THE LONDON BOROUGH
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DATE: 13 December 2019

# PENSIONS INVESTMENT SUB-COMMITTEE

## Special Meeting to be held on Tuesday 17 December 2019

**Please see attached "to follow" material for the item below.**

**4 ASSET ALLOCATION** (Pages 3 - 40)

***Copies of the documents referred to above can be obtained from http://cds.bromley.gov.uk/***

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**Report No.**
**FSD20004**

**London Borough of Bromley**

**PART 1 - PUBLIC**

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| | |
|---|---|
| **Decision Maker:** | **Pensions Investment Sub-Committee** |
| **Date:** | **17th December 2019** |
| **Decision Type:** | Non-Urgent Non-Executive Non-Key |
| **Title:** | **PENSION FUND ASSET ALLOCATION STRATEGY REVIEW – FOLLOW UP REPORT** |
| **Contact Officer:** | Katherine Ball, Principal Accountant<br>Tel: 020 8313 4792 E-mail: Katherine.Ball@bromley.gov.uk |
| **Chief Officer:** | Director of Finance |
| **Ward:** | All |

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**1. Reason for report**

**1.1** As requested at the last meeting of the Pensions Investment Sub-Committee, this follow-up report presents further information and recommends options for the future asset allocation strategy for the Pension Fund, following a review by the Fund's Investment Adviser, MJ Hudson Allenbridge.

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**2. RECOMMENDATION**

**2.1 The Pensions Investment Sub-Committee is asked to:**

**(a) note the content of the report;**

**(b) agree final changes to the asset allocation strategy considering the updated proposals detailed in MJ Hudson Allenbridge's report (attached at Appendix A), and**

**(c) subject to the changes being agreed, agree that a further report will be presented to the next meeting of the Sub-Committee detailing arrangements for implementing the strategy.**

Corporate Policy

1. Policy Status: Existing policy. The Council's Pension Fund is a defined benefit scheme operated under the provisions of the Local Government Pension Scheme (LGPS) Regulations, for the purpose of providing pension benefits for its employees. The investment regulations (The LGPS (Management and Investment of Funds) Regulations 2016) allow local authorities to use all the established categories of investments, e.g. equities, bonds, property etc, and to appoint external investment managers who are required to use a wide variety of investments and to comply with certain specific limits.

2. BBB Priority: Excellent Council.

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Financial

1. Cost of proposal: No cost

2. Ongoing costs: Recurring cost. Total administration costs estimated at £5.1m (includes fund manager/actuary/adviser fees, Liberata charge and officer time)

3. Budget head/performance centre: Pension Fund

4. Total current budget for this head: £43.9m expenditure (pensions, lump sums, etc); £56.8m income (contributions, investment income, etc); £1,118m total fund market value at 30th September 2019)

5. Source of funding: Contributions to Pension Fund

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Staff

1. Number of staff (current and additional): 0.4 FTE

2. If from existing staff resources, number of staff hours: c 14 hours per week

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Legal

1. Legal Requirement: Statutory requirement. Local Government Pension Scheme (LGPS) Regulations 2013 (as amended), LGPS (Management and Investment of Funds) Regulations 2016

2. Call-in: Call-in is not applicable.

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Customer Impact

1. Estimated number of users/beneficiaries (current and projected): 6,072 current employees; 5,502 pensioners; 5,828 deferred pensioners as at 30th September 2019

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Ward Councillor Views

1. Have Ward Councillors been asked for comments? N/A

2. Summary of Ward Councillors comments: N/A

## 3. COMMMENTARY

### 3.1 Asset Allocation Review – December 3rd 2017

3.1.1 At its meeting on 3rd December 2019, the Pensions Investment Sub-Committee considered the asset allocation strategy review carried out by the Fund's Investment Adviser, MJ Hudson Allenbridge, and the proposed changes to the strategic allocation. Members requested further information on the options being presented, specifically relating to Private Equity and US Real Estates compared with Global Property Funds. Further clarification was sought on various matters and it was agreed that this would be considered at a special meeting of the Sub-Committee.

3.1.2 The asset allocation report considered at the 3rd December meeting has been attached for reference as Appendix B, as well as notes of the meeting on the 14th November 2019 between the LB of Bromley, MJ Hudson Allenbridge, Mercer and fund managers.

3.1.3 Additionally, background papers on private equity have been provided by MJ Hudson Allenbridge, and these have been distributed to the members of this Sub-Committee.

### 3.2 Asset Allocation Review – Follow-Up

3.2.1 MJ Hudson Allenbridge's report is attached as Appendix A, and provides further information including their recommended options.

3.2.2 Representatives from MJ Hudson Allenbridge will be present at the meeting to answer any questions on their report and proposals.

### 3.3 Next Steps

3.3.1 Subject to approval of the changes proposed in MJ Hudson Allenbridge's report, work will then begin on how to implement this. Members are asked to agree that a report detailing the implementation of the proposed changes be brought to the next meeting of the Sub-Committee.

## 4. POLICY IMPLICATIONS

4.1 The Council's Pension Fund is a defined benefit scheme operated under the provisions of the Local Government Pension Scheme (LGPS) Regulations, for the purpose of providing pension benefits for its employees. The investment regulations (The LGPS (Management and Investment of Funds) Regulations 2016) allow local authorities to use all the established categories of investments, e.g. equities, bonds, property etc, and to appoint external investment managers who are required to use a wide variety of investments and to comply with certain specific limits.

## 5. FINANCIAL IMPLICATIONS

5.1 There are none directly arising from this report, however there will be procurement costs arising from any new asset investment class, which will be reported at the meeting.

## 6. LEGAL IMPLICATIONS

**6.1** The statutory provisions relating to the administration of the Local Government Pension Scheme are contained in the Local Government Pension Scheme (LGPS) Regulations 2013. The investment regulations (The LGPS (Management and Investment of Funds) Regulations 2016) set out the parameters for the investment of Pension Fund monies.

| | |
|---|---|
| **Non-Applicable Sections:** | Personnel Implications, Impact on Vulnerable Adults and Children, Procurement Implications |
| Background Documents: (Access via Contact Officer) | MJ Hudson Allenbridge asset allocation strategy reports (Appendices A & B)<br>MJ Hudson Allenbridge background papers on private equity |

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APPENDIX A

MJ HUDSON
Allenbridge

# Strategic Asset Allocation

## A Review of Options

London Borough of Bromley Pension Fund

**DECEMBER 2019**

# Background

MJ Hudson Allenbridge produced a report into the Fund's Strategic Asset Allocation ("SAA"), which was considered at the recent PISC meeting on 3rd December 2019. This report made a number of recommendations based on the Fund's current funding level and cash flow requirements. Of these recommendations, the committee asked for further details on two potential areas for investment and a recommendation on where, if any, assets should be sold to finance these. This paper looks to cover these issues.

# Summary of Recommendations

To alter the SAA by a divestment of 5% from Investment Grade Credit and 5% from Global Equities and a reinvestment into a 5% weighting in International Property and 5% into Private Equity ("PE").

To rebalance the Fund towards the new SAA.

MJ Hudson Allenbridge would recommend accessing International Property via a Global Property manager using a value-add strategy (explained later) and most commonly accessed via a close-ended fund of 10-15-year duration with leverage of around 50%.

Investing in up to 5 PE funds to provide sufficient diversification by fund type, investment area and vintage, again via a close-ended fund using an element of leverage. Different approaches to investment are described later.

| Asset Class | Existing SAA | Recommended SAA | Existing TAA (30/09/19) | Assets transitioned (Estimated) |
|---|---|---|---|---|
| **Global Equities** | 60% | 55% | 63.75% | -£90m |
| **Investment Grade Fixed Income** | 15% | 10% | 13.20% | -£35m |
| **Multi-Asset Income** | 20% | 20% | 18.75% | +£15m |
| **UK Property** | 5% | 5% | 4.30% | n/a |
| **International Property** | n/a | 5% | n/a | +£55m |
| **Private Equity** | n/a | 5% | n/a | +£55m |

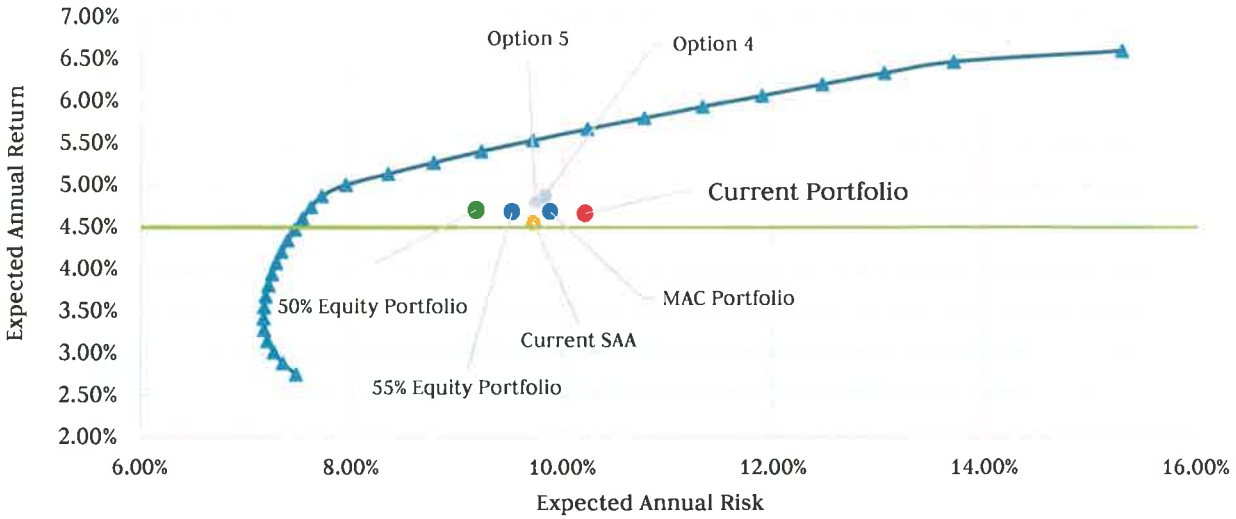
In reality, the Committee sets the Tactical Asset Allocation, which can differ from the SAA to reflect shorter term investment views. Whilst I would not put too much weight on these, in the interest of simplicity, it may be worth realising the entire Baillie Gifford Fixed Interest portfolio, currently valued at £63m, and slightly less Global Equities to finance the new investments. This would leave the Fund approximately 1.7% underweight Fixed Interest and correspondingly 1.7% overweight Global Equities against the new SAA.

We would note that the new asset classes are illiquid and, as such, it will take time to deploy the capital. Current investments will therefore need to be realised as and when required, unless there is a sufficient reason to pre-fund any purchases. We would also note that these changes involve investing into more complex asset structures, which will increase the governance burden and cost in terms of manager fees for the Fund. However, we believe the resulting SAA would add to the diversification of the Fund and better position it to deliver the required investment return and cash flows into the future.

# SAA Modelling

As before, this was conducted via a mean variance optimisation model developed by MJ Hudson Allenbridge using return and volatility data from the forecasts of a number of asset managers, including those used by the Fund.

The efficient frontier shown in the chart below is the same as that used in the initial SAA report constraining global equities to a minimum of 50% of total assets but otherwise allowed to allocate freely to all asset classes.




The dots on the chart correspond to the following options:

1) MAC portfolio – Move 5% from Investment Grade Credit to a Multi-Asset Credit portfolio (taking higher credit risk)
2) 55% Equity portfolio, as above but including a further 5% switch from Global Equity to International Property
3) 50% Equity, as above but including a second 5% switch from Global Equity to PE and Infrastructure
4) 5% reduction in Global Equity and Investment Grade Credit switched into PE and International Property
5) 5% reduction in Global Equity and Investment Grade Credit switched into PE and existing portfolios of Multi-Asset Income and UK property

As can be seen from the chart, both new options 4 and 5 do little to reduce risk compared to the current SAA, but do improve forecasted investment returns. The reason for this is that the Fund's current holding in Investment Grade Fixed Income is a low return but diversifying asset, which is negatively correlated with Global Equities (the majority of the Funds existing assets). Reducing the Fixed Interest element in the Fund reduces the level of diversification, as the potential replacement assets (PE/International Property/UK Property/Multi-Asset Income) have a higher forecasted return but are more correlated to Global Equities.

Whilst this is true, over the long-term we would regard either of the two new options (4 and 5) as acceptable outcomes and be particularly supportive of option 4 as the outcome of the SAA review. This is due to the outlook for Investment Grade Bonds as low return assets, . If the Committee wishes to reduce risk along with improving forecasted investment return, we would continue to recommend reducing the current 5% allocated to PE down to 2.5% and adding an allocation of 2.5% to Infrastructure. The more stable returns and the element of inflation linkage available from investing in infrastructure would be risk reducing for a majority equity and return focused fund such as the London Borough of Bromley Pension Fund.

# International Property

This asset class provides a good forecast investment return with some diversification from Global Equities and strong cashflow characteristics.

Whilst property will always be affected by the state of the global economy and, as an illiquid asset, can see a marked fall in value in turbulent market conditions, each individual property, by its nature, is driven primarily by local factors. Property has no known price mechanism unless it is in the process of being traded, relying on valuers to make an informed but somewhat subjective decision on the value for the majority of the time. Because of this, and the inherent illiquidity of the asset class, all property investment should be considered as a long-term commitment.

The table below shows the investment returns for various property markets over the 10 years to 2016.

| 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|---|---|
| Australia 18.4% | Canada 3.7% | UK 3.5% | UK 15.1% | Canada 15.5% | Canada 14.2% | USA 11.4% | UK 17.8% | Australia 14.0% | Australia 11.9% |
| France 17.8% | Germany 2.8% | Germany 2.0% | USA 14.8% | USA 14.5% | USA 10.8% | Canada 10.7% | USA 11.2% | UK 13.1% | France 7.8% |
| Canada 15.9% | Australia 0.1% | Canada -0.3% | Canada 11.2% | Australia 10.3% | Australia 9.5% | UK 10.7% | Australia 10.6% | USA 12.1% | Germany 7.8% |
| USA 14.4% | France -0.9% | France -1.4% | France 10.0% | France 8.4% | France 6.3% | Australia 9.6% | Japan 7.8% | France 9.0% | Japan 7.6% |
| Japan 11.3% | Japan -0.9% | Australia -2.4% | Australia 9.4% | UK 7.8% | Germany 4.2% | Japan 6.0% | Canada 7.3% | Japan 9.0% | USA 7.5% |
| Germany 4.5% | USA -7.4% | Japan -6.1% | Germany 4.2% | Germany 5.3% | Japan 3.6% | Germany 5.2% | France 6.3% | Germany 8.1% | Canada 5.7% |
| UK -3.4% | UK -22.1% | USA -17.5% | Japan 0.6% | Japan 3.2% | UK 3.4% | France 5.1% | Germany 6.0% | Canada 8.0% | UK 3.9% |

*This chart is for illustrative and discussion purposes only. Returns are shown in local currency. Source: MSCI, Pension Real Estate Association data as of 31 December 2016.*

Whilst there will be wide variation around the average figure for each market, the table does show that each market has its own performance cycle reflecting more local, country specific factors. However, the low level of returns across all markets in 2008/9 illustrates that each property market will be influenced by the global economic outlook.

Whilst investment into UK Commercial Property is often seen as a 'core' or 'core-plus' strategy, we would recommend investing into International Property via a 'value-add' strategy. This specifically targets the acquisition of assets to which the manager can add value, either by improving the quality or quantity of the rental book. This increases the focus on the local, idiosyncratic nature of each property, adding further diversification, and avoids the investor making a long-term commitment to a specific geographical region which may enter a period of poor investment returns not foreseen at the present time. It is also difficult to find an institutional property manager who has truly global resources to cover all markets on a buy and hold basis. 'Value-add' does not mean taking on greenfield development risk but could involve a property requiring an element of investment post-acquisition, in order to get the best rental value going forward.

Regarding investing in the US or internationally, we would recommend the latter. As can be seen from the table, market returns will differ by country and thus having the flexibility to invest where the best medium (3-5 years) return is forecast should help maximise returns.

Whilst the US on its own encompasses a wide variety of individual, local, property markets, it will be influenced by the overall economic outlook for that country's economy. The US is later in the economic cycle than the rest of the world, having recovered earlier from the Global Financial Crisis of 2008/9, and seems to have a relatively high level of political uncertainty at present. Whilst the US may be a beneficiary of a global trade war, we are not convinced that a major breakdown in global trade is the new reality, more that global trade relations will remain more fractious even if President Trump reaches an accord with China in the run up to the US presidential elections next

year. The era of outsourcing to low labour cost countries may now have passed its peak, as the level of added complexity from a global supply chain outweighs the cost savings.

There are a number of asset managers offering Global property mandates with a 'Value-add' approach, these funds tend to work with a gearing level of around 50% and are close-ended with initial investment periods followed by the return of capital over the ensuing harvesting period. The structure of these funds is not dissimilar to that of PE and, as such, is covered in more detail in the next section.

# Private Equity - A brief history

PE investing involves the acquisition and subsequent sale of private companies. The genesis of PE as an institutional asset class can be traced back to the creation of the American Research and Development Corporation (ARDC) in 1946[1] and the creation of Small Business Investment Companies (SBIC) by the US government in 1958 to provide funds for privately-owned and operated venture capital investment firms in the form of long-term debt and equity investments to high-risk small businesses. From the 1960s to the late 1980s, Venture Capital ("VC") was the predominant form of PE with the rise of technology companies. Through the 1980s, PE moved away from solely start-ups to providing finance to more established businesses. Initially this was in the form of expansion capital to help existing businesses achieve their growth plans or in the form of conventional Management Buyouts ("MBOs") where owners were able to transfer their ownership to incumbent management teams. The late 1980s saw the rise of the Leveraged Buyout ("LBO") where acquisitions of large public or private companies could be achieved by using significant level of debt as part of the acquisition financing. Since the 1980s, PE has grown significantly in terms of the areas that it touches and the quantum of capital that has been attracted to the asset class.

The primary rationale for investing in PE is to generate excess returns over equivalent quoted equity benchmarks. Given the low yield environment prevalent over the last decade, institutional interest in the asset class has grown significantly, such that private equity assets under management have almost trebled, from £1,425.1bn in 2008 to £4,105.5bn as of 30 June 2019[2].

# Investment routes

There are several routes to investing in PE, ranging from commitments to funds or funds of funds, direct investments, and co-investments made alongside a PE fund manager. Each involves different costs and offers an investor varying levels of control over individual private equity assets.

We note that the vast majority of investments in PE made by institutional investors are through **funds**. When choosing to invest in PE via funds, investors are able to commit to **primary funds**, whereby they commit to a blind pool of capital (fund) being raised by a PE manager, which will be invested over the finite term of the fund. Alternatively, investors are able to invest in a **secondary position**, acquiring a stake in an existing close-ended fund from an existing investor who wishes to exit their investment ahead of the fund's termination date, or by committing to a **secondary fund**, where the manager deploys capital to acquire several such secondary positions.

Funds vary broadly in terms of size, geographical focus, sector focus and strategy, enabling investors to access a diverse range of assets in return for paying a management fee and carried interest (a share of any profits generated which is allocated to the investment manager, also known as "carry"). It is important to note, however, that conducting thorough due diligence of a PE manager is time intensive and requires substantial knowledge of the asset class. Should an investor wish to make commitments to several managers (such as the commitment to five managers over a two-year period discussed below), the manager selection process will likely need to be extensive to ensure proper diversification and will, therefore, be more expensive than traditional market searches.

[1] by Georges Doriot (regarded as the founding father of US Venture Capital) to encourage private sector investments in businesses run by soldiers who were returning from World War II. ARDC's significance was primarily that it was the first institutional PE investment firm that accepted money from sources other than wealthy families.

[2] Source: Preqin, Charts, Dry Powder & AUM, Assets under Management breakdown, excludes fund of funds and secondaries to avoid double counting.

Investors are also able to access PE investments by committing to a **fund of funds**, which is a fund that invests in numerous other PE funds. This route to investment is particularly advantageous for smaller or newer investors seeking broad exposure to PE, as they are able to access several funds, managers, strategies, sectors, vintages (the year a fund was launched) and regions via a single investment vehicle, thus presenting a lower due diligence and governance burden than allocating to individual funds. Additionally, a fund of funds will often allocate to a combination of primaries and secondaries and sometimes also to directs and co-investments (defined below), enhancing diversification. A disadvantage of this approach is that returns will be impacted by the double layer of fees charged by both the underlying fund manager and the fund of funds manager.

Where an investor's commitment size is large enough, some managers may be willing to invest a separately managed account (SMA) on their behalf, although the minimum commitment size tends to be around £100m (this will vary by manager). With an SMA, investors may be able engage a PE manager to invest directly in a portfolio of private companies or engage with a fund of funds manager who will make commitments to several funds / other managers.

## Fund structure

Typically, PE funds are structured as finite-term (generally 10-12-years), close-ended limited partnerships[3]; the manager assumes the role of "general partner" (GP) with unlimited responsibility for investing the fund commitments, while investors have limited liability as "limited partners" (LPs).

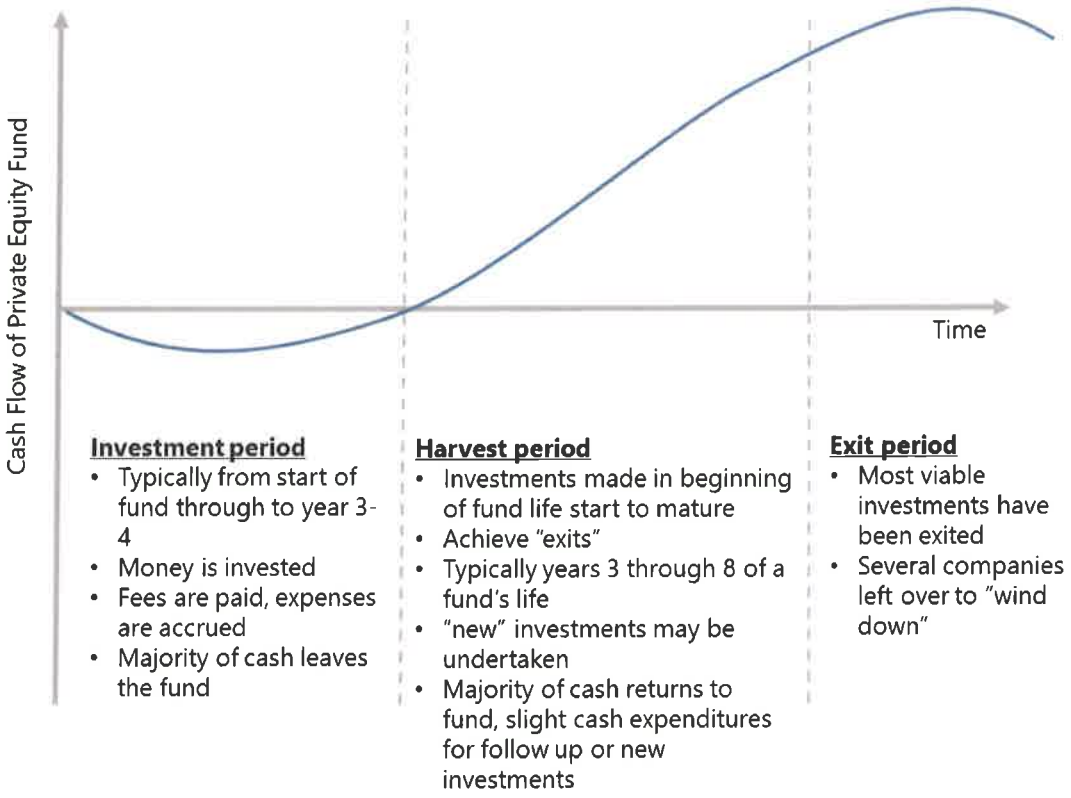
With a primary fund investment, it takes time for a manager to deploy committed capital and construct the portfolio, since transactions in the private market take time to negotiate. Fees are often payable on committed capital before it has been invested (although there is mounting pressure within the industry for this to change, and for fees to be charged on invested capital). The current convention of charging management fees on committed capital subjects investors to the payoff "j-curve," whereby returns are negative as capital is drawn (called) by the manager and used to acquire assets during a defined investment period (typically 3-4 years) before investments are sold and capital is returned gradually (via distributions) during a harvesting phase.

Acquiring an interest in an existing fund, referred to as a secondary position or investing in a fund which targets existing PE funds, mitigates the j-curve effect by giving new investors immediate access to a more mature portfolio, without having to pay fees on undeployed capital during the investment period. Moreover, secondaries are typically sold at a discount to the net asset value (NAV) of the portfolio and can represent good value immediately (although in this high valuation environment with significant dry powder[4] in the market, some secondary positions have been sold at a premium). However, because the seller of a secondary is an existing investor in a primary fund, the buyer has to guard against any asymmetry of information.

[3] The common legal structure for PE Funds is the Limited Partnership. A concise definition of a Limited Partnership is "a partnership with at least one general partner and a limited partner, the latter contributing financially but not otherwise involved in the business or, generally, personally liable for the debts of the partnership".

[4] "Dry powder" is a common term used in the PE industry to refer to capital which has been committed to PE strategies but has not yet been deployed.

**Chart to illustrate the "j-curve" effect**



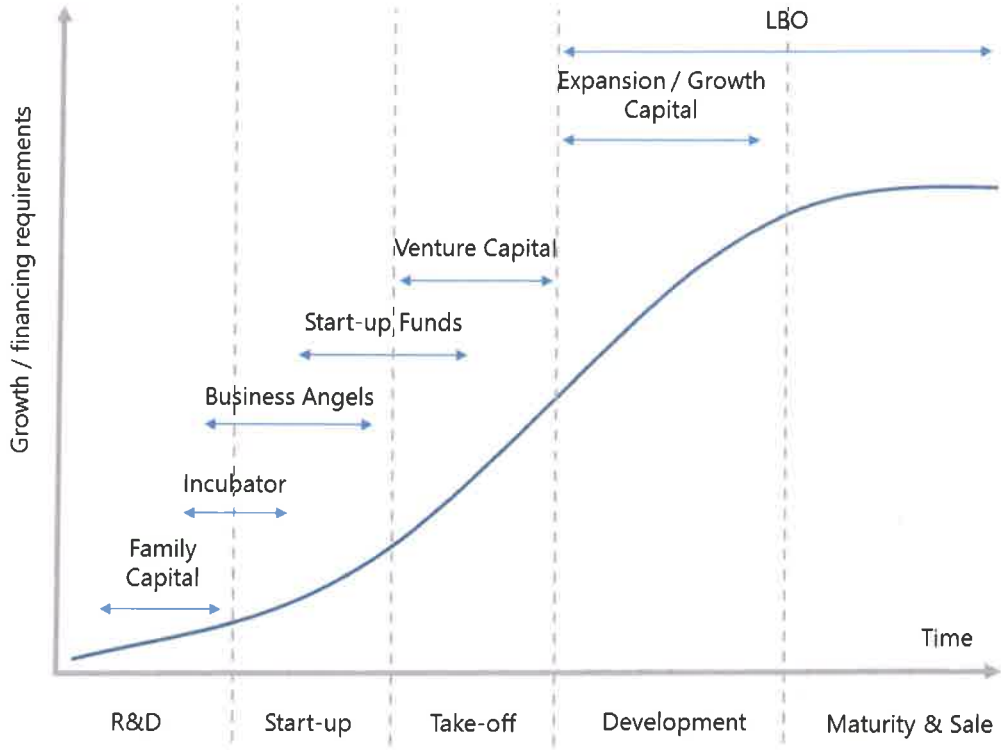

## Other investment routes

As the name suggests, **direct investing** involves making an investment directly into a private company asset and bypassing the need for an investment manager. However, this is only an option for the largest institutional investors with their own in-house PE teams, as well as the sizeable balance sheet necessary to commit to a single asset without it exposing their portfolio to significant concentration risk.

**Co-investments** are direct investments in private companies made alongside an investment manager and are similarly more common amongst large investors, due to the larger investment sizes typically involved in such transactions. More recently, a number of managers have begun to raise dedicated **co-investment fund** vehicles. These provide an alternative source of capital for a manager to draw from more easily when too little capital is available in its primary fund to finance a particular deal (perhaps the manager has sourced this new deal late into the fund's investment period and investing would leave insufficient capital in reserve for follow-on or add-on investments) or when the investment size would introduce significant concentration risk to the portfolio.

# PE strategies

PE is a broad asset class and covers a wide range of strategies and an institutional portfolio will usually comprise a mixture of strategies to provide diversification. Investment strategies within PE are often categorised based on the stage of investment and include venture capital (VC), growth and or expansion capital, buyout and distressed, as highlighted in the following chart and table below:




**Types of PE strategies**

| Strategies | Details |
|---|---|
| Early and late stage VC | VC is investing into newly formed companies that are innovative and have the capacity to grow exponentially. Early stage describes businesses that range from being conceptual through to those having a product in development and late stage, which is where a company may be generating initial revenues and needs capital to grow the customer base and expand the product offering. VC groups invest in "rounds" with each round priced to reflect the milestones that have been achieved. VC is high risk as the rate of failure can be high and therefore Venture Capitalist investors require significantly higher returns from the winners to compensate for the losers. |
| Expansion/growth capital for small and mid-sized companies | Some small to mid-sized private companies require an injection of capital to help their businesses grow. This may be by acquiring additional plant and equipment, recruiting additional staff or by making acquisitions. In this case, the owners of the company will not want to relinquish control and offer the investor a minority equity position. However, the investor will generally ask for specific rights of which the most crucial is the timing of an exit. This may be in the form of a trade sale but it could be in the form of a "Put" where the owner is obligated to buy back the investor's shares at a predetermined valuation. |
| Buyouts | A buyout is the purchase or acquisition of a company's shares in which the acquirer gains controlling interest of the targeted firm. Buyouts are divided into two main strategies:<br><br>**Management buyouts ("MBO"):**<br><br>MBOs range from small to large and in most instances, it is the incumbent management team acquiring the interest of existing owners. The investors use a combination of debt |

| | |
|---|---|
| | and equity to finance the acquisition and they expect the acquiring management team to invest alongside them to ensure an alignment of interests.<br><br>However, the investor has a controlling interest and can make changes, including firing management, to keep the company on track for an exit.<br><br>**Leveraged buyouts ("LBO"):**<br><br>In an LBO, the investor takes total control of the company and either brings in new management or re-incentivises existing management. LBOs are distinguished from MBOs in terms of size and targets can be public as well as private companies. The other salient feature is that LBOs are usually highly debt financed with a thin strip of equity. This adds significantly to risk but if the company has sufficient cash flows to pay interest and repay the debt, the return to equity can be enhanced significantly too. |
| Acquisition of distressed PE interests and distressed debt | Not all investments work out, which can be for a host of reasons although the primary causes are poor management, poor oversight and an excessive debt burden. Rather than seeing a business wither and die, niche PE groups will generally acquire debt or equity (or a combination of both) at huge discounts to NAVs. Often, a business will have filed for bankruptcy and the PE group would steer it through the process as well as developing a plan of action, alongside management, to improve its prospects. There are a number of different strategies emerging today, ranging from low risk acquisitions of distressed senior debt that are collateralised and have a relatively low yield to acquiring highly risky subordinated debt that offer high yields but have a higher probability of failure. |

MJ Hudson Allenbridge has published a number of research documents covering the Private Equity market. We attach some of the more recent reports for your interest and to provide you with a fuller understanding of some of the issues that may arise when in investing in this area.



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MJ HUDSON Allenbridge

# Strategic Asset Allocation Review

## London Borough of Bromley Pension Fund

DECEMBER 2019

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# Background and Requirements

The London Borough of Bromley Pension Fund ("the Fund") requirement was for MJ Hudson Allenbridge to undertake an overall strategic asset allocation ("SAA") exercise for the Fund. We will consider the funding position and associated impact on cashflow contributions to meet the Fund's immediate and long-term liabilities when undertaking an asset liability model ("ALM") review, which will follow later. In this report, we undertook an asset only SAA modelling exercise, which will generate a portfolio that maximises the expected returns, for a given level of risk, within the given portfolio constraints. The portfolio should be expected to exceed the actuarial return on investment assumptions which we have taken as the future service required return target of CPI+2.25%. This is because the Fund's membership is relatively mature (the average age is 52 years), as such the post retirement return assumption will drive the majority of the liabilities. This amounts to a target return greater than 3.75% at the current time (CPI was 1.5% in October 2019). If we assume the Bank of England's inflation target of 2% for CPI and add 2.25%, we get an investment return target of 4.25%. We added a margin for prudence (a conservative 0.25% outperformance of the target) and hence the portfolio is targeting an investment return of above 4.50% which is what we have used in our modelling.

This document:

- Sets out 4 potential long-term SAA portfolios for the Fund resulting from the SAA analysis;
- Details the modelling, key constraints and determination of assumptions;
- Provides key considerations for the SAA going forward and details any recommended changes.

# Recommendation

Based on our Long-Term Capital Market Assumptions ("LTCMA") we believe the Fund can retain a targeted investment return over and above the level assumed by the actuary. This can be achieved by the existing SAA but can also be achieved at a lower risk exposure than the current portfolio and we have made recommendations to effect this. In addition, our recommended changes add to the yield of the Fund thereby aiding the cash flow generated to cover the forecast cash outflows predicted by the actuary.

## A. STRATEGIC ASSET ALLOCATION

We recommend 4 potential long-term asset allocations for consideration:

**1) Rebalance to the current SAA, move all existing assets to distribution units to aid cash generation.**

At present Baillie Gifford Global Alpha Growth Fund, Baillie Gifford Fixed Interest, Fidelity Institutional UK Aggregate Bond Fund and MFS Global Equity Fund are held as accumulation units. If all four portfolios were moved from accumulation to distribution units, this would meet the Fund's cash outflow forecast with an estimated annual income distribution of £23.1 million by 2025/2026[1]. Any further increases in distributions required by the Fund will require changes to the strategic asset allocation or monthly divestments from the Fund assets.

Using the current SAA and our LTCMA this suggests a return of 4.56% per annum for this portfolio which is above our long-term return requirement of a 4.5% return.

**2) Multi-Asset Credit ("MAC") Portfolio**

The Fund should decrease the existing allocation within the current SAA to investment grade credit by 5% (from 15% to 10%). And add a 5% allocation into a new multi-asset credit portfolio, as this asset class is forecasted to add to the Fund's return and boost cash flow, however this does increase risk.

**3) 55% Equity Portfolio**

[1] Figures came from the Fund's actuary (Mercer) – see table 6

The Fund should decrease the existing allocation within the current SAA as follows:

- Investment grade credit by 5% (from 15% to 10%);
- Global equities by 5% (from 60% to 55%).

And add/increase allocations into:

- 5% new allocation into multi-asset credit, as this asset class is forecasted to add to the Fund's return and boost cash flow, however this does increase risk;
- 5% allocation to global property as this adds diversification and reduces risk with no loss of return or cash flow.

As an alternative to investing in global property this could be achieved by increasing the weighting in multi-asset income ("MAI") and UK commercial property by 2.5% each. The advantage is that these are existing portfolios, however, the near term (2-3 years) outlook for the UK property market is uncertain and return forecasts are below those for international property. Increasing the multi-asset income weighting does increase the Fund's exposure to equities and higher yielding credit so it's not so diversifying.

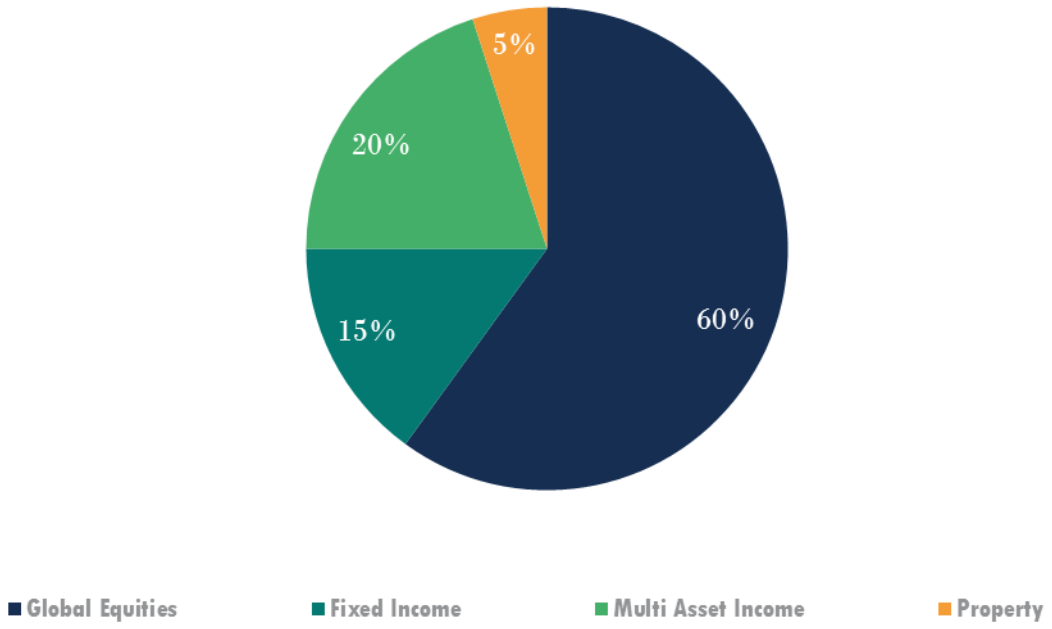
**4) 50% Equity Portfolio**

The Fund can further improve returns and diversify the 55% equity portfolio further by:

- Reducing the equities allocation by an additional 5% (from 55% to 50%);
- Investing 2.5% into a global infrastructure fund and 2.5% into a private equity fund. This will decrease risk further and aid cash flow as well as very marginally increase return. Our recommendation for these styles of assets would be to target equity like returns but with acceptable levels of leverage limits at both at the Fund and underlying asset level.

Our understanding is that the Fund has a long-term investment horizon and is thereby prepared to accept short term volatility or illiquidity in order to achieve higher investment returns. The Fund believes that, over the longer-term, equities are expected to outperform other liquid assets e.g. government bonds. As such the portfolio should still incorporate a significant allocation to equities.

CHART 1: CURRENT STRATEGIC ASSET ALLOCATION




*Source: London Borough of Bromley Pension Fund, MJ Hudson Allenbridge*

B. CURRENT PORTFOLIO

As of 30th September 2019, the Fund had a value of £1,117,687,367, which was invested across four managers: Baillie Gifford, Fidelity, MFS and Schroders.

**TABLE 1: FUND ALLOCATION AS OF SEPTEMBER 2019**

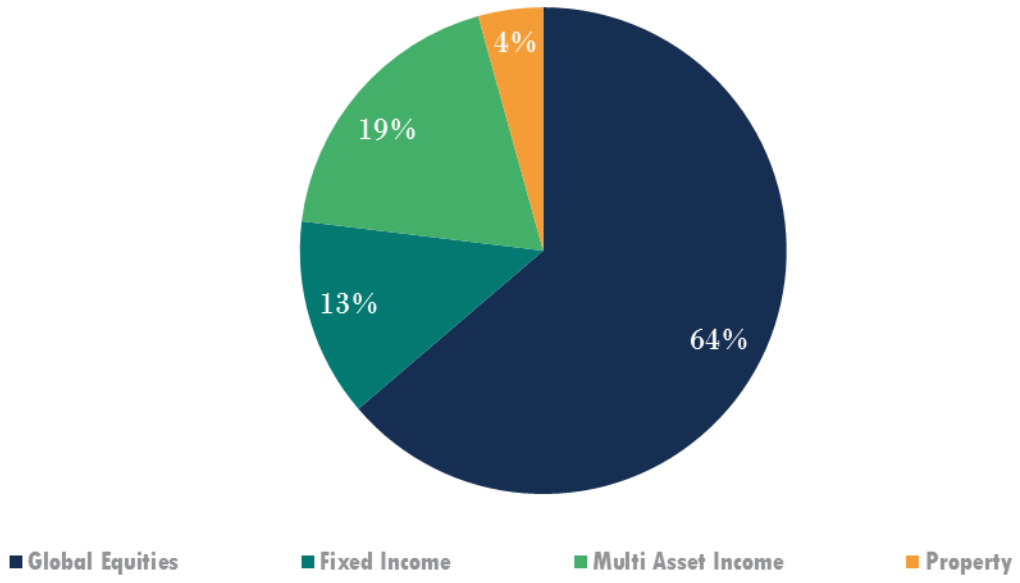
| Fund | Asset Class | Valuation as of 30/09/19 | % of total portfolio |
|---|---|---|---|
| | | | |
| Baillie Gifford Global Alpha Growth Fund | Global Equities | £451,324,481 | 40.4% |
| Baillie Gifford Fixed Interest | Fixed Income | £63,045,534 | 5.6% |
| Fidelity Institutional UK Aggregate Bond Fund | Fixed Income | £84,415,277 | 7.6% |
| Fidelity Institutional Diversified Income Fund | Multi Asset Income Fund | £93,406,798 | 8.4% |
| Fidelity UK Pooled Property Fund | Property Fund | £48,197,824 | 4.3% |
| MFS Global Equity Fund | Global Equities | £261,044,066 | 23.4% |
| Schroder Multi Asset Income Fund | Multi Asset Income Fund | £116,253,387 | 10.4% |

Note: Figures may not add to 100% due to rounding

*Source: London Borough of Bromley Pension Fund, MJ Hudson Allenbridge*

Chart 2 shows the Fund's current tactical asset allocation as of 30th September 2019. As can be seen below, the Fund is currently overweight equities by 4% by market value compared to the SAA and underweight the other three asset classes.

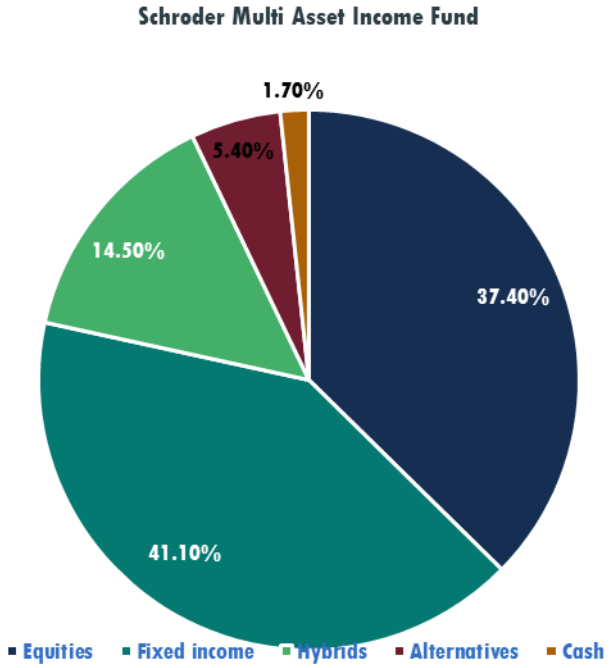
CHART 2: CURRENT TACTICAL ASSET ALLOCATION

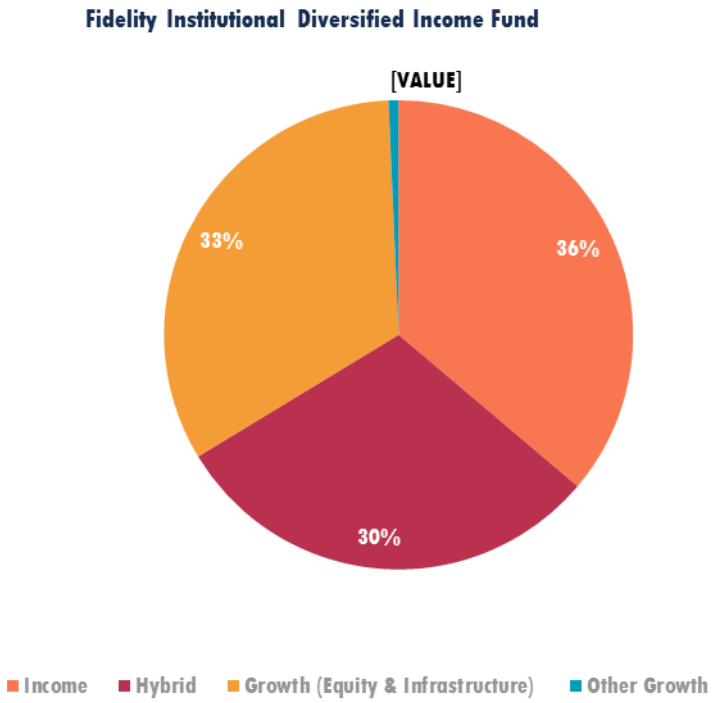



*Source: London Borough of Bromley Pension Fund, MJ Hudson Allenbridge*

It is important to note that multi-asset income funds can invest across a wide range of asset classes. Schroders and Fidelity as of September 2019 had an allocation of 37.4% and 22.8% of their MAI portfolios invested in equities, meaning the Fund's allocation to equities is substantially higher than the 64% quoted above – it increases the equities' asset allocation to 70%. Multi-asset income funds also have exposure to infrastructure, property and credit, as shown by the chart below.

CHART 3: MULTI-ASSET INCOME FUND BREAKDOWN AS OF 30TH SEPTEMBER 2019




*Source: MJ Hudson Allenbridge, Schroders, Fidelity*

# The Recommended Strategic Asset Allocation

C. EFFICIENT FRONTIER

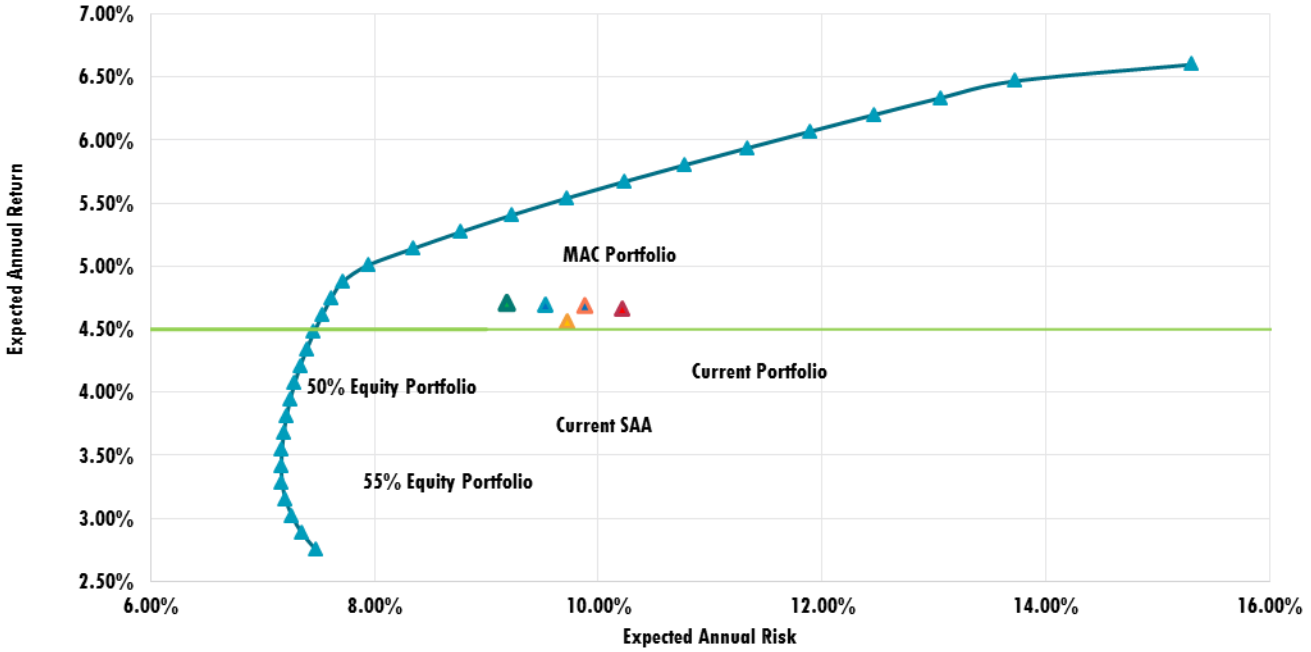
Chart 4 shows thirty modelled portfolios plotted by risk (i.e. expected volatility) and return, used to form an efficient frontier. The points on the efficient frontier represent the most efficient portfolios from a risk-return perspective, i.e. the lowest possible risk for a given level of return, based on the modelling assumptions and constraints. At the lowest risk level, the efficient portfolio would contain only cash; at the highest risk level the portfolio would contain only the asset classes with the highest assumed return; in this case, emerging market equities and private equity (see appendix).

To make these modelled portfolios more relevant we added in constraints which we believe reflect the requirements of the Fund and the investment beliefs of the Pensions Investment Sub Committee ("PISC"). We have constrained equities to a minimum of 50% and cash to a maximum of 1% (table 3 in the appendix shows the constraints that we have used and explains why). If we left the SAA model totally unconstrained it produces results which, whilst academically interesting, are not fit for purpose as the model does not require any diversification of asset classes. However, what is noticeable from these unconstrained models is that they skew away from equities as an asset class. This is because equities have traditionally been more volatile than other asset classes yet positively correlated particularly to those with a higher return assumption i.e. a more attractive risk/return payoff can be found outside equities. In addition, the model does not reflect the Fund's specific requirements of sufficient yield and liquidity. These Fund specific constraints are the reason why the current and recommended portfolios are not closer to the efficient frontier line.

The point highlighted in red represents the current position of the Fund at the time of the review. Note the current Fund's risk and return were calculated based on forward looking assumptions (table 2 in the appendix). As can be observed, the proposed portfolios (Option 3 - 55% equity and Option 4 – 50% equity mentioned below) have a materially lower risk for very similar returns. Moreover, the proposed target portfolios are more diversified, as are their sources of risk and return generation, providing for a more efficient and resilient investment portfolio.

The mean variance optimisation ("MVO") modelling yielded the following results:

CHART 4: EFFICIENT FRONTIER




Note: The green line represents the target return for the Fund

*Source: MJ Hudson Allenbridge*

D. RECOMMENDED ASSET ALLOCATIONS

We recognise and support the view of the PISC that equities provide an attractive long-term return for a pension fund and as such, we therefore introduced three levels of minimum equity weightings into the model and ran different scenarios:

A) Minimum 60% exposure to global equities
B) Minimum 55% exposure to global equities
C) Minimum 50% exposure to global equities

Further to this we have recognised the Fund's cash flow requirements by requiring each of the above portfolios to hold a minimum of 5% in UK commercial property and 20% in multi asset income. To set the constraint for MAI we have split out the underlying exposure of the MAI funds managed by Fidelity and Schroders into the relevant asset classes (see table 1 in appendix)

As a final constraint we have recognised the Fund's requirement for an element of liquidity by limiting the exposure to alternatives (illiquid asset classes) to 15%. Perhaps more controversially we have also required the models to hold a minimum of 10% in a combination of UK Gilts and UK investment grade credit. The rationale for this is that the model did not allocate to these asset classes at all due to the low returns and the more favourable profile of other asset classes. However, we were not comfortable with removing this allocation completely at the current time and have detailed our rationale below in the section on UK gilts. We have considered multiple scenarios and our approach has resulted in several proposals, summarised in table 2 below.

TABLE 2: RECOMMENDED ASSET ALLOCATIONS

| | Current Portfolio | Option 1) Current SAA | Option 2) MAC Portfolio | Option 3) 55% Equity Portfolio | Option 4) 50% Equity Portfolio |
|---|---|---|---|---|---|
| | | | | | |
| Equities | 64% | 60% | 60% | 55% | 50% |
| Multi Asset Income | 19% | 20% | 20% | 20% | 20% |
| UK Gilts<br>UK Investment Grade Corporate Bonds | 13% | 15% | 10% | 10% | 10% |
| UK Real Estate | 4% | 5% | 5% | 5% | 5% |
| Multi Asset Credit | 0% | 0% | 5% | 5% | 5% |
| Global Real Estate | 0% | 0% | 0% | 5% | 5% |
| Infrastructure | 0% | 0% | 0% | 0% | 2.5% |
| Private Equity | 0% | 0% | 0% | 0% | 2.5% |

TABLE 3: EXPECTED STATISTICS OF THE RECOMMENDED ASSET ALLOCATIONS

| Portfolio Characteristics | Current Portfolio | Option 1) Current SAA | Option 2) MAC Portfolio | Option 3) 55% Equity Portfolio | Option 4) 50% Equity Portfolio |
|---|---|---|---|---|---|
| | | | | | |
| Expected annual return | 4.67% | 4.56% | 4.69% | 4.69% | 4.71% |
| Expected annual volatility | 10.21% | 9.72% | 9.88% | 9.52% | 9.18% |
| Expected Sharpe ratio (Rf=1.8%) | 0.28 | 0.28 | 0.29 | 0.30 | 0.32 |
| Expected normal annual VaR (95%) | -12.13% | -11.43% | -11.56% | -10.97% | -10.40% |
| **£ Annual VaR at 95%** | £135,576,616 | £127,783,986 | £129,209,598 | £122,626,785 | £116,185,534 |

*Source:* *MJ* *Hudson* *Allenbridge*

# Risk Considerations

A. THE MODEL

The portfolio optimisation was performed using MVO. This allowed us to consider the level of uncertainty (or expected volatility) directly in the model and to determine a portfolio with the highest expected returns for that level of volatility. However, the model did not consider the exposures of risk or liquidity risk explicitly. Also, an important consideration in the portfolio construction within each asset class is the choice of strategy and manager, which can be selected to increase diversification of the sources of risk within each asset class and make the portfolio more efficient and resilient.

B. CASHFLOW ASPECTS

TABLE 4: CURRENT YIELDS AS OF SEPTEMBER 2019

| Fund | Income Producing | Valuation as of 30/09/19 | Target Distribution Yield | Estimated Income Amount | Source |
|---|---|---|---|---|---|
| | | | | | |
| Baillie Gifford Global Alpha Growth Fund | No | £451,324,481 | N/A | N/A | N/A |
| Baillie Gifford Fixed Interest | No | £63,045,534 | N/A | N/A | N/A |
| Fidelity Institutional UK Aggregate Bond Fund | No | £84,415,277 | N/A | N/A | N/A |
| Fidelity Institutional Diversified Income Fund | Yes | £93,406,798 | 4.5% | £4,203,300 | Fidelity Quarterly Report |
| Fidelity UK Pooled Property Fund | Yes | £48,197,824 | 4.6%* | £2,217,100 | Fidelity Factsheet |
| MFS Global Equity Fund | No | £261,044,066 | N/A | N/A | N/A |
| Schroder Multi Asset Income Fund | Yes | £116,253,387 | 4.2% | £4,882,650 | Schroders Quarterly Report |

*Based upon the last 4 distributions paid as of 30th September 2019

*Source: London Borough of Bromley Pension Fund, MJ Hudson Allenbridge, Baillie Gifford, Fidelity, MFS and Schroders*

Table 4 shows the Fund is currently meeting its £10 million cash outflow requirement as the total estimated income for the portfolio is £11.3 million, however, the cash outflow for 2018/19 is calculated after receiving a deficit reduction payment. Going forward, in the absence of these payments the cash outflow is increased.

TABLE 5: ACCUMULATION FUNDS' YIELDS

| Fund | Target Distribution Yield |
|---|---|
| | |
| Baillie Gifford Global Alpha Growth Fund | 0.6%* |
| Baillie Gifford Fixed Interest | 2.3%* |
| Fidelity Institutional UK Aggregate Bond Fund | 1.9%** |
| MFS Global Equity Fund | 2.3%** |

*Based on September 2019 yields
**Based on October 2019 yields

*Source: MJ Hudson Allenbridge, Baillie Gifford, Fidelity and MFS*

From table 5, if Bromley currently were to switch accumulation funds into distribution funds this would enable the Fund to produce an estimated annual income of £23.1m, which would meet liabilities till 2025/2026 as per the actuary's cashflow projections in table 6. The timing of these switches can be done to fit the cash outflow requirements.

TABLE 6: ACTUARY'S CASHFLOW PROJECTIONS

| Year | Total Liabilities | Total Expected Contributions | Cashflow Requirement |
|---|---|---|---|
| 2019/2020 | £38,561,464 | £29,991,732 | -£8,569,732 |
| 2020/2021 | £36,815,253 | £23,847,903 | -£12,967,350 |
| 2021/2022 | £37,400,869 | £23,201,352 | -£14,199,517 |
| 2022/2023 | £38,923,085 | £22,500,751 | -£16,422,334 |
| 2023/2024 | £39,631,760 | £21,771,800 | -£17,859,960 |
| 2024/2025 | £41,306,377 | £21,094,637 | -£20,211,740 |
| 2025/2026 | £42,112,541 | £20,423,944 | -£21,688,597 |
| 2026/2027 | £43,836,662 | £19,686,983 | -£24,149,679 |
| 2027/2028 | £44,001,093 | £18,889,095 | -£25,111,998 |
| 2028/2029 | £44,810,421 | £18,253,425 | -£26,556,996 |
| 2029/2030 | £45,843,761 | £17,526,052 | -£28,317,709 |
| 2030/2031 | £46,567,530 | £16,651,011 | -£29,916,519 |
| 2031/2032 | £47,363,374 | £15,830,293 | -£31,533,081 |
| 2032/2033 | £47,528,565 | £15,011,696 | -£32,516,869 |
| 2033/2034 | £48,601,969 | £14,221,505 | -£34,380,464 |
| 2034/2035 | £49,470,990 | £13,219,904 | -£36,251,086 |
| 2035/2036 | £49,378,817 | £12,169,436 | -£37,209,381 |
| 2036/2037 | £49,603,677 | £11,299,455 | -£38,304,222 |
| 2037/2038 | £49,318,393 | £10,467,225 | -£38,851,168 |
| 2038/2039 | £49,078,451 | £9,693,722 | -£39,384,729 |
| 2039/2040 | £48,624,935 | £8,961,168 | -£39,663,767 |
| 2040/2041 | £48,423,455 | £8,312,016 | -£40,111,439 |

*Source: London Borough of Bromley Pension Fund's Actuary (Mercer); MJ Hudson Allenbridge*

TABLE 7: ESTIMATED CASHFLOWS FOR RECOMMENDED PORTFOLIOS

| | Yields | Option 1) Current SAA | Option 2) MAC Portfolio | Option 3) 55% Equity Portfolio | Option 4) 50% Equity Portfolio |
|---|---|---|---|---|---|
| Equities | 1.45% | £9,723,900 | £9,723,900 | £8,913,600 | £8,103,200 |
| Multi Asset Income | 4.35% | £9,723,900 | £9,723,900 | £9,723,900 | £9,723,900 |
| UK Gilts<br>UK Investment Grade Corporate Bonds | 1.9% | £3,185,400 | £2,123,600 | £2,123,600 | £2,123,600 |
| UK Real Estate | 4.60% | £2,570,700 | £2,570,700 | £2,570,700 | £2,570,700 |
| Global Real Estate | 4.60% | £0 | £0 | £2,570,700 | £2,570,700 |
| Multi Asset Credit | 4.35% | £0 | £2,431,000 | £2,431,000 | £2,431,000 |
| Infrastructure | 4.00%* | £0 | £0 | £0 | £1,117,700 |
| Private Equity | 0.00% | £0 | £0 | £0 | £0 |
| **Estimated Total Income** | | £25,203,900 | £26,573,100 | £28,333,500 | £28,640,800 |

*Based on MJ Hudson Allenbridge research on core infrastructure.
Note: Equity, MAI and bond yields were an average of the Fund's current managers' yields. MAC yields were the same as MAI and likewise with UK real estate and global real estate.

*Source: MJ Hudson Allenbridge*

Cashflows from the 55% equity portfolio (£28.6m) and 50% equity portfolio (£28.3m) show that the Fund can meet the cash requirement till 2029/2030. While the MAC portfolio will meet the cash requirement till 2028/2029 and the current SAA till 2027/2028.

C. STRESS TESTING

We have stressed the portfolios, by increasing the correlation coefficients by 20% (all negative correlations decreased in magnitude and positive correlations increased in magnitude) for all assets to simulate change in regime for the portfolios to see how the value at risk ("VaR") would change. In table 8, the more diversified portfolios (option 3 – 55% equity and option 4 – 50% equity portfolio) returned a lower VaR.

TABLE 8: STRESS TESTED PORTFOLIOS

| Portfolio Characteristics under a 20% Increase in Correlations | Current Portfolio | Option 1) Current SAA | Option 2) MAC Portfolio | Option 3) 55% Equity Portfolio | Option 4) 50% Equity Portfolio |
|---|---|---|---|---|---|
| | | | | | |
| Expected annual return | 4.67% | 4.56% | 4.69% | 4.69% | 4.71% |
| Expected annual volatility | 10.37% | 9.88% | 10.07% | 9.76% | 9.47% |
| Expected Sharpe ratio (Rf=1.8%) | 0.28 | 0.28 | 0.29 | 0.30 | 0.32 |
| Expected normal annual VaR (95%) | -12.39% | -11.70% | -11.87% | -11.36% | -10.87% |
| **£ Annual VaR at 95%** | £138,504,804 | £130,754,982 | £132,704,489 | £127,011,303 | £121,543,163 |

*Source: MJ Hudson Allenbridge*

D. UK GILTS

The SAA review explicitly looks at long term returns. We monitor the LTCMA of the major asset managers, this enables us to see change in expectations at an early stage. We then challenge these assumptions amongst our senior advisers and research team to develop our own set of assumptions. Using these return expectations and the assumed volatility and correlations between asset class returns, we model the best asset class structure for the Fund on a 10-year view.

However, this tells us nothing about the journey path to achieve those long-term return assumptions, although history tells us it will not be a straight line of constant annual returns.

Looking at the LTCMA for government bonds we can see that from today's yield levels most forecasters expect a very low level of future return. They are predicting 0-1% per annum over the next 10 years for 10-year UK gilts as an example. This means we expect a very limited change in yields over that period given the at the current yield on the 10-year gilt around to 0.8%.

Given the Fund's negative cash flow trajectory predicted by the actuary, why would the Fund retain any exposure to such a low yielding and potentially low return asset class? The answer is because it adds diversification. Specifically, government bonds are almost the only asset class which would rise in value (yields fall) if we entered a global recession (gold is a second possibility).

The response to a global recession from governments and central banks around the world would be to cut interest rates yet further and increase, once again, quantitative easing. This would force interest rates and bond yields down further. German government bunds currently yield -0.3% at the 10 year and were below 0% out to 30 years as recently as September this year. If UK 10 Year gilts fell to a 0% yield the return from current levels would be around 8%. Remember bond and gilt prices can be heavily influenced by the government, but the price is set by the market, this means that price anomalies can exist for a prolonged period, particularly if the market believes central banks have lost the ability to control the economy. In such a scenario it is possible to see gilt yields move to negative yields. A 0% yield should not be a floor.

More importantly, in a recessionary environment, we would expect all risk assets to decline in value, possibly substantially against a rise in government bond prices in many developed countries.

In addition to this, government bonds in the major developed economies are the most liquid of all assets because there should in theory be no chance of default. The government can always print more money to meet its liabilities. In the event of a market crisis, a holding in gilts will always be tradable with a reasonably transparent price.

If central bank action is to cut interest rates and renew quantitative easing and it does not boost the economy out of a recessionary environment, there is a strong argument that further, more inflationary, action could be taken which would undermine the attraction of government bonds. There are obvious signs of more inflationary measures being put forward by governments in many parts of the developed world with higher spending commitments and it appears austerity has now become a dirty word, this should all be inflationary in the medium term. The difficulty is in assessing when and how big this inflationary impact might be. In this environment, which may come towards the end of a recession, as governments use all available levers to boost the economy, gilt yields may rise, and prices fall.

We believe the Fund should retain some exposure to investment grade credit and UK government gilts but do not feel at 15% weighting in the SAA is appropriate at the present time and that exposure to a diversified set of assets will mitigate much of the risk against holding a higher level of UK government gilts and investment grade credit. If we do enter a global recession and gilt yields decline further, we would recommend revisiting this allocation with a view to reducing the weighting to UK gilts further.

### E. PASSIVE VS ACTIVE

There has been much debate that because the average asset manager underperforms their benchmark, one should not pay for active fund management but select the required index and invest into that, passively, at a lower fee.

Whilst we have much sympathy for this view, we believe it is possible to select active managers who are more likely to outperform. These active managers should have a number of attributes as follows:

1) Stable ownership with the key intellectual thinkers holding part of the equity in the business, preferably a majority. There should be a high level of equity ownership by staff across all levels;
2) This should lead to stable personnel with a limited need to recruit at senior levels;
3) A well-articulated investment philosophy backed by academic research;
4) A thought through investment process which is designed to enact the investment philosophy;
5) Enough resources to implement the investment philosophy and process;
6) A culture which is collegiate, encourages intellectual curiosity and challenge, but is not confrontational.

Within equities, our preference is for asset managers that conduct primary research into the companies they wish to invest in and hold them over the long term (otherwise what is the point of spending money on the research effort).

Investing for the long term then makes ESG (environmental, social and governance) part of the research process because you are investing over a time scale where these issues are gaining more importance. ESG considerations are much harder to enact with passive management because the passive manager is merely replicating an index with no consideration of the ESG issues which may be involved in. Even if you are passively matching a low carbon or ESG style index you have delegated the ESG issue to an index provider who will be far less thorough when charging 5bp than an active manager charging 35bp and conducting primary research as described above.

The Fund has two managers who they have invested with over the long term, both have many of the attributes described above and both have outperformed their respective benchmarks; hit their performance target over the long term and achieved this through a variety of market conditions. Whilst it is unlikely that either manager can show statistically that they have added value (using a T-Square test with 95% probability), we have some confidence that this is the case, but we continually challenge this assumption at every meeting we have with them.

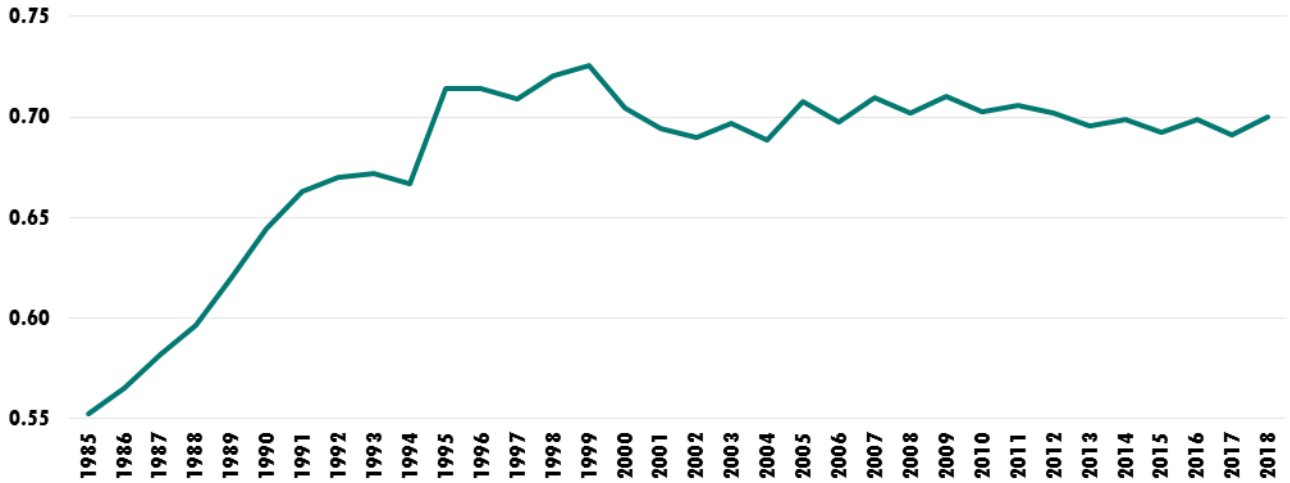
Whilst, we cannot guarantee selecting asset managers who will hit their performance target over the long run, we do believe we can bias the outcome through the high level of scrutiny and due diligence on the manager's approach.

### F. STERLING AND HEDGING

The modelling has been conducted on hedged proxies for the MAI and unhedged proxies for equities. The unhedged equities pose a currency risk should sterling rally over the long term. Over the years, sterling has depreciated against the US dollar and JP Morgan's LTCMA suggests that it will likely strengthen over the long term from current levels. The Fund could consider implementing a hedging programme into the base currency of sterling and this should be discussed with the Fund's investment adviser.

For reference, below is a chart of the long-run historic PPP relative to USD:

TABLE 9: GBP HISTORIC PPP RELATIVE TO USD




*Source: OECD*

G. IMPLEMENTATION CONSIDERATIONS

**Multi-Asset Credit**

The modelling suggests an allocation to MAI and multi-asset credit. MAC strategies, for instance, comprise of high yield, loans, structured credit and emerging market debt. When considering MAC managers, the Fund should be wary as the global economy is at the latter end of the business cycle. We would recommend appointing managers that can tactically allocate the portfolio to a more defensive position if required, with some tactical flexibility to allocate to investment grade credit.

**Infrastructure**

The modelling suggests an allocation to infrastructure. The strategic assumptions are based on core infrastructure, which is the most conservative in terms of returns. The stable income stream and store of real value can provide good portfolio diversification properties with an often inflation linked income stream.

However, this is an illiquid investment, with an extended commitment period, and investment period. As such the distributions would not be expected to start before the first 2-3 years. Should an investment into infrastructure be considered, the Fund should consider starting now, before the income is required.

Furthermore, there are potentially higher returns in non-core infrastructure, the so called Core-Plus, Value-Added and Opportunistic sub-strategies. These typically involve risk in the form of potentially higher leverage and some degree of construction risk. The allocation could target greenfield infrastructure if required and returns in this area do not seem to be below more traditional infrastructure funds at the current time.

# Conclusions

In this report, we have conducted a SAA modelling exercise considering the Fund's beliefs, potential investment universe, liquidity requirements, and reasonable constraints. We have combined these with the long-term capital market assumptions.

As described above, we have compared three potential strategic asset allocations to the current SAA, recommending for consideration a de-risking of the equity exposure either from 60% to 55% or to 50%. These represent a conservative reduction of exposure, whilst maintaining the required return and income profile of the Fund.

There is some further flexibility around the implementation. On the one hand, the Fund may consider an appropriate tactical asset allocation positioning around the suggested SAA. On the other hand, although this report does not discuss manager implementation, it is of course an important dimension to consider in choosing the appropriate managers to implement the strategy.

# Appendix 1 – Methodological Approach

### A. OPTIMISATION AND MODELLING

The portfolio optimisation methodology used was a Mean Variance Optimisation ("MVO"), using long-term forward-looking assumptions across asset classes (discussed later). The modelling was carried out using internal models built in Microsoft Excel.

# Appendix 2 - Key Assumptions and Constraints

### B. MULTI-ASSET INCOME FUNDS

TABLE 1: MAPPING SCHRODERS AND FIDELITY MULTI ASSET INCOME FUNDS TO ASSET CLASSES FOUND IN THE INVESTMENT UNIVERSE.

| Asset Class | Schroder Multi Asset Income Fund | Fidelity Institutional Diversified Income Fund |
|---|---|---|
| | | |
| UK Investment Grade Corporate Bonds | 8.20% | 29.43% |
| US High Yield Bonds Hedged | 25.00% | 9.45% |
| Emerging Markets Local Currency Debt | 2.50% | 5.20% |
| Emerging Markets Corporate Bonds Hedged | 5.60% | 3.18% |
| Global Credit Sensitive Convertible Hedged | 14.50% | 6.05% |
| Diversified Hedge Funds Hedged | 9.30% | 19.39% |
| AC World Equity | 34.90% | 27.30% |

*Source: MJ Hudson Allenbridge*

### C. RISK AND RETURN ASSUMPTIONS

Below is the summary of the forward-looking expected return and expected risk assumptions in the investment universe:

TABLE 2: FORWARD-LOOKING ANNUAL RISK/RETURN ASSUMPTIONS

| Asset Class | Sub-Asset Class | Expected Annual Return | Expected Annual Volatility |
|---|---|---|---|
| | | | |
| Cash | UK Cash | 1.80% | 0.68% |
| Bonds | UK Gilts | 0.00% | 6.64% |
| Multi Asset Income | UK Investment Grade Corporate Bonds[1] | 2.00% | 7.38% |
| | US High Yield Bonds Hedged | 5.20% | 8.27% |
| | European High Yield Bonds Hedged | 4.80% | 8.54% |
| | US Leveraged Loans Hedged | 4.90% | 7.55% |
| | Emerging Markets Sovereign Debt Hedged | 5.00% | 8.44% |
| | Emerging Markets Local Currency Debt | 4.40% | 11.16% |
| | Emerging Markets Corporate Bonds Hedged | 4.80% | 8.16% |
| | Global Credit Sensitive Convertible Hedged | 4.30% | 7.11% |
| | Diversified Hedge Funds Hedged | 4.40% | 7.28% |
| Multi Asset Credit Multi Asset Credit | US High Yield Bonds | 3.70% | 9.38% |
| | US Leveraged Loans | 3.50% | 10.54% |
| | AC World Equity | 5.50%* | 13.39% |

| Asset Class | Sub-Asset Class | Expected Annual Return | Expected Annual Volatility |
|---|---|---|---|
| | | | |
| Equity | Emerging Markets Equity | 7.70% | 18.46% |
| Alternatives | UK Core Real Estate | 4.30% | 10.43% |
| | US Core Real Estate | 5.50% | 16.19% |
| | Global Infrastructure Equity | 4.50% | 9.48% |
| | Private Equity | 7.30% | 16.22% |
| Commodities | Commodities | 1.00% | 13.94% |
| | Gold | 1.50% | 18.31% |

**AC World Equity is an average of JPM, Baillie Gifford and MFS Long Term Capital Assumptions. Baillie Gifford and MFS have been running the equities mandate for the Fund since 1999 and 2013 respectively.*
*[1]Used to model both Bonds and Multi Asset Income*

*Source: MJ Hudson Allenbridge, JP Morgan Asset Management LTCMA 2020, Baillie Gifford and MFS*

We did not model UK equities as a separate asset class as the Fund's equities managers (Baillie Gifford and MFS) have a global mandate and can tactically shift into UK equities if they deem them to be attractively undervalued.

Below is the summary of the constraints used in the modelling:

TABLE 3: MODELLING CONSTRAINTS FOR EFFICIENT FRONTIER

| Sub-Asset Class | Group | Min % | Max % | Group Min % | Group Max % | Constraint Details |
|---|---|---|---|---|---|---|
| | | | | | | |
| UK Cash | N/A | 0% | 1% | N/A | N/A | Min: N/A.<br>Max: Low allocation to cash due to low interest environment and to provide a buffer against adverse market conditions. |
| AC World Equity | N/A | 50% | 100% | N/A | N/A | Min: To reflect the minimum equity exposure the Fund should ideally retain.<br>Max: N/A |

*Source: MJ Hudson Allenbridge*

## D. CORRELATION ASSUMPTIONS

**TABLE 4: EXPECTED CORRELATION COEFFICIENT MATRIX**

| Sub-Asset Class | Expected Correlation Coefficients | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U |
| UK Cash | A | 1.00 | -0.15 | -0.09 | -0.06 | -0.15 | -0.20 | -0.17 | 0.12 | 0.00 | 0.24 | -0.07 | -0.26 | -0.16 | -0.11 | -0.03 | -0.36 | -0.42 | -0.11 | -0.16 | -0.02 | 0.17 |
| UK Investment Grade Corporate Bonds | B | -0.15 | 1.00 | 0.41 | 0.33 | 0.47 | 0.32 | 0.18 | 0.54 | 0.55 | 0.32 | 0.55 | 0.36 | 0.30 | 0.37 | 0.34 | -0.03 | 0.25 | 0.17 | 0.20 | 0.10 | 0.14 |
| US High Yield Bonds Hedged | C | -0.09 | 0.41 | 1.00 | 0.57 | 0.88 | 0.78 | 0.20 | -0.18 | 0.69 | 0.28 | 0.71 | 0.24 | 0.59 | 0.61 | 0.64 | 0.45 | 0.39 | -0.05 | 0.44 | 0.30 | -0.07 |
| US High Yield Bonds | D | -0.06 | 0.33 | 0.57 | 1.00 | 0.47 | 0.44 | 0.83 | 0.15 | 0.38 | 0.48 | 0.36 | -0.01 | 0.19 | 0.62 | 0.50 | 0.10 | 0.23 | 0.29 | 0.43 | 0.31 | 0.19 |
| European High Yield Bonds Hedged | E | -0.15 | 0.47 | 0.88 | 0.47 | 1.00 | 0.85 | 0.19 | -0.23 | 0.56 | 0.20 | 0.64 | 0.36 | 0.64 | 0.53 | 0.56 | 0.40 | 0.36 | -0.06 | 0.41 | 0.16 | -0.17 |
| US Leveraged Loans Hedged | F | -0.20 | 0.32 | 0.78 | 0.44 | 0.85 | 1.00 | 0.34 | -0.35 | 0.36 | 0.01 | 0.50 | 0.32 | 0.64 | 0.40 | 0.41 | 0.59 | 0.51 | -0.04 | 0.39 | 0.21 | -0.27 |
| US Leveraged Loans | G | -0.17 | 0.18 | 0.20 | 0.83 | 0.19 | 0.34 | 1.00 | 0.11 | 0.05 | 0.21 | 0.10 | -0.06 | 0.05 | 0.35 | 0.23 | 0.17 | 0.32 | 0.33 | 0.33 | 0.21 | 0.12 |
| UK Gilts | H | 0.12 | 0.54 | -0.18 | 0.15 | -0.23 | -0.35 | 0.11 | 1.00 | 0.18 | 0.34 | 0.05 | -0.18 | -0.31 | 0.00 | -0.01 | -0.44 | -0.22 | 0.28 | -0.25 | -0.08 | 0.39 |
| Emerging Markets Sovereign Debt Hedged | I | 0.00 | 0.55 | 0.69 | 0.38 | 0.56 | 0.36 | 0.05 | 0.18 | 1.00 | 0.56 | 0.90 | 0.17 | 0.37 | 0.54 | 0.65 | 0.14 | 0.19 | 0.07 | 0.27 | 0.30 | 0.21 |
| Emerging Markets Local Currency Debt | J | 0.24 | 0.32 | 0.28 | 0.48 | 0.20 | 0.01 | 0.21 | 0.34 | 0.56 | 1.00 | 0.42 | 0.01 | 0.05 | 0.57 | 0.63 | -0.40 | -0.11 | 0.21 | 0.15 | 0.34 | 0.42 |
| Emerging Markets Corporate Bonds Hedged | K | -0.07 | 0.55 | 0.71 | 0.36 | 0.64 | 0.50 | 0.10 | 0.05 | 0.90 | 0.42 | 1.00 | 0.25 | 0.44 | 0.51 | 0.62 | 0.26 | 0.28 | 0.01 | 0.33 | 0.32 | 0.14 |
| Global Credit Sensitive Convertible Hedged | L | -0.26 | 0.36 | 0.24 | -0.01 | 0.36 | 0.32 | -0.06 | -0.18 | 0.17 | 0.01 | 0.25 | 1.00 | 0.43 | 0.28 | 0.21 | 0.00 | 0.30 | 0.02 | 0.32 | 0.16 | -0.14 |
| Diversified Hedge Funds Hedged | M | -0.16 | 0.30 | 0.59 | 0.19 | 0.64 | 0.64 | 0.05 | -0.31 | 0.37 | 0.05 | 0.44 | 0.43 | 1.00 | 0.56 | 0.58 | 0.47 | 0.35 | -0.12 | 0.61 | 0.36 | -0.11 |
| AC World Equity | N | -0.11 | 0.37 | 0.61 | 0.62 | 0.53 | 0.40 | 0.35 | 0.00 | 0.54 | 0.57 | 0.51 | 0.28 | 0.56 | 1.00 | 0.84 | 0.10 | 0.29 | 0.15 | 0.67 | 0.41 | 0.03 |
| Emerging Markets Equity | O | -0.03 | 0.34 | 0.64 | 0.50 | 0.56 | 0.41 | 0.23 | -0.01 | 0.65 | 0.63 | 0.62 | 0.21 | 0.58 | 0.84 | 1.00 | 0.15 | 0.19 | 0.06 | 0.63 | 0.48 | 0.15 |
| UK Core Real Estate | P | -0.36 | -0.03 | 0.45 | 0.10 | 0.40 | 0.59 | 0.17 | -0.44 | 0.14 | -0.40 | 0.26 | 0.00 | 0.47 | 0.10 | 0.15 | 1.00 | 0.64 | -0.20 | 0.30 | 0.08 | -0.40 |
| US Core Real Estate | Q | -0.42 | 0.25 | 0.39 | 0.23 | 0.36 | 0.51 | 0.32 | -0.22 | 0.19 | -0.11 | 0.28 | 0.30 | 0.35 | 0.29 | 0.19 | 0.64 | 1.00 | 0.06 | 0.26 | 0.18 | -0.25 |
| Global Infrastructure Equity | R | -0.11 | 0.17 | -0.05 | 0.29 | -0.06 | -0.04 | 0.33 | 0.28 | 0.07 | 0.21 | 0.01 | 0.02 | -0.12 | 0.15 | 0.06 | -0.20 | 0.06 | 1.00 | 0.19 | 0.08 | 0.19 |
| Private Equity | S | -0.16 | 0.20 | 0.44 | 0.43 | 0.41 | 0.39 | 0.33 | -0.25 | 0.27 | 0.15 | 0.33 | 0.32 | 0.61 | 0.67 | 0.63 | 0.30 | 0.26 | 0.19 | 1.00 | 0.37 | -0.11 |
| Commodities | T | -0.02 | 0.10 | 0.30 | 0.31 | 0.16 | 0.21 | 0.21 | -0.08 | 0.30 | 0.34 | 0.32 | 0.16 | 0.36 | 0.41 | 0.48 | 0.08 | 0.18 | 0.08 | 0.37 | 1.00 | 0.42 |
| Gold | U | 0.17 | 0.14 | -0.07 | 0.19 | -0.17 | -0.27 | 0.12 | 0.39 | 0.21 | 0.42 | 0.14 | -0.14 | -0.11 | 0.03 | 0.15 | -0.40 | -0.25 | 0.19 | -0.11 | 0.42 | 1.00 |

*Source: MJHA, JPM LTCMA 2020*

# Appendix 2 – Defined Terms and Methodologies

Portfolio optimisations have been conducted using both long-term market assumptions for each asset class. Constraints on asset class weights, sub-asset class weights and minimum required return were used for the mean variance optimisation.

**MEAN VARIANCE OPTIMISATION:** Mean variance optimisation seeks to obtain the optimal asset allocation that provides the minimum expected risk (volatility) for each given expected level of return based on the assumptions and constraints.

The technique of mean-variance portfolio optimisation is the most widely used approach to optimise portfolio allocations (following the work of Markowitz on Modern Portfolio Theory). The inputs required, referred to as long-term capital market assumptions, are expected returns for the assets under consideration and the covariance matrix of those assets. The covariance matrix itself can also be estimated separately as correlations and variance of the assets, which help in formulating forward-looking views.

Key benefits

- This optimisation considers both risk and returns and from a pragmatic perspective, gives a good general framework for a strategic asset allocation;
- The technique is comparatively fast to run, computationally, which is important when exploring different asset allocation scenarios;
- The output provides a range of optimised portfolios by expected returns and volatility, and the results are often intuitive.

Key considerations

- The model is very sensitive to the initial inputs/assumptions made for each asset. Differences in expected returns or volatilities can make a meaningful difference in the optimal portfolio generated. As such, it is important to choose assumptions on a reasonable basis and refine them when appropriate.
- The MVO technique only takes mean and variance into account and does not (by default) take into account other properties of the distribution of returns (such as skewness or kurtosis). These factors can be important for those strategies which exhibit elements of tail risk.
- MVO identifies whether a portfolio allocation is diversified across asset classes, but not necessarily diversified across the sources of risk / risk factors.

There are several ways to refine the approach. For instance, a stressed correlation matrix can be used, consisting of estimates of correlations during stressed environments, calculating Modified VaR to address the skew and kurtosis of the likely return distributions and other techniques and risk measure or scenario analysis can supplement the approach, such as expected shortfall (an average of losses in the extreme part of the distribution).

**VALUE AT RISK (VAR) 95%:** The maximum expected loss of the portfolio with 95% level of confidence. The calculation method we used is the variance-covariance method, which is a parametric calculation that assumes normal return distribution.

$$VaR_p = \mu + z_p\sigma$$

where: μ is the Expected Asset Return. $z_p$ is the distance between μ and the $VaR_p$ in number of standard deviations. In other terms, number of standard deviations at $(1\text{-}z_c)$ or -1.96 with p = 95% probability. σ is the standard deviation.

**SHARPE RATIO:** Risk-adjusted returns, where the portfolio returns over the risk-free rate are risk-adjusted.

$$Sharpe\ Ratio = \frac{Portfolio\ Return - Risk\ Free\ Rate}{Volatility\ of\ Portfolio}$$

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# APPENDIX B

**MEETING OF LB BROMLEY, MJHUDSON ALLENBRIDGE, MERCER (ACTUARY) AND FUND MANAGERS ON THURSDAY 14TH NOVEMBER 2019**

In attendance:
Cllr Onslow, Chairman of Pensions Investment Sub-Committee
Cllr Allatt, Vice Chairman of Pensions Investment Sub-Committee
Peter Turner, Director of Finance, LB Bromley
John Arthur, MJHudson Allenbridge (Council's Investment Adviser)
Joanne Job, MJHudson Allenbridge
Jeremy Dryant, MJ Hudson Allenbridge
Leanne Johnson, Actuary, Mercer
2 Representatives from Fidelity
3 Representatives from Baillie Gifford
2 Representatives from Schroders
2 Representatives from MFS

**Introduction and Setting the Scene**

Discussion about the value of Bromley working with investment partners and 'picking their brains' in this meeting to contribute to the Pension Fund Asset Allocation Review. This session is not part of the MJHudson Asset Allocation Review and is intended to seek views on the future approach for the Fund. The discussion will be about different opportunities and asset classes and it is not about consideration of fund managers products. We are not seeking a 'house' view at this session, rather an independent view. Words of thanks about helping Bromley achieve top investment performance and we are all keen that it continues.

In 2018/19, income of £10.3m was distributed to the fund and a further £10.3m was reinvested (total income from investments of £20.6m in 2018/19). This compares with a negative cash flow position (arising from a shortfall of current contributions in relation to pension payments but excluding investment income) of an estimated £13m in 2020/21, £14m in 2021/22, £16m in 2022/23 rising to £26m by 2027/28. This highlights that income from investments rather than capital growth will become more critical as the negative cash flow increases. The negative cash flow position provides a greater challenge in balancing investment returns against risk and the need to pay pensions. Bromley's Fund is expected to be fully funded and we need an approach that helps to maintain that position but provides adequate returns for future service and but need to minimise cost to council taxpayers.

The Actuary referred to changes in life expectancy estimates which reduces potential liability costs in the future for the Fund. There remains uncertainty with the impact of the McCloud judgement which adds a cost of around 1% to overall funding level – potential annual cost of £1m per year. This represents a guesstimate at this stage and details of the final outcome are awaited.

**Market Conditions – Looking Forward**

We are in an environment of low interest rates resulting in low fixed income returns which ultimetaly impacts on overall fund performance. Need to beat inflation to meet liability costs and exceed discount rate set by the actuary to prevent a funding deficit.

In looking at performance in last three years one firm referred to the benefits of Quantitative Easing (QE) which benefitted bonds and gilt yields. There is still QE happening in the world economy and some stock is looking fully valued. Interest rates are expected to move up modestly. Earnings have been reasonable in the last three years but looking flat now.

Another firm referred to markets outperforming economic growth in last three years. With economic growth low, markets have a greater challenge to continue to outpace. QE has become less important and expect lower returns in the future. Need to take higher risk to maintain current investment returns.

Another firm referred to their expectation of lower returns generally but there are still opportunities in the market. Expect some progress between USA and China, Consumer growth worldwide is still strong and if trade wars are resolved market performance will improve. Investors seem less concerned about risk but it remains – pressure to chase yields. Bond markets are pricing low inflation but that could change.

Another firm agreed with the comments so far but referred to different signals being given in the worldwide marketplace but there remains some undervalued stock.

Always a high inflation risk in the future which can't be ruled out.

**Actuary Update on Discount Rates**

Actuary looking at CPI +1.25% for past service and CPI +2.25% for future service. Final figures yet to be determined but guide at this stage and may change. The overall Fund has members with an average age of 52 years old – the fund is maturing rapidly. Average age of deferred members is 51 years of age. Reflects a reduction in new members in the fund over a period of years.

**Fixed Income and Infrastructure**

Still awaiting the normalisation of bonds. Recognise lower returns but less volatility and income paid. Discussion about infrastructure and in reality it is difficult to find a good product that gives the timing and cash flow Bromley needs. They are still complex products out there and you can face risk if an overspend on an Infrastructure Product which may require investors to contribute more and have resultant reduction in yield. Potential benefits if gives steady cash flow and is inflation linked – helps deal with a negative cash flow position. Key remains finding the right investment vehicle- price of liquidity can be high volatility. Demand is pushing up price in UK and still limited number of opportunities. Only one of the four firms directly invest in infrastructure. The firms would not view significant infrastructure investment as a positive consideration for the Fund.

**Currency**

The long term view is that sterling will appreciate. The current approach of the Fund is sensible with a reasonable level of hedging (not excessive) within funds. Currency tends to equalise in the longer term. Have to recognise that there is a cost to hedging currency.

**Passive vs Active**

Requested information from firms that could be provided following the meeting.

**Engagement vs Exclusion**

Requested information from firms that could be provided following the meeting

**Anticipated Investment Returns in next 10 years.**

Achieving excess over inflation is key.
Initial views provided as below but will receive responses after meeting with 'house view'

Equities – between 5.1% and 5.7%
Multi Asset Income Fund – between 3.5% and 4.5%
Private Equity – between 6% and 6.5%
Renewables – between 5% and 5.5%
Infrastructure – around 4.75%
Diversified Growth Fund – 5.5%
Property Fund – between 3% and 4%
Fixed Income – between 1% and 2%
Commodities – broadly match inflation
Multi Asset Credit – rates between fines income and multi asset funds
Unlisted Equities (some illiquidity) – 6% plus
Also need to consider emerging markets and securitised lending (no estimated returns provided)

Discussion that the above figures should not be considered in isolation and have to consider risk, volatility and choosing the right markets.

**Asset Allocation Review – MJHudson Allenbridge**

Are updating key assumptions at this stage and this asset allocation review recommendation is expected to be less disruptive than previous reviews. Options include taking monies out of equities and move to income products e.g. Multi Asset Income Funds. Also options around moving bonds into higher risk products.

**Asset Allocation Review – View from Firms**

Appears right balance at moment and selling some equities helps de risk. Less concern about volatility as allocation is well balanced (60/40). Need income related equities to help cash flow position. Could look at inflation protection products but can have a negative impact at present.

Discussion about Council's approach on investment principles and ESG. It was supported and aligns with what fund managers are doing to achieve sustainable investments with good returns. Discussion about the need to retain a fixed income element – although the returns are low ( 15% of total investments) it helps deal with the impact of a possible scenario of the global economy going wrong. Any de risking does provide less volatility but can reduce the discount rate with a resultant cost to the Council.