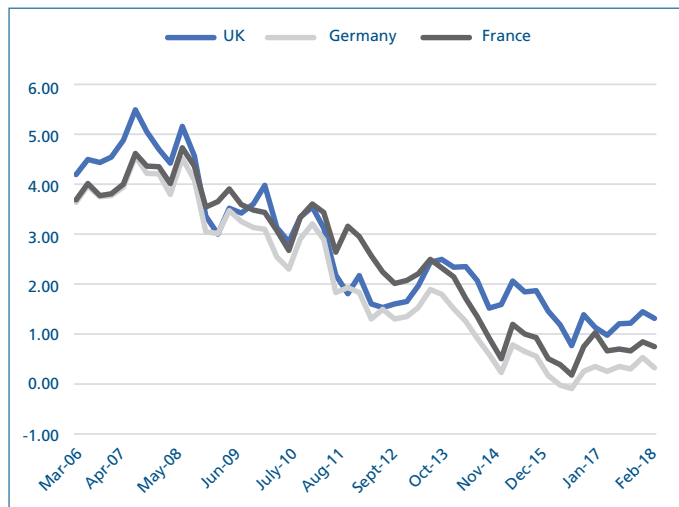


What do recent rises in interest rates mean for property prices?

Figure 1: Ten-year government debt yield (%)



In the last five years, US 10-year Treasury Bills have been trading at an all-time low, yields having fallen below 2% for the first time in 2017. Over the same period, UK government bond (10 year) yields have also been lower than they have been at any time and 10-year Treasuries in Australia are trading at all time low yields. Short-term interest rates have also been at all-time lows. Real estate professionals habitually, and with some reason, connect low interest rates and bond yields to low property yields and high prices.

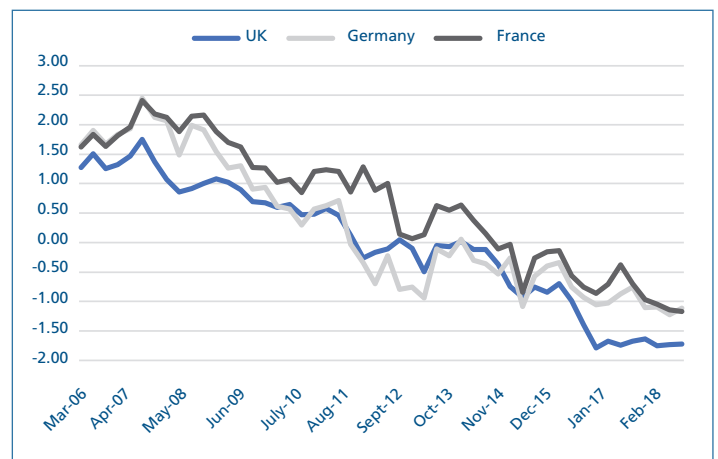
Real risk-free rates, proxied by the yield on government-issued inflation indexed bonds, are also trading at very low or negative rates. US Treasury Inflation Protected Securities have been issued offering negative yields since 2010 and UK index linked gilts have been priced at negative yields since 2011. Australian Treasury Indexed Bonds have never offered negative yields but are now being issued at all-time lows of around 0.5%. However, recent rises in interest rates have got us all wondering. Is this the start of a downturn for property values? There is much debate over how long such low yields will continue, and the implications for real estate prices.

Real estate capitalisation (cap) rates (the inverse of price-earnings ratios) are low in many markets, albeit not – yet – at all-time lows. How strongly have real estate capitalisation rates been connected or correlated with conventional bond yields, short term interest rates and indexed bond yields? What will happen to real estate prices if bond yields revert to more ‘normal’ levels over the next few years? And what will happen to prices if they do not? A recent rise in yields on US (fixed interest) Treasuries has given us cause to think. However, fixed interest bond yields, short term interest rates and property cap rates are by no means perfectly correlated.

Property cap rates or yields are determined by several factors, and it is not clear that any rise in bond yields would translate into a rise in property yields. Whether property yields rise depends on why bond yields are increasing. Conventional government bond yields might rise because of a rise in expected inflation, or a rise in real yields. If increased inflation expectations are the sole cause of a bond yield rise, index-linked yields would stay unchanged and property yields might not change either, depending on how nominal cash flow growth is expected to respond to inflation. We can expect a reasonable link between real estate cash flows and inflation, protecting investors against an inflation-driven rise in rates.

However, a significant rise in real yields (inflation-linked bond yields) would drive conventional bond yields higher and would also have a knock on effect on property yields. We believe that markets are pricing in a small rise in the real yield, but a full percentage point rise - as we have seen in the US – would wipe out any risk cover. Our advice is: do not focus solely on conventional bonds - have a look at the indexed bond markets.

Figure 2: Inflation linked ten-year government debt yield (%)



Property Funds Research (PFR) is an independent management-owned business that provides real estate investment advisory services to institutional and family office clients. Our advice on the UK and European direct and indirect real estate markets is based on rigorous research, unique data sets, and a suite of products for underwriting investments in the market. We also provide strategic consulting for business and/or product development. PFR is the successor business to Oxford Property Consultants (OPC) which spun off a multi-manager business acquired by CBRE Global Investors in 2006.

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The global universe of unlisted (rarely traded) real estate vehicles currently stands at over 3,057 live funds with an estimated gross asset value of €2.50 trillion, excluding funds of funds, which number 68 and have an estimated value of €34 billion. In addition to the wide variety of real estate vehicles held by PFR, we have information on 185 pending funds which are currently looking to raise equity for a launch. Of the funds which are looking to raise capital, 42% and 32% are looking to raise for European and North American strategies, respectively, with 15% raising for Asian and Australasian funds and 6% focused on multiple global regions.

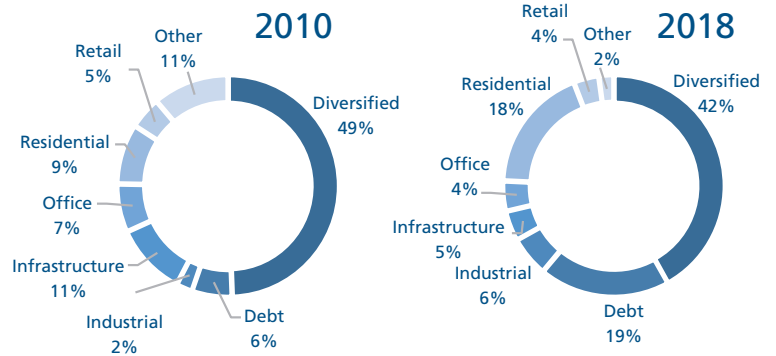
The lack of investor confidence and signs of a shortage of prime property at the correct price has caused a significant drop in the number of funds launched in 2018. Figure 3 illustrates the change in fund styles since 2000. Value added funds have been the most favoured over the last 10 years, taking over from core funds. Opportunity funds tend to account for fewer launches but often they are the largest funds by value. It is perhaps not surprising that there is a geographic bias where fund style is considered. The vast majority (54%) of Asian funds and 55% of Emerging Market funds (by number) are opportunistic, 58% of North American funds have a value-added profile and 58% and 53% of UK and European funds respectively have a core strategy. Global funds, defined as those that invest in more than one region, are more likely to have an opportunistic style, with very few having a core strategy.

Figure 3: Launch of funds by style and number



Diversified funds by number and value dominate the PFR universe of global unlisted funds with 47% of the global market by number. Debt and residential funds are the next most prolific accounting for 11% and 10% of the funds in the universe. Figure 4 illustrates the considerable increase in the popularity of these sector specific funds over the past seven years, a change which has seen a decline in the number of diversified funds over the same time frame. Industrial funds have also seen a noticeable increase in the number of funds launched in recent years, illustrating the general view that the industrial/logistics sector is one of the few places where investors can still buy at acceptable yields, though this is likely to be short lived as the market becomes too crowded.

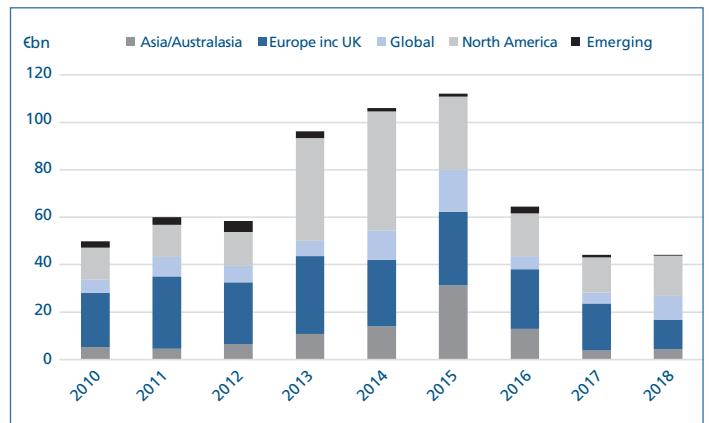
Figure 4: Change in the popularity of market sectors over time (by number)



In the eight years since 2010 only Global and Emerging Market funds have seen a reduction in the number of funds launched over the period, the North American fund launches nearly doubling (a 92% increase) and the European funds (including UK) increasing by 76%. The Australasian market has seen just under a 9% increase in fund numbers.

PFR recorded €88 billion of equity being raised in 2018, for funds across all geographies, a significant reduction from the €111 billion recorded at the peak of fund creation in 2015. The Australasian and Global focused funds seemed to have witnessed the most significant fall in commitments over recent years. In contrast, the North American and European funds have continued to see a consistent level of equity invested in them with around 40% and 30% of the equity over the past two years going to North American and European funds respectively.

Figure 5: The geographical focus of funds by value and vintage



PFR is aware of only 15 2018 UK fund launches where the managers are targeting approximately €4 billion of equity, five of these funds targeting residential PRS assets. Debt funds were the next most popular, with four funds launched. Of the 39 European (ex UK) funds targeting equity of over €31 billion, under half had a diversified strategy, with debt and residential funds the next most popular. There were six global diversified funds, one global infrastructure fund and one global residential fund launched in 2018. They are targeting equity of approximately €30 billion. Finally, there were 54 North American funds launched in 2018. 21 of the funds have a diversified strategy, 12 are investing in real estate debt and 12 are residential. In total these funds are looking to raise in excess of €25 billion.

What should investors expect from large core funds?

From a theoretical perspective larger real estate funds should outperform smaller funds on a risk-adjusted basis. The rationale is that larger funds should exhibit lower risk (e.g. lower volatility and tracking errors) as they are more diversified. Large funds should also benefit from having access to a greater opportunity set and economies of scale which should generate higher net returns. However, evidence in the UK suggest that investors in larger funds (defined as greater than £1 billion) may have experienced marginal under-performance at higher risk than smaller funds. What factors could explain this? Evidence suggests that larger funds have not built index tracking portfolios through increased diversification. Instead, large fund portfolios are typically characterised as having (i) larger average lot sizes, (ii) lower yielding assets, (iii) fewer core+/value add assets, and (iv) greater development exposure (see figures 6-8).

Figure 6: UK balanced funds - average GAV and average lot size

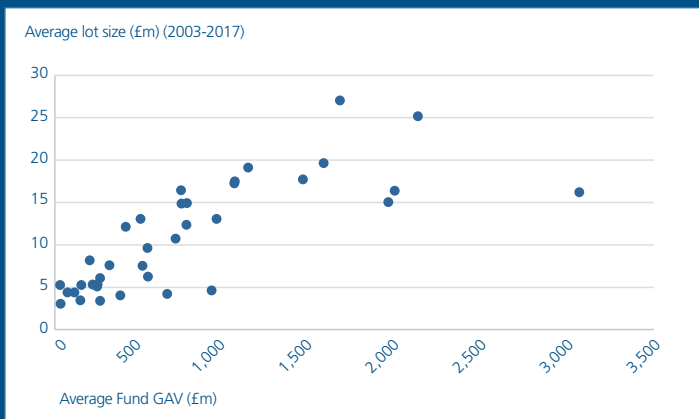


Figure 7: UK balanced funds - average GAV and average lot size

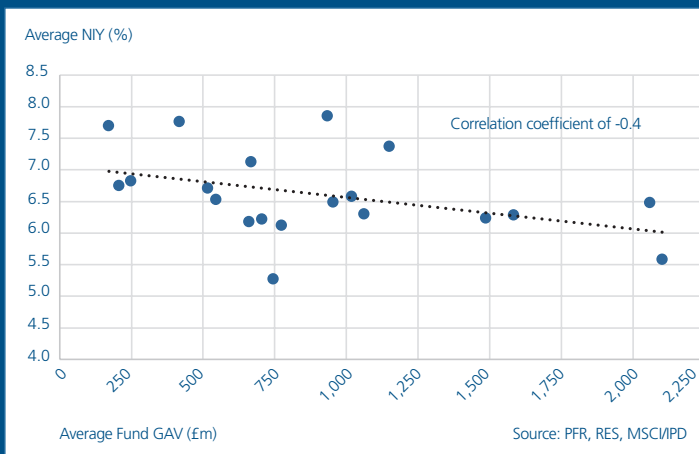
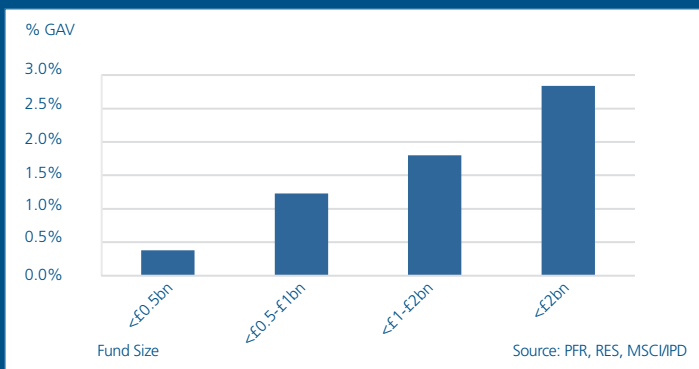


Figure 8: UK balanced funds - average GAV and development exposure



These factors create distinct portfolio risk and return characteristics. Firstly, higher lot sizes across sectors/segments are typically higher beta, higher growth assets with the lowest yields. On a total return basis, higher lot size assets have not uniformly delivered commensurately higher returns than higher yielding assets. Secondly, in the UK market the largest lot sizes are in retail warehouse, shopping centre and central London office markets. The acquisition of larger assets naturally tilts portfolios towards overweight positions in these markets. Over the long-term, overweight positions in these segments have generally been dilutive for risk-adjusted returns. Thirdly, by having fewer core+/value add assets within the portfolio, the manager is arguably limiting the alpha potential, with previous research indicating that value add funds (before leverage) were the only style (vs core and opportunity) to deliver consistent alpha (PFR, 2012). Fewer core+/value-add assets in the fund may also explain the increased exposure to development with managers possibly trying to replace the value-add alpha. Previous studies have shown that on average developments have not been accretive to performance (IPD, 2012) while development is clearly a high beta (high risk, very sensitive to market movements) activity.

While the portfolio characteristics provide a reasonable explanation of the historic performance of larger funds, the impact of net capital flows, particularly for managers of open-ended unitheld funds, must also be considered. Over the past 25 years there has been a positive correlation between fund performance and net investment flows. It is not clear if it is the performance driving flows or vice versa (probably a bit of both), but what is clear is that pro-cyclical investment flows damage performance. During the global financial crisis, it was the largest open-ended funds that experienced the largest outflow of capital, forcing disposals assets in a weak market to meet redemptions. In the recovery, these funds then acquire assets at higher prices when net investment turns positive. This is clearly detrimental to performance (even before considering the impact of transaction costs) and this is magnified when trading higher beta assets. This suggests that some form of gating mechanism that controls the growth of a fund in both a rising and falling market should be beneficial for performance.

These issues present challenges for managers of real estate funds and there appears to be a trade-off between efficiency and profit versus risk. Smaller assets cost more per pound invested to manage which may have led to some managers pursuing a strategy to dispose of smaller assets and rotate capital into fewer larger assets as a fund grows to maximise profits. With the performance of smaller assets different to larger assets, managers that adopted such a strategy may have unintentionally increased the risk of the portfolio. A strategy of increasing the average lot size may also create a misallocation of resource. For example, a lease negotiation on a large single tenant building is likely to take a similar amount of effort from an asset manager as a smaller single tenant building but the impact on the risk and performance of the fund being disproportionate.

Given the findings of our research, should managers of large core funds focus more on delivering beta? Yes: we believe that managers could construct larger diversified portfolios, more accurately mimicking the risk and return characteristics of the market (holding smaller value-add assets, and not over-allocating to development, for example) and use economies of scale to reduce fee loads for investors. Investors wanting exposure to higher risk strategies could then allocate capital to funds/managers focused on alpha strategies.

The 2018 PFR global fund manager survey

Table 1: 10 largest real estate fund managers by AuM (€bn)

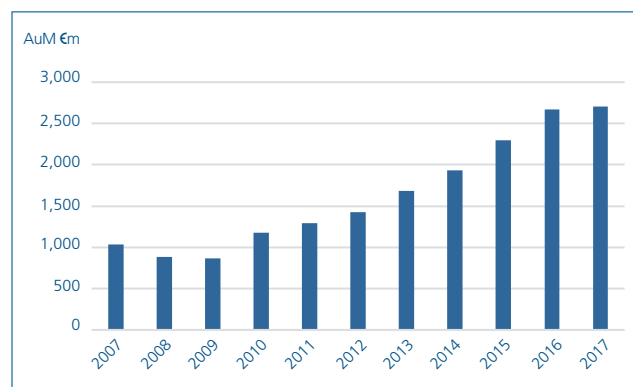
Manager name	Total	Europe	North America	Latin America	Australasia	Asia	Middle East	Non-disclosed
Blackstone	161.54	45.93	24.47	-	-	9.20	-	81.94
Brookfield Asset Mgmt	137.45	23.57	97.82	2.00	6.81	7.09	0.16	-
PGIM	108.01	9.60	84.96	2.77	0.47	6.73	-	3.48
Hines	91.73	17.25	69.40	2.61	0.37	2.10	-	-
Nuveen/TH Real Estate	90.94	26.34	62.31	0.14	0.74	1.42	-	-
CBRE Global Investors	86.01	44.51	33.00	-	-	8.50	-	-
UBS Global Asset Mgmt	76.41	30.14	31.55	0.19	1.2	13.25	-	-
AXA Investment Managers - Real Assets	71.12	66.37	1.00	-	3.16	0.59	-	-
Swiss Life Asset Managers	69.26	69.17	0.01	0.03	0.00	0.03	0.01	-
JP Morgan	69.04	5.12	62.02	-	0.14	1.77	-	-

PFR's thirteenth annual Global Real Estate Fund Manager survey (produced in association with IREI) was completed by 198 fund management houses which accounted for €2.9 trillion of real estate assets under management, around 13% of the €23 trillion of real estate which PFR estimates as the size of the global investable stock. Thus, leaving an estimated €17 trillion in the non-securitised market where data collection is hampered by issues of transparency. The significant number of mergers and acquisitions within the fund management community have played a part in curbing the increase in participant numbers. The drive for scale does not appear to have diminished and PFR has already recorded 17 new corporate transactions which will materially change the look of the 2019 report.

The geographic spread of assets under management illustrates the dominance of the North American and European markets, and increasingly of the former. This finding somewhat reflects the nature of the global fund management industry with 64% of the respondents by assets under management being domiciled in North America. The European domiciled managers accounted for 29% of AuM, with the Asia Pacific representation accounting for only 7.2%. In our 2010 report, the European domiciled managers accounted for 47% of the asset value captured in the survey, compared to 46% and 7% for North American and Asia Pacific domiciled managers respectively. A number of observations can be made with regard to this dramatic growth of the North American domiciled managers. Firstly, the increased willingness of the managers to be more transparent and actively take part in the survey will have undoubtedly increased participant numbers and the underlying AuM values. Secondly, there has been a clear drive by the big North American managers to grow their businesses via corporate acquisition rather than by organic business growth. North American managers have been buying European managers and portfolios in their effort to break into the global market; if there were Asian managers of adequate scale, they too would be highly attractive to US/ Canadian managers.

The top 10 managers have a combined AuM of €962 billion, with the top five managers accounting for €590 billion. There has been very little change, by size, over the last two years between the largest five managers, with The Blackstone Group remaining in the top spot (with a 2 percent increase in AuM over last 12 months), followed by Brookfield Asset Management and PGIM. These companies have experienced a decline in AuM of -2 percent and -9 percent respectively.

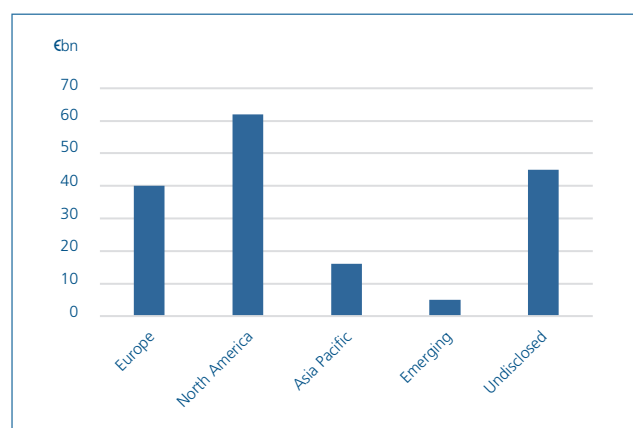
Figure 9: Growth in AuM of the largest 100 Managers (€m)



The 2016 global manager survey recorded a total of €155 billion of committed but uncalled capital. This figure has increased by over 9% to €169 billion for the most recent survey. The geographic allocation is illustrated in Figure 10 below. Most notable, though probably not a surprise, is that North America is the target for the largest amount of unspent capital amounting to €62 billion. Europe has €40 billion and the non-disclosed category accounts for €45 billion.

The 100 largest fund managers accounted for a combined AuM of €2.7 trillion in 2017, only 1 percent greater than the amount recorded for the previous year. This increase is the lowest recorded since 2009 when the aggregated year end data saw a 2 percent decrease in value from that recorded in 2008. What has driven the lack of investment activity in the past 12-18 months? Have investors begun to lose confidence in fund managers, or is this down to poor market sentiment/confidence? Will we see investors begin to place more equity with larger managers who can deliver the geographic diversification opportunities these mergers bring?

Figure 10: Committed but unspent capital by region (year end 2017 €bn)



London offices or the regions?

Many investors are seeking to preserve real capital values and earn a reasonable income by investing in offices, with London being their location of preference. But which location is most likely deliver the most attractive risk-adjusted return – central London or the regional markets?

Regional commercial property benefits from less competition for assets, which creates a higher initial yield. In addition, weaker links with international capital flows leads to less speculative, expectation-driven swings in yields. Central London is riskier due to the predominance of finance, which is volatile. The lack of liquidity could keep yields higher, aiding an income-seeking investor.

Alternatively, economic growth has been and is expected to be stronger in London, giving less support to rental growth, and lower liquidity in regional markets could impact exit pricing. In addition, lower land values mean more depreciation in the regions. Even if an investor is prioritising income, sale prices and depreciation cannot be totally ignored.

Our analysis found that fluctuations in returns are driven by variations in rent growth and (increasingly) yield. There is evidence of cycles in total returns, which are magnified in London offices where assets have delivered the highest capital growth. As expected, higher yields in regional offices have produced higher income returns than available in the capital.

Our forecast cash flows reveal positive short-term rental growth outlook outside London, with total returns look stronger outside London and the south east. Liquidity has been at its maximum in the City, which may account for Central London being more volatile and cyclical as the market is more responsive.

Although London produces more capital growth, the regional markets provide a better capital preservation strategy. In the long-term, based on current pricing and our beliefs for long-term real rental growth and capital expenditure, we are confident that regional offices will out-perform central London offices with lower volatility. The income return will be a significant component of this performance.

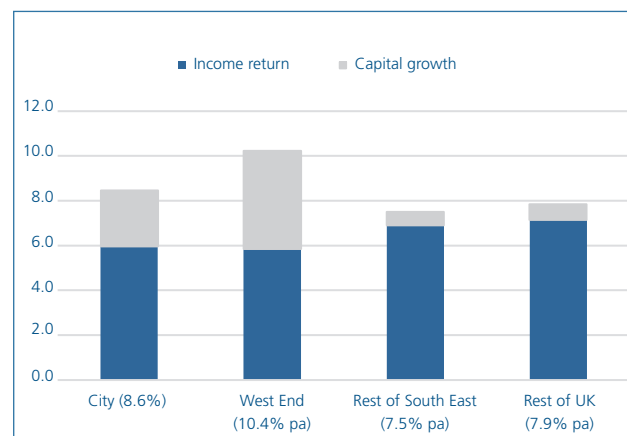
Over shorter time periods there will undoubtedly be periods of significant out-performance by central London. Unfortunately, we are not confident of our ability to forecast these periods with any great certainty. However, we recommend taking an underweight position in central London offices when real rents are above their long-term trend and pricing is below fair value. Both these conditions currently hold.

When central London rents move significantly below their long-term trend and/or pricing rises above fair value we recommend then making a tactical allocation to central London to benefit from a future upswing.

Investment in regional offices depends crucially on maintaining high occupancy and minimising revenue and capital costs. Identifying flexible buildings (to minimise future capital costs) in durable locations will be essential in these smaller, relatively low demand, locations.

Regional UK office markets provide the supply of assets and relatively high yields required for an income-seeking investor in the £5m - £25m lot size. Liquidity does not seem to be affected by location. Volatility is lower than in London, but depreciation is higher.

Figure 11: Components of average property total return 1981-2016



Property Funds Research (PFR) was established or re-branded in 2006 when its predecessor company, OPC, was sold to CBRE Global Investors.

OPC was established by Andrew Baum and Jane Fear in 2001 in order to develop the first global database of unlisted property funds, fund managers and investors and to provide this data to a group of clients. This data was later supplied to INREV, the European Association for Investors in Non-Listed Real Estate Vehicles (Europe's leading platform for sharing knowledge on the non-listed real estate industry) while OPC (and later PFR) continued to maintain its own private database, independent of INREV. While OPC continued to supply data and advisory services to its client base, it also developed a multi-manager and fund of funds business and became FSA authorised. This development led to the sale of OPC to CBRE Global Investors in 2006.

At this time the former senior OPC staff led the development of CBRE Global Investment Partners (GIP) which evolved from OPC's

multi-manager business and a small amount of CBRE GI's internal indirect fund management. GIP expanded rapidly to become a global leader in indirect property investment and now has over US\$25bn under management.

In 2008, PFR formed a joint venture with Germany-based Feri, an investment advisory firm. This was dissolved in 2011, since when PFR has rebuilt its product offering and capabilities as an independent real estate investment advisory firm.

Over the 15 years of our existence we have built a suite of proprietary datasets, investment processes and forecasting models. Our objective is to develop long term relationships with a number of investor clients for whom we provide an individualised advisory service. We also offer business development consulting and manager advisory services through/with an associated platform, Source Central, led by Rajeev Ranade.