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Sources of alpha and beta in property funds: a case study

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Abstract

Purpose – Since the mid-1990s, in a generally strongly performing property market, there has been huge growth in the aggregate size and number of global property funds in both listed and unlisted formats. Managers have been able to raise significant capital, which potentially rewards them with performance fees without necessarily being able to provide clear evidence of out-performance against defined market benchmarks or performance targets. In a more challenging, mature and increasingly transparent market this is unlikely to continue to be the case as it will be increasingly possible to assemble performance records. The purpose of this paper is to describe the sources of risk and return within property funds and set out a more holistic performance attribution framework encompassing the concepts of alpha (out-performance) and beta (risk), which traditional attribution frameworks in property fund management do not.

Design/methodology/approach – A four component risk and return attribution framework is put forward. The first two components are portfolio structure which measures the impact of allocations to more or less risky markets, and stock selection which considers more or less risky assets. Fund structure, measures the impact of financial leverage and fees and finally the return impact of timing is attributed to the movement of capital into and out of the fund.

Findings – A case study of a single unlisted fund has been used to compare traditional attribution results with an examination of alpha and beta return attribution. In this instance fund structure, which is largely the financial leverage impact, is found to be significant. This simply reflects extra risk taking and there is no clear evidence of manager out-performance, yet significant performance fees are paid to the manager.

Originality/value – The paper provides a complete framework for the performance measurement and attribution of property funds, which enables investors to gain a fuller understanding of these increasingly used investment conduits.

Keywords Property, Investment funds, Financial performance

Paper type Research paper

1. Introduction

Since the mid-1990s, in a generally strongly performing property market, there has been huge growth in the aggregate size and number of global property funds in both listed (real estate investment trust, REIT) and unlisted formats. The growth seen in the unlisted market has helped facilitate growing cross-border property investment in Europe and across the world. The biggest barrier to cross border investment is scale and even the largest institutional investors would not be able to construct portfolios of a satisfactorily diversified size. Other barriers to entry to direct investment that

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unlisted funds overcome include access to local expertise and tax efficient holding structures (Figure 1).

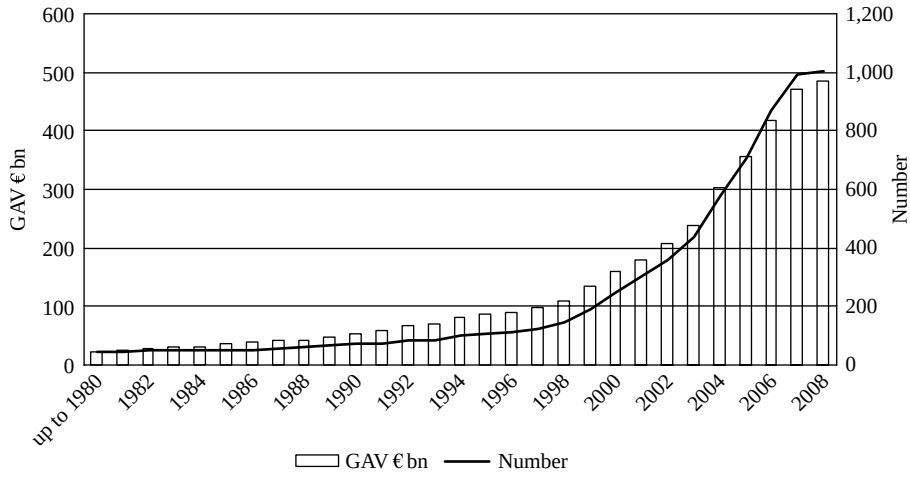
Fund managers have been able to raise significant capital, particularly for unlisted funds which reward them with performance fees without the manager necessarily being able to provide clear evidence of historic out-performance against market benchmarks or targets, or structure performance. In a more challenging, mature and increasingly transparent market this is unlikely to continue to be the case as it will be increasingly possible to assemble performance records. Potential analytical performance systems will include traditional attribution methods but will also cover the risk-adjusted performance concepts of alpha and beta widely used in other asset classes.

The concept of alpha and beta is drawn directly from Sharpe's (1964) capital asset pricing model (CAPM). Anson (2002) describes CAPM as a regression model which can be used to determine the amount of variation in the dependent variable (the fund return) that is determined or explained by variation in the independent variable (the appropriate market return):

$$\text{Investment return} = \alpha + \beta \times \text{Benchmark return} + \varepsilon$$

The important measure of manager performance is the intercept term α, which represents the excess return earned by the fund over and above that of the benchmark. However, it is important that this is measured as a risk-adjusted return, in other words that the effect of pure risk is taken out of the intercept. The security market line (SML) posits that higher risk assets and portfolios should earn higher returns. A higher risk portfolio should out-perform a lower risk portfolio on a risk-unadjusted basis but this does not demonstrate manager skill. However, out-performance of the SML does and this is measured by alpha. The majority of studies have found persistent alpha is difficult if not impossible to achieve.

This paper examines the concepts of alpha and beta in the context of property fund investment. Having discussed the sources of risk and return in property funds the



Source: Property funds research

Figure 1.
Growth of the European (including UK) unlisted indirect market

paper then turns to the issue of performance attribution. Traditional performance attribution systems in institutional property fund management do not account for risk-adjusted performance. A key issue is whether fund performance fees adequately distinguish between risk taking (higher beta) and genuine out-performance (alpha). To illustrate this, an unlisted fund, whose complete performance record has been made available, is used as a case study. The contribution of this study is to provide a fuller framework in which the performance of property funds can be assessed.

2. Concepts of alpha and beta in property investment

Alpha represents out-performance and implies that the manager has demonstrated skill. Property fund managers can exercise skill when structuring their portfolios from a top-down perspective (allocating to markets and sectors) and at the stock level (sourcing and managing their assets). Out-performance at the portfolio structure is delivered by managers who, *ceteris paribus,* allocate relatively more to outperforming sectors or geographies. This implies that the manager has a forecasting capability which is their source of their out-performance allocation policy.

As noted by Geltner (2003) out-performance at the stock level is very different to that of traditional securities fund management, and this is largely due to the "private equity" characteristics of property. Properties are selected by investor/owners and require ongoing asset management which encompasses a number of activities. These include property management can arise from operational cost control, tenant relationship management, asset maintenance, leasing strategy, marketing and asset enhancement/refurbishment via capital expenditure. Alpha can also be generated when assets are bought and sold. For example, managers who are able to purchase assets at discounts, recognize latent value that is not reflected in valuations, negotiate attractive prices, and who have the ability to execute more complex deals and thus face less competitive pricing, will *ceteris paribus*, outperform their benchmarks.

Property investment risk (beta), like alpha, can be broadly separated into both structure and stock beta. Within the constraints of a domestic benchmark "structure" beta arises from allocations to more volatile sectors such as central business district office markets. When mandates allow for global investment, exposures to more risky geographies such as emerging markets are then a source of additional risk. Defining structure risk in a purely quantitative manner is difficult in some situations because certain aspects are difficult to quantify. For example, differences in transparency and property rights may not be reflected in the relative performance of market data.

Stock level beta is an area of potential confusion. For example, development can often be referred to as a source of alpha in a given portfolio. This is incorrect, as development in itself is a more risky property strategy and should be reflected by a higher beta. Development alpha is achieved by out-performing development managers. Thus, there is a continuum of asset level risk ranging from ground rent investments, to assets with leasing risk and high vacancy, to speculative developments, all of which should be assigned a hierarchical range of betas.

The received wisdom is that it is easier to find alpha, those returns that are due to manager skill, in an inefficient market. It is also generally accepted that commercial property is an inefficient market; however, empirical studies do not find strong evidence of delivered alpha in property fund management. Lee (1997) examines the UK pooled funds market using both the traditional CAPM equation and also the

Henriksson and Merton (1981) extended CAPM model which measures the timing and selection ability of managers. Timing in this respect relates to the ability of managers to increase beta in rising markets. Using both methods Lee's study finds little evidence of manager alpha but does find that selectivity dominates timing in driving property fund performance. Lee and Stevenson (2002) revisit this work using meta analysis. Again there is evidence that managers are unable to outperform through timing but there is evidence that they improve their risk-adjusted performance through selection.

In research undertaken for the UK Investment Property Forum (IPF) using data from the Investment Property Databank (IPD), Mitchell and Bond (2008) discovered little evidence of systematic out-performance for most property fund managers. Lee's (2003) study of the UK pooled funds universe and again found little evidence of either short- or long-term performance persistence. However, both studies found that a small number of funds in the top decile showed persistent risk-adjusted out-performance, but most managers were unlikely to offer consistently above or below average returns.

Mitchell and Bond suggest that manufacturing beta exposure (mimicking the returns of the market) is difficult because property is a heterogeneous asset class. In addition, the operational cost of managing passive property exposure is not significantly lower than active property management. The IPF research found that although stock selection was the strongest driver of performance and alpha in the period measured, it was no use in predicting either in the following period. This lack of alpha persistence leads to an increase in the importance of beta as driver of performance. The study also surveyed a number of investors and consultants who saw property as a beta asset class, so that one could conclude that the lack of observed alpha is not an issue for institutional investors.

Empirical work indicates that: a large number of properties are required in order to get down to systematic risk levels and, on average, some 10 per cent of an individual property's return is accounted for by a broad market factor (Brown and Matysiak, 2000). Baum (2006, 2002) showed that specific risk is a function of lot size and diversification efficiency. Sectors in which the performance of individual assets is similar and where lot sizes are high are difficult to diversify.

3. Attribution systems in property performance measurement

Property investors have used performance measurement or benchmarking services for several years. They exist, first and foremost, to show whether a portfolio has achieved a rate of return better or worse than the "market" average, or met investment objectives specified in a more sophisticated fashion. After benchmarking there is an inevitable demand for "portfolio analysis" which addresses the question: "why did we out-(under-) perform the benchmark?"

Baum *et al.* (1999), suggest that the ideal system of portfolio analysis would identify the contribution of all aspects of portfolio strategy and management to relative returns. It would separate, for example, profits earned on investments from returns on held properties. Those are two distinctly separate activities with different return and risk characteristics, and reflect different features of management "skill". Among held properties, relative return may be influenced by anything and everything from the broadest allocation of investment between sectors to skill in selecting tenants, negotiating rent reviews, and controlling operating expenses.

In practice, the heterogeneity of individual properties and complexity of property management mean that the contributions of different functions and skills to portfolio performance are hard to disentangle. Attribution analysis as used in practice seeks to separate (at least) two components of a portfolio's relative return. The first is relative return which is due to "structure" – the allocation of investment to "segments" of the market with different average rates of return. The second is "stock selection" – the choice of individual assets within each market segment which have returns above or below the averages for that market segment.

Attribution analysis is of importance not just only in terms of analysis, but also in the specification of investment objectives, the selection of managers, and setting performance-related rewards. Yet the academic and professional literature which deals with attribution of relative returns in property fund management is thin. The literature on portfolio analysis for equities – the original source of the attribution technique – is not only surprisingly sparse, but also sets out several apparently different methods of defining and calculating attribution components. In addition, connecting return attribution with concepts of alpha and beta has not been attempted.

The standard approach to the analysis of equity portfolios (as pioneered by Brinson *et al.* (1986)) starts from three primary contributors to portfolio return: policy, structure and stock. Policy is the fundamental selection of the benchmark against which the portfolio's performance is to be measured. Structure is the allocation of portfolio weights to "segments" of the market – typically but not necessarily defined by a mixture of property types and geographical locations. Stock is the selection of individual investments within each segment which deliver returns above or below the average for that segment. Lo (2007) takes the measurement method further, but based on the same stock and structure approach. Mathematically the standard approach is as follows:

$$\text{Relative return} = \frac{1 + \text{Portfolio return}}{(1 + \text{Benchmark return}) - 1}$$

$$\text{Structure score} = (\text{Portfolio weight} - \text{Benchmark weight}) \times \text{Benchmark return}$$

There are then two attribution methods that can be employed to calculate the selection score; two and three component attribution. Two component performance attribution calculates the selection score as follows:

$$\text{Selection score (Two component)} = \text{Portfolio weight} \frac{1 + \text{Portfolio segment return}}{(1 + \text{Benchmark segment return}) - 1}$$

The three component method selection score is only slightly different and uses the benchmark weight instead of the portfolio weight:

$$\text{Selection score (Three component)} = \text{Benchmark weight} \times \frac{1 + \text{Portfolio segment return}}{(1 + \text{Benchmark segment return}) - 1}$$

As a result, the three component structure and stock scores do not sum to the relative return and thus there is a residual term known as the cross-product:

$$\text{Cross product} = \text{Relative return} - \frac{1 + \text{Structure score}}{(1 + \text{Selection score}) - 1}$$

This cross product or interaction term, as it is also known, has been a source of much disagreement amongst practitioners. Most studies and performance measurement suppliers, including IPD, use the two component method outlined above or incorporate it in the structure score. However, a number of parties such as Hamilton and Heinkel (1995) relate the cross product term to management decisions. They suggest that a positive cross product term reflects a manager's decision to focus on a segment where they have "stock" skills or specialisation. Keeris and Langbroek (2005) highlight the potential importance of the cross product term and show that when portfolios are structured in increasingly different ways to the benchmark, its relative importance grows.

Several considerations bear upon the choice of segmentation: statistical, practical and convention. Statistically each segment should contain a sufficient number of properties for the average return to be reasonably robust: that is, each segment should ideally only reflect systematic risk. The optimum segmentation of the market is that which statistically explains the most variance in individual property returns. Practically, segments most usefully cover property categories or areas for which property market information, with supporting information key factors, are readily available to support analysis and forecasting. By convention, segments will be most acceptable to investors where they follow the generally accepted ways of dividing and analysing the market: it would be difficult to offer an analysis service in the UK, for example, which did not show City of London offices as a "segment".

Property fund managers may adopt asset allocation positions which are different from the segment weighting of the benchmark for a variety of reasons. This may be the result of tactical asset allocation, so that views of likely market returns influence a manager to adopt an underweight or overweight position relative to the benchmark in an attempt to produce out-performance. It may be the result of strategic asset allocation or policy, where issues other than pricing – for example, liability matching – influence the asset allocation mix. It may also be the conscious or unconscious result of the style of the fund manager.

To some extent, this term has been appropriated (or misappropriated) by followers of Sharpe's (1988) "style analysis". This purely statistical method of analysis attempts to measure investment policy retrospectively by estimating the goodness of fit of returns with benchmark returns on investible asset types. Baum and Key (2000), on the other hand, use the term in an attempt to reflect more commonly used judgements of investment style in fund management. Style implies some persistent bias in the property portfolio structure which is the result of preference or of habit.

Geltner (2003) adopts a different and original approach to property performance attribution. He is concerned to dig deeper into the stock selection effect, and adds a second level of performance attribution, splitting stock effects into the following four sub-activities:

(1) property selection;

(2) acquisition transaction execution;

(3) operational management; and

(4) disposition transaction execution.

If appropriate benchmark return data is available – internal rate of returns (IRRs), not time-weighted returns, he recommends, because the timing of expenditure is under the manager's control – then the manager's relative skill might be measurable. Geltnere attempts to measure the impact of these activities using three variables:

(1) initial yield;
(2) cash flow change; and
(3) yield change.

This second level of attribution is interesting, but Geltner makes no attempt to relate these activities to alpha and beta.

Each of the activities shown in Figure 2 can be alpha-generating. They key issue, it appears, is whether the activities deliver extra returns through skill or through risk. Property selection can deliver positive cash flow change through skill or through risk. The same is true of operational management. Excellence in transaction execution appears to be a pure alpha activity though, all other variables may be either beta or alpha activity and this attribution system does not help us to relate additional return through higher initial yields, better cash flow growth or better yield improvement to pure alpha or pure beta activity.

4. Characteristics of unlisted property funds

Investing in unlisted funds is an attractive way to reduce the specific risk inherent in direct property investing. Leverage increases the appeal of unlisted funds, as this has improved returns and less equity capital is needed to gain access to large portfolios, but leverage carries with it financial risk which will offset to some extent the risk reduction which investors require (Baum, 2006). The market is as yet highly immature, and time will tell which of these are the dominant drivers of the risk and return characteristics of unlisted funds.

Property Funds Research (PFR, 2006-2008) estimates, $4.5 trillion or 28 per cent of the total global institutional property stock is held by listed and unlisted property vehicles, with 16 per cent held in listed vehicles and 12 per cent in unlisted funds. The universe of unlisted property vehicles has grown dramatically over the last ten years with the most dramatic activity being in the last five (Baum, 2008). In Europe, the number of funds in the PFR Universe has grown on average by over 20 per cent

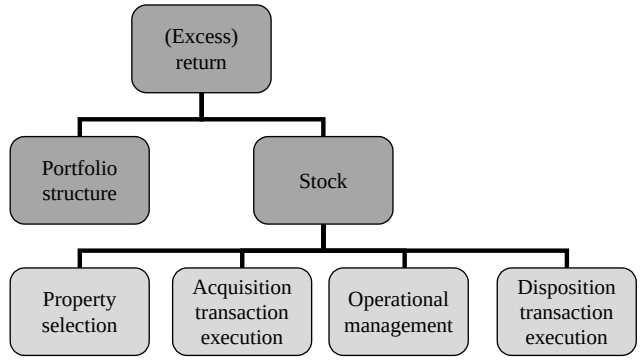


Figure 2.
Attribution of property returns

per annum over the past ten years, although this has now slowed almost to a halt, with a marginal increase in the number and gross asset values (GAVs) of funds over the calendar year 2008.

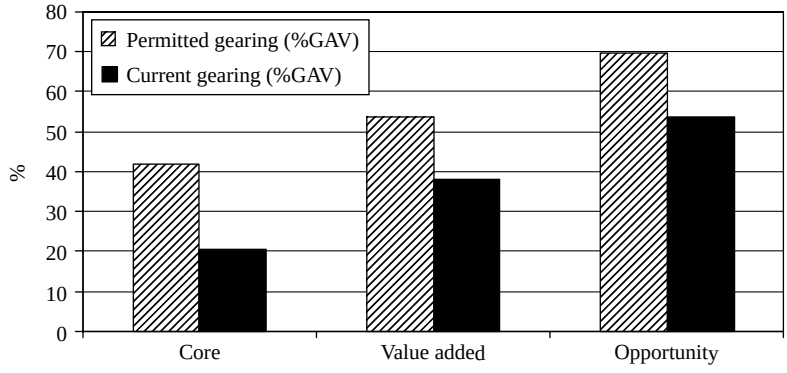
These funds are differentiated by risk style types and the industry has adopted three risk classifications; core, core-plus/value-added and opportunity. Core funds are low-risk funds with no or low gearing, while opportunity funds are higher risk, higher target return funds with high levels of gearing. At the beginning of the 1990s core funds accounted for 97 per cent of the market by GAV. This compares to just over 60 per cent at January 2008. Opportunity funds experienced rapid growth between 2000 and 2003 but value-added funds then emerged as the style of choice, making up the majority of funds launched since 2005.

PFR monitors permitted gearing based on the level of debt in a vehicle as a percentage of GAV (Figure 3). Property funds also tend to have a variety of other investment restrictions aimed at limiting the risk of a particular portfolio of investments. For example, development is limited to anywhere between 10 and 30 per cent of GAV. There is likely to be some kind of investment restriction based on the amount invested in any single asset, typically in the region of 15 per cent of GAV.

Table I shows the delivered and expected returns on a series of high-return funds with typical performance fees or carried interests.

The average difference between the gross of fees IRRs earned by the fund and the net IRRs delivered to investors is just over 5 per cent, or just over 20 per cent or one-fifth of the gross IRR. This is a substantial additional fee load for the investor and should therefore be justified in a relative context.

PFR data suggests that typical annual fund management fees excluding performance fees average around 0.8 per cent of GAVs, taking away less than 1 per cent return every year. Thus, the large fee impact shown in Table I is explained by "carried interest" or performance fees. High performance fees may be justified if the manager has exercises skill, but, as we have seen, a higher risk portfolio should out-perform a lower risk portfolio on a risk-unadjusted basis. This means that the manager could earn a high fee by taking risk with the client's capital. Performance fees should ideally reward alpha, but they may simply reward additional risk taking, i.e. increasing beta.



Source: Property funds research

Figure 3.
Current and permitted gearing by fund style

Fund	Gross IRR (%)	Net IRR (%)	Fee impact (%)	Fee impact (%)
1	29.0	25.0	4.0	13.8
2	17.0	13.0	4.0	23.5
3	33.0	25.0	8.0	24.2
4	35.0	30.0	5.0	14.3
5	27.0	21.0	6.0	22.2
6	46.0	37.0	9.0	19.6
7	21.0	16.0	5.0	23.8
8	34.0	27.0	7.0	20.6
9	16.0	13.0	3.0	18.8
10	20.0	15.0	5.0	25.0
11	18.0	14.0	4.0	22.2
12	20.0	16.0	4.0	20.0
13	14.0	12.0	2.0	14.3
14	20.0	15.0	5.0	25.0
Mean	25.0	19.9	5.1	20.5

Note: Rounded
Source: Authors

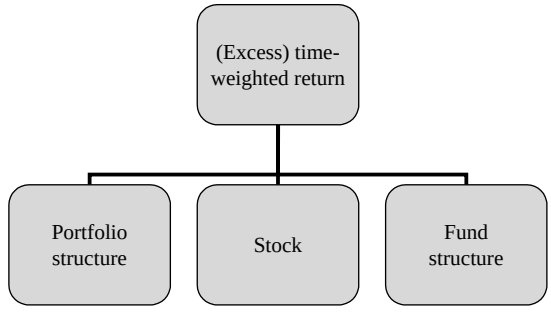
Table I.
Total returns, fund series – fee impacts

In addition, performance fees may represent a form of free option (asymmetrical, as options tend to be) for the manager. High returns may lead to high fees and limit the investor's upside without limiting the manager's upside; while the opposite situation may describe the downside, as the investor will directly suffer, but the manager will not. Hence, there is a large incentive for managers to create high returns but and whether alpha or beta delivers those returns may be immaterial.

5. The attribution of returns on property funds

Risk and return attribution systems now need to be developed for property funds and as an example, Baum (2007) focuses on the additional return and risk contribution of fund structure to the traditional structure and stock factors. Under this proposed approach, it is necessary to take away vehicle return effects in order to expose the property effect, and then to deduct the structure contribution to reveal the stock contribution (Figure 4).

Fund structure is a factor specific to property held in a vehicle or wrapper. This factor will impact on the returns from listed REITs and property companies, and from



Source: Property funds research

Figure 4.
Time-weighted return attribution for a property fund

unlisted funds, alike. There are two main drivers of the fund structure impact: fund expenses and management fees; and leverage. Baum (2007) uses empirical evidence derived from the IPD UK Pooled Property Fund Index, measuring the fund structure effect by taking the fund returns, the funds' quarterly gearing levels, interest rates and annual fee structures, and "de-gearing" the gross of fee returns. Deducting this vehicle impact leaves the property contribution. Deducting the structure contribution to the property return from the derived property level return series produces the stock contribution to return.

Using the sets of data described above, the tracking error of 18 funds against the IPD UK Pooled Property Fund Index were computed. In addition, depending on the funds' reporting and data availability, the earliest available period for each fund in which all necessary data were available was used to predict the tracking error given the above approach. The actual fund tracking errors (over the time periods corresponding to each fund's data availability) were then compared to the predicted fund tracking errors. The fit between actual and predicted fund tracking error was higher than the fit between actual and observed property tracking error, validating the inclusion of gearing and fee factors in a fund risk measure.

Bostwick and Tyrell (2006) show how leverage can change the relationship of return and risk non-proportionately. Nonetheless, as illustrated in Baum (2007) and CBRE Investors (2008) it is generally accepted that the greater the use of debt finance the greater the risk of a property fund or portfolio. Hence, while there may be some skill in financial structuring, pure leverage is largely a beta generating activity. Expenses and fees simply limit the impact of that beta contribution. Hence, fund structure adds beta.

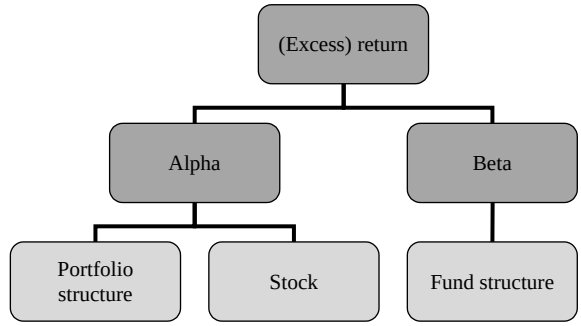
As discussed above, if all portfolio segments are of similar risk, then positive excess returns generated by the portfolio structure relative to a benchmark will produce alpha. If they result from taking overweight positions in high-risk markets, then they generate beta. In the context of unlisted funds, which are largely owned by diversified investors or by fund of fund managers, much of this risk is diversified away. Hence, unless we can observe a strong bias to emerging markets in the portfolio structure, we can suggest that structure contributes alpha.

The same argument can be broadly applied to stock. Property selection can deliver higher initial returns through skill or through taking risk, but unless we can observe a strong bias to risky property types through, for example, pure development exposure or high-vacancy rates, then the stock impact can be assumed to deliver pure alpha (Figure 5).

Finally, the unlisted fund draws capital from investors over a period of time which could be as much as four years. The timing of the drawdown is within the manager's control, meaning that an IRR based approach is appropriate for return measurement. The benchmark, however, will report a time-weighted return, therefore the difference can be attributed to investment timing and therefore fund drawdowns. Therefore, a four-stage alpha/beta return attribution is recommended:

(1) Fund structure, which is largely the leverage impact, will contribute primarily to beta. Fees will limit the return, however created, and performance fees create a non-symmetric return delivery which is problematic for investors and can for ease be assigned to beta.

(2) Portfolio structure needs to be judged as either an overweight position to more risky markets, or less risky markets, which will produce a beta impact, or as a



Source: Authors

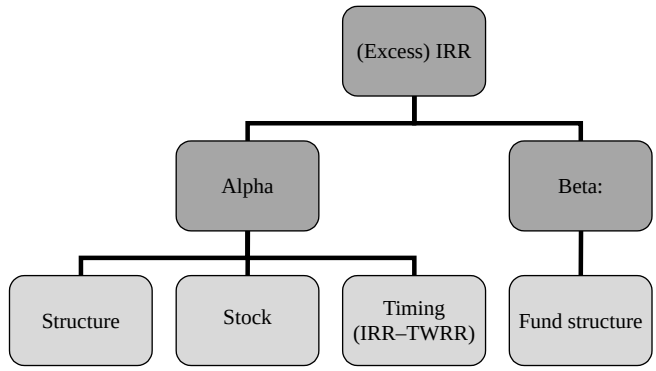
Figure 5.
Time-weighted alpha and beta attribution for a property fund

set of positions with no greater or lesser market risk, in which case any extra return created through portfolio structure is wholly alpha.

(3) Stock selection also needs to be judged as favouring more or less risky assets, which will produce a beta impact, or as a set of investments with no greater or lesser market risk, in which case any extra return created through stock selection is wholly alpha.

(4) The return impact of timing is attributed to the movement of capital into and out of the fund. The manager's skill in investment timing, which is an alpha activity, would be reflected in this effect. This will be of greater importance in value-added and opportunistic funds which have shorter investment horizons and look to distribute capital back to investors more quickly.

None of the above is intended to suggest that isolating and measuring alpha or beta is straightforward. The choice and/or availability of benchmarks, in particular, are limiting factors. Judging whether greater risk is being taken at the structure or stock level will be a matter of opinion and is therefore a pragmatic and not likely to be an academically satisfying, question (Figure 6).



Source: Authors

Figure 6.
Money-weighted return attribution for a property fund

6. Alpha and beta in property funds: a case study

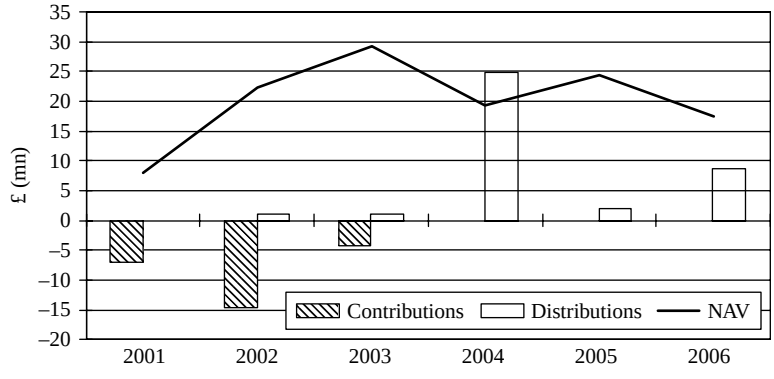
To illustrate the property fund attribution framework set out in Section 6 a closed-ended value-added UK-focussed unlisted fund is used as a case study. The fund had mandate to invest across the UK, thus the UK IPD universe was chosen as a benchmark. However, due to its limited acquisition capacity, it was very concentrated from a portfolio structure perspective, with holdings in only four of the 12 UK portfolio analysis service segments and 55 per cent in one of these. Under Baum and Key's (2000) style definitions we would label this fund manager as specialist, where the manager is holding high weights in segments where selection skills are believed to be strong. To the authors' best knowledge, this is the first that the risk adjusted performance of a value-added or opportunistic fund has been assessed in the literature and funds of this risk profile have become increasingly common.

The fund commenced its acquisition program in Q4 2001 and was effectively liquidated by Q4 2006. It purchased 22 assets with an average book cost of £4.5 million and a total portfolio book cost of £99 million. Equity contributions totalled £26 million and leverage ranged from 65 to 70 per cent throughout the fund's life. The average holding period of the assets was 2.5 years and on face value the manager was looking to exploit deal-making and transaction skills. As a result capital was distributed back to investors soon after the investment period had been completed, as illustrated by the overall cashflows of the fund below in Figure 7. Therefore, the timing effect discussed above was expected to be significant.

For the property fund attribution analysis both the fund and property level time weighted returns (TWRs) were available, but only cash flow data at the fund level fund was available. The property-level time-weighted returns were calculated by IPD and the time-weighted fund returns and cash flow data for the fund were provided by the manager. It should be noted that we have had to exclude the first quarter's performance for detailed attribution analysis as time-weighted property level returns were not available.

The results of the attribution analysis are detailed in Table II.

Addressing property level performance first, the fund has produced relative out-performance of 1 per cent per annum over the five year measurement period. The manager has under-performed due to portfolio structure, by almost 2 per cent per annum.



Source: Authors

Figure 7.
Cash flow profile, case study fund

	2002 (%)	2003 (%)	2004 (%)	2005 (%)	2006 (%)	Five year (%)
Property level						
Property TWR	12.6	10.5	23.7	25.5	8.8	16.0
Benchmark TWR	9.2	10.5	17.4	19.1	18.5	14.9
Relative	3.1	0.0	5.4	5.4	−8.2	1.0
Structure score	−2.8	−3.4	−2.3	0.6	−0.2	−1.6
Selection score (two component)	5.7	3.4	6.9	4.7	−8.0	2.4
Fund level						
Gross TWR	15.7	20.1	73.1	52.3	5.1	31.0
Gross fund structure score	2.8	8.7	40.0	21.4	−3.4	12.9
Net TWR	11.8	16.7	57.6	40.1	8.7	25.6
IM Fee reduction	−3.4	−2.9	−8.9	−8.0	3.4	−4.1
IM fee reduction %	25.0	17.1	21.1	23.3	−70.1	17.2
Net fund structure score	−0.7	5.6	27.5	11.6	−0.1	8.3
Net MWR						29.9
Timing score						4.3

Source: Authors' calculations

Table II.
Property fund return attribution

Performance attribution suggests that the manager has out-performed due to stock selection. With such a relatively high-stock score and relatively concentrated segment exposures it is clear that the manager has out-performed by concentrating in preferred segments. However, at this stage we cannot be sure whether this out-performance has been driven by any alpha or is simply the result of higher relative risk in the portfolio.

The fund structure effect is presented on a gross and net basis. The gross total returns encompass leverage and all expenses associated with the fund bar the investment manager fees inclusive of performance fees paid. The gross structure added 12.9 per cent to the property level return. Fees to the fund manager reduced the gross structure effect by 4.1 per cent (or 17.2 per cent in relative terms), and this represents additional beta. Out-performance peaked in years three and four of the fund, when investments were being realised and value-added initiative completed and therefore will have seen the greatest capital returns.

Finally, over the measurement period the timing of property cash flows added 4.3 per cent to the time weighted total return, to give investors an IRR of 29.9 per cent. It is unclear how much of this is attributable to alpha although it is likely that the manager has delivered out-performance given the relatively short hold period of assets in the portfolio.

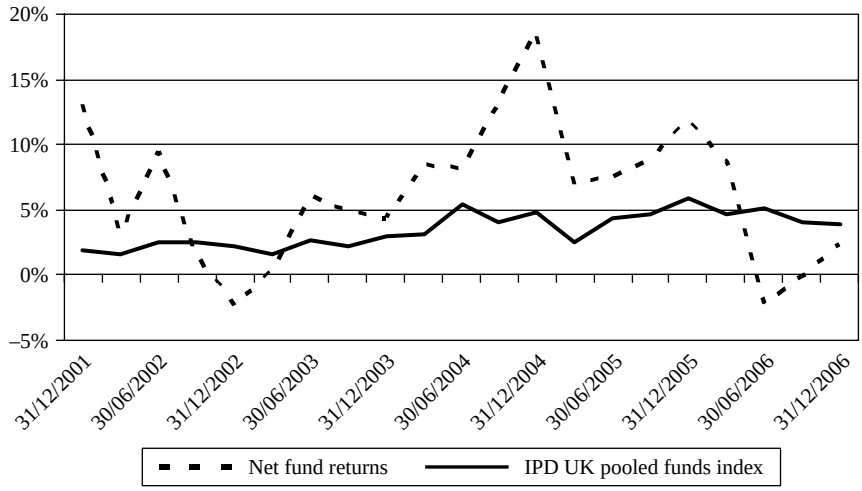
The authors recognise that our attribution analysis was conducted on the IPD Universe and not the fund's benchmark, and this is a source of inconsistency and potential error. This was due to insufficient available data for the benchmark was to perform the required detailed attribution analysis. However, the IPD UK All Pooled Funds Index tracks the universe closely in terms of performance, and therefore this error is likely to be small.

The fund's annualised total time-weighted return over the measurement period was 25.6 per cent versus its benchmark return of 14.9 per cent. However, the fund's annualised standard deviation was 23.0 per cent compared to the benchmark equivalent which was 5.3 per cent. We therefore proceed to employ the CAPM model to

assess the risk-adjusted performance of the fund over the performance measurement period, to compliment the above attribution analysis. The result is an alpha of zero but a positive and significant beta (Figure 8 and Table III).

Unfortunately the CAPM regression is not particularly robust statistically, with the alpha coefficient being insignificant. However, the beta coefficient is significant at the 6 per cent level. Despite this, the equation provides some insight into performance and is suggestive that much of the out-performance via specialisation delivered was a result of higher beta. The high-beta reflects the level of gearing at the fund level, and the asset level and portfolio structure risk. The beta coefficient is also much higher than previous UK property fund beta estimates which have focussed on the pooled managed fund universe, and typically have low levels of gearing and are well diversified.

The performance data suggests little evidence of alpha. A CAPM equation including the first quarter data point that was excluded did point to positive alpha, although this was insignificant and the model was even less robust. The combination of structure and stock appears to add 1 per cent return, but this is dominated by the interaction or cross-product term of over 11 per cent. This is a small fund, and statistical significance may be elusive, but it appears that a regression-based CAPM approach confirms



Source: IPD, authors' calculations

Figure 8.
Quarterly TWRs – fund versus IPD index

	Alpha	Beta
Coefficient	0.00	1.73
t-Statistic	−0.04	1.98
R^2	0.18	
Observations	20	

Source: Authors' calculations

Table III.
Case study alpha and beta estimates for case study net total returns

this as there is no significant alpha in this analysis. Beta, on the other hand, is significant.

7. Conclusions

The growth seen in the unlisted market has helped facilitate growing cross-border property investment in Europe and across the world. Unlisted funds are now the preferred conduit for investors who are looking to invest in direct property outside of their own domestic markets. There is therefore a requirement for greater resources and methods to analyse these vehicles and critically examine whether managers can demonstrate reasons for their historical track record and evidence of out-performance to justify performance fees.

A case study of a single value-added unlisted fund has been used to compare traditional attribution results with an examination of CAPM-style alpha and beta return attribution. Fund structure, which is largely the leverage impact, will contribute primarily to beta. In the case study, this was found to be significant.

Portfolio structure needs to be judged as either an overweight position to more risky markets, or less risky markets, which will produce a beta impact, or as a set of positions with no greater or lesser market risk, in which case any extra return created through portfolio structure is wholly alpha. For most core funds this is most likely to be an alpha generating activity. In the case study, if there is no systematic allocation to risky sectors, alpha would be generated through selecting the best markets. This is an open question requiring further enquiry.

Stock selection also needs to be judged as favouring more or less risky assets, which will produce a beta impact, or as a set of investments with no greater or lesser market risk, in which case any extra return created through stock selection is wholly alpha. For most core funds this is most likely to be an alpha-generating activity. For the case study fund, this is again an open question requiring further enquiry.

The return impact of the timing of drawdowns can potentially be attributed to the manager's skill in timing and which is an alpha activity, although this is difficult to measure in practice. In the case study presented, it is likely that this was positive given the relatively short holding periods. The regression approach demonstrated significant beta and inconclusive evidence of alpha, largely confirming the traditional analysis. However, it should be emphasised that in this instance the CAPM regression was not statistically robust and thus firm conclusions cannot be drawn.

It is therefore suggested that a full analysis of fund performance will require the use of both performance attribution approaches and a professional and pragmatic interpretation of the results. Suggestions for further work include expanding the analysis employed here to a broader range of funds both in terms of their risk profile and geographic/sector scope. This will be dependent upon data availability. Additionally the statistical approach could be extended to better accommodate the cash flow nature of the data.

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