The UK Real Estate Funds Industry: 10 years on from the Global Financial Crisis

A report commissioned by
The Association of Real Estate Funds
Research & Information Committee

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Contents

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References:

- Our History, AREF, May 2019
- The Size and Structure of the UK Property Market, IPF Year End 2018 Update

Executive Summary

Executive Summary

Aim

The research team were commissioned to examine the evolution of the UK institutional real estate funds industry in the 10-years post the Global Financial Crisis (GFC) and then consider what is likely to happen to the industry for the next 10 years (post COVID-19). The project findings have been split into two reports. The quantitative analysis of fund data for the period since the GFC forming the entirety of this report with the forward looking, qualitative piece due to being published later in 2021. This report attempts to cover the central themes of fund investment: the universe; performance; stock selection; liquidity and fees and how these have evolved over the last 10 years. The analysis was conducted on the data in the MSCI/AREF Property Fund Vision (PFV) Handbook and for certain tasks, especially performance analysis, the team also relied on data from the MSCI/AREF Property Funds Index[1] (The Index).

Findings

Fund universe

It is estimated that the funds in the PFV Handbook cover 13.5% of the GAV of all UK real estate institutional investment, this is an increase from 9.0% since the GFC. The success of some Specialist funds and the growth in Long Income funds has offset the lack of new funds joining the AREF sample.

The UK real estate fund industry, as reported by the PFV Handbook, provides a range of fund types and sizes to accommodate most investors, but not the scale required for the very largest global investors. Conversely the minimum investment rules in many funds set a relatively high hurdle for initial investment for smaller investors.

Fund performance

There have been two long upswings in real estate returns over the last two decades punctuated by a significant reversal triggered by wider macro-economic events in the GFC. Over the last 10-years All funds have delivered a 6.1% pa return, higher than equities, bonds, and property equities at 4.1% pa, 4.5% pa and 5.6% pa respectively.

The strongest returns have been generated by Long Income funds, although this performance track record spans a relatively short time period.

Specialist funds have delivered two periods of relatively weak returns, the first during the GFC which was exacerbated by high leverage and the second in the period since the GFC due to the high weighting to large retail property types. Individual, low-geared specialist funds, outside the retail sector, performed much more strongly.

From q3 2004 to q3 2020, cash is estimated to have reduced All fund returns by 14 bps pa and Balanced fund returns by 23 bps pa. Debt is estimated to have reduced returns by 48 bps pa. Since the GFC the stock of debt has shrunk from over £12bn to less than £4bn.

Portfolio performance has been driven predominantly by structure. In the latest cycle the rise of e-commerce has driven both weak performance from sections of the retail sector, particularly shopping centres and retail warehouses that formed the bulk of Specialist funds, and strong performance from industrial property.

The Balanced fund allocation to retail has now fallen to 20%. Due in equal measure to relative sector performance and by a reallocation to predominantly industrial property.

Long Income funds are an exception, they have performed differently, either due to their very long lease structures or due to the selection of different property types within the enigmatically labelled 'other' segment. Other fund styles may be significant, such as a focus on high, or low, quality property but no quality measures are included in the PFV Handbook.

Market factor model

The combination of leverage, cash, structure, development exposure and net investment flows explains nearly two-thirds of the variation in fund returns over the period 2007-19. After splitting the model by fund type, the explanatory power of the fund return model rises to 80% for both Balanced and Specialist funds for the whole time period and higher for the sub-periods.

The combination of leverage, cash, structure, development exposure and net investment flows explains over three-quarters of the variation in individual fund risk-adjusted returns.

A focus on a smaller number of properties is not found to have generated superior risk-adjusted returns.

Leverage across both aggregations has had a negative impact on either, or both, excess and risk-adjusted returns.

Cash and net investment were significant drivers of both Balanced and Specialist fund returns through the GFC. In the case of Balanced funds, there is evidence that liquidity management adversely affected fund returns through this period and for Specialist funds the higher the cash holdings and the more positive the fund investment flows, the stronger the fund returns.

Tracking error model

Diversification, through more properties or tenants, is found to significantly reduce tracking error.

A higher development exposure increased the tracking error of funds against their predicted return in several of the models, but the measure was not universally significant. This result cannot be regarded as definitive due to the low exposure of the analysed funds to development.

Other measures, such as WALT, initial yield and vacancy rate, are rarely significant in models of fund risk, but this lack of a positive relationship is thought to be due to the recording of these factors at the portfolio rather than the segment level.

Liquidity

On average, the net units created in funds averaged 1.8% per quarter and turnover 5.1%. Daily priced funds have experienced far greater redemption pressures during periods of market distress, peaking at 15% in q3 2016.

A small group of Balanced funds offered significantly superior liquidity, via matched transactions, at over 1% of units per quarter. These funds tended to have a less concentrated investor base.

The top five investors typically held around 50% of units in institutional funds. For daily priced funds, currently around 30% of fund units are held by the five largest investors. There may be issues over how feeder funds and/or platforms are counted meaning that investor concentration might be lower on a look through basis.

The proportion of external capital within funds increased steadily from 2004 to 2011 and since then it has remained broadly in the 65-70% range.

Fees

There is evidence of a small shift to NAV pricing, with the reported fee basis for 65% of funds in 2007 falling to 51% of funds by 2019.

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[1] Please note that the sample of funds in the PFV Handbook is slighter higher than that contributing to the AREF/MSCI Property Funds Index.

Introduction

Introduction

The collation of descriptive data on UK unlisted funds can be traced back to the early 1990s with the publication of the first Yearbook by the Association of Property Unit Trusts (the forerunner of AREF). The rationale was to streamline the process of collecting fund data and ensuring standardisation of the information collected. The successor to the original book is the PFV Handbook which is produced by MSCI and is available as a pdf or spreadsheet to members of AREF and subscribers to MSCI's UK subscription service. It provides investors with factual data, past returns and the current portfolio weights for a tradeable universe of the largest UK unlisted real estate funds. The performance data in the PFV Handbook is calculated quarterly by MSCI and is presented alongside the Index. The Index has a history reaching back to 1978 when Philips and Drew created their own performance index for Property Unit Trusts. The Index morphed into its current form in June 2000 with the evolution of the MSCI/AREF Property Fund Index. Originally it was sponsored by AREF and HSBC and calculated by MSCI (then known as IPD).

Five key drivers affect fund returns: cash holdings, leverage, fees, structure, and style. The research team have analysed each driver, using data in the PFV Handbook to greater understand what has happened to the AREF fund universe since the GFC. The greater the understanding of these drivers the better equipped investors are to form an opinion on which funds most closely meet their investment requirements. Data on fund sector weightings allows investors to construct their own tailored portfolio from a combination of funds. As real estate assets are large and heterogenous investors also require additional data on concentrations of exposure to individual properties, tenants and lease expiry dates (an exposure to more properties and tenants would lower the expected tracking error of a fund). Investors may also seek to tilt their portfolio towards one or more stock factors, such as long leases, development or higher quality property. Clearly, there are additional steps in the due diligence process, such as meeting fund managers to discuss their investment process, investment philosophy, governance and CSR policies which need to be carried out before an investment decision is finally made but the availability of good quality consistent data which will address all of the areas mentioned above is crucial.

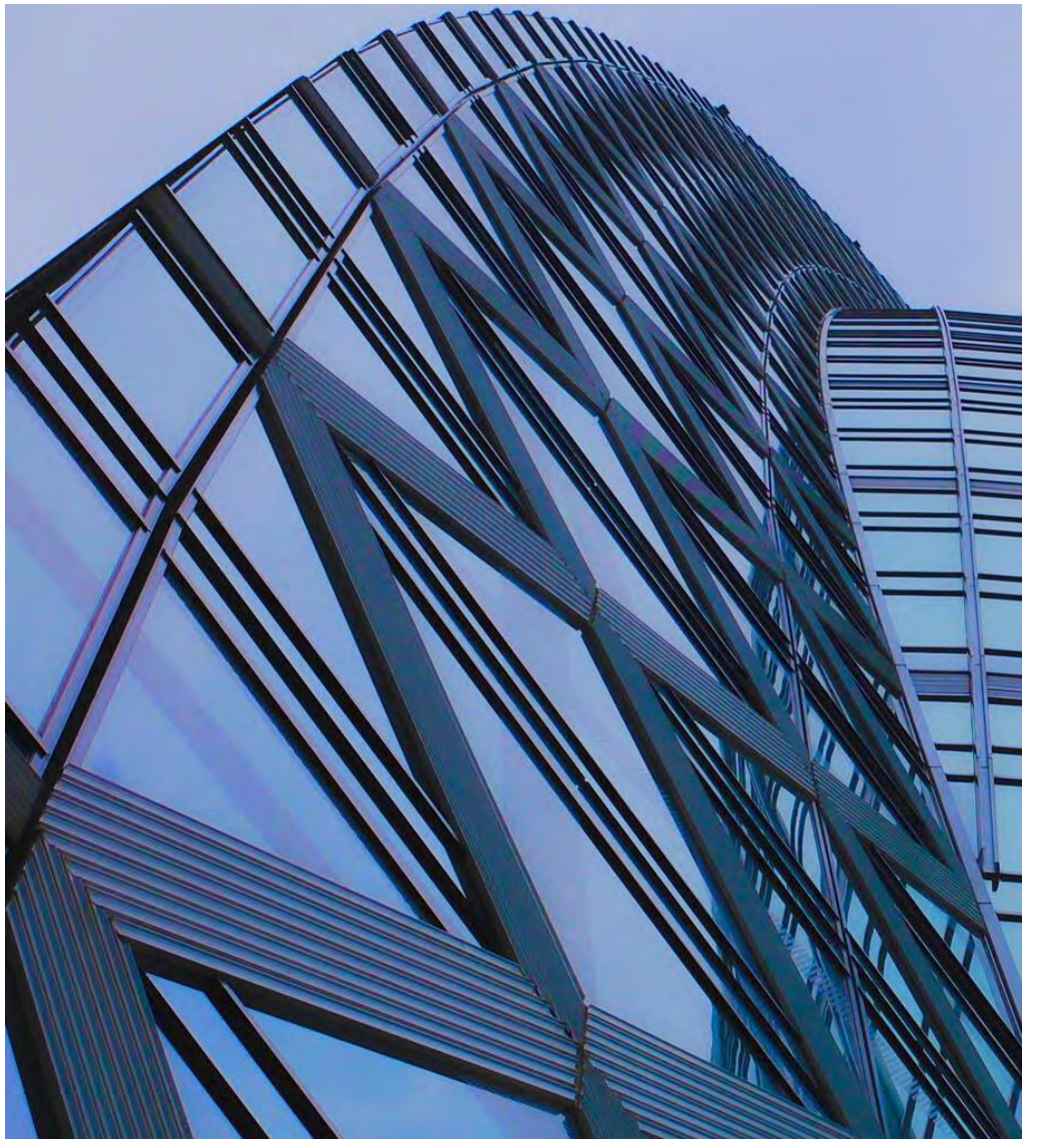
It is in the researchers' opinion the analysis of the data in the PFV Handbook & the MSCI/AREF Property Index should, in an ideal world, provide current and reliable information which investors can use to carry out significant fund due diligence, albeit from the desk-top, but of a comparable level to that carried out in the Capital Markets. This research will show that a great deal of interesting analysis can be undertaken, but there are shortfalls and inadequacies, both in the data and the way it is collected, which mean that investors cannot rely on this alone. They are forced to approach fund managers to supplement and update information which is fundamental to their investment decision making. There have been many notable changes to the UK real estate fund universe since the GFC, many of which have impacted fund structures, portfolio characteristics, style leverage. Investors have rung the changes and the industry has had to respond. It is frustrating that over this time the way we as an industry have managed the fundamental building blocks of investment decision making has not evolved to meet the needs or expectations of the investors.

Structure of the report

- Section one describes the size of the Index, the different aggregations and the variety of funds in the PFV Handbook.
- Section two documents the performance history of the MSCI/AREF Property Funds Index and how important structure, leverage and cash have been to fund performance.
- Section three models the impact of concentrations of fund exposure to individual properties, tenants and lease expiry dates on the range of fund returns.
- Section four examines liquidity measures.
- Section five looks at the fees disclosed in the PFV Handbook.
- Section six comments on the adequacy of the MSCI/AREF data for investors.

Please note: the analysis is restricted to funds with a full performance history and therefore excludes daily traded retail funds in sections two, three and five.

AREF Members can view previous copies of the Property Fund Vision on the AREF website here



Section One: Fund Universe

Section One: Fund Universe

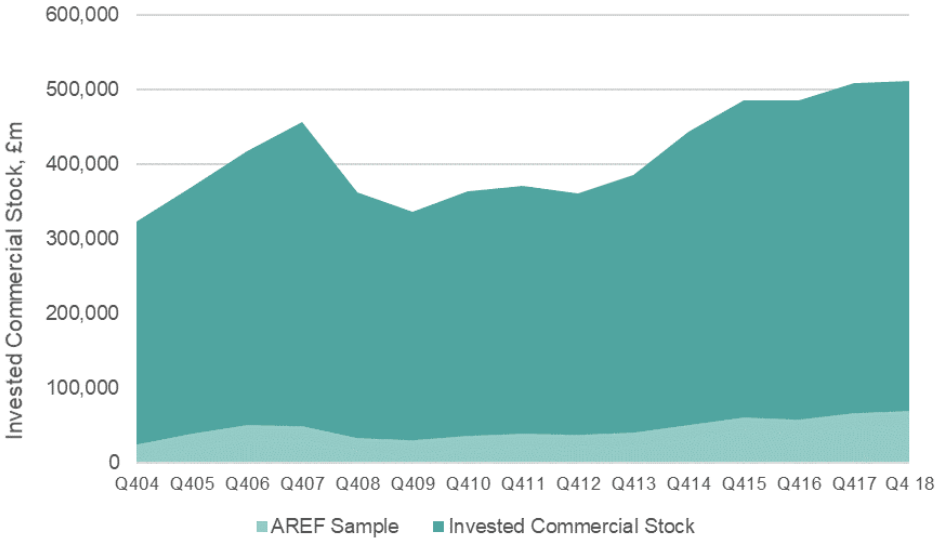
To make an allocation to a market, investors need to be sure that it is of sufficient size and that there is an adequate selection of funds to choose from. The greater the size and range of funds available, the more investors will be attracted to the asset class and the larger and more liquid the market is likely to be.

Size of the market

The IPF Report into the Size and Structure of the UK Property Market[2] estimated that at the end of 2018 the commercial investment stock was £512bn. The report estimated that UK and overseas investments into unlisted and collective schemes accounted for £132bn, or 26%, of this stock, ahead of the listed sector, which accounted for 17%, and just below direct owners with 29% of the market.

At the end of 2018 the PFV Handbook comprised property to the value of £69.1bn, 13.5% of the commercial investment stock. This figure is an increase on the 9.0% allocation as at the end of 2009.

Figure 1.1, Growth in the AREF Sample



Source: MSCI/AREF PFV Handbook, IPF Size and Structure of the UK Property Market

[2]The Size and Structure of the UK Property Market – Year End 2018 Update, IPF

Fund Aggregations in the Index

Investors formulate their strategies partly using data on the performance and risk characteristics of different asset classes. The Index documents the performance track record of unlisted real estate funds using recognised measurement standards.

Sub-groups of funds divide the market into different categories, or aggregations, that can be more appropriate comparators for individual funds. The investor base, the fund type and whether the fund is open or closed ended, will also all have an influence on investment flows which will be one of the factors explored in section four as a driver of fund performance.

Funds can also be distinguished by fund strategy or style. Currently this is the case for Long Income funds and the separation of Low Geared from Balanced funds (all Balanced funds are currently categorised as Low Geared which illustrates the difficulty of segregating funds based on characteristics that change over time).

Few funds that concentrate on development or major refurbishment work have joined the Index. The Index rules require quarterly valuations, which are not usually available for development schemes in progress. These funds are also unlikely to trade in the secondary market.

Table 1.1, Breakdown of the PFV Handbook by aggregation, Q3 2020

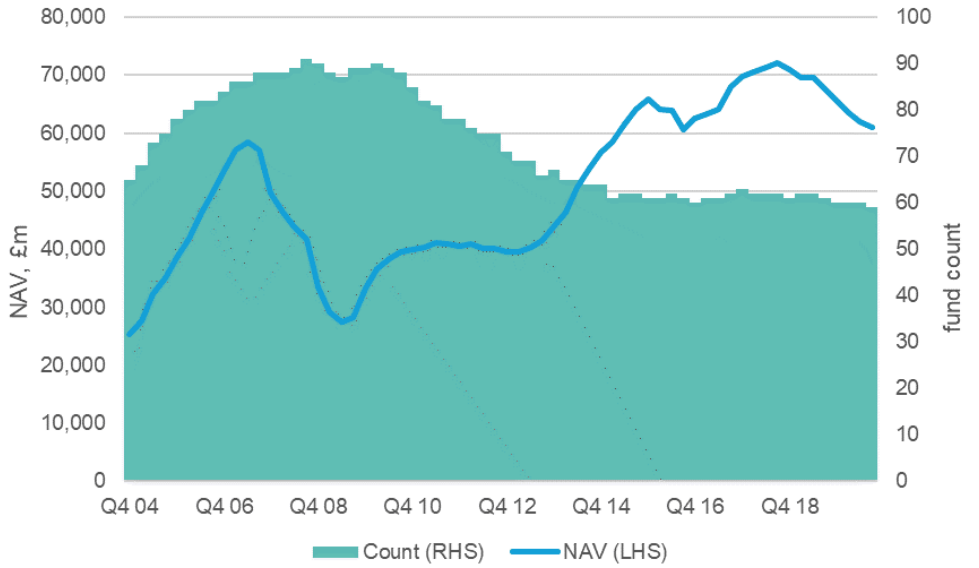
Aggregation	Number of funds	NAV, £m	Open/closed ended
Specialist	13	£7,669	Predominantly closed
All Balanced	38	£41,338	Predominantly open
Long Income	8	£11,896	Open
All	**59**	**£60,903**	

Source: MSCI/AREF PFV Handbook

Sample of funds

Over the history of the PFV Handbook there have been 127 contributing funds, peaking in number at 91 during the GFC and by NAV at £72.1bn in Q3 2018.

Figure 1.2, Growth in the sample



Source: MSCI/AREF PFV Handbook

The period prior to 2002 was dominated by Balanced funds, rising from 10, to 23 funds with an NAV of nearly £7bn, which accounted for 73% of the sample. Meanwhile, the number of Specialist funds rose from one, the Falcon Property Trust, in 1990, to 14. A further 24 Specialist funds were added before the GFC by which time the category accounted for 40% of the AREF Universe. This proved the high-water market for the relative and absolute importance of Specialist funds as their number halved by 2014 and slipped further to just 13 by q3 2020, although this still accounted for 13% of the NAV of the AREF Universe.

The surviving Specialist funds are a mix of the larger retail property types, Central London office funds, the Airport Industrial PUT, the Industrial Property Investment Fund and three funds in the 'other' category. Relatively few funds that launched post the GFC have joined the PFV Handbook. The youngest specialist fund was launched in 2010.

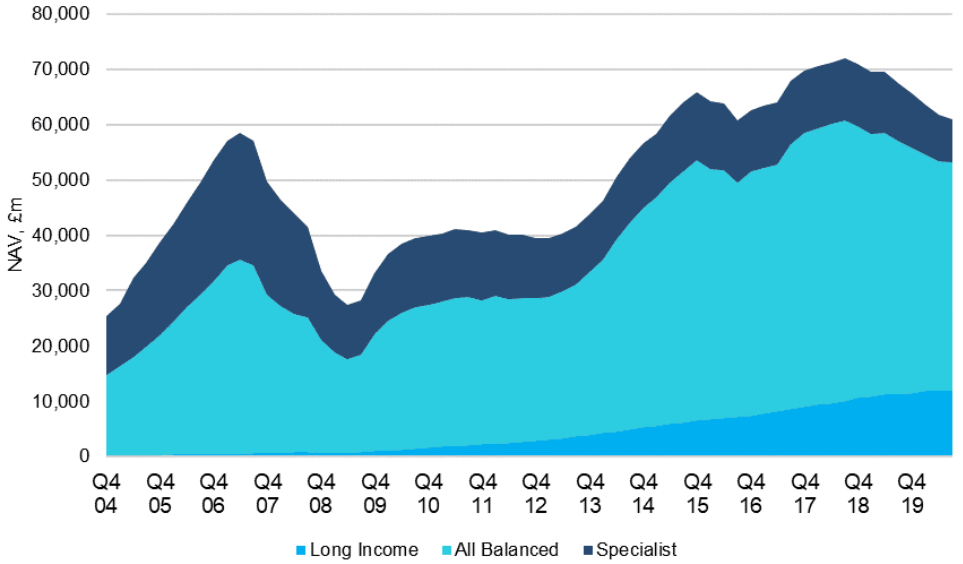
Table 1.2, Specialist property funds, Q3 2020, (NAV)

Shopping Centre	Retail Warehouse	Central London Office	Industrial	Other
Aberdeen Standard UK Shopping Centre Trust (£887m) Launch 2005	Aberdeen Standard UK Retail Park Trust (£135m) Launch 2005	West End of London Property Unit Trust (£733m) Launch 2001	Airport Industrial Property Unit Trust (£539) Launch 2005	Aegon Target Healthcare Property Limited Partnership (£95m) Launch 2010
Grosvenor Liverpool Fund (£248m) Launch 2004	Hercules Unit Trust (£253m) Launch 2000	Nuveen Real Estate Central London Office Fund (£315m) Launch 2004	Industrial Property Investment Fund (2,013m) Launch 1997	The Leisure Fund LP (£315m) Launch 2002
Nuveen Real Estate UK Shopping Centre Fund (£226m) Launch 2004	Nuveen Real Estate UK Retail Warehouse Fund (£257m) Launch 2001			UNITE UK Student Accommodation Fund (£1,687m) Launch 2006

Source: MSCI/AREF PFV Handbook

The relative importance of the Long Income funds has risen relentlessly to make up 20% of the universe by q3 2020. Not only do Long Income funds focus on very long unexpired lease terms, but the income is also often linked to non-standard commercial property types and on non-traditional lease types such as ground rents and inflation-linked reviews. Despite this, the PFV Handbook contains no fields to distinguish between the focus of each Long Income fund.

Figure 1.3, Growth in the PFV sample by Aggregation



Source: MSCI/AREF PFV Handbook

Despite the growth in the Index, according to data from Realfin, the total number of UK fund launches since the GFC has been nearly 300 with a relatively high proportion of new residential and debt funds.

Table 1.3, New fund launches since 2008

	Diversified	Retail	Office	Industrial	Residential	Other	Total
Core	33		9	2	24	5	**73**
Value add	57	3	11	16	26	9	**122**
Opportunistic	20		2	2	11	6	**41**
Debt	38		1		11		**49**
Total	**148**	**3**	**23**	**20**	**72**	**20**	**286**

Source: Realfin and Property Funds Research

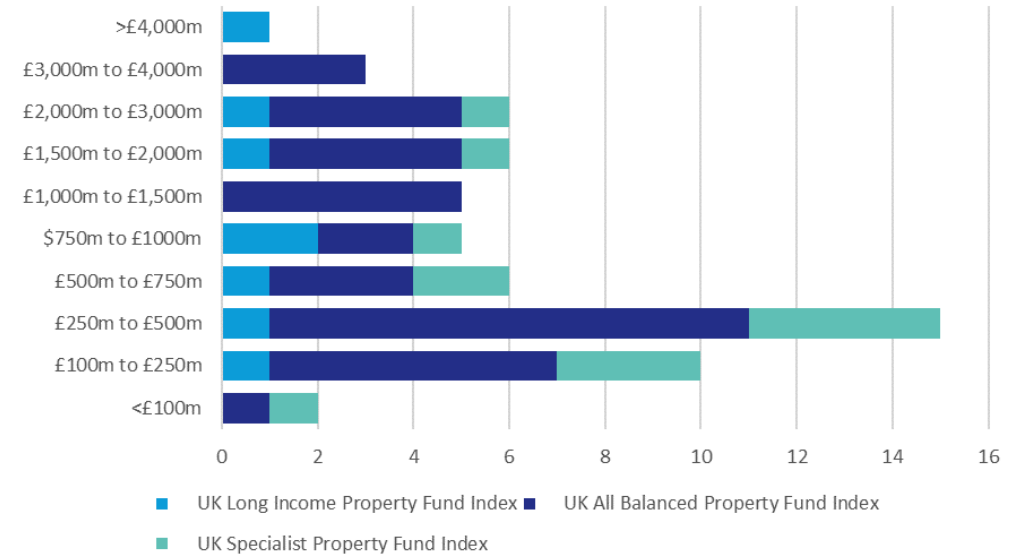
Size of funds

Investors fundamentally require funds that can accommodate their investment needs as well as providing a choice of portfolio strategy. This requirement can either be for very large funds for the biggest investors, or for smaller funds that are open to more modest investor allocations. There are minimum investment rules in one-in-ten funds, in the AREF universe, that preclude an initial investment of below £50,000. Indeed one-in-six funds require investments of over £2m.

The size of funds available to investors varies widely from less than £100m to the £4.4bn M&G Secure Property Income Fund. Specialist, Balanced and Long Income funds are available across all fund size brackets with the BlackRock UK

Property Fund, Legal & General UK Property Trust and Legal & General Assurance (Pensions Management Limited) funds also in excess of £3bn.

Figure 1.4, Range of fund NAV, Q3 2020



Source: MSCI/AREF PFV Handbook

Investors would seemingly have a choice of Balanced, Specialist and Long Income fund sizes, but even the largest funds look tiny compared to the massive pan European and US funds which can attract significant capital. For example, the Blackstone European Property Fund raised a staggering €9.8bn in April 2020, and the 24 largest US Open-end Diversified Core Equity (ODCE) funds have an average size of €10bn.

Summary

- At the end of 2018 the PFV Handbook comprised property to the value of £69.1bn, 13.5% of the commercial investment stock, an increase on the 9.0% as at the end of 2009.
- Fund categories, or aggregations, are more appropriate comparators for individual funds. The two main aggregations are the predominantly open-ended Balanced funds and the predominantly closed-ended Specialist funds. There are two 'style' categories, Long-Income and Low Geared Balanced.
- The success of some Specialist funds and the growth in Long Income funds has offset the lack of new funds joining the Index.
- The UK real estate fund industry provides a range of fund types and sizes to accommodate many investors, but not the scale required for the very largest global investors.
- Minimum investment rules set a relatively high hurdle for initial investment.
- Section two analyses the performance of unlisted funds and the range of fund returns within them. Section three will examine the impact of the reported fund characteristics on fund performance.

Section Two: Fund Performance

Section Two: Fund Performance

The published track record of unlisted funds allows investors to analyse whether including the asset class in their portfolio would meet their investment objectives. MSCI publish the MSCI/AREF Property Funds Index alongside MSCI's own equity and bond indices, promoting the UK real estate fund industry to investors around the globe.

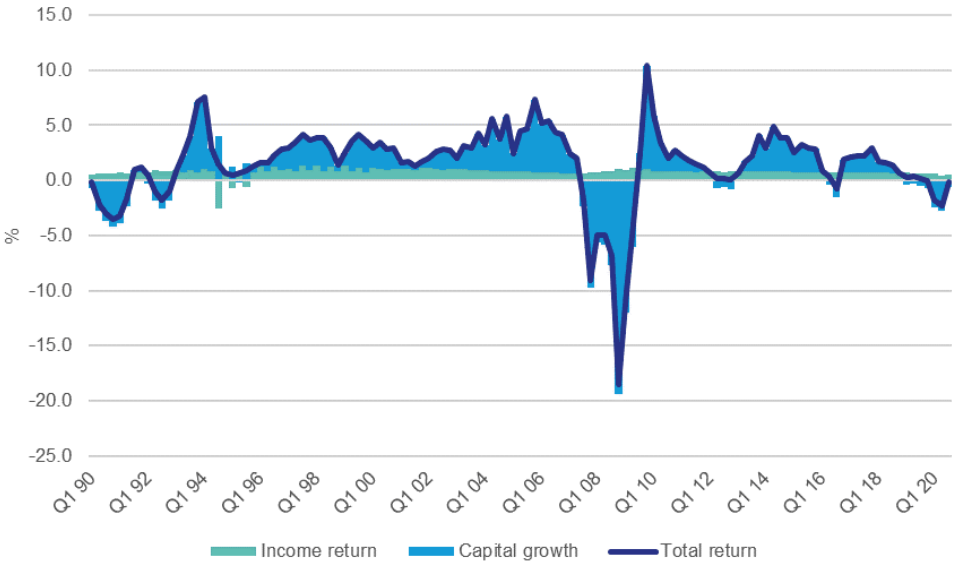
The past returns of individual funds enable investors to identify those fund managers that have a track record of delivering strong performance.

Real estate fund performance

The Index provides data on the past performance of All funds and then these are broken down into six aggregations: Specialist, Low Geared Balanced, Other Balanced, Managed, All Balanced and Long Income. The total return from All funds has averaged 5.8% pa from 1990 to q3 2020. Over the same period the income component of return averaged 3.1% pa and capital growth 2.6% pa. This total return compares to equities, 6.2% pa, and bonds, 7.2% pa.

The pattern of performance is dominated by the period spanning the Global Financial Crisis, with a nadir in the final quarter of 2008 of -18.5% and a peak return in q4 2009 of 10.5%. Over the last 10-years All funds have delivered a 6.1% pa return, higher than equities, bonds and property equities at 4.1% pa, 4.5% pa and 5.6% pa respectively.

Figure 2.1, MSCI/AREF Property Fund Index: Components return



Source: MSCI/AREF UK Property Funds Index

A full data series is available for Balanced funds but not the Specialist (available from the start of 2002) or Long Income funds (available from the start of 2012).

The Managed funds generated a slightly lower return than the All Balanced funds, at 6.0% pa, but with lower volatility, 8.9%. This pattern has been more

pronounced in the period between 2012 and 2019, with Managed funds under-performing Other Balanced funds by 124 bps pa.

Table 2.1, Past performance by fund aggregation

Aggregation	1990-19		2002-19		2012-19	
	Average, % pa	*Volatility, %*	Average, % pa	*Volatility, %*	Average, % pa	*Volatility, %*
Specialist	n/a	*n/a*	5.4	*15.7*	5.1	*7.8*
Low Geared Balanced	6.5	*9.3*	6.3	*10.1*	7.4	*5.8*
Other Balanced	6.6	*9.8*	6.2	*11.0*	7.8	*5.8*
Managed	6.1	*8.9*	5.9	*9.4*	6.5	*6.0*
All Balanced	6.4	*9.5*	6.1	*10.4*	7.4	*5.9*
Long Income	n/a	*n/a*	n/a	*n/a*	7.9	*2.2*
All	**6.3**	**10.8**	**5.9**	**12.5**	**7.0**	**5.7**

Source: MSCI/AREF UK Property Fund Index

The strongest and least volatile returns have been generated by Long Income funds, although this performance track record spans a period of falling bond yields, which has pushed up the pricing of long, secure, income streams. Specialist funds have generated both the lowest and most volatile returns due firstly to leverage in the GFC and since and the calamitous performance from retail.

Figure 2.2, Past performance and volatility by fund aggregation 2012-19 (inclusive)

Source: MSCI/AREF UK Property Fund Index

As would be expected, the range of Specialist fund performance has been much wider than for Balanced or Long Income funds. Section three will seek to explain the factors driving the range in fund returns.

Figure 2.3, Past performance and volatility for individual funds, 2012 to 2019 (inclusive)

Source: MSCI/AREF UK Property Fund Index

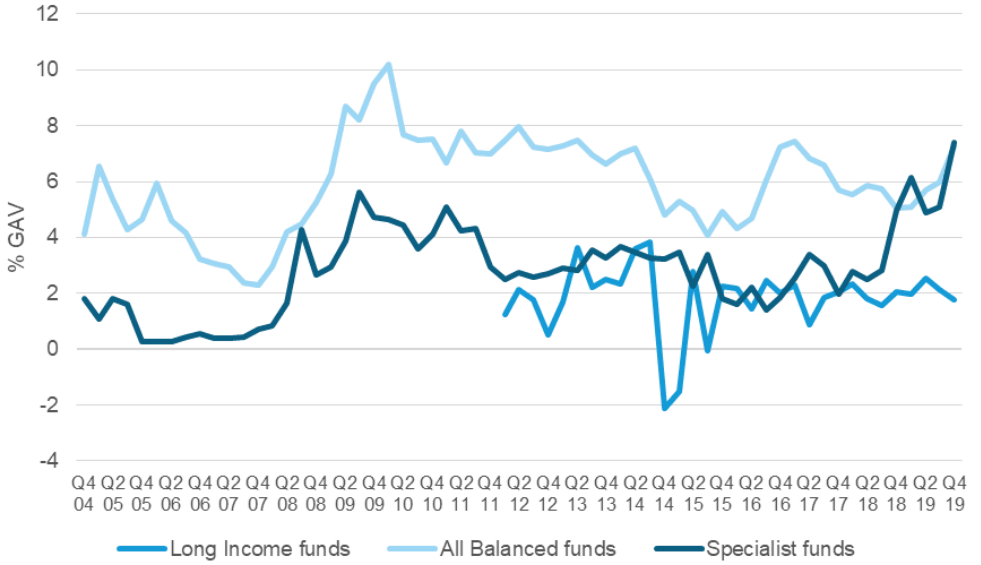
Performance drivers

The AREF fund data can be split into cash, leverage, investment flows, structure and stock. The split is complicated by stock factors that can have both a systematic influence and also drive variations in individual property returns. For example, developments are likely to perform relatively weakly in a downswing, as their cash flow prospects weaken, but individual developments may achieve a strong letting and perform relatively strongly.

Cash

Cash is a drag on fund performance when property returns exceed interest on deposits and vice versa in a downswing. Cash in Balanced funds has averaged 6.0% from q4 2004 to q3 2020, hitting a high of 10.2% in q1 2010. Cash levels have been much lower in Specialist and Long Income funds, averaging 2.9% and 1.8% respectively, from q1 2012 to q3 2020.

Figure 2.4, Fund cash, % of GAV

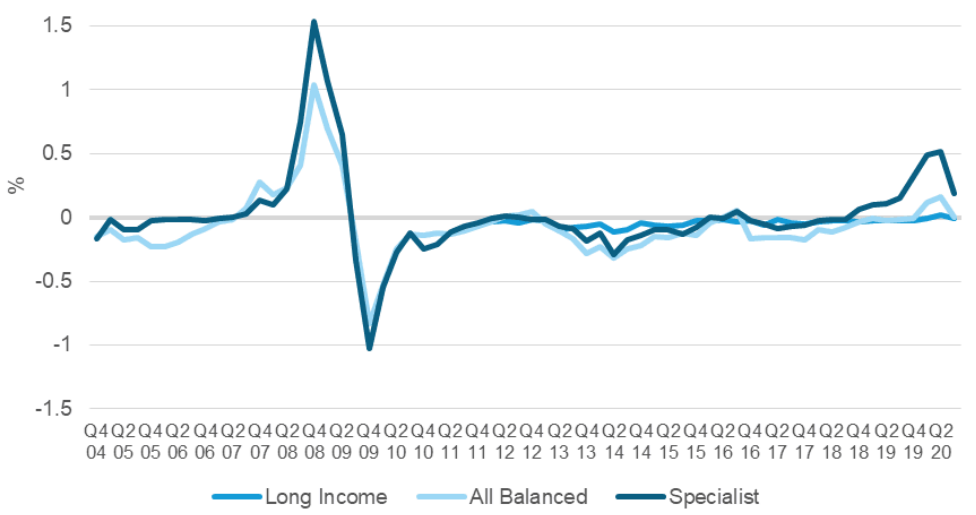


Source: Authors own calculations using the PFV Handbook

The impact of cash on fund returns has been estimated by assuming all funds receive the return of 3-month Treasury Bills on their cash balances and estimating the performance of each aggregation with and without cash.

In most time periods cash is estimated to be a drag on fund performance, but in the GFC the significantly negative property returns led to a strongly positive cash impact. The subsequent hoarding of cash to buffer liquidity led to cash being a significant drag on returns in the recovery.

Figure 2.5, Estimated cash drag



Source: Authors own calculations using the PFV Handbook

Cash can be used when the fund is experiencing fund outflows to repay redemptions without forcing Managers to sell the underlying properties into a falling market. The impacts of cash and fund investment flows are therefore intertwined. A combination of low cash holdings and high fluctuations in investment flows is likely to maximise the negative impact of fund disinvestment in a downswing and a combination of high cash holdings and low fluctuations in investment flows is likely to maximise cash drag.

Over the last 16 years cash is estimated to have reduced All fund returns by 14 bps pa, and by 23 bps pa for Balanced funds.

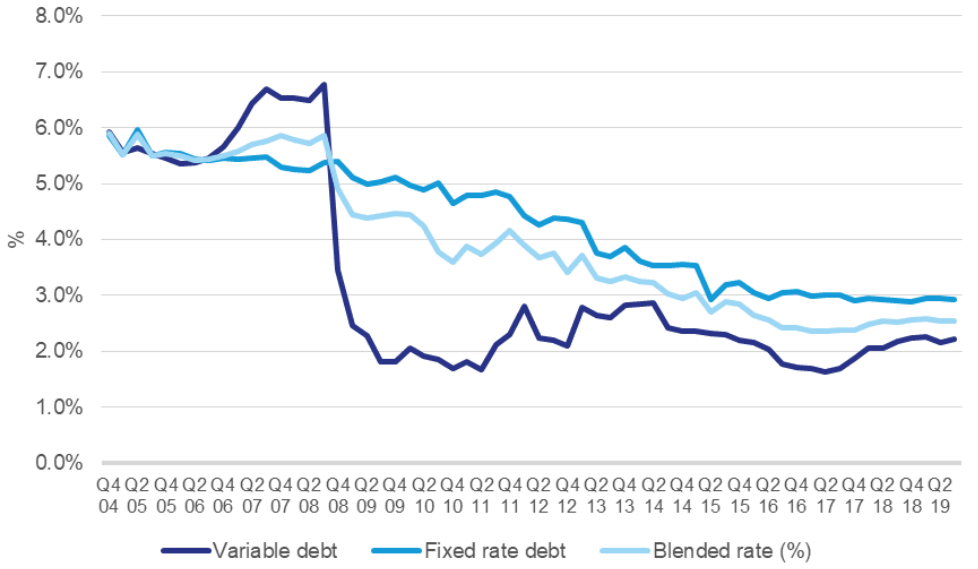
Table 2.2, The estimated impact of Cash, q3 2004 to 2020 q3

	MSCI/AREF Pooled Fund Index		Index less cash			
	Return, % pa	Quarterly standard deviation, %	Return, % pa	Quarterly standard deviation, %	Average Cash, % NAV	Impact of cash
All funds	4.1	4.3	4.2	4.6	4.4	-0.14
Balanced funds	4.8	3.5	5.0	3.7	6.0	-0.23
Specialist funds	2.1	5.6	2.0	5.9	2.9	0.07

Fund leverage

In Modern Portfolio Theory, investors are assumed to be able to borrow at the risk-free rate so the amount of debt does not affect risk-adjusted returns (the Sharpe Ratio). The funds in the AREF Universe however have had to borrow at a significant premium to the risk-free rate and although the cost of debt fell sharply during the GFC, funds had significant debt remaining on fixed rates.

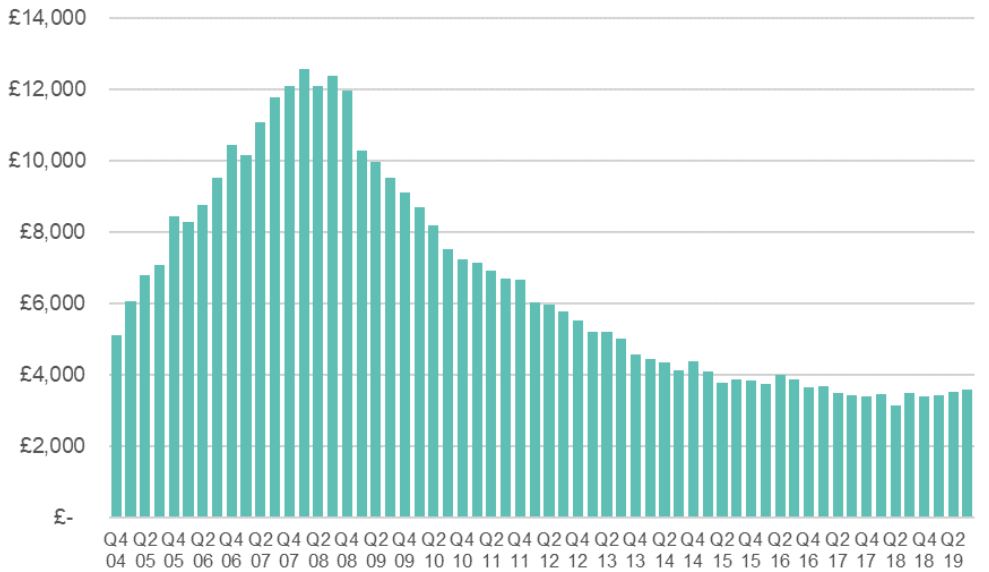
Figure 2.6, Fund interest rates



Source: Authors own calculations using the PFV Handbook

Further, the stock of debt in the AREF Universe was highest during the GFC, when returns were lowest, amplifying negative returns more strongly than the positive returns before and after.

Figure 2.7, Stock of debt



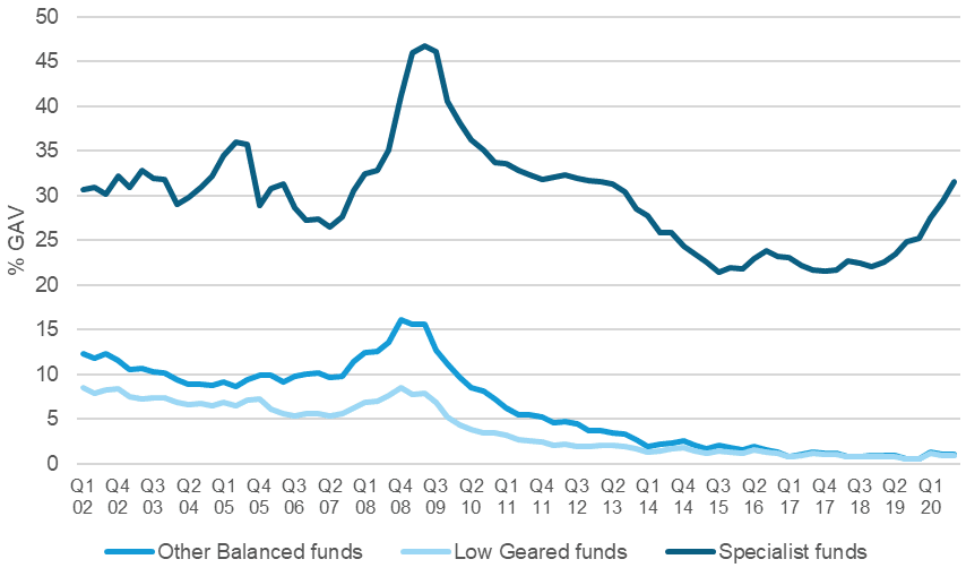
Source: Authors own calculations using the PFV Handbook

Debt covenants can also impair fund returns if they are, or are close to being, breached. This impact was very real during the GFC. The combination of these factors probably accounts for the reduction in leverage after the GFC:

- Low Geared Balanced property funds entered the GFC crisis in March 2007 with 5.6% leverage (%GAV). That figure is now 0.9%.
- Other Balanced property funds began the GFC crisis with 10.1% leverage, rising to 16.2%. As of q3 2020 that figure is 1.0%.

- Specialist funds entered the GFC crisis with 27.5% leverage, rising to 46.8%. As of q3 2020 that figure is 31.5%, although this is up from 22.1% in q4 2018.

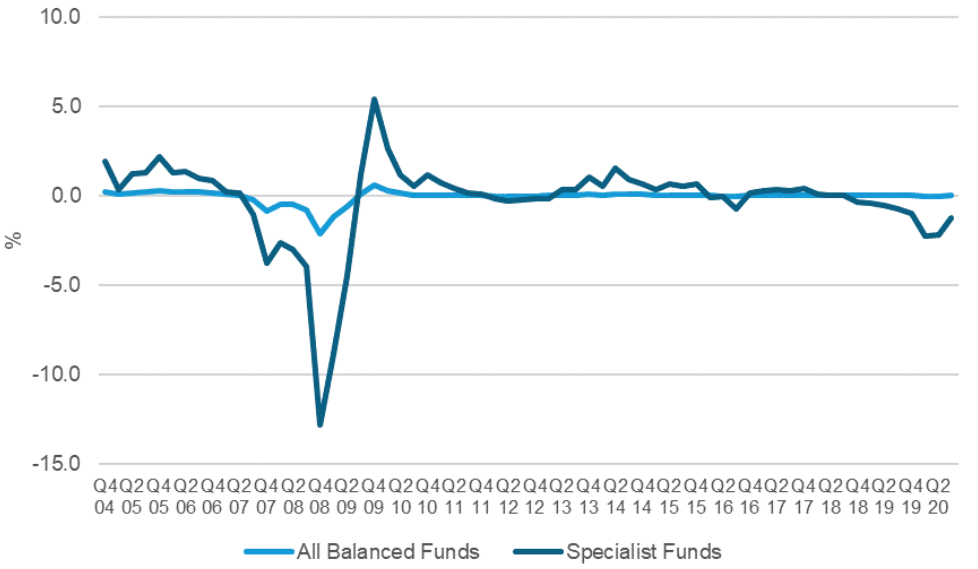
Figure 2.8, Fund leverage, % GAV



Source: MSCI/AREF PFV Handbook

The impact of leverage can be estimated by assuming that the performance of the underlying portfolios would have been the same with or without leverage (although in practice the portfolio would have been smaller and potentially less diversified without leverage). The debt interest has been estimated from the debt interest rates published in the PFV Handbook. Debt is estimated to have reduced fund returns by 48 bps between q3 2004 to q3 2020.

Figure 2.9, The estimated impact of leverage



Source: Authors own calculations using the PFV Handbook

It is estimated that the small amount of leverage in Balanced funds would have reduced their total returns by 20 bps pa since 2004. For Specialist funds their much higher leverage has reduced returns from 3.2% to 2.0% pa.

Table 2.3, The estimated impact of leverage, q3 2004 to q3 2020

	Index less cash		De-leveraged			
	Return, % pa	Quarterly standard deviation, %	Return, % pa	Quarterly standard deviation, %	Average leverage, % GAV	Impact of leverage
All funds	4.2	4.6	4.7	3.4	14.7	-0.48
Balanced funds	5.0	3.7	5.2	3.4	4.3	-0.20
Specialist funds	2.0	5.9	3.2	3.6	29.8	-1.16

Source: Authors own calculations using the PFV Handbook

Structure

The greater the performance variation in market returns between sectors, the greater the impact fund structure has in explaining relative fund returns. Estimating this performance variation depends firstly on your breakdown of the market.

Segmentation

The appropriate breakdown of the market is a matter of much debate. Some investors prefer a very broad market breakdown, for example retail, office and industrial, and some prefer to look at structure on a more granular basis.

The PFV Handbook breakdown[3] is quite granular, breaking down the main sectors into broad regions, and the retail sector into three property types: standard, retail warehousing and shopping centres.
To devise a portfolio structure to meet their objectives, investors would require past performance data (MSCI/AREF data is examined below), current pricing and expected future performance for each category, for example City offices or retail warehouses.

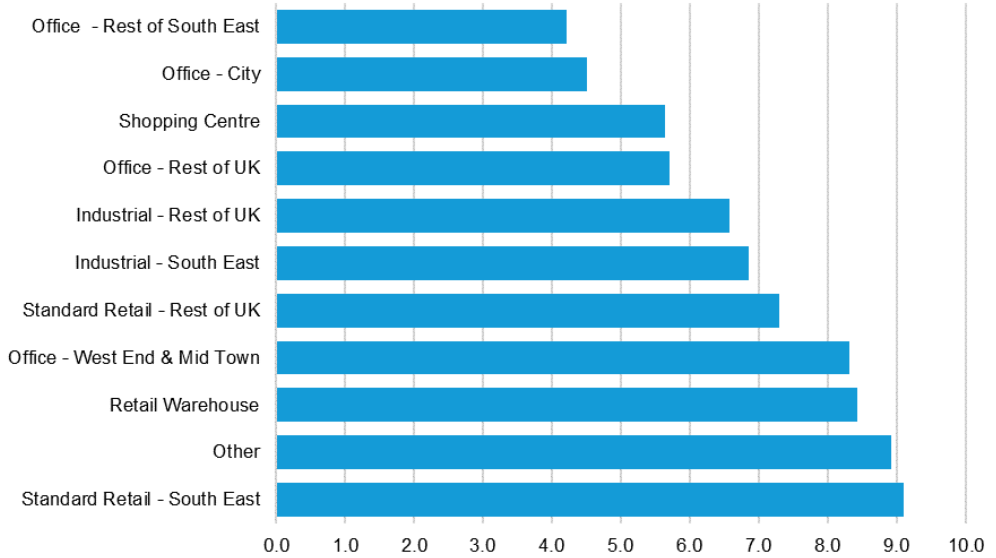
The match between the segmentation in the PFV Handbook and MSCI's standard direct property indices is a powerful combination, ensuring consistency between the portfolio structure, the performance track record and current pricing of the categories. Forecasting houses typically also use a similar segmentation (as they usually forecast the MSCI indices).

The importance of structure

The importance of structure has varied in the decade leading up to and after the GFC. From 2001 to 2010, the spread of returns across the standard MSCI Segments was from 4.2% pa on offices in the south east, outside of central London, to 9.1% pa on standard retail in the south east.
The standard retail in the south east segment conceals within it the highest performing sub-market of retail in the West End, with a 10.5% pa total return.
The other category hides the even stronger performance of residential, which generated a total return over the period of 13.3% pa.

[3] The current breakdown of 10 segments is a standard MSCI breakdown and would benefit from the addition of distribution warehouses and central London retail

Figure 2.10, UK total returns by sector, 2001-2010, % pa

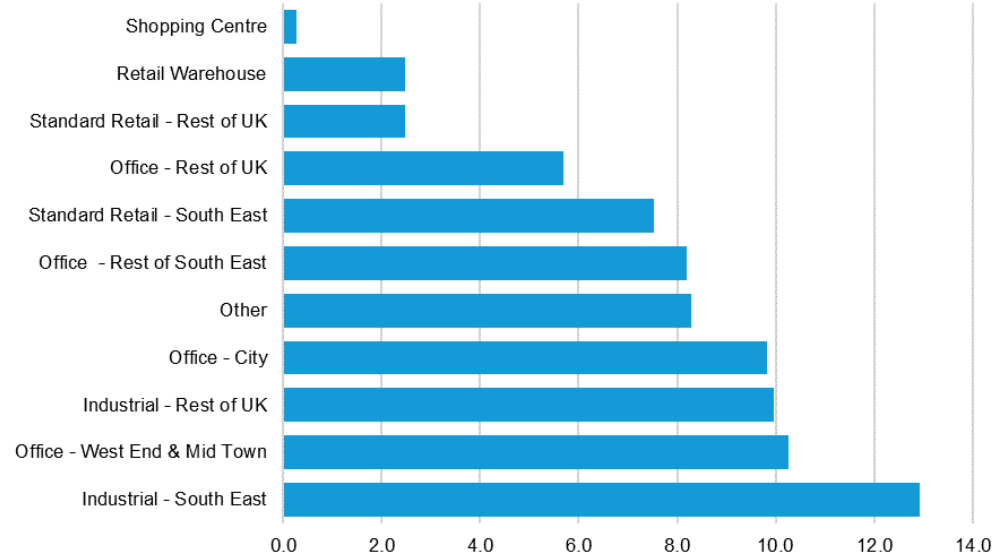


Source: MSCI Annual Property Index

The range of segment returns in the decade to 2020 is much wider than in the previous decade, from barely positive in shopping centres, to 12.9% pa on industrials in the south east.

Once again, the top-performing category masked the particularly strong performance from a smaller sub-market, in this case London industrials at 13.9% pa. London industrials is now challenging residential and central London retail as the top performing segment of the last 20 years.

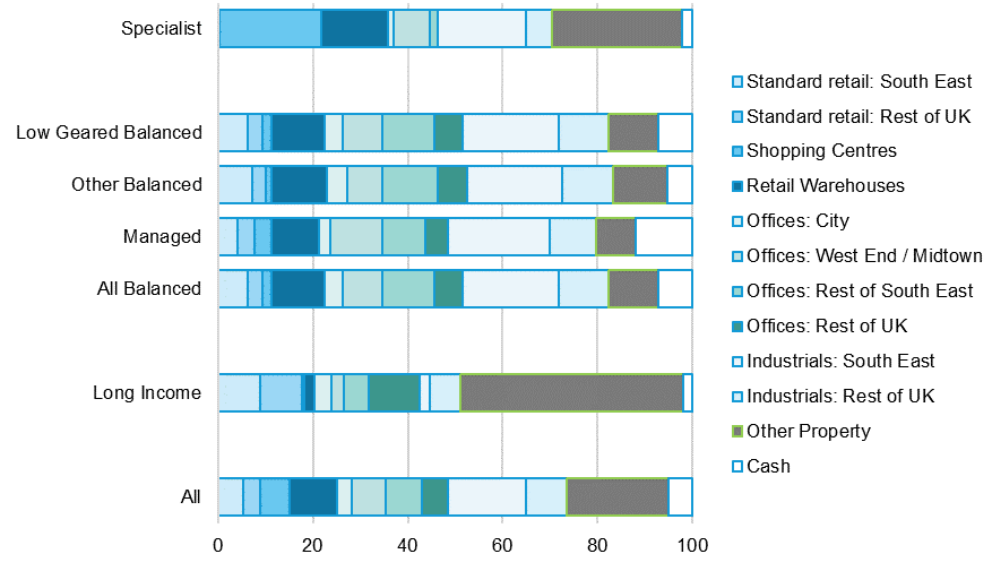
Figure 2.11, UK total returns by sector, 2011-2020 (Q2), % pa



Source: MSCI Annual Property Index

The pattern of sector performance will have driven pooled fund performance more significantly over the decade after the GFC than the previous decade. This is particularly so for retail (as at September 2010 All Balanced funds had a 40% weight to retail). The Balanced fund allocation to retail has now fallen to 20%, admittedly a feat achieved in equal measure by the relative sector performance and by a reallocation - predominantly to industrial property.

Figure 2.12, Structure of the MSCI/AREF Property Fund Index, % GAV

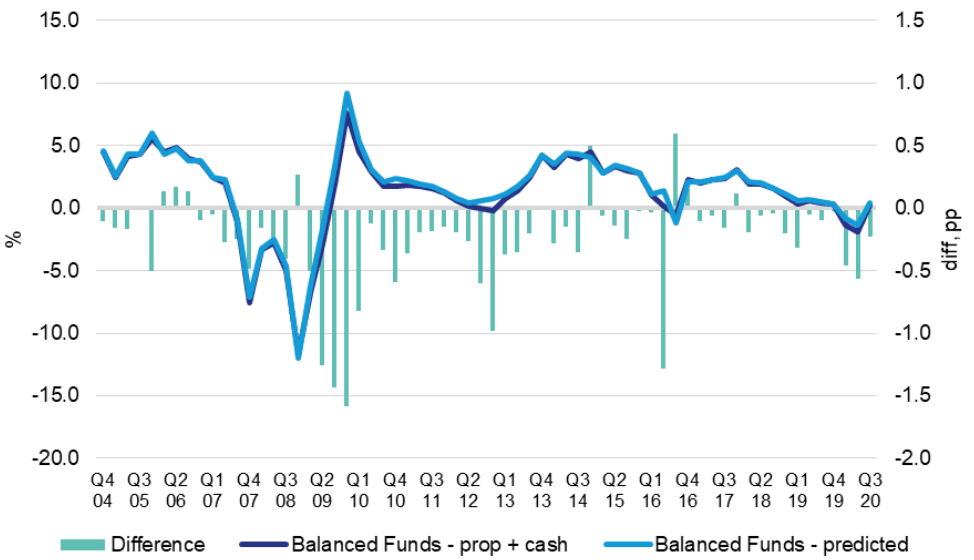


Source: MSCI/AREF UK Property Funds Index

The performance of each aggregation due purely to structure can be calculated by multiplying the sector weightings each quarter by the respective direct property performance (sourced from MSCI).

The difference between the performance from structure alone and the deleveraged performance will reflect superior or inferior stock selection, fund costs and the profits / losses from transactions and developments (typically these profits and costs offset each other). The average difference of 1.1% pa on Balanced funds and 1.6% pa on Specialist funds looks close to what would be expected from fund costs.

Figure 2.13, Impact of structure on Balanced fund returns

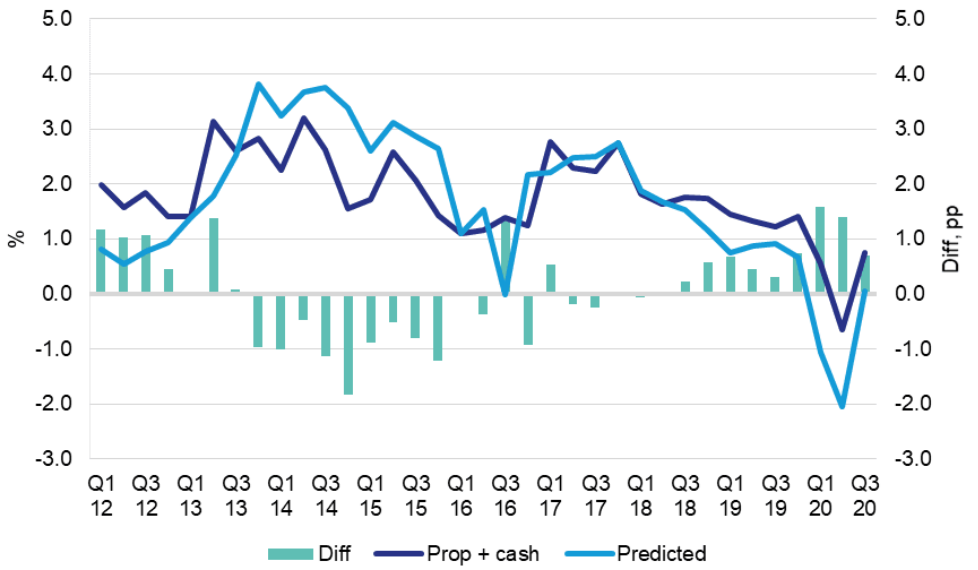


Source: Authors own calculations using the PFV Handbook

The exception is Long Income funds, which experience a significant variation between that estimated from structure alone and deleveraged performance. This differential may be due either to the high weight in the other[4] sector, or the performance differential within sectors between properties with long versus short unexpired lease terms. A more detailed performance breakdown of the

other sector would be required to determine the relative importance of the two factors.

Figure 2.14, Impact of structure on Long Income fund returns



Source: Authors own calculations using the PFV Handbook

There is a more negative gap between the estimated return on Specialist funds based on their structure and their deleveraged performance. This would be expected due to the higher fee levels.

Figure 2.15, Impact of structure on Specialist fund returns

Source: Authors own calculations using the PFV Handbook

[4] The growth of the 'other' category has rendered the term something of a misnomer as institutional investment has grown in previously niche sectors such as hotels, residential and healthcare. With Specialist funds dedicated to providing exposure to such sectors, the PFV Handbook should evolve to capture this changing market structure.

Net Fund Flows

"Buy cheap, sell expensive" is the simplest of investment mantras, however open-ended funds sometimes have to transact to meet redemption calls and retail investors are notoriously pro- rather than counter-cyclical in their investment approach.

Even if funds are selling in weak markets, fund performance will theoretically be unaffected if properties are sold for their estimated market value (i.e. the valuations assets are held at on the balance sheet). We use the word theoretically because it is not possible to know whether the property was sold at or below market value as the data is not made available.

To illustrate, assume that a property performs in line with the Index. In scenario one, the market falls by 20% and a property is sold for 20% below its previous value to meet a redemption requirement. The redeeming unit holders are paid out at a portfolio value 20% lower than the preceding period. If in a subsequent recovery the property values return to their previous levels, the remaining unit holders would benefit fully from this uplift. The fund performance in this scenario is therefore unaffected by the sale.

In scenario two, the property is sold for 20% below its previous value but the remaining portfolio is held at a level only 10% lower. The redeeming unit holders are paid out a blend of the remaining portfolio value that is 10% lower and sale receipts 20% lower than in the preceding period. In the subsequent recovery, when the property values return to their previous levels, the remaining unit holders do not fully benefit from this uplift and fund performance is lower.

Fund returns would therefore be expected to be lower if a fund experiencing redemptions when the market is weak (and conversely cash inflows when the market is strong) only if properties are sold below market value and the remaining properties remain in the portfolio at a higher value. This can be avoided if the remaining portfolio properties are marked down as far as the discount in any property sales to meet redemptions or if redeeming investors are paid out purely on the basis of the sale prices achieved rather than the full portfolio value.

The performance differentials between the predicted and deleveraged performance for Balanced and Specialist funds occur at roughly the right point to suggest that property sales have dragged fund performance in the subsequent upswing. However, there is an error term in the calculations due to the difference in the actual cash returns and debt interest paid. To improve this and other analysis, actual fees paid, cash returns and debt interest should be published in the PFV Handbook.

Market factor model

The significance of each of the market factors has been tested in explaining individual fund returns and fund risk-adjusted returns (the Sharpe Ratio).

Most Balanced funds list in their Investment Policy and Objectives that their

objective was to match or exceed the Index, a few mentioned risk but did not specify a measure. Over the period since 2007, 13 funds out-performed and 5 under-performed the Index.

The Sharpe Ratio is calculated as the excess return over the risk-free rate (3-month Treasury Bills) divided by the volatility of excess returns, with a higher number meaning superior risk-adjusted return. All Balanced and Long Income funds had positive Sharpe Ratios, as did the six non-retail Specialist funds. The six retail Specialist funds with a full performance history had negative Sharpe Ratios (i.e. they underperformed investing in the risk free rate).

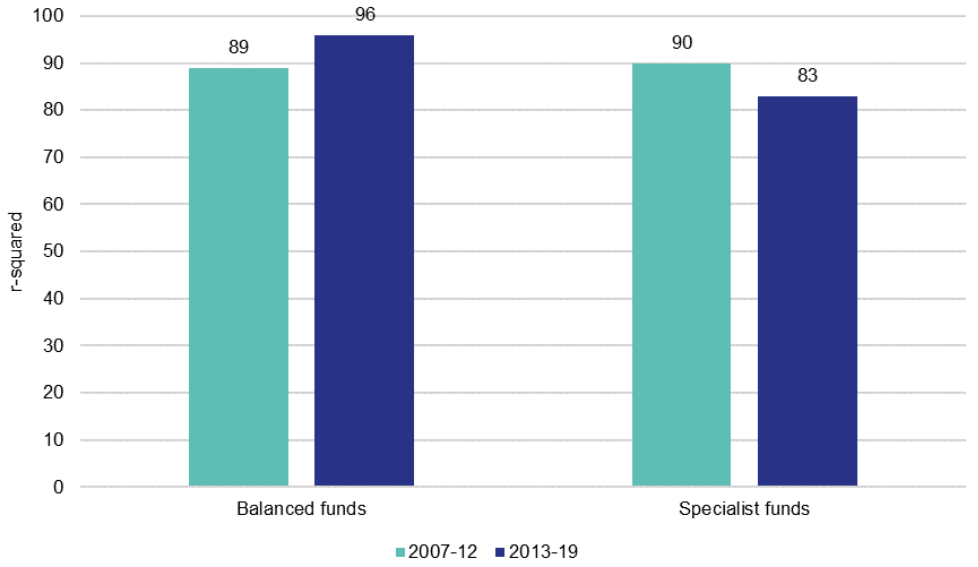
Our analysis is a cross-sectional regression model covering the whole period 2007-2019, plus two further models dividing the period into the weaker market conditions between 2007-12 and the stronger conditions between 2013-2019.

A return for each fund in the PFV Handbook for each quarter has been calculated using their portfolio allocation to each segment and the return of that segment in the MSCI Quarterly Property Index. Cash is assumed to return that of 3-month Treasury Bills. Long Income and daily priced balanced funds were excluded from the modelling due to either their small sample size or there not being a full performance history available. The other dependent variables are the debt-to-equity ratio, weight in development and the net balance of fund investment flows. Cash is also included to check for fund liquidity impacts.

- As outlined above, net fund investment flows would not be expected to have any other influence of fund return and, by construction, neither would cash (as it is accounted for in the expected fund return). If either variable is significant, it suggests that managing fund liquidity has impacted fund return.
- The debt-to-equity ratio will reveal if leverage has been accretive or dilutive to both fund return and risk adjusted return. As outlined above, if funds borrow at the risk-free rate and maintain their stock of debt, leverage should not have an impact on the fund risk adjusted return.
- Development is our only measure of the style of the fund. Development exposure in the sample is very low, so any conclusions can only be very tentative, but development would be expected to add to fund return (due to higher risk) and a neutral impact on risk adjusted returns if the risk of development is priced appropriately.

The combination of leverage, cash, structure, development exposure and net investment flows explains nearly two-thirds of the variation in fund returns over the period 2007-19. After splitting the model by fund type, the explanatory power of the fund return model rises to 80% for both Balanced and Specialist funds for the whole time period and higher for the sub-periods. This result confirms that over longer time periods structure dominates stock as a driver of fund returns (Long Income funds are not included in the models, but as described above, they had a more varied pattern of returns).

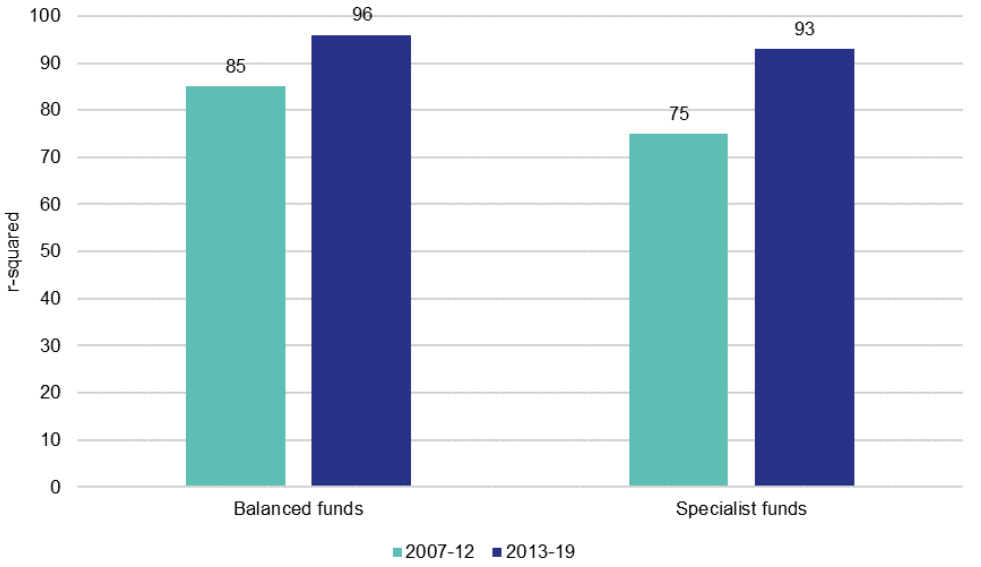
Figure 2.16, Importance of market factors in explaining fund returns



Source: Authors own calculations using the PFV Handbook

The combination of leverage, cash, structure, development exposure and net investment flows explains over three-quarters of the variation in individual fund risk-adjusted returns. As implied by their name, Balanced funds would not be expected to demonstrate a range in risk characteristics. The high R-squared for Specialist funds suggests that these funds are specialists by sector (retail, industrial etc.) not by style (core, value add etc.)

Figure 2.17, Importance of market factors in explaining fund risk-adjusted returns (Sharpe Ratio)



Source: Authors own calculations using the PFV Handbook

Leverage across both aggregations has had a negative impact on either, or both, excess and risk-adjusted returns. This negative impact was focussed on the GFC. In the later period, when debt levels were reduced and market returns higher, leverage was neither a significant driver of fund returns or of fund risk. Conclusions regarding the effectiveness of improved debt management will have to wait for the next market downswing.

Development exposure was a significant factor for Balanced funds during the weak market conditions when development exposure had a negative impact on both risk and return. The exposure to development however is so low that this result cannot be regarded as definitive.

Cash and net investment were significant drivers of both Balanced and Specialist fund returns through the GFC. In the case of Balanced funds, this is evidence that liquidity management adversely affected fund returns through this period and for Specialist funds that the higher the cash holdings and the more positive the fund investment flows, the stronger the fund returns.

Table 2.4 Factor regression model results

All funds	Annualised fund net total return			Annualised Sharpe Ratio		
	2007-19	2007-12	2013-19	2007-19	2007-12	2013-19
Constant	-0.02*	0.01	-0.03*	-0.14	-0.08	0.37
Structure Return, %	1.31**	1.84**	1.27**	0.86**	1.11**	0.73**
Debt-Equity Ratio	-0.03*	-0.10**	0.02	-0.36**	-0.27**	-1.33**
Cash, % GAV	0.08	-0.10	0.01	1.46	-0.39	-5.81*
Development, % GAV	-1.08	-0.12	-0.06	-10.41	-2.14	15.72
Net Investment, % change in units	0.01	0.50*	0.09	-0.07	1.99	5.24*
R-Squared	**0.70**	**0.76**	**0.77**	**0.73**	**0.53**	**0.83**
Balanced funds						
Constant	0.00	0.00	0.00	0.00	-0.01	0.01
Structure Return, %	0.69**	1.39**	1.00**	0.63**	1.30**	0.95**
Debt-Equity Ratio	-0.01	-0.07**	-0.01	-0.51*	-0.13	1.72
Cash, % GAV	0.08*	0.01	-0.06	1.19*	-0.31	-8.85**
Development, % GAV	-1.09**	-2.08**	-0.13	-13.23**	-19.60**	6.59
Net Investment, % change in units	-0.04	0.28**	0.05	-0.38	2.52**	2.06
R-Squared	**0.80**	**0.89**	**0.96**	**0.78**	**0.85**	**0.96**
Specialist funds						
Constant	0.00	0.00	0.00	-0.02	-0.02	-0.01
Structure Return, %	1.08**	1.51**	1.14**	0.71**	1.17**	0.68**
Debt-Equity Ratio	-0.10**	-0.14**	-0.01	-0.67**	-0.44**	-0.36
Cash, % GAV	0.03	0.63**	-0.21	0.44	1.85	-6.25*
Development, % GAV	2.09	0.91	-1.68	13.67	0.38	21.01
Net Investment, % change in units	1.89**	1.76**	0.67	11.27*	3.25	0.65
R-Squared	**0.80**	**0.90**	**0.83**	**0.77**	**0.75**	**0.93**

Key:
**significant at the 5% level
*significant at the 10% level

Summary

- The published track record of the Index allows investors to analyse whether including unlisted funds in a mixed asset portfolio would meet their investment objectives.
- There have been two long upswings in real estate returns over the last two decades punctuated by a significant reversal triggered by wider macro-economic events during the GFC. Over the 10-years since the GFC All funds have delivered a 6.1% pa return, higher than equities, bonds and property equities at 4.1% pa, 4.5% pa and 5.6% pa respectively.
- The past returns of individual funds enable investors to identify those fund types and fund managers that have a track record of delivering strong performance.
- The strongest returns have been generated by Long Income funds, although this performance track record spans a relatively short time-period. Specialist funds have generated both the lowest and most volatile return with returns hit firstly by leverage in the GFC and since then the calamitous performance from retail. Several non-retail, low leverage, Specialist funds have delivered superior risk-adjusted returns.
- Cash is estimated to have reduced Balanced fund returns by 23 bps pa over the period q3 2004 to 2020 q3. Negative fund net investment flows are found to have significantly impaired fund returns during the GFC.
- Leverage is estimated to have reduced Specialist fund returns by 116 bps pa and significantly reduced fund returns through the GFC. Balanced funds have reduced their leverage since the GFC, Specialist funds in q3 2020 had a similar level of leverage as prior to the GFC.
- Estimates of the impacts of cash and debt are made using estimates of the interest received on cash and the interest paid on debt. The actual data should be added to the PFV Handbook to enable more definitive conclusions to be reached.
- Within the macro-cycle there are sector variations. Mostly these deviations are fairly modest, even over long-periods of time, but occasionally they are substantive. In the latest cycle the rise of e-commerce has driven both weak performance from sections of the retail sector, particularly shopping centres and retail warehouses that formed the bulk of Specialist funds, and strong performance from industrial property. Not surprisingly, asset allocation has been the predominant determinant of fund performance.
- Data on fund portfolio structure allows investors to construct their own ideal portfolio structure. The more granular the data provided the more allocation strategies can be supported. The current segmentation does not separate growth sectors such as logistics, healthcare, student accommodation or the private rented sector (PRS).

The next section will analyse the performance variations across individual funds to identify the importance of diversification and the stock characteristics provided in the PFV Handbook, such as vacancy rates and income security.

Section Three: Diversification and Stock Performance Drivers

Section Three: Diversification and Stock Performance Drivers

An allocation to a sector will not guarantee the fund will deliver a return from its properties that match that of the sector average. Firstly, a number of holdings are required to diversify the specific risk. Secondly, there are stock characteristics that will systematically influence returns within sectors, such as income security, property quality and sustainability factors. This section will examine the data provided in the PFV Handbook to allow investors to estimate the likelihood of a fund performing in-line with its structure (diversification) or to tilt their portfolio exposure towards one or more stock factors.

Diversification

As real estate assets are large and heterogenous, investors require additional data on concentrations of fund exposure to individual properties, tenants and lease expiry dates to ensure that they are likely to achieve the sector exposure they seek.

An exposure to more properties, more tenants and a spread of stock characteristics that match the Index will reduce the expected performance differential between a fund and the Index.

The expected performance differential can also be measured in absolute terms. For example, an investor may reduce absolute risk through an exposure to the most secure income streams and the least volatile segments of the market.

Whether seeking to reduce relative or absolute risk, investors may actually seek to tilt their portfolio structure towards one or more of these risk factors, for example to developments, short leases or higher quality property to generate higher returns.

Number of properties

Acquiring an additional property will reduce return volatility by diversifying specific risk. However, the raw number of properties might be misleading if, for example, the fund has a small number of large properties and a long tail of smaller assets. The equally weighted equivalent (EWE) is a measure of the actual diversification power of the properties within a fund. The principal is simple: a fund with one small and one large property will achieve less diversification than two equal sized properties. The true degree of diversification on Balanced funds for example is closer to 40 properties (the EWE) than the average of nearly 70 holdings.

In contrast, the degree of concentration risk is much higher in Specialist funds, with an EWE of less than 20. Of course, by definition, Specialist funds hold properties in an individual sector, so an exposure to an equivalent of 20 holdings will give a high degree of diversification within that sector.

The average number of properties in Balanced funds has increased slightly since

the GFC from slightly under, to slightly over, 60 properties. The EWE for Balanced funds had drifted marginally lower, to under 30, before rising again.

The number of properties in Long Income funds has risen so quickly since their inception that they now exceed the degree of diversification in Balanced funds.

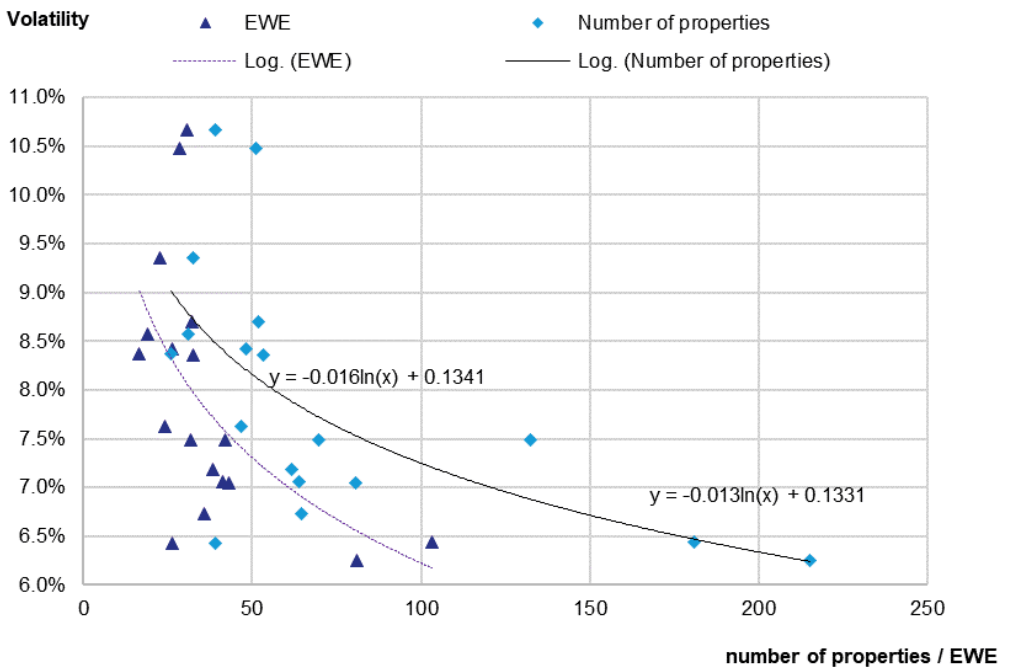
Table 3.1 Average number of assets versus the equal weighted equivalent

	Q4 2004	Q3 2020
Balanced funds		
Number of properties	57	65
EWEs	34	36
Long Income funds		
Number of properties	n/a	82
EWEs	n/a	40
Specialist funds		
Number of properties	48	26
EWEs	23	17

Source: Authors own calculations using the PFV Handbook

As more properties are added to the portfolio, the risk reduction benefits diminish. Once funds consist of 20 or more assets the marginal diversification benefit of additional properties is small. However, the relationship between the number of assets and tracking error is still detectable: with portfolios with a higher number of properties typically having lower volatility. The same relationship holds for both the EWE and the total number of assets.

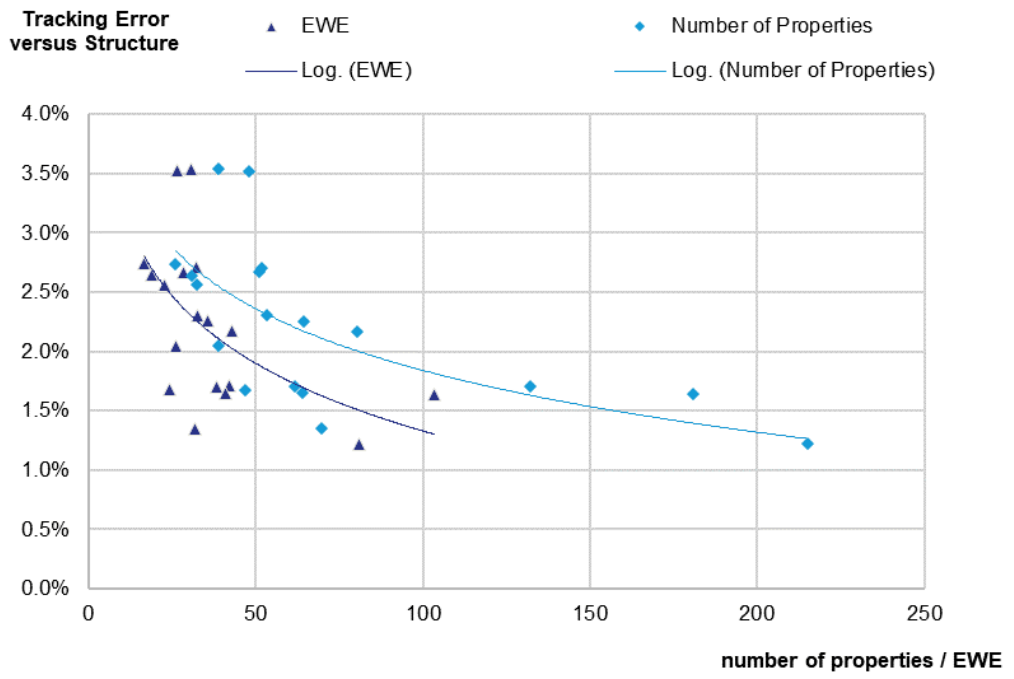
Figure 3.1 Number of properties and EWE versus volatility of absolute return, 2007-2019



Source: Authors own calculations using the PFV Handbook

Similarly, for relative performance, the distinctive shape of diminishing diversification benefits from additional property is still visible.

Figure 3.2 Number of properties and EWE versus tracking error, 2007-2019



Source: Authors own calculations using the PFV Handbook

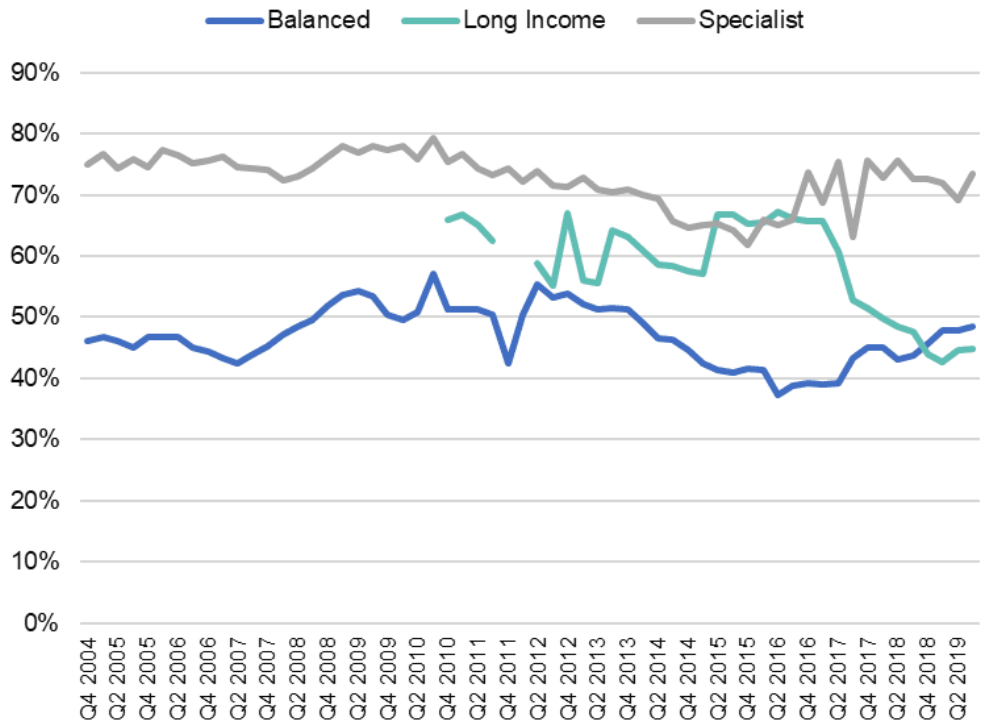
Top 10% properties

A different way of measuring diversification is to look at the concentration of portfolio value accounted for by the 10 largest properties. The greater the exposure of a fund to its largest properties, the higher the concentration risk and the more importance needs to be placed on these larger individual properties (stock selection). To aid such analysis the PFV Handbook lists the name, location and sector of each of the 10 largest properties[6].

Figure 3.2a tracks the average concentration of property exposure to the 10 largest properties by fund category. As Specialist funds have fewer properties, the proportion in the top 10 is inevitably going to be higher. Although the trend is far from dramatic, there has been a slight drift down in fund exposure to the largest 10 assets in the portfolio.

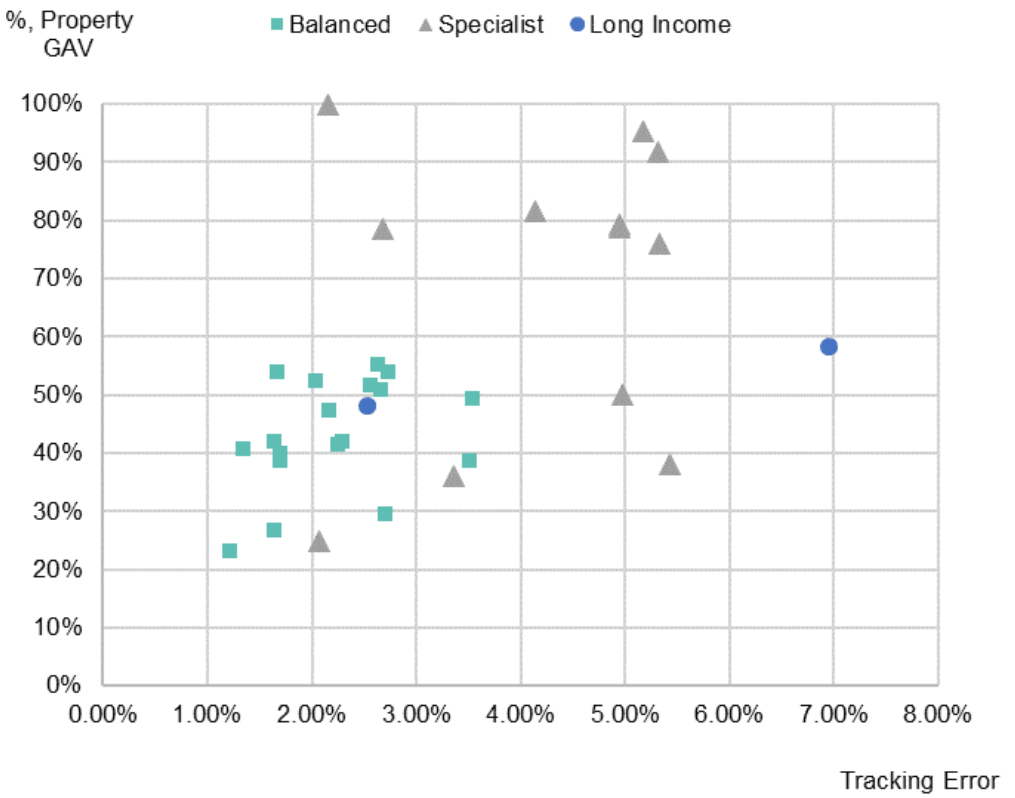
[6]If the UPRN (unique property reference number) were to be provided these can be mapped by external analysis tools, such as CoStar, Radius or Datscha, this would both aid further property specific research and promote the creation of additional datasets.

Figure 3.2a top 10 % property GAV



As for the results using the number of properties, funds with a higher exposure to their 10 largest properties have shown a greater spread of fund returns than would have been expected from their structure alone.

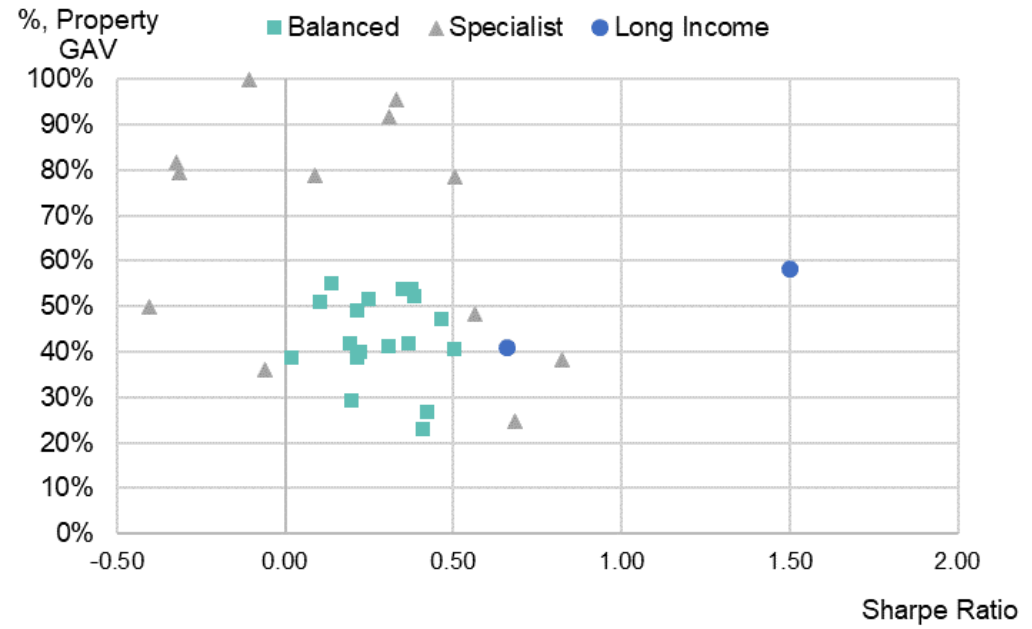
Figure 3.3 Top 10 properties versus tracking error to predicted structure benchmark 2007-2019



Source: Authors own calculations using the PFV Handbook

A higher proportion of fund value in a small number of properties will not efficiently diversify specific risk. To justify this extra risk an additional return (achieved perhaps through greater management focus) is required. However, there is no evidence that funds have achieved an additional return, with a negative correlation between the concentration of fund value in the top-10 properties and the Sharpe Ratio.

Figure 3.4 Top 10 properties versus Sharpe Ratio to predicted structure benchmark, 2007-2019



Source: Authors own calculations using the PFV Handbook

What the analysis cannot tell is whether the results are influenced by the sector allocation. In other words, are the largest properties in a portfolio more likely to be in sectors which generated poor risk-adjusted returns (shopping centres for example) or have large properties, regardless of sector, generated poor risk-adjusted returns[7]?

Tenant concentration risk

A concentration of lettings to a particular tenant can also lead to a divergence in fund performance, most obviously if the tenant becomes insolvent, but also if the tenant's credit rating is downgraded and this is reflected in the valuation.

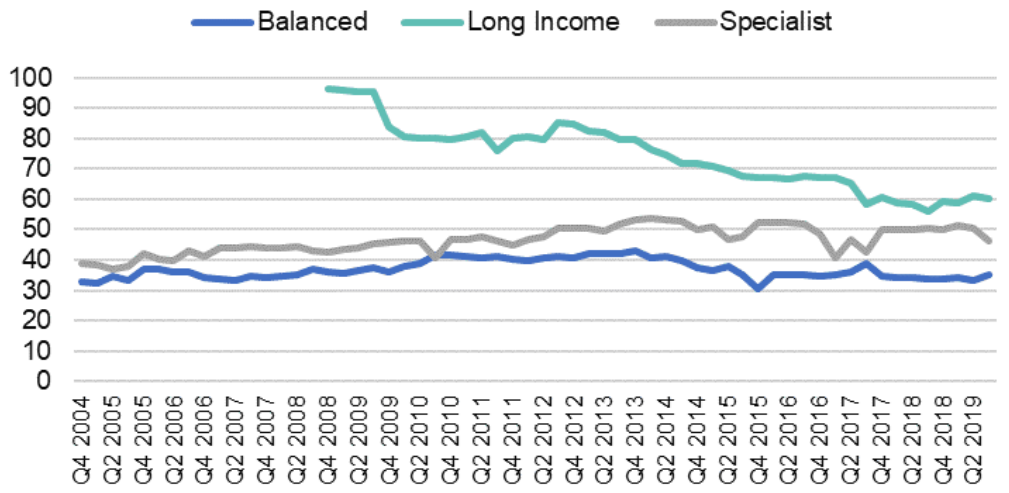
Tenant insolvency is a significant risk factor in a downswing, leaving the asset non-income producing at a time when rental values are falling and potentially also incurring capital costs to return it to a lettable condition. In an upswing, tenant insolvency can potentially be a fillip to performance, if a higher letting rent can be achieved.

The PFV Handbook provides a list of the top 10 tenants and the proportion of rent roll they account for. Balanced funds have the lowest exposure to their largest 10 tenants, although this exposure is only marginally below that of Specialist funds (which have a lower number of properties).

[7]To disentangle these relationships the property concentration risks would be required by segment.

As the Specialist fund sector has grown, the exposure of individual funds to their largest tenants has also fallen. However, Long Income[8] funds are significantly more exposed to individual covenants than other fund types. This exposure is more of a concern as the assets, by definition, have a high proportion of value in the lease itself, which may not be replicable if the current tenant defaults.

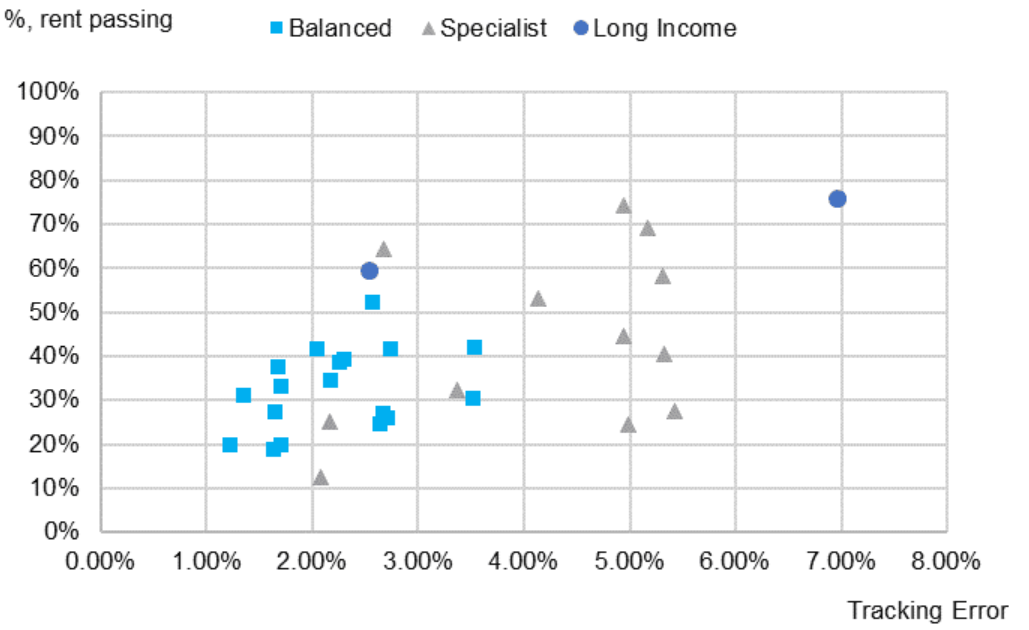
Figure 3.5, Tenant concentration risk; top 10, % rent passing



Source: Authors own calculations using the PFV Handbook

The greater the fund exposure to the 10 largest tenants the greater the tracking error of the portfolio.

Figure 3.6 Tenant concentration risk versus predicted structure benchmark 2007-2019



Source: Authors own calculations using the PFV Handbook

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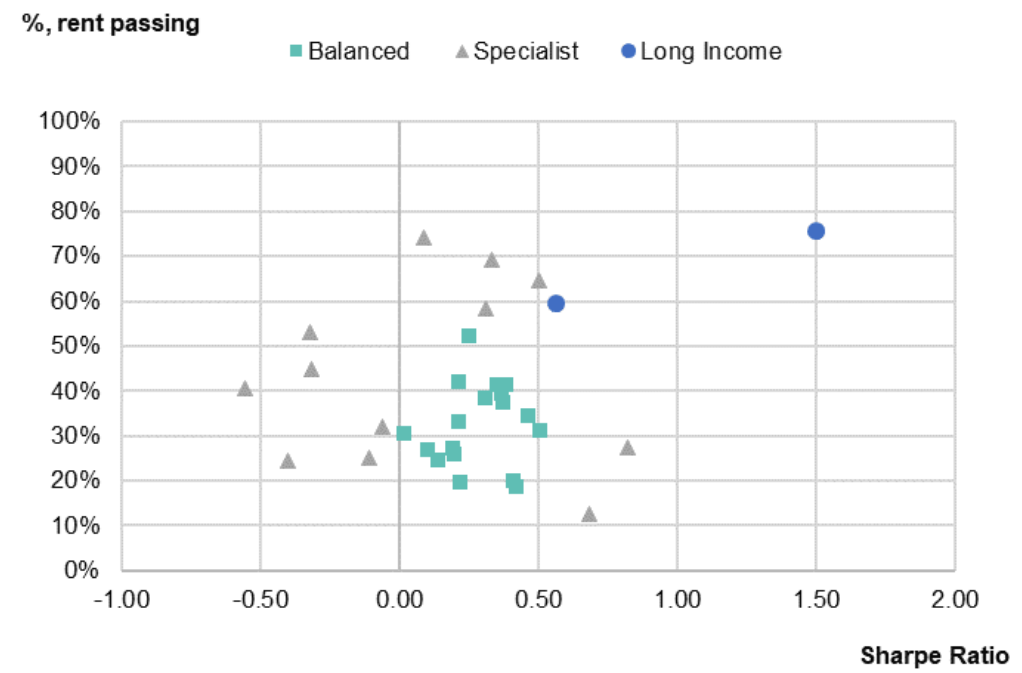
[8] The inclusion of Long Income funds has not been accompanied by a change in the reporting template. What types of leases are within the different funds in the Long Income category? What is the proportion of inflation-linked versus traditional leases, are there income 'strips', and what is the proportion of ground-rents?

The lower Sharpe Ratios would lead to the conclusion that this higher volatility has not been coupled with higher returns.

Figure 3.7 Tenant concentration risk versus Sharpe Ratio (2007-2019)



Source: Authors own calculations using the PFV Handbook

Again, what the analysis cannot tell is whether the results are influenced by the sector allocation. In other words, is the effect simply because sectors with predominantly multi-let properties generate stronger risk-adjusted returns?

Property specific characteristics

A fund with a large number of properties, of equal size and with no tenant concentrations would be expected to perform in-line with its portfolio structure. However, if all the properties had similar income, quality or size characteristics it is possible that such 'style' factors could also produce significant performance differentials.

Vacancy rates

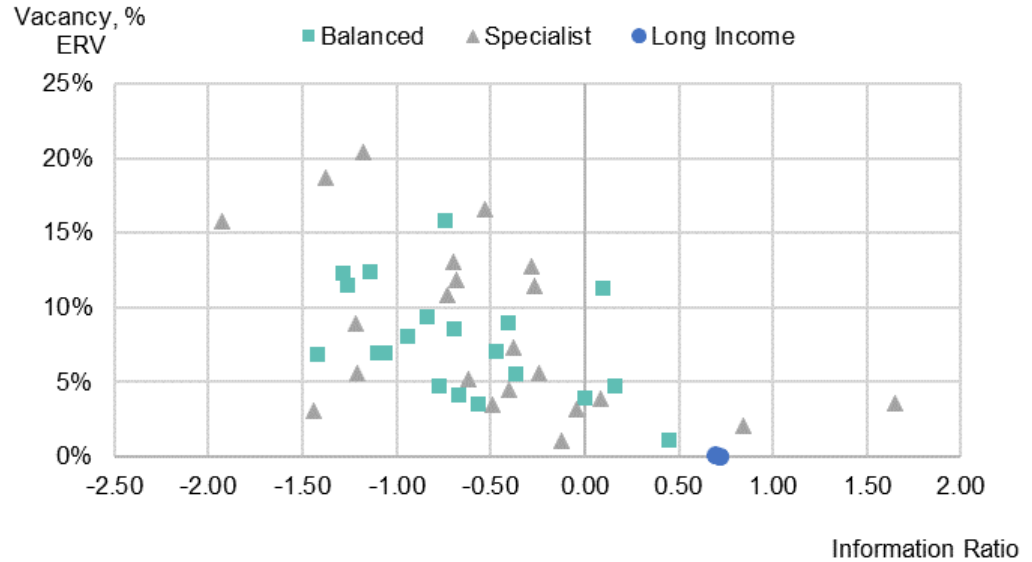
A vacancy rate is a glass half-full / half-empty performance driver. On the half-full side, a vacant unit will perform strongly if re-let and achieves an uplift in value. From a half-empty perspective, a unit that remains vacant will generate a negative income return due to empty rates and other vacancy costs.

If the risks (re-letting probabilities) are priced to perfection, a collection of vacant units would theoretically be expected to outperform, on an absolute basis, a collection of let units. The additional return is required due to the higher volatility of the average return from all vacant units through a cycle (due to the fluctuations in occupier markets and investor risk tolerance). Investors may also demand a higher premium for the higher uncertainty of the individual property return.

A concentration of vacancies in a particular fund would therefore be expected to produce a higher tracking error, underperform in weak market conditions and out-perform in a strong market, but with a similar Sharpe Ratio overall.

Higher vacancy rates have indeed been associated with lower risk-adjusted returns, particularly for Balanced funds (correlation -0.5), during the period of weak market conditions.

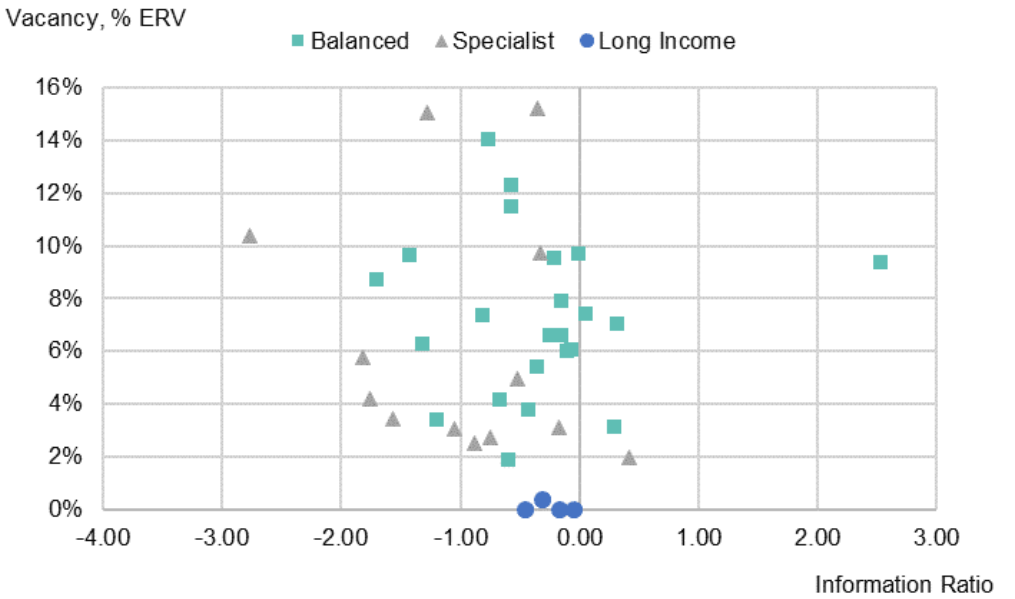
Figure 3.8 Vacancy rate versus predicted structure benchmark – 2007-2012



Source: Authors own calculations using the PFV Handbook

During the stronger market conditions experienced from 2013-2019, the impact of vacancy on risk-adjusted performance has been much less clear. Market performance during this period was not uniformly strong, with significant weakness in retail.

Figure 3.9 Vacancy rate versus predicted structure benchmark – 2012-2019



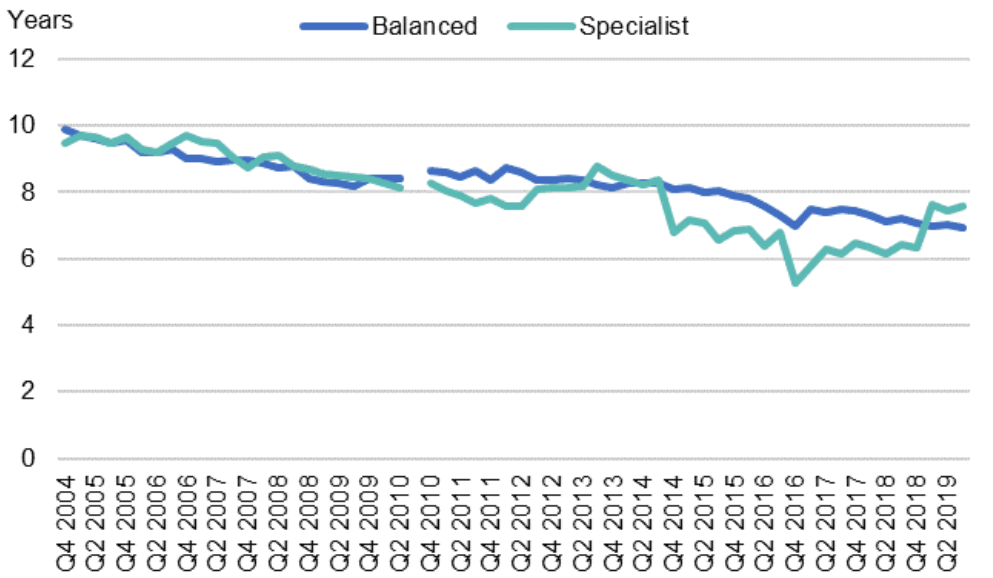
Source: Authors own calculations using the PFV Handbook

Weighted average unexpired lease terms (WALT)

Like vacancies, income security can boost fund performance in a strong occupier market but it is likely to be decretive to performance in a downswing. The weighted average unexpired lease term (WALT) is a measure of whether the fund is tilted towards more or less secure income. The authors have estimated the WALT of a fund using the lease expiry profiles provided in the PFV Handbook. The profiles published breakdown the proportion of lease expiries into 5-year intervals (e.g. 0-5 years, 5-10, 10-15, 15-20, etc.). The estimated WALT is the average of the mid-point of each interval (e.g. 7.5 years for the proportion of leases expiring between 5-10 years) weighted by the proportion of leases expiring in that interval.

Lease terms in commercial property have been on a continuously downward trend for over a century, down from 125, to 42, then 25 years and now a 10-year lease with a five-year break has become almost aspirational. Unsurprisingly, fund WALTs have reflected this downward trend as previously long leases are replaced with shorter ones.

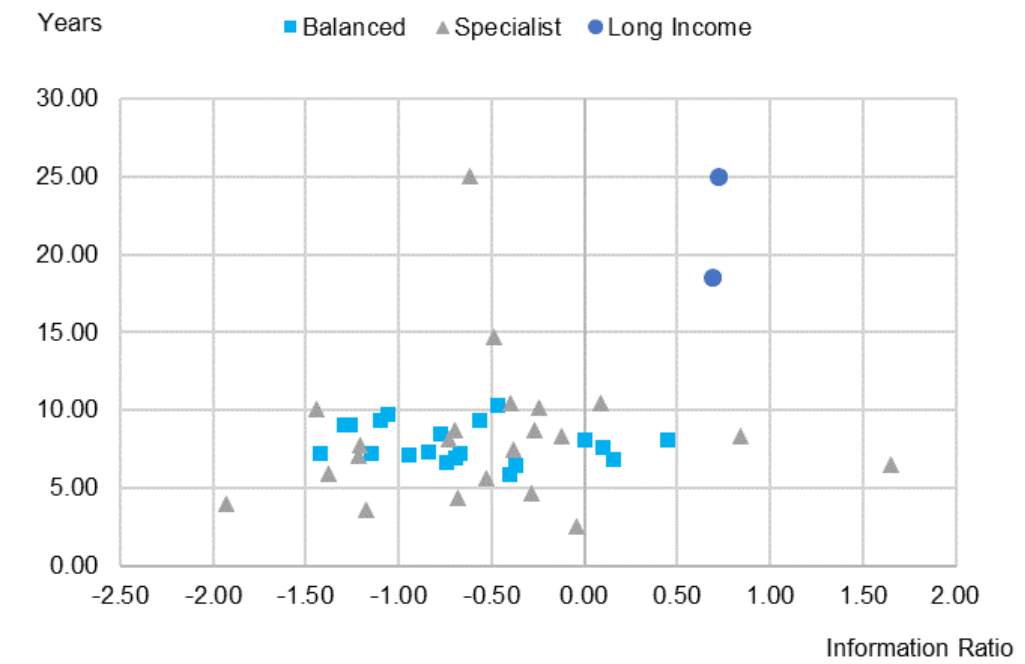
Figure 3.10 WALT



Source: Authors own calculations using the PFV Handbook

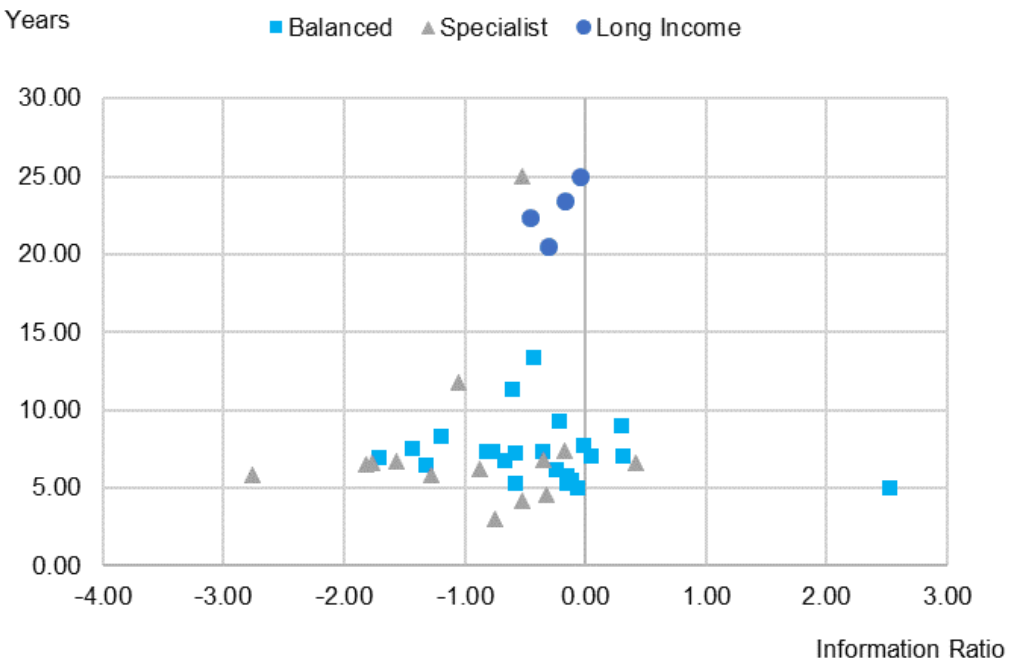
During both strong and weak market conditions the impact of WALT on risk-adjusted returns versus the structure benchmark was random. This is likely to be a result of the sample of funds having very limited variability in their estimated WALT.

Figure 3.11 WALT versus predicted structure benchmark – 2007-2012



Source: Authors own calculations using the PFV Handbook

Figure 3.12 WALT versus Sharpe Ratio – 2012-2019



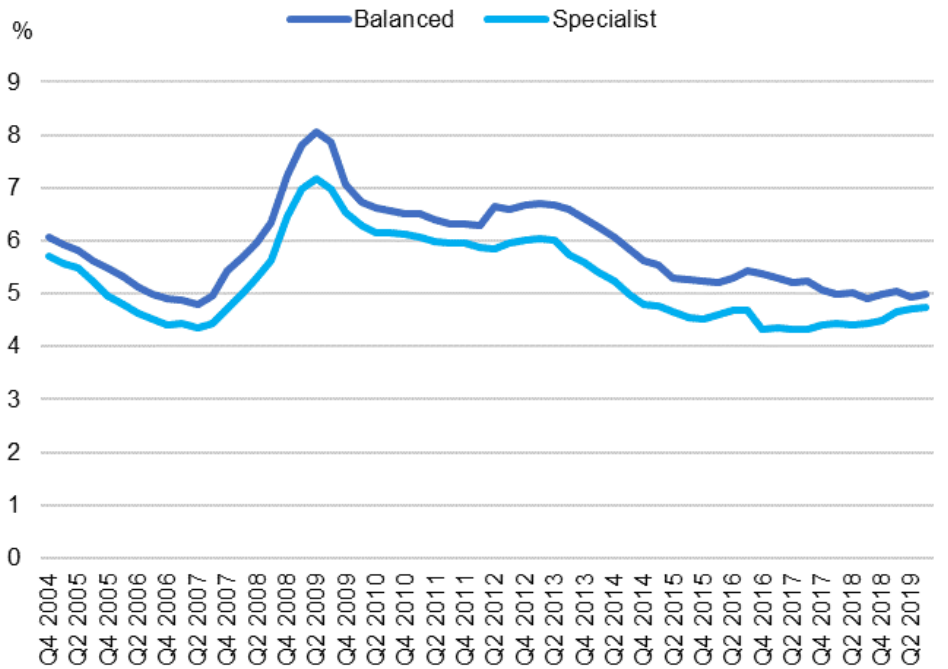
Source: Authors own calculations using the PFV Handbook

Initial yield

Several funds mentioned an investment strategy focussed on an above average income return. The initial yield gives an indication of the future level of fund income return.

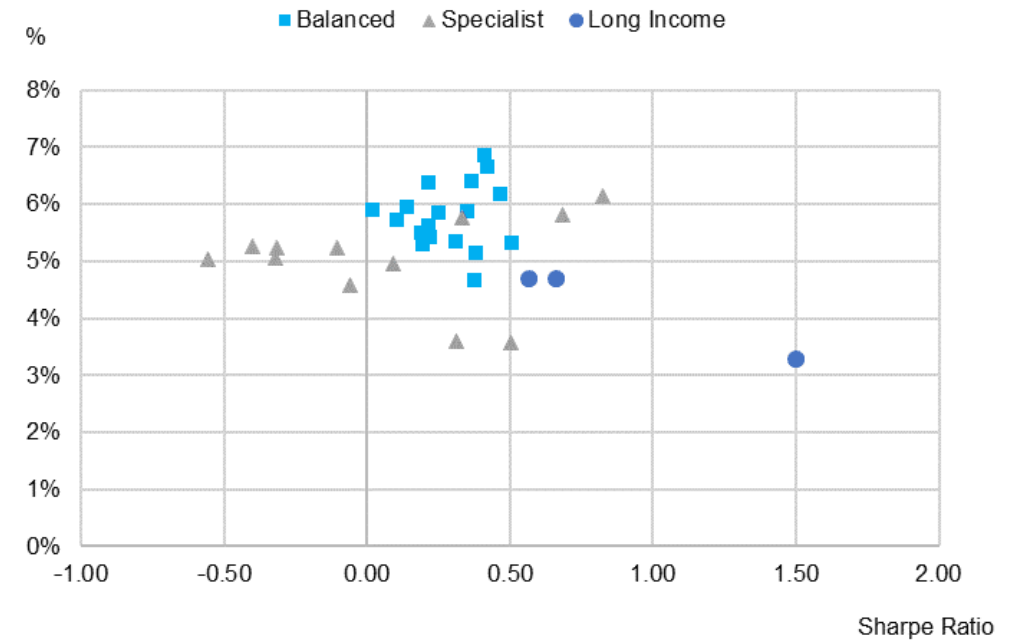
Balanced funds across all time periods have had a higher net initial yield than Specialist funds. This likely reflects the difference in net reversionary potential with Specialist funds typically having higher reversionary potential. This illustrates one of the issues with using portfolio yields as a metric for quality. ERV per sqm would likely represent a better indication of asset quality.

Figure 3.13 Average initial yield



Source: Authors own calculations using the PFV Handbook

Figure 3.14 Net initial yield versus Sharpe Ratio 2007-2019



There appears to be no clear relationship between portfolio yield and risk-adjusted returns over the full time period or between weak and strong market conditions.

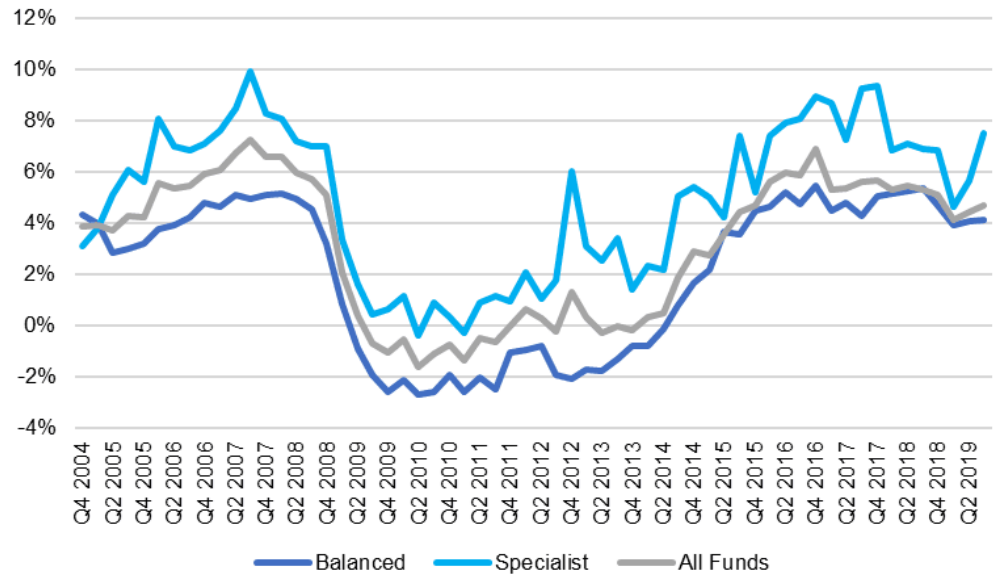
Please see the Appendix for data on reversionary potential, lot size, unlisted fund and joint ventures and listed holdings. The variables were not found to be significant in the tracking error model.

Reversionary potential

Commercial real estate is typically valued on the basis of a projected cash flow. The current income may be below or above the levels if the properties were re-let today, this is known as the reversionary potential. If occupier markets remain strong, reversion is likely to be 'collected' at review or reletting and the income will rise. If fund reversion is negative, then fund income is likely to fall or at least lag that of more reversionary funds.

Reversionary potential naturally tracks the trend in market rents and so it peaked before the GFC and then dived as rental values fell, before recovering to a plateau after 2016. Specialist funds have seen a recent dip due to their exposure to retail property. Balanced funds have remained at around 4% net reversionary potential, very similar to that in 2006/07.

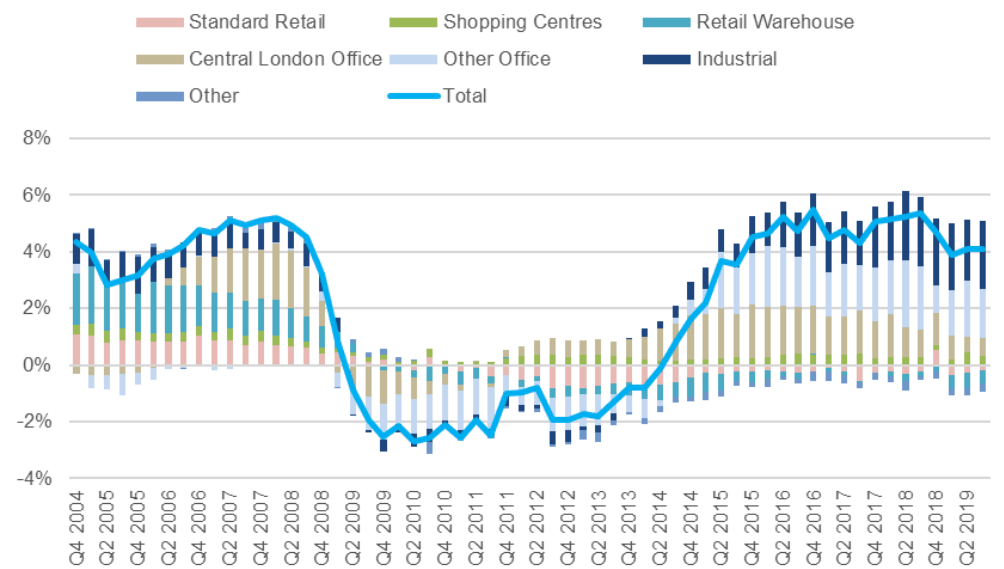
Figure 3.15 Net reversionary potential



Source: Authors own calculations using the PFV Handbook

The change in the sector composition of net reversionary potential confirms the association with occupier market conditions by segment: the cyclical nature of London offices, the strength in industrial and the changing fortunes of retail warehouse property which moved from highly reversionary to negative over the analysis period.

Figure 3.16 Segment contribution to net reversionary potential, Balanced funds

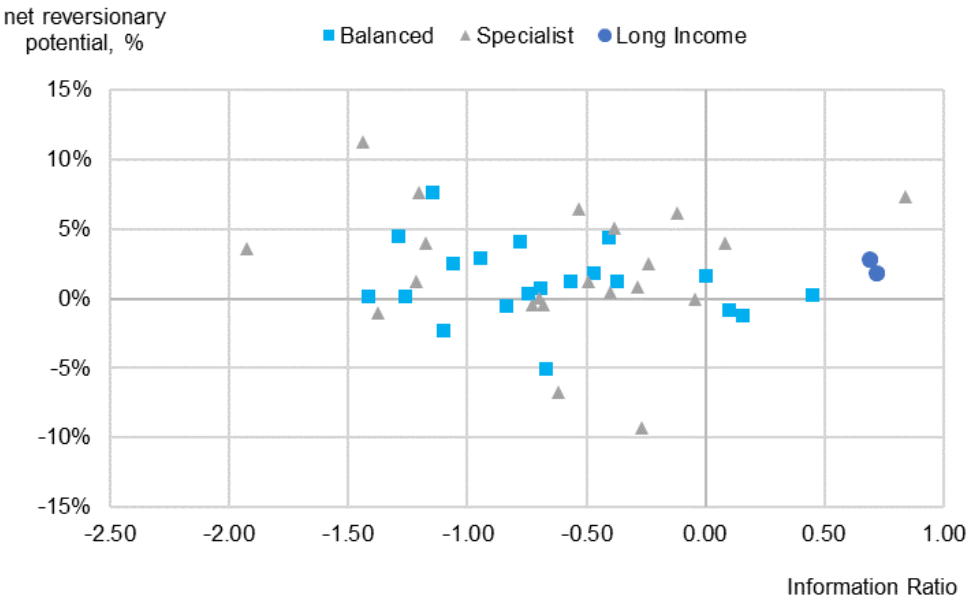


Source: Authors own calculations using the PFV Handbook

This relationship was noticeable for Specialist funds where a positive relationship can be found. This reflects the diverging trends at the sector level with specialist industrial and London office funds exhibiting greater reversionary potential than retail funds.

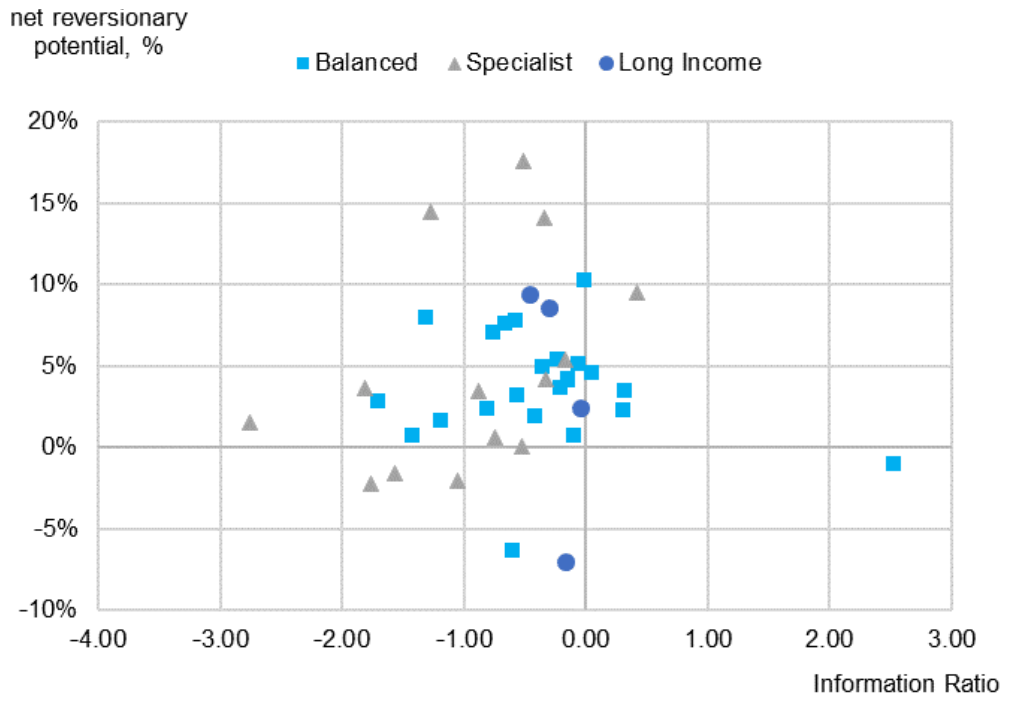
The reversionary potential of each fund is broken down further, splitting out reversionary rent, over-rented rent and vacancies but the segment breakdown is again by property type rather than the full segmentation.

Figure 3.17 Reversionary potential versus predicted structure benchmark – 2007-2012



Source: Authors own calculations using the PFV Handbook

Figure 3.18 Reversionary potential versus predicted structure benchmark – 2013-2019



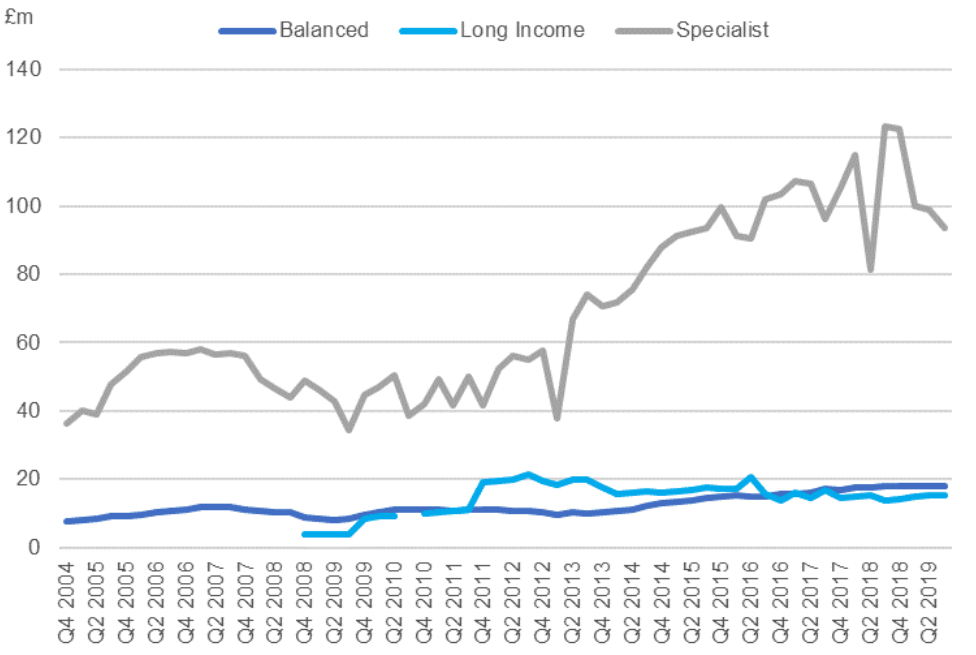
Source: Authors own calculations using the PFV Handbook

Lot size

The size of a property has an impact on both performance and liquidity. These influences can vary over time: sometimes tenant demand is focussed on larger units and sometimes on smaller space. Similarly, investors may sometimes favour an exposure to larger property and sometimes not.

The trend is dominated by the survivor bias in Specialist funds, with the funds that survived the GFC tending to focus on the larger retail lot sizes of shopping centres and retail parks.

Figure 3.19 Average lot size



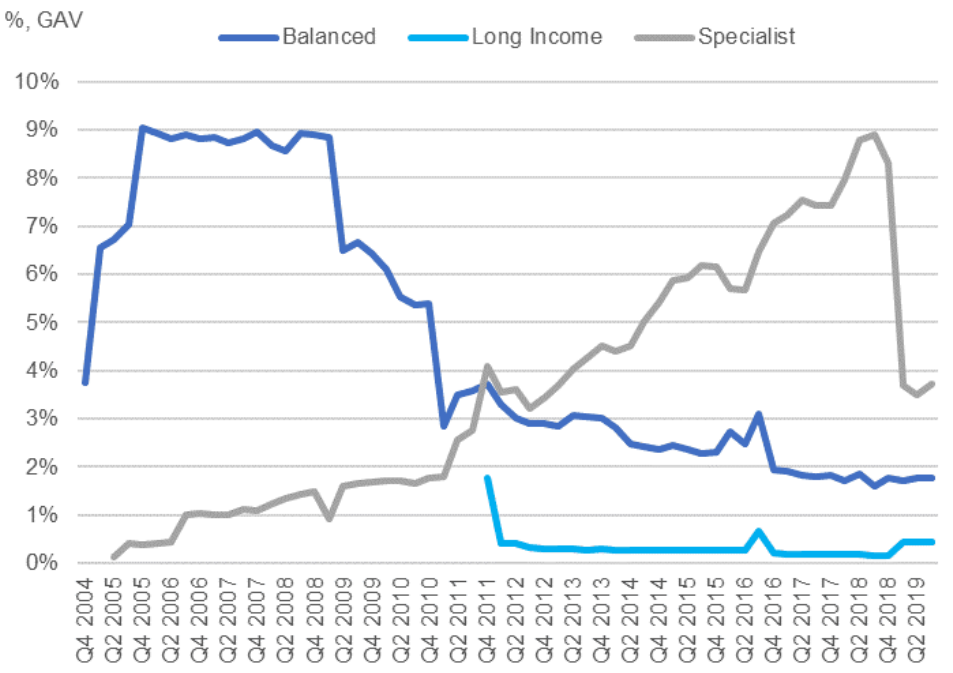
Source: Authors own calculations using the PFV Handbook

Unlisted funds and joint ventures (JVs)

Some funds have investments in JVs or other unlisted funds. These investments provide an analytical challenge to 'see-through' these investments and estimate the exposure to the underlying sectors, leverage, and developments. Such investments may also have an impact on the ability of the fund to quickly alter their portfolio structure or to meet redemptions.

From 2006 to 2009, Balanced funds held an average of nearly 9% of GAV in unlisted funds and JVs. This proportion fell steadily to under 2% by the end of 2016. Few Specialist funds have holdings of unlisted funds or JVs, but those that do have substantial holdings. The sharp change in 2019 is due to one fund leaving the sample. One Long Income fund has a small indirect holding.

Figure 3.20, Unlisted/JVs, % GAV



Source: Authors own calculations using the PFV Handbook

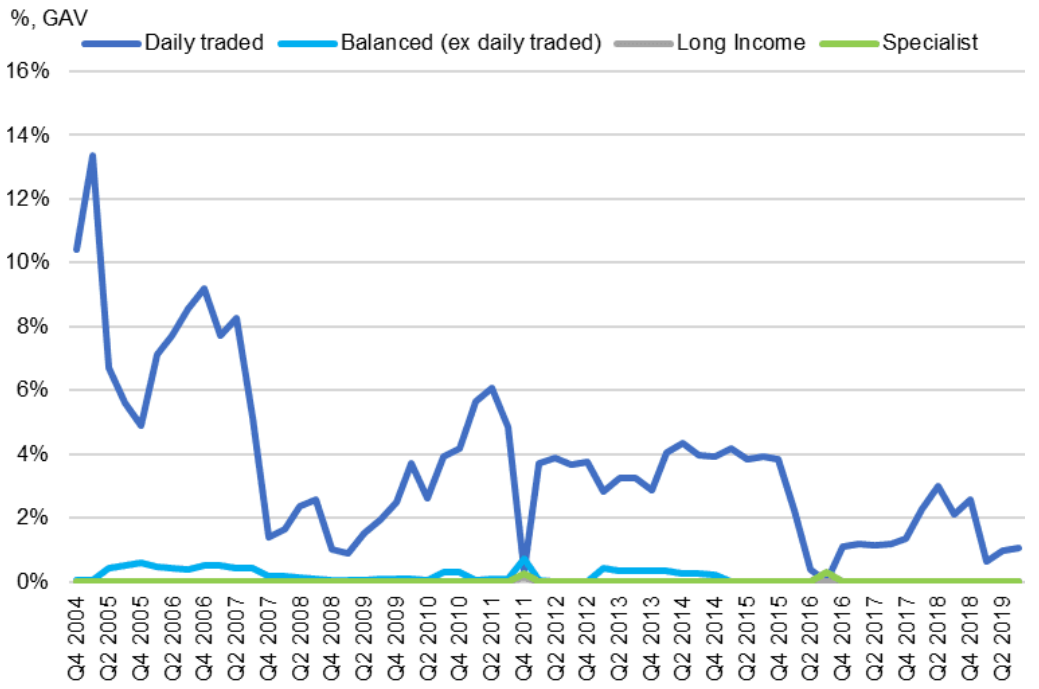
Listed

As for JVs and other unlisted funds, a holding in listed companies, also impedes the analysis of the underlying fund structure. Listed property properties also tend to be weakly correlated with direct property over short time periods. Property company shares are typically held as a means of managing

redemption requirements in the fund as an alternative to holding cash.

Outside of the daily traded retail funds, the use of listed investments is very limited. For daily traded retail funds, the average level pre GFC had risen to over 9% of GAV before falling to close to zero, presumably to meet redemptions. Holdings rose again, but only to 4%, and fell sharply post the European Union referendum.

Figure 3.21, Listed, % GAV **(no data was available for daily traded retail funds in q4 2011)



Source: Authors own calculations using the PFV Handbook

Tracking error model

The significance of the diversification and stock measures has been tested in explaining the tracking error between the actual and predicted return of each fund.

The predicted return is calculated from the fund segment weightings, including cash, and the return of that segment in the MSCI Quarterly Property Index. Cash is assumed to return that of 3-month Treasury Bills. The fund return is then adjusted for leverage by dividing by (1 – leverage). For example, if the predicted quarterly fund return was 2% and the fund had 50% leverage the predicted fund return rises to 4%.

By construction, the tracking error will be due to differences in the performance of the fund's properties and the sector average.

Diversification

As anticipated, the higher the number of fund properties, especially if measured on an EWE basis, the lower the expected tracking error.

The proportion of fund value in the top-10 assets and top-10 tenants was also significant in the models. However, the sign was occasionally negative rather than positive, suggesting that this measure might be picking up differences in the quality of fund holdings (secondary industrial estates for example) rather than the influence of diversification.

A higher development exposure increased the tracking error of funds against

their predicted return in several of the models, but the measure was not universally significant. This result cannot be regarded as definitive due to the low exposure to development of the analysed funds.
Property specific risk factors

The performance of vacancy rates, WALT and initial yield in the models were mixed. As the occupier markets were very mixed across the sectors from 2013-19 the analysis would be better undertaken at the segment level.

Table 3.2 Factor regression model results

All funds	Tracking error versus predicted fund return		
	2007-19	**2007-12**	**2013-19**
Constant	0.05**	-0.15**	0.06**
EWE	0.00*	0.00	0.00**
Tenant concentration	0.04**	-0.73	0.00**
Development	0.41	0.00**	-0.27
WALT	0.00*	0.00**	0.00**
Vacancy rate	-0.17**	0.00**	-0.13**
R-Squared	**0.52**	**0.39**	**0.58**
Balanced funds	**2007-19**	**2007-12**	**2013-19**
Constant	0.00	0.00	0.00
EWE	0.00*	0.00**	0.00
Tenant concentration	0.01	0.00**	0.03**
Development	0.51**	0.84	0.09
WALT	0.00	0.00**	0.00
Vacancy rate	-0.05*	-0.04	0.05**
Initial Yield	0.64**	1.25**	0.00**
R-Squared	**0.94**	**0.81**	**0.82**
Specialist funds	**2007-19**	**2007-12**	**2013-19**
Constant	0.01	0.00	0.00
EWE	0.00	0.00**	0.00**
Tenant concentration	0.04**	-0.07**	-0.06**
Development	-0.31	-0.19	-4.49**
WALT	0.00*	0.01**	0.00**
Vacancy rate	-0.03	0.61**	0.41**
R-Squared	**0.85**	**0.72**	**0.91**

Key:

**Significant at the 5% level - *Significant at the 10% level

Summary

- Data on fund structure alone does not allow an investor to estimate the expected risk and return on a fund. Firstly, investors require data on the degree of diversification and secondly on any differences in stock characteristics (intentional or otherwise).
- Several diversification measures were considered: number of properties, the EWE and the proportion of fund weight in the top-10 properties. Permutations of these measures were all found to be significant in explaining the divergence in past fund returns from that expected from their structure alone.
- As some sectors are associated with larger lot sizes, data on diversification should be provided at the sector level.
- A fund strategy might focus on a smaller number of properties and forego some of the diversification benefit from more, smaller, properties. To be a success, the additional return from the extra management focus should out-weigh the higher return volatility due to the lower diversification. The evidence suggests that this additional return has not been achieved.
- Excluding the Long Income funds, the estimated average lease length did not appear to impact either risk or risk-adjusted returns. This is likely due to limited variability in the WALT within the sample with most Balanced funds having a WALT of between 7-9 years.
- Any analysis of the property specific / income factors is hamstrung by the provision of a single fund level metric. The fund vacancy rate for example may camouflage a low vacancy rate in some sectors and a high vacancy rate in others. Similarly, a fund describing its strategy as ‘high income’ may have a high initial yield due to the allocation to high yielding sectors or to properties with higher yields within individual sectors.

A third dimension is missing from the available data which is the quality of the property. Quality can be measured by rental value per sqm. Data on property quality, combined with income security, would allow investors to construct portfolios that differentiate by style. For example, a portfolio might consist of lower quality short lease regional industrials or high quality, secure income central London offices.

Section Four: Liquidity

Section Four: Liquidity

The PFV Handbook provides information on the creation, redemption and matching of fund units. The aggregate turnover is a measure of what liquidity was achieved. Whether this level of liquidity met with investor demand is not known: how do you measure a requirement that is not met when the requirement is undocumented?

Liquidity is also about price and time to transact: how long did investors wait for redemptions, what price did they receive? The bid-offer spread is published in the PFV Handbook, but not the price for matched transactions.

It would be expected that liquidity is linked to fund size and the number of investors. The PFV provides data on the number of unit holders, the distribution and the proportion of internal versus external investors.
An alternative option for investors to achieve liquidity is to match units via either a secondary market trading platform or a manager run matching service. This form of trade is almost exclusively used in the institutional focused fund market. There have been very few transactions in retail focused funds, and these trades are likely to have been within institutional share classes.

Investment flows

On average, net units created averaged 1.8% per quarter. Turnover, calculated as units redeemed plus units created plus 2* matched units, averaged 5.1%.

The Balanced funds have been split into daily traded and non-daily traded retail funds. Daily traded retail funds have experienced far greater redemption pressures during periods of market distress, peaking at 15% in q3 2016, than other fund types. Both types of Balanced funds show evidence of pro-cyclical investment flows with net inflows during periods of rising market prices and net outflows during periods of falling market prices.

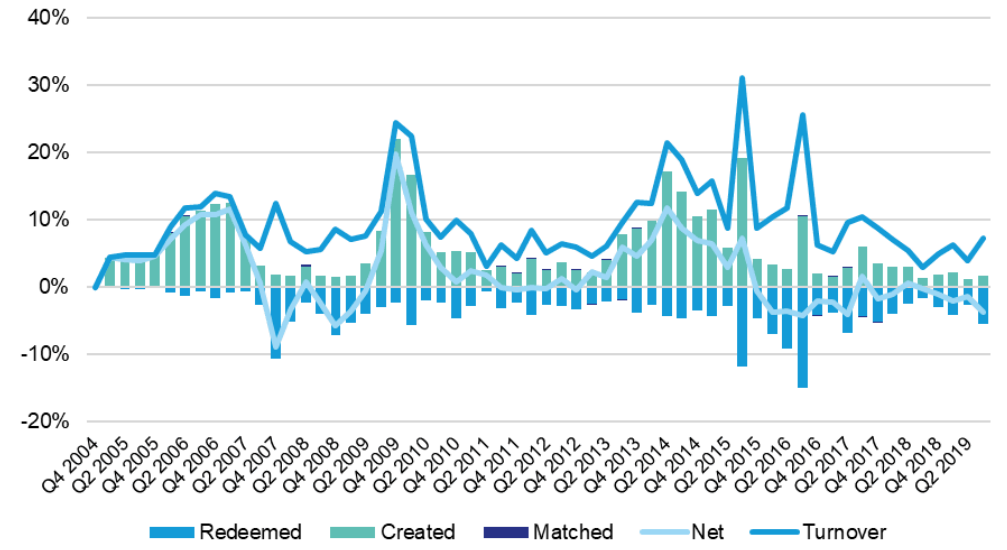
It must be noted that the Index is likely to have a strong survivorship bias as Specialist funds that have wound up and/or merged with other funds are not well represented in the Index at the point of liquidation.
Redemptions have been noticeably concentrated, for example in 2007, 2011-12 and 2016. It is likely that funds closed for a period to manage redemption demands and place investors in a queue whilst underlying properties were sold.

On average, 3.7% of new units were created per quarter in non-daily traded Balanced funds. The spikes in unit creation coincide with new fund launches. Excluding such events from the data lowers the average to 2.8%.

Daily traded retail funds experienced higher net creation of units with an average of 5.7%. The flows into these funds are also more volatile than non-daily traded Balanced funds.

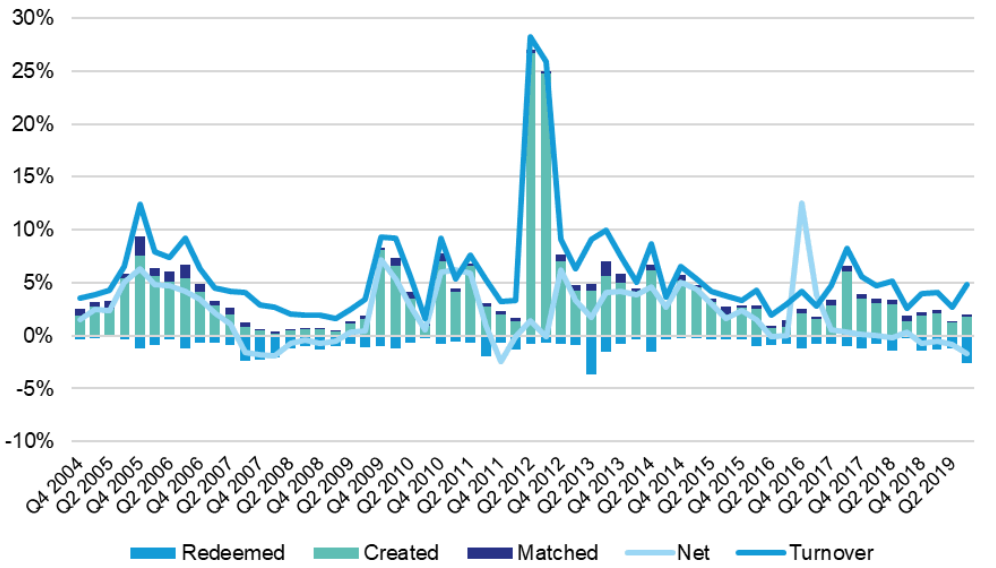
On average, 0.4% of units were matched per quarter for Balanced funds. The peak was in late 2005 where an average of 1.8% of units were matched and in 2013 where 1.4% of units were matched.

Figure 4.1: Turnover, % – daily traded



Source: Authors own calculations using the PFV Handbook

Figure 4.2: Turnover, % – Balanced (excluding daily traded)



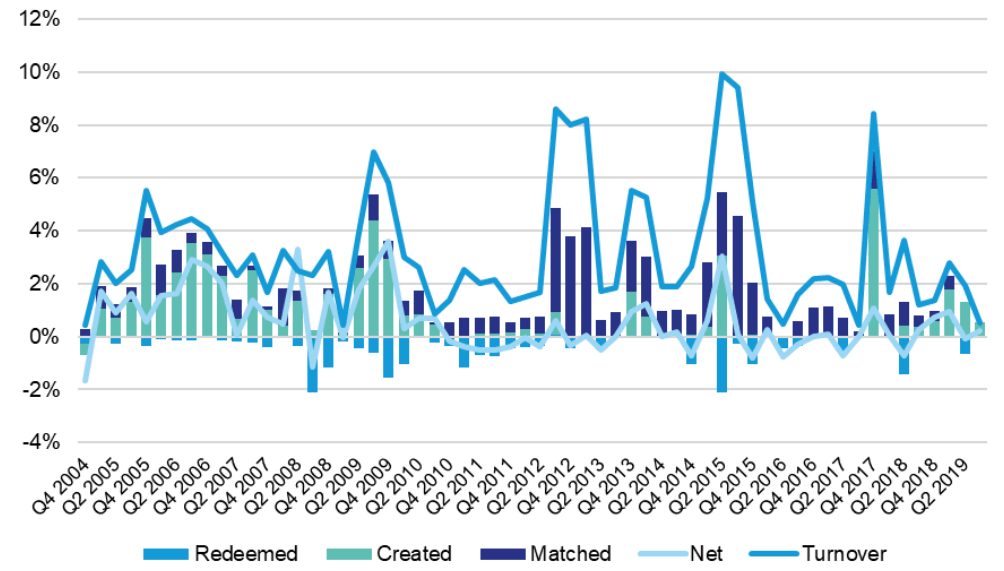
Source: Authors own calculations using the PFV Handbook

Net flows for Specialist funds have been much lower than for Balanced funds. It is likely that these funds enter the Index after initial closing rounds and capital has already been drawn into the fund.

For Specialist funds the average redemption and creation of units per quarter was lower at 0.4% and 0.8%. This is to be expected as the underlying structures for Specialist funds were more likely to be closed ended.

For Specialist funds the average proportion of units traded via a matched transaction is higher than Balanced funds at 1% per quarter. This likely reflects the fact that for many investors this is the only route available to obtain liquidity whilst waiting for the fund to wind down.

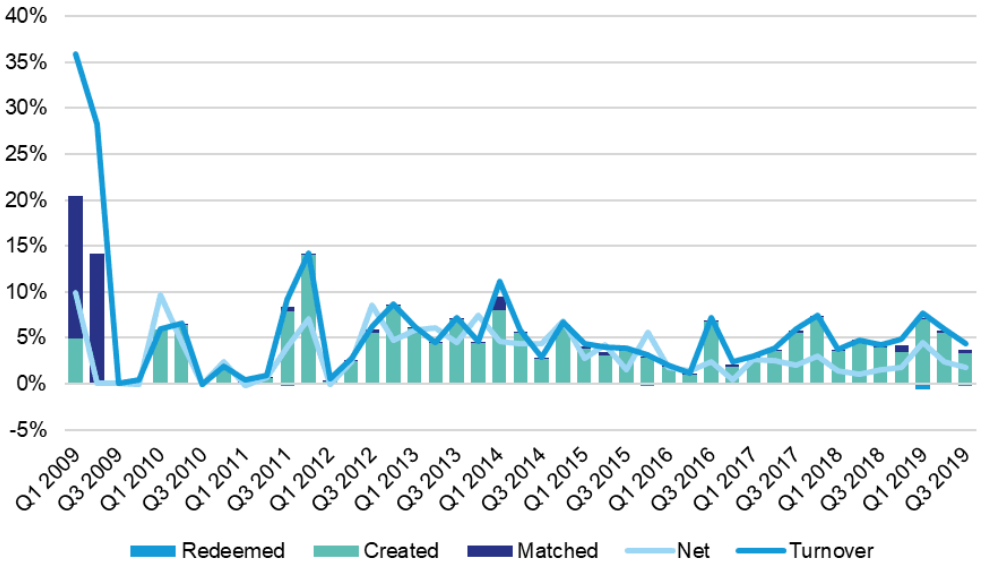
Figure 4.3: Turnover, % – Specialist



Source: Authors own calculations using the PFV Handbook

There has been very little demand for redemptions from Long Income funds in the short time period covered, with average new units of 4% per quarter.

Figure 4.4: Turnover, % – Long Income



Source: Authors own calculations using the PFV Handbook

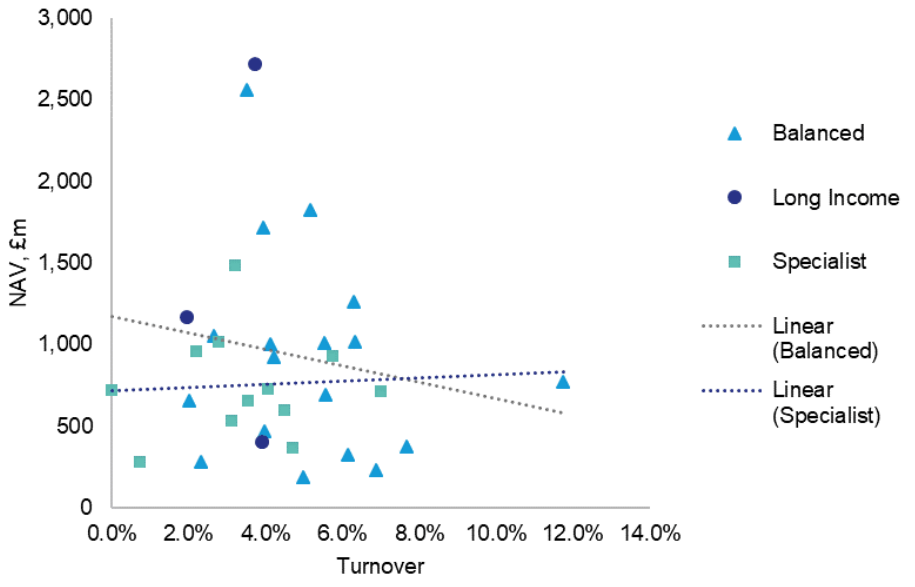
There is a fairly binary trend in the liquidity via matching transactions, with either funds offering very little liquidity, less than 0.5% of units per quarter, and a small group of funds offering superior liquidity, greater than 1% of units per quarter.

It appears that investor concentration (Figure 4.5) rather than fund size (Figure 4.6) is a better indicator of whether a fund will be more liquid via matching transactions. With less concentrated investor bases delivering greater levels of

matching transactions.

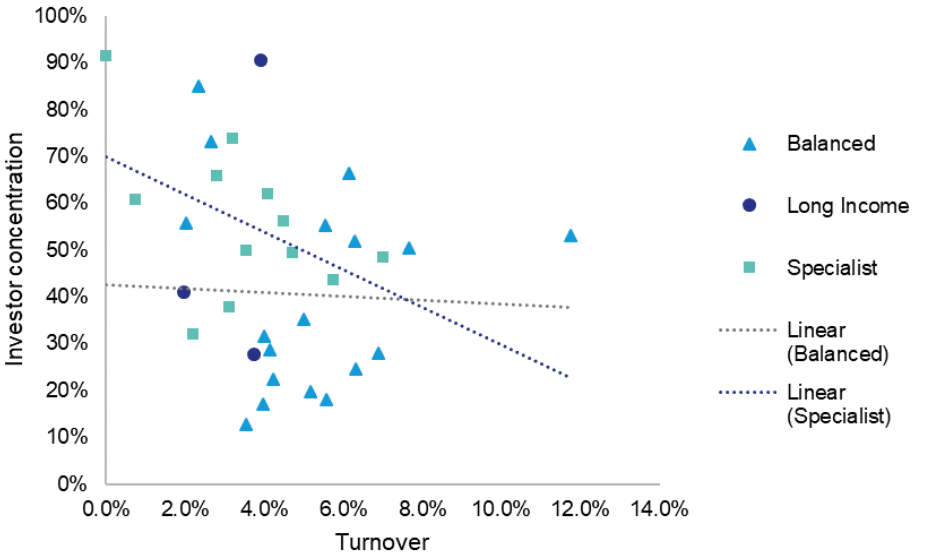
One of the issues with the matching data is that the price of the transaction is not reported. This information would be beneficial to existing and prospective investors to potentially provide a better understanding of underlying asset market prices.

Figure 4.5: Turnover versus fund size



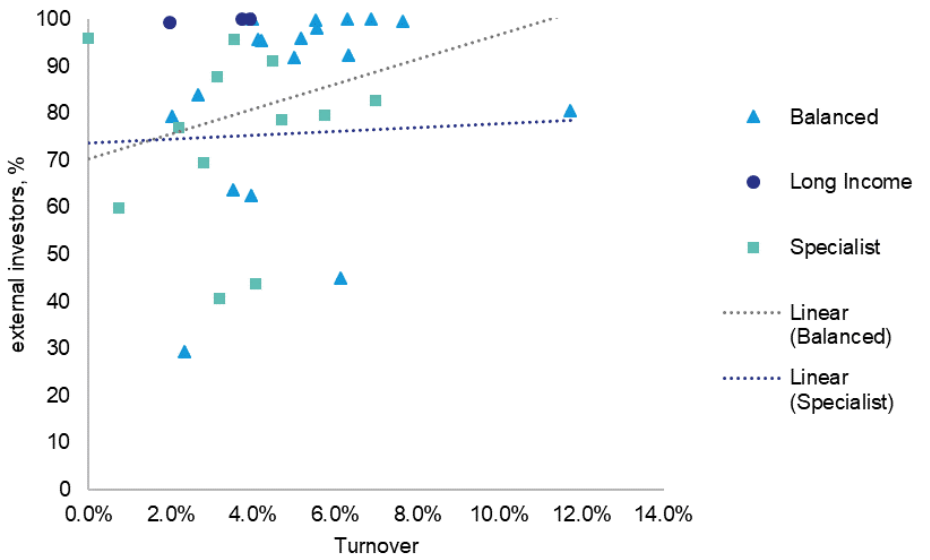
Source: Authors own calculations using the PFV Handbook

Figure 4.6: Turnover versus investor concentration



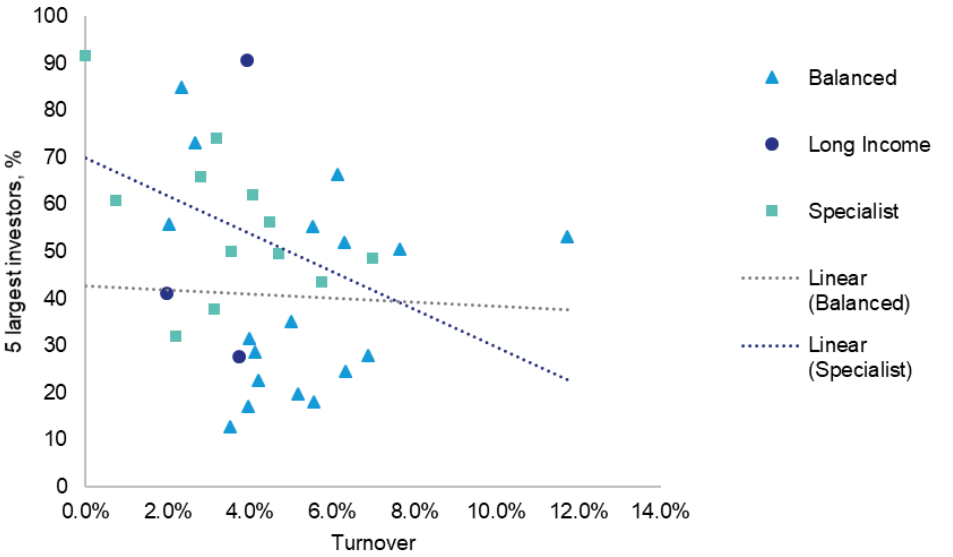
Source: Authors own calculations using the PFV Handbook

Figure 4.7: Turnover versus investor percentage of external investors



Source: Authors own calculations using the PFV Handbook

Figure 4.8: Turnover versus 5 largest investors, percentage



Source: Authors own calculations using the PFV Handbook

Unlike Balanced funds investor concentration does not appear to impact the liquidity via matched transactions.

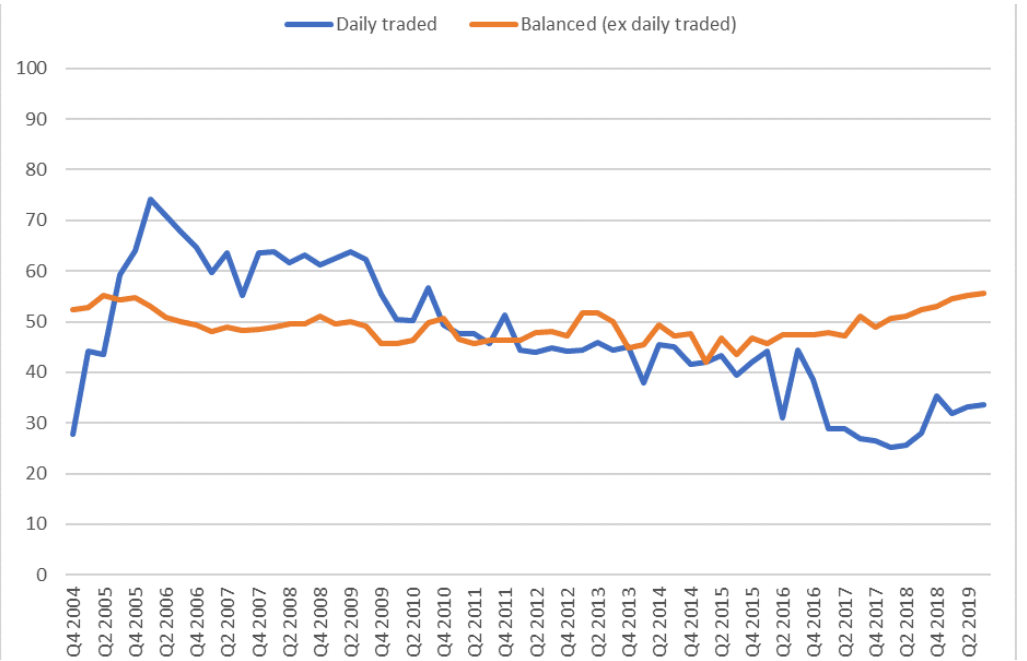
Number of investors

Looking at the concentration of investors in Balanced funds, the top five investors have typically held around 50% of units in institutional funds. For daily priced funds, the concentration risk has been on a downward trend since 2005

with currently around 30% of fund units held by the five largest investors. For Specialist and Long Income funds the average concentration of the top five investors is higher at around 60%. This appears to be relatively stable since 2010-2011.

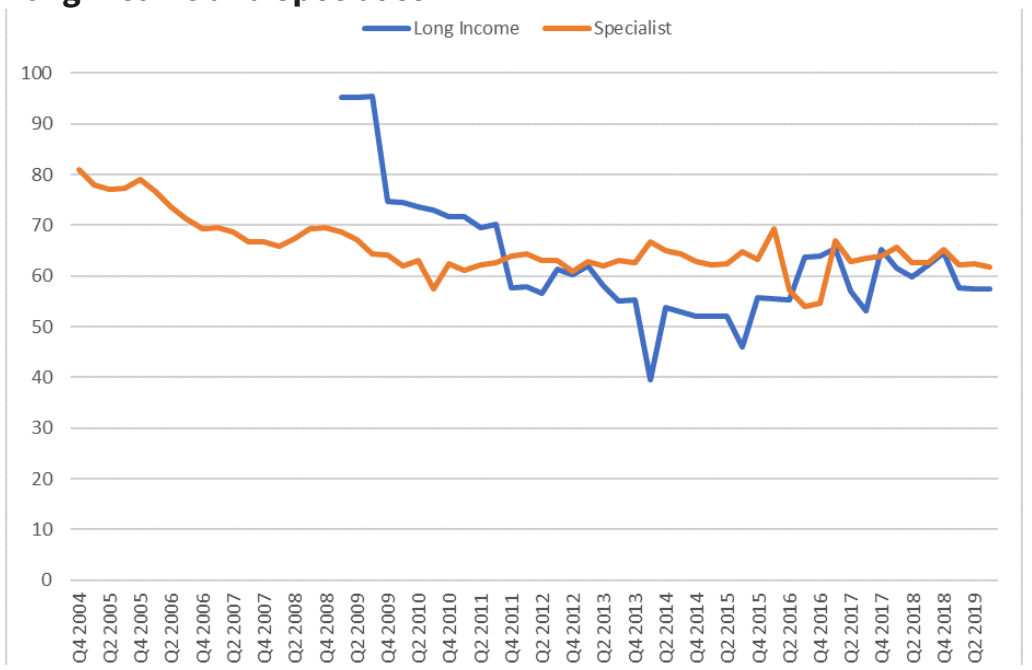
The decline in Long Income fund concentration is likely due to the creation of new funds originally seeded by a single source of capital.
The data may inflate the concentration risk for some funds. Feeder funds which are designed to meet specific needs appear to be classed as a single investor rather than treated on a look-through basis.

Figure 4.9 Investor concentration: Largest 5 investors % total – Balanced



Source: Authors own calculations using the PFV Handbook

Figure 4.10: Investor concentration: Largest 5 investors % total – Long Income and Specialist



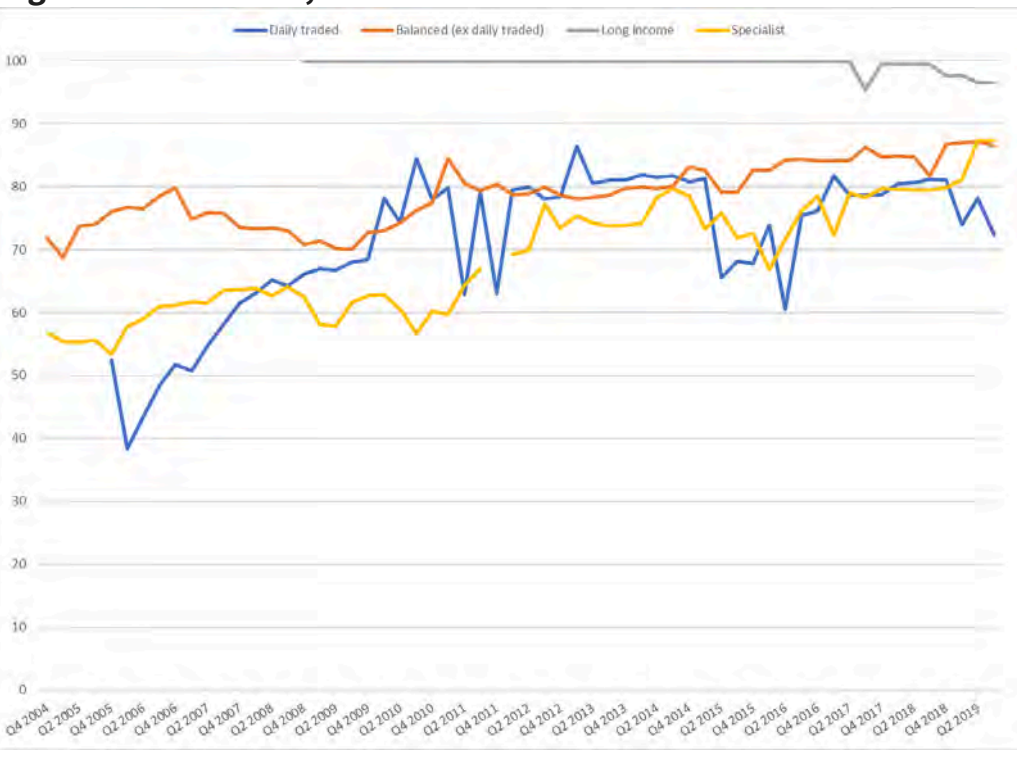
Source: Authors own calculations using the PFV Handbook

Investor composition

Fund management houses manage money on behalf of external and internal clients, for which they undertake the investment decisions, although typically not necessarily the allocation decision. There is no clear definition of what classes as internal versus external capital, which puts a question mark over the consistency of the data.

Funds with a high proportion of internal money are arguably less liquid than funds with a high proportion of external money. The proportion of external capital within funds increased steadily from 2004 to 2011 and since then has remained broadly in the range of 65-70%.

Figure 4.11 External, % total



Source: Authors own calculations using the PFV Handbook

Cost of trading

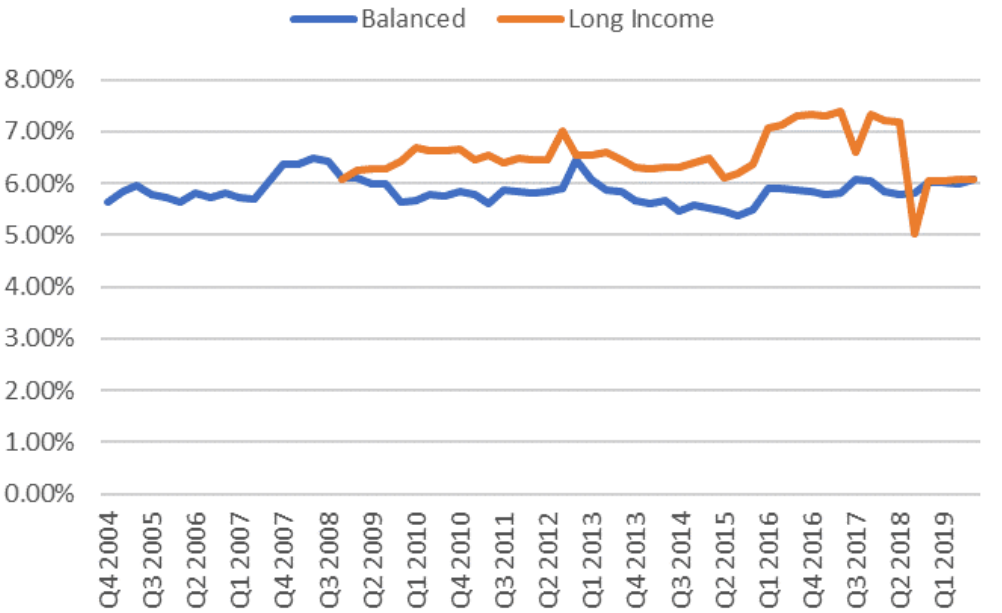
Bid-offer spreads

A bid-offer spread is the amount by which the selling price exceeds the buying price for a unit. Typically, this price is set by the manager to cover the costs of transacting the underlying property. Whilst a number of funds have started to use a single pricing mechanism the vast majority of funds have continued to use the dual pricing method.

If the fund is experiencing inflows the price that new investors pay will reflect the transaction costs for purchasing the underlying properties. If the fund is experiencing outflows the fund may move to a bid basis.

For Balanced funds, the bid offer spread has remained consistent at around 5.75-6.25%. Until recently, Long Income funds have had a higher bid-offer spread for units.

Figure 4.12 Bid/offer spreads



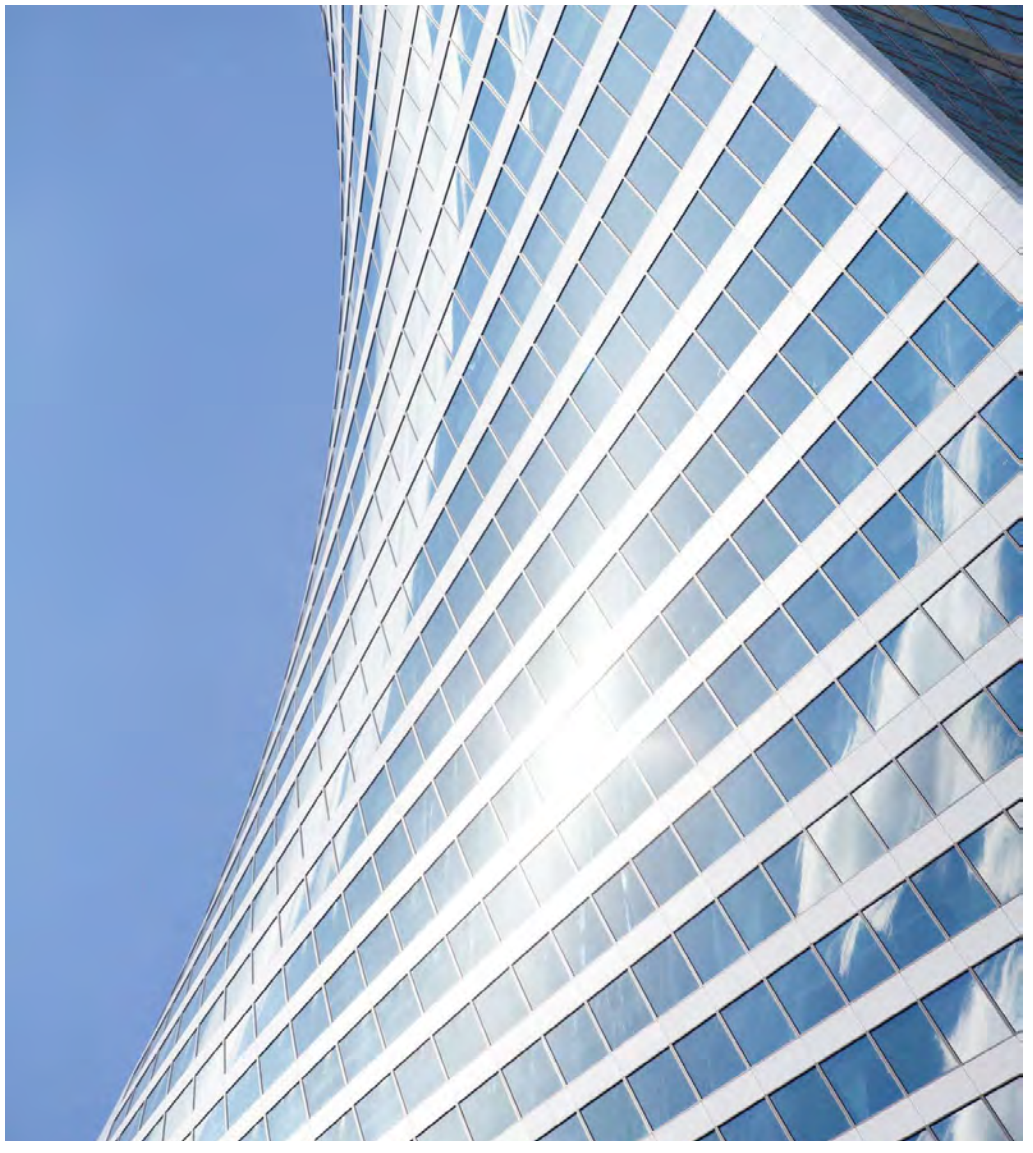
Summary

- On average, the net units created in funds averaged 1.8% per quarter and turnover (units redeemed plus units created plus 2* matched units), averaged 5.1%.
- Daily traded retail funds have experienced far greater redemption pressures during periods of market distress, peaking at 15% in q3 2016.
- Investment flows in Balanced funds have been pro-, rather than counter-cyclical.
- For Specialist funds the average redemption and creation of units per quarter

was 0.4% and 0.8% and the average proportion of units traded via a matched transaction was 1.0% per quarter.

- A small group of funds offered significantly superior liquidity at over 1% of units per quarter. These funds tended to have a less concentrated investor base.
- The top five investors typically held around 50% of units in institutional funds. For daily priced funds the concentration risk has been on a downward trend since 2005 with currently around 30% of fund units held by the five largest investors.
- The proportion of external capital within funds increased steadily from 2004 to 2011 and since then it has remained broadly in the range of 65-70%.
- The cost of trading via primary mechanisms has been stable for open-end funds with bid offer spreads around 6%.
- Whilst helpful, the data has limits to its use in measuring the liquidity of funds. Additional data on the average time period from submitting a redemption or subscription order would be a welcome addition to the PFV.
- The collection of trading prices for matched transactions would further enhance the understanding of the respective cost of liquidity and can be compared to primary mechanisms.

Lastly, data collected on the type of capital in the funds should be expanded beyond internal vs external and investor concentrations. The type of capital (DB/DC pension fund, family offices, insurance, sovereign wealth funds etc.) would enhance the investors understanding of the potential liquidity and cash flows for underlying AREF funds.



Section Five: Fees

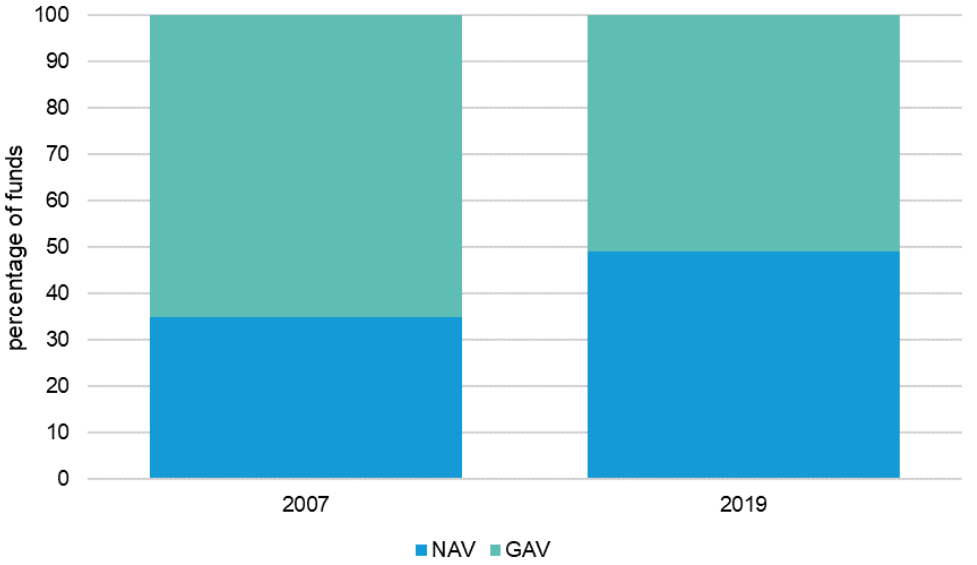
Section Five: Fees

The PFV Handbook has unstructured data describing fund fees. Whilst useful to some extent there are significant limitations as to the comparability across funds. For this a standardised measure such as Total Expense Ratio (TER) and Real Estate Expense Ratio (REER) should be supplied.

The value for money delivered by managers has become a significant issue for investors and regulators across markets. More effort should be made in publishing like-for-like measures of cost such as TERs and REERs. These can be further broken down into component parts to provide further transparency for investors on whether fees paid are proportionate to the activities of the manager.

The ad valorem fee structure remains the preferred basis for calculating fees with all funds reporting fees using either net asset value (NAV) or gross asset value (GAV) for the fee basis. For funds included in the analysis there does appear to be some evidence of a shift away from fees charged on Gross Asset Value (GAV) to Net Asset Value (NAV) (Figure 5.1). In 2007 around 65% used GAV as the basis for the fee calculation this compares to 51% of funds in the 2019 sample. This is in keeping with the move away from using debt in constituent funds and should be seen as a positive for investors.

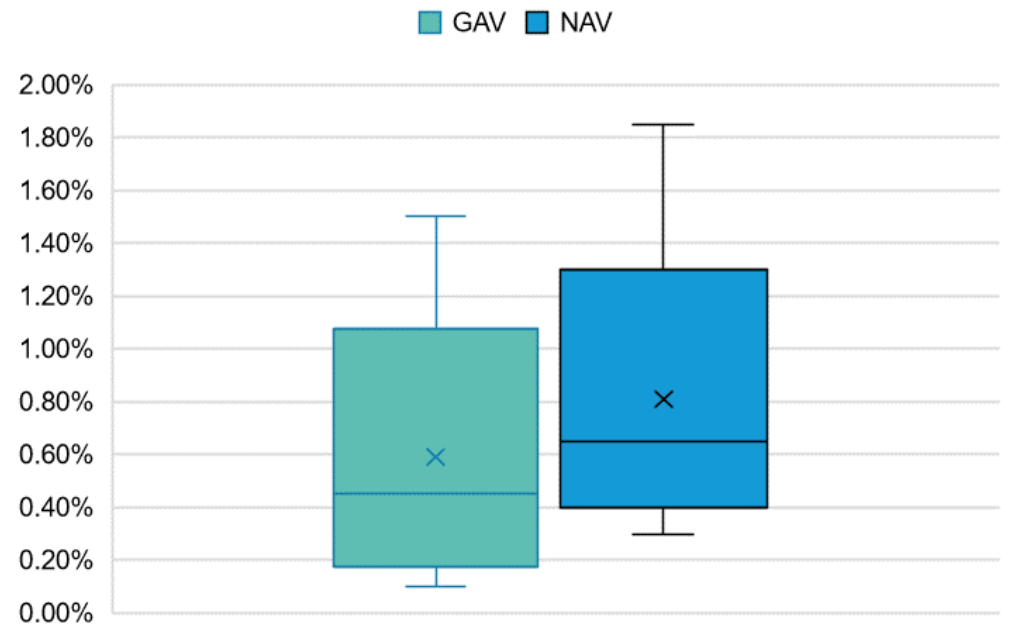
Figure 5.1: 2007 sample base management fee basis



Source: Authors own calculations using the PFV Handbook

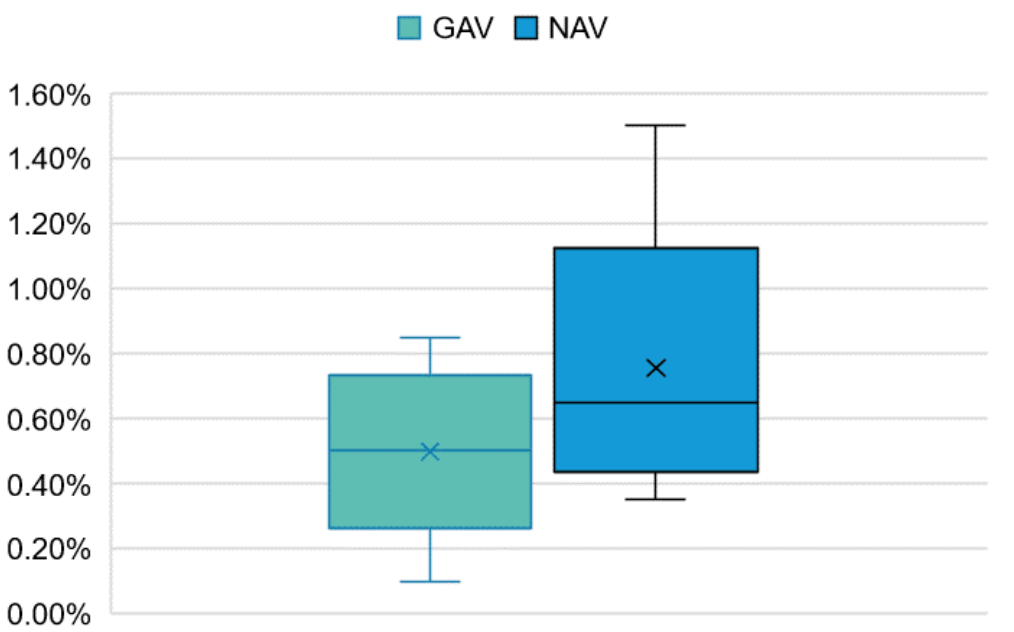
Figures 5.2 and 5.3, illustrate the average and range of fees charged by funds. There appears to be little change between 2009 and 2019 in the average fee charged. Funds charging fees based on GAV typically between 0.3-0.6% per annum with a mean of 0.46% in 2007 and 0.49% in 2019. A similar trend is observed in funds charging fees on NAV with fees between 0.5%-0.75% per annum with a mean of 0.78% in 2007 versus 0.71% in 2019.

Figure 5.2: 2007 base management fee percentage



Source: Authors own calculations using the PFV Handbook

Figure 5.3: 2019 base management fee percentage



Source: Authors own calculations using the PFV Handbook

Given the limited changes to the fee structure of funds since 2007, there does appear to be significant scope for innovation in this area as investors demand more transparency to compare products on a value for money basis.

Summary

- In 2007, the fee basis for around 65% of funds analysed was GAV compared to 51% of funds in the 2019 sample.
- The average GAV fee in 2007 and 2019 was virtually identical at 0.46% and 0.49% respectively.
- The average NAV fee in 2007 and 2019 was slightly lower at 0.78% and 0.71% respectively.

Section Six: Data Observations

Section Six: Data observations

A complete, up to date, standardised dataset, identifying all the key investment factors, considerably aids the analytical process, but missing funds and data points, old data, poor data entry and non-standardisation of metrics reduces the value of the dataset to the industry and deters new investors from investing in the market.

The researchers found that there were considerable deficiencies in the quality of the available data and this, at times, limited the amount and complexity of the analysis undertaken.

Matching data to specified fund strategies

Funds specified a mix of strategies in the PFV Handbook to achieve their objective: stock selection, asset allocation, active/asset management, development, inflation linked/fixed uplifts leases, covenant strength and lease length (one even listed research!). The research team felt that not all of these strategies can be measured directly with the current data in the PFV Handbook. Indeed, any future revisions to the content should seek to map directly to the stated strategies in order to be capable of subsequently testing their effectiveness.

Five key drivers affect fund returns: cash holdings, leverage, fees, structure and style. The PFV Handbook should provide an authoritative statement on the relative importance of each.

In addition to the quarterly performance and NAV reported already, interest received on cash and interest payments on debt should be added to the PFV Handbook and the influence of cash and leverage on Index and fund returns should be clearly stated. This would complement a complete and consistent statement of the impact of fees (we heartily commend the work of the AREF Fee Working Group to harmonise the reporting of fee levels). It is also unclear as to the robustness of the fee information included in the PFV Handbook. For instance, where funds were in the samples for both 2007 and 2019, the text on fees was identical for the vast majority. This raises the issue of whether the text section of the document is regularly checked for accuracy.

The match between the segmentation utilised in the PFV Handbook and MSCI's direct property indices is a powerful combination, for subscribers to both services, ensuring consistency between the reporting of the portfolio structure and the past performance characteristics and current pricing of each category. To improve analysis further, the 'other' category should be split to reflect the growth in previously very small property types and all measures (e.g. number of properties and income security) should be reported at the segment, not portfolio, or other aggregate level.

Lease types (indexation, ground rents) should be added to the PFV Handbook to distinguish the investment strategies of Long Income funds.

What happens next?

The original rationale for the PFV Handbook was to streamline the process of collecting fund data and therefore saving investors and managers time as well as ensuring the standardisation and quality controlling of the data collected. The fact that it is no longer seen as a pre-requisite, or as the sole means of communicating with investors, suggests that it has not kept pace with investor requirements. Data of this kind and value should never be seen as a static set of questions to be collated for ever, but an evolving source of information required by investors.

There is a fine line between the benefits of collaboration and standardisation, and stifling innovation. The balance seems to have swung too far the other way: it should be the use of data in the investment process that distinguishes one investment house from another, not the volume of data collected. The industry needs to recreate John Atkin's rigour and enthusiasm for providing a comprehensive set of data on funds for investors. The philosophy underpinning the PFV Handbook and the Index, is that the benefits from collaboration outweigh individual gain from acting alone, have seemingly been so eroded, that a renewed consensus must be found.

Moving the PFV Handbook format, from paper, to pdf and now to a spreadsheet (although the current spreadsheet is unstructured which severely inhibits its useability) is a natural progression as technology has transformed the way we work. This progression can never be complete as our business activities continue to evolve. There are now new ways of working with data, and spreadsheets are rapidly being replaced with more automated tools. The production and dissemination of data should be continuously upgraded in advance of, and in-line with, investor requirements.

There will inevitably be tension between public and confidential datasets and investors' demand for complete transparency. This tension is compounded by the tendency of managers to cite commercial sensitivity as a reason for the non-disclosure of data, such as current valuations. Transparency is a perennial issue in real estate markets around the globe. Researchers will argue that greater transparency lowers the risk premium and benefits the entire market. Managers will argue that full transparency reduces their ability to generate superior performance. There is probably truth in both arguments and this tension has to be managed. It is ironic that most managers subsequently collaborate with advisory firms and/or pay for data subscription services that allow them to gain access to confidential data – arguably removing any potential competitive advantages in the industry. Private data is increasingly available via different platforms from government (eg HM Land Registry) to private businesses and this will continue, fuelled by technological advances with machine learning and Artificial Intelligence which permit the mechanisation of the collection, storage and analysis of data.

Thank you for reading

The UK Real Estate Funds Industry: 10 years on from the Global Financial Crisis

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