STATE STREET GLOBAL SERVICES.

Do Larger Funds Perform Better?

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RESEARCH SERVICES

State Street Investment Analytics

CONTENTS

Section 1:
Do Larger Funds Perform Better?

The funds within the Local Government Pension Scheme (LGPS) ranged in size from £200m to £13bn at the end of March 2013. The average fund size was just under £2.0bn with the median fund somewhat lower at £1.2bn.

If we look at the 'big' funds within the LGPS, four are valued at substantially more than their peers. These funds — Strathclyde, Greater Manchester, West Midlands and West Yorkshire, range in value from £9.8bn to £13.0bn. As it is unlikely that any merged assets would be smaller than £10bn it could be argued that the experience of funds below this size grouping are of limited usefulness to the debate.

To investigate whether large funds perform better, it will be useful to look at the performance of the WM Local Authority Universe over the last 10 years (to end March 2013) in Chart 1 below.

Each LGPS fund within the universe is shown as a circle within risk/return space. The space is split into four quarters centred on the median fund in terms of risk and of return (the green lines).

Risk here is defined as volatility of return (the standard deviation of monthly performance); return is the total return (capital and income) achieved (before investment management costs have been deducted.) The median risk over the period is 10.2% p.a., with a median return of 9.3% p.a.

Most funds would aspire to be in the top left quarter — achieving a higher than average return at lower than average risk. Funds should be trying to avoid the bottom right quarter — taking a higher than average level of risk to achieve a lower than average return.

In Chart 2 the four 'big' funds are shown in risk/return space. All four have produced better than average returns at lower than average risk. At first sight there certainly does seem to be some weight behind the size argument.

Chart 1: Local Authority Pension Fund Performance*

10 Years to End March 2013

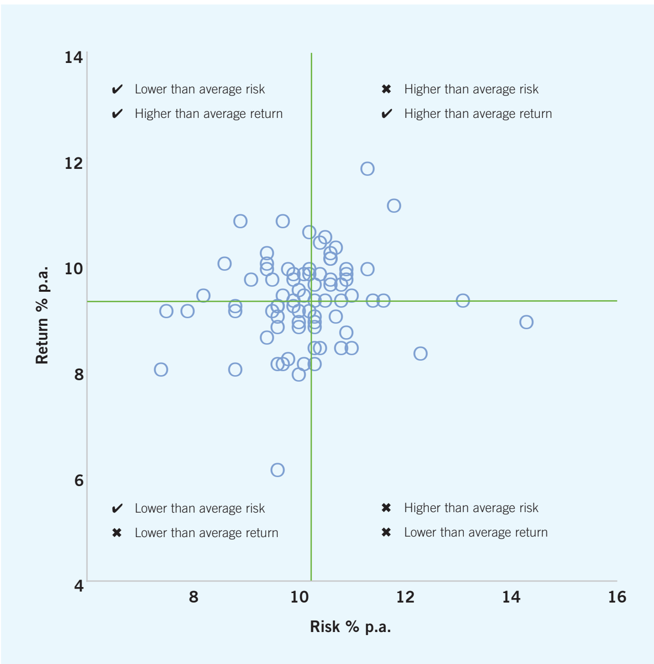
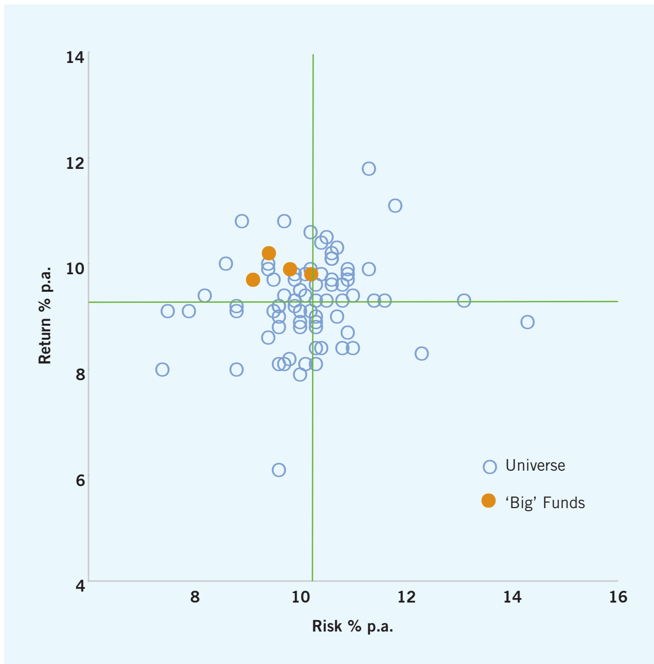


Chart 2: Performance of the Largest Funds*

10 Years to End March 2013



* Source: State Street Investment Analytics.

Past performance is not a reliable indicator of future results.

In Chart 3 we have also highlighted the four smallest funds. These funds are all more volatile than the larger funds (not surprisingly as they are less diversified, both in manager and asset class terms); however, interestingly two of the four produced returns in excess of those generated by the largest funds. It does indicate, however, that size in itself is not the whole answer to good performance.

Numerous studies[1] have tried to show a correlation between size and performance and have either failed completely or have found a level of correlation that is statistically so small as to be questionable. Yet these four big funds have managed to add value at a below median level of risk.

Chart 4 highlights in blue the performance of what we might term the 'less complex' funds within the universe — these are the funds with five portfolios or less. Most are managed on a multi-asset basis, either by one or a small number of 'balanced' managers. The group highlighted in green are the funds within the universe that are managed on an internal basis.

Chart 3: Performance of Largest And Smallest Funds*

10 Years to End March 2013

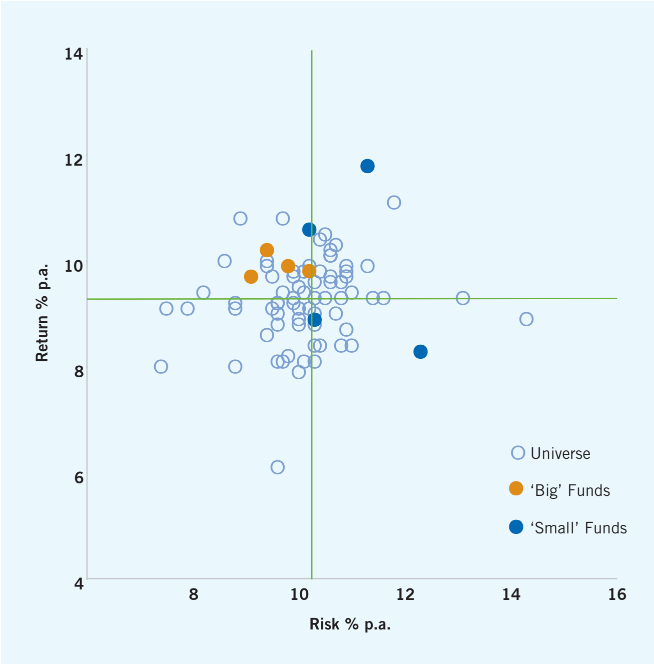
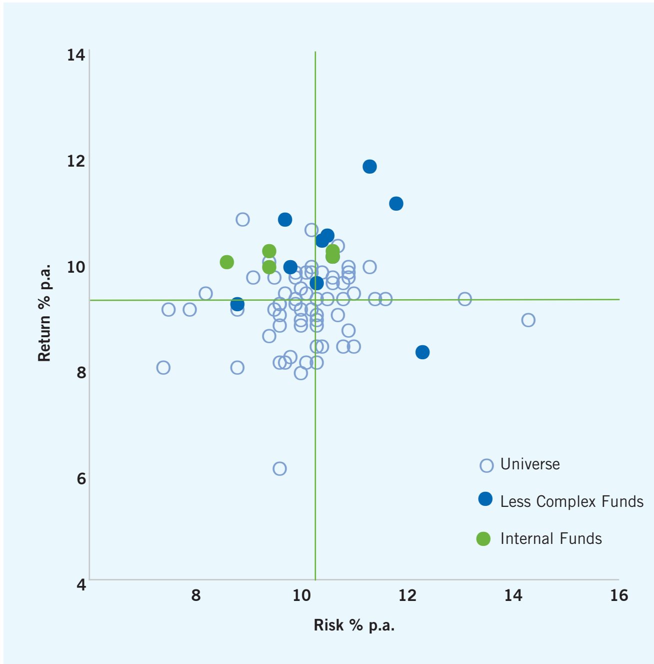


Chart 4: Performance of Less Complex Funds*

10 Years to End March 2013



[1] See for example the discussion in 'Analysis of Local Government Pension Scheme', East Riding Pension Fund, June 2013, pp 19-24

* Source: State Street Investment Analytics.

Past performance is not a reliable indicator of future results.

It is apparent that these funds have produced better than average performance over the period. The median externally managed 'less complex' fund has a risk of 10.6% p.a. with a return of 9.9% p.a. whilst the internally-managed funds are better still with a risk and return over the period of 9.4% p.a. and 10.6% p.a. respectively.

The remaining uncoloured plots are those funds that are managed on a specialist or core/satellite basis. These constitute the vast majority of funds by number. These funds are, by nature more complex, some substantially so. Some have been successful but the majority of funds in this group have underperformed the median.

Internal management has been the most successful structure over the longer term. External balanced management has also been more successful for funds than the more complex structures favoured by most. Some commentators might say that this group shows survivorship bias — i.e., the funds have remained with their structure and managers because strong performance has provided no impetus for change. It could equally be argued that these funds have stuck with their managers and structures through periods of underperformance and that that has been to their long-term benefit.

What can be drawn from these numbers is that the largest funds have performed well but size in itself is unlikely to guarantee success if the structure that is in place cannot deliver the expected benefits.

One of the key factors from our knowledge of the long-term outperformers is strong governance. In particular independent advisors tend to be collaborative with advice taken 'in the round'. Independent advisors (as favoured by these funds) are unencumbered by any potential conflict of interest that the investment advisory companies may face and seem to advocate a slower rate of change.

This is possible because the investment committees tend to be long standing, well trained and to take a longer term investment approach.

Section 2:
Can Anything Be Learned From Large Corporate Funds?

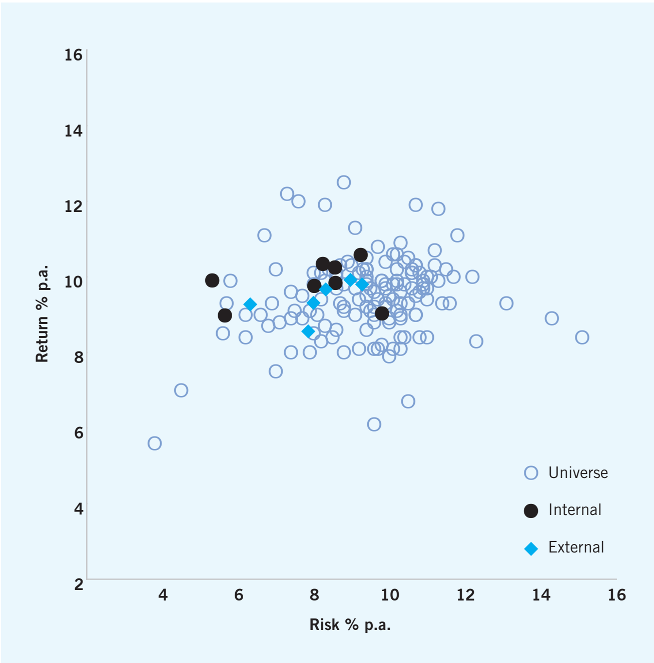
We currently measure 14 UK defined benefit pension funds with a value of £9.5bn and above. These funds are comprised of four local authority funds previously discussed and 10 corporates. The average size of these corporates is just over £20bn, ranging from £10.8bn to £41.3bn at the end of March 2013.

These funds are, in aggregate, quite different from the large funds within the LGPS. The striking feature of this group is that eight of the ten are principally managed on an internal basis.

This means that these funds have benefited from the much reduced running costs and strong long-term performance that is discussed at length elsewhere in this report.

Chart 5: Performance Of Funds*

10 Years to End March 2013



If these funds are shown over the last decade the performance is generally better than average (however, the absolute level of return is driven by the asset allocation strategy undertaken). Interestingly, regardless of structure or asset strategy, every one of the funds has a risk level below that of the median.

If we look at how these funds are performing against the list of objectives outlined in this consultation this group fare well:

Dealing With Deficits – The large corporate funds have been better at dealing with deficits than the public sector funds. Largely this has come about through external pressure, driven by legislation and the corporate entity being uncomfortable with seeing volatile pension liabilities impacting the balance sheet. Most of the schemes are now closed to new members and many are closed to future accrual by existing members. Many companies have put in large additional contributions to help close the funding gap.

Many of these funds have taken steps to reduce volatility of the risk relative to their liabilities. There has been a marked increase in bond investing as funds have moved into liability matching products.

Increased Internal Expertise – Internal management has, for most enhanced investment returns and contained investment costs. External managers are used only where funds do not have the required internal expertise. These funds have access to relatively large (compared to the internally managed LGPS schemes) and high quality internal investment teams.

Infrastructure – These funds invest in infrastructure when the cashflow and risk/return profile of the investment fits into their investment strategy.

* Source: State Street Investment Analytics.

Past performance is not a reliable indicator of future results.

Section 3: Objectives for structural reform

High Level Objectives

(1) Dealing With Deficits

There are two key ways to reduce deficits — increase contributions or improve investment returns.

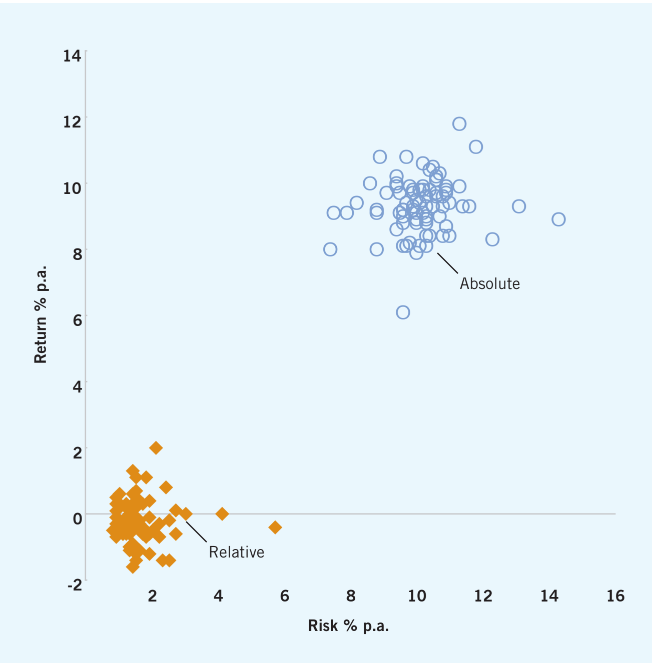
Corporate funds have focussed on increasing contributions — this is not a realistic option open to individual funds within the LGPS so the focus must be on improving investment returns.

(2) Improving Investment Returns

What will absolutely determine the level (and volatility) of any fund's investment return will be the asset strategy that is put into place. However, the focus of this debate, based on the questions asked, would seem to be focussed on fund structure (size, optimum number of managers, internal versus external management, etc.).

Chart 6: Absolute and Relative Performance (Risk and Return)*

10 Years to End March 2013



To provide some context we have included Chart 6 below. It plots funds' absolute risks and returns over the last ten years (in blue). It also shows the contribution to the observed risk and return from the approach funds take to the implementation of strategy (orange). Whilst clearly not trivial, relative performance is a very small proportion overall.

There are some straightforward ways to improve investment returns.

All investment returns are eroded by the level of fees paid to fund managers, transaction costs, taxes and commissions. Long term investment strategies will reduce the impact of transaction costs, taxes and commissions.

Passive management offers the largest opportunity to reduce fund management fees paid whilst, internal investment management can provide the opportunity for active management at passive management fee levels.

We stated earlier that size, of itself, will not improve performance but we do believe that larger fund size may confer a number of benefits in terms of improving returns:

- Potential to reduce investment management costs
- Potential to consider internal management
- Potential for better governance.

We consider each in turn:

* Source: State Street Investment Analytics.

Past performance is not a reliable indicator of future results.

Potential to Reduce Investment Management Costs

Larger funds can access external management at lower costs.

The following comments are based on SSIA research, 'Investment Management Running Costs, November 2010'.

Over the years, we have produced a number of indicative cost surveys based on what clients tell us about their investment management costs. The results show that management costs have been rising over time as funds employ more complex fund structures and diversify across more asset types (1997 13 b.p. versus 2010 29 b.p.)

Chart 7 below shows the range of costs for all the funds in the survey and then splits these costs into the average for internal and external fund management. There is a substantial saving from internal management (on average, 10 b.p. versus 33 b.p.)

There is also clear evidence that larger externally-managed funds have a cost advantage over their smaller peers.

Chart 8 shows that these larger funds' costs are less than those of smaller externally-managed funds (>£5bn 23 b.p. versus <£250m 38 b.p.)

Chart 7: Overall Cost Ranges by Structure*

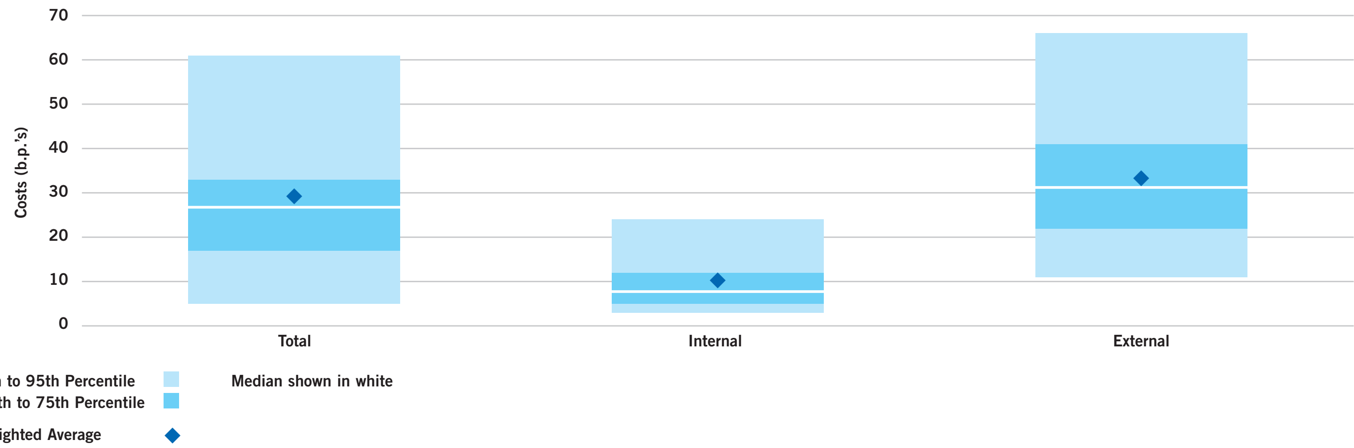
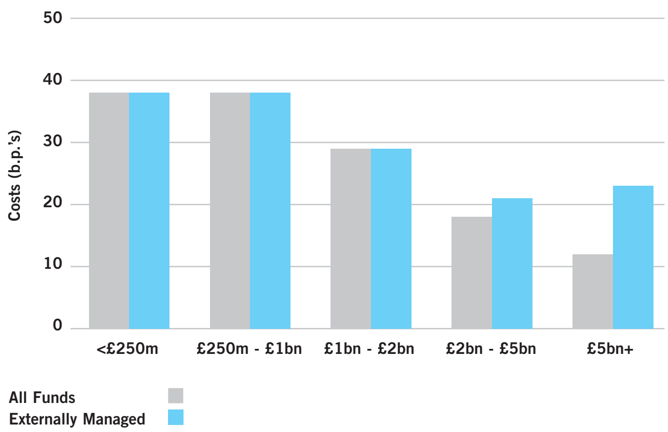


Chart 8: Range of Costs by Fund Size*



* Source: State Street Investment Analytics.

Past performance is not a reliable indicator of future results.

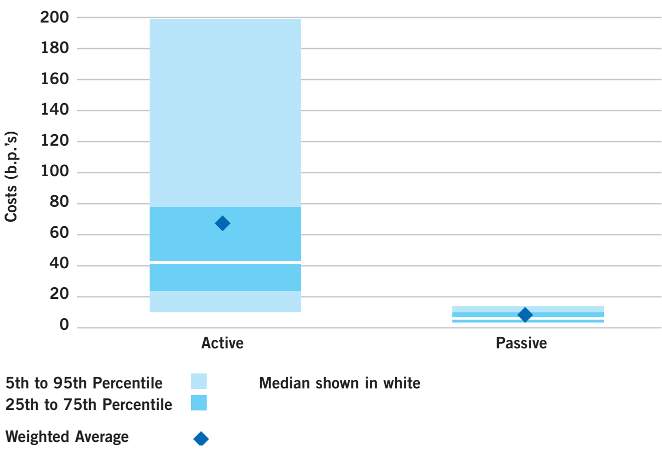
Chart 9 below shows passively managed portfolios cost less than actively managed portfolios (on average, 7 b.p. versus 66 b.p.)

It should be noted, however, that they key driver of investment management cost for any fund will be the structure and investment management arrangements of that fund.

The differential of fees payable for alternative versus traditional assets is vast as can be seen in the table below.

A large fund invested largely in actively managed equities and alternatives will still pay considerably more than a small fund invested in passively managed traditional assets.

Chart 9: Range of Costs by Active and Passive Management*



The industry standard within the UK is to quote performance results before the deduction of investment manager fees. We recognise that this is not ideal but most funds struggle to provide accurate fee information on an ongoing basis. The availability of accurate and consistent investment management costs across the LGPS should be an essential requirement in any deliberations on the future shape of the LGPS. We do not believe that this data currently exists.

Table 1: Average Costs by Mandate Type*

Basis Points (b.p.'s)		Active	Passive
Equity	UK	52	5
	Global	44	10
	US	52	4
	Europe	49	9
	Japan	49	-
	Pacific	31	-
	Emerging	83	-
Bonds	UK	27	7
	Global	22	-
Alternatives	Private Equity	173	-
	Absolute Return	120	-
	Active Currency	186	-
	GTAA	95	-
Property		58	-

* Source: State Street Investment Analytics.

Past performance is not a reliable indicator of future results.

Potential to Consider Internal Management

Historically, internal management has provided superior returns. Larger size would give local authorities the opportunity to use internal management to a greater extent than currently.

The following comments are based on SSIA research, 'Lessons from Internally Managed Funds, March 2013'

'Active Management Trading Activity and Short-termism Revisited, December 2011'

Over the years, we have published a number of reports on internal management. We monitor the performance of 22 internally-managed funds. We have defined internally managed as being those funds that have more than two thirds of their assets invested by their in-house fund management team. At the end of December 2011 the funds were valued at £174 billion which represented 37% of our All Funds Universe.

Our analysis has consistently shown that internally-managed (IM) funds have delivered superior returns, in a more efficient and cost-effective fashion than their externally-managed peer group. In our latest report we state that:

"The cost savings of internal management are known and substantial. However, cost savings are only bankable if the returns before costs are equal to or better than those available externally.

In all of our previous studies we have seen that IM funds have outperformed their externally managed peers before costs have been taken into account. After costs the performance differential is larger still.

These results are slightly at odds with more recent research by CEM Benchmarking who concluded in their surveys of global pension funds in 2007 and 2010 that IM funds have similar performance levels before fees and it is only after the deduction of fees that these funds perform better[2].

However, our latest numbers show a continuation of the strong performance that we had evidenced in previous studies. Over the last twenty five years, in aggregate, IM funds have generated a return of 8.9% p.a., 0.3% p.a. above the universe as a whole. This is shown in Table 2 below:

Table 2: Performance of Internally Managed Funds (% p.a.)

To March 2011	5 Yrs	10 Yrs	20 Yrs	25 Yrs
Internal	3.7	6.2	8.6	8.9
All Funds	3.5	5.9	8.3	8.6
Relative	0.2	0.3	0.3	0.3

Source: State Street Investment Analytics.
Past performance is not a reliable indicator of future results.

[2] 'How Large Funds Organise Themselves', MacIntosh and Scheibelhut, 2012.

The outperformance has remained at a relatively consistent level of 0.3% p.a. through time.

Even before taking management costs into account, significantly lower turnover also appears to contribute to the superior management exhibited by IM funds. Lower turnover means less return is eroded through dealing expenses and commissions.

The average IM fund currently turns over a quarter of its UK equity portfolio each year i.e., it sells an eighth of its portfolio by value every year and buys back a different eighth. The All Funds Universe average, at 46% p.a. is almost double this level.

This substantially lower turnover appears to reflect the IM funds' longer term approach to investment. By holding stock for a longer period than the external funds, internal funds are incurring less transaction costs. This will have a material performance benefit particularly for UK equities, for which stamp duty of 0.5% is payable on all purchases.

The funds are not subject to the business need to focus on recent performance (to avoid mandates being terminated) that may encourage short-termism amongst external managers. This longer-term focus means that the IM funds are also able to hold on for longer to underperforming stocks where they perceive there is still value.

Internal fund management is not accessible by small funds. Of the 22 IM funds that we measure, most were valued in excess of £5 billion.

Potential for Better Governance.

Larger funds may provide the potential for improvements in scheme governance.

Many commentators appear to equate such governance improvements with:

- More diversification by asset class
- More diversification by fund manager
- Greater in-house specialist resource.

We comment on the asset class issue on the next page. We comment on the issues of manager diversification and in-house resources under the secondary objective of the improvement in the flexibility of investment strategies.

As a general comment we would say that we have a fundamental problem with what might be termed the 'benefits' of more responsive governance arrangements.

One of the clearest examples of value leakage that we have identified over the years is the activity of manager change. In our research on changing manager we have shown that short term approaches to hiring and firing, more often than not, destroys value.

In our view, better governance has more to do with changing mind-sets and behaviours. Better governance will follow from a greater focus on fund strategy relative to liabilities and a true long-term approach to scheme investments.

Governance will not be served by a closer focus on how the funds' investments are structured and manager selection exercises dependent on accessing alpha. The only thing this guarantees is more spend with the investment consultancies.

- More diversification by asset class

Larger scheme sizes may provide better opportunities for investment in certain asset classes.

Private Equity

The following comments are based on SSIA research, 'Trends in Pension Funds Private Equity Investing and Reporting, April 2011'.

Many local authorities are too small to directly invest meaningful amounts into some asset classes. Where investment is undertaken, the outcomes have no material impact on fund performance. One can legitimately question the costs of such investment, both in terms of the fees payable and governance effort.

Larger fund sizes may help alleviate this. Also larger funds may be able to access better quality management in some of these classes, for example, private equity. In the report we commented:

"Private equity can be good for funds' health and, indeed, UK pension funds have been beneficiaries of a handsome return premium over quoted equity.

Simply allocating funds to private equity will not routinely reward investors with a premium however. Our research, backed by numerous academic studies, shows that the spread of returns even over reasonable time horizons is very broad and the number of partnerships generating a premium is relatively small. In the private equity space, therefore, identifying and engaging the right general partner is critical".

Larger funds are in a stronger position to tap into quality private equity investing than smaller funds. This is evidenced in Table 3 below.

Table 3: Private Equity Performance to End March 2013 (% p.a.)*

	All Funds	Large[1]	Smaller[2]	Diff.
3 Year	6.0	6.4	4.5	1.8
5 Year	-0.2	0.2	-2.1	2.3
10 Year	-1.1	-0.7	-2.8	2.1

Property

Investment in property has many of the issues that investing in private equity has — in particular the need to be able to invest sizeable asset values to participate directly in the market rather than through a pooled fund vehicle. Most large funds choose to invest in direct rather than indirect property and this decision has, in aggregate, been rewarded.

Table 4: Property Performance to End March 2013 (% p.a.)*

	All Funds	Large[1]	Smaller[2]	Diff.
3 Year	6.1	6.4	4.5	1.8
5 Year	-0.2	0.2	-2.1	2.3
10 Year	5.7	5.9	4.4	1.5
20 Year	8.4	8.4	7.7	0.7

[1] Large funds are defined as being members of the WM50 Universe.
[2] Smaller funds are the remainder of funds within the All Funds Universe.

* Source: State Street Investment Analytics.

Past performance is not a reliable indicator of future results.

Secondary Objectives

(1) To Reduce Investment Fees

See earlier. Investment cost management is a fundamental factor in improving investment returns.

(2) To Improve the Flexibility of Investment Strategies

Larger funds will have bigger governance budgets, enabling better decision making.

It is certainly the case that for many local authorities, their current investment structures (complex specialist arrangements) and their governance arrangements appear misaligned. A weakness in the present set up is the lack of scrutiny with regard to consultant advice. It is not clear to us that this is adequately addressed by the use of independent advisors.

Larger scheme size may allow more specialist resources to be applied to fund arrangements but, as noted earlier, the nature and focus of such resources are critical to improving the status quo.

On one hand, more specialist in-house investment resources deployed to provide better scrutiny of investment advice may prove a useful counter-weight to the current dependence on consultants (many of the largest corporate funds are certainly less tied in to consultants).

On the other hand, we are particularly dubious of resources and time directed towards finessing fund structures or enhancing the manager selection process in publicly-traded markets without a fundamental change in behaviours.

The activity of selecting managers is fraught with difficulty. While it is obviously a necessary task, it is not one where we believe practitioners can add value consistently. The issue is muddied by differentiating trustee decision-making from consultant advice but, regardless, no investment consultancy, to our knowledge, has ever produced evidence of skill with respect to this discipline; there are no audited publicly-available track records of success in this regard.

The reason for this was best expressed many years ago by Roger Urwin, then Head of Investment Practice at Watson Wyatt Worldwide at the WM Investment Round Table (1996):

“I do not believe that there is any reason that manager selection, the consultants activity, should be any more consistent in performance than the underlying performance records of the managers themselves.”

A problem appears to remain between that fundamental message and what decision makers appear to believe:

- That consultants have some insight into the future — they don’t
- That past performance is a good proxy for future performance — it isn’t
- That performance targets are consistently achievable over rolling short-term periods and that manager failure to do so is a sackable offence — it shouldn’t be (all else equal).

It is not clear to us that deploying more resource to this discipline, whether internally or externally configured, is warranted.

One of the most effective governance tools that we have seen in use is the Statement of Core Beliefs. This document defines the parameters within which all strategic decisions are made. It would seem from our experience that having, and adhering to the views contained in such a document brings greater rigour to the decision-making process. It also prevents funds from being distracted by the short-term considerations that do not warrant the attention that they frequently receive.

Larger funds do currently seem to exhibit more robust governance structures than many of their smaller peers. However, regardless of size, a fundamental change in behaviours could well contribute to an improvement in any funds’ long-term performances.

Behavioural Biases

In the introduction of the earlier noted research article on internal management, we wrote that “whilst all pension funds are theoretically ‘long-term investors’, it seems apparent that there are some embedded structural problems that result in behaviours that are anything but long-term”. Many local authority funds exhibit behaviours that are unhelpful with respect to their main objective of meeting member benefits at reasonable cost.

The following comments are based on SSIA research, ‘Behavioural and Performance Aspects of Changing Manager, May 2009’.

The decisions taken by local authorities with respect to their investments are subject to a number of behavioural biases and these are amplified by the changing nature of councils, which result in a mismatch between tenure and the long-term requirements of the fund.

Some the main biases are:

Availability: too much time and effort is focused on short-term (and by definition more available) data, e.g., manager performance than more important long-term considerations e.g., asset strategy.

Representativeness: Individual or groups frequently base decisions on creating patterns where they do not exist. In the present context, pension fund decision-makers can misguidedly place too much emphasis on recent data which they then extrapolate into the future.

Herding: This has been particularly prevalent within the pension fund industry and the LGPS in particular. While in nature the safety of the herd confers benefits, this does not necessarily stack up in terms of investing. Examples of this include the appointment of AllianceBernstein in the early 2000s, the move into active currency at around the same time and currently the move into Diversified Growth products. The first two decisions impacted extremely negatively on the herd's performance.

Deference to experts: The key behavioural factor influencing committees, particularly where a depository of expertise is lacking would appear to be deference to experts. The influence of some consultants on investment committees is, in our view, unhelpfully strong. One way to deal with this issue is the setting up of dedicated investment committees with greater investment resource.

(3) To Provide For Greater Investment in Infrastructure

Infrastructure may have a role within the LGPS as an asset which helps meet member liabilities. Such investment should be considered on a fund by fund basis and undertaken where there are strategic benefits in so doing.

(4) To Improve The Cost Effectiveness of Administration

A number of larger centralised functions may result in sizeable cost savings (staff, IT, etc.) but is likely to result in less localised servicing, which may be valued by the scheme membership.

(5) To provide Access to Higher Quality Staffing Resources

The IM local authority funds are all managed outwith London which has allowed access to skilled investment management resources at a relatively low cost. It is unlikely that this arrangement would be possible closer to London where the market for such resources is buoyant.

In Canada there has been a clear move towards increased level of internal management within their public sector pension funds. Performance of these funds has improved markedly as a result. These funds believe that one of the factors facilitating the improved performance is the ability to attract and retain top investment professionals. This has been done by setting them up as quasi-independent entities that allow the decoupling of salaries of these professionals from existing public sector pay scales. Whilst this has pushed up the cost of internal management, it remains well below that paid by external funds whilst, at the same time seeing an improvement in net performance.

In the US, by contrast, the investment teams that run the public schemes are paid a fraction of the incomes earned by their peers in Canada. Most US public sector schemes are run as part of the state civil service. This creates additional political hurdles for the in-house teams. In California, for example, Joseph Dear, CIO of CalPERS has said that he does not believe that voters would permit a public employee to make the kind of salary required to attract and retain the quality of investment managers that would make developing an in-house team possible, even though public funds are likely to be paying more to outside managers.

It would seem that, within the LGPS, the key challenge to getting access to high quality staffing resources will be ensuring a mechanism whereby internal expertise can be attracted through competitive compensation.

(6) To Provide More In-house Staffing Resource

See (5) above.

BEHAVIOURS THAT SHOULD IMPROVE PERFORMANCE

Be Genuine Long Term Investors

In his 2012 review of decision making within the UK equity market, John Kay stated 'The appointment and monitoring of active asset managers is too often based on short-term relative performance'.

Funds need to be cognisant of their very long investment horizons and move away from looking at quarterly performance.

Funds should set achievable targets over appropriate timeframes and monitor more than just raw performance numbers. Instead take time to understand the manager structure and philosophy and confirm that the original investment process on appointment continues to be delivered and that it remains appropriate within the wider fund context.

Additionally, funds should make sure that managers are monitored and remunerated over time horizons that correspond to those that are important to the fund.

Don't Tinker

Funds should avoid unnecessary complexity — the more parts there are, the more governance is needed. Every addition to the portfolio should be reviewed to ensure that it justifies its inclusion both in terms of how it fits and its contribution to the maximisation of long term performance and in attaining the primary goal of paying member benefits.

We have yet to find any evidence that increased complexity has added any value over the less complex structures that it has replaced. What it has added is cost whilst increasing both the administration and governance burden. This may be appropriate for some but all funds need to be careful to match their strategy to the governance that they can put in place.

Fewer And Deeper Relationships

Principal 6 in the Kay review states that 'all participants in the equity investment chain should act according to the principles of stewardship, based on respect for those whose funds are invested or managed, and trust in those by whom the funds are invested or managed'.

For many externally managed funds there seems to be little trust or respect shown towards the investment managers. Manager reviews can often be confrontational, even adversarial and focus on what went wrong over the recent past. Conversely the managers may not take the trouble to understand the unique nature of each fund and to make adjustments accordingly. All parties need to work to strengthen and deepen relationships. This becomes a significant challenge for funds with extremely complicated structures and large numbers of managers and is another reason we would caution against complexity.

Have a more collaborative and interactive relationship with the external investment advisers.

Funds should work with the external advisors to create the core beliefs that underpin the strategy. All subsequent decisions should be made with reference to these. This should ensure funds do not just buy into the latest trend or product, do not diversify unnecessarily. Independent advisors (as favoured by the internal funds) are unencumbered by any potential conflict of interest that the investment companies may face and seem to advocate a slower rate of change.

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State Street's Investment Analytics (SSIA) group provides performance and analytics services and employs a staff of more than 780 dedicated investment performance professionals across 18 offices worldwide.

Globally, SSIA serves approximately 1,370 clients with asset volumes exceeding $12 trillion, offering comprehensive services in performance, risk and strategic analysis that help them monitor and measure the success of their investment strategies in any market and in any asset class, including alternative investments (as of June 30, 2013).

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