

Annual review of asset strategy and structure

Addressee

This paper is addressed to the Local Pension Committee (LPC) of Leicestershire County Council Pension Fund (“the Fund”). The purpose of this paper is to provide the 2018 annual assessment of the Fund’s investment strategy.

The note has not been prepared for use for any other purpose. It should not be released or otherwise disclosed to any third party except as required by law or regulatory obligation or without our prior written consent. This report complies with Technical Actuarial Standard 100: Principles for Technical Actuarial Work.

Executive Summary

Required return

Since March 2016 up to end September 2017 the funding level has improved by over 4%. However, the size of the deficit is little changed due to the growth in both the assets and value placed upon the liabilities.

Over this 18 month period gilt yields have fallen by c0.3% p.a. and real yields (i.e. after adjusting for the markets’ expectation of future inflation) have fallen over 0.5% p.a. The effect of lower nominal and real discount rates has been to increase the value of the liabilities and hence reduce the impact of the very positive asset returns on the Fund since March 2016 (+22.9%).

Most markets have continued to deliver strong returns in the “risk-on” environment. Inflation linked bond real yields are also negative so investors will receive negative real returns from holding UK index-linked gilts. Hence, over the medium term we consider the current strategy to have an expected return of 3.6% over CPI, i.e. lower than the long-term target of 3.9% over CPI highlighted in previous reports.

However, since March 2016 implied long-term CPI has risen while gilt yields have fallen. As a result, the discount rate is now equivalent to earning just 1.3% over implied CPI, i.e. a lower return target than the implied long-term real return of CPI + 1.9% at the valuation date. Hence, the reduction in expected real return on assets is offset by the lower required real return implied by the discount rate.

Market Conditions

We see valuations on nearly all assets as expensive, but believe that improving global fundamentals plus technical support should mean positive, albeit low, returns on most assets over the medium-term. The main risks affecting core equity and credit markets would be a material policy mistake or a general setback to global growth.

The uncertainties around Brexit and the UK’s trade agreements with other regions will continue to dominate the domestic agenda. Irrespective of the long-term outcome, this is likely to mean ongoing uncertainty around levels of corporate investment and economic growth, at least in the short-term, and UK interest rate rises are likely to lag those of the US, and indeed Europe.

In this environment, we continue to favour predictable returns from income biased assets. However, with downward pressure on yields, we also note that most public credit markets have little upside from here. As a result we favour many less liquid income assets such as private lending, property and infrastructure. If markets do sell off, then it will provide a better entry point into some of the more liquid credit strategies that have become relatively expensive.

Recommendations

We do not see the need for any fundamental changes to the Fund’s strategy at this time. As in previous reports, our recommendations continue to be an evolution of the existing strategy.

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At the margin, our recommendations continue the direction of travel towards an investment strategy with greater focus on predictable and sustainable income based returns, ideally with some inherent inflation linkage, while reducing the reliance on equity returns, which have been strong and are less predictable.

For the avoidance of doubt, our focus on income based returns is not a requirement for the income, but simply because we see these assets as capable of achieving more predictable (and more stable) total returns (i.e. capital and income combined); the Leicestershire County Council Pension Fund is currently in a position whereby income and expenditure from non-investment activities are broadly neutral, and it is likely to be a number of years before any meaningful amount of investment income is required to pay benefits..

Our proposals are as follows:

Equities

- Given the dependency of earnings and dividend growth on positive economic outcomes, coupled with comparatively stretched prices, we propose a small reduction in the target equity range to fund the modest proposed increase in real assets.
- We note the ability to use equity options to provide downside protection at a time when prices look stretched but other assets also look expensive. This is typically of most relevance for investors focused on short-term volatility control rather than investors with a longer-term time horizon.
- With ongoing lack of clarity around Brexit and associated trade agreements for the foreseeable future, coupled with a 5% recovery in sterling over 2017 relative to other currencies (as measured against a global market cap index), we support the proposal to reduce the current currency hedging ratio on overseas equity assets from 70% (i.e. the target implemented last year) back to the 50% weight that had been used previously.
- The equity portfolio continues to have an inherent value bias resulting from the two income focused managers and the passive RAFI holding. During 2018 the Central Pool will launch its Global Equity Fund, which it is anticipated will result in a lower value bias. However, the passively managed regional equity allocation, including RAFI exposure, remains a decision taken by the Fund rather than the Central Pool and we believe it would be worthwhile the ISC consider this during the year.
- We also recommend that during 2018 the ISC review the benchmarks used for the passive equity allocation including whether the use of the RAFI indices is still optimal.

Real Assets

- During the year the Fund restored the allocation to index-linked gilts back to 7.5%, removing the 2.5% tactical underweight applied during 2016.
- We continue to like real assets that provide a predictable and sustainable return. This is particularly true in an environment when other listed assets have been bid up in value and their future returns are less predictable.
- **Infrastructure:** we propose an additional 1% benchmark allocation to infrastructure, taking the strategic allocation to 6%. We propose the LPC delegate responsibility to the Fund's Officers for allocating the additional 1% between the Fund's existing infrastructure managers, taking into consideration access to the managers' fund raising and scope to get the money invested.
- **Timberland:** we propose an additional 1% benchmark allocation to timberland, taking the strategic allocation to 3%. Stafford are currently raising commitments for their next fund, and we recommend allocating the additional exposure to this fund.

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- **Property** we propose allocating an additional £25m to Kames' KAVPUT II fund, bringing the Fund's allocation to property up to 9%.

Opportunities Pool

- Having recently made allocations to the Opportunities Pool that take the potential investment over 5% of Fund assets, we propose increasing the upper range from 6% to 8% to allow further investments to be made by the Investment Sub Committee if suitable opportunities can be identified.

We recommend that the additional strategic infrastructure and timberland allocations are funded from equities, where returns are expected to be less predictable.

If additional investments are made to the Opportunities Pool, funding is expected to be from equities or targeted return assets, although the actual source of disinvestment to fund opportunities will reflect market conditions at the time.

Prepared by:-

Andy Green, Partner

January 2018, for and on behalf of Hymans Robertson LLP

Reliances and limitations

The actuarial profession introduced Technical Actuarial Standard (TAS) 100 with effect from 1 July 2017. As part of our internal compliance regime, Hymans Robertson has chosen to apply the principles of TAS100 in the delivery of investment advice. TAS100 applies to work where actuarial principles and/or techniques are central to the work and which involves the exercise of judgement.

In this report we have provided our estimate of expected asset class returns and used this to estimate the return on the Fund as a whole based upon the current and proposed strategic asset allocation. The Fund's asset allocation at October 2017 has been provided by Colin Pratt. The funding level information and discount rates have been taken from the Actuary's funding update as at 30 September 2017.

The expected returns are based upon 20 year median returns derived from our proprietary economic scenario generator (ESS) asset model. As with all modelling, the results are dependent on the model itself, the calibration of the model and the various approximations and estimations used. These processes involve an element of subjectivity. This model uses probability distributions to project a range of possible outcomes for the future behaviour of asset returns and economic variables. Some of the parameters of the model are dependent on the current state of financial markets and are updated to reflect metrics that can be measured in markets, such as yields, while other more subjective parameters do not change with different calibrations of the model.

The expected returns we have shown are relative to expected CPI. We have assumed a 1% difference between expected RPI and CPI, consistent with the assumption made in the actuarial valuation basis.

Given the context of the use of asset return assumptions in this report, we have not undertaken any additional sensitivity analysis to assess how different the results might be with alternative calibrations of the economic scenario generator. We would be happy to provide fuller information about the scenario generator on request.

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1. Fund asset allocation and required return

Current strategic asset allocation

The strategic asset allocation and implementation of the Fund is structured to accommodate the need for long-term return requirements (primarily equities and alternatives) and a degree of inflation linked returns, given the nature of the liabilities.

Details of the current strategic target allocation are shown in the table below:

Equities (48-50%)			Real Income Assets (24.5%)			Alternative (23-25%)			
	Manager	Target %	Inflation Linked (14.5%)				Manager	Target %	
Listed				Manager	Target %	Targeted	Ruffer	6.5	
Regional inc UK and EM	LGIM	34.0	Index-linked	Implemented	7.5		Aspect	3.5	
Global	Kempen	4.0	Infrastructure	IFM	5.0		Pictet	1.5 ¹	
	Kleinwort Benson	4.0		KKR			Overlay	Millennium	-
Emerging Markets	Delaware	4.0		JPMorgan		Other opportunities			
			Timberland	Stafford	2.0	EM Debt	Ashmore	2.5	
			Property (10%)			Credit Opps	JPM M&G UK Financing Partners	7.5	
Private				Manager	Target %	Other opp. pool	M&G DOF Markham Rae CRC Infracapital SLC PE 2ndaries	4.0-6.0	
	Adams Street	4.0	Fund of Funds	Aviva	10.0				
			Smaller lots, active value	Kames					
			Direct	Colliers					

1. Actual allocation to Pictet is 2.9% due to underweight in Opportunity pool.

The actual allocation at 31 October 2017 is shown below.

	Current Target	Actual
Equities	48-50%	52.1%
Inflation linked	14.5%	14.7%
Property	10%	8.5%
Targeted	11.5%	12.6%
Credit	10%	8.4%
Opportunity pool	4-6%	2.1%
Cash	-	1.6%
Total	100%	100%

The Fund is overweight listed equities and underweight credit, property and the Opportunity Pool. The Fund also holds 1.6% in cash.

Outstanding commitments to Partners (£90m) will be drawn in the next few months and bring the credit allocation up to target weight. In December CRC drew their full capital (1%). These drawdowns will extinguish the cash allocation and start to reduce the Targeted return allocation (from Pictet). Beyond this, any further requirement for cash will be funded from equities.

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Required rate of return on assets

The results of the 31 March 2016 actuarial valuation showed an improvement in the funding level since 2013 from 72% to 76%.

	31 March 2016 £m	30 September 2017 £m
Liabilities	4,153	4,958
Assets	3,164	3,996
Shortfall	(989)	(962)
Funding level	76.2%	80.6%

Since March 2016 to end September 2017 the funding level has improved by over 4%. However, the size of the deficit is little changed due to the growth in both the assets and value placed upon the liabilities.

Over the 18 months since 31 March 2016 gilt yields have fallen by c0.3% p.a. and real yields have fallen over 0.5% p.a. The effect of lower nominal and real discount rates has been to increase the value of the liabilities and hence reduce impact of the very positive asset returns on the Fund since March 2016 (+22.9%).

The discount rate used to calculate the value of the 2016 liabilities in the above table reflects an asset outperformance over gilts of 1.8% p.a. or an implied long-term real return over CPI of 1.9% p.a. This means that if the Fund's assets were equal to the value of the liabilities, then the Fund would only need to earn a return of 1.9% over CPI (assuming that contributions were sufficient to meet the cost of benefits accruing). However, the Fund assets are less than the value of the liabilities, so the Fund will need to earn a return on the assets higher than the discount rate, i.e. more than 1.9% over CPI, in order to remove the underfunding.

The extent of the excess return required will depend upon the time horizon over which the deficit is to be made good. Ignoring any difference between the value of contributions and the cost of benefits accruing, we estimated the required return to restore the funding level to 100% over 20 years from March 2016 to be approximately 3.3% p.a. over CPI. This increases to 4.7% p.a. over CPI if looking to restore the funding over 10 years. In practice there will be other external factors such as movements in real yields that influence the discount rate used to value the liabilities and to determine future service costs.

As we have previously identified, setting a strategic asset allocation with an expected return of 3.3% p.a. over CPI would by definition have only given a 50% chance of achieving required level of return. By targeting a higher expected return, the Fund can increase the proportion of outcomes that are expected to deliver 3.3% over CPI or more. The downside is of course that by targeting a much higher expected return, there is likely to be greater variation in outcomes and hence more potential downside. Hence, there is a balance to be struck.

Strategic forecast return

Most markets have continued to deliver strong returns in the "risk-on" environment. Inflation linked bond real yields are also negative. Hence, over the medium term we consider the current strategy to have an expected return of 3.6% over CPI, i.e. lower than the long-term target of 3.9% over CPI highlighted in previous reports.

However, since March 2016 implied long-term CPI has risen while gilt yields have fallen. As a result, the discount rate of 1.8% over nominal gilts is now equivalent to earning just 1.3% over implied CPI, i.e. a lower real return target. Hence, the reduction in expected real return on assets is offset by the lower required real return implied by the discount rate.

In the table overleaf we set out the expected return and contribution from each component of the current strategy to the overall return, based upon current market conditions. We note that these are based upon our subjective views of future returns.

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	Benchmark weight (%)	Long-term Real Return vs CPI (% p.a.)	Contribution to Strategic Return (% p.a.)
Equities (48-50%)			
Listed equity	44-46	4.1	1.85
Private equity	4	6.1	0.25
Real (24.5%)			
Inflation linked bonds	7.5	-0.7	-0.05
Infrastructure	5	3.6	0.2
Timber	2	3.6	0.1
Property	10	2.4	0.25
Alternatives/Diversifiers (25.5-27.5%)			
Targeted return	11.5	3.4	0.4
EMD	2.5	3.0	0.1
Global Credit	7.5	4.0	0.3
Opportunity Pool	4-6	4.1	0.2
Currency overlay (Notional weight)	(c10)	1.0	0.1
TOTAL	100		3.6

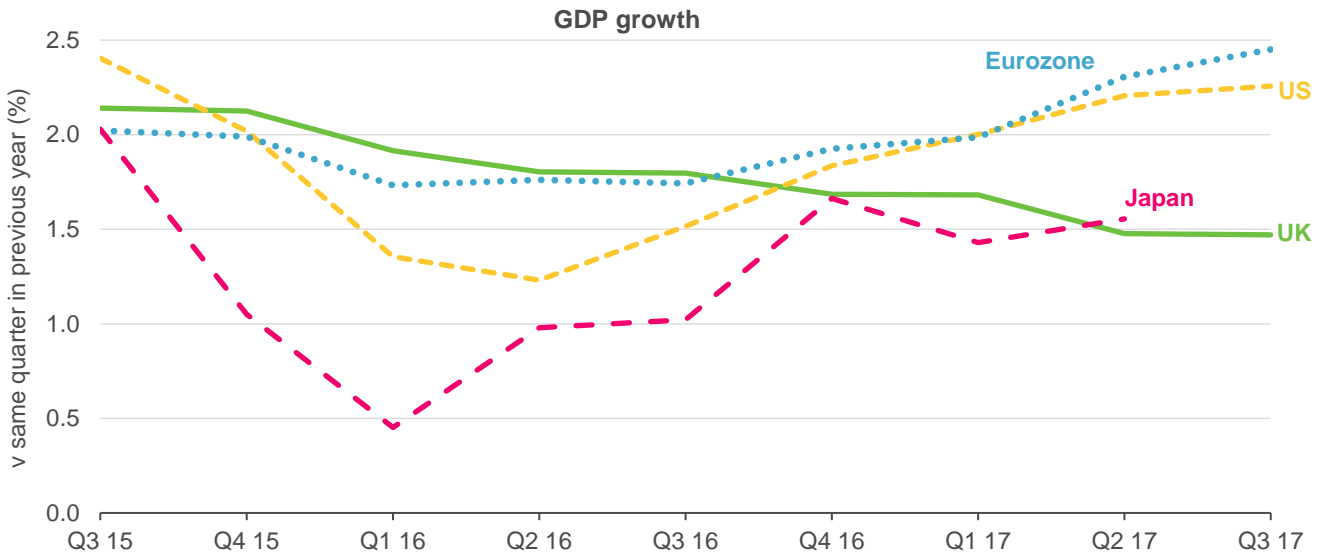
As noted in previous reports, it does not require every asset and mandate held by the Fund to deliver returns at the Total Fund level, and the investment policy should reflect a combination of return sources that balance the need to generate return with the benefit of diversification of returns.

While the Fund has agreed to become part of a group of nine funds forming LGPS Central, investments will not be managed on a joined basis until April 2018. The approach that LGPS Central adopts for pooling assets is likely to differ from one asset class to another, and there may be different timelines for moving assets to a pooled basis. Recognising that there will now be a transitional phase of bringing assets into the LGPS Central pool, we do not propose any substantial changes to the Fund's investments.

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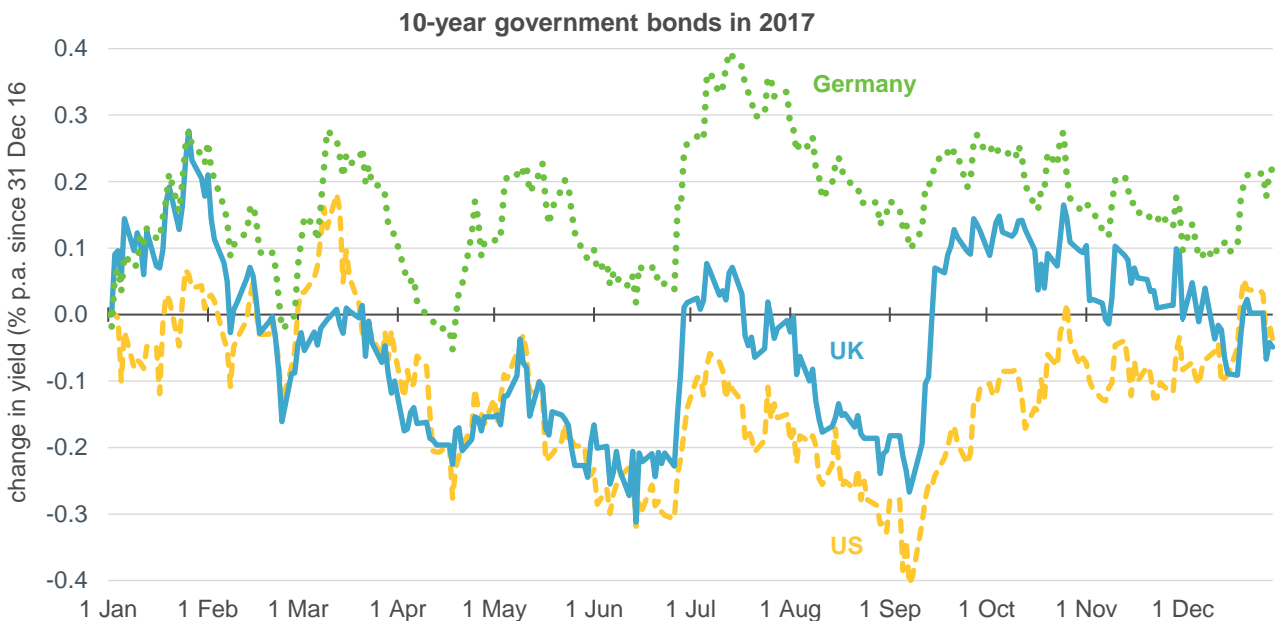
2. Market Commentary

Earlier in the year the main cause of uncertainty in the global economy was a divergence between the evidence from business surveys (generally upbeat) and that from official data (more mixed). More recently, any conflict seems to have been resolved in favour of the positive view. Quarterly fluctuations are inevitable, but GDP growth over a year in the US, Eurozone, and Japan has been generally edging higher.



Government bonds

Throughout 2017, it was global influences that drove movements in gilt yields rather than specific domestic considerations. In particular negative reactions to the perception of tightening by global central banks have been followed by a downward drift in yields. In this respect, while not suggesting a rout in government bonds, we think that bond investors have not fully priced in a shift in the bias of central bankers towards normalising monetary policy or the possibility that current economic momentum will persist.



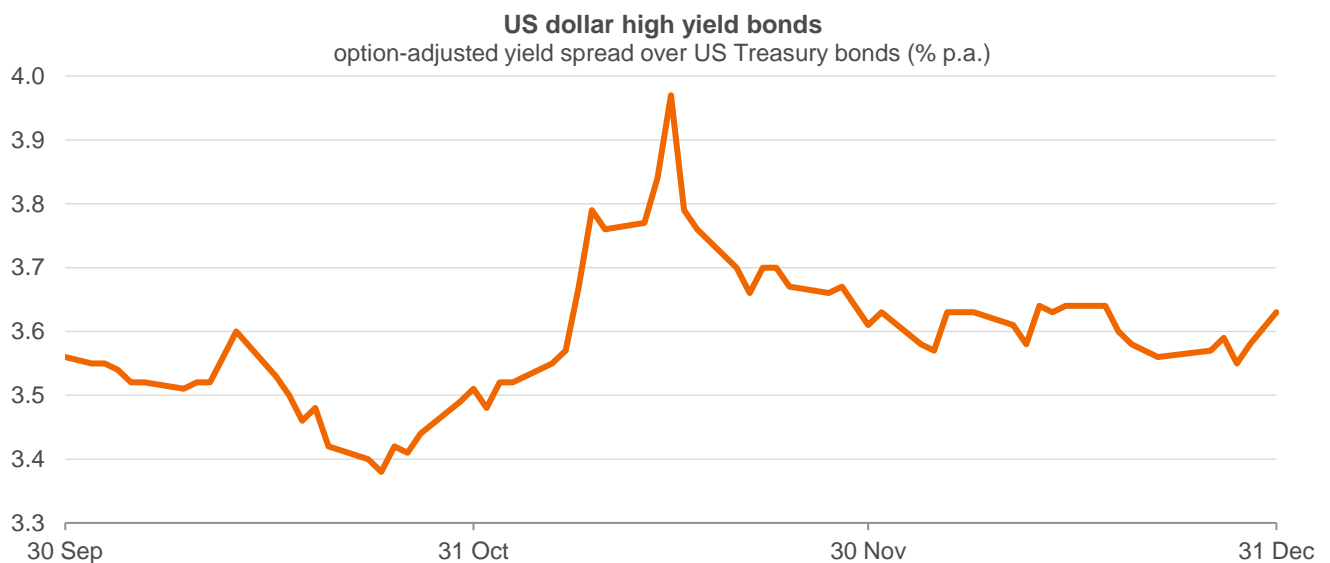
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So far, the approach of Brexit has not been an obvious influence on the gilt market, but it still has the potential to affect short-term sentiment. The strength of domestic demand for gilts can perhaps be taken for granted; foreign demand could be more fickle. But the main reason for our negative view relates to valuation rather than an expectation that rates will actually rise materially. Long-dated index-linked gilt yields are still very low by historic standards. Even allowing for a discount of roughly 1% p.a. reflecting the linkage to RPI rather than CPI, it means index-linked gilts are expensive. Equivalent US yields of +1% p.a. provide a yardstick for pricing in a less distorted environment.

Other bonds

Current global economic momentum is a positive for credit, but valuations provide little cushion against any future bad news. Market fundamentals remain robust – defaults are at low levels and the current upturn in global growth should help to sustain that. We would like to see some protection against the possibility that current conditions are not sustained over the next business cycle, but yield spreads in credit markets have continued to narrow and are typically very low by historic standards. In the sterling investment-grade market, yields relative to gilts are little better on a like-for-like basis than in the halcyon days of the mid-2000s.

High yield credit markets wobbled a little during the final quarter of 2017. Yield spreads widened in response to some issues specific to some prominent borrowers in the high yield bond market – the collapse of a big merger in the US telecommunications sector and a few earnings disappointments, but markets recovered quickly and yield spreads finished the year close to multi-year lows.



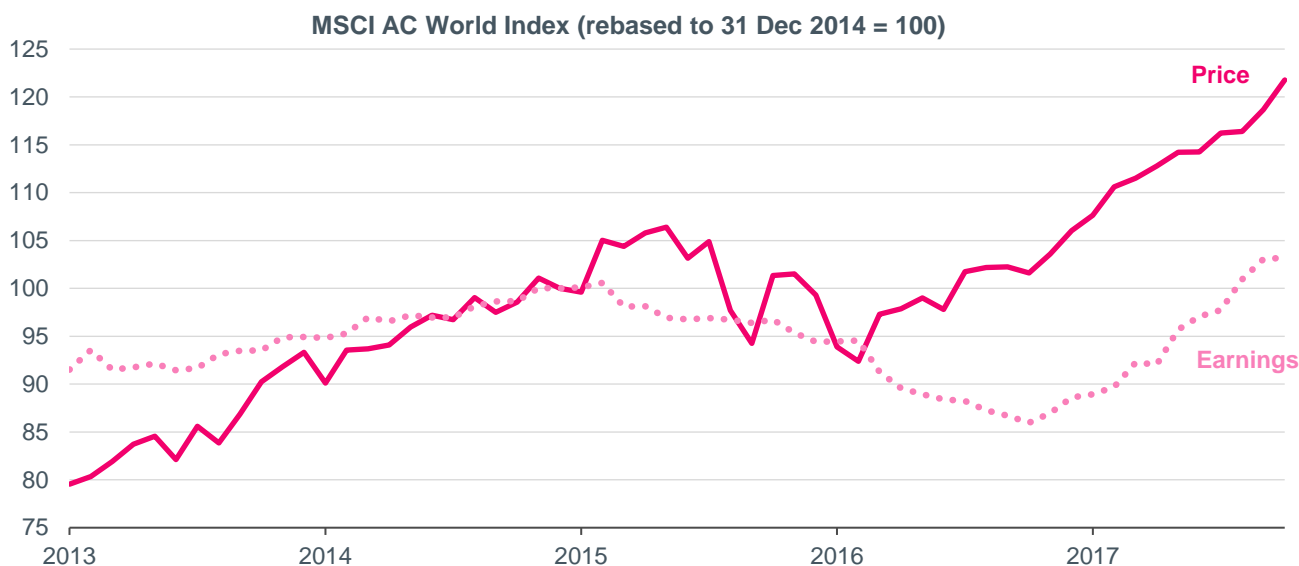
The strength of demand for credit has resulted in further erosion of the level of covenant protection in traded bond and loans markets. We continue to prefer private markets, where better protection can be negotiated.

Economic optimism also came to the rescue of local currency emerging market debt (EMD). While EMD would struggle in the short term if economic conditions deteriorate, on a longer perspective yields still look much less stretched in absolute terms than most other bond markets. Those who accept the strategic rationale for emerging market currency exposure would still be buying at historically low levels, even though currency has boosted returns in the last couple of years.

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Equities

Last year's 17% local currency rise in the MSCI AC World Index was very similar to the rise in historic earnings. Given that global economic expansion probably picked up pace during last year, it seems reasonable to expect fundamental support to persist for some time yet. However, that is probably already discounted by investors.



Forecasts collated by S&P project operating earnings per share growth in 2018 to be similar to 2017. While these should be treated with considerable scepticism – they typically fall significantly as the year progresses – a rise over recent weeks suggests that sentiment is unusually buoyant.

Momentum could easily continue to push equities higher in the short run – it is not difficult to find examples of greater exuberance in the past – but the longer-term outlook continues to concern us. The tracking of global equity prices and earnings over 2017 means that price-earnings ratios remain at high levels (or, equivalently, equity earnings yields remain low). As earnings struggled for a few years until late 2016, the main justification advanced for equity revaluation was the fall in bond yields. Almost none of that has unwound as 10-year US Treasury bond yields have risen from 1.5% p.a. in mid-2016 to almost 2.5% p.a. now.

The unappealing combination of high valuations and extended profits appears most notable in the US. Europe and emerging markets seem to offer the best combination of relatively attractive valuations and scope for cyclical earnings growth.

We note that implied volatility in equity markets remains at very low levels. This extends the opportunity to implement protection strategies relatively cheaply for those who wish to retain some exposure to potential short-term upside in equities.

Property

On the evidence available so far, the post-referendum recovery in commercial property remains in place. Indeed, growth in capital values has been evident throughout 2017. Rents are still rising modestly, although it is more difficult to detect any acceleration here. A relatively upbeat aggregate picture is increasingly reliant on the industrials sector. It seems likely that full year returns on the IPD Monthly Index will be above 20% for industrials, but below 10% for retail and offices.

On a more cautionary note, there is anecdotal evidence that leases are taking longer to agree and tenants are seeking greater incentives to sign deals. This is true particularly in office and retail sectors.

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As with equities, the resilience of historically high valuations in a period of potentially rising bond yields limits the attractions of property.

Summary of current outlook

In the table below we set out our central views of the core capital markets (as at 30 September 2017):

Growth assets	Income focused assets				Protection assets	
Equities	Sterling investment grade debt	Sub-investment grade debt	UK property	Infrastructure	Conventional gilts	Index-linked gilts
Neutral to Cautious More neutral with protection	Cautious Favour ABS over corporate bonds	Cautious for public Use multi-asset mandates Favour private lending	Neutral More attractive for long lease	Neutral to Attractive	Cautious to Negative	Cautious to Negative

Overall range of ratings: Positive, Attractive, Neutral, Cautious, Negative

For nearly all assets we see valuations as expensive, but believe that improving global fundamentals plus technical support will mean positive, albeit low, returns on most assets. The main risk affecting core equity and credit markets is a material policy mistake or a general setback to global growth.

In this environment, we continue to favour predictable returns from Income biased assets. However, with downward pressure on yields, we note that most public credit markets have little upside from here. As a result we favour many less illiquid Income assets such as private lending, secure property and infrastructure.

We also see value in retaining equity allocations (which at least do offer the potential for upside), but using equity options to protect against a market correction, thus converting the return profile into a more predictable return while retaining the potential for upside.

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3. Equities

The Fund's benchmark equity allocation is largely invested in listed equity markets (44-46%) with a further 4% of the Fund invested in private equity. The actual allocation at end October is 52.1%, comprising 48.6% in listed equities and 3.5% private equity. The listed equity allocation comprises:

- a passive regional allocation including the allocation to passively managed Research Affiliates Fundamental Indexation ("RAFI") in US and Europe;
- 2 active global income managers, KBI and Kempen;
- an active emerging markets manager, Delaware.

The passive mandates set defined allocations to regional equity indices.

Mandate	Current benchmark %	Percentage of passive
L&G UK equity (market cap)	3.4	10
L&G UK equity (capped weights)	4.1	12
L&G Europe ex UK (market cap)	2.85	8.4
L&G Europe ex UK RAFI	2.85	8.4
L&G N America (market cap)	6.6	19.4
L&G N America RAFI	6.6	19.4
L&G Asia Pacific (market cap)	2.8	8.25
L&G Japan (market cap)	2.8	8.25
L&G Emerging Markets	2.0	5.9
Total	34	100

Equity markets have continued to deliver strong returns over 2017, following the positive returns of 2016 and more modest returns of 2015.

Mandate	Return (£ based)			
	2015	2016	2017 (to 20 December)	3 years (p.a.)
UK FTSE ALL Share	1.0%	16.2%	10.7%	9.1%
MSCI World	5.5%	29.0%	12.9%	15.4%
MSCI World £ hedged	2.6%	9.6%	19.2%	10.3%
RAFI AW 3000	0.3%	35.4%	11.4%	14.8%

Comparing the MSCI World and MSCI local index (which we have used as a proxy for sterling hedged returns), the table highlights that during 2017 sterling recovered some of the currency losses of 2016. UK equities have lagged global equities, but excluding the currency effect, the 3 year returns are broadly similar. RAFI has delivered similar returns to MSCI World over three years.

As noted in the previous section the global economy is in the midst of the most synchronized expansion in nearly a decade. This has led to a strong pick up in earnings across most equity markets, which combined with a backdrop of low inflation, has provided a supportive backdrop for the asset class with several equity indices reaching all-time highs in 2017.

Of course, the Federal Reserve is conscious of the potential impact of its change in policy direction on risk assets and has planned a gradual wind-down. Furthermore, over the next year or so, monetary policy in aggregate around the world is likely to remain supportive, in the absence of any spike in inflation expectations.

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However, at some point this withdrawal of liquidity may impact on equity sentiment and cause some volatility in markets, be it in 2018 or beyond. Hence, having played a part in supporting the equity market rally for much of the time since the financial crisis, the unwinding of quantitative easing could now keep a lid on the pace of its further upward trajectory, or worse disrupt the run of positive returns.

Regional equity allocation

In our 2015 and 2016 reviews we provided a strategic basis for allocating the regional equity assets, including the Delaware Emerging Markets mandate.

We believe that it is worthwhile reviewing this allocation, recognising that the size and composition of markets and relative attraction of markets does not remain constant. With greater divergence in economic outlook and ongoing uncertainty around Brexit, we propose the ISC consider evolution of the regional equity allocation during the year.

Passive index benchmarks

In October 2012 the Fund made a break from having all of its passive equities managed against a market capitalisation weighted benchmark. Within market cap indices, each company weighting is based on the 'value' the market ascribes to the company (shares in issue multiplied by share price); within a passively managed portfolio the amount of capital invested in each company is directly correlated to the market value of the company. While using a market cap index is cheap (low fees and low transaction costs), there is a considerable amount of academic research that suggests using the size of a company to determine how much capital is invested in it is sub-optimal.

In recent years a number of indices have been launched whereby the weighting of each company within the index is based upon a range of other factors and not based on the market value of the company. These indices have a plethora of names, with 'smart beta' and 'factor-based investing' being amongst the most commonly used; Leicestershire tends to use the term 'alternative indexation'. These alternative indices have rules about how the weighting of each company within the index is calculated.

When the Fund moved away from using only market cap indices for its passive equity exposure, there were very few alternative indices that were actually 'investable'. The main range of indices combining academically robust construct with sensible implementation rules was the RAFI series. Details of the RAFI methodology are set out in the Appendix.

As with many indices, regional versions of RAFI existed but the lack of investor interest meant that none of the passive managers had regional pooled vehicles through which an investment could actually be made. At the time RAFI were the index provider with most 'traction' and the only series that LGIM could see as being commercially viable to them. Leicestershire persuaded LGIM to launch North America and Europe (Ex UK) pooled vehicles tracking the RAFI regional indices, but there are now many more alternative indices that are available to invest in. Investor interest in alternative indexation is now significant.

This should not be taken to mean that the Leicestershire Fund was not comfortable with the use of RAFI, nor that the RAFI series of indices does not remain an appropriate basis for setting equity benchmarks. However, we understand that within LGPS Central there are a number of Funds that are actively considering alternative indexation and this would therefore be a sensible opportunity to work with them to research whether utilising other indices (either alongside, or in place of, RAFI) is considered optimal for Leicestershire.

There is no supposition that any change will ultimately be proposed, and any proposal will be based on Leicestershire's wishes rather than those of any other Fund. The choice of the index to be tracked is a strategic decision that will be retained by the Fund once investment pooling becomes operational. It is considered sensible that the Investment Subcommittee (ISC) be used as a resource to consider this matter more fully during 2018.

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Responsible investing – Climate change and fossil fuels

Institutional investors are facing growing levels of scrutiny with regard to their continued investment in fossil fuel companies. Although such scrutiny is not new the underlying issue will persist. Concerns relate to both the long term consequences of climate change whereby carbon emissions from the burning of fossil fuels are regarded as a key risk factor, coupled with the risk of financial loss that may arise should these investments be retained.

Carbon risk can be measured by an assessment of the exposure of the portfolio to carbon emissions. In such exercises, the energy, materials and utilities sectors are typically shown to have the highest carbon intensity although a company is not “bad” simply because it happens to operate within a carbon intensive sector. It is important to recognise that some sub-sectors will have very low carbon intensity. For example the utilities sector includes both water companies (low carbon intensity) and electricity companies (high carbon intensity).

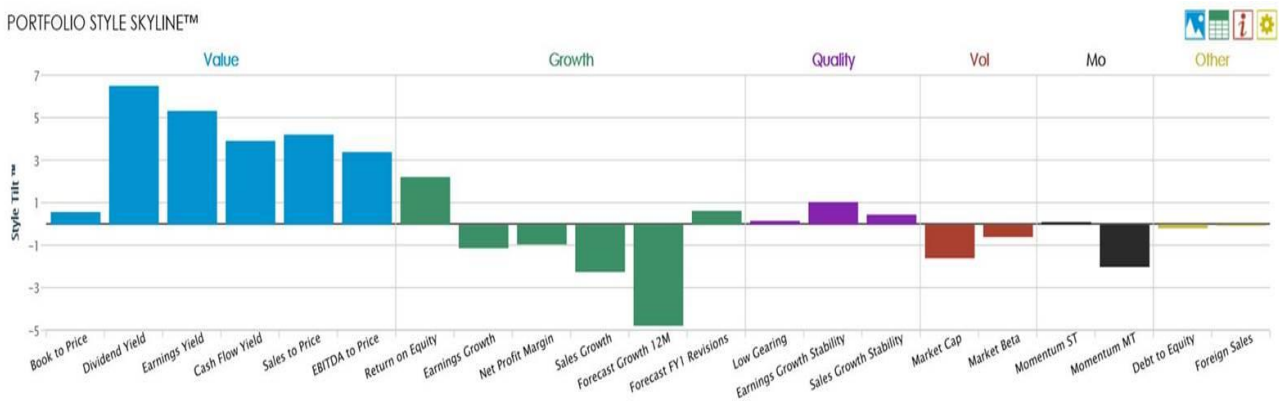
Alternative approaches to dealing with carbon risk exposure can be adopted, from use of indices that adopt an exclusionary approach to one of engagement. We suggest that as part of the passive benchmark review, more detailed research is carried out into the investment risks of fossil fuel companies. Noting that a number of other LGPS Central Funds are likely to be considering this issue it would make sense for the Fund to be involved in this research and for the ISC to consider the findings.

Portfolio biases

As noted in previous years the two income managers and the Fundamental Index allocation provides a material bias to value factors and away from growth factors in the equity portfolio relative to the global market index. This is illustrated by the portfolio style analysis illustrated below. Our preference would be for a more balanced portfolio, including some exposure to growth factors. During 2018 the Central Pool will launch its Global Equity Fund, which it is anticipated will result in a reduced value bias.

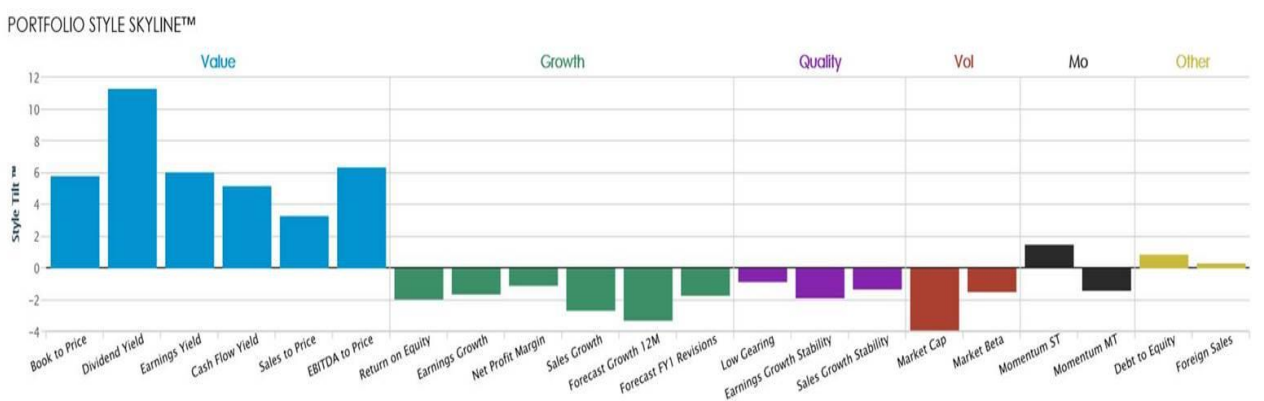
KBI

PORTFOLIO STYLE SKYLINE™



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PORTFOLIO STYLE SKYLINE™



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Equity protection strategies

As noted in our summary of the market outlook in the previous section, we also see value in using equity options to protect against a market correction, thus converting the return profile into a more predictable return while retaining the potential for some upside. If markets do sell off, then this will also provide a better entry point into some of the more liquid credit strategies.

There is a material cost of implementing outright downside protection; in the table below we illustrate that the cost of 1 year protection at 90% of current prices is 2.9% of notional exposure, albeit there are ways of limiting this cost such that the net expected return on equities may still look reasonably attractive relative to investing in higher yielding bond type assets. For example, only protecting against the price fall between 90% and 70% reduces the cost to 2.4%, and giving up price returns above 110% of current market pricing earns a premium of 1.3%, reducing the net cost of 1.1%.

Illustrative pricing for world equity basket (Source R&M, Oct 17)	
1 year 90% price protection	2.9%
1year 90-70% price protection	2.4%
2 year 90-70% price protection (annualised)	4.0% (2.0% p.a.)
1 year premium for selling price above 110%	1.3%

These structured equity strategies are typically more suited to those looking for specific short-term downside protection or to reduce funding volatility. To the extent that investors adopt a long-term investment approach at the expense of higher short-term funding volatility, this may be considered of less relevance to the Fund.

Recommendation

Given the dependency of equity dividend and earnings growth on positive economic outcomes, coupled with comparatively stretched prices, we propose a modest reduction in the target equity range to fund the proposed increase in real assets.

With ongoing lack of clarity around Brexit and associated trade agreements for the foreseeable future, coupled with the 5% recovery in sterling over 2017 relative to other currencies (as measured against market cap index), we support a proposal to reduce the current currency hedging ratio on overseas assets from the 70% target implemented last year back to a weight of 50%.

The equity portfolio continues to have an inherent value bias resulting from the two income focused managers and the passive RAFI holding. During 2018 the Central Pool will launch its Global Equity Fund, which it is anticipated will result in a reduced value bias.

With greater divergence in economic outlook and ongoing uncertainty around Brexit, it is also an appropriate time to consider the Fund's passive regional equity split we believe it would be worthwhile the ISC consider this during the year. For completeness, we confirm that, pending this review, any reduction in equities to fund the proposed increase in real assets is funded on a broadly pro-rated basis from the passive LGIM portfolio, not from the active equity mandates or private equity allocation.

Separately, it is relevant to review the benchmark indices used within the passive portfolio, and in particular the use of the RAFI indices now that a wider range of indices can be adopted. This will also provide an opportunity to review the approach adopted by the Fund with respect to climate change and investment in companies with exposure to fossil fuels.

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4. Real assets

The Fund currently has a target allocation of 24.5% to assets that are expected to deliver income and returns with a degree of inflation linkage; this includes the allocation to index-linked gilts, infrastructure, timberland and property.

During the year the Fund restored the 7.5% target weight allocation to index-linked gilts, removing the 2.5% tactical underweight applied during 2016.

We continue to like assets that provide a strong yield cushion over high quality bonds and have some element of long-term sustainable inflation linkage, given the long-term real nature of the Fund's liabilities. This is particularly true in an environment when other assets have been bid up in value and future returns are less predictable. However, the demand for many assets in this category remains relatively strong and it is important that the Fund only invest in real assets when it can earn sufficient reward for its capital.

With the exception of index-linked bonds, most real assets are relatively illiquid. This illiquidity provides investors an additional premium. Managing exposure to illiquid assets when they are expressed as a percentage of total assets is somewhat imprecise in nature as the allocation cannot be increased or reduced quickly; this is particularly so when some investments are made via closed ended funds, where an initial commitment is only 'drawn down' as-and-when underlying opportunities are found by the manager and opportunities to top up investments can be lumpy.

The Fund's actual allocation is closer to 23%. When commitments made to closed ended funds have been drawn the Fund will be closer to the target allocation, although there will still be a shortfall, primarily in respect of the property allocation.

Infrastructure

The Fund is currently 0.5% underweight its 5% strategic allocation to infrastructure. A further \$30-40m will be committed to KKR's new strategy, KKR III, and \$15m to JP Morgan's fund in order to maintain the 5% target.

We propose allocating a further 1% to the asset class, bringing the strategic target to infrastructure assets up to 6.0%. Infrastructure assets with contractual, inflation linked income have the ability to provide predictable returns. The secure income becomes increasingly attractive as inflation ticks up. Even assets with income correlated to GDP can have reasonably predictable cash flows due to the essential nature of services provided.

Whilst prices across the market are not cheap as operational assets with secure, contractual cash flows are highly bid, we believe the Fund's existing fund managers are well placed to find good value opportunities. They source opportunities that can be added as an extension to assets they already own or create them through deals with a degree of complexity to implementation.

We propose the LPC delegate responsibility to the Officers on how to allocate the additional 1% between the Fund's existing infrastructure managers, taking into consideration access to the managers' fund raising and pace of getting the money invested.

At this point in time there is the opportunity to commit to any of the Fund's three existing infrastructure managers.

- Top ups can be made to JP Morgan at any time through the year and expected drawdown is currently 3-6 months; this would be quickest way of getting money to work in infrastructure.
- IFM have an annual raise from existing investors in the first quarter of each year to give them better insight into how much capital they have available when deal sourcing. In reality, new commitments can be made at any time. Capital would typically be drawn 12-18 months after the quarter end of commitment.

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- Like other managers of closed-ended strategies, KKR launches new funds every 2-3 years. Therefore to maintain or top up exposure, new commitments need to be made during the fund raising windows. KKR III is expected to hold a first close in March 2018.

Fees are changing in Fund III to be based on committed capital rather than NAV. However, there will be a fee discount for first close investors in the fund: first close investors will pay 1.25% p.a. rather than 1.5% p.a. on committed capital plus a performance fee of 15% subject to an 8% hurdle rather than 20% with a hurdle of 8%. Deployment of capital could take up to 6 years although KKR has not taken as long as this to deploy capital in Fund I and II.

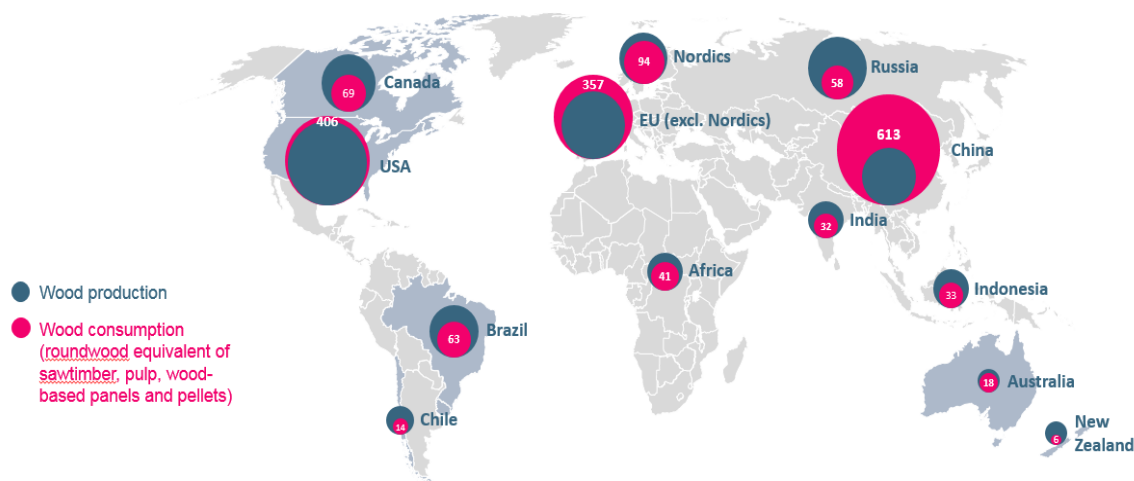
Timberland

The Fund is close to its 2% target allocation to timberland. An additional \$30m has been committed to Stafford's next fund, Stafford International Timberland Fund VIII ("SIT VIII"), in order to maintain exposure since capital from existing investments will be paid back as the underlying funds mature and assets are sold.

For similar reasons as our proposal to increase the allocation to infrastructure, we propose increasing the strategic allocation to timberland from 2% to 3% of Fund assets; exposure to timberland has historically experienced low correlation with other asset classes and reduces the overall risk within the Fund as a result. This is no surprise as a large proportion of the return is driven by biological growth and forests are not marked to market as frequently as other asset classes. Overall returns are still connected in some way to wider market conditions through changes to timber and land prices.

We believe now is a good time to increase the allocation. The diagram below shows the imbalances between supply and demand across regions, with Asia in particular drawing in timber products from around the world. This, combined with the increasing commercial use of timber for energy production, is driving growth in demand at a rate of 1.4% per annum. With supply from areas such as Russia and Indonesia not sustainable from an environmental and cost perspective and a lack of new planting over the past 30 years, supply is beginning to tighten. When demand increases, prices go up due to inelastic supply.

Industrial wood production and consumption in 2016



Source: Stafford Capital

Stafford only launch new funds every 2 to 3 years. Therefore there is a limited window to make allocations to the asset class through Stafford funds. Final close is supposed to be 20th January 2018 but Stafford has asked existing Limited Partners for approval to extend the fundraising period 3 months to end April 2018. We propose the Fund top up its commitment to SIT VIII to bring the target allocation up to 3% before it has a final close.

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Stafford's ability to enter the market through buying stakes in other funds from investors who want to sell their stake after the initial period of capital raising (i.e. buying secondary positions or secondaries) has been lucrative. This is an extremely specialist area where Stafford finds there is a lack of competition. Whilst there are many buyers of secondaries in Private Equity and a growing number in Infrastructure, there is only one other fund of funds manager with relevant expertise in forestry that we are aware of. The team also actively seeks out sellers of funds that they like.

Property

The Fund has a 10% target allocation to property and current exposure is somewhat below this, at 8.5%.

We support allocating a further £25m to Kames Active Value II ("KAV II") to partially bridge the gap.

KAV II targets net initial yields of at least 7%. Kames has displayed patience in waiting for good quality opportunities over the last 12 months, arguably being slow to invest the capital committed in Autumn of 2016.

Kames are now in the position where they have excess deal flow and a lack of new capital to commit to attractive opportunities. They are comfortable that remaining commitments will be drawn in the next month or two and that they could deploy at least another £50m before the end of the investment period in July 2018. Hence, an additional £25m from the Fund would therefore be welcomed by them.

With the additional commitment to the Kames strategy, the Fund will continue to run c1% below strategic target in property. Whilst there is continued foreign capital attracted to the UK market and yields provide a reasonable absolute level of income and a buffer relative to gilts and corporate bonds, yields are low relative to their long term average and expectations on rents are mixed. Holding the underweight position will allow the Fund to take advantage of any new opportunities that arise in the property market over the next year or so. Hence, we are comfortable with maintaining a 10% strategic weighting to property, whilst accepting that it is likely that the Fund will remain marginally below this weighting unless Colliers Capital – the Fund's direct property manager – start to see attractive deals coming to market.

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5. Targeted Return

The current allocation to targeted return comprises the Ruffer, Aspect and Pictet portfolios. Following the 2017 strategy review, the benchmark targets for Ruffer and Aspect were reduced by 0.5% each, and the Pictet benchmark allocation increased to 1.5%.

Manager	Target pre 2017	Target from 1 January 2017	Actual (end Oct 2017)
Ruffer	7.0%	6.5%	6.2%
Aspect	4.0%	3.5%	3.5%
Pictet	0.5%	1.5%	2.9%
	11.5%	11.5%	12.6%

It is currently anticipated that the allocation to Pictet be reduced over time to fund investments in the Opportunities pool, although cash and the equity allocation provide other sources of assets.

The approach adopted by the three Targeted Return managers differ, and they provide some complementarity to one another. The Ruffer mandate is a long-only multi-asset strategy with a high emphasis on maintaining absolute returns, the Aspect portfolio is a quantitative momentum based strategy and the Pictet product is a more traditional dynamic asset allocation strategy.

With the current high valuations of many markets, the Ruffer portfolio has remained relatively defensive, with a high allocation to inflation linked bonds. Whilst their approach acts to provide capital preservation within the Ruffer portfolio, at an overall Fund level this provides limited downside protection.

Pictet have informed us that Percival Stanion is stepping back from the day-to-day management of the Dynamic Asset Allocation (DAA) Fund due to health issues. Whilst he will remain chair of the fund's investment process and co-chair of Pictet's strategy unit that formulates the Fund's asset allocation preferences, he will no longer be a named portfolio manager of the strategy. Andrew Cole, who has worked closely with Stanion managing the DAA strategy for the last 16 years, will take on lead management of the Fund. Cole will continue to work alongside Shaniel Ramjee who is already a co-manager on the strategy.

Whilst these changes may seem relatively minor, the fact that this has been caused by health issues means that there is a risk that Stanion's involvement will reduce further in the near future. There is also a risk that he may choose to retire, which would likely cause a significant shift in our research view as Stanion has been the figurehead of the team and the most impressive of the three portfolio managers who came across from Barings to Pictet. We continue to monitor the strategy. However, the Fund is primarily invested in very liquid markets, and therefore we see no need for immediate action.

Reflecting the above comments on Ruffer and Pictet, we propose a modest continuation towards a broader strategic balance between the three strategies, as set out below.

Manager	Target from 1 January 2017	Proposed target from 1 January 2018	Actual (end Oct 2017)
Ruffer	6.5%	6.0%	6.2%
Aspect	3.5%	3.5%	3.5%
Pictet	1.5%	2.0%	2.9%
	11.5%	11.5%	12.6%

We do not propose incurring cost by switching assets between the three managers. Instead we propose the LPC delegate responsibility to the Fund Officers for deciding how any future disinvestment of assets from the Targeted Return allocation to fund Opportunities pool investments is made between Ruffer and Pictet.

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6. Opportunities Pool

Having made allocations to M&G's DOF IV, Infracapital and Standard Life Capital's private equity secondaries fund III, the Fund has made allocations currently equivalent to 5.75% of total assets.

Manager	Target	Actual (October 2017)
M&G DOF series	2.5%	2.1%
Markham Rae	0.75%	-
CRC	1%	Fully drawn in December
Infracapital	0.75%	-
SLC secondaries	0.75%	-
Total	5.0% excl Markham Rae	3.1% inc CRC
Strategic target	4.0% - 6.0%	

Markham Rae have not managed to complete any deals, and have not drawn any commitments. They have until 22nd March 2018 to make any drawdown or the fund will wind down. They now anticipate completing a deal with ING, requiring a modest capital draw of £40m (out of total fund size of £487m) and a further £50m before the end of March. If this is only the transaction, then we anticipate investors will be asked if they want to participate in future deals. For this reason we have excluded Markham Rae from the target allocation.

Assuming that we can identify more opportunities for the Fund during the next year, then this could lead to commitments that would be in excess of the current upper limit of the strategic allocation. Therefore we propose the LPC increases the upper limit of 6.0% to 8.0%.

If new opportunities are identified and additional funding is required, the natural default would continue to be equities (still by far the largest single asset exposure) and Targeted Return (currently overweight relative to benchmark), although we would also expect to take into account the relative attraction of other assets, and reduce exposure to markets considered especially expensive.

Looking ahead, the LPC will need to understand, and potentially influence, the Central Pool intentions with regards to the management of Opportunities Pool type assets. If Central Pool is looking to offer a separate strategic opportunity portfolio (or portfolios) to all Funds within the Pool, what the structure and objectives of this will look like, and how the Fund will be expected to maintain its exposure, should be considered.

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7. Summary of recommendations

The table below sets out our higher level strategic recommendations. The changes are highlighted in red.

	Current Benchmark weight (%)	Proposed Benchmark Weight (%)	Long-term Real Return (% p.a.)	Contribution to Strategic Return (% p.a.)
Equities (44.0 – 48.0%, proposed)				
Listed equity	44-46	40 – 44	4.1	1.75
Private equity	4	4	6.1	0.25
Real (26.5%, proposed)				
Inflation linked bonds	7.5	7.5	-0.7	-0.05
Infrastructure	5	6	3.6	0.2
Timber	2	3	3.6	0.1
Property	10	10	2.4	0.25
Alternatives/Diversifiers (25.5 - 29.5%, proposed)				
Targeted return	11.5	9.5 - 11.5	3.4	0.4
EMD	2.5	2.5	3.0	0.1
Global Credit	7.5	7.5	4.0	0.3
Opportunity Pool	4-6	4 - 8	4.1	0.2
Currency overlay (Notional weight)	(c.10)	(c.10)	1.0	0.1
TOTAL	100	100		3.6

The main strategic change we propose is to allocate an additional 1.0% of assets to each of Infrastructure and Timberland. This has no material impact on the long-term expected return, but reflects our current preference for the more predictable and sustainable returns these asset offer relative to potential current equity markets.

We also recommend a further allocation of c0.5% to Kames' KAVPUT property strategy, to actively increase the property allocation up to 9.0%.

Although each individual allocation may be small, we continue to see attraction in the type of investments that are suitable for the Opportunities Pool. We propose increasing the upper range from 6% to 8% to allow further investments to be made by the Investment Sub Committee if suitable opportunities can be identified.

We also support the proposal to reduce the Fund's hedging of overseas assets from 70% back to a weight of 50%.

Risk warning

Please note the value of investments, and income from them, may fall as well as rise. This includes equities, government or corporate bonds, and property, whether held directly or in a pooled or collective investment vehicle. Further, investments in developing or emerging markets may be more volatile and less marketable than in mature markets. Exchange rates may also affect the value of an investment. As a result, an investor may not get back the amount originally invested. Past performance is not necessarily a guide to future performance.

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Appendix

RAFI composition methodology

The starting universe for the FTSE RAFI indices is all listed stocks. This universe is then ranked or reconfigured such that, rather than a stock's weighting in the index being determined by its scale and pricing (i.e. issued share capital x share price = market capitalisation), the weighting of each company is determined by a fundamental measure or combination of measures.

The RAFI indices use a liquidity screened universe of listed stocks and weight each constituent according to a combination of its share of the aggregate of the universe based on certain fundamental metrics (e.g. its sales as a proportion of total sales for the universe + its cash flow as a proportion of total cash flow for the universe etc).

RAFI uses the following accounting metrics:

- Sales: total company sales averaged over the preceding 5 years
- Cash flow: total company cash flow averaged over the prior 5 years
- Book value: total company book value at the review date
- Dividend: total dividend distributions, averaged over the last 5 years

In a market cap index a change in a constituent's share price will automatically be reflected in a change in its index weight; rebalancing is automatic and does not require transactions other than associated with reinvestment of dividends or due to corporate activity.

In a fundamental index, a change in a constituent's share price will lead its actual index weight to diverge from its fundamental weight; therefore the constituents will have to be rebalanced back to their fundamental weights. For the RAFI series, fundamental weights are calculated annually with the rebalancing implementation spread over 4 quarters.

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