60	-0.13
Legal & General 1	228,525,168	23.36	-4,304	0	4,304	10,396,124	238,916,988	23.68	0.32
Legal & General 2	64,490,865	6.59	-7,632	0	7,632	2,945,627	67,428,860	6.68	0.09
M&G Investments	21,665,559	2.21	-6,741,020	1,152	0	177,728	15,103,419	1.50	-0.72
Macquarie	27,732,610	2.84	-1,294,738	448,975	0	184,892	27,071,739	2.68	-0.15
Newton	138,262,523	14.13	-141,262,681	0	1,200	3,000,158	0	0.00	-14.13
Premira Credit	52,562,776	5.37	2,168,000	69,827	0	831,616	55,632,218	5.51	0.14
UBS	134,419,461	13.74	0	1,073,648	0	4,169,178	139,662,286	13.84	0.10
UBS Property	70,016,024	7.16	1,633,800	593,237	-1,633,800	1,717,091	73,960,152	7.33	0.17
Adam Street	14,645,949	1.50	-685,610	1,555	0	420,504	14,382,397	1.43	-0.07
LGT	8,206,945	0.84	-848,911	11	0	236,719	7,594,764	0.75	-0.09
Cash & Other Assets	6,695,573	0.68	6,441,234	11,899	0	-27,811	13,120,894	1.30	0.62
Epoch Investment P Income	-	-	141,658,656	0	0	-1,274,928	140,383,728	13.92	-
London CIV Ruffer	-	10.55	-3,290	0	0	2,738,962	105,977,118	10.50	-0.05
Cash and Other Assets	-	-	0	-1	37,529	1	0	0.00	-
Transition	0	-	-570,366	136,343	0	434,027	4	0.00	-

*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.

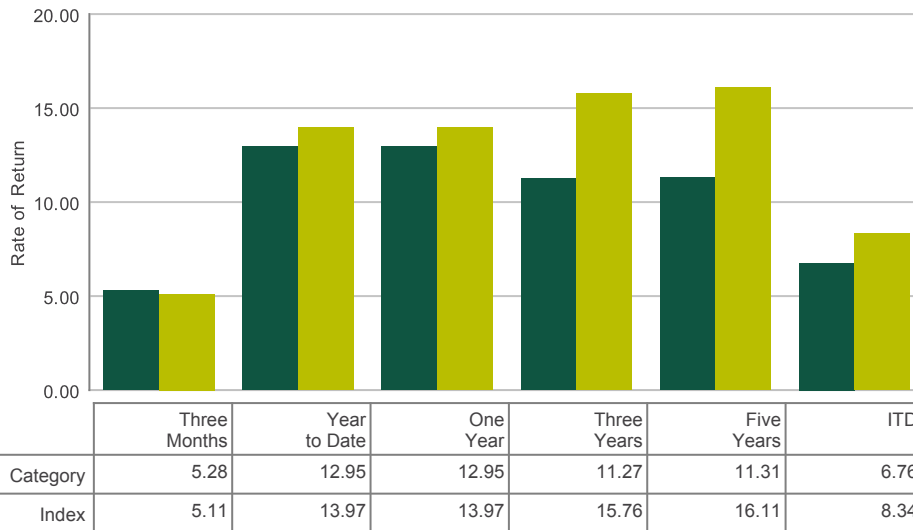
Historical Performance

EQUITY



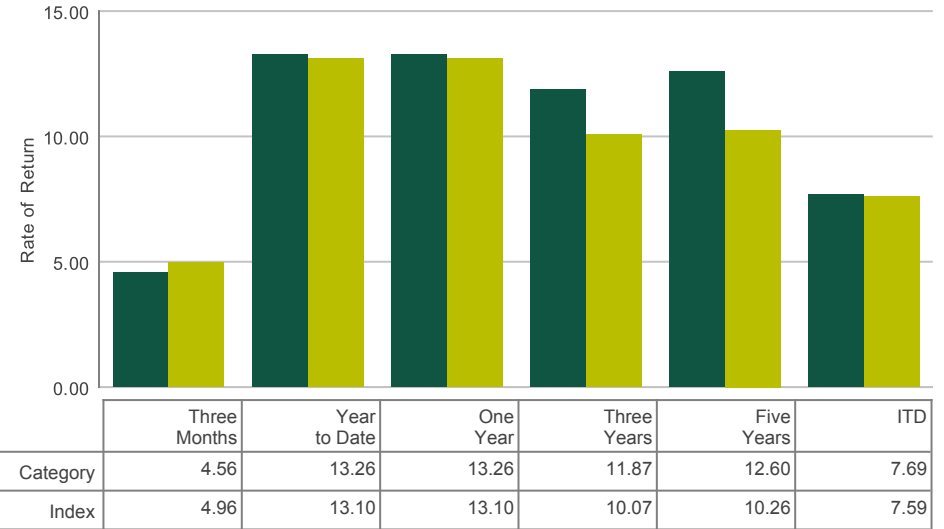
Index: Total Equity Benchmark

OVERSEAS EQUITIES



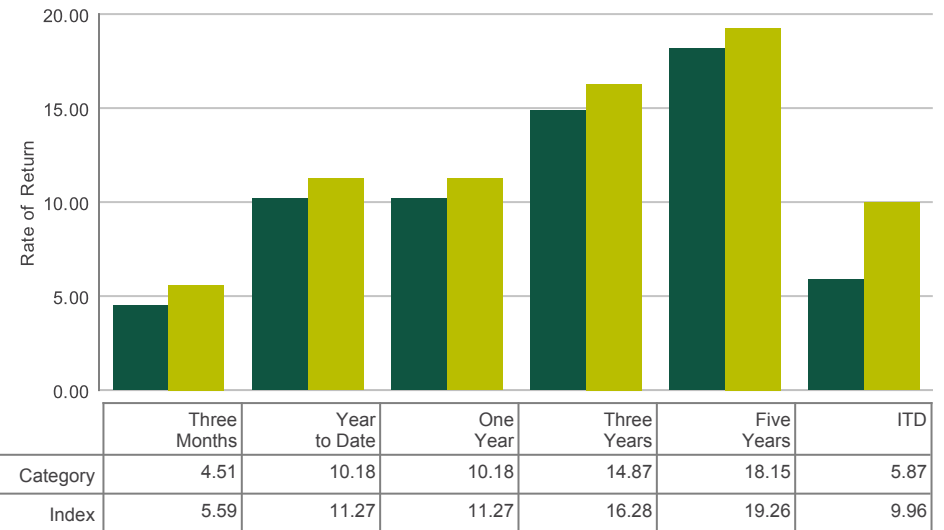
Index: Total Overseas Equity Benchmark

UNITED KINGDOM



Index: FTSE All Share UK Equity

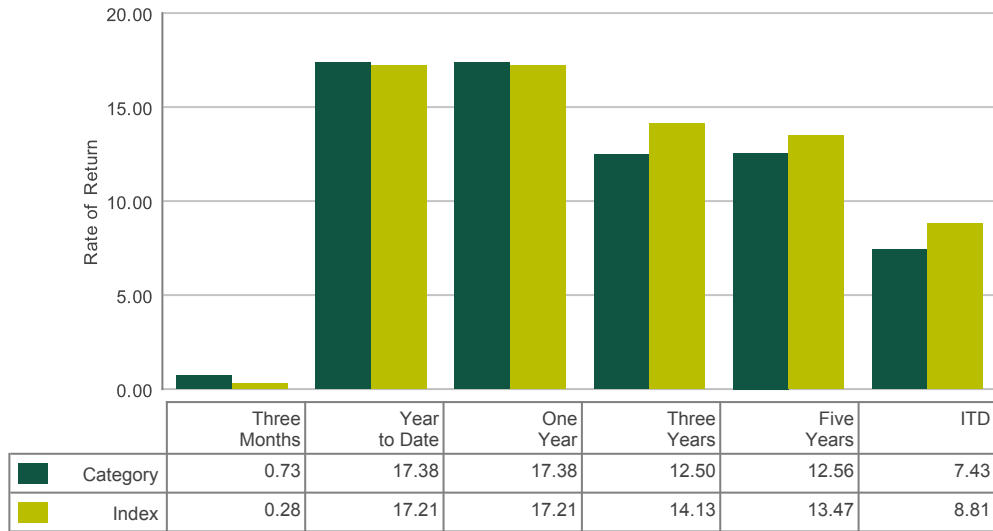
NORTH AMERICA



Index: FTSE North America

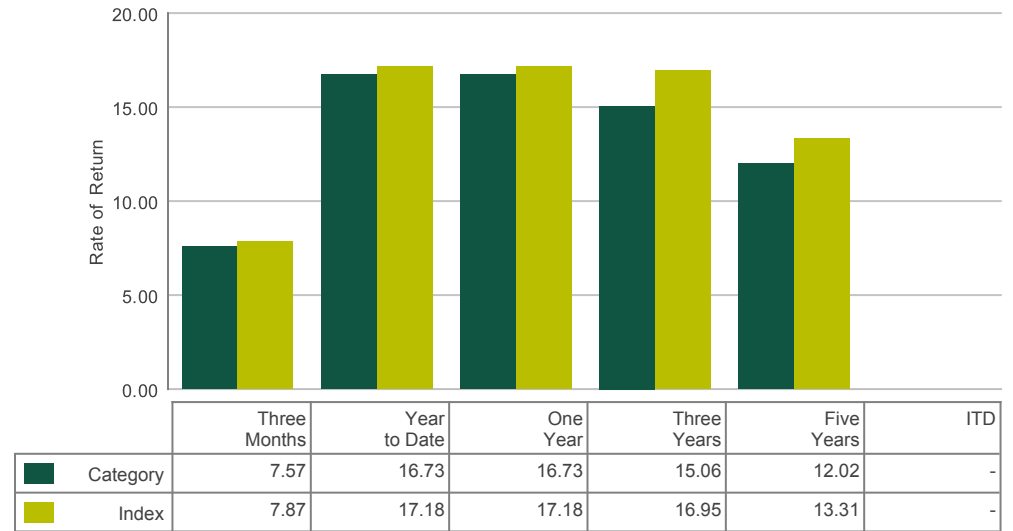
Historical Performance

EUROPE EX UK



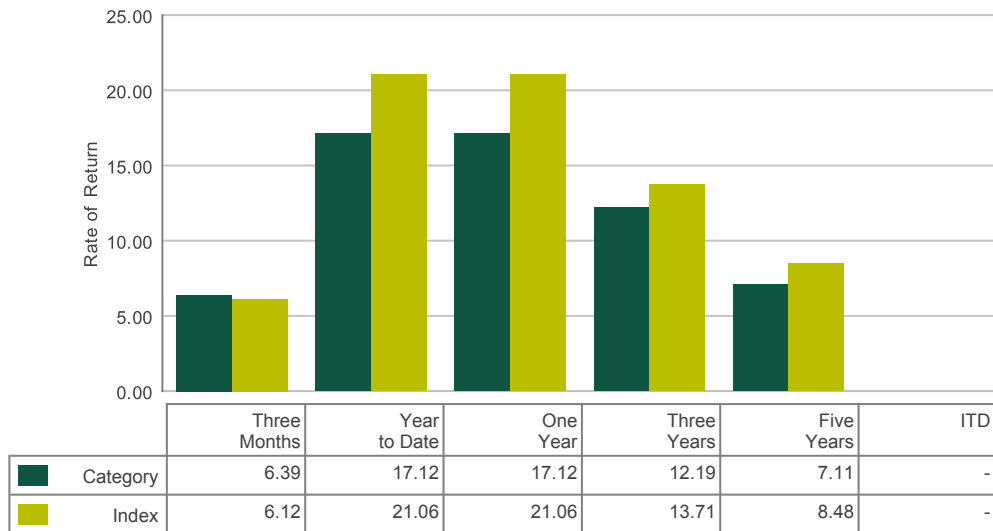
Index: FTSE AW Dev Europe ex UK

ASIA PACIFIC INC JAPAN



Index: FTSE AW Dev Asia Pacific

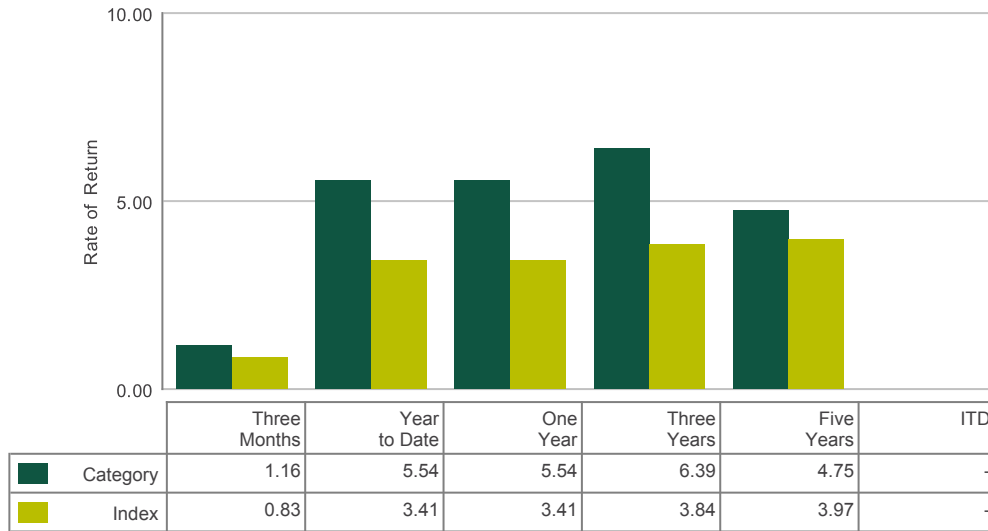
EMERGING MARKETS



Index: LBH Emerging Markets

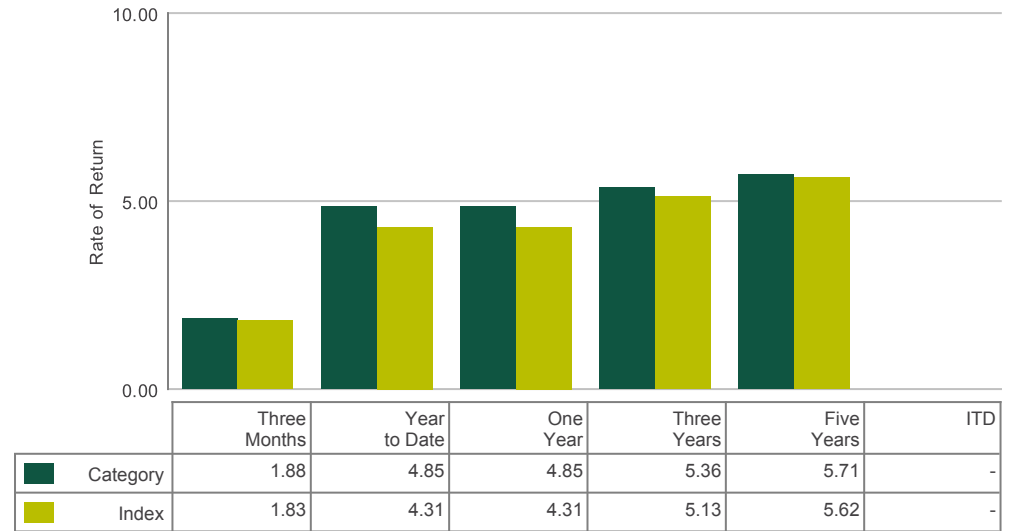
Historical Performance

FIXED INCOME



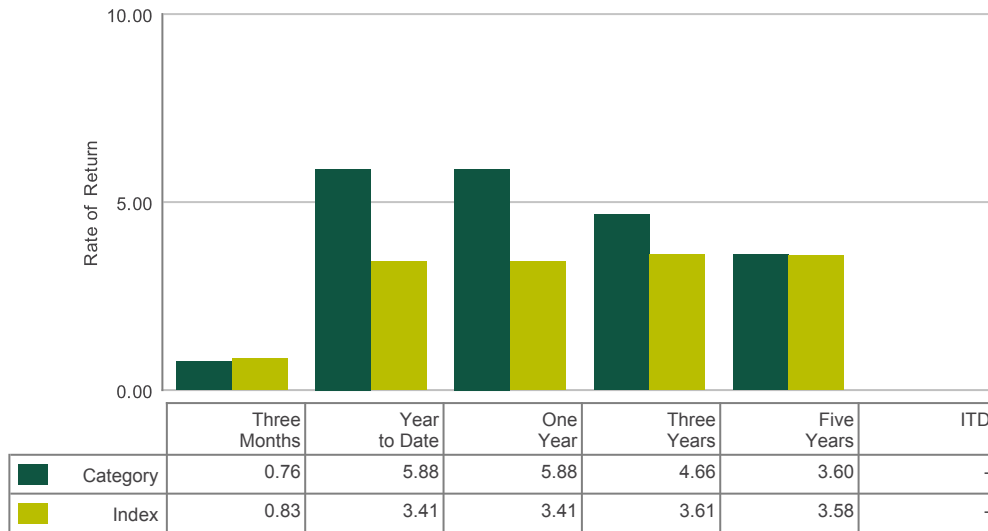
Index: LBH Fixed Income Benchmark

UK CORPORATE BONDS



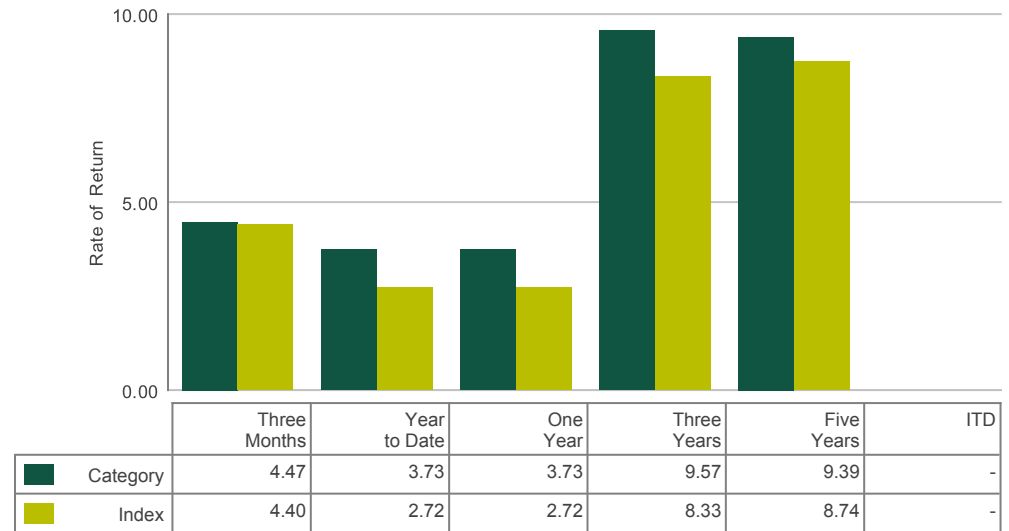
Index: LBH Non-Gilts Benchmark

GLOBAL CORPORATE BONDS



Index: LIBOR GBP 3 Month +3% pa

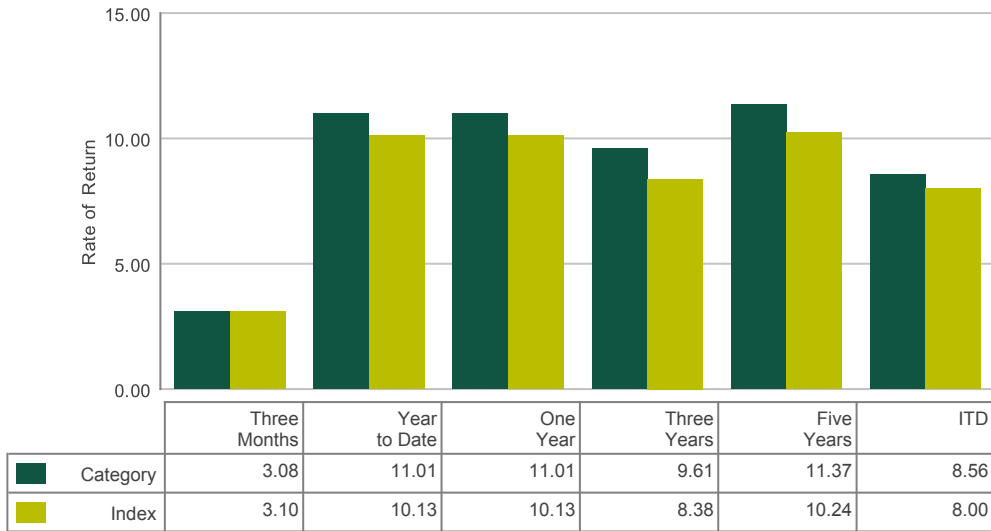
INDEX LINKED GILTS



Index: LBH Index Linked Benchmark

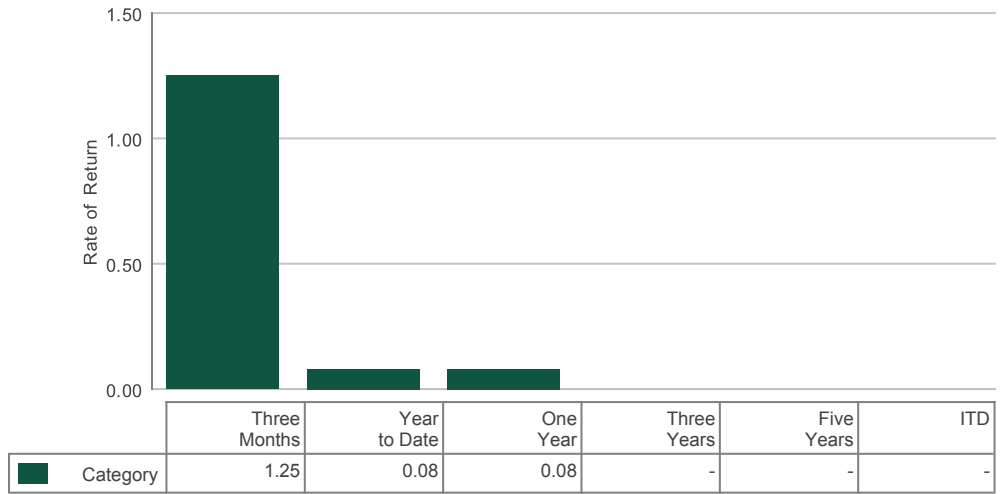
Historical Performance

REAL ESTATES

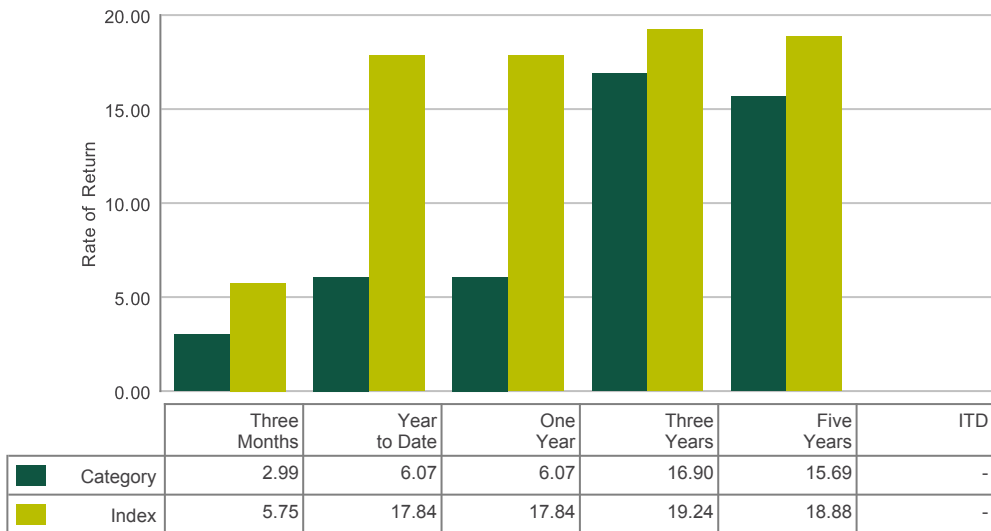


Index: IPD UK PPFI All Bal Funds Index

BALANCED FUNDS

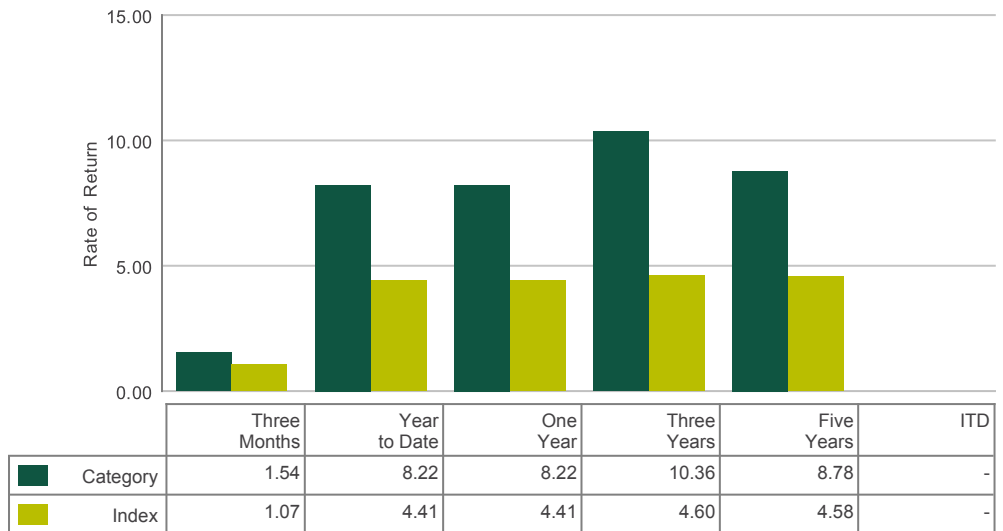


PRIVATE EQUITY



Index: MSCI ACWI +4% pa

PRIVATE CREDIT



Index: LIBOR GBP 3 Month +4% pa

Total Plan Benchmark

22.57	FTSE All Share
2.45	FTSE North America
2.46	FTSE Developed Europe ex UK
1.42	FTSE Japan
1.00	FTSE Developed Asia Pacific ex Japan
2.44	FTSE Emerging Markets
14.22	MSCI World Index (Net)
4.81	FTSE Index Linked Gilts 15+ Years
1.71	FTSE Index Linked Gilts
3.17	iBoxx Sterling Non-Gilts
12.62	IPD UK PPFI All Balanced Funds Index
8.44	LIBOR 3 Month +3%
10.67	LIBOR 3 Month
7.21	LIBOR 3 Month +4%
1.74	FTSE AW Developed GBP Hedged
2.21	MSCI All Countries World Index
0.86	FT 7 Day LIBID

AEW UK

100.0	IPD UK PPFI All Balanced Funds Index
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JP Morgan

100.0	LIBOR 3 Month + 3%
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Legal & General

38.58	FTSE All Share
10.35	FTSE World North America
10.41	FTSE World Europe ex UK
6.00	FTSE Japan
4.22	FTSE Developed Asia Pac ex Japan
3.07	FTSE Emerging Markets
13.58	FTSE Index Linked Gilts 15+ Years
7.22	FTSE Index Linked Gilts
6.57	iBoxx Sterling Non-Gilts

Legal & General

26.10	FTSE AW Developed GBP Hedged
25.69	FTSE Emerging Markets
23.97	FTSE Index Linked Gilts 15+ Years
24.24	iBoxx Sterling Non-Gilts

London CIV Ruffer

100.0	LIBOR 3 Month Sterling
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M&G Investments

100.0	LIBOR 3 Month + 4%
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Macquarie

100.0	LIBOR 3 Month + 3%
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Epoch Ruffer

100.0	MSCI World Index (Net)
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Permira Credit

100.0	LIBOR 3 Month + 4%
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UBS

100.0	FTSE All Share
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UBS Property

100.0	IPD UK PPFI All Balanced Funds Index
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