

# RISK AND RETURN ANALYSIS

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London Treasury Limited

REDINGTON



London Treasury

Private and Confidential



# INTRODUCTION

## Context

Understanding that the GLA and its collective investment partners are considering a change in their pooled investment strategy, this paper explores implementation options for the Strategic Reserve. Our proposed asset allocation is based on the following understanding of your requirements:

- › A portfolio that satisfies the expected cash yield target of 4%.
- › The desire to minimise realised losses and medium-term volatility.
- › Implemented with UK assets ideally, but in any case GBP-hedged assets.

## Summary of the Proposed Asset Allocation for the Strategic Reserve

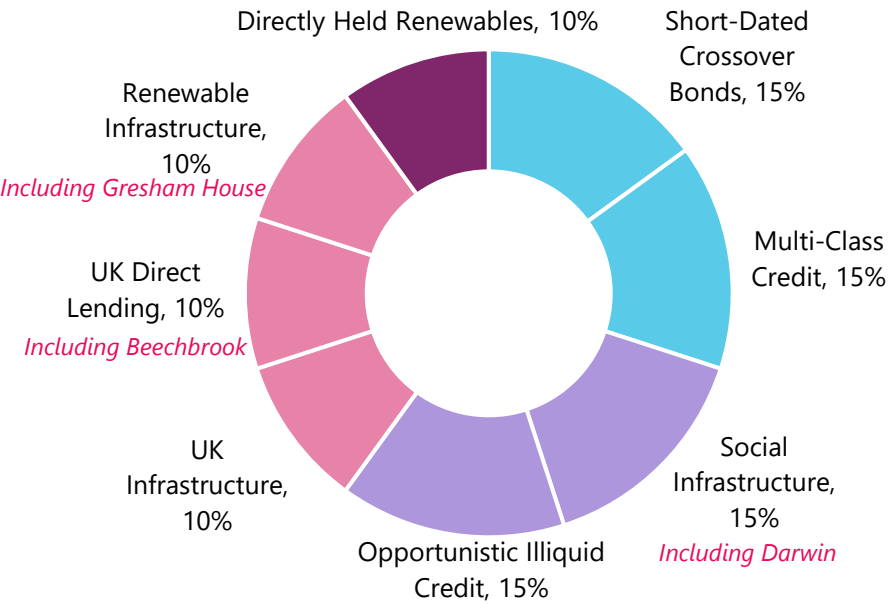
Allocation	Proposed Asset Class	Rationale for the Asset Class <i>(More information on the asset classes can be found later in the paper)</i>
Low volatility funds with daily contractual liquidity	Short-Dated Crossover Bonds	› The asset class invests in a mix of liquid, short-dated investment grade and high yield corporate debt. The attractive roll-down characteristics and minimal default risk has historically delivered an attractive risk/return profile.
	Multi-Class Credit	› The unconstrained nature of the asset class, combined with managers' ability to drive returns through alpha and market beta, can support higher risk-adjusted returns than strategies that invest in a single asset class. The predominantly high yield profile of the asset class can also offer an attractive yield through the cycle.
Investment funds with some contractual liquidity	Social Infrastructure	› Physical real estate assets that facilitate essential social services and help to build strong communities, making a positive contribution to society. The strategy can be used to generate stable, high-quality sterling cashflows.
	Opportunistic Illiquid Credit	› A long-biased illiquid-focused credit strategy that invests across a wide range of speciality lending and esoteric cash-flowing assets. By focusing on less crowded areas of the credit markets, managers are able to take advantage of illiquidity and complexity premia. The approach has historically delivered attractive yield characteristics for investors.
Alternative investments with no contractual liquidity	UK Infrastructure	› A diversified approach to UK infrastructure, investing across brownfield renewables, communications and energy storage assets can provide access to attractive, low-risk, inflation-linked cash flows.
	UK Direct Lending	› Access to an illiquidity premium over equivalent rated public debt, with historically lower defaults (than the equivalent rated debt). This is typically achieved through investments in secured debt with strong covenants.
	Renewable Infrastructure	› Access to assets with long economic lives and reliable revenue streams. This results in a high cashflow certainty depending on the investment type and residual value assumption. This allocation also aligns with your desire to improve ESG outcomes where possible.
Direct Renewable Energy	Directly Held Renewables	› Direct renewable energy investments backed by bilateral AA Power Purchase Agreements.

*Colours for each category correspond to pie chart segments on the next page*

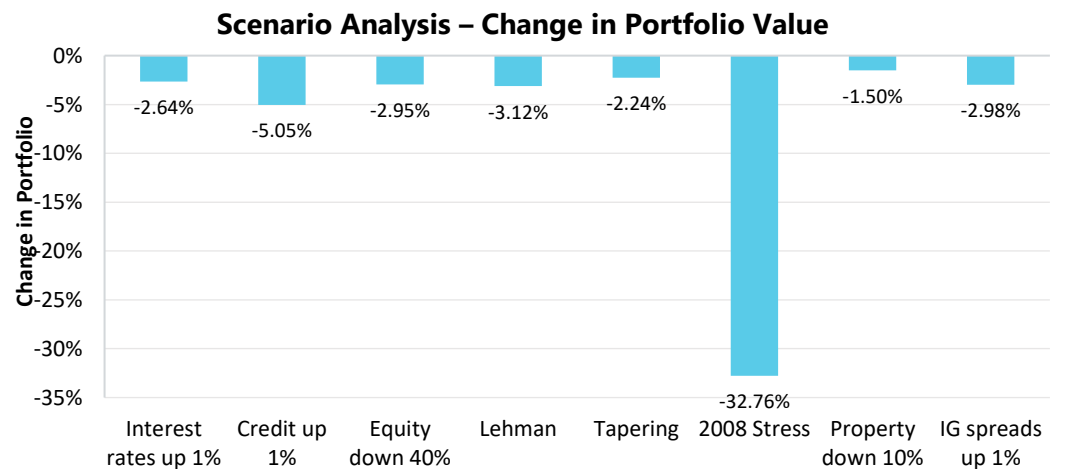
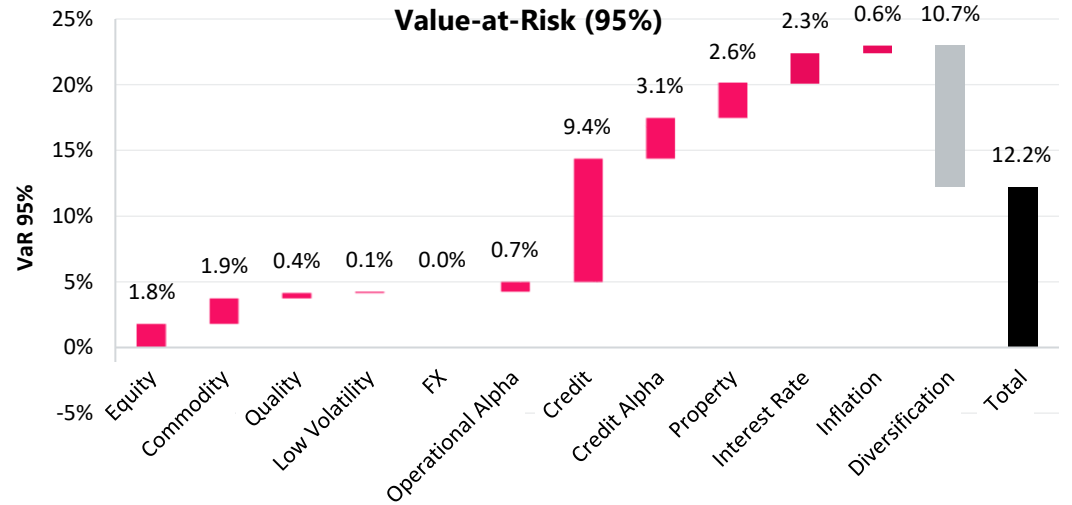
# ANALYSING THE RISK AND RETURN PROFILE

## STRATEGIC RESERVE

### Asset Allocation



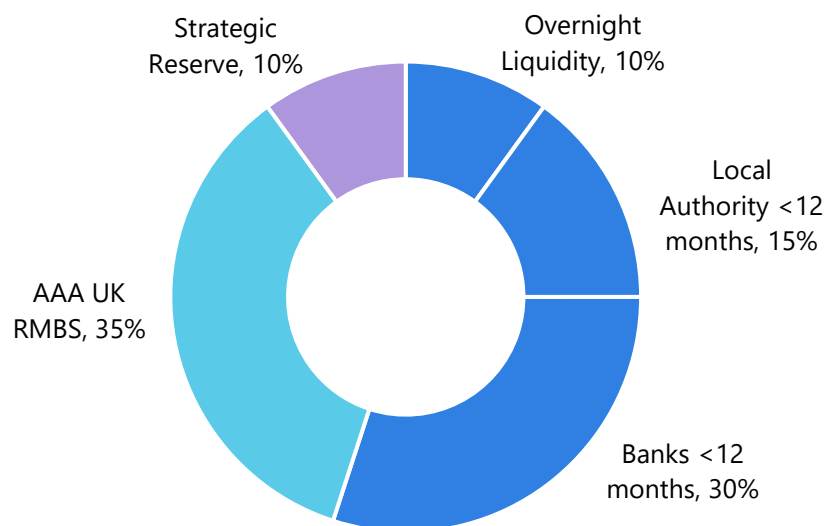
### Risk Breakdown



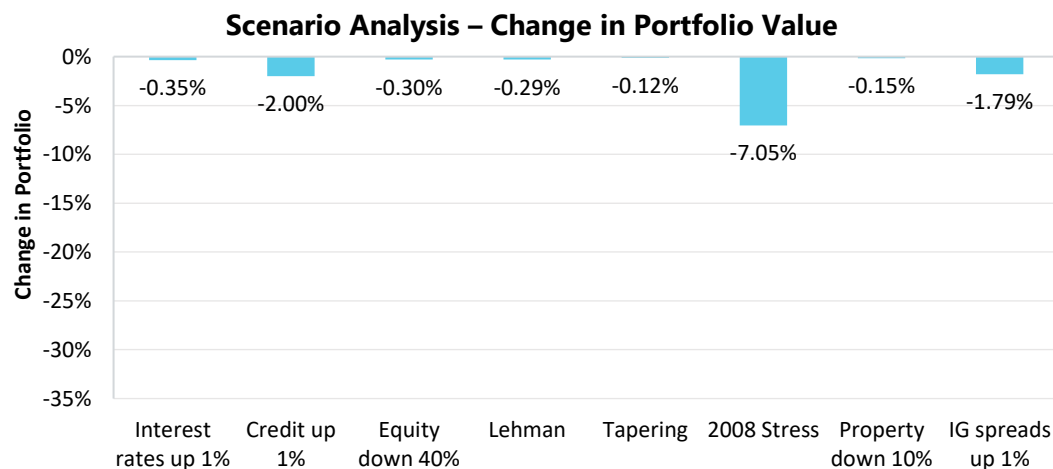
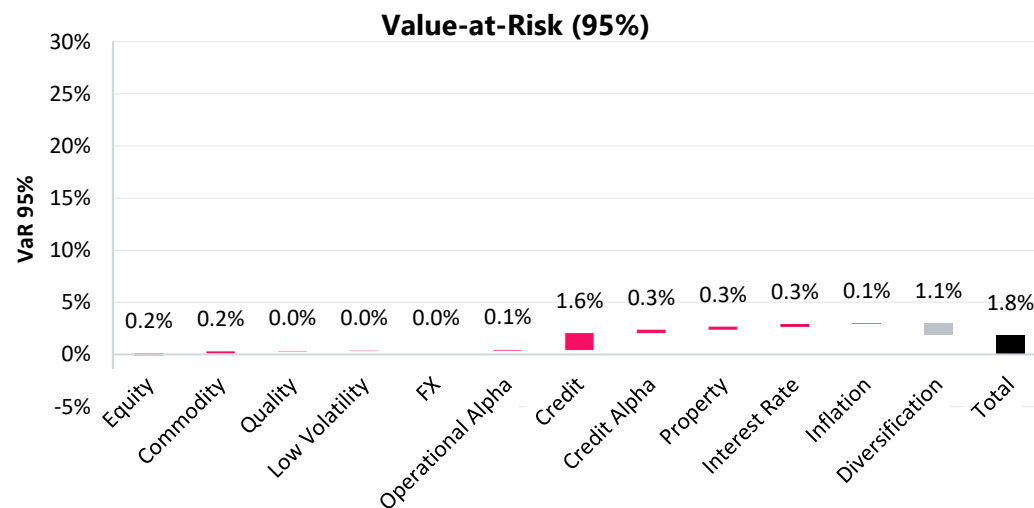
Key Metrics	
Expected Return	Cash + 3.4%
VaR 95	12.2%
Modelled Volatility	7.2%
Equity Beta	0.32
Sharpe Ratio	0.47

# ANALYSING THE RISK AND RETURN PROFILE PORTFOLIO

## Asset Allocation



## Risk Breakdown



Key Metrics	
Expected Return	Cash + 0.6%
VaR 95	1.8%
Modelled Volatility	1.3%
Equity Beta	0.05
Sharpe Ratio	0.43

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# FURTHER COMMENTS ON THE PORTFOLIO AND MODELLING

- › Philosophically, we think that the portfolio construction approach proposed is robust – emphasising a range of strategies which earn their returns primarily through contractual cash flows and income streams.
- › This approach lends itself to a robust stress testing approach – the expected returns that we show alongside the strategies are all net of expected fees and a conservative level of defaults.
- › Please see the next slide for an example of the way that we shock these credit-based strategies.
- › Using this analysis we are able to show that it would take an economic shock of significantly greater scale than the 2008-9 “Great Financial Crisis” to reduce expected returns to zero, let alone create permanent loss of capital.
- › This is particularly true of the high quality (AAA) ABS portfolios, which are very loss remote and as a result experience only muted volatility even in extremely stressed markets. This was seen in March 2020 when they drew down only very modestly and took no more than 6-8 weeks to recover.
- › Based on our modelling and our experience we would anticipate the Strategic Reserve to take no more than 24 months to recover unrealised mark-to-market losses; in 2020 this would have been even shorter, of the order of 8 months.
- › One of the limits of our modelling approach is that all cash flow driven strategies are underpinned by a large risk allocation to “credit risk”.
- › This is arguably a simplification given the broader diversification by cash flow type being sought by LTL; the result is that credit risk is arguably modestly overstated as a result of the understated diversification benefit.
- › It would be possible to model a number of the underlying strategies on a more granular basis to explore this more fully, but without a great deal of bespoke analysis, a back of the envelope calculation suggests that credit risk would be around 2% lower if the underlying obligors were 50% correlated to one another.
- › Nonetheless we find the modelling provides a reasonable proxy of the strategy and should provide comfort around the low volatility of the proposed portfolio.

# CASE STUDY: STRESSING EXPECTED RETURN ASSUMPTIONS FOR MARKET DOWNTURNS

This analysis shows:

- › The expected annualised return for Opportunistic Illiquid Credit for different default loss assumptions.

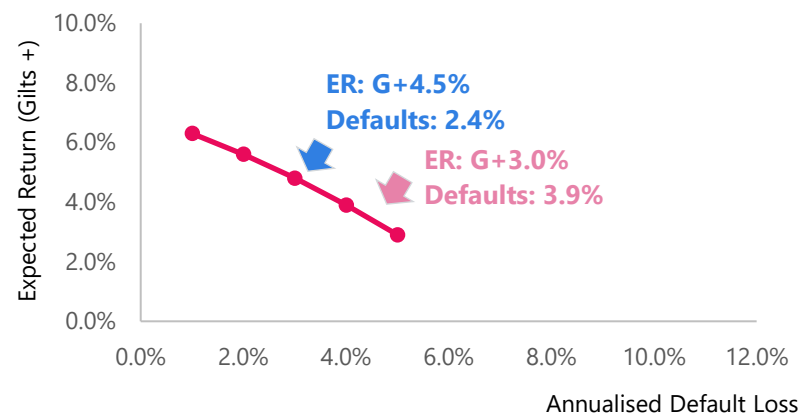
The takeaways are:

- › Redington's assumptions on default losses reflect the average default experience of the liquid comparable. The liquid comparable for Opportunistic Illiquid Credit is 50%/50% US Leveraged Loans/US High Yield with Sharpe ratio adjustment.
- › If an extreme stress scenario ('99-'04) were to occur again, the expected return would remain positive at approx. Gilts +3.0% based on Redington's illiquidity premium assumption.
- › We use '99-'04 as this is the worst 5-year period on record for High Yield default rates.

Detail behind the analysis:

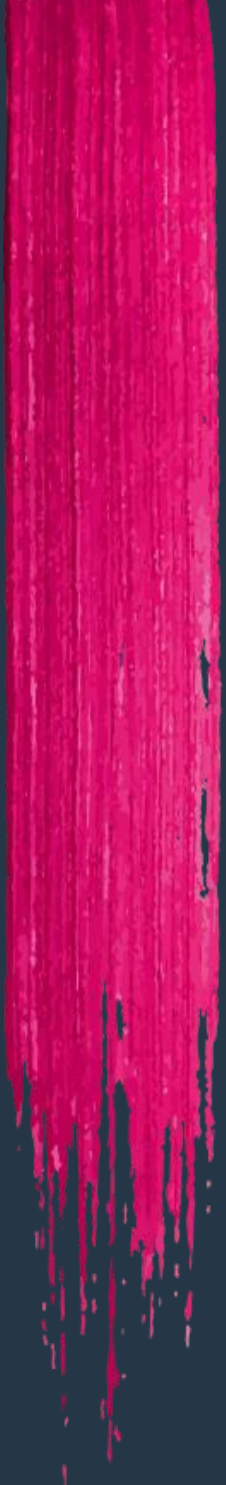
- › Redington's base assumptions for each are provided in **blue**.
- › To contextualise the default loss assumptions used we have also provided the data on historical scenario which indicates: *based on current spread levels if the historical scenario were to occur again, what the impact on expected annualised return would be.*
- › The historical scenario is 5 year annualised default loss experience for an investment made in 1999 in **pink**. This is based on Moody's default loss data for liquid markets with a similar rating profile.
- › We assume that the asset class is made up of a mix of secured and unsecured debt with recovery rates of 60% and 40%, respectively. The default loss assumptions are adjusted for credit quality.

Opportunistic Illiquid Credit



- ← Expected return based on Redington's current default assumption
- ← Expected return based on historical average default rate experienced between 1999-2004

*The data is based on Redington's illiquidity premium.*



# **FURTHER INFORMATION ON THE PROPOSED ASSET CLASSES**

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# THE RATIONALE FOR THE PROPOSED ASSET CLASSES

## Short-Dated Crossover Bonds

### Strategy Overview

- › Investing in primarily shorter-dated corporate debt, the strategy seeks to protect capital and generate attractive returns which exceed those available from similar-duration benchmark government bonds.
- › Average rating is investment grade, but typically 40% of the portfolio will be high yield.

### The Rationale for Short-Dated Crossover Bonds

- › Managers invest in a mix of shorter sub-investment grade and investment grade corporate debt which displays attractive roll-down characteristics and minimal default risk.
- › Roll-down helps to generate alpha while short duration of assets means they pull to par quickly, minimising drawdowns.

## Multi-Class Credit

### Strategy Overview

- › Multi-Class Credit refers to funds invested in a wide range of primarily sub-investment grade credit assets to provide diversified credit exposure.
- › A broader sub-set of the Absolute Return Bond universe, the key difference being the allocation to sub-investment grade credit assets within a Multi-Class Credit fund.
- › A wide array of strategies are available to accommodate different objectives and risk appetites as a result of the unconstrained nature of this type of mandate.
- › These strategies can employ shorting opportunistically to provide drawdown protection.

### The Rationale for Multi-Class Credit

- › Having access to a wide range of credit opportunities, this strategy can produce smoother and higher returns over the market cycle than a mandate that is purely focused on a single asset class.
- › The manager is not tied to market benchmarks and can therefore focus on the best individual opportunities across a wide range of assets.
- › The managers are specialists in conducting detailed bottom-up research into the fundamentals of individual issues in combination with top-down relative value analysis on each credit opportunity.



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# THE RATIONALE FOR THE PROPOSED ASSET CLASSES

## Opportunistic Illiquid Credit

### Strategy Overview

- › Opportunistic Illiquid Credit (OIC) is a long-biased illiquid-focused credit strategy that invests across a wide range of predominantly high yield and specialist lending assets. OIC managers may specialise in the US or European markets or invest globally.
- › Managers will focus on the less crowded areas of the private credit market. A significant unifying factor of the asset classes across the OIC opportunity set is that they were formerly dominated by global banks, who withdrew as a result of changes in regulation following the Global Financial Crisis.

### The Rationale for Opportunistic Illiquid Credit

- › The strategy provides a diversified portfolio of both liquid and illiquid credit.
- › Able to invest in both liquid and illiquid assets, reducing time to invest and ensuring more accurate illiquidity premium measurement.
- › Asset class and sector selection decisions can take advantage of detailed credit analysis on the underlying credits.
- › Able to take advantage of illiquidity and complexity premiums in credit assets.

## Social Infrastructure

### Strategy Overview

- › Social Infrastructure, or Social Housing, is a strategy which invests in real estate assets that facilitate essential social services and help to build strong communities, making a positive contribution to society.
- › Social housing strategies look to provide net additional accommodation to those with a housing need, typically the most vulnerable in society.
- › Typically, these strategies are fully or partially government funded schemes, with inflation linked leases.

### The Rationale for Social Infrastructure

- › This strategy can be used to generate stable, high-quality sterling cashflows, and is therefore well suited to clients who are well-funded, require cashflows, and have illiquidity budget to use.
- › The strategy also provides considerable impact through the development of new additional housing for those most vulnerable in society, social housing strategies can also be used to improve ESG credentials for a scheme.

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# THE RATIONALE FOR THE PROPOSED ASSET CLASSES

## Renewable Infrastructure

### Strategy Overview

- › Renewable infrastructure refers to the ownership of power generation assets from renewable sources, typically onshore and offshore wind farms, solar photovoltaic farms, and biomass.
- › Redington have a preference for unlevered equity ownership.
- › Managers aim to build a portfolio which will generate a relatively stable level of power, which is then sold to the grid or to a corporate directly at a fixed price.

### The Rationale for Renewable Infrastructure

- › Relatively high cashflow certainty depending on investment type and residual value assumption. Frequently structured as an “income strip” with no residual value assumption and no leverage.
- › Managers mainly focus on sectors with low operational and construction risks (e.g. solar panels, onshore wind).
- › Often benefit from government-backed subsidies or tariffs, or long-term corporate power purchase agreements, giving more certainty over the sale price of electricity generated.
- › The UK has seen the renewables opportunity shift from greenfield to brownfield assets. The country is the world leader in offshore wind, and future renewables build out is driven by this sector.

## UK Infrastructure

### Strategy Overview

- › Infrastructure assets which provide essential services for a country or community to function. While the definition can be quite broad and flexible, we feel that infrastructure assets should be able to demonstrate their essentiality, and that this should underpin their ability to generate stable cashflows on a long-term basis.
- › Infrastructure assets often require large amounts of capital investment, but having met with a wide variety of managers in the universe, we are of the belief that there are opportunities in medium-scale projects which can be exploited in fragmented markets by managers with the right strategy.

### The Rationale for UK Infrastructure

- › The asset class provides contractual cash flow generation with typical target net yields of 6-7%. Given low residual value assumptions, operational cash flow is often higher than IRR projections.
- › High cashflow certainty from low residual value assumption and government-backed payments; buy-and-hold strategy benefits from stable cashflows over the whole life of the assets.
- › We currently rate one open-ended pooled fund investing in a diversified UK infrastructure strategy with minimal leverage and available on a flat fee basis.

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# THE RATIONALE FOR THE PROPOSED ASSET CLASSES

## UK Direct Lending

### Strategy Overview

- › Direct Lending consists of loans directly negotiated between an established SME (small and medium enterprises) corporate borrower and a single lender, or a small club of lenders rather than being widely syndicated through an arranger. While the borrowers do not usually carry an official credit rating, most propositions we assess have a similar credit risk profile to single B-rated high yield borrowers.
- › Managers originate loans through their relations with corporates, financial advisory firms and private equity sponsors. While the companies are labelled small and medium sized, they have average earnings of GBP 5 to GBP 50 Million. Loans are typically five years but may be refinanced early and are usually floating rate with a floor.

### The Rationale for UK Direct Lending

- › Large liquidity premium over equivalent rated public debt.
- › Secured credit risk with strong covenants.
- › Floating rate with floor provides protection in the portfolio if interest rates increase.
- › Manager experience of defaults have been lower than equivalent rated public debt.



# **APPENDIX**

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# ASSET CLASS ASSUMPTIONS

## Risk and Return Assumptions

	AAA UK RMBS	Short-Dated Crossover Bonds	Multi-Class Credit	UK Infrastructure	Social Infrastructure	Renewable Infrastructure	Opportunistic Illiquid Credit	UK Direct Lending
Expected Return	Cash + 0.6%	Cash + 1.5%	Cash + 2.3%	Cash + 4.0%	Cash + 3.9%	Cash + 3.8%	Cash + 4.5%	Cash + 2.9%
VaR 95%	2.4%	5.6%	10.9%	20.3%	17.6%	21.9%	15.7%	21.3%
Volatility	1.9%	3.2%	6.7%	13.8%	11.7%	13.6%	9.6%	10.9%
Interest Duration	N/A	2.2	N/A	10.4	N/A	N/A	N/A	N/A
Credit Duration	4.5	3.9	3.5	10.4	N/A	8.8	6.0	4.2

## Correlation Matrix

	Multi-Class Credit	Opportunistic Illiquid Credit	UK Direct Lending	Renewable Infrastructure	UK Infrastructure	Social Infrastructure	Short-Dated Crossover	AAA UK RMBS
Multi-Class Credit	1.00	0.91	0.87	0.47	0.42	0.12	0.72	0.36
Opportunistic Illiquid Credit	0.91	1.00	0.95	0.61	0.56	0.20	0.68	0.52
UK Direct Lending	0.87	0.95	1.00	0.67	0.61	0.21	0.77	0.55
Renewable Infrastructure	0.47	0.61	0.67	1.00	0.54	0.15	0.57	0.52
UK Infrastructure	0.42	0.56	0.61	0.54	1.00	-0.29	0.59	0.62
Social Infrastructure	0.12	0.20	0.21	0.15	-0.29	1.00	0.02	0.35
Short-Dated Crossover	0.72	0.68	0.77	0.57	0.59	0.02	1.00	0.44
AAA UK RMBS	0.36	0.52	0.55	0.52	0.62	0.35	0.44	1.00

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