

The background of the slide features a large, light blue watermark of the University of Alberta crest. The crest includes a crown at the top with four floral motifs, a shield with a cross and a stag's head, and a banner at the bottom with the motto 'ANNE FOR A'.

AGENDA ITEM

10

INVESTMENT STRATEGY – SMART BETA OPTIONS

FALKIRK COUNCIL

Subject: INVESTMENT STRATEGY – SMART BETA OPTIONS
Meeting: JOINT MEETING OF PENSION COMMITTEE AND PENSION BOARD
Date: 23 JUNE 2016
Author: DIRECTOR OF CORPORATE AND HOUSING SERVICES

1. INTRODUCTION

- 1.1 Following work undertaken by the investment sub group, the Pensions Committee has agreed to undertake an investment in a “Smart Beta” product.
- 1.2 It was decided at the joint meeting of the Pensions Committee and Board in March 2016 that a detailed consideration of the options for a Smart Beta investment should be undertaken at the June meeting.
- 1.3 This report provides some further comment on the subject and introduces a paper from the Fund’s investment adviser Hymans Robertson which sets out alternative Smart Beta strategies. The Hymans paper is attached at Appendix 1.
- 1.4 In addition to identifying a suitable strategy, Committee will wish to consider the level of investment to be made and how the investment is to be funded.
- 1.5 A presentation dealing with smart beta was part of the training session held for Committee and Board members on 3 March 2016.

2. ASSET ALLOCATION

- 2.1 The “smart beta” investment is being made as part of the revised asset allocation adopted by the Fund. The revised allocation reflects a desire to reduce the risk of poor funding outcomes whilst maintaining the chances of attaining fully funded status in the longer term.
- 2.2 The revised allocation is shown below, together with the longer term aspirational allocation: :

Asset Class	Former Allocation	Revised Allocation	Long Term Allocation
Growth Assets	85%	80%	50%
Listed Equities	60%	55%	25%
Private Equity	5%	5%	0%
Multi Asset	10%	10%	10%
Property	10%	10%	15%
Defensive Assets	15%	20%	50%
Bonds	10%	10%	20%
Infrastructure	4%	9%	9%
Social/Affordable Housing	1%	1%	1%
Other Real Income	0%	0%	20%

- 2.3 The smart beta investment would form part of the allocation to listed equities of 55%.

3. SMART BETA

- 3.1 Smart Beta could be described as a more sophisticated form of passive management.
- 3.2 With a traditional passive mandate, the Manager is required to mirror the holdings of a particular index (e.g. the FTSE 100). This means that if the share price of a company in the index rises and the company becomes a bigger constituent of the index, the Manager will be forced to buy extra shares - at the increased price – in order to maintain parity with the index. The converse – selling when the price falls – is also true.
- 3.3 With a smart beta mandate, the index being tracked is not constructed on the basis of price but on a series of qualitative factors such as sales, dividends, book value and cash flow. In theory, the smart beta approach should make it more likely that a Manager sells shares that have risen in price and buys shares which have fallen in price. Because of the added sophistication in maintaining a qualitative index, the fees for a smart beta mandate will be more expensive than a passive mandate.
- 3.4 In discussing the merits of a smart beta investment, the investment sub group reached the view that it would:
- improve the diversity of the Fund's equity structure, and
 - offer a solution with lower costs and lower volatility than would result from another active mandate.

4. SMART BETA STRATEGIES

- 4.1 The Hymans paper gives a synopsis of the various smart beta strategies that could be deployed, notably:
- Fundamental weighting
 - Low volatility
 - Equal weighting
 - High quality
 - Momentum weighting
 - Multi factor
- 4.2 In view of the Fund's aim of reducing risk, the Hymans paper focuses on the fundamental weighting, low volatility and equal weighting approaches as being the most relevant for the Falkirk Fund.
- 4.3 An analysis of return and volatility levels for these strategies over the past 5 years indicates that the low volatility approach has produced the highest returns and lowest volatility whilst over the preceding 5 years, it has produced acceptable returns and had the lowest volatility. Whilst accepting that a low volatility strategy may experience periods of underperformance compared with other strategies, the adviser recommends the low volatility approach as being the one most consistent with the revised investment strategy.
- 4.4 The paper further notes that it would be reasonable to explore implementing the smart beta investment through existing relationships with Legal and General or the secondment arrangement with Lothian.

- 4.5 It is noted that depending on the smart beta strategy chosen, it may be necessary to adjust the index weightings in Legal and General passive mandate to avoid unnecessary bias to a particular investment style or geographical area (e.g. over concentration of value stocks and UK stocks).

5. FUNDING THE INVESTMENT

- 5.1 The sub group suggested that if a smart beta manager was appointed, the Fund's equity investments should be rebalanced so as to be split equally between the various managers.
- 5.2 The following table has been produced to show the value of equity assets under management (AUM) at 31 March 2016. The table also shows how the assets would be adjusted if the "equal split" model was adopted:

Mandate	Current		Proposed	
	AUM	Perc.	AUM	Perc.
L&G (global passive)	£371m	33%	£220m	20%
Aberdeen (global active)	£223m	20%	£223m	20%
Schroder (UK active)	£229m	20%	£229m	20%
Newton (global active)	£300m	27%	£231m	20%
Smart Beta	£0	0%	£220m	20%
Total	£1,123m	100%	£1,123	100%

- 5.3 The table shows that to achieve an equal split of assets, monies would be taken from Legal and General (c. £150m) and Newton (c. £70m) in order to fund the smart beta investment. As the Aberdeen and Schroder share is already around 20% there would be no need to disturb their mandates. The Newton and LGIM mandates are comfortably over their strategic asset allocation – even under the former investment strategy - and therefore re-balancing away from these mandates would seem appropriate. .

6. CONCLUSION

- 6.1 The Committee has agreed to make an investment in a smart beta product as part of its implementation of the revised investment strategy.
- 6.2 The paper from the investment adviser Hymans Robertson recommends making a smart beta investment which is based on the low volatility approach, this being consistent with the Fund's latest investment strategy.

7. RECOMMENDATIONS

7.1 The Pensions Committee and Pensions Board are invited to note the content of this report and comment as appropriate.

7.2 The Pensions Committee is asked to agree:

- i) the smart beta strategy to be pursued;**
- ii) the extent of the smart beta investment;**
- iii) how the investment is to be funded (i.e. from which mandates should monies be reallocated); and**
- iv) to making an adjustment as appropriate to the index weightings in the existing passive Legal and General mandate.**

pp **Director of Corporate & Housing Services**

Date: 9 June 2016

Contact Officer: Alastair McGirr

Equity structure: ‘smart-beta’ options

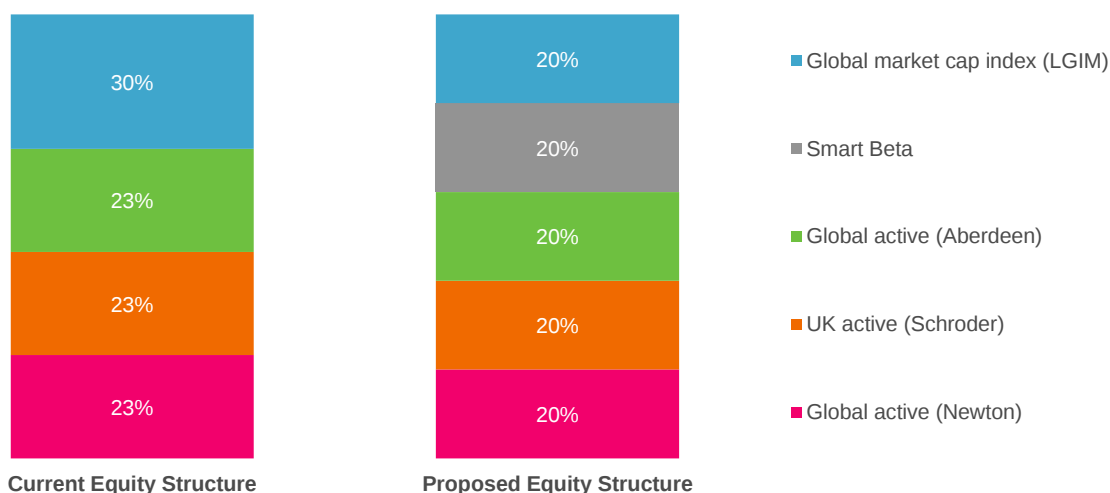
Introduction

This paper is addressed to the Pensions Committee (“the Committee”) of the Falkirk Pension Fund (“the Fund”). In this paper, we outline different approaches to ‘smart-beta’ investing in order to assist the Committee determine which type strategy (or strategies) it may be appropriate for the Fund to adopt. This paper should not be disclosed to any third parties without our prior written permission. We accept no liability to any third party relying on the advice or recommendations in this paper.

Background

The Fund currently has allocations to four equity managers. Three of the mandates (Schroder, Newton and Aberdeen) are managed actively, whilst LGIM manage a passive equity mandate. The Committee has agreed to retain the Aberdeen mandate (at least for the short-term) and, in principle, to introduce an allocation to a ‘smart-beta’ equity strategy (or strategies). The current and proposed structures are illustrated below:

Chart 1: Current and proposed equity structures



The proposed equity structure will be equally weighted between different equity strategies, i.e. each strategy will have a target allocation of 11% of total assets based on the revised equity allocation of 55%.

This paper recaps on the nature of ‘smart beta’ strategies, provides an overview of the objectives of the equity allocation and therefore sets out a basis by which different strategies can be assessed, before considering the potential pros and cons of different approaches.

Objective of the equity strategy

The Fund’s equity allocation represents the largest component of the overall strategy with a target allocation of 55% of Fund assets. The objective of the equity allocation is to produce long-term real returns which will serve to improve the funding level and ease the pressure on future contribution requirements without taking excess risk.

The goal in making any change to the equity strategy must be to achieve at least one of three things:

- 1 To maintain the expected return from the strategy, but to reduce the level of risk taken;
- 2 To maintain the current level of risk within the strategy and boost the expected return; and/or
- 3 To maintain the same level of expected risk and return, but to reduce the overall cost of investment.

Higher returns can be targeted through the introduction of active management (which is generally uncorrelated with market returns) or through the introduction of a systemic bias to the strategy that seeks to capture an additional risk premium. For example, smaller companies generally outperform larger companies over the long-term although this would typically be accompanied by an increase in volatility of return.

It should also be noted that costs matter – this is reflected in the draft investment beliefs covered in a separate paper. To the extent that a strategy that captures a certain risk premium can be captured through an “index oriented” approach, then the costs of investment, and hence net returns can be improved.

Given the overall direction of the Fund's investment strategy - the Committee is seeking to reduce risk over time as demonstrated by the overall reduction in equity allocation – we believe that the objective in refining the investment strategy is more focused on (1) above, i.e. a reduction in risk as opposed to an increase in expected return. Accordingly, in evaluating potential ‘smart beta’ strategies, we have emphasised risk reducing strategies in preference to return enhancing strategies.

What is ‘smart-beta’?

‘Smart-beta’ strategies aim to track indices where the constituents are weighted according to particular factors other than market capitalisation (“market cap”). Accordingly, the strategies can perhaps be best described as being ‘rules based’ in their approach.

The constituent weightings in a market cap index are determined purely by the share price multiplied by the number of shares in issue. Market cap benchmarks have considerable merit (highly transparent, low transaction costs) and by far continue to be the main index that passive mandates are benchmarked against. However, the link between price and index weight means that in market cap indices, there is a tendency for capital flows to be allocated to overvalued stocks and away from undervalued stocks (upward spiral of popular stocks → higher valuation → higher index weight → more capital allocated and vice versa). In contrast, most ‘smart-beta’ strategies attempt to systematically buy undervalued stocks and avoid overvalued stocks based on a more stable set of rules which determine the weight of index constituents.

A range of ‘smart-beta’ strategies have been developed that seek to tilt portfolios towards different factors. These approaches are typically seeking to achieve two things: produce higher returns and/or lower volatility than the equivalent market cap indices. The different ‘smart-beta’ strategies include:

- Fundamental (or value-driven) indices;
- Low volatility indices;
- Equal weighted indices;
- Risk efficient indices;
- High quality indices;
- Momentum indices; and,
- Multi-factor indices.

There is academic evidence supporting the premise that each of these factors will outperform a standard market cap weighted index over time. The greatest depth of evidence supports value and (smaller) size factors, the latter being most pronounced in equally weighted indices.

In our view, a major aspect of this outperformance is rebalancing. A company's share price (and thus its weighting in a market cap index) will typically be more volatile than its weight in a factor tilted index. As such, factor tilted indices need to periodically rebalance their constituents back to their index weights. This contrarian rebalancing tends to sell shares that have risen in price (and have potentially become overvalued) and buy shares which have fallen (and have potentially become undervalued), thus mitigating the tendency to increase the allocation to overvalued stocks.

Different approaches to 'smart-beta'

We outline below a number of different approaches to 'smart-beta' investment. Several of these (fundamental, low volatility and equal weight) were introduced at your training day in March 2016.

Fundamental (or value-driven) indices

Fundamental weighting is a method of index construction that breaks the link between a company's share price and its weighting within an index. The intention is to remove the influence of investor's future expectations by taking price out of the weighting calculation. Instead, the weighting of a company depends on a number of past and present financial factors taken from financial accounting data. The aim is for a company's index weighting to be more representative of its economic footprint.

In the UK, the most popular provider of this index methodology is RAFI. The RAFI indices use a liquidity screened universe of listed stocks, reweighted according to their proportionate share of an aggregate of:

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

The result is an index which, when compared to a market cap index, is tilted to value style investing and, to a modest degree, to smaller sized stocks.

Low volatility indices

The premise behind low volatility indices is that investor behaviour leads to exaggerated enthusiasm for high momentum stocks. Low volatility indices are biased away from this stock category which should lead to a better risk/return trade-off. In developed markets, low volatility portfolios have delivered returns at least in line with market cap indices (over the longer term) leading to higher risk-adjusted returns. This evidence goes against the conventional economic theory that higher risk is rewarded by higher returns over time.

We believe the reason for this better risk/return trade-off is that investor behaviour is inherently speculative and therefore there is a tendency to overpay for high volatility stocks (thus leading to a lower risk-adjusted return in the future) and undervalue low volatility stocks (leading to a higher risk-adjusted return in the future).

One concern around this approach is the possibility that increased allocations to low volatility portfolios might cause a change in market dynamics leading to the previously observed higher risk-adjusted returns disappearing. We also observe that this approach takes no specific account of valuation and that, typically, rules need to be introduced to avoid over concentration in sectors and stocks with the lowest historic volatility.

Equal weights

This is perhaps the simplest of all the 'smart-beta' approaches. It is simply the reweighting of index constituents such that each constituent is given equal weighting. This methodology has proved effective in back tests primarily due to two factors:

- Equally weighted indices have a strong tilt towards smaller companies relative to market cap indices. It is a generally accepted observation that smaller companies, in aggregate, have greater scope to grow their business, and therefore market value, than larger businesses, over time (e.g. it is easier for a firm to double in size from £100m than it is from £10bn).
- Consistent with other forms of 'smart-beta', there is a strong element of disciplined rebalancing from outperforming stocks to underperforming stocks.

We are aware of some limited scale funds managed to this methodology but the main drawbacks in using such an approach are the relatively high drag from transaction costs and the liquidity problems in the smaller stocks as soon as asset levels reach any reasonable scale. Cynically, one could also observe that it is hard for managers to claim they are adding any meaningful value, other than dealing skill, with this approach.

Other 'smart-beta' approaches

Risk efficient indices

These approaches attempt to create portfolios which are more diversified than market cap indices, with a particular focus on maximising the Sharpe ratio (i.e. delivering a superior absolute risk adjusted return). Intuitively these more diversified approaches will carry a meaningful mid/small cap tilt, similar to the equally weighted approach. Risk efficient indices are gaining traction with some investors, but at this stage we are somewhat sceptical as to whether the increased cost and complexity is justified compared with more straightforward factor tilted approaches.

High quality

High quality indices have appeared more recently and, along with fundamental indices, are quite close to the style tilts of a number of active management strategies. The methodology for the MSCI Quality Index uses the following three scoring metrics:

- Return on equity;
- Stable year-on-year earnings growth; and,
- Low financial leverage.

We have observed amongst active managers the value of having a core of quality businesses through a period of volatile markets. As with low volatility approaches, care needs to be taken over valuation and concentration in certain sectors or stocks.

Momentum

Many active manager approaches incorporate an element of momentum in their investment process but none we are aware of rely on this factor alone. MSCI now produces a Momentum Index with constituents weighted by a momentum score based on 6 month and 12 month price performance but we would anticipate that the turnover and volatility of a fund purely tracking such an index would be prohibitive. Academic research suggests that momentum is a valid factor tilt before taking costs (i.e. rebalancing costs) into consideration. Net of costs, momentum strategies struggle to outperform traditional market cap weighted indices over meaningful time periods.

Multi-factor

There are an increasing number of indices / products that combine two or more of the above factor tilts. The theory behind this approach is that as each factor adds excess return in isolation, or at least that is the expectation, then combining factors with relatively low correlations will produce similar excess returns but with lower volatility. However, there is a more limited range of academic research to support this approach.

We are wary of the persistency of the correlations and would observe that the strength of factor tilt is not consistent between factors and therefore simple combinations may not produce the expected outcome. In addition, it becomes more complex to decompose the drivers of risk and return. As with several 'smart beta' innovations, it is unclear whether there is sufficient pay-off for greater complexity.

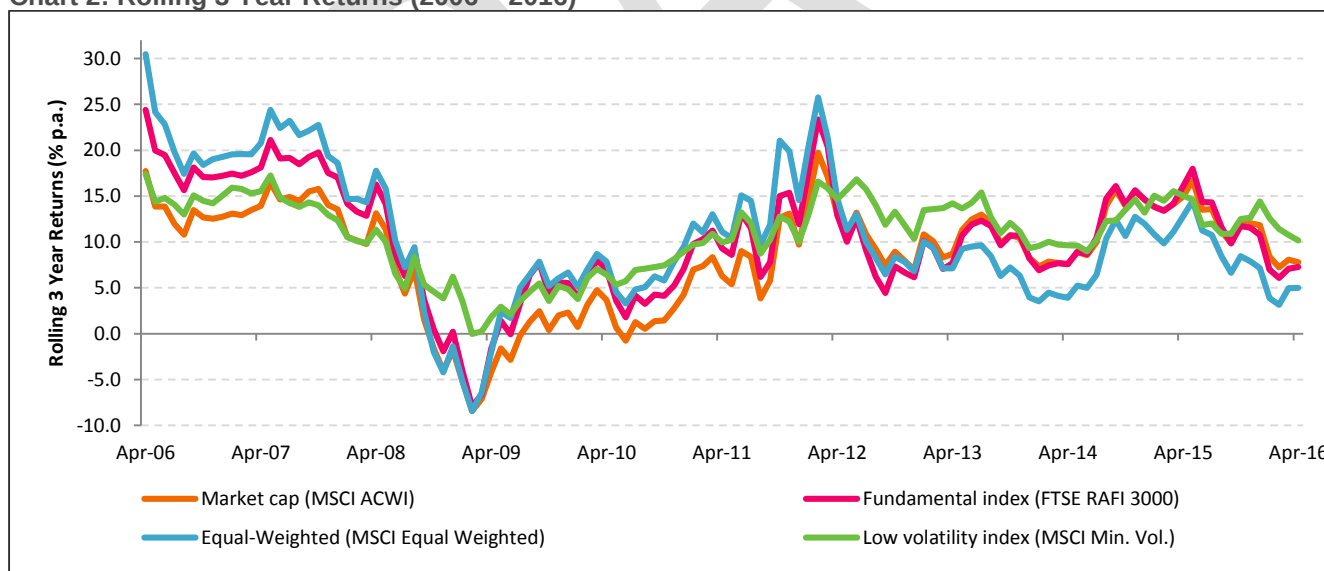
The remainder of this paper focuses primarily on the fundamental, low volatility and equally weighted approaches to 'smart-beta' given some of the pitfalls (e.g. increased costs and complexity) of the 'other' strategies outlined above.

Comparison of the 'smart-beta' approaches

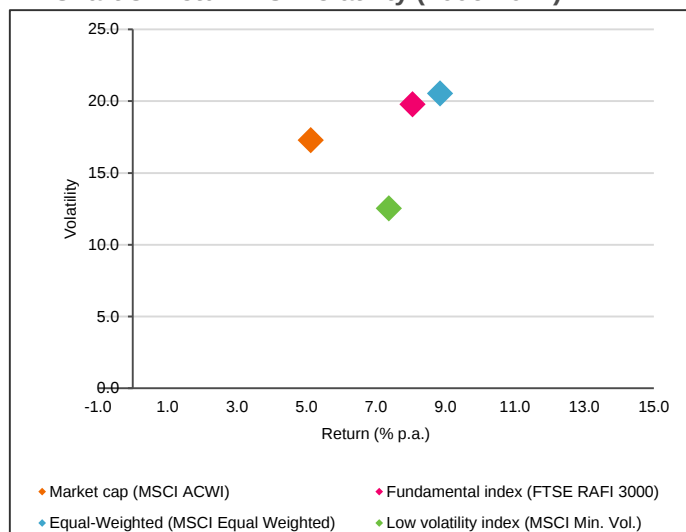
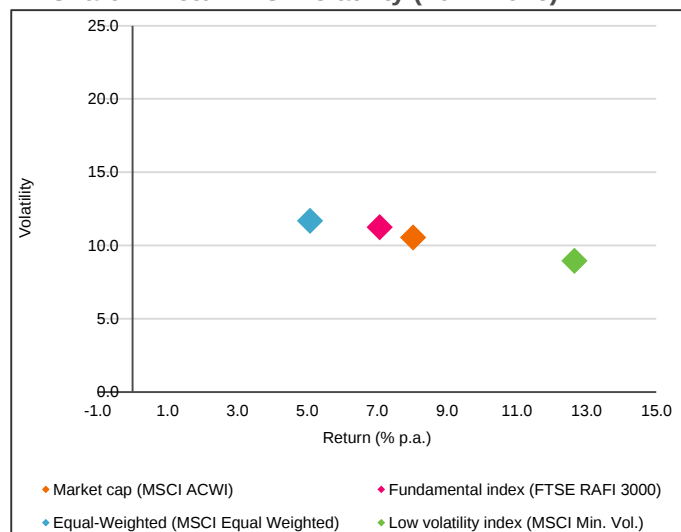
We consider below the relative attraction of the three smart-beta strategies: fundamental, low volatility and equally weighted approaches, relative to a conventional market capitalisation approach. As these approaches have only come into the mainstream over the past few years, a proportion of the data used is back tested (i.e. not necessarily with live money). As such, it should be noted that back tested data often takes insufficient account of the issues associated with running a live tracking fund such as transaction costs and liquidity.

Chart 2 below illustrates rolling three year returns demonstrating that there are periods when each of the three smart beta strategies delivers outperformance (over market cap), whilst also illustrating that a market cap based approach is seldom the most attractive strategy over a three year horizon.

Chart 2: Rolling 3 Year Returns (2006 – 2016)



The charts overleaf plot the performance of each 'smart-beta' strategy and the market cap index against its volatility over two separate five year periods covering different market environments 2006-2011 (covering the global financial crisis) and 2011-2016 (covering an equity growth market).

Chart 3: Return vs. Volatility (2006-2011)**Chart 4: Return vs. Volatility (2011-2016)**

It can be observed that, during the period from 2006 to 2011, equity market volatility was, in general, greater than it has been over the last five years (although during this earlier period, the low volatility strategy demonstrated a considerable reduction in risk whilst also outperforming the market cap approach). Equally weighted and fundamental approaches also delivered outperformance, but with greater volatility.

Over the last five years, the low volatility strategy has delivered both superior returns and lower risk than other strategies. During this period, the market cap approach has also delivered stronger returns than fundamental and equally weighted approach as strategies that carry a value bias have typically underperformed the market.

Table 1 below considers returns from different strategies over periods to date:

Table 1: Absolute performance and volatility (to 30 April 2016)

	1 year (%)	3 years (% p.a.)	5 years (% p.a.)	10 years (% p.a.)	Volatility
Market cap	-0.5	7.8	8.0	6.7	14.3
Fundamental	-2.3	7.3	7.1	7.7	16.0
Low volatility	9.3	10.2	12.6	10.2	10.8
Equal-weighted	-3.7	5.0	5.1	7.0	16.7

The recent underperformance (relative to market cap) of fundamental and equally weighted strategies is again apparent in Table 1, over periods up to five years. From a timing perspective, this may lead to the conclusion that from now more value oriented strategies may deliver outperformance over the medium term.

Low volatility and fundamental strategies have demonstrated material outperformance relative to market capitalisation approach over a ten year period. There is however little evidence of a persistent outperformance premium from an equally weighted approach and, given this is also associated with higher volatility of return than any other approach, we do not consider this any further.

The low volatility approach can be observed to having performed strongly during the 2008 financial crisis. The low volatility index returned +3.7% for the 2008 calendar year. In contrast, the market cap and other two 'smart-beta' indices fell by c.20%-24% during the same period. However, it should also be noted that the apparent superiority of the low volatility approach may in part be due to a one-off re-rating of less volatile (potentially 'safer') stocks over a period of heightened investor risk aversion. We are therefore cautious as to the sustainability of the significantly higher return observed for the low volatility approach.

'Smart-beta' approaches – pros and cons

The table below outlines the pros and cons of the two 'smart-beta' approaches under consideration. For reference, the pros and cons of the other 'smart-beta' strategies are included as an Appendix.

'Smart-beta' approach	Factor tilt	Pros	Cons
Fundamental indices	Value / size	• Long term outperformance vs. market cap • Straightforward • Good liquidity • Ease of implementation	• Fund is already tilted toward value • Higher volatility vs. market cap • Higher turnover costs relative to market cap
Low volatility indices	Low beta	• Long term outperformance vs. market cap and other 'smart-beta' approaches • Lower volatility vs. market cap • Can be implemented passively or actively • Historically, has performed well in bear markets (as well as bull markets) • Ease of implementation	• More complex than market cap and fundamental • High tracking error • Increased allocations may cause change in market dynamics • Cautious over sustainability of higher return / lower volatility • Recent strong performance

Recommendation and next steps

- As noted above, the principal goal of including a 'smart-beta' strategy is to improve the overall risk/return profile of the Fund's equity allocation.
- We note that the fundamental index approach has demonstrated higher volatility than market cap approach, whilst also delivering long-term relative outperformance. In contrast, the low volatility approach has demonstrated both lower risk and higher returns over the same period.
- If considering a single smart beta strategy, we believe that the introduction of a lower volatility strategy would be consistent with the broader objectives of the Committee. However, given the comments in this paper serve to illustrate the benefits of both fundamental and low volatility strategies, we believe there is merit in introducing both strategies (potentially in some form of mixed smart beta mandate).
- Given both strategies can be implemented through an index/rules-based approach, consideration should first be given to utilising existing relationships, including both LGIM and the Shared Services arrangement with Lothian as the implementation mechanism.

We look forward to discussing this paper with the Committee.

Prepared by:-

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For and on behalf of Hymans Robertson LLP

June 2016

Risk Warning

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

Appendix 1: Other 'smart-beta' approaches – pros and cons

'Smart-beta' approach	Factor tilt	Pros	Cons
Risk efficient indices	Low beta / size	Diversified portfolio with allocation to mid/small cap companies	- Optimisation techniques increase complexity - Significant bias to smaller sized companies - Modest investor take-up to date
High quality	Quality	Tends to perform well in volatile markets	- Less established approach - More concentrated portfolio - Modest investor take-up to date
Momentum	Momentum	Tilting towards market trend can be successful over time	- Turnover of 100% p.a. (unless heavily constrained) - Not viable as a standalone factor
Multi-factor	Various	Combining factors with low correlation can lead to maintain a high return with lower volatility	- Combining factors can lead to a lack of transparency - Low investor take-up to date
Equal weights	Size	- Straightforward - Can be implemented passively or actively	- Higher volatility vs. market cap and other 'smart-beta' approaches - High turnover - Liquidity may be poor in smaller stocks - Low availability