Strategic asset allocation under a changing market environment

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1. Strategic asset allocation for DB pension funds
   - Liability driven investment (LDI)
   - Journey management

2. The current market environment
   - Low yields, volatile returns
   - Investor responses

3. The move to DC
   - Structure: compulsion, intermediaries, incentives
   - Funding, investment

4. Conclusions
Strategic asset allocation
Components of strategic modelling

We use different optimisation tools to develop strategies reaching from standard mean-variance to sophisticated stochastic optimisation approaches. Results are very sensitive to input assumptions. Optimisation output is used as a guide, not a prescription.

We use both medium and long-term assumptions as inputs when setting strategic benchmarks to address different time horizons and current market valuations.

Particularly illiquid asset classes often need a qualitative overlay and liquidity management considerations.

Recent events highlight the need to consider ‘fat tails’ in the return distribution and tail correlations, which may be higher than standard. One way to do so is using stress tests.

The results are not set in stone and the process should evolve continually.
Liabilities should lie at centre of the asset allocation process

- Liability driven investment is a framework for understanding the nature of liabilities and adopting an investment strategy with an overall objective linked to these liabilities.
- Investors may continue to invest in a broad range of assets and techniques, but the decision to invest in these should be explicitly linked to the potential they offer for meeting or hedging liabilities.

This implies:

- LDI is a process, NOT a product
- Not just about matching liabilities – but about adding value relative to liabilities
- Identifying which risks to take, their scale, and which risks to avoid or hedge
- Extensive range of approaches, but common toolkit of useful products

Understanding the liabilities is key to managing risk
Risk decomposition reveals primary drivers of return

The holdings have been mapped to proxy indices in Aladdin for all assets apart from alternative investment.

For alternatives, the holdings are mapped to groups of alternative risk factors in the proprietary Aladdin risk model.

Source: BlackRock; for illustrative purposes only, based on a simple proxy for the current allocation and assumptions as at 31/12/2013. A more detailed analysis would be based on the current asset allocation and updated assumptions. Note that the risk decomposition assumptions are consistent on a long-term and medium-term basis. Past performance is no guide to current or future performance.
Movements in interest rates and inflation impact on liabilities too

Source: BlackRock. For illustrative purposes only.
Risk decomposition should include liabilities too

Exposure to interest rate risk and inflation changes are the largest risks

Interest rates and inflation are often the biggest risks facing DB pension schemes

Source: BlackRock. As at September 2015
Using the entire investment toolkit for growth/income

Renewable Income

Cashflow profiles are indicative only and subject to change over time.

Source: BlackRock, September 2014

Real Estate Debt

Lifetime Mortgages

Define eligible asset classes, instruments and styles
Investing to meet liabilities: more than just bonds and swaps…

Meeting cashflows despite a deficit

Example scheme:
Assets: £900m
Liabilities: £1,024m

Source: BlackRock as at September 2014, liabilities shown on a swaps basis
Dynamic asset allocation I

Journey management
SAA is a means to an end – the objective should not be forgotten

The Problem:

- Pensions funds typically set their asset allocation to achieve long term strategic objectives infrequently.
- However, the appropriate asset allocation to achieve these objectives is responsive to changes in dynamic factors (funding level, market levels, market sentiment, asset class risks etc) that are faster moving.
- Clients can therefore miss opportunities to alter strategic asset allocation through infrequent reviews.

The Journey Management solution:

- Agree in advance how asset allocation will be adjusted in response to changes in funding levels, market levels or other relevant factors.
- Monitor the relevant factor(s) and automatically adjust the strategic asset allocation to the desired shape as “trigger” levels are achieved (i.e. de-risk when funding level reaches 90%).

The outcome:

- A forward looking decision making framework and operational infrastructure to allow pension funds to make dynamic changes to asset allocation to help meet their investment objectives.
Design of Journey Management triggers reflects current strategy as a starting point.

- Triggers monitored daily and changes implemented within several business days.
- Appropriateness of the trigger levels reviewed regularly, as part of the regular review of the investment strategy.

Source: BlackRock. For illustrative purposes only.
Clients adopting a Funding Level Journey Management strategy are seeking to make long-term adjustments to their strategic asset allocation over time based on improvements in their funding level.

This is generally used in order to implement a longer-term de-risking strategy whereby the asset allocation is “de-risked” as the funding level improves (usually by selling growth assets and buying matching assets).

The result is a greater likelihood of achieving the ultimate investment goal (full funding).

Source: BlackRock. For illustrative purposes only.
### Trigger design reflects key parameters within SAA process

#### Examples of triggers to monitor

<table>
<thead>
<tr>
<th><strong>Funding Level Approach</strong></th>
<th>Monitor the scheme funding level (or proxy) and adjust allocations as the funding level achieves certain pre-defined triggers or milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Market Level Approach</strong></td>
<td>Adjust asset allocation based on asset/index levels, nominal or real yields – look to adjust when levels reach certain trigger levels</td>
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</table>

#### Allocation change when trigger hit

<table>
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<tr>
<th><strong>SAA Approach</strong></th>
<th>Specify change to desired strategic asset allocation benchmark for each trigger level</th>
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<tbody>
<tr>
<td><strong>Trade Value Approach</strong></td>
<td>Specify trades to be placed as trigger level is achieved (e.g. sell £10m of growth asset portfolio and invest proceeds in matching asset portfolio)</td>
</tr>
</tbody>
</table>
Liabilities, as the objective, are central to the strategic asset allocation process.

Asset-liability perspective is very different to asset-only perspective.

Liability hedging can be effected using a broad range of instruments.

Focus on outcome implies a dynamic, not a static, asset mix.
Current market environment

The search for yield
Falling return expectations, but risk taking still makes sense

Expected returns have fallen since the crisis

Source: BlackRock Solutions historic 5 year expected return estimates, as at 30 June 2015. Figures are based on arithmetic calculations. Developed market asset returns exclude the UK.

Equity risk premia elevated vs history

Source: Goldman Sachs International, as of 30 June 2015
Correlations are higher and more volatile

Cross-asset correlations have risen

Wide range of recent equity/bond correlations

As volatility rises, correlations are structurally higher
Asset allocations have moved out of their comfort zones

The Problems:

• Traditional asset allocations no longer generate sufficient return

• Short-run risk and return may turn out very different from long run expectation, and in the modern reporting environment this is transparent to stakeholders

• Alternative asset classes don’t neatly fit the traditional portfolio construction methodology (mean-variance etc.)

Solutions:

• Place all assets into a common framework by focussing on underlying risk factors

• Supplement traditional mean-variance analysis with tools that account for uncertainty: resampling, scenario analysis, stress testing, stochastic simulation etc.

Outcome:

• Allocations to alternatives (private assets) have increased materially while remaining a small piece overall

• More robust approaches to risk management and dynamic asset allocation
Let’s pretend

**Post-crisis, more attention is paid to tails**
- Simulation over time
- Replay historic scenarios
- Game-play future scenarios
- Returns, risk, liquidity, …

**Scenario analysis**

**Stochastic simulation**

- Simulation over time
- Replay historic scenarios
- Game-play future scenarios
- Returns, risk, liquidity, …

**Reflecting the risks of illiquidity**

**Scenario analysis**

**Stochastic simulation**

Source: BlackRock, for illustrative purposes only, August 2015

Source: BlackRock, for illustrative purposes only, June 2015

Source: BlackRock, for illustrative purposes only, June 2015

Source: BlackRock, for illustrative purposes only, April 2014
Managing risk in non-traditional assets

Bottom-up asset analysis and risk factor decomposition

Scenarios supplement risk analysis

- Credit crunch
- Positive growth surprise
- Demand-driven inflation shock
- Negative growth surprise
- Central bank induced inflation
- Emerging market shock
- Euro break-up
- Fiscal crisis

Source: BlackRock July 2015
Responding to the current environment – key points

Current environment presents significant challenges

Investors have moved into new asset classes to generate return

Portfolio construction technology has caught up

- Risk factors provide a common language
- Understanding and quantifying liquidity needs requires a dynamic perspective
- Supplement optimisation approaches with scenario-based analysis

Ultimately, clarity on objectives and philosophy enables investment opportunities to be grasped
The DC challenge
The investor’s optimization problem is to maximize the expected utility of consumption over the entire lifecycle given the following lifetime budget constraint and investment decision process:
Allocations over time

Source: BlackRock March 2015

[Graph showing asset allocations over time with categories such as UK Equities, Developed ex-UK Equities, Developed ex-UK Small Cap Equities, Emerging Markets, Property, Commodities, UK Gilts, UK Inflation Linked, UK Corporates, Global Gov Bonds, Global Corp Bonds, and Emerging Markets Debt.]
### Defined contribution pensions: much more than just an investment problem

<table>
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<tr>
<th>Market Change Forces</th>
<th>Client Implications</th>
<th>Also means …</th>
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| **New Freedom & Choice** in accessing DC benefits | • Need to support members ongoing guidance needs  
• Need to account for revised retirement journeys  
• Understand Scheme responsibilities and hand-offs  
• Scheme proposition extends into decumulation | • A need to balance flexibility and choice with simplicity  
• Higher expectations on provider support |
| **Lifetime role of Default Funds becomes Key** | • Must now support both accumulation and decumulation  
• Providing predictable income and generating returns  
• May need separate defaults to meet glide-path objectives | • Must be easily understood and transparent  
• Strong fit for Target Date Funds |
| **UK Reforms driving increased Value, Transparency & New Models** | • Ensure scheme compliance with all DWP requirements  
• Comply with charge cap (member borne deductions)  
• Understand transactions costs  
• Assess role for new Collective DC | • Levelling of playing field  
• Implications of legacies  
• Pot Follows Member regime will follow |
| **Governance solutions and support** | • New Independent Governance Committees (contract)  
• Increased assurance standards (trust and mastertrust) | • Performance and value become key within a holistic view  
• Increased reporting needs |
| **Needs and expectations in Engagement are driving ever higher** | • Online propositions must engage members  
• Need to support with more tools, education, guidance | • Innovative approaches  
• Higher expectations on provider support |
The DC challenge – key points

DC pensions can be an improvement on DB
- Strategy can reflect individual need rather than one-size-fits-all
- Objectives should create demand for long-term economic investment
- No inter-generational cross-subsidy

Replacement of DB by DC creates potential for failure
- Cost of delivery can be high (lack of scale)
- Individuals taking much more responsibility for making sufficient contributions and risk-taking yet engagement is typically low

Behavioural finance has helped identify some solutions
- Individuals find the choices difficult and require guidance e.g. via defaults
- Auto-enrolment and auto-escalation
- Education seems like the obvious answer to problematic allocations but structures that align incentives of intermediaries and individuals are probably more important
Conclusions
Summary

Strategic asset allocation for DB pensions
- Understanding of liabilities and objectives should be central to the SAA process
- Output should often be a dynamic strategy rather than a single asset allocation

Current market environment
- Low level of yield has (deliberately!) pushed investors into new asset classes
- Portfolio construction process is more complex but can deal both with illiquidity and new sources of risk

Strategic asset allocation for DC pensions
- Asset allocation problem is extremely difficult for individuals
- Clarity on objectives and simple value chains can enable both cost effectiveness and delivery on the investors’ needs
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