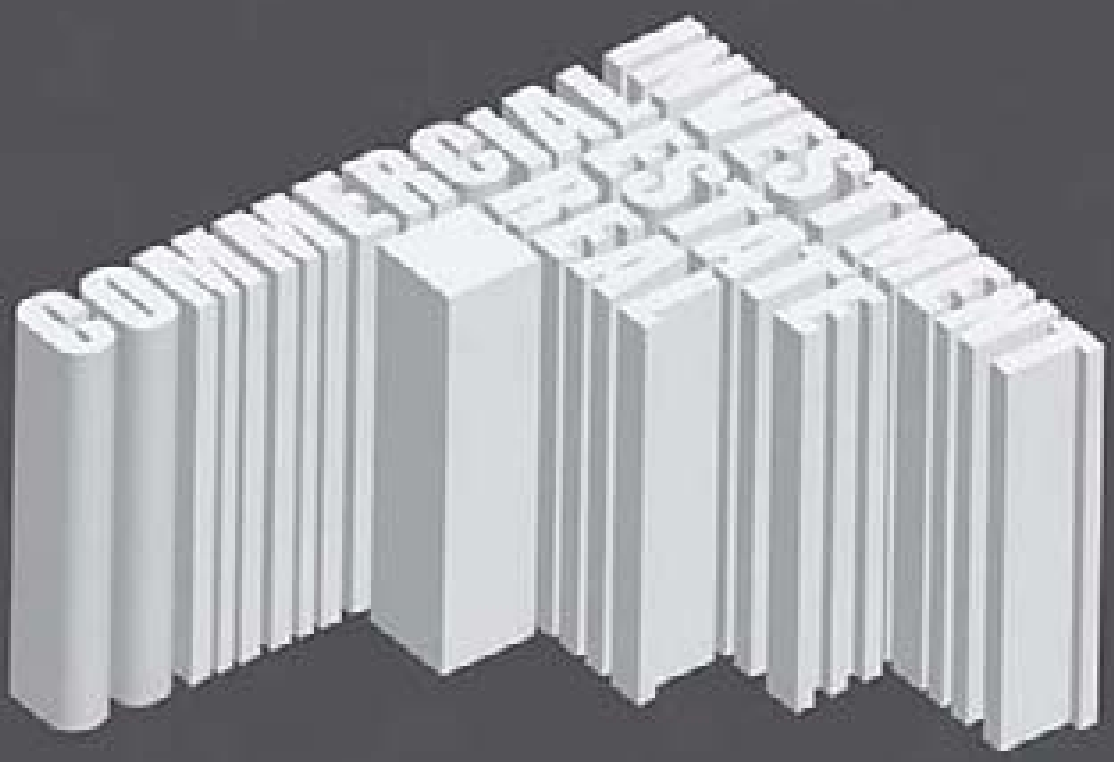
Commercial Real Estate Investment

2nd Edition

Andrew Baum



EG Books

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A Strategic Approach

Second edition

Andrew Baum

2009

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Foreword to the first edition

For investors, property has been something of a puzzle. Against its large share of national wealth, the representation of property in multi-asset portfolios is not only low, but has fallen to one-third of what it was 20 years ago. On the available evidence (its accuracy in turn a subject of debate), property's risk and return history refuses to fit neatly into the framework of modern portfolio theory through which investors view the world. Still worse, through much of the last 20 years property has failed to meet, either in absolute terms or relative to alternative investments, the simple return thresholds investors need to beat. And, in an era obsessed with the globalisation and transparency of investment, property markets are still heavily divided by national differences in statute, regulation and culture; accurate international comparisons are at best expensive, at worst impossible to come by. Property has, indeed, looked in danger of becoming an afterthought in the asset allocations of major investors.

There is, fortunately, a brighter, more interesting side to the picture. A run of satisfactory rates of return through the last five years — in the UK and many other countries — has revived flagging investor interest. And, thanks to a burgeoning, perhaps even blossoming, in commercial property research since the mid-1980s, property investment is far better understood and far better managed than it was 20 years ago. Many of the problems that were associated with property investment at that time have found workable (if rarely ideal) solutions. We can now say that the measurement, benchmarking, forecasting and

quantitative management techniques applied to property investments are comparable with other asset classes. If other problems are less fully resolved — the correct interpretation of valuation and price evidence, the relationship between the performance of unlisted and listed investment vehicles — advances in property research have at least put the ongoing debates onto a footing of solid evidence, and produced a clear formulation of the issues.

That position has been reached through many different strands of research — from academics, specialist commercial researchers and research-minded portfolio managers in different countries, not always easily communicated between those spheres. Much of it, indeed, remains private rather than public — confined to the top levels of major investors and their advisors. Having held senior positions in all those fields of research, Andrew Baum is singularly well qualified to draw the strands together into a coherent and accessible statement of the state of the art in applied property research. In a world swept by radical change — globalisation of investment markets, financial engineering of investment vehicles, the collection and dissemination of information — we can be sure that the state of the art will be transformed again over the coming decade. Here too the book offers a clear view of the next steps in the evolution of the industry, which will be read with keen interest by all those involved in it.

Tony Key
Research Director
Investment Property Databank
London, May 2000

Preface to the first edition

This book is the result of the author's recently varied experience of applied property research, UK property fund management, international property investment and academic research. The many challenges and questions prompted by this varied experience have led to a varied set of thoughts and writings, some previously published and some not. The book is therefore something of a set of sketches. Nonetheless, they share a common subject matter, which can be described broadly as institutional investment in real estate, and a common foundation, broadly an international and capital markets context viewed with the perspective of a UK property professional.

The picture painted is of a major industry that is going through a period of rapid modernisation, facing challenges as economies and markets become more global in character, as financial and investment markets become more and more creative, and as the world is swept by a wave of technological change. Creativity is at a premium, but at the same time this is an industry requiring — and developing — discipline, processes and measurement.

The text concentrates on UK institutional real estate, mainly retail, office and industrial, although residential is growing in importance as a UK sector and is included in the portfolios of most non-UK institutional investors. It is designed for practitioners facing the challenges described above, and those who may have to design solutions to tomorrow's problems. It is hoped that it provides a more straightforward and integrated view of the key issues in UK real estate than will be found elsewhere.

I am very grateful for the many fortunate partnerships that have made it possible for this material to be produced. Over the past decade, colleagues at the University of Reading, Prudential Portfolio Managers and at Real Estate Strategy (RES), later Henderson Investors, have been responsible either for the better ideas or the more accurate analysis contained in these pages. In particular, I would like to thank Professors Neil Crosby, Colin Beardsley, Colin Lizieri and Charles Ward at Reading, John Partridge and John Hammond at RES/Henderson, Paul McNamara at Prudential, and Andrew Schofield, Guy Morrell and Professor Bryan MacGregor with whom I was fortunate to work at both Prudential and RES/Henderson.

Andrew Schofield deserves particular mention. He was responsible for much of the analysis and some of the ideas in chapters 3 and 4, and our joint work at RES in the 1990s has influenced much of the book's content.

Tony Key has also allowed me to reproduce some of our joint work in chapter 5, and Freeman Publishing has also allowed me to reproduce parts of my work with Peter Freeman for Freeman's Guide to the Property Industry in chapter 2. Some of the ideas in chapter 8 are based on the work of Charles Ward and Colin Beardsley, my colleagues at Reading. I am grateful to them all.

In addition, Tony Key (then of IPD and now at City University and IPD) and Richard Barkham (now of Grosvenor) acted as expert reviewers of the first draft of the text, and produced many suggestions for improvements. Tony Key proposed a much improved structure to the original book and Karen Baum acted as an expert copy-editor.

Any remaining errors are my own. In the text, he/his is meant to imply he or she/his or hers.

The place of real estate as an investable asset class is secure. The same cannot be said of existing vehicles, companies or managers, which and who will survive only through education, innovation and professionalism. I hope this small book makes at least a small contribution to their future success.

Andrew Baum
London
May 2000

Preface to the second edition

If the first edition of this book was a "set of sketches" this new edition is more ambitious. This time, I hope we have produced a coherent and continuous book, which successfully brings together theory and practice.

The global financial crisis of 2008 had its roots in property speculation. The ability of property investors and homeowners to take on debt secured on the value of property, coupled with the ability of lenders to securitise and sell those loans, created a wave of capital flows into the asset class and a pricing bubble. London and New York had become the main centres for creative property structuring through REITs, unlisted funds, property derivatives and mortgage-backed securities, and became the eye of the financial storm that followed.

When the first edition of this book was published in 2001, property had been somewhat unfashionable as an investment, but advances in property research had put the ongoing debates onto a footing of solid evidence, producing a clear formulation of the relevant issues. The last decade has seen a near-frenzy of product creation and leveraged speculation, together with true advances in the range of indirect products, in the face of which the advances in research of which we were so proud were not enough to avoid a crash. The approaches described in these pages are intended to provide a foundation for a new wave of creativity for use by the next generation of investment managers, advisers and analysts, and to encourage a responsible and professionally guided recovery.

In the last decade the author has again been immensely fortunate to have worked with a series of high-quality partners in business and academic life, as well as with many generous and thoughtful students in executive education classes, MBA electives and other postgraduate classes in many countries, all of whom have made a contribution to this text.

In particular, chapter 1 has used the work of Professor Neil Crosby and Dr Patrick McAllister of the University of Reading, and the input of Peter Struempell, research analyst at Property Funds Research 2004–06. Chapter 2 includes work produced by the Property Funds Research team, including Professor George Matysiak and Jane Fear, who also contributed to chapters 4 and 7. Professor Bryan MacGregor, now of the University of Aberdeen and a former colleague and partner at Prudential, contributed material on forecasting in chapter 4. Alex Moss, Head of Global Property Securities Analytics at Macquarie Capital Securities, helped with chapter 6, and Gary McNamara, Associate Director at DTZ, did a similar job on chapter 8, which leans heavily on work undertaken with Professor Colin Lizieri and Dr Gianluca Marcato, with Paul Ogden, at the University of Reading.

CBRE Investors has been very helpful, providing access to a wealth of research and data resources. In particular, the global multi-manager, global real estate securities and research teams have been unfailingly generous. Kieran Farrelly was instrumental in developing parts of chapters 5 and 7, and Jani Venter parts of chapter 8, while Jeremy Plummer gave me most of the good ideas in chapters 7, 9 and 10. Students at the Amsterdam School of Real Estate and on IPD executive education courses jointly contributed much of the tax material in chapter 9.

Thanks to these partnerships, I am fortunate to feel — as the back cover suggests — well qualified to summarise the impact and likely future of global innovations in property research and fund management in the context of the third real estate crash I have observed over a long career. As we said in the preface to the first edition:

> "In a world swept by radical change — globalisation of investment markets, financial engineering of investment vehicles, the collection and dissemination of information — we can be sure that the state of the art will be transformed again over the coming decade. Creativity is at a premium, but at the same time this is an industry requiring — and developing — discipline, processes and measurement."

It is also thanks to these partnerships that this book offers a unique theory/practice perspective of the evolution of the international real estate investment industry at a time when the asset class has become critically important to the world economy.

Again, any remaining errors are my own, and in the text he/his is meant to imply he or she/his or hers.

This edition was completed in January 2009, in the eye of a 'perfect storm' in the global real estate market. However, analysis and data tables use different periods depending on when they were undertaken. This is deliberate, as updating them all would not have achieved the objective of illustrating market conditions and behaviour at the relevant point in time. Nonetheless, I apologise for any lack of clarity that results.

Andrew Baum
London
January 2009

Part 1

Introduction to the market

1 Commercial real estate — the asset class

1.1 Property — a global asset class?

Between 1980 and 2000, UK insurance companies reduced their property holdings from allocations as high as 20% to around 6%. This fall in property weightings can be attributed to several factors. These include:

a) The operational difficulties of holding property, including illiquidity, lumpiness (specific risk) and the difficulties involved in aligning the property and securities investment management processes.
b) High weightings at the end of the 1970s boosted by 10 good performance years for real estate and 10 poor years for equities, coupled with poor comparative returns during the 1980s and 1990s.
c) The introduction of new alternative asset classes, some offering the income security and diversification benefits associated with real estate, including index-linked gilts, private equity and hedge funds.
d) A lack of trust in property data, due to the nature of valuations, suspicion of smoothing in valuation-based indices and the lack of long runs of high-frequency return histories.

The result was a mismatch between the importance of the asset class in value terms (by some estimates, real estate represents 50% by value of all global assets) and its weighting in institutional portfolios. The case for property may have been overstated in the past, or alternatively

misunderstandings and suspicion regarding the asset class had reduced its appeal to institutions. For whatever reason, property had become unfashionable.

However, largely thanks to continued investment in commercial property research and creative product development, property investment had become better managed and packaged than it had been in 1980. Many of the problems that were associated with property investment at that time had found workable (if rarely ideal) solutions. The measurement, benchmarking, forecasting and quantitative management techniques applied to property investments had become comparable with other asset classes. Advances in property research had provided ongoing debates with a foundation of solid evidence, and produced a clear formulation of many relevant issues. The result was an unprecedented boom in commercial and residential real estate investment across the globe, accompanied by such excellent returns that by 2005 property had become the best performing major asset class over 5, 10 and 15 years.

By 2007, inevitably, clear overpricing had become evident in housing and in commercial property of all types in the UK, US and elsewhere. The ability of property investors and homeowners to take on debt secured on the value of property, coupled with the ability of lenders to securitise and sell those loans, created a wave of capital flows into the asset class and a pricing bubble. Professional responsibility took a back seat to the profit motive. Researchers became fund managers, academics became increasingly detached from the product development engine room, and boardrooms lacked the detached yet experienced voice that advances in information and research should have made available.

London and New York had become the main centres for creative property structuring through REITs, unlisted funds, property derivatives and mortgage-backed securities, and became the eye of the financial storm that followed. The technical advances made in information and research, and the spreading of risk made possible by the development of property investment products, did not prevent a global crisis from being incubated in the world of property investing. Worse, the global financial crisis of 2008 had its very roots in property speculation, facilitated by the packaging and repackaging of equity, debt and risk.

So what now for international property investment? Will the crash of 2007–08 mark the end of an era of creativity and submerging barriers? Will globalisation and securitisation of real estate go into

permanent reverse? Is the asset class a worthy component of a mixed asset portfolio? Our answers to these questions are respectively, no (after a temporary correction), no and yes, and the purpose of this book is to demonstrate why.

1.2 What makes property different?

As with all equity-type assets, the performance of property is ultimately linked to some extent to the performance of the economy, and like all assets its performance is linked to the capital markets. The economy is the basic driver of occupier demand, and, in the long term, investment returns are produced by occupiers who pay rent. However, in the shorter term — say up to 10 years — returns are much more likely to be explained by reference to changes in required returns, or yields. Required returns do not exist in a property vacuum but are instead driven by available or expected returns in other asset classes. As required returns on bonds and stocks move, so will required returns for property, followed by property prices.

Nonetheless, history shows that property is a true third asset, distinctly different from equities and bonds. The direct implication of property being different is its diversification potential, and hence the justification for holding it, within a multi-asset portfolio.

Generally, the impact of the real economy and the capital markets on the cash flow and value of real estate is distorted by several factors. These are as follows.

- Property is a real asset, and it wears out over time, suffering from physical deterioration and obsolescence, together creating depreciation.
- The cash flow delivered by a property asset is controlled or distorted by the lease contract agreed between owner and occupier. For example, rents in the UK are commonly fixed for five-year periods, after which they can only be revised upwards.
- The supply side is controlled by planning regulations, and is highly price inelastic. This means that a boom in the demand for space may be followed by a supply response, but only if permission to build can be obtained and only after a significant lag, which will be governed by the time taken to obtain a permit, prepare a site and construct or refit a property.

- The returns delivered by property are likely to be heavily influenced by appraisals, rather than by marginal trading prices.
- Property is highly illiquid. It is expensive to trade property, there is a large risk of abortive expenditure, and the result can be a very wide bid-offer spread (a gap between what buyers will offer and sellers will accept).
- Property assets are generally large in terms of capital price. This means that property portfolios cannot easily be diversified, and suffer hugely from specific risk.
- Leverage is used in the vast majority of property transactions. This distorts the return and risk of a property investment.
- Property rents appear to be closely correlated with inflation in the long run, producing an income stream that looks like an indexed bond over the long term. But rents can be fixed in the short term, producing cash flows that look like those delivered by a conventional bond, and the residual value of a property investment after the lease has ended exposes the owner fully to the equity-type risk of the real economy. Hence property is a hybrid asset, with similarities to all other assets, but different.
- The risk of property appears low. Rent is paid before dividends, and as a real asset property will be a store of value even when it is vacant and produces no income. Its volatility of annual return also appears to be lower than that of bonds. This is distorted somewhat by appraisals, but the reported performance history of real estate suggests a medium return for a low risk, and an apparently mispriced asset class.
- Unlike stocks and bonds, real estate returns appear to be controlled by cycles of eight to nine years.

These factors will now be considered in more detail.

1.3 Property depreciates

- *Property is a real asset, and it wears out over time, suffering from physical deterioration and obsolescence, together creating depreciation.*

Commodities (say coffee or oil) are by nature different from paper assets. Commodities will normally depreciate over time; they can have a value in use that sets a floor to minimum value; and they are generally illiquid. Finally, they may have to be valued by experts rather than priced by the market. Examples include property of all types (that is, both real and personal).

Real property as defined in the UK generally encompasses land, land improvements including buildings and machinery sited on land, and various property rights. (The concept is named and defined differently in other jurisdictions: *heritable property* in Scotland, *immobilier* in France, and *immovable property* in Canada, the US, India, and in countries where civil law systems prevail, including most of Europe, Russia, and South America.)

Real property is, unlike equities and gilts, a physical asset. While, unlike personal property, it is durable, the physical nature of commercial property means that it is subject to deterioration and obsolescence, and needs regular management and maintenance. Physical deterioration and functional and aesthetic obsolescence go together to create depreciation, defined as a fall in value relative to an index of values of new buildings (see box 1).

The problem of building depreciation or obsolescence of freehold buildings should not, as has usually been the case in the property world, be understated. Poorly designed office buildings located in business parks in low land value areas will suffer more deterioration in performance over time than will city-centre shops and shopping centres, and even sheds (industrial properties), located in high land value areas. A failure to identify the potential impact of depreciation is very dangerous. Before the boom of 2004–07, the UK office sector failed to outperform the UK IPD universe in every year except two since 1981: depreciation was probably one of the major causes.

Depreciation can affect the performance and value of real estate vehicles in a number of ways. In the context of real estate, depreciation has been defined by Law (2004) as follows:

> "the rate of decline in rental (capital) value of an asset (or group of assets) over time relative to the asset (or group of assets) valued as new with contemporary specification" (Law, 2004: 242).

This definition relates to the economic depreciation of assets. This is distinct from depreciation as used in corporate accounting, which is a method of reducing the book value of assets through time to reflect in

Box 1: Depreciation and its impact

The extremes of performance are illustrated by the following two office properties in the City of London.

21 Great Winchester Street, a building of 18,000 sq ft, which, in 1986, was 16 years past a major refurbishment, was valued at that time at £386 per sq ft. The ERV (estimated rental value) was £24; the yield at which a sale might be expected following a new letting was estimated at 6.5%.

Token House, at 8-10 Telegraph Street, a 17,000 sq ft building having undergone a major refurbishment in 1985, was valued at that time at £673 per sq ft, with an ERV of £32 and a yield of 4.75%. In terms of underlying value (in other words, ignoring the impact of lease contracts), it was worth *roughly double* the value of 21 Great Winchester Street per unit of space.

In 1996, 26 years since refurbishment, 21 Great Winchester Street was valued at £19.50, at 7% and at £278 per sq ft. This was a decline in capital value of £107 or 28%. Some 72% of its underlying 1986 value remained, and it had declined in value at the same rate as the market (3%). Ageing had not therefore severely affected the underlying value of the building.

In 1996, 11 years old and just past its second review, Token House was worth £133 per sq ft, valued at £10 and 7.5%. *It was now worth less than half the value of the comparable property*. It had fallen in value by £540 per sq ft, or no less than 80% of its underlying 1986 value: 20% of that value remained. It had suffered depreciation of 18% each year, of which perhaps 3% can be blamed on the market.

company profits the consumption of capital assets that will need to be replaced. The definition does not indicate the causes of such depreciation, which it is helpful to briefly consider. Baum (1991) sets out the following causes of depreciation in commercial property values.

- Physical deterioration: this relates to the wearing out of the building through time.
- Building obsolescence: this refers to changes in what is expected from buildings, the most obvious source of which are changes in technology that impact upon occupier requirements and may render a building's design or configuration redundant.

These factors can affect rental values and capital values, as they will influence the rent that a potential tenant would be prepared to pay, and they will have consequences for future cash flows either in the form of reduced rents and/or capital expenditure in order to combat their effects.

Several studies have attempted to measure the impact of depreciation on property values. Those conducted for the UK commercial real estate market include CALUS (1986), Baum (1991, 1997), Jones Lang Wootton (1987), Barras and Clark (1996) and College of Estate Management (1999). The results of these studies are summarised in Investment Property Forum (IPF) (2005a), which itself also conducts a measurement exercise.

Table 1.1: Rental and capital depreciation results and capital expenditure for the IPF 10-year sample, 1993–2003 (% per year)

	Rent depreciation (%)	Capital depreciation (%)	CapEx (% CV)
Office	0.77	2.61	0.87
Industrial	0.52	1.91	0.41
Std Shop — South Eastern	0.16	1.16	0.43
Std Shop — Rest of UK	0.49	0.70	0.54
Shopping centres	0.11	–	2.37
Retail warehouses	1.20	1.75	0.80
Office — City	0.10	3.57	1.11
Office — West End	1.07	2.20	1.09
Office — South Eastern	0.75	2.18	0.66
Office — Rest of UK	1.50	3.05	0.67
Industrial — South Eastern	0.33	1.90	0.45
Industrial — Rest of UK	1.06	1.97	0.32
All Property	0.70	1.57	0.67

Source: IPF 2005a

The IPF study (IPF, 2005a) suggested an average rental depreciation rate across the UK market of 0.7% per annum after expenditure (see table 1.1). The rate was higher for offices and lower for shops. Because this is after expenditure, reflecting incurable depreciation, the implied

annual rate of depreciation is considerably higher. The full cost of depreciation includes expenditure needed to maintain and renew the properties in a portfolio.

It is clear, therefore, that property investment differs from investment in securities, and equities in particular, due to its physical nature and the consequent depreciation it suffers. This means that the rate of income growth that the asset class can deliver is constrained, and that constant growth models used for the analysis of property need to be adjusted to reflect this fact.

Baum and Turner (2004) argue that the depreciation phenomenon is disguised by the market practice of making a full distribution of rental income, when the maintenance of capital value might require that a retention be made. The effect is to support income return, and in an era of low inflation this might create excessively confident expectations regarding capital and total return. Higher returns in equity or corporate investment might be achieved by re-investment rather than through a full distribution policy. A full income distribution might therefore damage returns in property markets. In some markets a full distribution policy is necessitated by common leasing convention; and this might lead to higher depreciation rates than in those markets where leasing practice allows owners to actively manage their assets.

To test this, Baum and Turner measured and compared retention rates across European office markets, and found interesting differences related to lease length and the landlord's repair and management obligations. Where leases are short and landlords retain responsibility (as in Stockholm), reported depreciation rates were lower than in London, where leases were long and leases were 'triple net', so that landlords have little responsibility for ongoing repairs and maintenance.

It appears that some re-investment of income is necessary to maximise returns, and more importantly that re-investment does relieve depreciation and thereby improve net income growth. Nonetheless, depreciation is an unavoidable and understated problem in real estate investment.

1.4 Lease contracts control cash flows

- *The cash flow delivered by a property asset is controlled or distorted by the lease contract agreed between owner and occupier. For example, rents in the UK are commonly fixed for five-year periods, after which they can only be revised upwards.*

Unlike equities, property's income stream is governed by lease contracts, and, unlike bonds, the income from a freehold is both perpetual and may be expected to increase at rent reviews and to change at lease ends. Property's cash flow and investment character flow from the effects of the customary occupational lease, supported by statute and case law (see Baum and Sams, 2007, from which the following paragraphs are paraphrased).

Hidden within any large commercial building may lie a complex pattern of relationships created by the unique nature of property as an economic commodity. The market for property is not necessarily driven by the desire to own land and buildings. It is instead a market for rights in the product that may have many tiers of ownership. Consequently, a single building might represent the property rights or interests of several different parties.

For a given unit of property, there is a basic dichotomy of rights. These are the right of ownership, which may be fragmented, and the right of occupation, which (allowing for the existence of time shares and joint tenancies) is usually vested in a single legal person. In fact, the 'given unit' is commonly delineated by its exclusive occupation by an organisation, family or individual.

It is especially typical in the case of commercial property (all office, shop, industrial and institutional property, for the purposes of this book) that buildings are 'owned' by non-occupiers, in contrast to residential property, where the rights of ownership and occupation are usually fused within the same person. This decomposition of the ownership of commercial property produces the probability of the existence of contractual landlord/tenant relationships. A property advisor is often employed as an agent on behalf of one of the parties to negotiate an acquisition or disposal of an interest or a variation thereof. The medium for these negotiations is a contract or a lease, which defines the contractual relationship between the parties.

There are many factors contained in a lease that directly affect the value and performance of interests in land and buildings. For instance, repairing liabilities, lease length, break clauses, user and assignment restrictions and rent review patterns may all, individually or collectively, impact on the cash flow delivered by the property and its resulting capital or rental value. The differences between a UK lease governed by five-yearly, upward-only rent reviews, a French 3–6–9 lease and a German indexed lease produce very different cash flow characteristics and different assets. Baum (2005) and Baum and Brown (2006) explore the potential mispricing of leases caused by these differences.

1.5 The supply side is inelastic

- *The supply side is controlled by planning regulations, and is highly price inelastic. This means that a boom in the demand for space may be followed by a supply response, but only if permission to build can be obtained and only after a significant lag, which will be governed by the time taken to obtain a permit, prepare a site and construct or refit a property.*

The supply side of property is regulated by local and central government. The control of supply complicates the way in which an economic event (such as a positive or negative demand shock) is translated into return. A loosening of UK policy, such as happened in the mid-1980s, created the conditions for an immediate building boom, which, in the context of the following recession, led to the property crash of 1990–95. It is difficult to vary the supply of property upwards, and even more difficult to vary it downwards. This is termed price inelasticity.

The supply side can be both regulated and inelastic, and will sometimes produce different return characteristics for property from equities — which is otherwise the natural property analogy — in the same economic environment. A good harvest will damage the price of wheat in a strong economy, just as oversupply held back office returns in the recovering mid-1990s economic environment.

More elastic supply regimes, such as those pertaining in loose planning environments in parts of Texas, or for industrial property in regeneration cities, will produce different cash flow characteristics for property investments than will highly constrained environments, such as the West End of London. The industrial investment will typically deliver less volatile rents, and will show less rental growth in times of demand expansion, than will the West End office.

1.6 Valuations influence performance

- *The returns delivered by property are likely to be heavily influenced by appraisals rather than by marginal trading prices.*

In the absence of continuously traded, deep and securitised markets, commercial property valuations perform a vital function in the property market by acting as a surrogate for transaction prices. Property asset valuations are central to the process of performance

measurement, but within both the professional and academic communities there is considerable scepticism about the ability of appraisals or valuations to fulfil this role in a reliable manner.

There has been a considerable amount of research into the operation of the valuation process in various parts of the world, especially in the US and the UK. Early research tended to concentrate on the methods used by valuers. More recent research (for example, Baum, Crosby, McAllister, Gallimore and Gray, 2003) has concentrated on procedural aspects and the way that valuation information is processed, dealing in particular with the following questions.

- How accurate are valuations? What is the probable margin of error and what is the impact of smoothing?
- How does the client/valuer relationship operate? Is there evidence of client influence or other external influences on valuations?

1.6.1 Valuation accuracy

There is a consensus that individual valuations are prone to a degree of uncertainty. At the macro-level, it is clear that few analysts accept that appraisal-based indices reflect the true underlying performance of the property market. It is commonly held, for example, that such indices fail to capture the extent of market volatility and tend to lag underlying performance. As a consequence, issues such as the level and nature of valuation uncertainty and the causes and extent of index smoothing have generated a substantial research literature.

Some of this research indicates that valuations both lag the market and smooth the peaks and troughs of 'real' prices. Valuations — and, if valuations affect market psychology and hence prices, real estate prices — can be 'sticky'. Sticky is a term used in the social sciences and particularly economics to describe a situation in which a variable is resistant to change. A variable that is sticky will be reluctant to drop even if conditions dictate that it should. The suggested reasons for this are as follows.

Anchoring

In many jurisdictions, the fiduciary responsibility of the valuer towards the client is an important influence on valuer behaviour. Claims based on accusations of professional negligence are rare but

not unknown and judicial precedent is a powerful influence on the valuation process. It is not therefore surprising if a valuer, retained to produce a portfolio valuation on a three-year contract, pays attention to his/her year-end 2008 valuation when undertaking the 2009 equivalent and ensures continuity by limiting the number and size of shocks a client might suffer. This can reduce changes in valuation from one period to the next.

Temporal averaging

Stock markets rise and fall on a daily basis, sometimes significantly. Price changes between the 31 December 2008 market and the 31 December 2009 market are fully affected by the end-of-trading price on each day, and it is perfectly possible for the year-end 2008 market to be at a temporary low and the year-end 2009 market to be at a temporary high. In property, however, year-end valuations are undertaken over a period of up to three months, and even where the valuation date is set at 31 December an averaging effect is inevitable. This is likely to result in lower price volatility from year to year.

The lagging effect of comparable evidence

Real estate valuation is founded primarily on the use of comparable sales evidence. Similarity in property characteristics is paramount. The currency of the transaction may not be easy to control. Hence the evidence used to value a property as at 31 December 2009 may use evidence collected over the period July to December. In a rising or falling market, this will again result in a lower variance of prices. Hence valuations will be based upon the previous valuation plus or minus a perception of change. The perceived changes, unless based on very reliable transaction evidence, will be conservative.

The resulting valuation 'smoothing' has been widely analysed. It is generally presumed to reduce the reported volatility — or risk — of real estate investment below the real level of risk suffered by investors who have to sell in a weak market or buy in a strong one.

1.6.2 Client influence

Valuers may be influenced by their clients. This is likely to be damaging, as client influence creates a conflict of interest between

professional responsibility and client satisfaction, interfering with objective professional judgment.

Attention has been paid to the moral hazards or conflicts of interest present when the auditing firm provides additional non-auditing services, with the result that the Sarbanes-Oxley Act of 2002 forced the providers of auditing services to be more accountable regarding client influence. But such issues are not unique to the auditing/accountancy/consultancy profession, and there is some evidence of problems existing within the client/valuer relationship.

In the UK, a distinction is made between independent valuers, who are unable to act for the client in other transactions and activities, and external valuers, who are. This is clearly of relevance in determining the potential for conflicts of interest.

Issues raised by an investigation of the 'moral hazards' (conflicts of interest) involved in the principal/agent (client/valuer) relationship include the following.

- When acting for a purchaser, investment agents may have an incentive to provide a confirmatory valuation since their fee income depends upon completion of the transaction.
- Valuers will be motivated to retain the client's business, and the implications of lost clients — both for individual careers and for success at firm level — may encourage valuers to keep clients happy. This will affect even independent valuers.
- Firms appointed as external valuers often provide non-valuation services to clients, providing an incentive for that firm to respond positively to client influence.
- Where valuation fees are calculated as a percentage of the property or portfolio value, there may be an incentive for the valuer to confirm an agreed purchase price as the completed transaction will add to portfolio value. Unlikely as this is to influence behaviour, it does establish the ground for a potential conflict of interest, even for an independent valuer where *ad valorem* fees are paid.
- Fund managers have clear incentives to attempt to influence valuations since they are used in the measurement of performance.
- In a period of falling values, the minimum loan to value ratios required by lenders may be breached — or supported — as the result of a valuation.

What does this mean? Valuations might change in response to client pressure, especially when the valuations are important, typically at the year-end in December. Valuation smoothing, lagging and inaccuracy may all be supported by the relationships between clients and valuers.

Research (for example, Baum et al 2003) suggests that valuations may be distorted by the influence of clients as well as by the procedures that form the valuation process. Valuations are used to re-negotiate prices (which, in turn, may be used by valuers to support subsequent valuations). In addition, valuations often go through a process of negotiation with clients, and this is especially evident at the year-end December valuation. This may lead to improved valuations, bolstered by enhanced information quality; but it also may lead to biased and less valid figures. If the latter is the case, valuations may be far from independent of the market. Ultimately, market credibility relies on the professionalism and integrity of valuers and other advisers.

(The lack of independence between valuations and achieved sale prices means that a natural lag would appear to be built into monthly and quarterly indices in an upswing or a downswing. This became a huge issue for open-ended property funds in 2007–08: see chapter 7.)

1.7 Property is not liquid

- *Property is highly illiquid. It is expensive to trade property, there is a large risk of abortive expenditure, and the result can be a very wide bid-offer spread (a gap between what buyers will offer and sellers will accept).*

It costs much more to trade property than it costs to trade securities. There are both direct and indirect costs.

The direct costs include taxes paid by buyers on property transactions (stamp duty in the UK can be as much as 4% of the purchase price for transactions worth more than £500,000) and fees paid by both buyers and sellers. In addition to taxes, buyers will incur survey fees, valuation fees and legal fees, totalling (say) 0.75%. The buyers' costs, including tax, can therefore be 4.75%. Sellers will incur legal fees (say 0.5%) and brokers' fees (say 1%), so that 1.5% can be the total sellers' cost, and a round trip purchase and sale can cost 6.25%.

These costs, which can be even higher in other jurisdictions, define one cause of the 'bid-offer spread' which inhibits liquidity. It is

natural for a seller to wish to recover his total costs, so that having bought a property for $1m he will wish to get back $1.0625m in order not to have lost money. But in a flat or falling market buyers will not pay this price, and sellers are tempted to hang on until the selling market is stronger. Hence liquidity will be positively related to capital growth in the market.

There are also indirect costs of transacting property. Every property is unique, which means that time and effort have to be expended on researching its physical qualities, its legal title and its supportable market value. In addition, the process by which properties are marketed and sold can be very risky to both sides. In many markets, including the US and England and Wales, there is a large risk of abortive expenditure, because buyers and sellers are not committed until contracts are exchanged, and last minute overbids by another buyer, or a price reduction (or 'chip') by the buyer, are common. The role played by professional property advisers, and the integrity of all parties who may wish to do repeat business with each other, create a sensitive balance and risk control in the transaction process. This transaction risk must also be built into a bid-offer spread (the gap between what buyers will offer and sellers will accept).

Crosby and McAllister (2005), reviewing the academic literature, conclude that despite the fact that nearly all market participants cite low liquidity as a (problematic) characteristic of commercial property as an asset class, its complex nature and precise consequences are rarely analysed. Bond and Lizieri (2004) review the definitions of liquidity provided within both finance and real estate markets and conclude that liquidity relates to sales rates or turnover, but also has cost and risk dimensions (so that a long sales period directly increases the risk of property).

Crosby and McAllister suggest that the ability to enter and exit property markets at specific times is constrained by the time transactions take, any difficulties in identifying and bringing specific properties to the market, and uncertain prices, including changes to prices over the transaction period. A preliminary analysis of 187 transactions suggests a continuing reduction in the time from exchange to completion, which appeared to average just over two weeks, but the average total transaction time was 298 days, over nine months. This mean was skewed by a small number of very long transactions and the median transaction time is 190 days, or just over six months. Around 25% of transactions took between 50 and 100 days, and 60% were completed within eight months. The vast majority of

time to sale is in the marketing and due diligence periods, with the marketing period (median 88 days) slightly longer than the due diligence period (median 62 days).

Finally, the lack of a formal market clearing mechanism for property, such as is offered by the stock market for securities, means that on occasion there may be few or no transactions, reducing the flow of comparable sales information and further increasing the perceived risk of a transaction, creating a feedback loop and self-sustaining illiquidity. This appeared to be the case, for example, in the UK in 1991–93 and 2007–09.

1.8 Large lot sizes produce specific risk

- *Property assets are generally large in terms of capital price. This means that property portfolios cannot easily be diversified, and suffer hugely from specific risk.*

Property is 'lumpy'. Lumpiness — the large and uneven sizes of individual assets — means that direct property investment (buying buildings) requires considerably higher levels of capital investment when compared with securities, and, even with significant capital investment, diversification within property portfolios may prove to be more challenging than in equity and bond portfolios. As a result, typical property portfolios contain high levels of specific risk. This fact, coupled with the growing globalisation of property portfolios, largely explains the boom in indirect vehicles (see part 3).

There is also some evidence that large lot sizes have been high beta investments (more responsive to the economy and to rises and falls in the investment market). This adds a further risk level.

Specific risk in property, whether measured as a standard deviation or as a tracking error against a benchmark, is a key problem, especially for international investors. Unlike securities, large average property capital values, an uneven distribution of these values and the inability of investors to match competitors' portfolios creates very different real estate portfolios across investors. Property funds offer a way to limit this problem, as all three issues are minimised by investing indirectly by using diversified funds. But specific risk varies significantly between sectors, and unlisted funds (which add other risks) may be more useful in some sectors and countries than others. This is not simply a function of lot size, but also of 'diversification

power' within sectors, defined as the efficiency of specific risk reduction through adding properties.

Investors who have targeted property as an asset class will most likely be seeking to replicate the benchmark performance with few surprises; after all, the decision to invest in property is often based on an analysis of historic risk and return characteristics produced from a market index or benchmark. The tracking error of a portfolio is therefore likely to be seen as an additional and unrewarded risk. As a result, managers may be charged with minimising tracking error — but with limited sums to invest. This is a very difficult challenge: how many properties are needed to reduce tracking error to an acceptable level?

Various studies, all of which concentrate on portfolios of properties of mixed types and geographies, have suggested that the appropriate number of properties is very large. Relevant sources include the seminal work of Markowitz (1952), Evans and Archer (1968) and Elton and Gruber (1977). A limited number of studies investigate risk reduction and portfolio size in the property market. They include Brown (1988), Brown and Matysiak (2000), Morrell (1993) and Schuck and Brown (1997). It is concluded that many assets are needed to reduce risk to the systematic level when value-weighting returns, depending on the degree of skewness of property values in the portfolio.

It is also well known that the necessary level of capital required to replicate the market will be greatly dependent on the segments of property in which one wishes to invest, as different segments of the property market exhibit vastly different lot sizes. For example, it appears obvious that a very large allocation of cash may be needed to invest in a sufficient number of shopping centres to replicate the performance of that segment with a low tracking error.

In addition, there are significant differences in the performance characteristics of properties within the different segments. Properties in some segments — for example London offices — may experience higher variations in return than others, resulting in the probability that more properties will be needed to minimise tracking error within the segment. If London offices are also relatively expensive, the problem of assembling a market-tracking portfolio at reasonable cost is magnified. The vital question is again: how many properties are needed to reduce tracking error to an acceptable level?

Baum and Struempell (2006) used market data to examine the extent of the problem of specific risk for domestic UK property investors. We compared the results across segments; and we drew

some conclusions about those segments where diversification is relatively easy and those where it is relatively hard.

First, we simulated portfolios of properties comprising randomly selected properties located within each market segment to examine the number of assets needed within each segment to achieve particular levels of tracking error against IPD Annual and Monthly benchmarks (as proxied by the relevant index).

To produce low tracking errors, returns on the simulated single-sector property portfolios would need to be highly correlated with returns on the sector. This is more likely to be the case if returns on the portfolios have a similar variance to the sector variance of returns. The greater the average single property variance is in comparison to the sector variance, all other things being equal, the greater will be the tracking error. The less correlated the properties within a sector portfolio are, all other things being equal, the greater will be the tracking error. Low tracking errors will result when single property variance is low and properties within a sector are highly correlated with one another.

Second, we examined the amount of money needed to achieve particular levels of tracking error within each segment against the benchmarks. In order to do this, we took account of the average lot size of assets within each segment.

Clearly, shopping centres have larger average lot sizes than standard shop units. All things being equal, more money will be needed to reduce tracking error within the shopping centre segment than within the standard shop unit segment. However, the covariance issue referred to above means that all things are not equal. Meaningful results are only available when the two factors are combined. The result for shopping centres, for example, is not exactly as one would expect, wholly as a result of the covariance effect.

A sample of annual direct UK property returns was assembled and grouped by each of nine standard segments (defined by property type and geographic location) in collaboration with Investment Property Databank (IPD). The data used is derived from the IPD UK Universe and covers properties held continuously over the period 1990 to 2004, thus providing 15 data points for each property (with two exceptions, where data limitations required a slightly shorter analysis period). Table 1.2 lists the property type/geographic segmentation used and the respective sample size (number of properties) used in this study.

IPD provided the following data for each segment:

a) the average variance of individual properties;
b) the average covariance of individual properties;
c) the average covariance of individual properties with the IPD market segment returns; and
d) the average lot value as of June 2005 for each segment.

Table 1.2: UK market segmentation and data

Property type	Geographic location	Sample size
Standard shops	UK	381
Retail warehouse	UK	33
Shopping centre	UK	26
Other retail	UK	60
Office	London	73
	South East	45
	Provincial	38
Office park	UK	26
Industrial	UK	130

Source: Baum and Struempell, 2006

Using this data, simulated portfolios of direct properties were constructed with increasing numbers of properties for each segment. The portfolio sizes range from one to 100 underlying properties. For each portfolio the expected (simulated) tracking error against the respective market segment was computed. As the number of underlying assets in a portfolio is increased, the specific risk element of the portfolio is reduced; as the portfolio size tends to the market, the portfolio's risk approaches the market (systematic or non-specific) risk level.

To achieve a 5% tracking error, the results are as follows. Fewest properties are needed in the shopping centre segment, followed by office parks, retail warehouses, south east offices, provincial offices and industrials; and most in the London office segment, followed by other retail. The full results are shown in table 1.3.

The high co-variance of returns between individual shopping centres and the segment coupled with the small number of properties present in the segment at any time mean that only three properties will reduce the tracking error to 5%; only 11 are needed to achieve 2%.

On the other hand, the high variance of London office returns coupled with the low correlation characteristics of properties in this segment means that, on average, 10 properties are needed to achieve a 5% tracking error, and no less than 81 properties are needed to reduce tracking error within the segment to 2%.

Table 1.3: Number of properties needed to achieve tracking error targets

No. of properties	5% tracking error	4% tracking error	3% tracking error	2% tracking error
Segment				
Standard shops	6	9	16	34
Retail warehouses	4	6	12	47
Shopping centres	3	4	6	11
Other retail	8	12	20	34
London offices	10	16	30	81
South East offices	5	7	12	24
Provincial offices	5	8	12	23
Office parks	4	6	11	21
Industrials	5	8	14	33

Source: Baum and Struempell, 2006

Table 1.4: Average lot sizes by segment

Property type	Geographic location	Average lot value (£m)
Standard shops	UK	4.6
Retail warehouse	UK	21.5
Shopping centre	UK	39.5
Other retail	UK	5.0
Offices	London	15.2
	South East	7.2
	Provincial	7.2
Office parks	UK	10.0
Industrials	UK	6.4

Source: Baum and Struempell, 2006

Table 1.5: Capital investment required for target tracking errors

Capital required (£m)	5% tracking error	4% tracking error	3% tracking error	2% tracking error
Segment				
Standard shops	28	42	74	157
Retail warehouses	86	129	259	1,013
Shopping centres	118	158	237	434
Other retail	40	60	100	169
London offices	152	243	455	1,229
South East offices	36	50	86	172
Provincial offices	36	58	87	166
Office parks	40	60	110	210
Industrials	32	51	90	212
Total	568	851	1,498	3,762

Source: Baum and Struempell, 2006

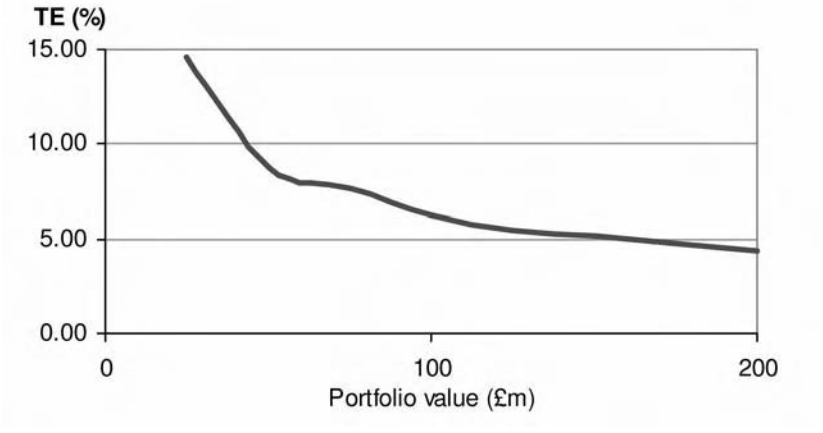
These results ignore the average costs of buying properties in these segments, which are shown in table 1.4. Clearly, while shopping centres are apparently easy to diversify, they are not cheap. A £40m average lot size compares with average values of between £4.6m and £7.2m in the standard shop, other retail, industrial and south east and provincial office segments.

Table 1.5 combines the impact of average lot sizes and the efficiency of diversification within segments. The figures show the differing levels of capital investment in the UK direct property market by segment required to achieve reducing levels of tracking errors within each segment.

Figure 1.1 illustrates how tracking error falls in one segment — London offices — as investment increases. The required capital investment depends on both the efficiency of diversification within the segment and upon the average lot size within each segment. Investors with higher levels of risk aversion require more capital investment in property segments in order to reduce the specific risk component of the portfolio to the desired level.

To achieve a given tracking error, the least investment is needed in the standard shop, provincial office, other retail and south east office segments; most investment is needed in the London office, retail warehouse and shopping centre segments.

Figure 1.1: Tracking error (TE) and portfolio value in London offices



Source: Baum and Struempell, 2006

1.9 Leverage is commonly used in real estate investment

- *Leverage is used in the vast majority of property transactions. This distorts the return and risk of a property investment.*

The most common use of the term 'gearing' — the term 'leverage' is equally popular and the terms will be used interchangeably here — is to describe the level of a company's debt compared with its equity capital, and usually it is expressed as a percentage. So a company with gearing (debt to equity) of 60% has levels of debt that are 60% of its equity capital. Alternatively, gearing might be expressed as the level of a company's debt compared with its gross assets (debt plus equity). In that case, the above example would produce a gearing (debt to gross assets, or loan to value) ratio of 30%. Throughout the text we use both gearing and leverage to mean the relationship of debt to gross assets.

This concept (or these concepts) translates directly into the world of commercial real estate investment. In the right market conditions, banks have been willing to lend more against the security of property than against other assets such as equities. This is a result of property's

income security and the land, bricks and mortar salvage value of a non-performing property loan.

Banks have typically been keen to lend against the collateral security offered by real estate assets, especially when the rental income more than covers the interest payments on the loan. The use of gearing will change the financial mathematics of the real estate investment. It reduces the amount of equity that needs to be invested; it reduces the net cash flow available to the investor by the amount of interest paid, and it reduces the net capital received by the investor on sale of the asset by the amount of the loan still outstanding. This has some complex tax and currency effects in the international context (see part 4) and allows more diversification of specific risk at the asset level as the investor can buy more properties for the same total outlay of equity. It also has two more direct implications, on return and risk.

If the prospective return or IRR on the investment without using leverage is higher than the interest rate charged then, generally speaking, leverage will be return-enhancing; and the greater the leverage, the greater will be the return on equity invested. In addition, the risk of the investment will be greater. The chance that the investor will lose his equity is greater the higher is the level of gearing, and the sensitivity or volatility of the prospective return will be greater. Thus is illustrated by table 1.6, which shows how changing capitalisation rates (yields) on the sale of a property produced a wider range of returns on equity (using 70% debt) than on the unleveraged investment.

Table 1.6: The impact of exit yields on the risk to equity

Exit yield (%)	IRR (%)	IRR on equity (%)
7.50	12.00	18.77
8.50	10.00	15.10
10.50	6.00	3.90

Source: Baum and Crosby, 2008

The history of ungeared direct property returns, such as is produced by IPD in Europe and NCREIF in the US, disguises the returns that have been available to investors' equity over most sub-periods of the

past 25 years. Just as homeowners can, in times of rising house prices and low interest rates, significantly enhance the return on the cash they invest by borrowing, property companies and private commercial property investors use debt finance to increase returns on equity.

By using rents to pay interest and (if possible) some capital repayment (amortisation), investors can enjoy a return on their equity investment in excess of the reported total return available to whole-equity investors, such as pension funds. These geared returns are rarely reported, but explain most private capital investments in global commercial property. Leverage is also discussed in chapters 7 and 9.

1.10 Is property an inflation hedge?

- *Property rents appear to be closely correlated with inflation in the long run, producing an income stream that looks like an indexed bond over the long term. But rents can be fixed in the short term, producing cash flows that look like those delivered by a conventional bond, and the residual value of a property investment after the lease has ended exposes the owner fully to the equity-type risk of the real economy. Hence property is a hybrid asset, with similarities to all other assets, but different.*

Property is usually described as a medium-risk asset. Its returns should therefore be expected to lie between those produced by equities and those produced by bonds, and its risk profile should be similarly middling. The risk of property has certainly been lower than the risk of the equity market, and some data suggests a risk even lower than that of the bond market.

The uncertainty of the nominal dividend income produced by equities over a given holding period compares with the absolute certainty of nominal income produced by a fixed interest security held to redemption (see table 1.7). Commercial property falls somewhere between the two in terms of certainty of income. In a standard UK lease, with upward-only rent reviews, the initial rental income set at the start of a lease remains certain, with only the uplifts expected at each rent review being uncertain. Given long leases, the principal return to the investor is an income return; and the value of the reversion at the expiry of the lease (while largely uncertain) is of reduced importance. Overall, therefore, commercial property should be a low to medium-risk asset, compared with bonds at the least risky end of the spectrum and equities at the most risky.

To explore this, we can set up a theoretical return model. Table 1.7 shows the returns that would be generated by the three asset classes under a set of plausible assumptions. A 6% 10-year bond bought at par will produce 6% if held to redemption; an equity producing an initial return of 3% with dividends rising at around 7% will produce 10%, fairly reflecting the higher risk in equities and the lower risk in gilts. Under these conditions, which are arguably rosy for equities and neutral for bonds, it can be shown that property can be expected to generate a return midway between those of bonds and equities.

Table 1.7: Illustrative returns available on equities, bonds and property

Year	Equities	Property	Bonds
0.00	–100.00	–100.00	–100.00
1.00	3.00	6.00	6.00
2.00	3.23	6.00	6.00
3.00	3.47	6.00	6.00
4.00	3.73	6.00	6.00
5.00	4.01	6.00	6.00
6.00	4.31	7.30	6.00
7.00	4.63	7.30	6.00
8.00	4.98	7.30	6.00
9.00	5.35	7.30	6.00
10.00	197.48	128.19	106.00
IRR (%)	10	8	6

Source: Baum, 2008

Notes:

1. The equity is bought with an initial dividend yield of 3%; the initial yield on the property is 6%; the bond has a running yield of 6%.
2. Dividend growth for the equity is a constant (and demanding) 7.5%; the property's rental growth begins at 4% but slows to 2% after the first review as the building tires and depreciates.
3. The property capitalisation rate or yield increases by 1% over the 10-year holding period, while the equity yield remains constant.

For many investors, particularly pension funds, which have liabilities linked to future wage levels, the need to achieve gains in money value

(in nominal terms) is of less concern than the need to achieve gains in the purchasing power of assets held (in real terms). Again, property might be viewed as a medium real risk asset. Data suggests a strong correlation between rents and inflation in the long run, and the cash flow might (although subject to deterioration and obsolescence) be expected to increase in line with inflation over a long period. However, in the UK, rents are in the short term subject to the constraint imposed by five-yearly rent reviews. This means that in the short run the income produced is of a fixed interest nature and hence prone to damage by inflation. This is not true of equities, but is even more true of conventional (not indexed) bonds.

1.11 Volatility and risk appear to be low

- *The risk of property appears low. Rent is paid before dividends, and as a real asset property will be a store of value even when it is vacant and produces no income. Its volatility of annual return also appears to be lower than that of bonds. This is distorted somewhat by appraisals, but the reported performance history of real estate suggests a medium return for a low risk, and an apparently mispriced asset class.*

Return is one side of the coin; risk is the other. Property is typically regarded as a low-risk asset: rent is a superior claim on a company's assets, and paid before dividends. Property's downside risk is limited, because as a real asset property will be a store of value even when it is vacant and produces no income. In addition, leases determine the delivery of income and produce short-term bond characteristics with longer-term equity performance.

For most investment professionals, including the actuary working with a pension fund or life assurance company, the measurement of risk rests on the concept of volatility rather than the layman's concept of the probability of a potential loss. Volatility is the fluctuation of returns around an average return. For example, one property (A) might show a 10% return each year for five years (see table 1.8). Over the five-year period, it would have shown 0% volatility as the actual return in each year was the same as the average return. If another property (B) had shown a positive return of 20% for the first two years, followed by a negative return of 40% in the third year and two further years of a positive return of 25%, it would have produced the same average return of 10% per annum. However, the volatility in returns

would have been much greater. This is usually measured in units of standard deviation. This is a measure of the average distance of each observation or data item from the mean of that data.

Table 1.8: Return and volatility

Year	Property A	Property B
1	10	20
2	10	20
3	10	–40
4	10	25
5	10	25
Average	10	10
Standard deviation	0.00	28.06

Source: Baum, 2008

The total returns delivered by UK commercial property over the period 1971–2006 (see table 1.9) have been less volatile even than the returns from gilts. This data is not supported by the US data shown in table 1.10, using US equities (S&P 500), treasuries (Merrill Lynch AAA) and real estate (NCREIF NPI), which appears to suggest that property has a slightly higher risk than treasuries, as might be expected.

Table 1.9: UK property risk and return, 1971–2008

	Return (%)	Risk (%)
Equities	15.9	30.5
Gilts	11.4	14.1
Property	11.7	11.7

Source: IPD

Table 1.10: US property risk and return, 1978–2008

	Return (%)	Risk (%)
Equities	12.3	17.5
Treasuries	9.0	6.6
Property	9.9	6.9

Source: NCREIF, Merrill Lynch, S&P

Despite the UK data, any conclusion to the effect that property returns have been less volatile than the returns from gilts or treasuries is flawed. Low volatility of delivered nominal returns disguises the illiquidity (or lack of easy or regular sale) of property, which introduces a risk not reflected in the volatility of notional returns based solely on valuations from period to period. In addition, valuation-based returns are themselves believed to be biased towards lower volatility than typical underlying market conditions support. There are several reasons for this, discussed in section 1.4 above, but the effect is serial or auto-correlation between consecutive values. Where this is present, the current valuation (Vt) is a weighted function of the present market value (Vt*) and the immediate past valuation (Vt–1), so that:

$$Vt = aVt^* + (1–a)Vt–1$$

Using this formula, a series of valuations can be 'unsmoothed' to present a representation of the imagined (unobservable) market values. Given Vt and Vt–1, we need to assign weights (a and (1–a)) to each. If a = 0.5, then the current valuation (say £10m) is 50% of last year's valuation (say £8m) and 50% of the present market value, which solves to £12m. The unsmoothed series will consequently demonstrate greater volatility.

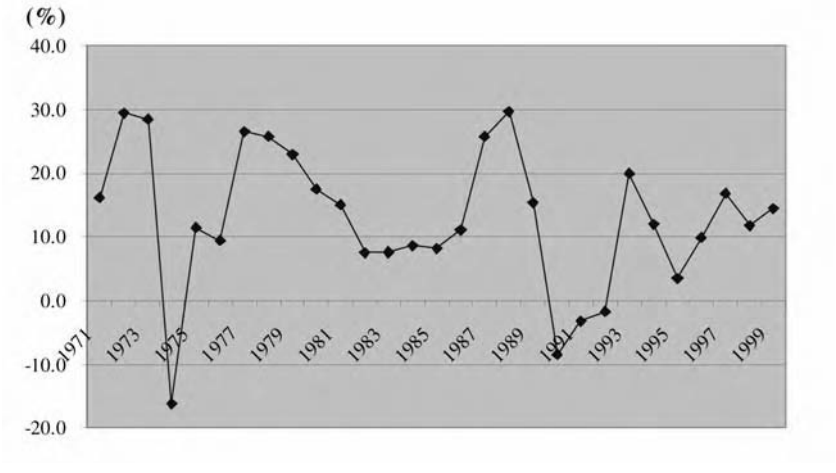
1.12 Real estate cycles control returns

- *Unlike stocks and bonds, real estate returns appear to be controlled by cycles of eight to nine years.*

It has been suggested (by, for example, MacGregor, 1994) that repeatable patterns, or cycles, can be seen in the history of development, occupier and investment markets. These are expressed in the form of developments, rents and yields, with these in turn driving capital values and returns.

Figure 1.2 illustrates what many would describe as a cycle in UK property returns over the period 1971–99.

Figure 1.2: UK property returns, 1971–99 (%)



Source: IPD

The graph shows two sharp UK commercial property downturns, in 1974 (–16%) and 1990 (–8%). This sets up an interesting hypothesis — is there a 16-year cycle? Was the crash of 2007 marginally delayed, but inevitable?

This type of 'technical' analysis is intriguing but ultimately less valuable than a 'fundamental' view of the property cycle, which begins with property development.

1.12.1 Developments

The inelasticity of property supply in response to price changes is perhaps the most important variable that explains the existence of a cycle of supply, rents, capital values and returns. Empirically, a cycle in property development is apparent, and most obvious in the London office market. Barras (1994) identified short cycles (four to five years, the classic business cycle operating on occupier demand), long cycles (9–10 years, a tendency for severe oversupply in one cycle to feed part of the next demand cycle), long swings (20 years, associated with major phases of urban development) and long waves (50 years, technology-based). More recent data suggest cycles of seven to eight years from peak to peak of development activity.

Development activity appears to be highly pro-cyclical with GDP growth and property values (rising and falling at the same time), but exhibits sharper rises and falls. As property values rise in a strong economy, developers gain confidence and construction activity increases. Hence, current development profits have been a good explanatory variable for development activity.

There is a strong relationship between office development and changes in rents, suggesting a degree of adaptive behaviour among lenders, investors and developers with a tendency to follow the market, often in an exaggerated fashion. A period of excessive optimism is followed by a period of excessive pessimism. Adaptive behaviour can explain much of the late-1980s boom and bust development cycle. As prices rise, prices are more likely to be expected to continue to rise; development profits are a function of continued price rises; hence price rises lead to ever-increasing supply levels, which create the conditions for lower prices (disaster myopia). The time lag between the inception and completion of developments creates an inevitable supply cycle.

1.12.2 Rents

Rents have also been strongly pro-cyclical with GDP. Barras (1994) shows how periods of growth in GDP above the long-term trend rate of growth have been coincident with periods of growth in rents above long-term trend growth. The demand side is pro-cyclical with economic growth indicators, but the inelasticity of supply means that even highly regular demand cycles can generate irregular rental cycles. Hence rents will rise in response to economic growth and a static supply in the short term, and will continue to rise as construction

activity gathers momentum; but the peak in construction activity may arrive after the peak in GDP growth, and an oversupply will result.

1.12.3 Yields and capital values

Some evidence of cyclicality in property yields around a flat (mean-reverting) trend may be discernible over a long period. The long-run flatness of yields results in an extremely strong relationship between rental growth and capital value growth, both strongly pro-cyclical, although some extreme market movements have been strongly yield-driven (examples include 1973–74, 1993–94 and 2004–06).

1.12.4 Returns

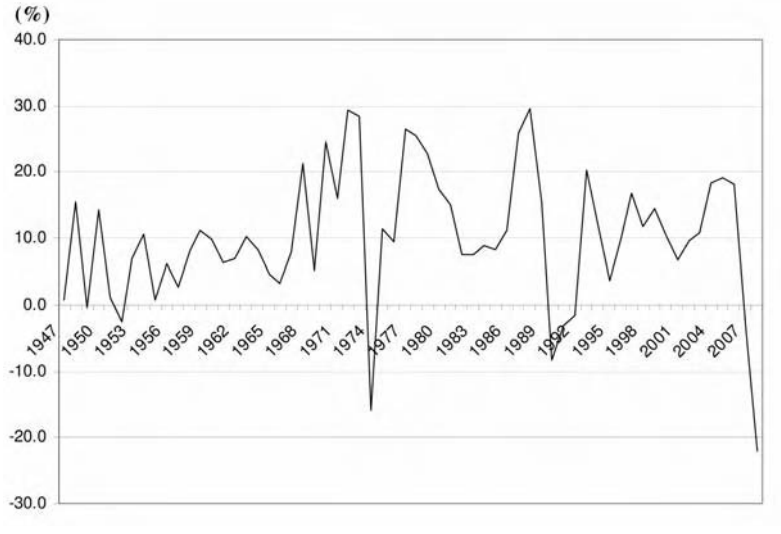
There is some relationship between returns and the business cycle, but this is less strong than the relationship between changes in rents, capital values and economic growth simply because income returns have been reasonably stable from period to period, thereby reducing the sensitivity of total returns to economic growth variables.

Work by IPD (IPD, 1999, drawing on historic data from Scott, 1998) provides the fullest picture of long-term UK performance yet available. Data assembled from various sources covering the period 1921–98 shows 16 'fairly distinct' peaks and troughs in the market. IPD identify six completed cycles, with peaks in 1925–28, 1935, 1950, 1954, 1960–64, 1973, 1979–81, and 1989. They suggest that those cycles have ranged in length from four to 12 years, with an average of eight years; upswings have run from two to seven years, and downswings from two to nine years. The average cycle length of eight years is interesting, as after roughly two more eight-year periods beyond 1989 the next peak of 2006–07 emerged.

The latter part of Scott's long-term data (Scott, 1998), supplemented by the more recent IPD data, is shown in figure 1.3.

Scott's eight-year estimate for the average cycle is interesting in the context of the 16-year period from trough to trough in the UK between 1974 and 1990. The 16-year cycles may contain two eight-year cycles, where the interim cycle is less severe because the memory of the last severe crash is still fresh — but, by the second time around, adaptive behaviour has encouraged complacency among market participants and a large correction is necessary. Within figure 1.3 one might suggest an interim downturn in 1981, the lowest return year

Figure 1.3: UK property returns, 1947–2008



Source: IPD, Scott (1998)

between the troughs. Projecting forward, then, we might look for a minor correction around 1998 and a severe crash in 2006. The evidence for this will be examined more fully in chapter 2.

We can conclude that the property cycle is linked to the economic cycle, but the precise nature of the relationship varies from one cycle to another. These property cycles appear to be clearer in form than equity and bond cycles and more exaggerated in effect than economic cycles. Why might this be the case?

1.12.5 Cycles: the result of market inefficiency?

Bjorklund and Soderburg (1997) suggested that auto-correlation (previous upward movements in prices leading to increases in prices in the next period) affects real estate returns to the point that a speculative bubble can be proven to have formed. Antwi and Henneberry (1995) identified what they called habit-persistent

(another term might be adaptive) behaviour by lenders and by developers. Wheaton (1999) suggests that forward-looking (rational) expectations by agents lead to stability, while myopic (adaptive) behaviour promotes oscillations — or cycles.

Grenadier (1995) examined the way owners of space will restrict supply in an upswing. Letting space at a market rent on a five-year lease involves the giving up of a five-year American option (the right to call a higher rent at any time). In an auto-correlated occupier/rental market, it is easy to see how letting at the market rent may appear to be a sub-optimal financial decision, especially when the supply side is so slow to respond to demand and price. Withholding space or delaying development in this way exaggerates the supply shortage and the cyclical upswing. It may also lead to empty space in a downswing: the well-known 1974 case of Centre Point in London, which was withheld from the market at a time of rising rents in 1973 but remained vacant for much of the remainder of the decade, is a good example.

These concepts indicate inefficiency in real estate markets. They affect the way space is developed, the way rents are agreed for space and the way prices are paid for real estate investments. They exaggerate and elongate upturns and downturns, and create the appearance of definable cycles in real estate markets. 'Sticky prices' (see section 1.6) affect occupier, investor and developer markets, elongating and exaggerating real estate cycles.

Rates of change in rental values and vacancy rates are small, due to the actions of intermediaries or agents and the costs of moving. Occupiers have to take account of the cost of moving in bidding for new space. Intermediaries, in the form of real estate brokers, tend to smooth rental value fluctuations by relying on historic comparable evidence in assessing new market rent levels. Development cycles are slow to reverse due to the commitment created by the large amounts of sunk (human and physical) capital required to complete a project.

Rates of return are also auto-correlated, due to valuation smoothing. This goes some way to support conventional views of the low volatility of real estate returns and the poor correlation of property with the main asset markets. Cycles appear to be the inevitable result of human psychology, and real estate provides an extreme illustration of this, as the events of 2004–09 — see chapter 2 — were to show.

1.13 Diversification — the evidence

Mathematical models based on modern portfolio theory (MPT) play an important role in the investment market, especially in the advice on investment strategy and asset allocation given by actuaries and consultants to pension funds and insurance companies.

MPT reflects the desire of investors to achieve higher returns, low individual asset risk and (more importantly) a smooth return on the entire portfolio. Asset allocation advice has, since the acceptance of MPT, traditionally required a view on three values: the likely future return on an asset class; its risk (usually defined as volatility and measured in units of standard deviation of return over a given period); and its correlation with other asset classes. This last factor measures the extent to which upward and downward movements in the values of two variables are linked together.

MPT has both led to, and has been further encouraged by, the development of asset allocation models. Strong prospective returns, coupled with low standard deviation of returns and a low correlation with equities and gilts, would provide a very strong argument for holding an asset.

When assets are combined in a portfolio, the expected return of a portfolio is the weighted average of the expected returns of the component assets. However, unless the assets are perfectly correlated, the risk is not the weighted average: it is determined by the correlations of the component assets. The way in which assets co-vary is central to portfolio risk, as low covariance produces diversification opportunities.

IPD's UK annual index provides the longest available run of consistent annual data describing the performance of a well-diversified portfolio of real properties. The results show the following:

- UK property returns have been below the return on equities but competitive with the return on gilts (see table 1.9).
- UK property volatility has been less than the volatility of both equities and gilts (see table 1.9).
- UK property has been much less well correlated with equities and gilts than equities and gilts have been correlated with each other. In other words, while equities and gilts have usually performed well or badly at the same time, property has outperformed or

underperformed at different times, thus smoothing out the overall performance of a portfolio with assets of all three classes.

This is illustrated by table 1.11. UK data suggests that property offers portfolio risk reduction to holders of bonds and equities.

Table 1.11: UK asset class correlations, 1971–2008

	Gilts	Property
Equities	0.59	0.29
Property	0.05	1.00

Source: IPD

Over the period to 2005, US data supported this broad conclusion. This is illustrated by table 1.12.

Table 1.12: US asset class correlations, 1978–2005

	Treasuries	Property
Equities	0.24	0.07
Property	–0.26	1.00

Source: NCREIF, Merrill Lynch, S&P

However, the 2006, 2007 and 2008 reported returns on US equities, treasuries and real estate changed the correlation between property and equities to a more positive value and reduced the case for real estate as a diversifier (see table 1.13).

The result of using UK return, risk and correlation data (see table 1.9) in an MPT framework is a high property allocation, as shown by table 1.14. We constructed the optimal (lowest risk) portfolios for portfolio target returns of 11.5%, 13% and 14.5% respectively.

Table 1.13: US asset class correlations, 1978–2008

	Treasuries	Property
Equities	0.27	0.27
Property	–0.23	1.00

Source: NCREIF, Merrill Lynch, S&P

Table 1.14: Illustrative asset class allocations

Target return	Volatility	UK property	UK stocks	UK gilts
0.115	0.092	0.597	0.000	0.403
0.130	0.140	0.615	0.315	0.070
0.145	0.224	0.345	0.655	0.000

Source: IPD, PFR

The low return/risk portfolio not surprisingly has plenty of gilts (40%), but the optimiser selects 60% property, as this reduces the portfolio risk even below the risk of a portfolio of 100% gilts.

The high return/risk portfolio — not surprisingly, again — has plenty of stocks, but the optimiser selects 35% property, as this again reduces the portfolio risk without excessively damaging returns.

Property comprises between 35% and 60% at all target return levels.

Yet the actual allocation for UK institutional investors in 2009 was around 8%, up from around 6% in 2005 (see table 1.15), but around one-sixth of the optimised level.

What explains the huge difference between unconstrained theory and practice?

Smoothing (see sections 1.6 and 1.11) is a large problem colouring this data. In some years, property yields do not appear to change; and it is clear that this can be the result of a scarcity of transaction evidence and the behaviour of valuers rather than a steadily performing market.

Table 1.15: Observed asset class allocations — institutional investors

Country	Real estate as % assets	% direct	% indirect
Australia	11.0	45.0	55.0
Germany	12.0	58.0	42.0
Netherlands	10.0	56.0	42.0
UK	6.0	Not known	Not known
US	3.5	46.0	54.0

Source: PREA, 2006

The smoothing problem also affects the correlation numbers. Reported property correlations, such as volatility, may be artificially low. The greater the fixity of the property return series — the greater the amount of smoothing, or serial correlation — the greater will be the tendency of the correlation of that series with returns in efficient markets to be close to zero. (The correlation coefficient is determined by the covariance of two series divided by the product of their standard deviations. Low volatility depresses both the numerator and denominator of this equation, but the impact of the covariance is likely to be greater.)

Given that three indicators are needed for assessing the appropriate weight of property in a multi-asset portfolio, two of which present two large problems, it is not surprising that property allocations in practice do not match the MPT solution. Standard deviations of returns from year to year understate true property risk; and correlations between property and the other assets may be unreliable. For this reason, various efforts have been made by academics to improve the position, which usually imply the use of statistical techniques to adjust the data (see, for example, Brown and Matysiak, 2000, and section 1.11).

In addition, year-on-year correlations between the asset classes may be said to be of limited interest to pension funds and insurance funds with longer-term liabilities. They are more likely to be concerned with their ability to match liabilities (wage inflation-linked pensions or nominally fixed endowment mortgages) without increasing the contribution rate of the employer or employee, or to declare a bonus.

A more interesting measure for long-term investors might therefore be the coincidence of good or bad returns on different asset classes over

longer periods. It is then possible to judge whether the poor correlation between property and equities is merely the result of valuation lags or smoothing, or alternatively whether there is something more fundamentally different about the way the assets perform.

Encouragingly for property, an analysis of long-term returns suggests that the best and worst periods of performance for property have not coincided with those periods for bonds and equities, and that property offers long-term advantages for investors with long-term liabilities.

While the property data used in a 75-year analysis is very thin indeed, it shows that property has performed well at wholly different times from equities and gilts, and that equities and gilts have been disturbingly closely correlated. For example, in terms of real returns the best rolling 25-year period in the last 75 years has been the same (1921–46) for equities and gilts but different (1944–69) for property. The worst rolling 25-year period in the last 75 years has been the same (1950–75) for equities and gilts but different (1969–94) for property. Should not pension funds and insurance companies value property more highly for this finding?

However, there are more limitations to this type of optimisation analysis that need to be considered, especially in a global context. These are as follows.

Specific risk

The data used describes the returns available on the index universes of asset classes. For stocks and bonds, it is possible for investors to replicate these universes in an investment portfolio, as they are highly divisible assets and index-tracking products are available. For property, the universe used to compile the UK annual index at the end of 2007 comprised over 12,000 properties worth around £215bn; over 5,300 properties and $225bn comprise the US NCREIF universe. These universes are not investable. The investor therefore faces an additional layer of risk, which is the sampling error created by the heterogeneity and specific risk of real estate (see section 1.8).

Leverage

The majority of property transactions involve the use of leverage (see section 9). Even where the institutional investor does not use leverage

on direct property acquisitions, unlisted funds will commonly be used for specialist or international investments (see chapters 7 and 10), and these will typically be geared. Hence, ungeared returns may not be fully representative of the risk and return profile of the investment vehicles used by investors.

Illiquidity

Real estate, unlike securities, is not a liquid asset class (see section 7). This is not reflected in the volatility and correlation data. Chapter 6 shows how the introduction of liquidity into a property structure can significantly change the return characteristics of real estate to the point that it ceases to be attractive. Arguably, therefore, illiquidity is a necessary evil in justifying the role of real estate, but it is an evil that clearly reduces the attraction of the asset class.

Taxes, currency and fees

Property investment may require the services of specialist fund managers (see chapter 2), who will typically charge ad valorem and performance fees. Taxes may be paid, even by tax-exempt investors, when investing internationally, and in such cases unhedged currency risk (see chapter 9) will colour returns.

These variables all challenge the value of a single country, gross of tax and fees, domestic currency, unleveraged, universe of returns in deciding on an allocation to commercial property. Adding the operational challenges of investing in real estate alongside faster-moving securities, it is not surprising that allocations do not reflect the outputs of an MPT optimiser.

Alternative approaches to asset allocation do exist. The most popular alternative is the so-called 'equilibrium approach' (Litterman, 2003), which advocates a neutral position determined by the size by value of the asset class (see chapter 2) with positions take against that neutral weight determined by the attractiveness of market pricing. This more closely reflects the practice of professional and institutional market participants.

1.14 Challenges

1.14.1 The limitations of direct real estate investment

The past can be used to suggest many things, both factual and false. It would clearly be incorrect to assume that history will repeat itself, following a standard pattern. Chapter 2 will present a history of the UK market to 2009, and readers can make up their own minds. Nonetheless, data can be used to show that property markets, both occupier and investor markets, clearly respond to economic cycles and economic events. Property advisers certainly need to understand these linkages, and the way market inefficiencies serve to exaggerate or disguise the impact of the economy and the capital markets on commercial property performance.

The UK 'cycle' of the 1990s was sufficiently different in its shape (a gradual recovery of values and activity, interrupted by the sharp value rise driven by falls in the gilt yield in 1993–94) to prompt commentators to suggest that cycles are a thing of the past. Better, or wiser, management, better market information, better management and pricing of the debt supply have all been suggested as reasons why this may be the case. An alternative view is that cycles are an inherent feature of property performance, and that (while they may appear in different forms, and may not be perfectly predictable) some evidence of property cyclicality will always emerge. Whether or not the future will be characterised by cycles, efforts to anticipate economic and property market change are essential in the property investment process.

For the purposes of this book, the importance of real estate lies in the fact that it has been one of three major asset classes that insurance companies and pension funds like to invest in, either directly or through property funds or REITs and property companies, which have become accepted as a major sector of the global stock market. The cult of the equity has dominated western investment strategy in the 1980s and 1990s to the extent that equities now dominate most institutional portfolios, especially in the US, the UK and Hong Kong. On the other hand, in Germany and some other continental European countries, bonds have always been the largest component of the mixed asset portfolio. In either case, property is treated as the third asset class — and often a very poor third.

UK institutions, for example, held over 20% of their investments in real estate in 1980. The average fell to around 6% by 2000. There are two

reasons for the decline. First, the long-term returns on property relative to equities have been low, so that the allocations to equities have increased as a result of the unmatchable growth in the capital values of equity portfolios. Second, the positive performance characteristics of property, traditionally seen as reasonable return, low risk and a good diversifier, have been challenged, and for good reasons.

The experience of property investors in the early 1990s was enough to persuade many of them that it was time to abandon the asset class. Several property companies became bankrupt; many banks developed severe shortfalls in their loan books through exposure to property loans; many householders found they owed more than they had borrowed by developing negative equity; and, worst of all, it became acutely apparent that the liquidity of property was not the same as the liquidity of equities and bonds.

Perhaps property owners did not reduce their asking prices quickly enough; but it certainly takes longer and costs more to sell property.

1.14.2 Securitisation and globalisation

Because of the liquidity and management problems associated with direct real estate ownership, the property investment market became mesmerised by the potential for securitisation or unitisation of real estate.

Over the period 1990–98, real estate investment trusts in the US and listed property trusts in Australia each saw explosive growth in markets where the legal and regulatory framework permits privately-held real estate assets to be transferred into tax-efficient public vehicles. Following a boom in the creation of unlisted funds in the 1999–2006 period (see chapter 7), the UK and Germany introduced REITs in 2007 (see chapter 6) and other markets are poised for a similar revolution. Property derivatives became a realised concept in the UK in 2005 and there are now swaps, structured notes and even futures trading globally (see chapter 8). Table 1.15 shows that as at 2006 PREA estimated that roughly half of all real estate investment by institutional investors in the countries selected was through indirect vehicles.

In addition, the search for return and diversification led to globalisation, meaning a transfer of attention from domestic investors and investments to international investors and assets (see part 4). But we must remember what makes real estate attractive to these investors, which is low volatility and the opportunity to diversify a securities portfolio.

Property is illiquid. This means that its required — and expected — return is higher than it would otherwise be. So introducing liquidity in the form of securitisation may damage returns. The largest impact of improved liquidity, however, would be upon risk and diversification. Surveys have consistently shown that diversification is a powerful driver for pension funds and insurance companies to become involved with real estate as an investment. Diversification surely works only as long as the asset is truly different. Property is a diversifier away from equities because it has bond and commodity characteristics. Taking away the long lease and the physical, heterogeneous, commodity nature of real estate would take away a large part of its diversification potential. A quoted, liquid property vehicle will inevitably have performance characteristics that are shared with the equity market. In other words, 'be careful what you wish for'.

Direct real estate (dealt with in part 2) is lumpy and illiquid. But it appears to diversify a portfolio. REITs are liquid and divisible, but they may not be good diversifiers, and unlisted funds and synthetic property (derivatives) bring their own challenges. Part 3 deals with these issues. Building the global real estate portfolio requires a compromise between the diversification offered by direct real estate and the costs of wrapping the asset into a securitised or unitised fund structure, the subject of part 4.

2 The market — and who makes it

2.1 The global property investment universe

The value of commercial property owned by institutional investors around the world has been estimated (by DTZ, 2008 and RREEF, 2007, among others) to be around $16trn at the end of 2006. This is the investable stock, meaning stock that is of sufficient quality to become institutional investment product, and which therefore represents the potential for market growth if owner-occupation rates were to tend to zero.

This estimate must be taken as the broadest possible guide. There a lack of transparency in many markets, and the generally low levels of information available in Asia and the emerging markets of the world mean that data limitations are even more stark. For example, we do not know much about the size of the investable property markets in China, India and Pakistan, despite their huge populations and increasingly significant GDP.

The $16trn investable stock of property can be broken down to the regional level. The global market is split by GAV into 39% Europe, 36% North America, 21% Asia and 3% emerging markets (defined for this purpose to include South America, Africa and parts of Asia excluding China and India).

In 1998, directly owned real estate accounted for some 6.7% of the value of the institutional investment market throughout the world (an estimate made by, among others, Prudential, a US insurance and financial services group). When we add the real estate owned by

Table 2.1: The global property investment universe ($m)

	Europe	Asia	Emerging	North America	Total
Size of market	6,353,676	3,440,101	485,212	5,872,705	16,151,694

Source: Property Funds Research, RREEF, EPRA, 2008

vehicles such as property companies in which institutions also invest and the property held as investments by private individuals, corporates and public sector bodies, this begins to appear to be a very important asset indeed.

The UK (with an estimated $170bn, or £106bn) constituted around 29% of all European institutional real estate in 1998. In global terms, this represented 14% of global institutional real estate, the third-largest share after the US ($380bn, or 30%) and Japan ($217bn, or 17%). By 2008, the UK's share had fallen to 11%, but the UK remains a leading real estate market in international terms.

2.2 The value of the UK real estate market

In 2005, Key and Law estimated the total value of all commercial property in the UK to be £611bn. Within this £611bn, they estimate that 33% is retail property, 26% office property, and 21% industrial property, together amounting to a total of £489bn in those core commercial categories. The remaining 20% (£122bn) covers a wide range, including hotels, pubs, leisure, utilities and public service buildings.

They also estimated that the total value of invested property at end-2003 was £265bn, of which £254bn was in the core retail, office and industrial sectors. The investment market accounts for a little more than half the total value of the retail, office and industrial stock — just over 60% in the retail and office sectors, but a little less than 25% in the industrial sector.

Against other assets, as at 2005 the value of total commercial property investment at £265bn compared with a total market capitalisation of the UK equities market at £1.4bn, and of fixed income (government and corporate bonds) investments of £540bn. On that

basis, a market weighted portfolio would include 12% property on a gross asset value basis and, allowing for leverage, 10% of investors' equity commitments. This is not far from the observed weight, and very different from the output of an optimisation approach, with all of the accompanying problems as detailed in chapter 1.

The universe used to compile the IPD UK annual index at the end of 2007 comprised over 12,000 properties worth around €285bn (£184bn at the then current exchange rate).

Box 2: The UK property market sectors

Commercial property risk and return characteristics vary from property to property and from sector to sector. What follows is a brief description of the qualities of the major UK sectors.

Shop units

- There are over 500,000 shops in the UK and thousands of shopping centres. There are about 500 locations that attract a reasonable spread of multiple retailers. However, there are only 100-200 'prime' retail locations, typically with at least 100 shops each and minimum catchment populations of 50,000+.
- High street shop unit values typically range from £100,000 to £5m and offer the potential for effective diversification.
- As single tenant investments they are straightforward to manage.
- They depreciate very little, as much of the value resides in the land.
- Supply is restricted by the importance of the location, so owners are protected from competition in many cases. Nonetheless, smaller high streets have suffered in recent years as shoppers have sought greater shopping choice and convenience in out-of-town retail warehouses and shopping centres.

Retail warehouses and parks

- Highly popular with the price-conscious, time-poor, car-borne shopper, retail warehouses were the best-performing sector for investors through most of the 1990s and until 2005. Planning limitations usually restrict sales to bulk goods (DIY, furniture, carpets, white goods).
- Single units have lost popularity at the expense of retail parks typically of 75,000–150,000 sq ft (£10–30m capital value). The few retail parks combining areas of 200,000 sq ft + with open A1 (unrestricted retail) planning consents can become open-air shopping centres and command much higher rents. Rents in Fosse Park, Leicestershire, the

most notable example, reached ten times the rate of stand-alone DIY units in the same location.
- Good parking and highway access are of vital importance.
- Out-of-town retail planning consents have become increasingly difficult to obtain, supporting investor interest.
- The popularity of the sector led to overpricing in 2006–07, followed by poor relative performance.

Shopping centres
- About 600 shopping centres have been built since the 1960s. They are mostly in-town centres, typically providing 20-60 additional retail units. In-town shopping centre values range between £20m and £100m.
- The earlier shopping centres were often open to the elements. The later ones are, in the main, covered and climate-controlled.
- A new generation of 1m sq ft centres such as Metro Centre (Gateshead, outside Newcastle), Lakeside (M25 East of London, North of the Thames), Bluewater Park (M25 East of London, South of the Thames), Merry Hill (Birmingham), Meadowhall (Sheffield), and White City, (west London), which opened in late 2008, all on the edge of town, have all been successful and command values of £500–£2,000m. All have superb road communications, creating enormous shopping catchment populations of 1m plus.
- Refurbishment, depreciation and service charges for common parts are big issues for shopping centre owners and their tenants.
- Specialist managers are necessary to manage the shopping mix and to extract full value from the centre; each centre is a major business in its own right.
- Because lot sizes can be as high as £2bn, diversification is a challenge (see chapter 1), although limited partnerships have recently taken a greater share of the market and offer some divisibility.

Offices and business parks
- Traditional town centre offices have been the worst-performing UK property sector over 30 years. This is probably the result of unanticipated depreciation (see chapter 1).
- There is an enormous range of lot sizes. Outside London, only the biggest and best buildings are worth more than £25m. In central London, there is a reasonably active market for lots of £100m plus.
- Depreciation and obsolescence have badly affected performance as occupiers' needs have changed and flexibility of layout and services has become the key issue. Many of the earlier buildings have been incapable of providing air-conditioning and raised floors for computer cabling. Now green and sustainability issues are challenging energy-inefficient office property.

- Some business parks have begun to command higher rents than town centre offices; a movement towards the much higher levels of out-of-town or suburban offices common in the US had begun by the turn of the millennium, but sustainability issues are now a challenge for the sector.

Industrials and distribution warehouses

- Traditional industrial estates have historically performed best late in the cycle: strong performance following strong retail performance was a typical performance pattern for the 1970s–1990s.
- Many older industrial buildings have shown surprising resilience to obsolescence and are still lettable several decades after construction.
- The perceived value of the industrial sector has increased with greater recognition of the lower risk to total returns associated with higher initial income.
- About 500 'high bay' distribution warehouses were built between 1975 and 2005. They typically have floorplates of 100-300,000 sq ft and eaves heights of 12–25m. They have attracted industrial investors because they offer reasonably large lot sizes (typically £10–25m), new highly specified buildings and tenants with good covenant strength.
- Distribution warehouses have generally failed to produce competitive total returns as low initial yields have combined with low levels of rental growth.
- Rents have been held down by just-in-time delivery methods and the resulting collapse in inventory levels; a ready supply of land outside the South East; and the willingness of developers to work on narrow profit margins due partly to the abundance of pre-lets. This attitude is partly explained by the lack of speculative risk and the short period for which capital has been deployed.

Leisure schemes and hotels

- Leisure parks, normally anchored by a multi-screen cinema, a themed restaurant, a fast food restaurant and a mixture of bowling, discotheque and other facilities became a popular investment in the 1990s.
- However, there are still less than 50 complete leisure parks, and the schemes have been dominated by a handful of developers.
- Many funds have sought an exposure to the sector through co-investment vehicles and others are planned. Overall, however, the relative size of the sector makes it relatively unimportant.
- Hotels, traditionally not a part of the UK commercial property sector, have become more investable, through increased investor risk appetite, multi-sector city regeneration projects, and the development of unlisted funds.

2.3 Market players

The importance of the UK market in terms of its size is supported by the institutional and structured nature of the UK market. The professional organisation of property services is probably most recognised in the UK, through the history and power of the Royal Institution of Chartered Surveyors and the global expansion of UK/US partnerships such as Jones Lang LaSalle and CB Richard Ellis into listed global companies.

In addition, the collection and analysis of ownership data is at its most developed in the UK, partly through the work of the Investment Property Databank, now an expanding global business.

Finally, the City of London is the world's leading fund management centre (Baum and Lizieri, 1999), and this naturally adds to the importance of London as a centre for property investment and the services associated with it.

The property investment market is driven by investors and fund managers, and guided by advisory firms.

2.3.1 Investors

The decline of traditional owners

The structure of ownership (or, more accurately, control) of UK commercial property has been changing in both obvious and subtle ways over the last 35 years. First, the combined forces of privatisation and globalisation have had their intended and inevitable impact. The traditional owners — the great private landed estates, such as the church, the Crown, the Oxbridge Colleges, central and local government — have, as a whole, lost relative influence, while international owners have increased their presence. To take an example, the overseas ownership of City of London office buildings increased from around 10% to around 50% over the period from 1972 to 2005 (Baum and Lizieri, 1999, Lizieri and Kutsch 2006), while the proportion owned by the City Corporation and the Worshipful Companies fell markedly.

Property companies

Property companies have been successful at surviving two severe challenges to their very existence, in 1973–75 and in 1991–93. Another severe challenge was being confronted in 2009. In both previous

property recessions, many famous property companies became insolvent and disappeared. While the extremely strong performance of the stock market in the 1980s and again since 1993, coupled with a growing demand for liquid (easily traded) property investment vehicles, has provided some support to the albeit poorly performing share prices of the survivors, its weighting as a proportion of the stock market has declined significantly since 1989. Nonetheless, the property company sector includes well over 100 companies and the largest UK property owner of all, Land Securities, is a FTSE 100 company. The recent introduction of the UK REIT is seen as positive factor, although the performance of the UK-listed property sector in its early stages since the introduction of REITs in January 2007 was very poor.

International owners

Until the turn of the millennium the UK, alongside the US, was one of the few countries capable of attracting a wide range of overseas property investors. Most had been particularly attracted to the City office market, home to more international banks than anywhere else in the world. The City property stock was almost wholly domestically owned until Big Bang in the mid-1980s, after which successive waves of Japanese, American and German capital have taken levels of overseas ownership from 2% to something approaching 50% (Lizieri and Kutsch, 2006).

In the past 10 years, however, many international markets have become home even for risk-averse institutions, and the pace of exchange of assets among international players has been remarkable. Much of this has been facilitated by unlisted real estate funds — see chapter 7. The category of international owners includes property companies, wealthy individuals and family offices, US-based (and other) pension plans and endowment funds, international insurance companies, pension funds, German open-ended funds and now sovereign wealth funds.

Of the top 10 global investors in the Property Funds Research database, all except two (the Japanese Government Pension Investment Fund and the Federal Retirement Thrift Investment Board) have global investment portfolios with significant use of unlisted funds, or have recently announced plans to invest in global real estate for the first time using unlisted funds (see table 2.2).

The listed market has also grown, trebling in size between 2001 and 2006, before the global correction, as the REIT format was applied

Table 2.2: The largest global investors

Capital source	Capital type	Domicile	Total value of fund (€m)	Fund invests in property?
Japanese Government Pension Investment Fund	Pension fund	Japan	1,032,000	No
Abu Dhabi Investment Authority	Government fund	United Arab Emirates	665,407	Yes (global)
TIAA-CREF	Pension fund	US	308,301	Yes (global)
Norwegian Government Pension Fund	Pension fund	Norway	239,431	Considering global
Algemeen Burgerlijk Stichting Pensioenfonds	Pension fund	Netherlands	218,300	Yes (global)
California Public Employees Retirement System	Pension fund	US	195,307	Yes (global)
Kuwait Investment Authority	Government fund	Kuwait	172,598	Yes
Korean National Pension Scheme	Pension fund	Korea	168,224	Yes (global)
Federal Retirement Thrift Investment Board	Pension fund	US	142,825	No
China Investment Corporation	Government fund	China	138,554	Yes

Source: Property Funds Research, January 2008

to more and more countries. PFR and INREV (European Association of Investors in Non-listed Real Estate Vehicles) surveys suggest that there is a potential for further growth. In the long run, it is reasonable to suppose that more listed and unlisted property funds will follow to convert the huge pool of government and owner-occupier held property into an investible form. It is expected that growth in the creation of funds will continue, supported by booming fund of funds and multi-manager solutions (a form of indirect investment in which a manager is appointed to select funds on behalf of an investor; see chapter 7). Investors are taking more risk in search of maintaining attractive return levels, resulting in an increased appetite for what are called 'value-added' (higher risk) funds. There is also growing interest in emerging markets on the fringes of Europe, the Middle East and North Africa, Sub-Saharan Africa, South America and Russia.

The recent pace of change in investor attitudes has been rapid. Taking UK pension funds as an example, in 2000–05 balanced, unlisted property funds dominated the UK and European markets and domestic multi-manager mandates were common. In 2005-06, pan-European pension fund mandates became typical. Global multi-manager mandates started to appear in 2006–07, and in 2007 the first global listed/unlisted mandates were being agreed. Meanwhile, increasingly established derivative markets were, by 2007, allowing property hedge funds (such as Reech AiM's Iceberg fund) to create 'market neutral' absolute return funds. Given time, and after a long pause for breath following the crash of 2007–09, the standard pension fund mandate will almost certainly become global, and may also develop into a requirement for global listed and unlisted funds as well as permitting long/short solutions to achieve absolute returns.

2.3.2 Fund managers

There has been a less apparent shift in management away from the insurance companies and pension funds that were so dominant in 1980, when property made up as much as 22% and 12% respectively of their total assets, towards fund managers and property companies (the distinctions between which are occasionally blurred). Through the 1980s, the institutional investor dominated the higher levels of the industry, controlling the larger transaction business and (in collaboration with chartered surveying businesses) driving best practice and forming industry lobbies such as the Investment Property

Table 2.3: The PFR global manager survey, 2008 — top 25 managers, unlisted funds — total value of global real estate equity assets under management (€m)

Fund manager	Total	Europe	North America	Latin America	Australia	Asia
ING Real Estate	107,174	57,702	38,201		8,733	2,538
RREEF	61,605	22,750	28,862	5	7,796	2,192
Morgan Stanley Real Estate	42,211	13,156	20,513		23	8,585
Pramerica Financial Inc.	42,204	2,945	35,503	553	27	2,231
AXA Real Estate Investment Managers (AXA REIM)	41,450	41,300				150
Morley Fund Management	40,430	39,785				645
Commerz Real AG	33,000					
LaSalle Investment Management	32,367	12,253	13,522	311		6,217
UBS Global Asset Management	30,081	14,592	11,074			4,415
AEW Capital Management/ AEW Europe	29,675	15,000	14,200			475
Hines	26,474	2,839	22,013	1,221		400
Tishman Speyer	25,875	4,590	20,822	300		163
PRUPIM	25,460	22,844	1,060		679	858

Fund manager	Total	Europe	North America	Latin America	Australia	Asia
Principal Real Estate Investors	24,928		24,915		48	
Credit Suisse	23,322	21,463	474	38	558	801
CB Richard Ellis Investors	23,259	10,767	11,915			567
Invesco Real Estate	21,400	7,700	13,700			
BlackRock	19,806	3,953	14,992		861	
Standard Life Investments	18,207	16,770	594	36	54	739
Macquarie	17,010	11,797			3,273	1,960
IVG	15,948	15,433	532			
Legal & General Property	15,514	15,514				
Aberdeen Property Investors	14,500	14,200				300
Henderson Global Investors	13,370	11,500	1,700			170
AMP Capital Investors Limited	13,058				13,058	
TOTAL	747,171	378,442	264,229	2,265	35,131	33,246

Source: Property Funds Research, 2008

Forum. In the 1990s, the effects of privatisation and outsourcing reached down to the institutions. There has recently been a restructuring of their investment and property divisions, with the result that the power base now lies within specialist fund management operations, which may themselves be owned by what used to be insurance companies and are now financial services groups.

Table 2.3 shows the top 25 global managers of unlisted property funds and the value of the assets held in those funds in Europe, North America (NA), Latin America (LA), Australasia and Asia. The top two are European in origin; the next two are originally US-based; and in total there are 13 Europeans, 10 North Americans and two Australians. Significantly, there are no large Asian-based managers.

Most of these are institutional fund managers owned by bank or insurance businesses, but many of the risk takers are property companies. In Asia, this is likely to be where the next phase of growth will come from.

Several global exemplars and models exist of property companies moving into fund management. Popular motivations may be to add high-quality earnings to volatile development profits to create value through diversifying a mix of risk styles; to maintain employment for a large asset management team when the core business is challenged by low share prices; to add some new expertise motivated by a more direct interest in new business; or to disinvest from large assets while maintaining an interest in ownership, fee flow and a form of control.

2.3.3 Advisors

Developments in the investor and fund manager communities have created a more complex industry structure and a confusion of ownership and management. The traditional property service providers, the chartered surveying practices in the UK, have been severely challenged by these changes. While there has been no serious threat to the transaction-based business of the traditional surveyor/agent, investment management is another story. First, fund managers can access large sums of capital for business development or for co-investment in large blocks of property alongside clients, which traditional partnerships cannot do. Second, the Financial Services Act of 1986 imposed discipline on the securities businesses of financial services groups. While the regulations do not apply to direct property, they nonetheless suggested the possibility of unmanaged conflicts of

interest among the traditional service providers, which may earn the majority of their fees from transaction business while acting as investment managers. The rise of indirect forms of ownership has brought financial regulation more clearly into play.

Even so, many of these businesses have been successful in maintaining their own fund management operations by creating their own 'Chinese walls' (Jones Lang LaSalle, for example, is now a top 10 global property fund manager by assets under management, separately branded as LaSalle Investment Management). Some now have access to significant capital, but this has been at the cost of their independence. An epidemic of takeovers in the mid-1990s resulted in the sale or merger of many of the most respected chartered surveyors to or with US-based real estate businesses. As examples, Jones Lang Wootton merged with LaSalle, Richard Ellis and St Quintin were sold to Insignia, Hillier Parker was sold to Coldwell Banker, and Healey and Baker was sold to Cushman and Wakefield. The subsequent merger of Insignia and CB created CB Richard Ellis, the world's largest property services business in 2008.

Other advisors or service providers have become essential to the working of the commercial real estate investment market. These include placement agents and promoters of property funds; lawyers; tax advisors; derivatives brokers; trustees and custodians; and good, old-fashioned property managers, who are most easily found within the traditional service providers, but with new competitors in the form of specialist facilities management businesses.

2.3.4 Funds and vehicles

Several problems are associated with property investment. These include illiquidity, specific risk and a lack of trust in valuation-based property return indices (see chapter 1).

An apparently obvious solution to many of these problems is the use of liquid-traded property vehicles in place of the direct asset. A variety of legal structures exist that are capable of providing a means for investment in domestic or international real estate investment. These include REITs and listed structures, and a new generation of unlisted property funds, both open-ended and closed-ended. In addition, much work is being expended in the development of synthetic vehicles (derivatives) to provide this solution, with some already in place, including property swaps, structured notes and property derivatives funds.

These vehicles may have the primary objective of reducing tax, of achieving liquidity or of aligning the interests of the investors and the managers. They may exist to permit co-mingling of investors, or may be special purpose vehicles for the use of one investor acting alone. Their use has multiplied in recent years as a result of the continued search for liquidity and the success of REITs, the increase in cross-border investment activity, often more attractive in a co-mingled format, and the generally more punitive impact of tax on foreign investors. They are more fully described in part 3 of this book: what follows is a brief summary.

Many professional investors use what are known as collective investment schemes or co-mingled funds. Typically managed by fund managers, these are pooled funds that allow smaller insurance companies and pension funds and other investors to achieve diversification without the high fixed costs and illiquidity of holding direct property. The main types of pooled fund used in the UK are the open-ended property unit trust, the closed-ended limited partnership and the offshore trust. Special purpose corporate vehicles (SPVs) are also used, usually for tax efficiency or to permit the use of gearing which does not appear on the investor's balance sheet.

Special purpose vehicles

The company is a popular format for the ownership of both domestic and international property. Its prime advantage is to allow complete flexibility in the size and quantity of the number of investors in the vehicle; in addition, it introduces the possibility of liquidity if the vehicle is offered in the public markets. In the UK, however, tax is paid on the capital gains made by UK companies and on the profits made by these companies. In addition, tax is paid by shareholders on the dividends distributed by companies, so the conversion of freehold ownership into a corporate structure introduces an extra layer of tax.

This is more of a problem for taxpayers, typically overseas owners or private individuals and corporates, than it is for institutional investors. However, international institutions may be caught in this net.

The most common means of addressing this disadvantage is to reduce double income tax as far as possible by minimising profits and dividends. This is most commonly achieved by introducing borrowing, so that the interest charge will be set against rental income to reduce annual profit. This may have the added advantage,

depending on the relationship between interest rates and expected returns of introducing a positive leverage or gearing effect, so that returns to equity after tax may exceed total returns on the vehicle as a whole after tax and even, in some cases, before tax (see table 2.4).

Table 2.4: After-tax returns on equity

Property cost (£)	2,000,000
Loan (£)	1,500,000
Tax on profits/gains (%)	35.00
Interest rate (%)	7.00
Growth (%)	2.50
Gross running yield (%)	7.50
Gross total return (%)	10.00
Return on equity after tax (%)	12.35

Source: Baum, 2008

Interest received may be taxed differently from dividends, and a second means of reducing income tax is to introduce 'equity' in the form of debt. This can be achieved by issuing investors with loan notes instead of, or alongside, share certificates.

Established offshore, corporate vehicles can be highly tax-efficient and hence attract international investors. Companies set up in the Channel Islands, for example, can sell property free of all UK capital gains tax. For this reason and others, the UK is seen to some extent as a tax haven for international investors.

Much international property investment utilises this type of vehicle. It raises some interesting questions. A UK life fund may typically consider this type of vehicle in allocating cash to international property investment. Its decision may be based on the returns available after tax on equity, compared with the gross returns available in the domestic market. Its domestic investments are unlikely to be geared, and the false comparison of similar returns on low-risk domestic investment and high-risk, highly geared or levered international investment may be tempted.

Closed-ended unlisted funds: limited partnerships and trusts

Specialist unlisted property funds in the form of offshore unit trusts were increasingly popular in the UK at the turn of the millennium. For example, the Hercules Unit Trust, which by 2006 held over £2bn by value of out-of-town retail parks in the UK, is a Jersey-based property unit trust vehicle managed for the benefit of a mix of domestic and international investors. There has been a reasonably active secondary market in units in this fund, and in several other similar structures.

The limited partnership structure offers less liquidity. It is unregulated, and simpler to operate than the unit trust. It has been very successful in attracting investors, usually into specialist funds or single property investments. Limited partnerships are tax neutral or tax transparent vehicles, meaning that the vehicle itself does not attract taxation, and partners are treated exactly as if they owned the assets of the limited partnership directly. This creates an enormous advantage for the vehicle, which has become increasingly popular as the standard vehicle for co-mingled property ownership. The ownership of Bluewater Park, for example, a £2bn shopping centre developed by Lend Lease, was converted to a limited partnership in 1998 and partnership shares sold to investors. Many similar structures followed, and this is now the most popular form of unlisted fund format (see chapter 7).

The main disadvantages are limited liquidity, with stakes tradable only on a matched bargain basis.

Private equity real estate funds

In the late 1980s, the US saw the launch of a new generation of co-mingled funds looking to buy cheap, distressed property assets popularly known as 'vulture funds'. These were the first generation of closed-ended real estate funds, usually set up in a corporate or partnership format. For many reasons the format became largely discredited, but the access provided to difficult markets for foreign investors, tax efficiency and a lack of alternatives have all helped to overcome resistance to the vehicle.

A more acceptable name ('opportunity funds') was found for these funds in the 1990s; later 'private equity real estate funds' became a popular broader descriptor for higher risk, higher return, illiquid closed-ended real estate funds modelled on private equity structures.

They are always closed-ended, and it follows that they have a limited life in order that investors can force a sale to receive a return of equity.

Fee structures in such vehicles, modelled initially on US private equity (venture capital) funds, typically attempt to align the interests of investor and manager by rewarding the manager on a performance basis. The manager may charge a base fee calculated as a percentage of the value of the assets managed, and additionally take a proportion (say 20%) of the total return over a minimum hurdle (say 12%).

These structures can be employed in cross-border investing, and often involve complicated cross-border structures. This is now a popular medium for international property investment. The structure can be purpose-made and therefore tax-effective for certain investor domiciles and types. Gearing is common, at levels up to 60-80%, both for performance and tax purposes. This carries inherent risks, which were revealed in full in 2008–09. The fund manager often has an investment alongside clients.

This vehicle carried much of the US-originated 1990s investment in markets such as Eastern Europe and China. While there are many flaws in this investment format — the limited life format and its lack of liquidity being two — its main advantage is that it clearly accesses the diversification potential of private real estate against equities and bonds.

Open-ended funds (UK property unit trusts)

Property unit trusts are the main vehicle used by pension funds to gain access to diversified portfolios of UK real estate, in a form that allows replication of direct market performance characteristics. They are unlisted, the unit prices are determined by valuations, and liquidity is limited to a small amount of secondary market trading activity and the guarantee that managers will buy and sell units, albeit at spreads that replicate the cost of buying and selling direct property.

Property unit trusts are tax-free for qualifying pension funds. While they have to invest in domestic property to protect this status, they can be established offshore to appeal to international investors.

The typical absence of large central London offices from most unit trusts means that returns should be less volatile than the market as a whole, but the investment performance of property unit trusts has generally been similar to that of direct property, although this assumes that valuations and not secondary markets define performance (see chapter 7). There is a small secondary market dealing with the transfer

of units on a matched bargain basis, so that the liquidity of the property unit trust market may be a little better than the liquidity of direct property, but liquidity is still limited by three factors:

i) The current property unit trust market is only worth around 10% of the direct institutional market.
ii) Property unit trust managers typically only trade on a quarterly basis.
iii) Property units are ultimately only as liquid as the underlying asset (see chapter 7).

The open-ended nature of property unit trusts means that investors can deal directly with the manager rather than with each other through a secondary market. This dual liquidity mechanism can fail in rising and falling markets. Flows of capital into and out of the vehicle can create greater difficulties for the manager than rising and falling share or unit prices would create for the managers of a closed-ended listed vehicle, such as a property company. In strong markets, intense performance pressure can be placed on managers by net inflows of cash. Managers are forced into a position where they wish to invest quickly, but only in attractively priced assets.

Weak markets create greater problems. Particular difficulties were evidenced in 1990–93, when net sales of units led to forced sales of property, damaging the performance of some unit trusts. This in turn led to more investors wishing to exit, forcing further sales of units and then forced sales of properties in a vicious downward spiral. A more severe crisis erupted in 2007–08 (see chapter 7). As an example, the largest example of the UK property unit trust, the Schroder Exempt Property Unit Trust, managed at May 2000 over £1.1bn of commercial property assets for more than 600 different corporate pension fund unit holders. In December 2006, the gross assets had risen to £2.3bn; by the end of 2008 this had fallen back to £1.3bn.

Despite the problems caused by the open-ended structure, property unit trusts have remained popular. In general they seem to behave similar to direct property. Liquidity is not significantly better than for direct property, but property unit trusts are ideal for small funds due primarily to professional management and the diversification benefits of a pooled vehicle.

REITs and listed property companies

Securitisation has enabled real estate investment to be executed through an accepted industry sector of the global stock markets. This has debt (Commercial Mortgage-Backed Securities, or CMBS) and equity (Real Estate Investment Trust, or REIT) formats, both of which grew rapidly in 1990–2007.

The US REIT is a tax transparent, quoted vehicle which is forced to distribute the majority of its earnings and to limit its gearing. This provides the features that many would look for in the ideal property vehicle, providing property performance features in a liquid form. Its growth in the 1990s to a current market capitalisation of around $300bn demonstrates this view. The REIT format has been exported around the world, and was introduced in the UK in January 2007.

However, REITs are in essence listed property companies, and, over the longest time series available, returns on investments in listed UK property companies have only just matched the returns on direct property investment, and have significantly underperformed the UK equity market. The volatility of property company shares has been much higher than that of the direct property market, and the performance of property company shares has not mirrored that of direct property, but has instead been highly correlated with the equity market (see chapter 6). In other words, UK property company shares look like equities, and have been a poor substitute for direct UK property.

These relationships are not fixed, and REITs may be different (US REIT data is more encouraging). The result of any analysis is subject to the time period used — for example, the relationship between property company shares and the UK equity market was very strong in the 1970s while the relationship between property company shares and the direct property market has been stronger since 1980.

The UK has been no exception in its development of securitised and other indirect forms of property ownership. The packaging of listed securities into funds that provide exposure to a country's property sector has been assisted by the growth of property share benchmarks, such as those provided by Global Property Research, EPRA (The European Public Real Estate Association) and NAREIT (the National Association of Real Estate Investment Trusts) and the development of global and regional property share and REIT funds are signs of a maturing market.

However, for the supply of property share funds to grow requires growth in the number and size of listed property companies. In 2000,

when the first edition of this book was published, market pressure in the UK was operating in the opposite direction, as large discounts to net asset value in the share price made it more attractive to take property companies private and exploit the property values in other ownership formats whose performance is unlinked to the stock market. Unfortunately, although a strong recovery took place in 2002–06, the same issue re-appeared in 2007–09.

Synthetic vehicles

Property index certificates, launched by Barclays in the mid-1990s, were the first European derivative property investments. Buyers are provided with synthetic returns matching the annual return on the IPD annual index. As in the gilt or bond market, the buyer pays a capital sum that is either par value or a price representing a premium or discount to par depending on demand in the market. The issuer provides a quarterly-in-arrear income based on (but not exactly the same as) the IPD annual income return, and following expiry the par value is repaid together with a large proportion, but not all, of the capital appreciation in the IPD index.

While performance is directly linked to the capital performance of the IPD annual universe, under normal circumstances property index certificates lock in marginal underperformance of the IPD annual index due to the management costs charged. Correlation with the direct market is nonetheless very high, and in a multi-asset or international context these instruments provide the pure diversification benefits of UK property. However, liquidity is low due to the small size of market and the lack of a true secondary market.

These are now a subset of a broader 'structured note' market, which developed in the UK in the period post-2004 when tax and regulatory clarification made a property swap market more efficient for institutional investors. Derivatives are dealt with in more detail in chapter 8.

2.4 A property performance history — the UK

In the past 35 years, it has been the property market's fate to disappoint institutional investors who might have allocated their cash elsewhere: to fixed interest securities (gilts, both conventional fixed

interest and index-linked, and corporate bonds) or to equities (UK or international) (see chapter 1, table 1.9). This is something of a surprise to those who entered the market in the 1990s, and observed misleadingly high returns in excess of those delivered by equities over 5, 10 and 15-year periods up to 2007.

Strong bond returns in the 1990s (produced by a drop in interest rates and inflation) and unprecedented high returns by equities in the 1980s and 1990s have resulted in UK commercial property underperforming government bonds, and underperforming equities by more than would be expected. The comparison of the annual total returns on the three main UK asset classes (equities, fixed interest gilts and property) over a 28-year period to 2008, using geometric mean returns, shows that equities outperformed property by over 5% each year, and property outperformed gilts by only 0.3%. Investing in property would not appear to have been optimal over this period.

These are not encouraging statistics. The future, however, is unlikely to be — indeed, should not be — like the immediate past. For reassurance, we can question the sustainability of the conditions of the recent past from which the empirical results are derived. The conditions of the 1980s and 1990s may have been the worst possible for property relative to bonds and equities.

The deregulation of planning brought about by the Thatcher government, coupled with consistently overestimated but falling inflation rates and the cult of the equity, have arguably provided one-off shocks to property's relative performance. Table 2.5 shows the full UK property performance history provided by IPD from 1981–2008 (data for 1971–80 is less reliable and not fully supported or disaggregated by IPD).

2.4.1 1950–73: from low inflation to a boom

After World War II, the growth of the availability of debt — especially mortgage finance — attracted a large number of private investors and developers to property. In the 1950s and 1960s, the reconstruction of Britain characterised by slum clearance, comprehensive development schemes and new towns, coupled with the ready availability of long-term mortgages at low rates of interest, enabled developers such as Harry Hyams, Charles Clore, Land Securities and Hammerson to develop and hold major portfolios. Rapid increases in value in the 1960s, partly fuelled by growing rates of inflation and partly by the

Table 2.5: UK asset total returns, 1981–2008 (%)

Year	Property	Equities	Gilts
1981	15.0	13.6	1.8
1982	7.5	28.5	51.3
1983	7.6	28.8	15.9
1984	8.6	31.8	6.8
1985	8.3	20.2	11.0
1986	11.1	27.3	11.0
1987	25.8	8.7	16.3
1988	29.7	11.5	9.4
1989	15.4	35.5	5.9
1990	–8.4	–9.6	5.6
1991	–3.2	20.8	18.9
1992	–1.7	19.8	18.4
1993	20	27.5	28.8
1994	12	–5.9	–11.3
1995	3.5	23.0	19.0
1996	10	15.9	7.7
1997	16.8	23.6	19.4
1998	11.8	13.7	25.0
1999	14.5	23.8	–3.5
2000	10.5	–5.9	9.8
2001	6.8	–13.3	3.9
2002	9.6	–22.7	10.3
2003	10.9	20.9	1.8
2004	18.3	12.8	6.6
2005	19.1	22.0	7.4
2006	18.1	16.8	–0.1
2007	–3.4	5.3	6.4
2008	–22.0	–29.6	11.0
Average	11.7	15.9	11.4

Source: IPD, Datastream

Notes: averages are geometric means; gilts are benchmark 10-year redemption yields; equities are FT All Share dividend yields; property is IPD annual universe, standing investments; property shares are FTA real estate.

long post-war boom, went straight into the pockets of equity owners in these companies whose borrowing costs were often fixed. At the same time, some possibly ill-judged government restrictions on development — such as Office Development Permits — held back supply and drove up real rents.

Insurance companies had, up to the mid-1980s, been market participants as long-term mortgage lenders and as owner-occupiers or lessees of office space. Having observed the equity gains that were being made by borrowers, they began to consider exposing their own cash to the expected increasing value of property. By this route insurance companies became equity investors in property as well as investors in property-backed, fixed-interest debt. More purchasers in the market added to pressure for higher prices.

The 1960s property boom was an indication of the end of the low inflation period, and the end of low fixed interest rates. Inflation also introduced the necessity for regular and increasingly more frequent rent reviews (see Baum and Crosby, 2008). The typical shop lease in 1960, for example, was for 21 years without rent review. Between 1962 and 1971, rent review clauses were inserted in 62% of all new leases. Between 1965 and 1970, the normal rent review term was seven or 14 years. After the Barber Boom (the loose money boom of the early 1970s presided over by the Heath Government's Chancellor of the Exchequer, Anthony Barber) and the consequent inflation of 1971–74, five-yearly rent reviews became typical. In the mid-1970s, there was an attempt to move the market to three-yearly reviews. The market has since settled on five years as an acceptable compromise between lessor and lessee.

2.4.2 1974–81: a small cycle, high inflation

The conversion of property from a vehicle for fixed interest investment to an equity play for institutional investors was consolidated in the aftermath of the Barber Boom and the oil crisis of 1973. Loose economic policy drove a boom and, together with the rapid rise in oil prices, led to a subsequent crash in UK property markets, the equity market and the economy as a whole. As a result of this very serious economic shock, many property companies and several secondary banks became insolvent, many on the back of injudicious property lending, and the government was forced into the organised de-gearing of property companies in its so-called 'lifeboat' operation.

Commercial property found its way into insurance company portfolios at this time as borrowers defaulted on mortgage repayments. At the same time, property was available from distressed property companies at low prices, and the asset looked attractive as an inflation hedge, as retail prices, chased by wage increases (supported by powerful trade unions), oil prices and loose monetary policy, leapt upwards at annual rates of 25% or more. Following a famous meeting at the Prudential, a group of insurance companies entered the weak equity and property markets in 1975 en masse.

For a time, rents almost kept pace with inflation, taking City rents from a low of £13.50 per sq ft in 1975 to a high of £23.50 in 1980 despite limited real growth and demand (see table 2.6). Real rents, meanwhile, peaked in 1970.

Table 2.6: City office rents, nominal and real, 1960–2000 (£)

Year	Nominal rent	Inflation index	Real rent
1960	1.38	100.00	1.38
1965	4.75	119.04	3.99
1970	12.88	148.84	8.65
1975	13.50	274.46	4.92
1980	23.50	536.87	4.38
1985	36.38	759.76	4.79
1990	50.00	1,013.01	4.94
1995	35.00	1,197.27	2.92
2000	50.00	1,361.04	3.67

Source: Henderson Investors, Datastream

2.4.3 1981–89: high inflation, another boom

By 1980, around 20% of all insurance company assets and 10% of pension fund monies were invested in commercial property, which then embarked on a protracted period of underperformance relative to the UK stock market. Pushed on by the Thatcher Government's campaigns for business, privatisation and enterprise at the expense of the welfare state, equity portfolios increased in value much more quickly than property portfolios — partly to be expected, partly not — so that more of the institutions' new money was invested in equities than in property. The result of outperformance by equities and the

greater allocation of new money to that sector was a reduction in property weighting between 1980 and 1999 to averages of 5–6% for pension funds and 7–8% for insurance companies.

This period included a cycle in property values dramatic enough to rival or even exceed the boom and bust of 1972–75. Big Bang and the economic boom of 1986-89, when consumer expenditure growth reached levels as high as 6% a year, produced huge levels of bank liquidity. The apparent security of property for lenders, burned by their experience of Third World debt, again enabled property companies to increase their borrowings — and financial gearing — to capture the fruits of another property boom. Residential owner-occupiers geared up and many bought second homes. According to DTZ (1999), bank lending to property reached all-time record levels (see table 2.7).

Table 2.7: Bank lending to property, 1981–1999 (£bn)

Year	Nominal lending	Inflation	Real lending
1981	5.5	100	5.50
1983	8.5	113.60	7.48
1985	12.5	126.49	9.88
1987	22.0	136.23	16.15
1989	44.6	154.07	28.95
1991	48.5	178.54	27.16
1993	39.8	188.10	21.16
1995	33.8	199.33	16.96
1997	35.1	210.60	16.67
1999	45.1	214.40	20.35

Source: DTZ, Bank of England

In the downswing, the pattern of 1972–75 was repeated. Interest rates rose, property rents fell and capital values fell by even more. An economic downturn led to tenant defaults; borrowers were unable to cover interest by rent received, and their debt often exceeded the total value of the properties they owned. Properties were sold at huge discounts to their previous values. Negative equity affected new homeowners and property companies alike, in the latter case usually leading to liquidation.

Between summer 1990 and summer 1994, 15 quoted property companies, many previously glamorous and successful, such as Olympia and York, Mountleigh, Rosehaugh and Speyhawk, became insolvent, putting such prominent schemes as Canary Wharf and Broadgate in the hands of bankers. Innumerable smaller property companies were also taken over by receivers. The resulting property crash and its accompanying economic recession were both, by some measures, the most severe of the 20th century.

2.4.4 1990–99: deep recession, low inflation and globalisation

While the 1960s and 1980s property markets were dominated by debt-driven property companies, and the 1970s was the decade during in which the equity capital of institutional investors became dominant for the first time, the 1990s was the decade during in which the international property owner emerged as a long-term player in the UK property market. UK institutions had replaced bank lenders as sources of capital and took advantage of weak prices and a demoralised property market in 1975; in the same way, German capital entered the UK market in 1993 at a time of distressed lenders and weak prices but of relatively positive fundamentals.

By late 1992, the UK economy had been in recession for l8 months. The property market was suffering a disastrous slump. The oversupply of London offices created through the boom of the mid to late 1980s, coupled with very weak tenant demand and rents that had crashed from their 1989 real peak, created a potent mixture. Property companies had been squeezed by interest rate rises in the late 1980s, by a scarcity of debt following the record levels of lending by banks, and by a fall in investor demand for property. When rents started to tumble in 1991 the UK saw property company failures, non-performing bank loans and a loss of investor confidence.

In late 1992, the UK withdrew from the European Exchange Rate Mechanism. As a result, interest rates fell, gilt yields fell and Sterling was effectively devalued against the German Mark. A London office building might have been worth only 50% of its 1989 peak. Rents appeared to be approaching a floor. Yields were at an all-time high — both in absolute terms and relative to gilts and equities. There were many office properties in central London that had been let at initial rents as high as £65 per square foot in 1988 and 1989, whose market rents were now only a fraction of that figure.

For these overrented buildings the rent due to the landlord was likely to continue unchanged for a very long time as a result of upward-only rent reviews. In some cases, market rents were not expected to regain the original rent set before the end of the lease, as nominal and real growth forecasts were both very bearish at the time. In 1992, some analysts were forecasting further falls in nominal rents with no recovery until 1996 — a reasonably accurate view, as it turned out — and inflation levels of around 4%. This was a low level in the context of the 1970s and 1980s, but an overestimate in retrospect. Hence, many over-rented buildings continued to be over-rented in 2000.

Investors were now able to buy a fixed income secured on property with the prospect of an equity conversion at some time — perhaps distant — in the future. Overseas purchasers, including increasingly active especially Dutch and German funds, could now purchase investments very like those they were familiar with — fixed income, low-risk bonds — at very attractive yields relative both to their domestic bonds, and to UK gilts, whose yields fell from roughly 8.5% to 6.5% during 1993 (see table 2.8). Not only that, but Sterling's devaluation meant that a larger building could now be purchased by an overseas investor for the same outlay in their domestic currency terms, improving both the comfort factor of the deal and the investment gains associated with any future currency appreciation.

Table 2.8: Five-year cost of borrowing and 10-year gilt yields, 1986–99

	5-year swap	10-year gilts	Base rate
1986	N/A	10.65	11.00
1987	9.84	9.68	8.50
1988	11.37	9.96	13.00
1989	12.37	10.26	15.00
1990	11.67	10.95	14.00
1991	10.35	9.73	10.50
1992	7.87	8.26	7.00
1993	5.88	6.10	5.50
1994	8.92	8.71	6.25
1995	7.06	7.42	6.50
1996	7.63	7.51	6.00
1997	6.86	6.29	7.25
1998	5.43	4.36	6.25

Source: Datastream

The economy was emerging from recession and expectations were already shifting toward the rent rises that materialised in 1995–96. High returns resulted from a dramatic yield shift in late 1993 and early 1994, followed by the steady albeit undramatic recovery of rents. The sea change in the market heralded a new wave of property company flotations: Chelsfield, Argent, Rugby and Pillar all floated in this period, cashing in on the dramatic increase in their net worth caused by the combination of high gearing and increased capital values.

Steady progress was made in 1996–2000, as rental growth became widely established in all sectors and lower gilt yields enabled property yields to fall. While double-digit returns were produced every year by the property market, market overheating was never a serious threat. Investors continued to pay more attention to equities, and in particular technology stocks, so that equities continued to outperform property, albeit with increasing dispersion at the individual stock level. While new economy stocks produced enormous returns, old economy stocks disappointed, and equity portfolios began to look more dependent on smaller numbers of high-value technology stocks and hence more risky. (In 1998 in Finland, the market ex-Nokia fell, but the market as whole produced 72% returns. As a result, Nokia rose in value to the point where it represented more than 50% of the capitalisation of the Hex (the Helsinki stock exchange).)

By contrast, the property market of early 2000 appeared in many ways to be well balanced, with debt, equity and international capital all apparently comfortable with its exposure to a steadily performing and stable market. Low inflation, low interest rates and a steadily growing economy produced returns of around 12% and 15% each year in 1998 and 1999, showing real price rises of 3–6%, and very high returns to geared equity investors (see table 2.9).

Limited oversupply of property and speculative development left the market in better shape than it had been 10 years earlier. Expected stable five-year returns of 10–15% were the consensus view at the beginning of 2000. In the first edition of this book, however, we noted at this point that "some turbulence is nonetheless likely, as history teaches us that the one certainty is change, the occasional violent shock is normal in financial and capital markets, and developers never turn down the offer of a bank loan".

Table 2.9: IPD total returns, inflation and GDP growth, 1981–99

Year	IPD return	Inflation rate	IPD real return	GDP growth
1981	15.0	12.0	2.7	–1.3
1982	7.5	5.4	2.0	1.8
1983	7.6	5.3	2.2	3.7
1984	8.6	4.6	3.8	2.4
1985	8.3	5.7	2.5	3.8
1986	11.1	9.7	1.3	4.2
1987	25.8	3.7	21.3	4.4
1988	29.7	6.8	21.4	5.2
1989	15.4	7.7	7.1	2.1
1990	–8.4	9.3	–16.2	0.6
1991	–3.2	4.5	–7.4	–1.5
1992	–1.7	2.6	–4.2	0.1
1993	20	1.9	17.8	2.3
1994	12	2.9	8.8	4.4
1995	3.5	3.2	0.3	2.8
1996	10	2.5	7.3	2.6
1997	16.8	3.6	12.7	3.5
1998	11.8	2.8	8.8	2.2
1999	14.5	1.8	12.5	2.1

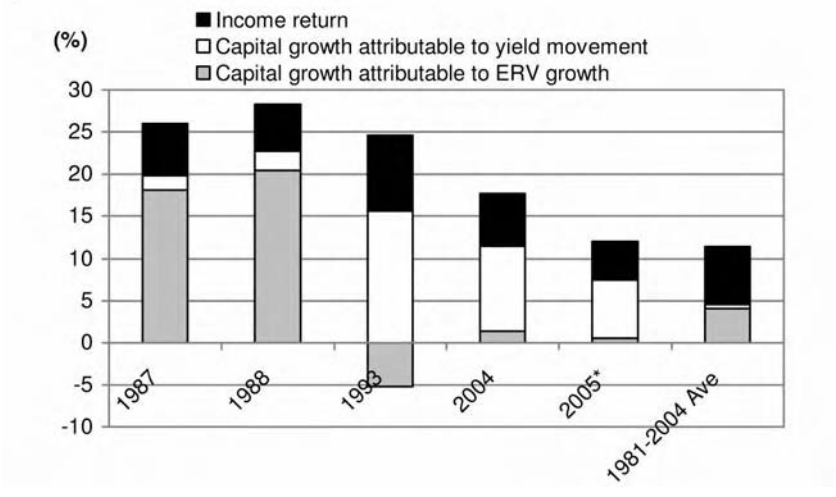
Source: IPD, Datastream

2.4.5 2000–06: boom

Property yields fell sharply over this five-year period. The IPD UK all-property equivalent yield fell from 7.88% in 2001 to 6.63% in 2004 and to 6.28% by 3Q 2005. The total return on UK property in 2004 was 18.3%, a real return of 17.1%. In 2005, the IPD Index showed continued strong returns, with returns of 19.1%, equal to over 16% in real terms.

This is well above the average total return on the annual UK IPD Universe, first measured in 1981. Expressed as a geometric average, the average annual nominal return on the UK market over the period 1981–2004 was 11.1%. In real terms, this is 7.1%. The 2004 and 2005 returns were close to a full 10% higher than the long-run average in real terms. What was driving these returns?

Figure 2.1: An analysis of IPD total returns, 1987–2005 (%)



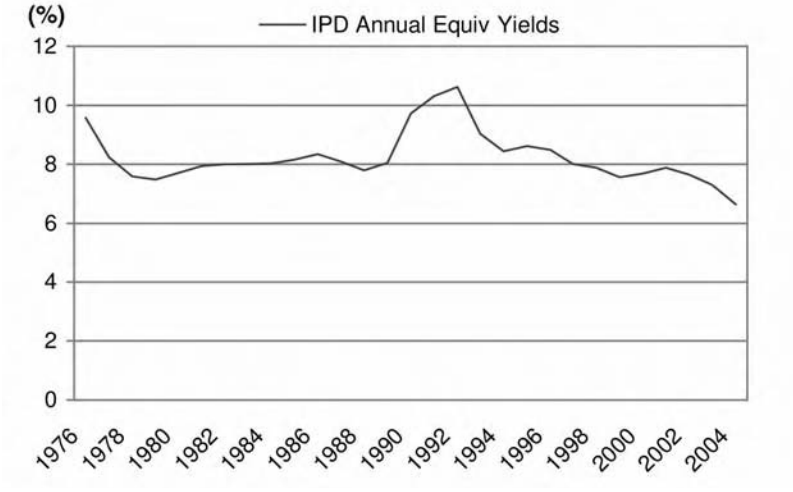
Source: IPD, PFR, 2005

High returns can come from three main drivers: high running yields or income returns; high rental growth; or falling yields. The clear cause of the excess return performance in 2004 and in 2005 was a fall in yields. The average initial yield on UK property, as measured by IPD, fell from 7.26% in March 2002 to 5.37% in September 2005, while the average equivalent yield fell from 8.62% in March 2002 to 6.28% in September 2005. Is this unusual?

1987, 1988 and 1993 were the only other years in IPD history since 1981 when returns have exceeded 18% nominal. Figure 2.1 shows the breakdown of returns in these years. Figure 2.1 shows that when UK property market returns were last above 18% (in 1993, when a total return of 20%, or 17% in real terms, was achieved), that return was due purely to a downward yield movement. Rental values in 1993 actually fell by 7.9%. Capital growth was driven wholly by a downward movement in equivalent yields from 10.6% in 1992 to 9.0% in 1993.

Previous to this, in the only other years since 1981 when a return of more than 18% was recorded, the opposing situation is demonstrated. In 1987 and 1988, in which years sizeable nominal total returns of 26% and 29.5% respectively were achieved (22.7% and 25.4%

Figure 2.2: UK property equivalent yields (1976–2005)



Source: IPD, 2005

respectively in real terms), returns were driven by strong rental growth and only a marginal decrease in yields.

In figure 2.1 we also show the long-run average return over 1976–2004. Over the long run, it is clear that income returns have shown low volatility, and capital growth has been mainly driven by ERV growth rather than a shift in yields.

As a result, the return breakdowns in 1993, 2004 and 2005 appeared to be something of an anomaly in the context of the historic pattern of returns. Since 1981, changes in yields from one year to the next have rarely exceeded plus or minus 0.5%. An annual fall in yields as significant as that seen from 2003–04 and from 2004–05 has only been seen in one other year since the creation of the IPD UK Index. This was in 1992–93. This is demonstrated in figure 2.2.

Following the extensive fall in yields in 1992-93, over the period 1994–2002 equivalent yields were more stable, reflecting a similar picture to that seen in the 1980s where yields fluctuated around a mean of 8%. This further illustrates that the fall in yields seen in 2004 and 2005, which led to a 25-year low, was something of a first for the UK property market since the creation of the IPD UK Universe.

Box 3: A bubble in UK property prices?

With equivalent yields, as recorded by the IPD UK Monthly Index, at a historic low at October 2005, the question of whether a continued yield compression is possible is becoming increasingly significant. By looking at yields both in terms of their fundamental drivers and in comparison with yields in other asset markets, this report examines whether the current state of the UK property market is something of an anomaly in the context of historic patterns. In addition, the report summarises the results of a survey exploring whether the weight of money invested in UK property in recent years is likely to remain a factor.

Taken together, these research pieces allow us to explore the outlook for UK property market yields (cap rates) over the next five years.

In order to explore whether real estate yields can fall further, we undertook a technical analysis that will present alternative ways of examining yield patterns for UK property using simple relative indicators such as swap rates, long and short gilt yields, equity dividend and earnings yields, and property company dividend and earnings yields and share price performance. Whether current pricing levels for property appear to be out of line compared with other indicators will be considered here.

(In chapter 3, we also summarise a fundamental analysis of property prices suggesting the level of yield at which investors might be expected to become net disinvestors. This approach produces a scenario analysis of yields by assessing current and expected future levels of the gilt yield, a risk and illiquidity premium, expected rental growth and expected depreciation.)

Technical analysis is the examination of past price movements to forecast future price movements. Technical analysts are sometimes referred to as chartists, because they rely almost exclusively on charts for their analysis. We address the question of whether yields can call further from a technical perspective. In order to do this, a number of approaches are employed. By looking at yields from these alternative perspectives an 'on the balance of evidence' view of the likely direction of future yield movements will be taken.

IPD equivalent yields are used as the appropriate property yield variable because they are not affected by the reversionary potential in the market, and as a result they are better (more stand-alone) measures of property pricing than the initial yield.

We have used two technical approaches to look at yields. These are as follows.

- Technical analyses of historic property yield data in isolation (univariate analysis), including mean reversion and moving averages. Do current yield levels look wrong in the light of previous levels? Can the future outlook be indicated by these measures?

- A technical analysis that looks at property yields relative to gilt yields, equity dividend yields and property share yields. Do current property yield levels look wrong in the light of previous values for these relationships?

The IPD monthly yield series are highly 'auto-correlated', the correlation coefficient between adjacent months being 0.98. The correlation between annual yields falls off to 0.67, which remains a high figure. Hence, the history of the variable is important in determining its value today. Yields exhibit underlying patterns that may be useful in making forecasts. That is, there is enough memory, or momentum, in the underlying pattern so that its correlation with previous periods contributes towards making useful forecasts. Yields are unlikely to change quickly or by large amounts.

In summary, 2004/05 clearly shows an irregularity both in terms of the size of the yield fall and in the absolute level of yields. This in turn produced an abnormally high total return.

At that point, the end of 2005, many market participants were keen to ask whether the fall in yields experienced in 2004 and 2005 was sustainable. Were we to expect further yield falls — or was this a bubble waiting to burst? The following technical analysis (PFR, 2005) was a response to those questions. (A further extract from this report — a fundamental property pricing model — is summarised in chapter 3).

Moving average (ARIMA) models

A well-known technical approach is to look at the time-series behaviour of yields and to try to discern if there are any systematic patterns or tendencies in the data that permit a forecast of future movements. There are many methods that can be employed in looking to determine such patterns of time series data. The approach adopted here is to estimate basic time series models. Due to their flexibility so-called 'ARIMA' (auto-regressive integrated moving average) models have been estimated.

ARIMA models are of particular use in modelling many types of economic and financial variables. They are simple to estimate, can produce reasonable short-term forecasts, and most importantly, they require no knowledge of any fundamental variables that may explain what causes a variable to change.

Only the past values of a series are used to model, and to forecast, the series. No other information is used, which means that the series is explained as a purely mechanical/automated process that depends only on previous values. As indicated above, the equivalent yield series exhibits strong persistence where previous values influence current values, particularly in the monthly series. The implication is that there may be an underlying relationship between successive values. The ARIMA model identifies this dependence.

Two types of model were estimated: namely, one model using IPD monthly data and another model using IPD annual data. The annual data is more important as the impact of economic factors, such as the business cycle (reflected in GDP figures), may only be detectable at annual intervals.

Table 2.10 provides the forecasts based on the ARIMA annual equation. In this equation we have estimated the value of the end year 2005 equivalent yield on the IPD annual series from movements in the monthly series to October 2005. This value has been used in the forecast.

Table 2.10: Annual ARIMA model outputs

Model	**2005**	**2006**	**2007**
Annual	6.73	7.17	7.11

Source: PFR

Based on the estimated annual equations yields are likely to increase. The forecasts for the monthly equations are shown table 2.11.

Table 2.11: Monthly ARIMA model outputs

Model	**2005:11**	**2005:12**
Monthly	6.18	6.13

Source: PFR

This says that on a monthly basis the figures will fall. This contrasts with the annual figures. To reconcile these results, annual figures are picking up the implied longer-term trends, which the monthly figures do not. A short-term fall followed by a longer-term rise is a story that makes some sense of these numbers.

Mean reversion

Robert Schiller, the renowned financial economist, has observed the following behavioural trait in prices: "Thus there is a sort of regression to the mean (or to longer-run past values) for stock prices: what goes up a lot tends to come back down, and what goes down a lot tends to come back up".

Figure 2.2 shows UK property equivalent yields since 1976. It is easy to conclude that there is a mean property yield of 8% or so and that yields have recently fallen below that mean. Mean reversion suggest that they will inevitably rise back to 8%. It may be argued that figure 2.2 shows a downward trend in yields since 1992, but downward trends in yields are fundamentally unsustainable.

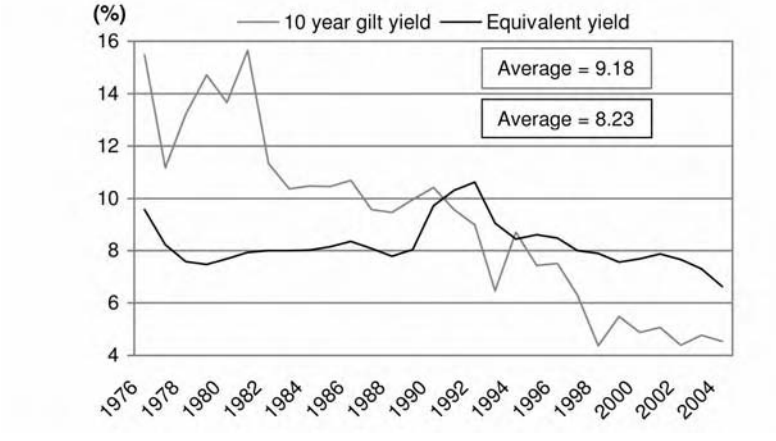
Comparing property yields with other asset yields

We also examined the movement in the relationships between bond, equity and property yields in order to assess the relative attraction of each. (Note: any references made in this section to gilt yields refer to the yield on consolidated stock (consols), government bonds with no maturity date.)

Asset markets are integrated and the yield differentials between markets are likely to have an impact and trigger movement of funds between markets, exploiting any significant differences. Hence, there is expected to be some link between property capitalisation rates and capitalisation rates in other financial markets, such as the government bond and equity markets, with the risk-free rate being a common component across all markets. The movement in asset yields is likely to provide an indication as to how cheap or expensive assets are relative to one another. This provides the motivation for looking at the relationships between yields across markets.

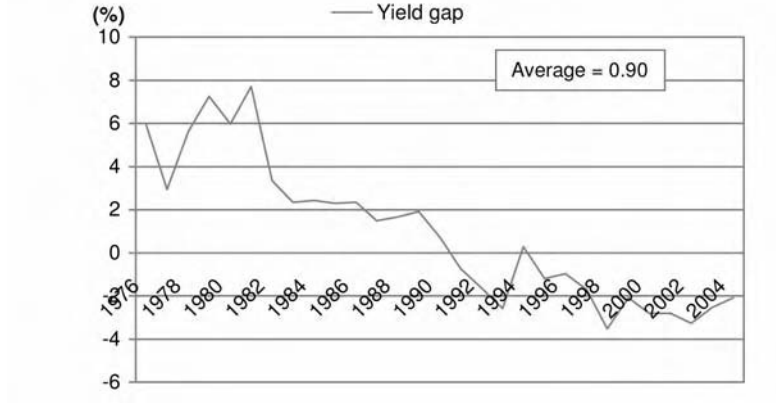
The question being addressed is as follows: do yield differences across markets contain information that is useful in determining the likely direction of future yield movements? In looking at this issue we examine yield gaps.

Figure 2.3: 10-year gilt yield versus property equivalent yield, 1976–2005



Source: IPD, Datastream, 2005

Figure 2.4: Gilt-property yield gap, 1976–2005



Source: IPD, Datastream, 2005

Property and conventional gilts

The property–gilt analysis undertaken for this report is based on 10-year gilts, the yardstick commonly used in gilt-property comparisons. Unless otherwise noted, the property yield used is the IPD annual universe equivalent yield. Inspection of the yield figures for 10-year gilts and equivalent yields for property, shown in figure 2.4, indicates the presence of marked trends. Gilt yields (average 9.18%) have been declining since the beginning of the 1990s and property yields (average 8.23%) since the fourth quarter of 1993.

However, while the dramatic decline in gilt yields came to an end in 1998, property yields have continued to fall, now below the levels seen at any time in the IPD period of coverage (1976–2005). A key feature evident in figure 2.3 is the switch from a positive yield gap between gilts and property evident in the early 1990s to a persistent negative yield gap from the end of 1991. This is shown in figure 2.4. There has been a recent reduction in the gap, but it is still well below any longer-term average.

Property and index-linked gilts

In these analyses, the gilt data used is the average redemption yield on the FTA over five-year index-linked gilt series. Figure 2.5 shows how real equivalent yields have moved in relation to index-linked yields since 1995. Over this period the average index-linked yield was 2.48%, compared with a property yield of 7.02%. It can be seen that real equivalent yields have tracked index-linked yields down.

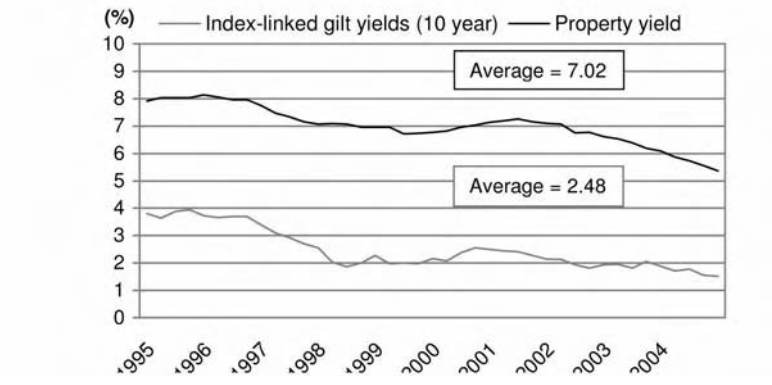
Figure 2.6 shows the difference between real equivalent yields and index-linked yields over this period. This has recently closed from a mean of 4.5% to a new level of less than 4%. This suggests property yields may be on the low side.

Property and equities

In the following comparison, we have used the FTA All Share average dividend yield. Both might appear to have moved downwards over the period 1978–2005. However, there appears to have been a correction in the relationship over the period 2000–05 and the reducing yield gap appears to be a sign of property overheating. This is shown in figures 2.7 and 2.8.

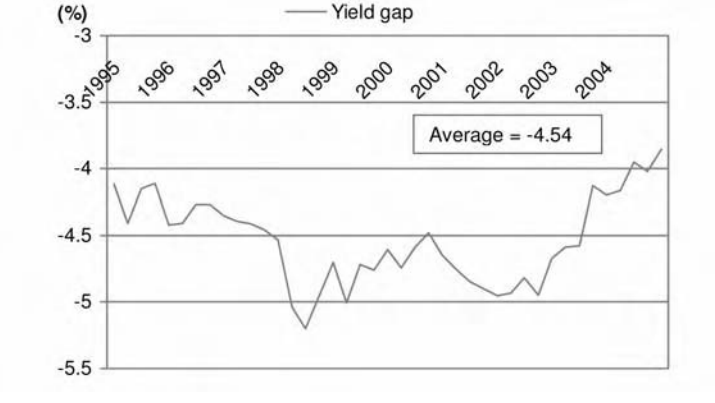
The indication is that property values relative to equities are at their highest levels since 1987. It may also suggest that property looked cheap — yields were too high — throughout the 1990s.

Figure 2.5: Index-linked and property yields, 1976–2005



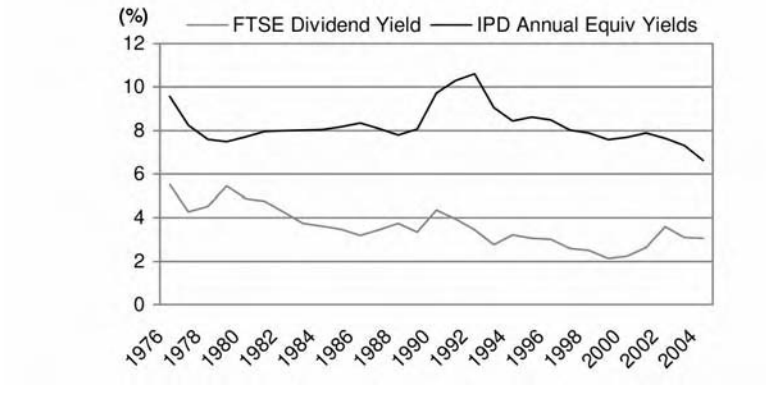
Source: IPD, Datastream, 2005

Figure 2.6: Index-linked and property yield gap, 1995–2005



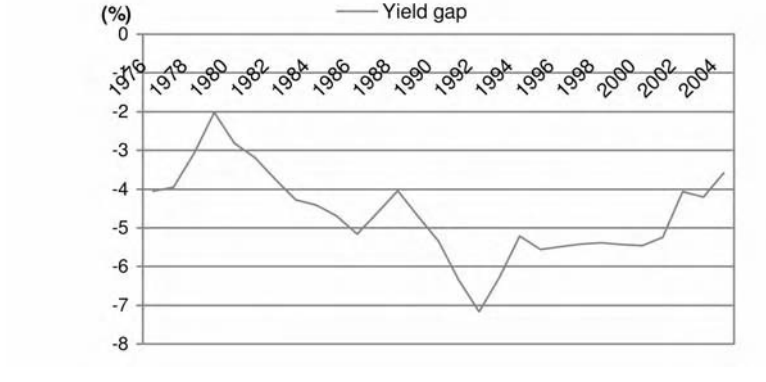
Source: IPD, Datastream, 2005

Figure 2.7: Equity and property yields, 1976–2005



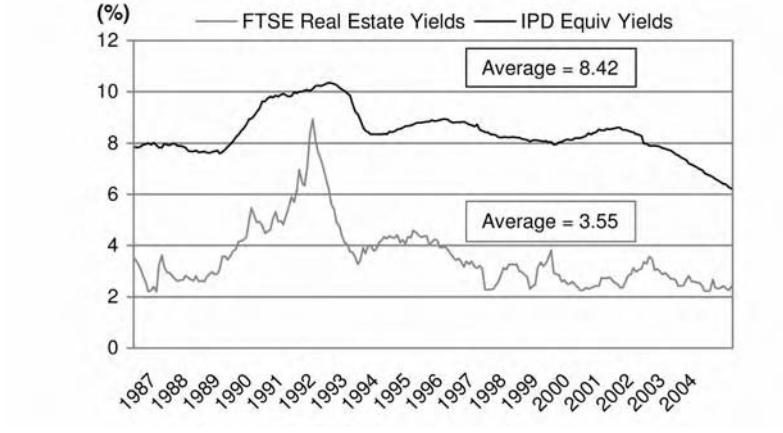
Source: IPD, Datastream, 2005

Figure 2.8: Equity and property yield gap, 1976–2005



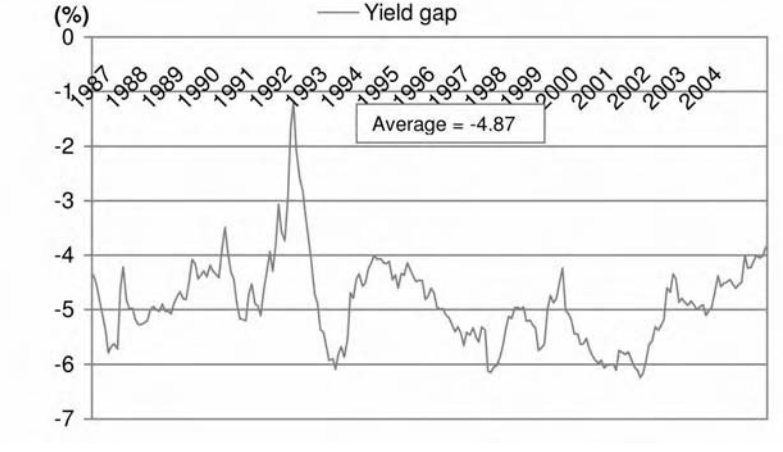
Source: IPD, Datastream, 2005

Figure 2.9: Property share and property yields, 1987–2005



Source: IPD, Datastream, 2005

Figure 2.10: Property share and property yield gap, 1987–2005



Source: IPD, Datastream, 2005

Property and property shares

We examined an indicator of the pricing of listed property companies, namely dividend yields measured by the FTA Real Estate Index. Again, as shown in figure 2.9, a familiar picture emerges. Property yields have fallen over recent years and the yield gap shown in figure 2.10 has narrowed. Property looks expensive compared with property shares.

Swap rates and property yields

Finally, we compare interest rates with property yields. Debt-financed investors in property can be expected to be influenced in their bids by the effective interest rates paid on debt. This is typically the five-year swap rate. A simple technical analysis of this relationship may reveal whether property yields look high or low relative to interest rates.

Figures 2.11 and 2.12 show the two series and the the yield gap respectively. The yield gap has been broadly stable for over 10 years, but there has been a recent closing of the gap and erosion of the attractiveness of property relative to the cost of debt.

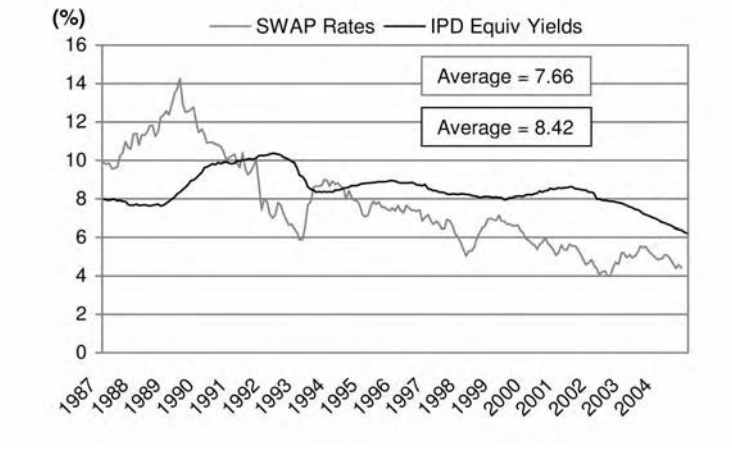
Conclusions

We used two technical approaches to look at yields. First, we examined univariate analyses of historic property yield data in isolation, including mean reversion and moving averages. Then we examined relationships between other asset prices, interest rates and property yields.

The history of the variable is important in determining its value today. Yields exhibit an underlying pattern that may be useful in making forecasts. There is enough momentum in the underlying pattern that we can say property yields are 'auto-correlated'. A basic autoregressive pattern exists, with two lags for both monthly and annual series. A short-term fall followed by a medium-term rise in yields appears to be indicated. If mean reversion holds, a sharp rise in yields back to 8% is indicated after 12–18 months.

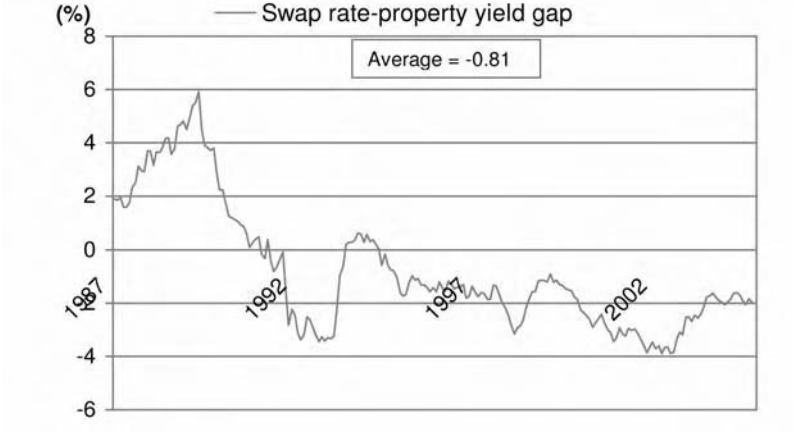
We also used technical analysis that looks at property yields relative to gilt yields, index-linked gilt yields, equity dividend yields and property share yields. We also examined swap rates and property yields. In all comparisons, property yields appear to have fallen relative to yields on other assets. All assets have shown falling yields, but the property yield, which has been higher than the yields on all other asset classes, appears to have fallen by more. A fall in property prices appears to be likely from this evidence.

Figure 2.11: Swap rates and property yields, 1987–2005



Source: IPD, Datastream, 2005

Figure 2.12: Swap rate and property yield gap, 1987–2005



Source: IPD, Datastream, 2005

2.4.6 2007–09: bust

Sure enough, 2006 marked the end of the bull market in UK property. The third consecutive year of returns in excess of 18%, driven again by yields falling, presaged the bursting of a bubble, which popped in the summer of 2007.

The main driver was clearly debt finance. Interest rates were low, and debt availability was unprecedented thanks to debt repackaging and recirculation. Table 2.12 shows the continuation of table 2.7, and makes shocking reading for government and regulators. The coincidence of spikes in lending and a following crash is not accidental: 1989 and 2007–08 are worryingly similar, but 2007–08 is much worse.

Table 2.12: Bank lending to property, 1999–2008 (£bn)

	Aggregated lending
1999	45.1
2000	45.1
2001	54.1
2002	60.1
2003	70.3
2004	79.4
2005	92.1
2006	101.3
2007	172.5
2008	227.1

Source: De Montfort University, 2008

The UK REIT market had begun to trade at discounts to net asset value in January 2007 and moved consistently downwards from that point until in January 2009 discounts were at an all-time high, approaching 50%. (In chapter 6 we argue that this may indicate implied falls in values yet to come, or a valuation lag, or both.) Derivative prices for a three-year swap fell below LIBOR for the first time in April 2007, and below the required return on property even earlier, in January (see chapter 8). Even unlisted shopping centre funds began to trade at discounts in December 2006, although the rest of the sector did not respond until the summer of 2007 (see chapter 7). These were all signs of a correction to follow in the direct market.

From January 2007 to June 2007, the IPD monthly index had been showing positive capital growth of between 0.27% and 0.46% for each of the six months of the first half of the year (see table 2.13 and figure 2.13).

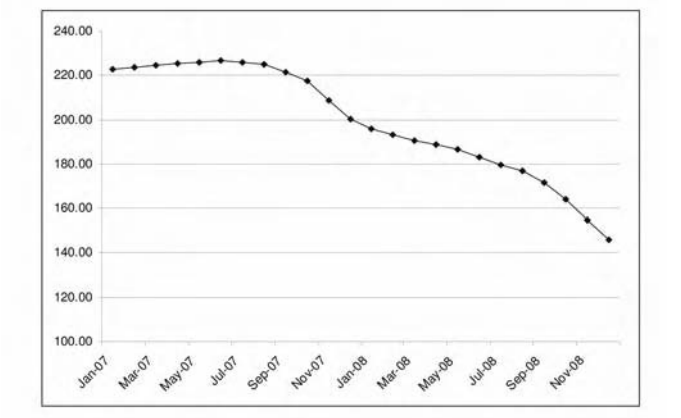
In the summer of 2007, the change in market sentiment was evidenced by fund managers warning clients of a poor outlook, reflected to some extent in the IPD monthly index, which produced its last positive total return of the cycle in July, disguising a tiny fall in capital values of 0.22%, followed by a negative capital return in August of 0.4%. The IPD monthly index took a downward turn of over 1.5% in September. By October, market sentiment had weakened again, the UK REIT market had moved to large discounts to NAV, touching 20% in September 2007, and a year-end effect began to gather pace as valuers took 8% — £15bn — off values in November and December.

Table 2.13: IPD UK monthly index, monthly capital returns, 2007–08

Month	Index	Capital return (%)
Jan-07	222.82	0.27
Feb-07	223.52	0.31
Mar-07	224.55	0.46
Apr-07	225.24	0.31
May-07	225.95	0.31
Jun-07	226.54	0.26
Jul-07	226.03	–0.22
Aug-07	225.13	–0.40
Sep-07	221.58	–1.57
Oct-07	217.44	–1.87
Nov-07	208.80	–3.97
Dec-07	200.09	–4.17
Jan-08	196.04	–2.02
Feb-08	193.12	–1.49
Mar-08	190.62	–1.30
Apr-08	188.80	–0.95
May-08	186.59	–1.17
Jun-08	182.89	–1.98
Jul-08	179.60	–1.80
Aug-08	176.65	–1.64
Sep-08	171.52	–2.91
Oct-08	164.16	–4.29
Nov-08	154.85	–5.67
Dec-08	145.81	–5.84

Source: IPD

Figure 2.13: IPD UK monthly index, monthly capital returns, 2007–08



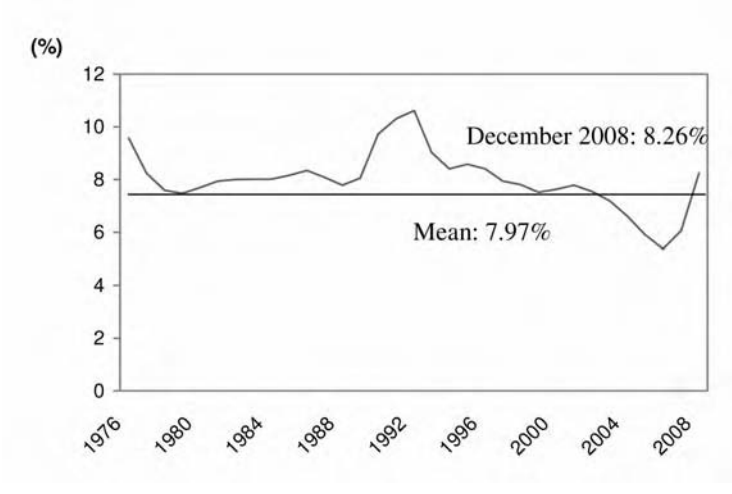
Source: IPD

The market at the beginning of 2008 was damaged by the gradual realisation of a global capital shortage (the credit crisis), which led to the eventual collapse of Bear Stearns in April and Lehman Brothers in September. This was expressed though a sharp increase in property yields shown in figure 2.14. The yield series now clearly appeared to be mean reverting.

The unprecedented sharp yield increase, driven initially by the capital crisis, became further supported by a worsening prospect for rents, with financial services and retailing looking very weak as unemployment rose, consumer spending fell and recession beckoned. Many big names in retailing, including Woolworths, ceased to trade from the UK high street. It became clear in early 2009 that the UK had entered recession in July 2008, and it was expected to be long and deep.

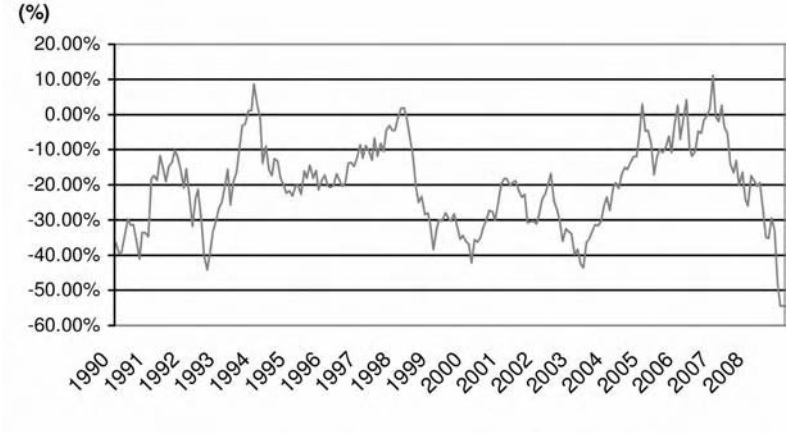
December 2008 showed the largest fall in capital values in the history of the IPD Monthly Index, 4Q 2008 being the worst ever quarter, and 2008 the worst year in the history of the IPD annual series dating from 1971. In 2008, values fell by 27%, wiping £46bn from the value of the IPD universe worth £172bn at the beginning of the year. Yet UK property shares were, by the end of 2008, trading at the biggest discount to NAV ever seen in recorded history, and indicating an expectation of more trouble to come (see figure 2.15).

Figure 2.14: property equivalent yields, 1976–2008



Source: IPD

Figure 2.15: Estimated discount/premium to NAV, UK listed property



Source: Datastream

Derivative margins and consensus forecasts appeared to suggest that expected falls in capital values from the peak in 2007 to a trough around 2011 were somewhere between 45% and 55%. If this happened, given that the property-gilt yield gap was already at an historic high by the end of 2009, the technical indicators used in this chapter would suggest a cheap market and buying opportunity, and the beginning of an upturn.

2.5 Conclusions

The crash of 2007–09 means that the generic case for investing in real estate will be re-examined, and it will need to be made with care. This is dealt with in chapter 1. Methods of portfolio management will need to be highly professional: this is dealt with in part 2.

After the crash of 2007–09, the industry will attempt to resume its growth as a proportion of global stock markets and attract more recognition, more property share funds and funds using derivatives. These developments are dealt with specifically in part 3 of this book.

Finally, the international real estate investment industry, and various global markets, will pause for breath and weather a period of retrenchment as they move from emerging, through developing, to the maturing stage. This is the subject of part 4.

Part 2

The investment process

3 Building the portfolio

3.1 Introduction to portfolio management

Until the 1980s, property portfolios tended to be seen as simple aggregations of individual buildings. There was little reference to portfolio theory in practice or in university courses, and little was made of the linkages between the property market and the macroeconomy or the capital markets. This has changed, and with it the emphasis has shifted from property and asset management to portfolio and fund management. At the same time, changes in the structure of the industry and pressures to outsource have created new professional services sectors, specifically fund managers, asset managers and a new facilities management industry.

Already in this chapter we have made use of four different management terms, which we now need to define.

Fund management is the administration of a pool of capital, with the intention of investing the majority or all of the capital in a group of assets. Hence a property fund may have some cash, or use gearing.

Portfolio management is the administration of the property assets within the fund, not including the cash or gearing, but taking account of the structure of the portfolio as a whole. All or part of this function could be subcontracted by a fund manager to a property specialist. Sales and purchases might be left to the discretion of the portfolio manager (a discretionary appointment) subject to net inflows or outflows of cash imposed by the fund manager or client. More commonly, however, the property fund manager will act as the portfolio manager.

Asset management is the administration of individual property assets, not taking account of the structure of the portfolio as a whole, but with the objective of maximising financial performance of each property asset for the client. All of this function might naturally be subcontracted by a fund manager to a property specialist. If sales and purchases require the approval of the fund manager, the appointment might be said to be advisory rather than discretionary.

Property management is the administration of the property assets, with the objective of offering satisfaction to the end user (the occupier or customer), not necessarily with the objective of maximising financial performance for the client beyond the efficient and prompt collection and payment of rent and service charges. This distinction explains the rising popularity of *facilities management*, a wholly and more comprehensive user-oriented approach to property management, sometimes called corporate real estate management.

This chapter focuses on portfolio management. It starts from three basic propositions.

Investment strategies are like business plans.
Investment strategies should be driven by a clearly stated and understood objective. They should take account of the fund's strengths, weaknesses, opportunities and threats (or constraints). They should be reviewed using a form of performance appraisal.

There are three ways to achieve performance objectives.
These are:

a) managing portfolio structure;
b) positive stock selection and successful negotiation of transactions; and
c) active management of the properties within the portfolio.

The necessary technology includes three sets of models, all of which can add value.
These are:

a) models used to produce forecasts;
b) valuation models, which operate at all levels for the market down to the individual building; and
c) portfolio models, used to control risk and assist in the optimisation of portfolio planning.

Developing a strategy for the management of a portfolio is similar to producing a business plan. This includes the following processes:

A clear statement of objectives

The manager needs to know what he is trying to achieve and when. This should include a statement of required return; risk tolerance; and timescale. Return and risk are likely to be relative to a benchmark (see section 3.2). This process is analogous to the agreement of a mission statement.

Strengths, weaknesses and constraints

A portfolio analysis is a statement of where the fund is positioned and is needed to be able to establish realistic objectives. Stock characteristics, market conditions, expected flows of cash and staffing can be regarded as constraints on the fund achieving its objectives.

The strategy statement

This is the business plan. How is the objective to be achieved, and by when?

Performance appraisal

How well did we do? Did we achieve the objective? Are there any other standards of performance we should make reference to?

It needs to be recognised that more than one set of interests needs to be considered when adopting a mission and writing a business plan. The organisation may have several, sometimes conflicting, objectives. In an investment management organisation, these are all likely to relate to risk and return, a common means of measuring which are the mean and variance of annual total return. Mean-variance analysis, albeit simplistic in the context of a large and complex organisation, is useful because:

a) it is a commonly accepted theoretical foundation for investment and finance;
b) it reflects the motivations of some actors in the business, for example some fund trustees and some research economists; and
c) it is most easily referenced in finance and investment publications and it is commonly taught.

However, it is not a useful way of defining the mission of most fund management organisations. Funds or managers will be concerned with other things.

The practical issues facing most investment managers are to do with long-term survival. This concentrates the mind on liabilities and solvency, which requires the advice of actuaries. Will the asset income stream be sufficient to pay the annual liabilities of the insurance or pension fund?

It also concentrates the outlook on profits, or market share. As in any business, managers should be concerned with competitors and business risk. This leads to the pinpointing of return relative to a competitor's benchmark.

3.2 Absolute and relative return objectives

Investors have return objectives that are expressed in *absolute* terms, meaning a quantified nominal or real total return over a given time period. A UK pension fund, for example, might express its real return objective for a real estate portfolio as follows: *to achieve a 5% return in real terms, after fees and taxes, for the lowest possible risk*. A nominal return objective might be 8–10% at a time when inflation is expected to run at 2–4%.

This is designed to allow the pension fund to pay out future pensions at a rate that covers wage inflation and to reduce the contribution rate made by employers and employees in the longer run. If the real estate portfolio can deliver these returns as well as diversifying the risk of the multi-asset portfolio and operating as a hedge against unexpected inflation, this is an attractive proposition.

Investors may, however, provide fund managers with different, *relative*, return targets. This is because investor trustees or pension plan sponsors may need to prove that their selected manager has done a good job in order that they will be retained for a further investment period.

Fund managers are generally content with relative return targets. Financial services organisations, as with other businesses, concentrate on market share as one of the ways to grow profits. Like any business, they are also concerned with the performance of their competitors and business risk. To prove that they are delivering value as fund managers, there is a requirement for measuring return relative to a competitor benchmark. The property fund manager is therefore concerned not only with absolute return, but also with return relative

to a performance benchmark, such as that provided in many property markets by IPD.

The danger to fund managers departing from standard weightings is clear. In 1998–99, PDFM lost mandates to manage many billions of pounds of client money after reducing its stock market holdings in mistaken — or more accurately, premature — anticipation of a fall in share prices.

Table 3.1 shows how the fund manager views relative risk. Absolute volatility, as measured by standard deviations, shows manager B to be much worse than manager A. However, this is of less concern than the riskiness of excess returns (returns delivered relative to an index or benchmark). The standard deviation (SD) of return relative to the index is called tracking error.

In the table, manager A has no volatility, but the index does. Hence the returns achieved by A relative to the index (A excess) are volatile. In addition, they are more volatile than the excess returns, or the tracking error, on B. Manager B produced more volatile returns, but they were more in line with the market and probably introduced less business risk for manager B than manager A, who would have been uncomfortable in all years except year 3.

Table 3.1: Excess returns and tracking error

Year	Index	A	B	A excess	B excess
1	18	10	20	–8	2
2	17	10	20	–7	3
3	–30	10	–40	40	–10
4	20	10	25	–10	5
5	21	10	25	–11	4
Average	9.2	10	10	0.8	0.8
Standard deviation	21.97	0.00	28.06	21.97	6.14

Source: Baum

Good or widely accepted benchmarks are not, however, available in all property markets. Investors offering global real estate mandates cannot set a relative return target if there is no acceptable global return

benchmark. Hence in the UK in the period 2000–08 many global mandates were offered with absolute return objectives: for example, "to invest in global real estate to achieve a 5% return in sterling in real terms, after fees and taxes, for the lowest possible risk".

This reversion to an absolute return objective is understandable, but dangerous for investor and manager alike. Investors are unlikely to be satisfied with 5% real returns when the market booms and delivers 20%, and managers will be unhappy being charged with failure to deliver if the market turns down badly. A global benchmark remains a key requirement for a professional sector, and work continues to bring this closer.

3.3 The top-down portfolio construction process

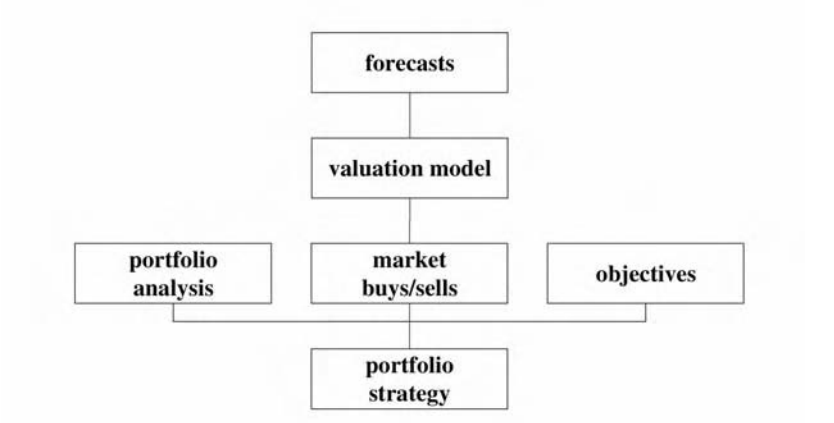
3.3.1 The relative return target

Where good benchmarks are available, as in the UK, a strategic approach has become popular in property portfolio management. This involves consideration of the structure of the portfolio relative to a benchmark; forecasts of return and risk for the portfolio, often top-down by property type or location; and a strategy that involves buying and selling. The investment process, which has become typical in the UK property investment management business, is shown in figure 3.1.

Commonly, forecasts of rental growth and yield movement are applied at the market, sector, region, city and property level. These, fed through a discounted cash flow valuation model, will suggest market buys and sells — those sectors, towns and buildings where the returns on offer, as estimated by the investment manager, exceed the risk-adjusted required return.

A valuation model is simply a way of comparing the expected or forecast return with the required return (the risk-adjusted cost of capital) or, equivalently, the correct initial yield with the current market yield. The inputs into a valuation model are the investor's views on rental growth, depreciation and risk. These are used to establish the correct yield or the expected return. This is compared with the current market yield or the required return to establish whether the asset is correctly priced, underpriced or overpriced. This produces market buy and sell decisions. This process is described in detail in chapter 4.

Figure 3.1: The investment process



Source: Baum

Deciding whether assets or markets look cheap is not sufficient to determine a portfolio strategy. The current portfolio structure is also significant, and a portfolio analysis will be undertaken to identify where the manager is underweight or overweight relative to a given benchmark. In addition, the manager's or trustees' objectives must be taken into account in determining what action needs to be taken. That action will be prescribed in the form of a business plan or portfolio strategy.

3.3.2 The absolute return target

Where an absolute return target is unqualified by a benchmark, the investment manager may be tempted to employ a form of MPT-based optimisation process. This approach is challenged by the limitations listed in chapter 1, and applications in practice tend to be heavily qualified and adjusted.

Alternative approaches include the equilibrium model, which when applied within a property portfolio would begin with a neutral position, determined by the size by value of the market, with positions

taken against that neutral weight determined by the attractiveness of market pricing. This more closely reflects the practice of professional and institutional market participants. Figure 3.1 applies equally well to a portfolio whose investor or manager has an absolute return objective.

3.4 Setting investment objectives

There are three possible performance objectives for an investment portfolio. First, it may have an absolute target return: this should, but may not, be subject to an understanding of the risk that might be accepted in the pursuit of that target.

Second, it may have a set of liabilities to meet. These may include interest payments for a property company portfolio, annuities and bonuses for a life fund or pension payments for a pension fund. These are appropriate objectives for managers to pursue for the benefit of the client investor. Typically, however, the property portfolio will be only one part of a larger fund. It is therefore unlikely that there will be any consideration of liabilities at the property level: if liabilities are considered explicitly, it will be at the multi-asset level.

Third, it may have relative performance objectives. These are commonly in place but are primarily for the benefit of the manager.

Several criteria should determine the precise framing of the performance objective. These will have an impact on the return target and risk tolerance, the benchmark adopted and the timescale over which performance is measured.

3.4.1 Criteria for investment objectives

Objectives should be achievable, yet testing. They should be marketable, in other words capable of attracting investors. They must be testable, so that performance measurement is capable of determining success or failure. This should then be capable of leading to a reward of some sort (performance fee, bonus). Finally, the objective must be specific in terms of risk control.

3.4.2 Return and risk

The absolute return objective is common in the absence of acceptable benchmarks, but it has to be said that this type of objective is sub-optimal for both investor and manager. Investors are unlikely to be

satisfied with low real returns when the market booms, and managers will be unhappy being charged with failure when the market crashes.

The better return objective will be expressed relative to the benchmark. This could be to achieve average performance; to achieve above-median performance; to achieve 2% (or any other number) above average; to achieve upper-quartile performance; or a combination of these. The return objective should be realistic when considered against the current structure of the portfolio, possible restructuring and transaction costs, staff levels and other constraints.

Any investment carries risk and there is a trade-off between return and risk. Thus the higher is the required return, the higher is the risk to be taken. If the manager seeks to achieve top-quartile performance, he must take a higher risk of achieving lower-quartile performance than if the objective is median performance. Risk tolerance should be made explicit.

Because information is relatively scarce, properties are heterogeneous and there is no central marketplace, property is traded in a relatively inefficient market. As a result, and because specific risk is such a significant problem (see chapter 1), it is arguably easier to outperform (or underperform) the index by sector structure and by stock selection (see chapter 5) than it is in the securities markets. Considerable data exists to enable this potential to be measured.

The opportunity to add value is illustrated by table 3.2, which shows the range of returns that managers of various asset classes achieved in 1994. It illustrates the enormous range associated with property.

Table 3.2: WM percentile rankings, 1994 total returns (%)

	95th	Median	5th	Range
Property	3.0	13.0	20.8	17.8
UK equities	–8.4	–5.8	–2.3	6.1
Gilts	–12.4	–9.6	–5.1	7.3
Overseas equities	–9.9	–5.4	–2.3	7.6

Source: The WM Company

3.4.3 Benchmarks

The universe used to compile the IPD UK annual index at the end of 2007 comprised over 12,000 properties worth around £184bn. Table 3.3 shows the breakdown of this universe by sector.

Table 3.3: The IPD UK universe, end 2007

Sector	No of properties	Value (£)	Proportion (%)
IPD UK retail	4,563	83,084	45.2
IPD UK offices	3,508	67,167	36.5
IPD UK industrial	3,352	26,792	14.6
IPD UK other	811	6,726	3.7
IPD UK all property	12,234	183,769	100.0

Source: IPD

The neutral or equilibrium portfolio comprised 45.2% retail property, 36.5% offices, 14.6% industrial and 3.7% other. This is suggested as a reasonable portfolio shape to begin with. As noted in chapter 1, the tracking error between a real estate portfolio and a benchmark can be very high, but a portfolio constructed with this shape is likely to perform more closely in line with the return delivered by the universe in that year (–3.4%) than a portfolio with different constituent weights.

Typically, pension plan sponsors and trustees will set the IPD average return as a benchmark: that is the most widely accepted view of the market. This has the advantage of convenience, but can cause problems for some fund managers if the type of fund they manage differs greatly from the IPD average. For example, performance differentials between large and small funds are inevitable for a number of reasons.

- Larger funds can gain access to large lot size markets, such as London offices. This can be good or bad.
- The impact of stock-specific characteristics may be smaller in a large fund because of greater opportunities to diversify.
- Larger funds can undertake developments, which can produce high returns but are typically riskier.

For example, large life funds outperformed the IPD average by 0.9% on average each year during the period 1981–88. Occupational pension funds underperformed the IPD average by 1.3% on average each year during the same period. In simple terms, London offices and developments and active asset management were positive performers over that period, and pension schemes had less access to these sectors and activities.

Cash and leverage will also be an issue. There are significant differences in this respect between a property benchmark, such as NCREIF or IPD, which ignore the impact of cash and gearing, and property fund measures (for example, AREF — the Association of Real Estate Funds — in the UK and INREV — the Association of Investors in Non-Listed Real Estate Vehicles — in Europe), which measure fund performance as affected by cash, gearing levels and fees.

3.4.4 Time horizons

It is unrealistic to expect fund managers or investment portfolios to deliver returns of 2% above average every year. This target level is testing, and consistency is nearly impossible. 1–1.5% above the median return has typically been sufficient to produce upper-quartile performance. In addition, property specific risk means that it is more realistic to set a target in terms of three or five-year averages, the effects of valuation timing, illiquidity and specific risk are then reduced.

3.5 Strengths, weaknesses, constraints: portfolio analysis

There are three broad parts to the portfolio analysis. These are:

a) an analysis of recent performance;
b) a statement of current portfolio structure; and
c) an assessment of the strengths, weaknesses and constraints affecting the organisation.

3.5.1 Recent performance

Fund manager appointments in property are most commonly made subject to a three or five-year review. The performance objective may

be framed in these terms. Whether or not this is the case, the manager's strategy will be influenced by his recent performance. There will be times when greater risks are encouraged to recover lost ground; there will other times when the appropriate strategy will be designed to lock in the fruits of stong past performance by eliminating tracking error from the portfolio.

3.5.2 Current portfolio structure

It is necessary to examine the structure of the portfolio relative to the chosen benchmark. The UK region is a highly dubious unit of analysis (see table 3.4), but a UK portfolio analysis typically focuses on the sector/region. These sector/region combinations are the asset classes: they are groups of properties that are thought to be affected by the same broad economic factors.

If the portfolio structure is identical to the benchmark, the only risk remaining relative to the benchmark is specific to individual buildings rather than systematic. This could be diversified away by having a large number of buildings, although in practice this is rarely possible because of costs and lot size (see chapter 1).

The analysis of structure identifies those sector/regions in which the fund has an above- or below-average representation relative to the benchmark. This analysis is combined with forecasts of the sector/regions. If the fund has less than the benchmark in a sector/region that does well, the fund will perform below average. If the fund has more than the benchmark in a sector/region that does poorly, the fund will also perform below average.

When taken together with market forecasts and the fund objectives, an analysis of the structure of the fund relative to the benchmark will suggest sector/region combinations to buy or sell.

3.5.3 Strengths, weaknesses, constraints

It is not wise to determine the fund's ideal objective without considering how easy it is to achieve. It has to be implemented and that implementation will lead to performance measures and rewards.

Implementation may be helped or hindered by a number of factors. A number have already been covered. Others include the following.

- The scope for changing the shape of a fund will depend on whether new money is coming in or money is being withdrawn. Cash inflows can create opportunities to change the fund shape, or apply capital to active management. Cash outflows can create enormous pressures on performance, especially in an illiquid market.
- It is also necessary to consider practicalities: for example, whether it will be possible to undertake the proposed level of sales and purchases in a sensible time. This is a particular concern in inactive or small markets and for large funds.
- Particularly for small funds, there may be stock-specific factors (such as lease renewals), which mean that the required sales cannot or should not be made.
- The cost of sales and purchases should be included in the analysis.
- The impact of taxation needs to be considered for some vehicles.
- For small funds, it may not be possible to gain exposure to large value markets with large lot sizes, such as the London office market. Using unlisted funds may be an option, but this brings other performance measurement challenges (see chapter 7).
- The fund may not have the necessary expertise in-house and may require external advice.
- The timing of any change in strategy and changes in tactics is important: it is necessary to anticipate market movements and to buy and sell at the most advantageous moments. In property, as is the case with many investments, it is rarely time to buy or sell when the consensus agrees with you.

3.6 Structure and stock selection

The most commonly accepted way of summarising the skills available to a property fund manager is to separate the performance impact of portfolio structure from the performance produced by stock selection. This is covered in more detail in chapter 5.

3.6.1 Structure

In considering a plan for altering the structure of a portfolio, relevant issues include the appropriateness or otherwise of sector/region classifications; the accuracy and value of forecasts; and portfolio size as it impinges upon the manager's freedom to balance the portfolio across three, five, ten or 50 sector/regions.

This will also be affected by research staff size and expertise and by the culture of the organisation, which may or may not apply similar processes to other asset classes.

It is natural for managers to attempt to reduce risk by matching the sector/region composition of an index. At the same time, managers may believe in their ability to spot underpricing in property types — for example, secondary or high-yield property. In equity fund management, this is called style management. This risk control with a style bias can also be called tilting the portfolio. This involves creating a bias within an asset class. Thus, a fund could hold the benchmark proportion for the asset class but select particular types within the class. Examples in equities would include concentrating on the shares of small electronics companies within the electronics sector; a property example would be to concentrate on shopping centres within the retail sector; or, as above, concentrating on secondary investments.

3.6.2 Stock selection

Forecasts (see chapter 4) help to identify the sector/regions to buy. This provides a basis for stock selection (the buying and selling of individual properties) and focuses the work of those who have to identify actual buildings to buy or sell. The traditional approach to property investment has been to look for 'good' buildings, regardless of the impact on structure and consequent return and risk. However, an investment that appears 'good' in its own right need not be good in a portfolio context.

Forecasts may also be available at the town level and will direct sales and purchases. Deeper analyses may suggest subsectors to buy or sell.

For small portfolios, it is essential to look at the individual buildings in the portfolio when considering strategy, and specific risk is an issue that will affect all direct property investors. Research by Morrell, 1993, suggested that the impact of uneven lot sizes has a major impact on the risk of many portfolios. This is because the direct

property market is characterised by assets that are both heterogeneous and indivisible. The ability of many portfolios to diversify away specific risk by holding many assets is often limited because a relatively small number of properties often account for a large proportion of the fund by value. (The impact of specific risk is also explored in Baum and Struempell, 2006.)

In addition, there may be some particular feature of a property that means it should be sold or not sold despite the sector/region weighting. Examples include potential marriage value; development potential; refurbishment potential; and leases that need to be renegotiated before sale.

3.6.3 Passive and active strategies

Examining the capabilities of the investment or fund management organisation with particular respect to portfolio structure and stock selection enables a view to be formed regarding an appropriate strategy. This is summarised by figure 3.2.

A large property investment fund or organisation with a belief in its central research and forecasting capabilities might reasonably expect to add to its returns by taking active positions against a benchmark. This is the expected behaviour of a large balanced fund such as an insurance fund.

An organisation with a highly skilled and motivated acquisitions team that enjoys the benefit of asset-specific performance fees or carried interests (see chapter 7) might reasonably be expected to focus on a small number of deals that it expects to add to performance rather than to buy a large number of properties whose performance will tend towards the mean return for the sector or market. This is the expected behaviour of a private equity real estate fund or opportunity fund.

True excellence might imply that the investment manager can both take sector positions and focus on good deals. Realism, modesty, very thin resources or compensation packages that do not provide a performance fee or bonus might suggest holding benchmark sector weights and diversifying at the asset level in order to limit the tracking error of the fund relative to the benchmark.

Investors who employ fund managers should focus on their investment objectives and on the fee structures of their managers in order that behaviour appropriate to the investor's requirements is encouraged. Performance fees and carried interest have a particularly powerful effect (see chapter 7).

Figure 3.2: Passive and active strategies

	Market forecasting ability	
Stock-selection skills	**Good**	**Poor**
Good	Concentrate on underpriced properties Shift sector weights based on forecasts	Concentrate on underpriced properties Hold market weights
Poor	Diversify: hold many properties Shift sector weights based on forecasts	Diversify: hold many properties Hold market weights

Source: Baum

3.7 Using forecasts and valuation models

3.7.1 Forecasts

At the national level it is possible to build econometric models linking rental growth in each sector to the main macroeconomic variables that influence rents and to changes in supply. It is possible but a little more difficult to do this at the regional level; it is also necessary to have a view at the town level, but this is the most difficult to construct by using purely econometric methods.

Rental growth forecasts are the basic inputs into the valuation model (see chapter 4). However, if all investors expected high rental growth, yields should fall to reflect this and so total return would be reduced for buyers. On the other hand, low rental growth need not indicate poor performance. The important analysis is of price against value. The valuation model takes as inputs rental growth forecasts; assessments of depreciation; risk; and the required return.

These then can be used to forecast returns for each sector/region. They can be regarded as forecasts of return (IRR) or as buy/sell rules (NPV). These forecasts are inputs into portfolio analysis models.

We may suggest that forecasts are necessary and valuable. But there are suggestions from time to time that forecasts are of no value because even government economists make errors. Against this, it can be argued that the process that is created by forecasts is valuable in itself; but there is no denying that bad forecasts can damage performance. What is our experience?

RES, a consulting company now part of the Henderson Global Investors property team, annually measured the accuracy of its forecasts by measuring the performance of a notional portfolio that is rebalanced annually by sector and region using RES one, three and five-year forecasts. The results are shown in table 3.4.

Table 3.4: RES forecasts and notional fund performance (%)

Target	0.5	1.0	2.0
National sectors	0.4	0.9	1.8
Retail regions	0.1	0.2	0.2
Office regions	0.2	0.4	0.9
Industrial regions	–0.2	–0.2	0.2
Regional total	0.1	0.2	0.5
Total	0.5	1.1	2.3
Market risk	0.3	0.6	1.3

Source: Henderson Global Investors

For the optimised fund, we set a target of half of the total outperformance to be achieved through sector/national structure and a half through sector/region structure. The RES portfolio optimiser model was then run to create an appropriate fund structure. This structure is combined with achieved returns to calculate an outperformance figure. This outperformance figure relative to the specified target is a good indicator of the effectiveness of the RES return forecasts.

The heading line posits the required level of outperformance against the index. The first line of the table for national sectors represents the fund's outperformance relative to the benchmark produced by the bets at the sector/national level. The next four lines represent the outperformance at the sector/region level as if each sector/region were a separate fund plus the total figure, which is the

regional outperformance figures adjusted by the IPD sector weights. The total outperformance, reported in the penultimate line, should be compared with the target. On average over the three years from 1991 to 1993, the optimised fund would have achieved or exceeded its objective.

Naturally, as the target performance increases, so does fund risk or tracking error. In addition, transaction costs, which are the product of sector switches that are not necessary for stock selection or active management purposes, will reduce the outperformance estimates by up to a half. This suggests that managers using forecasts in this simplistic way need to double the bets taken against the benchmark to achieve their structure-based return objective.

3.7.2 Valuation models

Many professionals believe that property markets are not efficient. As a result, it may be possible to identify cheap or expensive markets. Inefficient local markets can, at certain times, produce forecastable excess returns for investors using rational decision models, even without rent forecasts.

For example, consider office markets across Europe. In very simple terms, given economic and market fundamentals, the following factors, among others, are likely to hold for a set of non-domestic markets.

- Rents look low against other global markets.
- Capitalisation rates look high against other property markets.
- Capitalisation rates look high against other asset classes in the same domicile.
- Capitalisation rates look high against other asset classes in the home market.

For example, in 1991 office rents in central London had fallen by some 50% from the high levels of 1989; yet the other major European capitals stood at all-time high rents. Given that capitalisation rate differentials had remained broadly the same over the period and given reasonably similar demand and supply fundamentals (vacancy rates, economic growth forecasts and so on), an allocation choice between London or a set of non-UK markets was clear. London was cheap relative to these markets; and, sure enough, it outperformed over the period. In these circumstances, an insightful valuation procedure is every bit as valuable as a good set of forecasts.

Similarly, the concept of rent pressure — a means of identifying markets where rents are higher or lower than spatial, demographic or economic fundamentals suggest — has been successfully applied by a small number of investors across UK towns for several years, with powerful performance implications.

In chapter 4, we examine forecasting and pricing models in more detail.

Box 4: Portfolio construction — a case study

The following is an extract from a UK manager report produced at the end of 2004.

We believe that the market is developing as we expected six months ago with offices recovering and closing the gap with retail. We underestimated rental growth (by circa 1%) and the strength of investor demand across the whole market in 2004. Office total returns were above our predictions by the biggest margin at the end of 2004 (circa 3%). The City and South East office markets in particular were the furthest ahead of expectations, as a result of both better rental growth and investor sentiment.

For retail warehouses, rental growth was higher than our forecasts in 2004. Prices continue to rise but we believe that non-bulky parks will remain in demand due to strong rental growth prospects, and therefore prices will rise further. We do not expect there to be very many sellers of prime fashion parks in 2005.

As expected, residential markets have continued to weaken although the consensus seems to be that base rates have peaked, so there may be more of an upside risk now compared with six months ago. However, we still feel that there will be little capital growth in this market over the next 12 months.

For industrials, rental growth was marginally higher (circa 0.5%) than we predicted for 2004 but we have not yet seen a fall in sentiment accompanied by an outward yield movement. We still believe that this sector is vulnerable to a change in investor sentiment as the office market recovery gathers pace and investors begin to appreciate that rents are growing at the expense of shorter lease terms and higher incentives.

Strategy overview

This section outlines the ABC property asset allocation policy for a balanced fund aiming to achieve 30bp outperformance from structure. The positions set out below are to be implemented over the next three to six months in order to capture expected performance over a three-year period. Tilts are shown against the HSBC Balanced Funds sample (excluding ABC) as at the end of December. The likely future movement of these positions when we revisit strategy in March 2005 is also highlighted.

Since the last review of strategy in March 2004, the key changes are to bring down the neutral stance to industrials to underweight, due to the risk of an outward yield movement, and to raise the position on offices to overweight from marginally underweight as a result of the central London rental recovery. We have become more confident about our retail overweight position due to the continued resilience of the consumer and housing markets and we feel there remains further scope for rental growth, predominately out-of-town. We have also maintained our overweight position to residential to reflect an improving rental market.

We see two main risks to our strategy: weaker occupier demand in the central London office markets, and an outward yield risk in the retail warehouse sector. We will be monitoring the performance of these markets carefully over the next three to six months.

Assuming our forecasts are correct, and the benchmark weights stay the same, the target positions below add an estimated 30bp after costs above the benchmark over three years from end 2004.

At the 11 subsector level, the current and target weightings are shown below by capital value, relative to the HSBC/IPD All Balanced Funds benchmark excluding ABC (as at end December 2004).

Retail
Maintain +1.5% points
Likely next move: down
We remain positive about retail, largely reflecting the strong rental growth prospects in the retail warehouse sector, but also good returns are expected in convenience locations. Town centre retail remains the most vulnerable to a consumer slowdown and competition from alternative retail formats.

Table 3.5: Target portfolio weights (%)

	ABC	Benchmark (ex. ABC)	Current ABC tilt	Target tilt	Position relative to target tilt
Standard shop units	11.8	17.2	–5.4	–7.5	2.1
Shopping centres	12.7	10.3	2.4	1.5	0.9
Retail warehouses	27.1	21.5	5.6	7.5	–1.9
All retail	**51.6**	**49.0**	**2.6**	**1.5**	**1.1**
City	10.9	5.1	5.8	2.0	3.8
West End/Mid Town	7.0	5.3	1.7	5.0	–3.3
South East offices	10.6	7.8	2.7	0.0	2.7
Rest of UK offices	0.5	6.8	–6.3	–4.5	–1.8
All office	**28.9**	**24.9**	**4.0**	**2.5**	**1.5**
South East industrials	10.0	11.3	–1.3	1.5	–2.8
Rest of UK industrials	5.1	11.8	–6.7	–5.0	–1.7
All industrials	**15.1**	**23.1**	**–8.0**	**–3.5**	**–4.5**
Residential property	**3.8**	**0.0**	**3.8**	**2.5**	**1.3**
Other property	**0.7**	**3.0**	**–2.3**	**–3.0**	**0.7**
Total	100.0	100.0	0.0	0.0	0.0

Source: IPD/Manager. Weightings are calculated on a GAV basis.

Retail warehouses

Increase from +5% points to +7.5%

Out-of-town retail continues to benefit from strong retailer demand and low supply driving rents up. This, combined with yield compression, results in above-average capital growth.

Fashion parks

Maintain +5%

Here there are better-than-average prospects for rental growth given the substantial scope for widening the range of occupiers that trade from an out-of-town format, as the economics of out-of-town trading remain significantly better than traditional high street retailing. Some further yield hardening (reductions) is expected as investor demand remains strong, although if there is a significant inward yield shift during the next six months we will consider reducing the overweight position due to the risk of an outward shift.

Other parks
Increase from +2% to 4.5%
Strong recent growth and prospects are good as these parks are likely to benefit from overspill demand as the fashion parks become more expensive to trade from. These offer a more attractive yield than fashion parks.

Non-park/solus units
Maintain –2%
Rental growth prospects are lower as the number of potential occupiers is more limited. Bulky good operators, such as furniture and white goods retailers, are expected to be more affected by the housing and consumer slowdown.

Standard retail
Reduce from –5% to –7.5%
This sector remains affected by the diversion of sales away from the high street towards out-of-town shopping destinations, and is at risk of an outward yield shift as investor attention turns to offices and rental growth expectations reduce.

Top comparison towns
Maintain –5%
There are moderate rental growth prospects, but yields have been driven down too low by weight of money. There is a risk of an outward yield shift.

Bottom comparison towns
Maintain –5%
These have low rental growth prospects and yields have been driven too low by the weight of money. There is a risk of an outward yield shift.

Convenience locations
Reduce from +5% to +2.5%
These have low to moderate rental growth prospects as new entrants improve metropolitan suburban shopping destinations. There is a risk of an outward yield shift.

Shopping centres
Maintain +1.5% points
These offer better rental growth than standard retail units as a result of being able to generate their own rent evidence and to actively manage the shopping environment. Investor demand is likely to be higher than for standard retail due to higher yield and active management opportunities.

Top comparison towns
Maintain –1%
There are moderate rental growth prospects, but yields have been driven down too low by the weight of money. There is a risk of an outward yield shift.

Bottom comparison towns
Maintain –2.5%
These have low rental growth prospects and prices are generally too high following debt-driven yield compression. There is a risk of an outward yield shift.

Convenience locations
Maintain +5%
These offer moderate rental growth prospects due to new entrants improving metropolitan suburban shopping locations. A more attractive yield is available.

Offices
Increase from -1.0% to +2.5%
Likely next move: up
The 3.5% swing in favour of an overweight position in offices reflects the expectation of future rental growth in the central London and South East markets plus an inward yield movement as investors anticipate the office recovery.

City
Increase from –2% to +2%
Occupier demand has improved and vacancy rates have started to fall. Average rents are expected to show limited growth in 2005 before seeing much higher growth in 2006/07, driven by both rising demand and a lack of new developments. Net effective rents should rise this year as rent-free periods reduce. This market has not benefited to the same extent from the inward yield shift seen in other parts of the market, due to the weaker occupier market. However, we believe investors will anticipate the recovery and yields will fall in advance of the rental recovery.

West End
Maintain +5%
Prime headline rents have risen and we expect further significant growth as the market balance improves. Strong investor demand is likely to lead to some further yield compression.

Rest of South East
Increase from –4% to 0%
Rents continue to decline although there have been further signs of demand picking up and withdrawals of space from the market from. The area from Hammersmith to Heathrow is leading the recovery, with north and south M25 areas also performing well. The M4 and especially M3 locations are further behind in the cycle. Widespread rental growth is not expected until 2006 but we believe yields will improve in advance of the rental recovery.

Rest of UK
Reduce from 0% to –4.5%
Although rents are still rising gradually, they show little sign of significant growth. Yields no longer seem attractive and are at risk of moving out as central London markets improve.

Industrials
Reduce from 0% to –3.5%
Likely next move: unchanged
We have again reduced our position to industrials from neutral to underweight. Availability remains very high, and, although demand has improved, rental growth remains weak and is expected to remain low. However the main reason for the underweight tilt is that yields have continued to fall further, particularly for secondary stock, making the sector even less attractive than it was six months ago. We believe yields are likely to move out in response to the office market recovery.

London and South East
Reduce from +2.5% to 1.5%
Rents are showing little sign of growth but the inherent long-term pressure on supply should mean rents grow more in this region than elsewhere.

Rest of UK
Reduce from –2.5% to –5%
There are limited prospects for rental growth. The yield advantage has now significantly eroded.

Residential
Maintain circa +2.5%
Likely next move: down
We remain overweight towards the private rented sector. In the short term, we expect moderating but positive capital growth for this market as a whole, but as a result of a weakening owner-occupied sector rental growth is likely to

improve. Further out, rising interest rates and unemployment suggest a return to more moderate capital value growth.

Other
Maintain circa -3%
Likely next move: unchanged
We remain underweight in other sectors, as we do not wish to target a position towards a sector for which we cannot forecast likely performance. The exact underweight position hovers around -3%, depending on the benchmark weight.

Source: Manager

4 Pricing real estate: the purchase and sale process

4.1 Introduction

In this chapter, we set out a simple process that investors and fund managers can use to identify attractive markets and properties, and to decide which markets and assets should be sold. This pricing model can be applied at all levels: asset classes, countries, market sectors, and possibly for individual assets. However, it is a simplified approach used primarily in developing a strategy, and is not a substitute for the type of detailed cash flow analysis that is necessary to accurately set out the prospective returns available from a property asset taking account of the lease contract, leverage, tax and costs.

In this chapter, we also discuss the purchase and sale process in the context of the investment strategy decision. Buying and selling properties involves a series of processes (see chapter 3, and Crosby and McAllister, 2004). First, the ideal portfolio structure needs to be determined. Once this target structure is in place, the manager needs to identify which market subsegments are attractively priced and should be targeted. Next, stock needs to be sourced from the market. Appraisals of the available properties need to be undertaken. In addition, the impact of proposed purchases on portfolio risk and return needs to be modelled.

In the acquisition process, negotiation skills need to be employed; and 'due diligence' needs to be carried out. Due diligence describes the legal, physical and planning enquiries and explorations prior to exchange of contracts and completion that are necessitated by the unique nature of the asset type.

It is also necessary to think about the demands placed on the investor when selling property. In the sales process, issues to be considered again include appraisal and assessing the impact on portfolio risk and return, but also require specific reference to the tax and cash/gearing impacts of a sale, as well as the process of broker appointment, sales and marketing.

In this book, we make only passing reference to the separate skills and disciplines involved in marketing, negotiation and sales, and in the due diligence processes. Instead, we concentrate on the research and high level (strategic, or top-down) appraisal process used in property acquisitions and sales. When should investors decide that a market, a sector or a property is attractively or unattractively priced, and once this decision has been taken how does an acquisition proceed? We begin with the latter before dealing with the appraisal process in detail in section 4.4 onwards.

4.2 Sourcing stock

Many property fund managers pride themselves on their access to stock, due either to a large scale of operation leading to a high number of transactions being offered, or on their carefully nurtured relationships with brokers and vendors in the market. Buying 'off-market' has become a watchword for doing good deals, and consultants who advise on manager selection are often very concerned with a fund manager's access to market information and buying opportunities.

The property acquisition process has not yet been transformed by the opportunities offered by the internet. In principle, all vendors of property investments can access a common website, post details of the properties they wish to sell as well as the types of properties they are interested in buying, and execute a transaction online. Businesses such as Propex (a UK property investment site) were set up to exploit this opportunity. The subtleties of this process make its complete substitution by a successful internet-based trading market unlikely for larger and more complex commercial property, certainly for some time. This type of facility has been more useful for the registration of introductions, information transfer and monitoring of marketing programmes.

While internet-based property investment sites have been useful in automating the marketing and registration process, brokers and principals (owners) have remained in control of the purchase and

sale process. The investment property market remains de-centralised and somewhat inefficient, and is dependent upon the interpersonal skills of buyers, sellers and brokers operating in the complex market web of telephone, e-mail and socialising. In addition, the potential buyer will need to be able to command loyalty from brokers if he or she wishes to access the appropriate quantity and quality of deals. This will often depend upon his perceived trustworthiness in following through on offers.

Brokers can act as very effective agents for vendors if they are able to establish a relationship with their client, as well as improving the efficiency of the market by matching buyers and sellers and recommending buyers who are most likely to proceed with the deal at the required price. Typically, fund managers will use a property registration system to record the invitations to treat, which are delivered in the form of posted or faxed particulars — or through a site such as Propex. Registration of an introduction will determine the broker's right to charge a commission on completion of the sale.

Brokers may be retained by vendors, which means they will not seek commissions from purchasers. Alternatively, they may act on an unretained basis, seeking a commission from the purchaser and expecting to undertake advisory analysis work to help the client to make an informed decision. The quality of this advice will increase the chances of repeat commissions, just as the reliability of the purchaser will increase the quality of offers from retained and especially unretained agents, who will lose the opportunity to act for another purchaser if they spend too much time advising their first choice.

Vendors will use their brokers to help decide on the appropriate course of action when offers are made. A contract may be offered to a purchaser at a certain price, but whether this happens will depend not only upon the price offered but also upon the buyer's trustworthiness and credit-worthiness and the quality of other offers. Often, a second buyer will be kept in the wings in case the due diligence process throws up a reason — or excuse — for the purchaser to renegotiate or 'chip' the price.

The nature of the sale process contributes to the illiquidity of the asset class (see chapter 1), and there are regular attempts to improve efficiency by encouraging vendors to keep adequate information so that properties are put, and remain, in a state of 'readiness for sale' (see Crosby and McAllister, 2004).

4.3 Due diligence: the building purchase process

In brief, this crucial aspect of the property purchase decision involves the employment of specialist property skills, in-house or out-house, to ensure that the asset being appraised is all that it appears to be. The introducing agent may be expected to produce an external valuation report, including comparable evidence and opinions concerning the strength of the local market. Whether this can be regarded as impartial professional advice will depend upon the broker and the buyer's relationship with him. Where debt is involved, a truly independent valuation may be commissioned.

Often a purchase will be subject to board approval: a true corporate board in the case of property or special purpose companies, or an internal committee in the case of most institutions. Surveys, dealing with building structure and in some cases with land contamination, are likely to be needed. Finally, legal advice will be used to check ownership and the quality of the lease contract and the purchase contract.

4.4 A property appraisal model

4.4.1 Introduction: the excess return

A key part of the due diligence process is the appraisal. According to Baum and Crosby, 2008, it is important to distinguish between three concepts.

- Value is the underlying investment worth of an asset, or the true equilibrium price of an asset traded in a market where full information is available.
- Price is the market's estimate of value.
- A valuation in property is usually an estimate of the most likely selling price.

This section establishes a basic framework for the estimation of the value or worth of an asset and how it can be compared to price for buy and sell decisions.

The key objective of the portfolio construction process described in chapter 3 is to create a structure for the portfolio that is most likely

to achieve the investors' return and risk objectives. This would normally be by reference to market segment, such as regional location and sector type (for example, City offices). The identification of attractive market subsectors, cities and districts of cities, or of market themes likely to be associated with excess returns, is the essence of the strategic appraisal process. Much has been written about this subject in academic textbooks (see, for example, Baum and Crosby, 2008). It is normally the case that an investor will have a target rate of return for an asset and will use a discounted cash flow approach to judge whether a property is likely to achieve that target.

Individually assessed target returns fail to take account of the impact of the transaction on the portfolio, either in terms of its risk or indeed of the return impact. This needs to be the subject of a separate exercise. This is dealt with in section 4.10.

The property appraisal process is reasonably well understood. The modern investor will typically buy in or undertake research aimed at enabling a view to be formed of rental growth and movements in yields, usually derived from a view of the economy and other capital markets.

Computer-based appraisal models will usually be fed with projected rents and yields. The investor's view of the value of the asset will typically be arrived at by using discounted cash flow, with internal rate of return the typical buying rule despite a clear view among academics that net present value produces a superior decision. It is not surprising that a total return or IRR measure is used in appraisals when the manager's objective is framed in terms of a total return, but the IRR rule may produce suboptimal decisions. However, NPV can also be criticised by those familiar with option pricing techniques.

(Investors may be more interested in the return on equity after tax and fees: see chapter 9.)

The value of an investment is the present value of its expected income stream discounted at a rate that reflects its risk. However, any estimate of value depends on the views of the investor making the estimates. Price may differ from value:

a) if the vendor has to make a forced sale for any reason;
b) if the investor is better able to use the available information; or
c) if the investor has different views.

For more about this, see Baum and Crosby (2008).

4.4.2 The initial yield — a simple price indicator

The property types and segments described in chapter 2 have differing qualities that are translated into the price paid for a standard unit. It is sometimes useful to describe property prices in terms of a single unit price per acre, hectare, square metre or square foot; more often, prices are described in terms of initial or equivalent yield.

In theory the standard multiple applied to the unit of rent could more usefully be used as a unit of comparison. For example, a retail property leased for £100,000 a year which sells for £2m shows a multiplier of 20. This property would be regarded as superior to one whose multiplier was 12.5.

However, the reciprocal of the multiplier (100% divided by the multiplier), known as the initial or all-risks yield, is the common measure used. Hence a retail property leased for £100,000 rent a year, which sells for £2m, shows a multiplier of 20 and more importantly a yield of 5%; an industrial property leased for £100,000 a year which sells for £1.25m shows a lower multiplier of 12.5 and conversely a higher yield of 8%.

Why would a purchaser of typical industrial property require a higher initial income per £100 invested (and therefore pay a lower multiplier) than he would from a prime retail property or, in other words, what makes an industrial property less attractive to a purchaser? One way of attacking this problem is to use a constant growth model, which suggests (assuming that yields do not change) that the initial yield is a function of the total required return less the net growth in income that is expected.

$$\text{Initial yield} = \text{required return} - \text{net income growth}$$

The required return is itself a function of the *risk-free rate* and a *risk premium*; and the net income growth is a function of the rate of *rental growth* expected for new buildings in the market and the rate of *depreciation* suffered by a property as it ages.

The closest available proxy for the *risk-free rate* is the yield to redemption on fixed interest gilts. The cash flow is certain, the investment is liquid; it is cheap to manage.

The *risk premium* covers factors such as:

a) uncertainty regarding the expected cash flow, both income and capital;

b) illiquidity; and
c) management costs.

Rental growth is the rate at which the rental value of a new building at some date in the future is expected to be higher than the current rental value of a new building. It can be separated into two components: growth in line with inflation and 'real' growth, that is growth in excess of general inflation.

Depreciation is the rate at which the rental value of a property falls away from the rental value of an otherwise similar new property as a function of physical deterioration and of functional or aesthetic obsolescence (see chapter 1).

Table 4.1 shows how typical yields for good quality properties in the major segments may be explained by different values for these variables. In each case, the risk-free rate plus the risk premium comprise the required total return from the investment, or hurdle rate; from this rate is deducted the expectation of net rental growth (inflationary growth plus real growth less depreciation) to produce the appropriate initial or all-risks yield. If future changes in yields are ignored, note that the total return expected for the investment is the initial yield plus net rental growth. So, for example, the required return on standard shops is (5.5% + 2% =) 7.5%; the expected return is (5% + 2% + 1% – 0.5% =) 7.5%.

In the following section, we explain how this process can be developed.

4.4.3 The Fisher equation

The Fisher equation (Fisher, 1930) considers the components of total return on an investment. It states that:

$$R = l + i + RP$$

Where:

R is the total required return
l is a reward for liquidity preference (deferred consumption)
i is expected inflation
RP is the risk premium

Table 4.1: Indicative sector/region yields (%)

Sector	RFR*	+	risk premium	=	Inflation	+	Real growth	–	Depreciation	+	Initial yield
Standard shops	5.5		2		2		1		0.5		5
Shopping centres	5.5		3		2		1		1.5		7
Retail warehouses	5.5		2.5		2		1		0.5		5.5
Central London offices	5.5		2		2		0		1		6.5
Secondary offices	5.5		4		2		0		2		9.5
Industrials	5.5		4		2		–1		1.5		10.0

Source: Baum

Note: * risk-free rate

'l' is given by the required return on index-linked gilts (let us assume 2%). 'l + i' is the required return on conventional gilts (for simplicity, ignoring an inflation risk premium: let us assume 4.5%). These may be regarded, respectively, as the real and nominal risk-free rates (RF_R and RF_N). (Note that $RF_N = RF_R + i$, assuming there is no inflation risk premium, so i appears to be 4.5% – 2% = 2.5%. If an inflation risk premium of 0.5% is assumed, the rate of expected inflation implied by a comparison of index-linked and conventional gilt yields is 2%.)

Let us assume that RP is 3%. The Fisher equation can then be rewritten as:

$$R = RF_N + RP$$

R is 4.5% + 3% = 7.5% in this case.

4.4.4 A simple cash flow model

Consider a simple nominal cash flow:

I is the constant income, received annually in arrears

R is the discount rate [the required return, consisting of a risk-free rate (RF_N) and a risk premium (RP)]

Then investment value (V) is found as follows:

$$V = I/(1 + R) + I(1 + R)^2 + ...+I/(1 + R)^n + ...$$

The discounted cash flow is a geometric progression that simplifies to:

$$V = I/R$$

or

$$I/V = R \text{ (the correct yield)}$$

It is then possible to compare R with I/P (the *current market* yield) to determine if the asset is mispriced. This is a simple valuation model that ignores the possibility of income growth.

4.4.5 Gordon's growth model (constant income growth)

Expected income growth became embedded in the behaviour of equity and property investors by the late 1950s in the UK. It became necessary to extend the simple cash flow model by introducing a constant rate of growth in nominal income (GN). Following Gordon, 1960, let us assume 3% constant growth in rents, which is received annually in arrear but agreed annually in advance.

$$V = I/(1 + R) + I(1 + G_N)/(1 + R)^2 + I/1 + G_N)_2/(1 + R)^3 + \ldots$$
$$\ldots + I(1 + G_N)^{n-1}/(1 + R)^n$$
$$V = I/(R - G_N)$$
$$\text{or } I/V = - G_N \text{ (the correct yield)}$$

Where P is price, it is then possible to compare $(R - G_N))$ (7.5% – 3% = 4.5%) with I/P (the current market yield).

4.4.6 A property valuation model including depreciation

The analysis can now be extended by introducing a constant rate of depreciation (D). This gives (approximately):

$$I/V = R - G_N + D \text{ (the correct yield)}$$

Let us assume a constant depreciation rate of 2%. It is then possible to compare ($R - G_N + D$: 7.5% – 3% + 2% = 6.5%) with I/P (the current market yield).

Alternatively, it is possible to compare the required return:

$$R = RF_N + RP$$

with the expected return:

$$I/P + G_N - D$$

The comparison of required return with expected return is equivalent to comparing correct yield with current yield. The correct yield is 'value' and the current is 'price'.

In more simple terms, let us call the initial yield K.
Then, in equilibrium, and assuming annual growth in rent,

$$K = R - G_N + D$$

and

$$\underset{\text{required return}}{RF_N + RP} = \underset{\text{expected return}}{K + G_N + D}$$

When markets cannot be assumed to be in equilibrium,

if $K > R - G_N + D$, buy;
if $K < R - G_N + D$, sell;
if $RFN + P > K + G_N - D$, sell; and
if $RFN + RP < K + G_N - D$, buy.

In our example, let us assume a current market yield of 4.5%. In this case:

$4.5\% < 7.5\% - 3\% + 2\%$, and
$4.5\% + 3\% > 4.5\% + 3\% - 2\%$

so the market is a sell.

This is a simple framework, assuming that property behaves as a pure equity investment with annually reviewed rents and (in addition) perpetually flat yields. The real word is somewhat more complicated. Rents are fixed for periods of time. As a useful progression from this simple world, therefore, property should be regarded as a combined bond and equity investment.

This complexity needs to be reflected in the two component parts of an appraisal. These are the cash flow forecast and the discount rate.

4.5 The model components

The fundamental equivalent yield relationship is given by:

$$K = R - G_N + D$$

Given that both the risk-free rate and growth have both real and inflation components, this can be expanded as follows:

$$K = RF_R + i + R_p - (G_r + i - D)$$

Where:

K	=	the property initial yield
RF_R	=	the nominal risk-free rate
Rp	=	the risk premium
G_r	=	expected long-term real rental growth
i	=	expected inflation
D	=	depreciation

This process requires estimates of K, RFR, Rp, I, G_r and D for the market or sector. These are dealt with in turn below. We use an analysis of the UK market undertaken by Property Funds Research in October 2005 as an illustration.

4.5.1 The risk-free rate

This is defined as the expected redemption yield on the benchmark 10-year gilt at the exit date. At October 2005, this was around 4.5%.

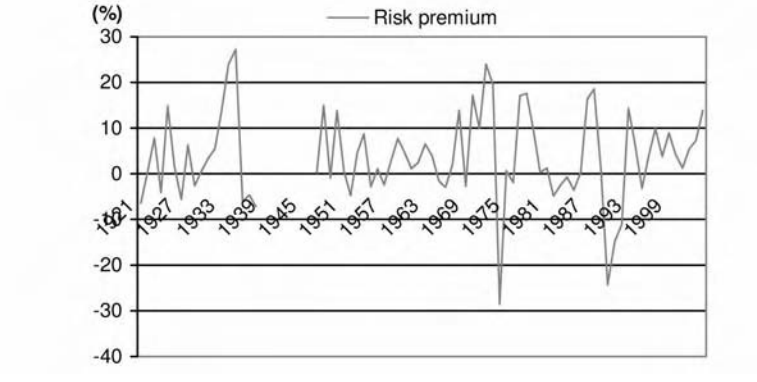
4.5.2 The risk premium

We estimated a value for the expected long-term risk premium for the property market as 2.5%, the mean of a historic range. Our evidence for 2.5% comes from (a) an analysis of ex-post delivered returns on the property market minus returns on risk-free assets (treasury bills) and (b) adjustments based on changes in the expected attractiveness of the asset class. Figure 4.1 profiles the historic risk premium over the period 1920–2004.

It can be seen from figure 4.1 that the delivered risk premium has shown considerable variation over the period, varying between extreme values of almost plus/minus 30%. We have used the historic profile to help inform our view on what the expected average risk premium is likely to be in the long term.

Table 4.2 summarises some of the basic statistics on a subperiod basis. The subperiods are chosen to reflect the different sources of data making up the long-term historic profile. The delivered risk premium is a flawed measure of the estimated future risk premium, which should be expectations-based. However, plausible forward estimates are produced by an adjusted historic analysis. The mean long-term

Figure 4.1: Annual delivered risk premia 1921–2004



Source: PFR, IPD

Table 4.2: Annual average risk premia: supporting statistics (%)

Period	1921–38 (18 years)	1947–70 (24 years)	1971–2002 (32 years)	1981–2002 (22 years)	1921–2004 (76 years)
Risk premium	3.84	3.69	3.12	1.43	3.66
Min	–7.11	–4.69	–28.51	–24.31	–28.51
Max	27.15	17.15	23.98	18.58	27.15
SD	10.34	6.22	11.88	9.94	9.79
Jarque-Bera	2.8035	2.5891	2.97	1.64	5.79

Source: PFR

delivered risk premium has been close to 3%, but has fallen over the analysis period.

The message that emerges is that the average risk premium over different periods has varied within a narrow range. Indeed, it is statistically difficult to distinguish between risk premium figures ranging from 1.4–3.8%. A rounded mean value of 2.5% with a tolerance of 1% either way is supportable.

4.5.3 Inflation

Long-term inflation expectations can be set at the government's then target inflation rate of 2.5%, in line with market consensus expectations. Given changes in the way inflation is measured, expectations will fall to 2%.

4.5.4 Real rental growth

Table 4.3 shows the historic values of nominal and real rental growth at the segment level. Negative real rental growth of 0.5% is the average for all property.

Table 4.3: Segment rental growth, 1981–2002 (%)

Segment	Nominal rental growth	Inflation	Real rental growth
Standard shop	5.40	5.00	0.40
Shopping centre	6.00	5.00	1.00
Retail warehouse	6.20	5.00	1.20
City office	3.90	5.00	–1.10
Mid Town office	5.10	5.00	0.10
West End office	5.20	5.00	0.20
RoSE office	2.80	5.00	–2.20
RoUK office	4.40	5.00	–0.60
Business park	4.10	5.00	–0.90
SE industrial	4.00	5.00	–1.00
RoUK industrial	3.40	5.00	–1.60
Distribution warehouse	3.70	5.00	–1.30
All property	4.50	5.00	–0.50

Source: PFR, IPD

4.5.5 Depreciation

Table 4.4 shows depreciation expectations at the segment level based on research undertaken over a period of years by various researchers, the latest of which is Investment Property Forum (2005). Mean deprecation of 1.25% is the all-property average.

Table 4.4: Depreciation

Segment	Depreciation (%)
Standard shop	0.50
Shopping centre	1.00
Retail warehouse	0.50
City office	1.50
Mid Town office	1.50
West End office	1.00
RoSE office	1.50
RoUK office	2.50
Business park	2.00
SE industrial	1.00
RoUK industrial	1.00
Distribution warehouse	1.00
All property	1.25

Source: IPF (2005a)

4.5.6 'Correct' yields

Using the relationship $K = RF_N + Rp - (Gr + i - D)$, the correct yield level emerging from the reported components is shown in table 4.5.

Table 4:5 'Correct' yields (1)

	RF_R	Rp	Gr	I	D	K
Mean	4.5	2.5	–0.5	2.5	1.25	6.25

Source: PFR, 2005

Table 4.5 suggests a correct fundamental yield level of 6.25% as at the end of 2005. At the time, we commented that any continued yield falls would push the market into overpricing. (Yields continued to fall for two more years.)

4.6 A real analysis

Section 4.5 suggests that the equivalent yield is driven by fundamentals: gilt yields, risk premium and growth expectations. However, there is a very strong long-run correlation (37% on an annual basis) between inflation and rental growth. If property is alternatively seen as an inflation hedge, the risk-free benchmark is the index-inked gilt and not the conventional gilt yield.

The fundamental equivalent yield relationship is given by:

$$K = RF_R + Rp - (G_r + i - d)$$

This presumes that the risk-free benchmark for investors is the conventional (fixed interest) gilt, which is regarded as defining the nominal risk-free rate.

If the index-linked gilt yield (RF_r) is used and the equation is expressed in real terms, it becomes:

$$K = RF_R + Rp - (G_r - D)$$

Current values for these variables at late 2005 are shown in table 4.6.

Table 4.6: 'Correct' yields (2)

	RF_R	Rp	G_r	D	K
Mean	2	2.5	–0.5	1.25	6.25

Source: PFR

As the market increased in price during 2006, yields fell considerably below this 'correct' level. By January 2009, yields had risen back above the 'correct' level, suggesting a rise in the risk premium, a fall in expected growth, both of these, or a cheap market.

Box 5: 'Correct' asset class yields

Table 4.7 shows the initial yields available on a group of asset classes. Each asset class has a required return, determined by the real risk-free rate (liquidity preference), expected inflation and a risk premium. For each asset class it is possible to estimate an expected return, determined by the income return (initial yield, or capitalisation rate), plus the expected growth in income, less depreciation.

Table 4.7: Asset pricing analysis (1)

	RF_r	+i	+ RP	=	K	+G	–D
Indexed bonds					1.5		
Govt bonds					4.0		
Equities					2.5		
Property					6.5		
Japanese bonds					2.0		
Cash					3.5		

Source: Baum

The initial yield on an indexed bond defines the real risk-free rate. The difference between the yield on fixed interest government bonds and the yield on indexed bonds is explained by expected inflation plus a small risk premium to deal with the possibility of the inflation expectation failing to be delivered. If we take an inflation risk premium of 0.5%, deductive reasoning suggests that 2% is the expected inflation rate. The indexed bond will deliver 2% growth in income through indexation. In equilibrium, the indexed bond is set to deliver a total return of 3.5%, the required return. The fixed interest bond will deliver a total return of 4%, outperforming the indexed bond to compensate for the inflation risk.

Table 4.8: Asset pricing analysis (2)

	RF_r	+i	+ RP	=	K	+G	–D
Indexed bonds	1.5	2.0	0.0	=	1.5	2.0	0.0
Govt bonds	1.5	2.0	0.5	=	4.0	0.0	0.0
Equities	1.5				2.5		
Property	1.5				6.5		
Japanese bonds	1.5				2.0		
Cash	1.5				3.5		

Source: Baum

The real risk-free rate is common to all asset classes. Equities and property are risky assets, riskier than bonds, and an investor will require a risk premium to compensate for this. Equities are more volatile than property, but property returns are smoothed and property is very illiquid, so a higher risk premium (4% compared with 3.5% for equities) might be justified.

In order that the market analysis is in equilibrium, income growth for equities will have to be 4.5%, assuming that depreciation is not an issue because it is dealt with by depreciation allowances in the profit and loss account, so that the yield of 2.5% is net of depreciation. If inflation of 2% is expected, real growth in earnings of 2.5% — roughly the long-term rate of UK economic growth — is needed. For property, assuming average depreciation of 1% across all sectors in line with the research studies described in chapter 1, rents need to grow at the rate of inflation (this is the historic average — see chapter 1).

Equities are then set to deliver their required return of 7%, and property will deliver 7.5%.

Table 4.9: Asset pricing analysis (3)

	RF_r	+i	+ RP	=	K	+G	–D
Indexed bonds	1.5	2.0	0.0	=	1.5	2.0	0.0
Govt bonds	1.5	2.0	0.5	=	4.0	0.0	0.0
Equities	1.5	2.0	3.5	=	2.5	4.5	0.0
Property	1.5	2.0	4.0	=	6.5	2.0	1.0
Japanese bonds	1.5				2.0		
Cash	1.5				3.5		

Source: Baum

What is the required return for a UK investor buying Japanese bonds? As a UK investors, say a pension funds the investor's liabilities will be denominated in sterling. It is UK inflation that is important, and the required return is not affected by inflation prospects in Japan. There is, however, a risk above and beyond that involved in the purchase of UK government bonds. The income and capital return delivered by a Japanese bond is paid in yen, and the yen/sterling exchange rate will change over time, so that the income in sterling is uncertain and may be volatile. A risk premium of 2% is assumed. The required return is then 5.5%, and to deliver this income growth of 3.5% is needed.

However, as we shall see in chapter 9, the market's expectation of yen appreciation is defined as the difference in interest rates — in this case represented by bond yields — in the two economies, only 2% in this case. Hence Japanese bonds are not attractive to UK buyers. This does not mean that the market is not priced in equilibrium: simply that the typical buyer, whose natural habitat this investment represents, is not based in the UK.

Cash — say six-month deposits — is risk-free and offers neither income growth (interest rates would have to rise to deliver this) nor depreciation. As in all other asset classes except Japanese bonds, the market offers the return which is required.

Table 4.10: Asset pricing analysis (4)

	RFR_r	+i	+ RP	=	K	+G	–D
Indexed bonds	1.5	2.0	0.0	=	1.5	2.0	0.0
Govt bonds	1.5	2.0	0.5	=	4.0	0.0	0.0
Equities	1.5	2.0	3.5	=	2.5	4.5	0.0
Property	1.5	2.0	4.0	=	6.5	2.0	1.0
Japanese bonds	1.5	2.0	2.0	No	2.0	2.0	0.0
Cash	1.5	2.0	0.0	=	3.5	0.0	0.0

Source: Baum, 2008

4.7 The required return: additional analysis

4.7.1 The risk-free rate and the yield curve

Simplistically, the risk-free rate is the redemption yield on gilts for the matched life. To be accurate, the yield curve should be taken into account, meaning that the appropriate discount rate will be different for incomes of different maturity or tenor.

4.7.2 The risk-free rate: bond and equity components

The required risk premium should be determined by the liquidity of the investment and by the sensitivity of the cash flow to shocks created by inaccurate forecasts or unforeseeable events.

For the equity component, the cash flow comprises the exit value and or any expected uplift at a rent review or lease renewal, the sensitivity of the cash flow to economic shocks will be very important indeed. For those investors interested in the real cash flow, shocks to inflation may be important.

For the bond component, assuming no default risk, the sensitivity of the nominal cash flow to economic shocks is nil. Default risk is, however, highly relevant, and will be the most important factor in the risk premium. Shocks to inflation will affect bonds more than equities, because the cash flow is fixed in nominal terms and therefore has no inflation proofing quality.

In addition, all property is subject to the extra illiquidity that affects all property much more than listed bonds and equities, and which will lead to an increase in the risk premium.

4.7.3 The subsector and property risk premium

Certain research systems include the provision of a series of risk premiums for subsectors of the property market, defined by use sector and subsector, by region and by town. Where a sale or purchase is being assessed and the present value or net present value over purchase or sale price needs to be estimated, these systems establish a broad guide for estimating the risk premium that might be used in the discount rate. However, where an individual interest in property is being appraised, a further set of considerations needs to be taken into account.

This section summarises one such system that measures the issues relevant to the assessment of the individual or specific risk premium. Three main categories of premium drive the specific risk premium in this particular system. These are: the sector or subsector premium; the town premium; and the property premium.

The sector premium

The system described herein assesses the risk premium based on a checklist of issues and using a variety of quantitative and qualitative measures. The starting point is the estimation of a premium for the whole equity-type property sector based on a presumption about the equity risk premium and the relative position of property. Hence the sector premium is based on the equity premium and the differential property premium.

Beyond this, the sector premiums are assessed by taking into account three factors. These are: the sensitivity of the cash flow to economic shocks, with particular reference to rental growth and depreciation; illiquidity; and other factors, including the impact on portfolio risk and the lease pattern.

The town premium

The assessment of the town risk premium is based on an assessment of the riskiness of the economic structure of a town and its catchment area, together with a consideration of competing locations. The range expands from a minimum town premium for diversified and liquid towns with healthy industries to maximum premiums for illiquid towns whose economies are concentrated in weak sectors.

Low liquidity scores are assigned to towns and sectors where it is considered relatively difficult to raise cash from a sale at short notice. Hence Cambridge retail — a popular sector — would typically score more highly than Middlesbrough industrials.

The property premium

This section deals with the four components of the property premium, as listed below. The four components are:

a) the tenant risk class;
b) the lease risk class;
c) the building risk class; and
d) the location risk class.

Some of these factors will be specific to sectors of the market (in-town retail, for example). The relative weighting of the factors can be assessed by multiple regression analysis, whereby (given a large

sample of individual property investments) the current importance of these variables in explaining yield or risk premiums can be assessed and their future importance hypothesised.

The simple process is best illustrated by an example.

4.7.4 Example

We are considering the purchase of either of two City office buildings. Our estimate of the risk premium for a prime City office is 3.25% over the risk-free rate, currently 4.5%.

Tenant

The tenant of property A is a FTSE 350 corporate; the tenant of property B is a partnership of solicitors. Additional premium: 0.5% for building B.

Tenure

A is leasehold, for 63 years, with low gearing (the ground rent payable to the freeholder is a small percentage of the occupational rent paid to the lessor); B is a leasehold for 116 years with no gearing. Additional premia: 1.5% for building A; 0.5% for building B.

Leases

The sublease for A has 18 years to run, with no breaks and upward-only rent reviews; B has 10 years to run, with no breaks and upward-only rent reviews. Additional premium: say 1% for building B.

Building

A is an inflexible building. Extra premium: 0.5%

Location

B has a location heavily dependent on neighbouring tenants remaining in place. Extra premium: 0.25%.

Table 4.11 summarises the cumulative effect of these individual adjustments.

Table 4.11: Building specific risk premia: an example

Factor	Building A	Building B
Risk-free rate	**4.50**	**4.50**
Base premium	3.25	3.25
Tenant	0.00	0.50
Tenure	1.50	0.50
Leases	0.00	1.00
Building	0.50	0.00
Location	0.00	0.25
Premium	**5.25**	**5.50**
Discount rate	**9.75**	**10.00**

Source: Baum

For a full worked example, see the case study described in chapter 9 of Baum and Crosby, 2008.

4.8 Forecasting rents and yields

4.8.1 The origin and uses of property forecasts

Forecasting property rents, yields, prices and returns requires an understanding of fundamental analysis. Fundamental analysis is the examination of the underlying forces that affect and connect the behaviour of the economy, asset classes, industrial sectors and companies. The goal of fundamental analysis is to derive a forecast for the future behaviour of a market or asset from these underlying forces, either using current data or using forecasts of these variables. The rent for office space, for example, can be forecast by using current vacancy rates or by using forecasts of the future demand for and supply of space, which are in turn driven by fundamental economic variables. The usual approach is to use an econometric technique called regression analysis.

Modelling property yields using this type of approach is, however, known to be challenging. Regression-based yield models typically suffer from poor explanatory power or poor diagnostics (a term used to describe an analysis of the equation) or require the forecasting of independent variables, such as interest rates or equity market returns, which are more difficult to forecast than the dependent variable.

Formal studies of the relationships between the economy and property prices were few until the collection and publication of property return data in the 1980s. Since then, it has been established that the links between property and the economy are complex but strong.

It is now clear that there are persistent relationships that link the property market to the economy. These relationships can be found in rents, development activity and yields. This section focuses on the links between the economy and property rents and how these can be used to forecast the income from property investment based on forecasts of key economic variables.

The uses of forecasts

The formal forecasting of the property market using econometric models is now relatively commonplace. To assist with investment decisions, forecasts can be produced for each sector at the national, regional, local and individual building level. As the spatial scale becomes smaller, the task of forecasting becomes progressively more difficult. Rents could be forecast for the property market as a whole, but each sector is influenced by different factors, and it is better to consider the market as the sum of the individual sectors.

Rents can be forecast using conventional forecasting procedures but yields pose more of a problem. Together, they are inputs into total return forecasts. These can be used at a number of levels.

- The total return expected for property can be used in asset allocation for a multi-asset portfolio.
- Sector and region returns can be used to construct strategy for a property portfolio.
- Sector and region and local returns can be used to identify target areas for stock selection (buying and selling); and for active asset management.

4.8.2 Forecasting national rents

However, a forecast of rental value is only the start. It needs to be combined with the lease terms to give the expected cash flow (or distribution of cash flows — see Baum and Crosby, 2008) to calculate whether, given current price, the investment will deliver the required

return. A large expected increase in rents need not mean a high expected return if the market has already incorporated this information into price. Such an analysis can be applied to the whole of the property market or an individual building or any level of aggregation in between.

A model links the variable being forecast (the dependent variable) with those which are used in the forecast (the independent variables).

There are, in simple terms, two ways to produce a forecasting model. The first involves establishing patterns or trends and assuming that these will continue into the future. We call this technical analysis, as illustrated in chapter 2. Examples include a linear trend (a constant increase over time) and cyclical trends. In effect, these use time as the explanatory or independent variable. All that is required is the year for which the forecast is to be made from which it is possible to determine the value of the dependent variable.

The problem with this type of model is that external factors do not change the forecast. No matter what happens, it is assumed that the pattern will persist. Thus, in property, no matter what happens to the economy, the forecast for rents will be unchanged.

The second type of model is more plausible: it is one built from theory, that is, from a view on what causes changes in the dependent variable. This can be termed a causal model. Everything that follows will concentrate on causal models.

A good causal model has to be logical and plausible: that is, it should be based on theory. It should also be practical: the explanatory variables must be forecastable, otherwise the model is an interesting historical model, but is of no value for forecasting.

Rent is the price paid by an occupier for the right to use the space for business activities. Basic economics points to the factors that affect price: demand and supply. This is the basis of a plausible model. However, price, demand and supply are all theoretical economic concepts. In order to use these concepts in practice, an empirical measure of each is required. This can be illustrated by using retail rents as an example.

Price

Price or rent has to be measured. At the UK level, rent has no practical meaning unless it is measured as an index, that is, a weighted average of rents in different locations. This is similar to using the retail price index to measure price inflation.

In practice, issues such as the length of the time series, the robustness of the index construction and the degree of sectoral and geographical disaggregation are most important in selecting an index to model. It is also possible to combine different sources, using better quality data for the most recent period and the available, but poorer quality, data for earlier periods.

Demand

Rents are paid by occupiers, so plausible economics suggests that to understand rental levels it is necessary to understand what is happening to occupiers. It is not easy to measure demand directly, so a proxy variable is required. The demand by retailers for property and their ability to pay a price (the rent) depends on their profitability, which in turn depends on the demand for their goods from households. Other things being equal, increased demand should lead to higher profits and so to an ability to pay higher rents. Clearly, the ability of a retailer to pay rent will depend on factors other than the volume of sales, but this is likely to be the most important factor over time. Volume of sales can be measured by either retail sales or consumer expenditure.

Supply

As the supply of retail space increases, other things being equal, price will fall. Supply is a relatively straightforward concept to measure, although there are problems to do with data limitations.

Poor quality supply data is a standard problem in property research. Fortunately, this is less of a problem at the national level as supply increases relatively steadily, and the series is much less volatile than rents or the demand proxies, and is less influential in the forecast.

This produces a plausible framework for a model based on economic theory. The next stage is to try to build a model. Building a forecasting model involves an examination of the historical data and the determination of the relationship between the dependent variable (rent) and the appropriate independent variables. In this case, this is the relationship between retail rents, consumer expenditure and the supply of retail property.

This requires the use of econometric techniques (regression analysis). The basic model as outlined above is:

$$R = f(D, S)$$

In words, this means that rent is a function of demand and supply. Where k is a constant or intercept term, a linear model would be:

$$R = aD + bS + k$$

The historical data describing R, D and S is available and is used to estimate the parameters a, b and c that constitute the model, which can be used to forecast rent using forecasts of the explanatory or independent variables. A good forecasting model is not the same as a good historical model: a model is useless for forecasting if the independent variables cannot be forecasted.

Further, in using the estimated model for forecasting, it is essential to understand that it is assumed that the coefficients a, b and c will remain constant in the future, in other words that the historical relationship will hold in the future. This is a basic assumption of any econometric model. It is possible to test statistically whether the model has been stable historically.

In practice, the regression is a best fit rather than a perfect fit:

$$R = aD + bS + k + e$$

The first part of this equation is the deterministic part, in other words the model. The second part, e, is the probabilistic part and defines the part of the resulting forecast, which is unexplained by the model. e is known as the error term or the residual.

The line of best fit is calculated so that the sum of the squares of the residuals is minimised. It is important to test if the model fits the data well, that is, whether the part left unexplained (the residuals) is small. If the residuals are large, then the actual values are not very near the values predicted in the model (the expected values), and the model is of limited value. There are further tests that a good econometric model must pass.

In practice, a number of adjustments are made to the basic model.

First, inflation is removed by deflating the series. If this is not done it is possible to obtain a good 'fit' purely because there is inflation on both sides of the equation.

Second, the data is transformed into logs. There are three reasons for this.

- To use regression techniques, the data has to be normally distributed and a log transformation has the effect of normalising the data.

- With a log transformation the coefficients can be interpreted as elasticities (sensitivities), which accords well with economic theory.
- The difference in logs approximates to the growth rate, which makes the model easier to interpret.

Third, as two trending variables will always have a high correlation, it is often appropriate to consider a model in differences, so that the change (rather than the level) in the independent variable leads to a change in the dependent variable.

Fourth, there may be a lagging effect. It may take some time for the change in the economy to work through to the property market. The model can be changed to include lagged effects, that is, the values of the variables in the previous period, as follows.

$$R = aR(-1) + bD + cS + dD(-1) + fS(-1) + k + e$$

There are two approaches to building a model. The first is to start with the broadest specification, that is, to include all the possible explanatory variables and a number of lags for each, then eliminate those which are not significant in explaining the statistical relationship in the model. The second is to start with one explanatory variable and to build up a model by introducing new variables or lags.

To undertake the first, a long time series is needed, perhaps 40 years of quarterly data giving 160 observations. In property, the longest available rent series is less than 40 years and is annual. Thus, even a broad specification of a property model has to be narrow.

Fortunately, there is a school of thought in econometrics that believes that the best model is one that contains a small number of variables. This is because adding new variables always improves the statistical fit of the model but may stretch the limits of a plausible theory and is more difficult to build and use.

When building the model, it may become clear that one (or several) of the observations of the dependent variable does not fit the model, while the others fit well. It may be that there is a measurement problem in the data set or that in one particular year a variable not included in the model is important.

In such a case, it may be appropriate to estimate the model without the observation. This is done by introducing a dummy variable. This has the effect of removing the outlying point and so preventing it being used in the estimation of the model. The use of a dummy variable requires a clear justification: it should not be used to

improve a fundamentally poor model. It can often be used to deal with a shock of some sort, or a data deficiency.

Broad specification models that include all the possible explanatory variables and lags may be better in explaining the past behaviour of a variable. This type of approach is flawed for forecasting, however, as it is difficult to estimate or forecast the value of a large number of independent variables.

An historical model

The following is an example of an historical model. It uses the IPD rent index as the dependent variable. Other forms of model can be produced using the same data, and choosing the best is a matter both of formal statistical tests and judgment based on an understanding of the operation of the property market.

The full details of this and other models can be found in the RICS/IPD/Aberdeen cycles report (University of Aberdeen and IPD, 1994).

$$\begin{aligned}\text{Rent} = {} & 0.88 \times \text{Rent}(-1) \\ & -0.28 \times \text{Rent}(-2) \\ & +1.48 \times \text{Consumer expenditure} \\ & -2.36 \times \text{Floorspace}(-2) \\ & -0.09 \times \text{Construction starts}(-2) \\ & -0.10 \times \text{Interest rate}(-1) \\ & -4.88\end{aligned}$$

Note: the model is specified in log form and real terms.

A forecasting model

The following is a model (built in 1995) of the UK retail market. It explains or forecasts rent as the dependent variable, using consumer expenditure as the demand proxy and an extrapolated supply series based on government floorspace statistics. These are the main independent variables. The model also includes the rent level (Rent(–1)) in the previous year: It is clearly more parsimonious (economical) than the historical model.

$$\begin{aligned}\text{Rent} = {} & 0.5 \times \text{Rent}(-1) \\ & + 2.7 \times \text{Consumer expenditure} \\ & -3.0 \times \text{Floorspace} \\ & -17.0\end{aligned}$$

Note: the model is specified in log form and real terms.

This model passed a wide range of statistical tests, and at the time it was developed it had an excellent forecasting ability. Its limitation is that the input forecasts may not be accurate. Accordingly, it is appropriate to develop a range of forecasts under different economic scenarios.

4.8.3 Forecasting at the local level

Local market forecasts are important for two related reasons. First, the sector/town is more useful as a segment for analysis than the sector/region, because the town is a more easily defined economic unit than the region. Second, regardless of the preferred portfolio categories, the management of real portfolios requires the selection of buildings to buy, sell, refurbish or redevelop and these require forecasts at the micro level.

The production of reliable procedures to forecast local market areas is, therefore, one of the main challenges facing the property investment market. It requires a substantial amount of work: a major investor might want views on 50 main centres in the UK. Formal modelling at the local level is difficult. Two types of problems arise: conceptual and modelling, and data.

Conceptual and modelling problems

- The definition of the appropriate local market area for which to produce a forecast is a problem. The local market area appropriate to one sector is unlikely to be that appropriate for another. The issue has been extensively considered in retail market modelling but there is no easy solution. It has received much less attention in relation to the other sectors with the exception of the London office market.

- Linked to the issue of defining local market areas is the problem that market areas for proximate centres will overlap, as the centres are in competition.

- In a local market where rental evidence has been based on rent reviews rather than on open market transactions, or is smoothed for some other reason, rental pressure may arise. This can be positive or negative; it refers to the difference between the provable rent and the open market rent. When an open market letting takes place, it is possible for the provable rent to change substantially

without a change in the balance of supply and demand. There is a need, therefore, to distinguish between changes needed to reach the 'correct' rent and changes in the correct rent.

- At the local level, many factors could potentially have an important effect on rent but cannot be formally modelled. These 'soft' variables include factors such as local business confidence, changes to planning policy on city-centre car parking and infrastructure developments.

Data problems

- Data for the demand variables used at the UK and regional levels is generally unavailable at the town level. Town level retail sales or consumer expenditure data or output data are usually unavailable. It is possible, however, to use population and employment as the basis for constructing explanatory variables. Population is linked to retail sales and employment is linked to output and so to rents in the office and industrial sectors.

- Whereas supply is relatively stable at the UK and regional levels and so is of lesser importance in modelling, it is crucially important at the local level. A new development can dramatically change the amount of shopping space and can have a dramatic impact on rents, so supply at the local level must be closely monitored. Reliable data describing the supply pipeline is difficult to obtain and translate into a meaningful forecast of supply, but research and information services provided at the building and tenancy level by companies such as CoStar promise a solution to this problem.

- Rent data is not available for such a wide range of centres with a sufficiently long time series and of sufficient quality to give much confidence in the result of any formal modelling.

The result is that it is probably impossible to build a meaningful econometric model from local data. One possible approach is to use the coefficients calculated at the national level to forecast the local market. In the absence of contrary evidence, it is reasonable to conclude that the same basic relationships should hold. It is, in any case, essential than a local forecast should be constrained by a framework of national forecasts. This 'top down' approach to local forecasting can produce sensible figures.

4.8.4 Forecasting yields

Yields are more difficult to forecast than rents. However, based on the material presented earlier in this chapter we can suggest that they are driven by yields on gilts, or the risk-free rate; by expectations of future net rental growth; and by the required risk premium.

The first problem is producing a good historical model. The yield series does not exhibit much volatility: property yields tend to move slowly upwards or downwards for a long period, and may simply be mean-reverting (see chapter 2). In contrast, many possible explanatory variables are much more volatile. This creates modelling difficulties.

The best historical model for the all property yield calculated in the RICS/IPD/Aberdeen cycles report used the following explanatory variables: the property yield in the previous year; the yield on long-dated gilts; net property investment; the interest rate; office and retail construction starts one year ago; property returns one year in the future; and the inflation rate.

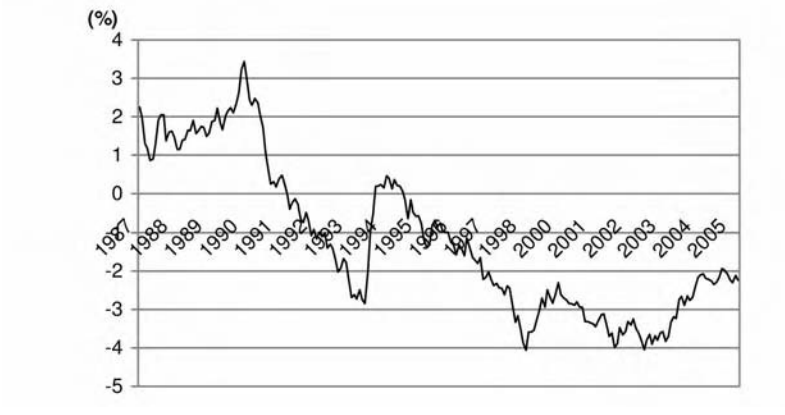
This may produce a good historic model but it is of little value for forecasting. Forecasts of the explanatory variables would be at least as difficult to produce as forecasts of the property yield. With some idea of the likely trends in these variables, it may be possible to deduce likely yield movements, but not to predict values with much accuracy.

Forecasting yields using econometric-type models is probably a waste of time, and an alternative approach using a cash flow analysis is required. There are a number of approaches that can be taken towards modelling yields. Yields may be linked to fundamentals, as above. A model that employs a fit between rental growth, swap rates and yields is described below. Event-specific factors can impact on yields: these can include the weight of money, sentiment towards property and recent rental growth experience, or simply yield movements in other assets. However, it is dangerous to use a simple lagged relationship between yields on one asset class to predict the yield on another.

Figure 4.2 illustrates the yield gap between gilts and property. Where the gap is positive, as it was before 1993, gilt yields are higher than property yields. After 1996, property yields have been higher than gilt yields. This is not a simple lead-lag relationship, but it may be meaningful if it is set in the context of the fundamental relationship:

$$K = RF_R + i + R_p - (Gr + i - d)$$

Figure 4.2: The UK gilt-property yield gap, 1987–2005



Source: IPD, Datastream, 2005

This tells us to expect a positive relationship between gilt yields and property yields, but one which is complicated by the risk premium and real growth expectations.

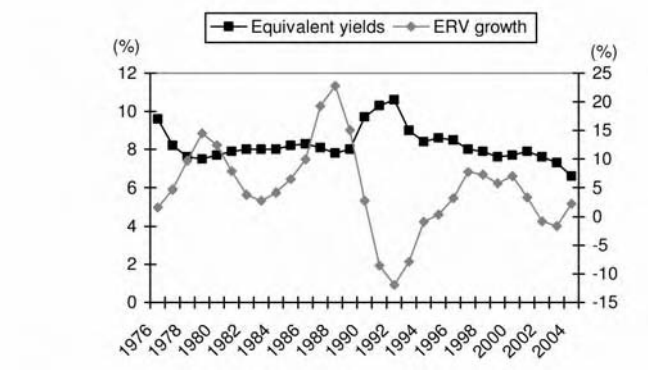
The switch to a negative yield difference post-1996 raises the question as to why this may have happened. Possible explanations are that the risk premium for property has risen, anticipated growth has fallen or there has been a combination of both — or property was looking cheap.

The narrowing yield difference of 2003–05 suggests that the risk premium for property fell, anticipated growth increased, there was a combination of both — or property was becoming overpriced.

Figure 4.3 shows the historic relationship between rental growth and property yields. There is an obvious negative correlation, measured as –0.54. When rents are growing, yields are falling (in anticipation of further auto-correlated rental growth?). If, as they were at the time, consensus expectations of rental growth are below the average delivered rate, a naïve analysis would suggest yields must rise. But this ignores the impact of the risk-free rate.

Rental growth expectations should have an impact on property yields; empirically, it appears that coincident rental growth has an effect. This is illustrated in figure 4.3.

Figure 4.3: Rental growth and property yields, 1976–2004



Source: IPD, PFR, 2004

An even stronger equation can be found by combining swap rates — a measure of the cost of borrowing used to finance property acquisition — and rental growth, a short-term measure of market strength. When swap rates are low and rental growth is high, yields will fall.

We regressed end-year equivalent yields on rental growth over the year and 18 month lagged five-year swap rates. This resulted in a very strong and stable relationship, with some 95% of the variability in equivalent yields being explained by these variables

In 2005, we used this estimated relationship to forecast equivalent yields, assuming rental growth in line with IPF consensus surveys of 2.4% for 2006 and 2.7% for 2007 and the appropriate lagged values of swap rates. The equivalent yields for the end of 2006 and 2007 are both forecast to be around 7.1%, which implies an increase in equivalent yields at the end of 2006. In the event, despite higher swap rates and disappointing rental growth yields fell further to below 6%, before the inevitable, rapid and sharp correction of 2007–09.

Table 4.12: Annual fundamental model output

Model	**2005**	**2006**	**2007**
Annual	6.73	7.11	7.09

Source: PFR

4.9 Forecasting property cash flows

When rental income is fixed between rent reviews, property investments have bond components to the cash flow. The expected cash flow from the typical property investment is therefore a combination of bond and equity. Even a heavily over-rented office has an equity component at the lease end; and a retail warehouse has a bond component between reviews. Property is a hybrid, and the investment strategy must reflect this by anticipating the impact of economic and capital market forces on the value of both components of the cash flow.

The cash flow should also reflect the following factors.

- Property income is subject to the lease, which determines the payment of rent. For example, the reversionary nature of some property investments will create an income uplift at the next review.
- Property, more than any other mainstream investment, is a tangible asset that depreciates through physical deterioration and obsolescence.

The over-rented component of the cash flow will be subject to greater risk than the portion secured by the estimated rental value or ERV; separation of the cash flow into these two component parts would therefore be wise.

The holding period used in cash flow projections should normally coincide with a lease-end or review. However, this may not always be the case. In any event it should be determined with care for the following reasons.

- The net present value (NPV) or internal rate of return (IRR) (see Baum and Crosby, 2008) will not be invariant with regard to the holding period.
- The shorter the holding period, the greater the influence of the exit value, which will be a more risky input.
- The manager may have an expected holding period, which may or may not equate with lease-ends or reviews.

4.10 Modelling the portfolio risk and return

4.10.1 The portfolio model

The expected return on each asset should be modelled using a discounted cash flow procedure. The most attractive property will be the one for which the expected return exceeds the required return by the greatest amount. In most circumstances, this process may be optimal. However, in other circumstances it may not.

First, this ignores the impact of tax and gearing. This is dealt with in chapter 9. Second, it ignores the impact of the purchase on the shape of the portfolio as a whole. Third, it ignores the different outlays involved. Is an excess return of 1% on a £5m outlay superior to an excess return of 0.5% on an outlay of £10m?

These latter two problems can be dealt with quite simply in a portfolio model. The objective of a portfolio model is to forecast cash flows and values, year by year, on all buildings held within the portfolio, in such a form as to enable the manager to model the impact of altered expectations on portfolio performance. The model allows scenarios concerning purchases, major expenditure and sales to be explored. Hence, in the above example the impact on portfolio return — and, with the necessary inputs, risk — of the two alternative purchases may be appraised. This deals quite easily with the difference in outlays, as the optimal decision will be the one which (subject to risk) has the greatest positive impact on portfolio return. The impact on the shape of the portfolio and its risk profile is also easily dealt with in the model.

4.10.2 Example

Table 4.13 shows how, assuming rising rental values and varying market capitalisation rates, a single property moving through its five-year review pattern and valued using an annually in arrear equivalent yield approach will vary in capital value. There are three years until the rent review, and market capitalisation rates fall and then rise over the period. The property enjoys a sharp fall in capitalisation rate as it passes through its rent review, reducing the risk to the investor. The property's capital value is sensitive to four variables:

a) the income, or rent passing;
b) the estimated rental value;
c) the period to the rent review; and
d) the capitalisation rate.

Table 4.13: Portfolio modelling (1)

Data	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Income (£)	1,500,000	1,500,000	1,500,000	2,050,000	2,050,000	2,050,000
ERV (£)	2,000,000	2,000,000	2,050,000	2,100,000	2,200,000	2,220,000
Review term	3	2	1	5	4	3
Yield (%)	7.50	7.40	7.00	6.50	7.25	8.00
Capital value (£)	25,366,404	26,201,550	28,771,696	32,099,908	29,733,893	26,901,093

Source: Baum

Table 4.14: Portfolio modelling (2)

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Capital value (£)	25,366,404	26,201,550	28,771,696	32,099,908	29,733,893	26,901,093
Income (£)		1,500,000	1,500,000	1,500,000	2,050,000	2,050,000
Income return (%)		5.91	5.72	5.21	6.89	7.62
Capital return (%)		3.29	9.81	11.57	–7.37	–9.53
Total return (%)		9.21	15.53	16.78	–0.48	–1.91

Source: Baum

In table 4.14, the impact of the changing value and rental income on the total return delivered by the property is shown, based on the following simple return definitions.

Income return is the net rent received over the measurement period divided by the value at beginning of the period.

$$IR = Y_{0-1}/CV_0$$

Capital return is the change in value over the measurement period divided by the value at beginning of the period.

$$CR = [CV_1 - CV_0]/CV_0$$

Total return is the sum of income return and capital return.

$$TR = [Y_{0-1} + CV_1 - CV_0]/CV_0$$

Table 4.14 shows the results. As the capital value rises and falls, the capital return is strongly positive, then negative. The income return is less volatile. The total return rises and falls in line with changes in capital value.

Combining this data for one property into an aggregate table describing all properties in the portfolio allows the portfolio return going forward to be modelled. Most importantly, different scenarios can be modelled, not only for out-turns of rental growth and capitalisation rate movements, but also for sales from the portfolio, additions of new buildings and so on.

For advanced applications, financing and taxation impacts need to be dealt with, and the portfolio model can be adapted to enable regular portfolio monitoring (for example, the ranking of expected returns property by property), linkages to portfolio and facilities management systems, and client reporting.

The portfolio model can also be developed further into an arbitrage pricing system, designed to explore the sensitivity of portfolio return to various economic and capital market factors, such as changes in rates of interest, changes in expected inflation rates, changes in the value of sterling and other relevant factors.

Portfolio performance measurement is more fully addressed in chapter 5.

5 Performance measurement and attribution

5.1 Return measures: an introduction

There are many confusions concerning return measurement in property. This is largely due to the unique terminology that has been developed in the property world; it is also due to the unique nature of property, especially rent review patterns and the resulting reversionary or over-rented nature of interests.

There is also some misunderstanding of the difference between return measures that are used to cover different points or periods in time. Return measures may describe the future; they may describe the present; or they may describe the past.

Measures describing the future are always expectations. They will cover certain periods of time and may, if that period begins immediately, be called *ex ante* measures. An example is the expected internal rate of return from a property development project beginning shortly; another example is the required return on that project.

Measures describing the present do not cover a period, but describe relationships existing at a single point in time (now). An example is the initial yield on a property investment; while this may imply something about the income return likely to be produced by an investment in future, it is simply the current relationship between the rental income and the capital value or price.

Finally, measures of return describing the past, or *ex post* measures, are measures of (historic) performance. An example is the delivered return on a project.

Performance measurement is a science that deals only with the past. It must therefore be distinguished from portfolio analysis, which is relevant to the present, and to portfolio strategy, which is relevant to the future. It deals wholly with delivered returns, and not expected or required returns (see chapter 4).

5.2 Definitions

5.2.1 The future

The following definitions describe the future.

IRR

This is the expected return using estimated changes in rental value and yield. There are similarities in other investment markets: these include the gross redemption yield in the gilt market.

Required return

This is the return that needs to be produced by the investment to compensate the investor for the risks involved in holding the investment. It is also called the target rate or the hurdle rate of return.

5.2.2 The present

The following definitions describe the present.

Initial yield

This is defined as the net rental income divided by the current value or purchase price. There are similarities in other investment markets: these include interest-only yield, running yield, income yield, flat yield, dividend yield.

Yield on reversion

This is defined as current net rental value divided by the current value or purchase price. There is no equivalent in other markets.

Equivalent yield

This is the weighted average of the initial yield and the yield on reversion. It can be defined as the IRR that would be delivered assuming no change in rental value, but this has created difficulties in the case of over-rented properties. As in the case of all IRRs, the solution is found by trial and error. There is no equivalent in other markets.

Reversionary potential

This is the net rental income divided by the current net rental value or vice versa. There is no equivalent in other markets.

5.2.3 The past

The following definitions are performance measures. They describe the past.

Income return

This is the net rent received over the measurement period divided by the value at beginning of period.

$$IR = Y_{0-1}/CV_0$$

Capital return

This is the change in value over the measurement period divided by the value at beginning of the period.

$$CR = [CV_1 - CV_0]/CV_0$$

Total return

This is the sum of income return and capital return.

$$TR = [Y_{0-1} + CV_1 - CV_0]/CV_0$$

Time-weighted return

This is the single rate of compound interest that will produce the same accumulated value over more than one period as would be produced by the component single period interest rates. Some commentators refer to this as the geometric mean rate of return.

The TWRR ignores the timing of cash injections and extraction. It is appropriate for quoted unitised and other co-mingled funds. It is an inappropriate measure where the manager has discretion over cash flows or cash investments.

Internal rate of return

This is the most accurate and complete description of historic return. It is appropriate for managers who have discretion over the cash flow and takes into account the cash invested in each period. It is not, therefore, a mean of annual returns.

Money-weighted return

This is effectively the same measure as the IRR. Its use was legitimised by investment professionals seeking an approximation prior to the development of cheap and efficient computing facilities. Given that IRR calculations are now straightforward, there is little justification for continued use of the term.

MWRR/IRR is appropriate for funds where the manager has control over cash flows. It takes account of the amount invested in each period — hence the name.

5.3 Example: IRR, TWRR, total return or MWRR?

By way of illustration, let us assume that the return on two funds, life fund A and pension fund B, were measured over the period 2007–09. The following performance information is available about these funds.

At the year-end, the fund managers decide whether or not to buy new buildings and all expenditure takes place at that time.

Expenditure is not taken into account in the year-end valuation completed immediately before each expenditure. Instead, it is assumed that expenditure adds to the portfolio value at the beginning of the following year. Income is received quarterly in advance.

Table 5.1: Life fund (fund A) (£m)

	Initial value	Value at year-end	Net income	New expenditure
2007	123.45	94.51	9.34	17.86
2008		165.50	10.12	1.45
2009		177.09	10.32	

Source: Baum

Table 5.2: Pension fund (fund B) (£m)

	Initial value	Value at year-end	Net income	New expenditure
2007	12.35	9.53	0.93	0.00
2008		14.00	1.01	1.45
2009		16.50	1.03	

Source: Baum

The results are as shown in table 5.3.

Table 5.3: life and pension fund performance

Year	Life fund (%)	Pension fund (%)
2007 total return	–15.88	–15.30
2007 IRR	–16.68	–16.03
2009 total return	12.25	13.46
2009 IRR	12.74	14.04
2007–09 TWRR	13.85	14.82
2007–09 IRR	14.67	13.87

Source: Baum

The life fund achieved a higher IRR over three years than the pension fund. However, the pension fund achieved a higher TWRR.

In 2007, the IRRs achieved by both funds were less than the total returns achieved. In 2009, they were both higher.

Which of these measures is appropriate?

IRR or TWRR?

The life fund appears to have outperformed on an IRR basis because the IRR (which is money-weighted) reflects the additional investment made by the fund at the start of the strong year of 2008. There was extra cash outlay in 2007, but this led to a much higher value in 2009 and a stronger return over the period.

However, the pension fund achieved a higher TWRR (which is not money-weighted), in other words a higher average annual return.

The responsibility for investing the cash determines the correct measure. Who decided to put more money in at the start of 2008? If the decision were the responsibility of the fund managers in each case, then the IRR is correct and the life fund outperformed. If the decision were the responsibility of a higher authority, then the TWRR is correct and the pension fund outperformed.

In addition, it should be noted that the IRR exceeds the TWRR for both funds because on average more money was invested in the better years and/or the initial poor years of performance badly damaged the investment base for the TWRR calculation. This will not always be the case.

IRR or total return?

In 2007, the IRRs achieved by both funds were less than the total returns achieved. In 2009, they were both higher. The differences in each case are simply the result of the timing of rental income, assumed to be quarterly in advance.

Normally, that is when returns are positive, the quarterly payment of rent is an advantage and produces a higher IRR than total return. The total return effectively assumes a single end of year rent payment. In this case, the IRR assumes that the (quarterly) intermediate cash flows are re-invested at the IRR. Hence the 2009 returns are higher on an IRR basis than on a total return basis. On the other hand, negative returns in 2007 mean that the re-investment of quarterly income led to negative interest, a damaged IRR and a relatively higher total return.

Total returns are approximations to IRRs, which are certainly superior measures. However, it is more practical to measure total returns. Comparison of IRRs with total returns can be misleading. Professional performance measurement agencies, such as IPD, adjust for the timing effect in their total return calculations.

IRR or MWRR?

The IRR is a perfect mechanism for the measurement of fund return. The MWRR is an approximation to the IRR that was developed because it allowed manual solution by simple algebra or calculator. It is now redundant.

5.4 Capital expenditure

Performance measurement organisations in the UK and US typically use total return measures for single period performance measurement for all assets. The simple formula is as follows.

$$TR = [Y_{0-1} + CV_1 - CV_0]/CV_0$$

Property causes particular problems rooted in its unique nature as a physical asset class. Capital expenditures will be necessary from time to time to repair, refurbish, extend and improve property. How should this be dealt with?

There are two alternatives. Expenditure can either be dealt with as if it causes a reduction in income, or as if it requires an increase in capital invested.

5.4.1 Reduction in income

Strict comparability with equities would suggest that minor capital improvements (CI) should be financed out of cash flow, just as a company would use cash flow to maintain its capital assets. The appropriate treatment is then quite simple. The income return is reduced by the expenditure while the capital return may be increased if the expenditure adds value to CV_1.

$$TR = [(Y_{0-1} - CI) + (CV_1 - CV_0)]/CV_0$$

5.4.2 Increase in capital invested

However, capital improvements are not always minor, and major improvements — say, extending a building — are similar to purchasing new assets. The appropriate treatment would then be to say that the amount of capital expended adds to CV_0 (and to CV_1 as long as the expenditure adds value) but does not affect the income return.

$$TR = [(Y_{0-1}) + (CV_1 - CV_0 + CI)]/[CV_0 + CI]$$

5.4.3 Timing of expenditure

These examples effectively assume that the expenditure takes place at the beginning of the year. This may not be true; for example, it may take place in stages during the year. The formula can then be adjusted to take account of timing.

For example, using the capital invested approach, expenditure at the half year stage can be dealt with by suggesting that half of the expenditure is invested for the year.

$$TR = [(Y_{0-1}) + (CV_1 - CV_0 + 0.5*CI)]/[CV_0 + 0.5*CI]$$

Both IPD in the UK and NCREIF in the US use variations of this formula. However, there is a lobby in favour of the first measure (reduction in income). The effect can be significant: while the total return is unlikely to be much affected, the income return can go down (and the capital return can go up) by as much as 2% over typical periods. This raises an interesting question about the income return delivered by depreciating property assets. Conventional approaches may disguise depreciation and overstate income returns (see chapter 1).

5.5 Risk-adjusted measures of performance

A measure of the 10-year returns to UK property companies over the period 1981–92 carried out at Reading University (Ackrill, Barkham and Baum, 1992) showed both Rosehaugh and Mountleigh to be in the top quartile. Unfortunately, both called in receivers shortly after the end of the measurement period. While we know that past performance is no guide to the future, was past performance really no indicator of this prospect?

Happily, it was. Although the average return on these companies was very high, the high returns were concentrated in the early years of the measurement period; and the volatility of the returns from year to year was very high.

A simple means of adjusting the return measure by the volatility of returns was used in the Reading study. The result was that both Rosehaugh and Mountleigh fell into the bottom quartile on a risk-adjusted basis, alongside Speyhawk, Greycoat and other casualties of the early 1990s crash. The risk-adjusted performance measure turned out to be an excellent predictor of failure.

However, just as returns can be calculated in different ways, risk adjustments can be made in different ways and often with different results.

In the following example, two fund performances over five years will be compared with that of the UK property market, represented by the IPD annual index. Fund A outperforms by 1% every year. Fund B has the same average outperformance, but behaves more erratically (see table 5.4). Its volatility of return is higher.

Table 5.4: Fund A or Fund B? (1)

Year	IPD	Fund A	Fund B
1	8	9	14
2	15	16	11
3	25	26	28
4	28	28	26
5	4	5	6
Average	16	17	17
Standard deviation	9.32	9.32	8.58

Source: Baum

The most commonly used measure of volatility is the standard deviation. One simple route to risk adjustment, then, would be to divide the average return by the standard deviation of that return. This is the reciprocal of what is commonly called the coefficient of variation (CV) and ranks Fund B as superior to A, which in turn is superior to the IPD benchmark (see table 5.5).

Table 5.5: Fund A or Fund B? (2)

	IPD	Fund A	Fund B
Average return	16	17	17
Standard deviation	9.32	9.32	8.58
1/CV	1.72	1.82	1.98

Source: Baum

However, the fund manager may not be concerned about absolute volatility of performance. If he is measured relative to IPD, he may be concerned about relative performance. Dividing average outperformance by the standard deviation of return produces the same ranking (see table 5.6).

Table 5.6: Fund A or Fund B? (3)

	IPD	Fund A	Fund B
Average excess return	0	1	1
Standard deviation	9.32	9.32	8.58
1/CV	0	0.11	0.12

Source: Baum

However, this is now comparing apples with pears; the relevant risk measure is now the standard deviation of relative performance — or tracking error. Dividing outperformance by the tracking error gives a more useful measure (see table 5.7).

Table 5.7: Fund A or Fund B? (4)

	IPD	Fund A	Fund B
Average excess return	0	1	1
Tracking error	0	0	3.58
1/CV	0	Infinite	0.28

Source: Baum

We now have the most appropriate ranking of performance for two managers each trying to beat an index. Fund A has achieved consistent outperformance with no tracking error — infinitely good risk-adjusted performance. Fund B is less successful.

This is not, unfortunately, the end of the story. Had Fund B achieved very slightly higher returns, which would have been best? How much tracking error compensates for an extra unit of outperformance?

Risk is not an *ex post* concept: who cares about volatility when the money is safely tucked away in the bank? Hence this debate may be redundant — but, if we believe that the past is any guide to the future, as it was with Rosehaugh and Mountleigh, we are unwise to throw these measures out.

5.6 Attribution analysis: sources of property returns

5.6.1 Introduction

Attribution analysis separates the contribution of different variables to total return. At the single property level, the most simple attribution system separates income and capital return. Capital return can be more deeply analysed. In demonstrating this, it is useful to re-examine required and expected returns, concepts we introduced in chapter 4.

If investors have perfect foresight, the return delivered on an asset in an efficient market will always be the return they require to make them invest. Delivered returns are not always the same as required returns, in which case single property attribution analysis becomes interesting.

5.6.2 What is a required return?

Any investment should deliver a return that exceeds the risk-free rate by a premium, which in turn compensates for the disadvantages of the asset class. These are best summarised as risk, illiquidity, and other factors (see chapters 1 and 4).

The easiest starting point for considering opportunity cost is to look at a risk-free asset. In nominal terms, this is represented very well by a UK conventional gilt. In real terms, it is represented in the UK by an index-linked gilt.

Whichever is used, the required return is therefore given by:

$$(1 + RF_N) \times (1 + RP) \quad (1)$$

or, as an approximation:

$$RF_N + RP \quad (2)$$

Where RF_N is the redemption yield offered by the appropriate gilt and RP is the extra return — the risk premium — required to compensate for the disadvantages of the asset.

While RF_N can be measured by examining the redemption yield offered by gilts, the required risk premium on any asset is expectations-based and is therefore harder to estimate. For equities, a reasonable estimate might currently be 2.5% (for an approach to measurement, see County Natwest, 1992 and many other similar industry papers dealing with the equity risk premium).

The link between real and nominal risk-free rates is given by Fisher (1930) (see chapter 4). The return available on index-linked gilts selling at par is the coupon plus realised inflation. The real return therefore equates closely with the coupon, and modern-day averages are around 2%.

This rate is defined by Fisher as the reward for time preference. Investors, according to Fisher, also require a reward for expected inflation, otherwise investment in real assets would be preferable and paper-based investments, such as conventional gilts, would sell at lower prices. Hence if 4.5% were available on 15-year gilts, this might include 2% for inflation and 2.5% for time preference. In Fisher's terms,

$$R = I + i \quad (3)$$

where:

R = required return
l = time preference
i = expected inflation

However, for an investor interested in real returns (say an immature pension fund) conventional gilts are less attractive than index-linked gilts. There is a risk of inflation expectations not being realised, so that higher-than-expected inflation will lead to lower-than-expected returns; and second, there is a general discounting of investments where investments are risky. In a market dominated by investors with real liabilities, risky (in real terms) conventional gilts would be discounted, meaning the required return would be higher. If required returns equal the available return in an efficient market, then the 4.5% available on the conventional gilt must include a risk premium. Following Fisher again, the full explanation of a required return is:

$$R = l + i + RP \quad (4)$$

where:
RP = risk premium

For conventional gilts, it is possible that:

$$4.5\% = 2\% + 2\% + 0.5\%$$

when inflation is expected to run at 2% and the extra return required to compensate investors for the risk that it does not is 0.5%.

5.6.3 What is the delivered return?

Returns are delivered in two ways: through income (income return) and through capital (capital return). These combine to create total return.

$$TR = IR + CR \quad (5)$$

where:
TR = total return
IR = income return
CR = capital return

Income return over any period is the relationship of income delivered over the period and the capital value of the asset at the start of the period.

$$IR = \frac{Y_{0-1}}{CV_0} \quad (6)$$

where:
Y_{0-1} = income over the period
CV_0 = capital value at the start of the period

$$CR = \frac{CV_1 - CV_0}{CV_0} \quad (7)$$

where:
CV_1 = capital value at the end of the period

Capital values can be explained in terms of the relationship of the initial income on an asset and its multiplier.

$$Y \times \frac{1}{K} \quad (8)$$

where:
Y = current income
K = initial yield on the asset

Hence capital values can change where incomes change or where initial yields change. Following Gordon (Brigham, 1985):

$$K = R - G_N \quad (9)$$

where:
G_N = expected income growth

To develop this, let us use an example, based in the depressed market of 1992.

Assume that a stock has a current yield of 5%. The required return is 10%, incorporating a 2% risk premium over conventional gilts yielding 8%. It is priced at £20 with an expected initial dividend of £l. The expected growth in income is given as follows:

$$\begin{aligned} K &= R - G_N \quad (9) \\ 5\% &= 10\% - G_N \\ G_N &= 5\% \end{aligned}$$

If expectations are correct, what total return will be delivered? Remember the required return is 10%.

$$TR = IR + CR \quad (5)$$

$$IR = \frac{Y_{0-1}}{CV_0} \quad (6)$$

$$= 5\%$$

What will CV1 be? In one year, if expectations are correct, the income will have grown to £1.05. If initial yields do not change — and because nothing else is assumed to have changed, then initial yields will not change — then the value is given by:

$$CV_1 = \frac{Y}{K}$$

$$= \frac{£1.05}{5\%}$$

$$= £21$$

$$CR = \frac{£21 - £20}{£20}$$

$$= 5\%$$

$$TR = IR + CR$$
$$= 5\% + 5\%$$
$$= 10\%$$

The delivered return is equal to the required return, because expectations turned out to be correct.

5.6.4 Why are delivered returns different from required returns?

It should be clear from the above that there are only two reasons why delivered returns can differ from required returns. First, expectations of income growth can turn out to have been incorrect. Second, initial yields might change.

Incorrect expectations of income growth

Let us assume that the income grows not at 5% but at 10%. What will happen? Capital value in year one will be given by:

$$\frac{£1.10}{5\%} = £22$$

$$TR = 5\% + \frac{£22 - £20}{£20}$$

$$= 15\%$$

Changes in initial yields

Let us assume now that the income grows as expected at 5% but that initial yields fall from 5% to 4%. Capital value in year one will be given by:

$$\frac{£1.05}{4\%} = £26.25$$

$$TR = 5\% + \frac{£26.25 - £20}{£20}$$

$$= 36.25\%$$

Why do changes in initial yields happen? Given, following Gordon (Brigham, 1985), that:

$$K = R - G_N \quad (9)$$

and following Fisher, that:

$$R = I + i + RP \quad (4)$$

which simplifies to:

$$R = RF_N + RP \quad (10)$$

Then:

$$K = RF_N + RP - G_N \quad (11)$$

and there are three reasons why initial yields would change. The risk-free rate might change, the risk premium might change, or expectations of income growth might change.

Assuming constant risk-free rates, which is a realistic assumption over the recent past, two more likely reasons are changes in the premium or revised expectations of growth.

Changes in the premium

If the risk premium changes, the initial yield will change by an equal amount. Hence initial yields will fall to 4% if the premium falls by 1% to 1%.

$$K = RF_N + RP - GN \quad (11)$$
$$4\% = 8\% + 1\% - 5\%$$

Changes in expected income growth

If expected income growth changes, the initial yield will change by an equal and opposite amount. Hence initial yields will fall to 4% if expected income growth rises by 1% to 6%.

$$K = RF_N + RP - GN \quad (11)$$
$$4\% = 8\% + 2\% - 6\%$$

5.6.5 Summary

Delivered returns will differ from required returns where the risk-free rate remains constant if:

a) expectations of income growth are incorrect at time t;
b) expectations of income growth change at time t+1; or
c) the risk premium changes at time t+1.

5.6.6 Example

Let us assume the required return on office property is currently driven by a risk premium of 3% and that this has been a constant over the past decade. The required return on offices in 1992 would have been around 12% (conventional gilts were yielding around 9%). Why, then, were office returns in 1992 as low as –10%?

1. Were expectations of office rental growth incorrect?
   The out-turn was a fall in rental values of around –20%. This was almost certainly much worse than expected.

2. Were expectations revised?
   It is a natural tendency for market participants to revise expectations based on immediate past experience. This is sometimes described as adaptive behaviour or adaptive expectations. The crash in rents in 1992 may have led to gloomier short-term expectations for 1993, no matter how irrational this might be. It may be equally likely — and rational — for expectations to improve as levels fall.

3. Did the risk premium change?
   It is highly probable that there was an upward revision to the risk premium on offices in 1992. Canary Wharf went into liquidation, Rosehaugh and many other office-based property companies called in the receiver and the sentiment towards offices weakened significantly as rents crashed by more than expected. While such emotions may not be rational, it is often the case that the realisation of a worst fear creates a new, even worse fear, rather than a feeling of relief. Such may have been the case for UK offices in 1992.

In quantitative terms, let us assume the following. Average income growth of 3% was expected; the required return was 3% over the 9% gilt rate; and initial yields were 9%.

$$K = RF_N + RP - GN$$
$$9\% = 9\% + 3\% - 3\%$$

Let us add in the out-turn for rents (–20% growth), an increase in the risk premium of 0.5% and an upward revision to growth expectations to 3.5%.

$$CR = \frac{CV_1 - CV_0}{CV_0} \quad (7)$$

$$CV_1 = \frac{Y_1}{K_1} \quad (9)$$

For a building previously earning £1 in rent and valued at £11.11, the new value would be £0.80/K. K would be given as follows:

$$K = 9\% + 3.5\% - 3.5\%$$
$$= 9\%$$

$$CV_1 = \frac{£0.8}{9\%}$$
$$= £8.88$$

$$CR = \frac{£8.88 - £11.11}{£11.11}$$
$$= -20.07\%$$

$$TR = 9\% - 20.07\%$$
$$= -11.07\%, \text{ close to the out-turn.}$$

5.7 Attribution analysis for the portfolio: an introduction

Property investors increasingly used performance measurement and benchmarking services post the 1990 market correction. These exist, first and foremost, to show whether a portfolio has achieved a rate of return better or worse than the 'market' average, or has met investment objectives specified in a more sophisticated fashion. Benchmarking answers the question: *by how much* did we out (under) perform the benchmark? There follows an inevitable demand for portfolio attribution analysis which addresses the question: why did we out (under) perform the benchmark?

An 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 profits arise from 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. This chapter is concerned with the one tool — 'attribution analysis' — which is found in all performance measurement systems in a precisely quantified form.

Attribution analysis 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 that have returns above or below the averages for that market segment.

Table 5.8 shows the performance of an unnamed fund in the late 1980s.

Table 5.8: Components of performance (%)

	Fund total	Sector component	Property component	IPD total
1987	13.3	–5.1	–6.0	24.3
1988	23.8	–2.4	–2.9	29.2
1989	8.3	–2.2	–3.6	14.1

Source: Baum

In 1989, for example, the fund showed a return of 8.3%, which was nearly 6% below the average return for the universe of properties measured by IPD. It was in the 94th percentile in that year. Over the 1980s, the fund achieved an annualised total return of 11% against the IPD average of 15%. The management was replaced in 1990.

The poor sector mix (sector component) explained roughly half of the underperformance. The fund was overweight in retail, the

underperforming sector over the period; it was particularly overweight in Scottish retail, again a poor relative performer. The remaining underperformance is explained by poor stock selection (the property component). The reason for this is that one very large asset performed very poorly. However, it is misleading to suggest that these are separable factors, because the large asset was a Scottish shopping centre.

Attribution analysis is of growing importance in property fund management — not just in terms of analysis, but also in the specification of investment objectives, the selection of managers, and setting performance-related rewards. Yet the above example shows that property is likely to present a series of challenges.

The academic and professional literature that deals with attribution of relative returns in property fund management is very thin. The literature on portfolio analysis for equities — the original source of the attribution technique — is not only surprisingly scant, but sets out several apparently different methods of defining and calculating attribution components. Following that literature, suppliers of property performance measurement services are also adopting conflicting conventions.

It would be helpful to clarify the potential confusion about the application of attribution analysis to real estate portfolios. Our primary objectives are as follows:

- To give a clear statement of the purposes of attribution analysis, and its meaning for real-world property managers.
- To show, using real portfolio data from IPD's performance measurement services, the practical implications of applying different attribution methods.

The standard approach to the analysis of equity portfolios (see, for example, Hamilton and Heinkel, 1995) starts from three primary contributors to portfolio return: policy, structure and stock. (Unfortunately, the terminology for the last two contributors varies between sources. 'Structure' may alternatively be described as 'timing' or 'asset allocation'; 'stock' as 'selection' or 'property score'.)

We concentrate on structure and stock selection. By structure is meant the allocation of portfolio weights to 'segments' of the market — typically but not necessarily defined by a mixture of property types and geographical locations. By stock is meant the selection of individual investments within each segment that deliver returns above or below the average for that segment.

Table 5.9: IPD returns, 1998

Percentile/segment	1	5	10	25	50	75	90	99	Mean	SD	Obs.
Standard shops	–15.5	–5.0	–1.2	4.1	8.3	13.5	21.1	46.7	9.5	11.5	4,221
Shopping centres	–5.0	0.1	2.9	6.9	11.1	16.3	20.8	27.6	11.4	7.3	259
Retail warehouses	–10.3	–2.9	1.4	5.5	9.9	15.0	21.5	42.4	10.8	9.9	738
Stores/supermarkets	–7.4	0.2	3.7	7.6	11.5	17.7	25.2	50.7	26.5	27.3	420
Other retail	–27.7	–4.4	–0.2	5.3	9.3	13.8	24.7	105.8	11.7	18.9	271
Standard offices	–17.6	–3.1	1.3	6.9	11.2	18.2	26.9	64.6	13.3	14.3	2,693
Office parks	–11.2	–1.7	2.8	6.8	10.8	15.8	25.4	46.5	12.4	10.4	242
Standard industrials	–4.5	4.0	7.3	10.2	13.3	18.2	22.0	62.1	14.3	8.8	62
Industrial parks	–6.8	0.0	4.2	8.2	12.4	15.8	21.2	39.9	12.6	8.3	294
Distribution warehouses	–8.7	–1.5	1.7	5.5	9.7	13.5	19.9	34.2	10.0	7.7	223
Other property	–39.2	–10.5	–6.3	1.0	10.5	16.3	31.2	212.5	15.6	35.5	394
All property	–14.9	–3.7	0.3	5.7	10.2	16.1	24.2	55.0	12.3	54.7	11,142

Source: IPD

Note: Obs. refers to the number of properties in each segment

5.8 The choice of segmentation

An initial choice in any attribution system is critical to all that follows: what segments of the investible universe should be used to define 'structure'? Burnie, Knowles and Teder (1998) state that:

> To be useful as a tool for evaluating portfolio management, performance attribution analysis should be carried out within a framework that mirrors the investment policy and the decision-making process particular to the fund under examination. A comprehensive attribution methodology will account explicitly for each key component of the portfolio management process.

In that view, the segment structure should reflect the way in which the managers of each individual portfolio choose to regard the 'structure' of their investible universe — how that universe is broken down for the purposes of analysis, forecasting and setting target weights. But in practice, it would then be extremely difficult for performance measurement services to operate, as it would not be possible to compare allocation and selection skills across portfolios.

For practical purposes, there has to be a standardised segmentation applied to the attribution analysis of all investors, at least as a first step. One standard IPD system is shown in table 5.9.

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.
- Following on from the previous point, 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 on (say) demographic and economic factors, is readily available to support analysis and forecasting.
- And, 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 a

detailed analysis service in the UK, for example, which did not show City of London offices as a 'segment'.

In real-world performance analysis services, the search for an appropriate segmentation will tend to resolve quite rapidly to a mixture of the dominant property types (shops, shopping centres, offices, industrials) and the geographical areas (either towns or regions) linked either to well-recognised property 'markets', or the city/regional boundaries used in the production of official statistics.

5.9 Style

Property fund managers may adopt asset allocation positions that are different from the segment weighting of the benchmark for a variety of reasons. This may be the result of forecasts driving 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 outperformance. 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.

The term is used here in an attempt to reflect more commonly used judgments of investment style in fund management. Is the manager style top-down (driven by a view of sectors) or bottom-up (driven by his choice of properties)? Is the manager a value manager or a growth manager? Such style judgments are, we argue, very applicable in property fund management, and yet are rarely used.

This definition of style implies a persistent bias in the property portfolio structure that is the result of preference or of habit. It may lead to long-term outperformance, or it may not. In equities fund management, value managers produced very poor returns in the dotcom boom (the period leading to 1999). Yet it was not to be expected that value managers would cease to be value managers. In UK property fund management, large prime stock outperformed secondary stock in some years, yet it was not to be expected that smaller active managers (many property companies, for example) would change their style.

Style may be associated with investment houses, with individuals or with funds. Arguably, there is far too little explicit differentiation between house styles in property fund management. This may change.

5.10 Themes

As noted above, segment structure will typically be defined by reference to property use type and broad geographical region. Property fund managers invest in forecasting systems that enable managers to take a tactical view on prospective returns in the market 'segments' that are determined by this classification. It can be seen, then, that definitions of fund structure are of necessity rather stable. This is rational: data shows that use types in the UK have shown persistent cycles of under and outperformance over a long period, a strong example being the continued outperformance of retail in the early 1980s and the early 1990s.

However, sector (type)/region segments are not necessarily optimal in permitting outperformance by asset allocation.

Table 5.10: Mean average deviations, IPD Irish Funds, 1986–1995

Segment	Mean average deviation
Sector	2.70
Locations within retail	4.40
Locations within offices	1.80
Subsectors within retail	4.60
Age within retail	4.30
Age within offices	1.30
Age within industrials	5.70
Size within retail	2.40
Size within offices	1.20
Size within industrials	2.40

Source: IPD

Table 5.10 shows the mean average deviation between the mean return on the IPD index and the returns across different segment classifications for the Irish market over the period 1986–1995. The table suggests that the mean difference between the return on the individual sectors and the market as a whole in each individual year ('the window of opportunity') is less than the mean difference between the return on different age groups within the industrial market. There is more dispersion of returns across age bands *within* the industrial and

retail sectors alone than there is across the three market sectors; and it would seem that concentrating on age bands across the market would have introduced the potential for greater returns than concentrating on sector choice would have done.

While sector allocations may not, in Ireland over the period 1986–1995, present the maximum potential for outperformance, there is no reason why this might not be the case over some future period. An excellent manager may be expected to anticipate when this might be. Equally, he would be expected to anticipate at what point size becomes important — or age. This is what we mean by themes.

The asset allocation process ideally takes accounts of themes as well as of standard segmentation. These may be new themes — sensitivity to changes in internet shopping, for example — or they may be standard, such as high yield/low yield. Themes differ from styles, because themes imply no necessary persistence in the manager's preference for segments; and themes differ from structure, because themes imply no persistence in the segment classification nor reliance on external performance measurement standards.

5.11 City selection

An attribution system will preferably be stable and holistic. One major attraction of a regional classification in the UK, for example, is its completeness of coverage of UK property. However, this does not mean that fund managers will more effectively control risk and seek outperformance by categorising their holdings in this way.

A regional forecasting system may or may not be effective in identifying regional markets that will outperform a national benchmark. Even if it is, this may not be of much use to the fund manager, because he/she may not recognise the region as a useful way to think about the market. A more technical challenge to the usefulness of the region is the possibility that there may be greater windows of opportunity within a region than between regions.

The north-west of England, for example, suffered net out-migration and forecasts for population growth were negative throughout the 1990s. Within the region are two major cities, Manchester and Liverpool, one of which strengthened its position in the national hierarchy and one of which suffered extreme decline. A fund manager is likely to have considerably different views of Liverpool and Manchester; a property forecast for the north-west region is of very limited value to him.

For US and UK cities the windows of opportunity (mean average deviations from the mean) have been considerably greater at the city level than at the regional level. In addition, it appears that greater forecasting success has been associated with town or city level work than with regional forecasts. City selection is a vital input into fund management strategy.

However, portfolio structure is difficult to categorise by city. This is not a holistic system, because even if every city and town in the UK were covered by the benchmark's databank there would still be outliers that fall outside defined city boundaries. This presents an attribution problem.

5.12 Calculating attribution scores

IPD records for a large number of real portfolios over a long run of years can give a fuller picture of the results for real portfolios produced by different attribution methods. The contribution of structure to variation in returns depends on the scale of differences in return across market segments. It reached a maximum in the boom and slump of the late 1980s and early 1990s, when there were spreads of up to 30 percentage points between the strongest and weakest markets. Structure accounted for 18% of the variance in relative returns annualised over 17 years to 1999, but 42% of the variance in returns over the nine years when the influence of the boom and slump was at its greatest.

The relative importance of structure and stock is as much a matter of philosophy as of statistical evidence. When calculating the attribution scores, there is even disagreement over the appropriate number of attribution components, and how they should be interpreted.

5.12.1 Two or three terms?

Brinson, Hood and Beebower (1986) identify three attribution components: timing (which is analogous to structure in our terminology), stock selection, and an 'other' or 'cross-product' term.

The cross-product term is effectively a residual component that, mathematically, reflects an additional combined contribution of timing and selection. Their interpretation of what are termed timing and selection components broadly coincides with structure and stock selection components as defined in this chapter, but they do not offer

an explanation of how the 'other' term relates to the objectives or management of the portfolio.

Subsequent authors, and suppliers of performance measurement services, divide into two camps. Experts either follow a decomposition method, which calculates structure and selection scores separately from the cross-product component, or prefer to incorporate the cross-product term in either the structure or selection component, arguing that is has no useful meaning or is mathematically troubling.

According to Burnie, Knowles and Teder (1998) the cross-product term:

> ... represents the interaction of two other attribution effects but ... is not itself directly attributable to any one source of active management. It is therefore usually reallocated to another attribution effect or, if it remains isolated, is an ambiguous term whose value may exceed the measured effects of active management, thus rendering analysis results inconclusive.

Liang et al (1999) recommend the use of a two-component method:

> ... on the basis of simplicity and ease of interpretation. Little is lost in terms of usable information, and much 'noise' is avoided in efforts to explain the results to persons unfamiliar with the nuances of the calculation.

Hamilton and Heinkel (1995) and the Property Council of Australia, however, follow the three-component route, and go beyond Brinson et al in suggesting how the cross-product term may be related to management decisions. As put by Hamilton and Hienkel:

> ... the cross-product credits a manager for overweighting an asset class in which he or she outperforms the properties in that asset class in the RCPI (Russell Canadian Property Index).

The argument, then, is that the cross-product may reward style, when an overweighting in a segment is a persistent bias justified by consistent good stock selection in that segment. It is also an increasingly important measure of manager/fund selection in a fund of funds or multi-manager context (see chapter 7).

5.12.2 The formulae

The dominant method of performance measurement expresses the performance of the portfolio against a benchmark as a relative return, based on the ratio of the two rates rather than the simple difference:

$$\text{Relative return} = ((1 + \text{portfolio return}) / (1 + \text{benchmark return}) - 1)$$

So a portfolio return of 10% against a benchmark return of 5% gives a relative return of 4.8%:

$$\text{Relative return} = 1.10 / 1.05 - 1 = 4.8\%$$

This formula ensures that components of return and returns annualised over a run of years maintain consistent relative results, which is not possible if simple differences are used to compare returns.

Attribution scores are built up from comparisons of weights and returns in each segment of the market. Separate structure and selection scores in each segment are summed across the portfolio to produce the portfolio level structure and selection scores that account for relative return.

The two and three-component methods of attribution calculate structure scores in exactly the same way. In each segment:

$$\text{Segment structure score} = (\text{portfolio weight} - \text{benchmark weight}) \times \text{benchmark return}$$

The alternative ways of calculating stock selection scores are as follows.

Two-component attribution method segment selection score (the IPD method):

$$= \text{Portfolio weight} \times ((1 + \text{portfolio segment return}) / (1 + \text{benchmark segment return}) - 1)$$

Three-component attribution method segment selection score:

$$= \text{Benchmark weight} \times ((1 + \text{portfolio segment return}) / (1 + \text{benchmark segment return}) - 1)$$

The difference lies in a single term. The three-component method multiplies segment relative returns by the benchmark weight, while the IPD method multiplies by the portfolio weight. When calculated using the IPD method, the structure score and IPD selection score in each segment add up to the weighted contribution to relative return. Summed across segments, the structure score and IPD selection score add up to the portfolio's relative return.

In the three-term method, the structure and selection scores do not add up in this way, leaving a 'residual' term, the cross-product, which

is the product of the segment relative returns multiplied by the difference between benchmark weight and the portfolio weight (sometimes known as the 'bet'). This is calculated as:

$$\text{Cross-product} = \text{Relative return} - ((1 + \text{structure score}) \times (1 + \text{selection score}) - 1) \times 100$$

This cross-product or interaction term, as it is also known, has been a source of much disagreement among 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 Hienkel (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 Lanbroek (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.

It is also of clear relevance to multi-manager or fund of funds portfolios, indicating the portfolio manager's success in allocating money to the best stock selectors, particularly at the higher risk (value-added or opportunity fund) end of the market.

5.12.3 Results from different attribution methods

Case 1 stands as an example of the differences in the message delivered to a fund manager by different choice of attribution methods.

Case 1

A fund achieved the following result in 1994. Using simplified arithmetic for demonstration purposes and using the three-component attribution method:

$$\text{Outperformance (1.0)} = \text{structure (0.1)} + \text{stock (–0.4)} + \text{cross-product (1.3)}$$

What do these results signify concerning the relative importance of structure and stock?

If the cross-product is treated as part of stock selection, as in the most common two-component system used by IPD and others:

Outperformance (1.0) = structure (0.1) + stock (0.9)

Stock selection contributes 90% of outperformance.

If the cross-product is allocated to structure, as proposed by Burnie et al for a portfolio constructed by bottom-up selection of individual assets with passive structure:

Outperformance (1.0) = structure (1.4) + stock (–0.4)

Stock selection damages performance.

The choice of method is clearly non-trivial in this example. Different methods show results that differ in direction as well as scale.

Case 2

The performance of a European property share vehicle, which was managed by a UK fund manager, was as follows, net of the effect of cash:

Outperformance (–2.9) = structure (–0.1) + stock (–2.0) + cross-product (–0.8)

The fund was overweight in countries where stock selection was poor and underweight in countries where stock selection was good, especially the UK. It would not be a surprise to the UK manager to learn that the stock selection score was better in the UK, but it may be distressing for him to realise that the stock selection underperformance was exaggerated by nearly a full point because of fund structure. Did he take account of expected superior UK stock selection in his asset allocation?

5.13 Attribution and portfolio management

It is not clear from the mathematical construction of different attribution methods, nor (pending further tests) from the real-world portfolio results they produce, that one attribution method is superior to another. Instead, they may each be valid, and particularly valid for particular styles of management.

5.13.1 Top-down portfolio building

The two-component method embodies the classic top-down model of portfolio construction. Policy dictates a benchmark against which the portfolio is to be measured, specified in terms of a portfolio weighting by segment. An 'allocator', working with market analysis and forecasts, decides which segments are likely to outperform or underperform the overall benchmark return, and (perhaps taking into account relative risks) determines a target weighting for the portfolio. Other things being equal, segments expected to outperform will be overweighted, the fund taking 'bets' against the market. The scale of the bet will depend on confidence in forecasts, on the deviations from the benchmark specifically permitted, or on the manager's willingness to accept a tracking error against the benchmark.

Once the target weights have been set, the management task passes to a 'selector'. The selector chooses the specific assets to be held in each segment, with the target of choosing assets that are expected to outperform the benchmark average for that segment. In equities, the assets will (most likely) be shares in individual companies. In property, they will (most likely) be individual buildings.

5.13.2 Backing selection skills

A portfolio constructed by backing selection skills offers a more interesting, and probably more common, case. Here managers choose to hold high weights in segments where selection skills are believed to be strong (perhaps on the evidence of track record). Here the task of the allocator is redefined to take account of both the overall performance of market segments and the skills of the selector when setting portfolio weights. In this case, the three-component method of attribution offers a useful distinction between the relative inputs to portfolio performance. As before, the structure score measures the allocator's forecasting ability. The stock selection score measures the selector's skills in the purest form. The cross-product measures how far pre-judgments of selection skills have proved to be correct.

5.13.3 Specialist portfolios

A specialist portfolio could be taken as an extreme case of backing selection skills. Here the portfolio is narrowly structured on segments

where selection skills are believed to be exceptionally strong, possibly in the belief that such a concentration will in itself improve selection skills. Attribution analysis, as it has been defined above, may no longer apply to these portfolios, because portfolio structure is defined by style rather than manager discretion. Under these conditions, an attribution analysis using a standard segmentation would show the benefits or otherwise of the overall policy choice. The performance of the manager is most appropriately measured against a benchmark limited to the segments pre-determined by policy. Within those segments, special attribution analysis by subsegment could provide information on the skills applied within that specialist area.

In the ideal world, an attribution analysis that was 'carried out within a framework that mirrors the investment policy and decision making process particular to the fund under examination' (Burnie, Knowles and Teder (1998)) might be flexible in choice of benchmark, the segmentation of the portfolio and the benchmark for analysis purposes. The choice of attribution method used in that analysis should also be part of the manager's skill.

5.14 Alpha and beta: a new attribution approach

In a more challenging, mature, and increasingly transparent market, attribution analysis is likely to see some development, particularly when more investment activity is undertaken through REITs and unlisted funds (see part 3). It will be increasingly possible to assemble performance records, and following this there will be more detailed analysis of those records. Potential analytical performance systems will include traditional attribution methods but will also cover performance concepts widely used in other asset classes that have also seen the development of fund formats. The asset classes that are most relevant are private equity funds and hedge funds, and the most interesting attribution development in these markets is the concept of alpha and beta separation.

What creates beta, and what drives alpha in real estate investment? How can these concepts be measured and isolated? How do they relate to traditional attribution systems? Can performance records and performance fees adequately distinguish between these drivers? Baum and Farrelly (2008) illustrated these issues by reference to a case study addressing the complete performance record of a single

unlisted fund, and the remainder of this chapter is derived from that paper, which is also used as the basis of the latter part of chapter 7.

There are many references to alpha and beta as sources of risk-adjusted performance in alternative asset classes, with most work focused on hedge funds (see, for example, Litterman, 2008). The concept of alpha and beta is drawn directly from Sharpe's capital asset pricing model (CAPM): see Sharpe (1964). Anson (2002) describes CAPM as a regression model that 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):

$$\text{Investment return} = \alpha + \beta * \text{benchmark return} + \varepsilon$$

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.

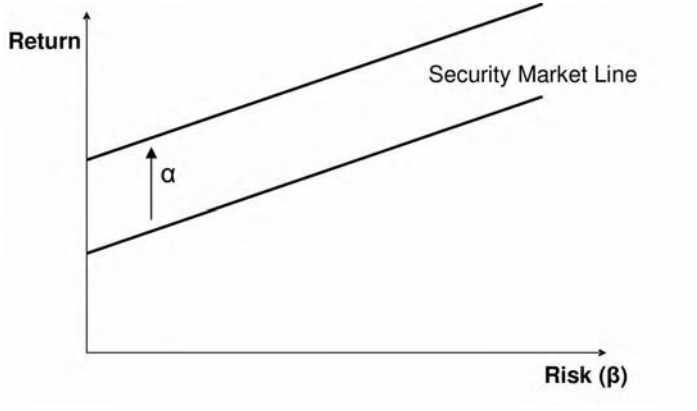
The security market line (SML) posits that higher-risk assets and portfolios should earn higher returns. A higher-risk portfolio should outperform a lower-risk portfolio on a risk-unadjusted basis. This does not mean that the manager has shown any skill. However, outperformance of the SML implies that skill has been demonstrated and this is measured by the intercept term, or alpha, as illustrated in figure 5.1.

It is possible to measure alpha and beta for a property fund, provided that we have a series of fund returns and a series of appropriate benchmark returns over the same period. This is achieved by regressing the fund returns on the benchmark returns and observing the measured values of alpha (α) and beta (β). A value for β in excess of unity implies that fund returns are highly sensitive (or geared) to the market return, suggesting high-risk assets, a high-risk portfolio or a high-risk strategy. A high value for α suggests that an excess return has been earned by the fund over the risk-adjusted benchmark return.

5.14.1 Sources of alpha and beta

Positive alpha represents outperformance of the SML and implies that the manager has demonstrated skill. In property fund management, managers can exercise skill when structuring their portfolios from a

Figure 5.1: Alpha and beta



Source: Baum and Farrelly, after Sharpe (1964)

top-down perspective (allocating to markets and sectors) and at the stock level (sourcing and managing their assets). Outperformance 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 a source of outperformance allocation.

As noted by Geltner (2003), outperformance 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 are all potential sources of alpha.

Alpha in property management can arise from operational cost control, tenant relationship management, asset maintenance, leasing strategy, marketing and capital expenditure applied to asset enhancement/refurbishment.

Alpha can also be generated when assets are bought and sold. For example, managers who are able to purchase assets at discounts, recognise latent value that is not reflected in valuations or 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 CBD 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 *per se*, as development in itself is simply a more risky property strategy and should be reflected by a higher beta. Development alpha is obtained by outperforming development managers. 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 have a hierarchical range of betas.

5.14.2 Previous studies

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 (2003) examines the UK pooled funds market using both the traditional CAPM equation and also the Henriksson and Merton (HM) 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. 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 outperformance for most property fund managers. Lee's (2003) study of the UK pooled funds universe 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 outperformance, 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 the IPD property score was the strongest driver of performance and alpha in the period measured, it was of no use in predicting either in the following period. (It is also biased, as it includes the cross-product.)

This lack of alpha persistence leads to an increase in the importance of beta as a 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% of an individual property's return is accounted for by a broad market factor (Brown and Matysiak, 2000). Baum and Struempell (2006) 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.

Property fund managers may adopt asset allocation positions that 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 outperformance. 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 so-called 'style analysis' (Sharpe, 1988). 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, Key et al (1999 and 2000), on the other hand, use the term in an attempt to reflect more commonly used judgments of investment style in fund management. Is the manager's style top-down or bottom-up? Is the manager a value manager or a growth manager?

This definition of style implies some persistent bias in the property portfolio structure, which is the result of preference or of habit. It may lead to long-term outperformance, or it may not. Style may be associated with investment houses, with individuals or with funds. Arguably, there is far too little explicit differentiation between house styles in property fund management (see Baum and Key, 2000). The boom in unlisted funds, multi-manager mandates and funds of funds may change this.

Geltner (2003) adopts a different and original approach to 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 subactivities.

- Property selection
- Acquisition transaction execution
- Operational management
- Disposition transaction execution

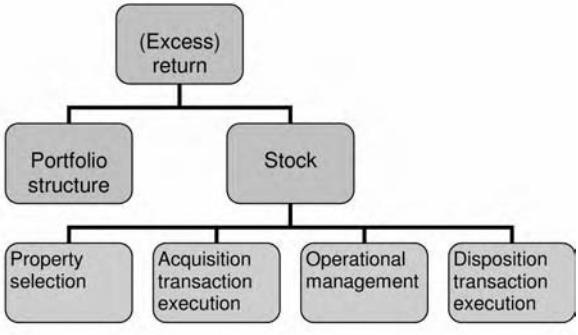
If appropriate benchmark return data is available — IRRs, not time-weighted returns, he recommends, because the timing of expenditure is under the manager's control — then the manager's relative skill might be measurable. He attempts to measure the impact of these activities by reference to single property attribution using three variables: initial yield, cash flow change and yield change. Geltner makes no attempt to relate these activities to alpha and beta.

5.14.3 An attribution model

We can perhaps attempt to relate these stock-selection activities to alpha and beta in the context of the higher level attribution approach. In doing so, we suggest that each of the activities shown in figure 5.2 can be alpha-generating. They key issue, it appears, is whether the activities deliver extra returns through skill or through risk. 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.

The same distinction can be applied to some of Geltner's second tier. Property selection can deliver higher initial returns through skill or through risk. It can deliver positive cash flow change through skill

Figure 5.2: Attribution of property returns



Source: Baum and Farrelly, 2008

(executing excellent active asset management or development) or through risk (undertaking 'average-skill' development; buying empty buildings).

The same is true of operational management. Excellence in transaction execution appears to be a pure alpha activity. Unfortunately, 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.

When we consider these factors in the context of unlisted funds, alpha and beta separation is somewhat easier. This is dealt with in part 3.

Part 3

Investment vehicles

6 Listed real estate

6.1 What is listed real estate?

Figure 6.1 shows the so-called four quadrants of real estate investing. Some have argued — erroneously, in our opinion — that the four quadrants can be used to drive a portfolio strategy (see, for example, Rees, Wood and Wright, 2006), but this is merely an elegant way to categorise products and market real estate services, originated in the US by Gordon (1994) and Hudson-Wilson and Guenther (1995).

Figure 6.1: Four quadrants

	Public	**Private**
Equity	REITs	Opportunity funds
Debt	Listed CMBS	Mortgages

Source: Baum, 2008

Within the real estate investment universe, it is possible to invest in public (listed) securities, or in private funds (chapter 7). An alternative categorisation is between instruments, such as REITs or opportunity funds, which provide access to returns on equity, and instruments, which provide access to returns on debt, such as commercial mortgage-backed securities (CMBS). These, in turn, can be listed or private.

By public real estate we mean listed real estate securities. These can be split further into equity instruments — real estate investment trusts (REITs) and real estate operating companies or property companies (REOCs or PropCos) — and debt instruments.

Banks making senior loans or providing mortgages secured on real estate are investors in private debt. Since the late 1980s, creative real estate banking professionals have developed publicly listed debt instruments, examples of which are CMBS and residential mortgage-backed securities (RMBS). We deal with CMBS in section 6.10.

6.2 Public equity real estate — the background

The production and ownership of high-quality real estate needs to be financed through large-scale equity and debt capital. This requires the presence of an active international banking system, which will supply most of the debt capital, but also of entrepreneurs using equity capital. Pension funds, insurance companies, endowment funds, sovereign wealth funds and family offices, the major suppliers of equity capital (see chapter 2), have all shown a desire to access global property markets. Property companies, representing entrepreneurial equity, have offered an attractive conduit.

In chapter 1 we identified several key problems for property investors. These include (i) illiquidity and (ii) lot size. In an unpublished survey carried out for Henderson Investors in 1996, institutional investors suggested that the greatest deterrent to real estate investment was illiquidity. The best remedy for illiquidity was thought to be a public market quotation.

Baum and Struempell, 2006, on the other hand, identify lumpiness — the large and uneven sizes of individual assets — as the key inhibitor of global property investment. Direct property investment (buying buildings) requires considerably higher levels of capital investment when compared with securities, and diversification within property portfolios may prove to be more challenging than in equity and bond portfolios.

To illustrate, let us assume that there are four core global regions that investors need to access: Europe, Asia, North America and the emerging markets (Latin America, Africa, others). Assume that in each region there are 10 markets to be accessed. (In Europe, for example, we may choose the UK, Germany, France, Spain, Italy, Poland, the

Netherlands, Sweden, Denmark, Ireland.) There are four property types within each market: office, retail, industrial/logistics, and residential.

To assemble a sample that is representative of each market (see Brown and Matysiak, 2000 and Baum and Struempell, 2006) let us assume we need 10 buildings. If each costs an average of $50m, how much capital will we need? The answer is a staggering $80bn. If a global investor puts a typical 8% of his investment into real estate, he will need assets of £1,000bn, or $1trn. Chapter 2 shows that the largest real estate investment manager in the world manages assets of just over €100bn, say $150bn, and there are only two global investors known to have $1trn or so in assets.

This analysis has limitations — it is highly approximate, it ignores the use of leverage, and it understates the impact of diversification across markets — but it illustrates an obvious truth. The vast majority of investors do not have enough capital to build diversified portfolios of global real estate.

The result is that indirect property investment (investing through securities and funds) has become commonplace. A boom in cross-border property investing has been paralleled by a boom in indirect real estate, taking two forms: listed real estate markets, especially the Real Estate Investment Trust (REIT) format, and unlisted property funds (see chapter 7). Listed real estate equity vehicles have obvious advantages, providing access to both liquidity and diversification of specific risk.

Publicly listed real estate equity securities can be split into REITs and REOCs, and the definition can be expanded to include mutual funds (section 6.4) and exchange-traded funds (ETFs, section 6.5). Under normal market conditions, these listed markets have fewer problems with liquidity, and trades can be made quickly and easily on a daily basis, albeit sometimes with a pricing penalty for transactions of scale. Listed securities also allow immediate exposure to the market, while some unlisted funds will take capital only as it is required to buy assets. The case for these instruments is therefore strong.

6.3 REITs and REOCS (property companies)

In the first edition of this book, we suggested that growth in global securitised property investment seems to be inhibited by a lack of supply, largely created by taxation and regulatory conservatism in markets outside the US, Australia and a few others. The potential for development of the European market in particular seemed great.

Germany, France, Italy and Spain had less securitised real estate product per unit of GDP than any other country, while the relatively mature securitised markets of the US, Australia, UK and Hong Kong had most.

The global universe of real estate companies has expanded dramatically over the past decade due to the very strong performance of the sector, ongoing equity issuance and a proliferation of REIT vehicles across the globe. The early major REIT markets included the US (1961), and Australia and Canada; Japan, Singapore and Hong Kong followed in the 1990s. In the US, the REIT market has grown from tiny market capitalisations to more than $280bn in 20 years, much of it held by overseas investors. In Australia, rapid growth in the listed property trust market over the same 20-year period created a 2007 market capitalisation of A$125bn, representing over 50% of the institutional real estate market.

The Japanese REIT led to enacted or planned REIT legislation in other Asian countries, including Malaysia, Korea, and India and China.

In Europe, the example provided by the 2003 launch of French REITs (*Sociétés d'Investissements Immobiliers Cotées, or SIICs*) led to the UK and Germany REIT market launches in 2007 and 2008 respectively. However, the success of REIT formats in Europe appears to have been limited by bad timing, coming as they did at the beginning of the financial market collapse of 2007–08. (In 2008, Macquarie Securities Group's Global Property Securities Analytics suggested that the total return performance of their global universe of real estate stocks — including both REITs and REOCS — was a negative 53.5%. Substantially every region was affected, with the Americas least far down at 43.5%, and Asia most down — by 58.5%.)

It is interesting to note that REITs outperformed REOCs everywhere in 2008 — see table 6.1.

Time will tell how large the new European REIT markets will become, but in early 2009 there were only two German REITs despite the large size of the German direct market, and no new UK REITs were launched in 2008. REITs have become more popular in some markets than others, and as a result there are now three different market situations. REITs are the predominant form of public-listed property equity instruments in the US, Australia, UK and France. In Japan, REITs co-exist with traditional property companies. In Hong Kong, Malaysia, Germany and several other markets REITs are a small percentage of the listed market.

Table 6.1: REIT and REOC/PropCo performance, 2008

	REITs	PropCos	Closed-end funds	Total
Asia	–46.2	–59.6		–58.5
Americas	–38.3	–56.8		–43.5
Europe	–39.3	–61.6	–85.6	–52.8
Oceania	–54.0	–65.5		–55.3
Middle East & Africa	–5.6	–57.0		–55.9
Global	–41.8	–59.4	–85.6	–53.7

Source: Macquarie Global Property Securities Analytics

Now a global brand, although the regime controlling them is not formally consolidated in any way, REITs are generally distinguished from property companies or REOCs by two factors: tax treatment and regulation.

A property company is a taxable entity, like any company. Profits are taxed within the firm, and management has unlimited discretion to distribute dividends to shareholders from post-tax income. Tax-paying shareholders are then taxed on the dividend income they receive, so double taxation arises in their hands.

REITs generally do not pay taxes at the company level provided they conform to a number of restrictions, which typically include the following:

a) they discharge a majority of taxable income as a dividend;
b) leverage is limited; and
c) the portion of income derived from development is limited.

Tax is one reason why investment in non-REIT property companies has, generally, not been popular. The key advantage created by this tax treatment of the REIT is that capital gains tax charged on the disposal of assets — arguably a key reason for PropCos trading at discounts to net asset value (see section 6.9) — is extinguished.

In some markets, the UK being a prime example, long-term returns from property company shares have been no better than returns from direct property, while risk has been much higher (see section 6.6). Performance has been strongly linked to equities in the short term — so

property companies have not diversified equity portfolios. Finally, tax leakage has put all investors in property company shares at a disadvantage to investors in direct property. REITs, however, have been more popular, and both the tax advantage and improved performance characteristics appear to have been significant.

6.4 Listed funds and mutual funds

The distinction between a company and what is commonly thought of as a fund is not based on the legal structure — funds may also be corporate structures, as explained in chapter 7 — but on the way the two are managed. The typical listed property company is internally managed, meaning that there is no legal separation of assets and management team, while a fund (like an investment trust) has external management and a contract is put in place between the fund manager and the assets, held in a separate corporate structure.

Listed funds popular in the UK market include a group of Jersey and Guernsey-listed investment companies created in the period before UK REIT legislation became live, seeking tax efficiency, with external management. These are usually closed-ended but may be open-ended, such as open-ended investment companies (OEICS). For more about this distinction, see chapter 7.

A mutual fund — a US term not widely used in the UK — is a listed fund that invests in other listed companies, similar to an investment trust. This is similar in effect to a fund of funds (see chapter 7), but a mutual fund invests in companies rather than funds. Hence there are listed (mutual) funds investing in UK, European and global REITs providing a diversified exposure to the sector. Outside the US, these are more commonly known as property securities funds.

6.5 Exchange traded funds (ETFs)

Traded like normal shares, but more similar to mutual funds in their investment performance characteristics, ETFs allow investors to spread investments even more by tracking the performance of an entire index, but by buying a share in a single asset that represents that index.

The range of ETFs includes the EPRA universe of European REITs and real estate stocks, and the global listed real estate sector can be accessed through the EPRA/NAREIT Global Property Yield Fund.

ETFs provide exposure to global property companies and REITs without the manager selection risk — or benefit — of a mutual fund.

Also available are short and ultra short ETFs, which provide returns that are perfectly negatively correlated with the underlying index returns. This is a useful tool for a hedge fund (see chapter 8).

6.6 Do property shares offer the ideal property vehicle?

What characteristics would the ideal property vehicle have? It would deliver returns that were representative of property as an asset class, offering diversification against equities and bonds. It would have risk and return characteristics that reflected the nature of property as an asset class — moderate returns for low apparent volatility or risk. It would be divisible into small lot sizes, so that global diversification were possible for all investors. It would be liquid. It would use leverage where this was beneficial.

At first glance investing in property shares looks promising. The instruments are certainly reasonably liquid, and very divisible. But the performance characteristics offered need to be carefully examined. The ideal vehicle will offer both short and long-term performance characteristics in line with the asset class. Will public equity real estate do this?

6.6.1 Tactical asset allocation

The tactical asset allocation process is designed to generate performance from short-term expectations of returns at the asset level. This means that when property is thought to be cheap, public real estate equity securities should be about to outperform. The tactical asset allocation process, running month by month, will require this to be so, or otherwise it will be risky or illogical to go overweight, and a neutral weight or an underweight position will be maintained.

However, by examining historical monthly returns, volatilities and correlations between property, property companies and equities, it can be seen that UK property companies have been a hybrid between property and equities in terms of short-term performance. They delivered a return between 1987 and 2006 only slightly greater than that on property, while being far more volatile than both direct property and equities. And, while correlations will always be time-

variant and subject to shocks, on a monthly and quarterly basis over the longest available time period the return on property shares was much more similar to returns delivered by the equity market than to returns delivered on the direct property market.

Comparing the short-term total return of direct property (IPD), property companies (the FTSE property company sector) and equities (the FTSE All Share index) — see tables 6.1 to 6.6 — shows that property companies and the equity market have been very volatile compared with direct property. This is a bad thing: low reported volatility is what investors want, even if the numbers are massaged by valuations. This has been seen as a 'phoney argument' but, while the numbers themselves may be phoney, they go into the performance numbers nonetheless. And this issue is not only about volatility; it is also about correlation.

Tables 6.2 to 6.7 analyse UK data for the longest possible time series — 1987 to 2006 — for which data is available for direct property and pre-REIT UK property companies. Tables 6.2 and 6.3 show the short-term — monthly — performance characteristics of UK property company shares relative to property (the IPD monthly index) and equities. Table 6.2 shows the risk and return data, while table 6.3 is a correlation matrix.

Table 6.2 shows that property company returns (0.81% per month, or around 10% per annum) were less than direct property returns, despite the higher financial risk (through leverage) of property companies. This is reflected in the volatility of property company shares, over seven times greater than the volatility of the direct market and greater than the equity market as a whole.

We should condition this bald statement. Property volatility is artificial, due to valuation smoothing (see chapter 1), and any industry sector might have higher volatility than the equity market as a whole due simply to the smaller sample taken from a bigger market. Nonetheless, the plain reported facts remain, and UK property shares look highly inefficient over this period.

Table 6.2: Risk and return, monthly, UK asset classes, 1987–2006

	Return (%)	Risk (%)
Direct property	0.88	0.77
Equities	0.94	4.71
Property companies	0.81	5.86

Source: IPD, Property Funds Research

Can we use property shares effectively in short term asset allocation? In a monthly tactical asset allocation process, it is difficult, if not impossible, to change allocations to direct property with the same effect as changes to equity and bond allocations, as it will typically take much longer than one month to complete the purchase or sale of any directly-held property assets. When equities appear expensive or unattractive and property appears cheap or attractive, then what is to be done?

An increased allocation to property may fail to achieve any required result. Should the equities be sold immediately as direct property assets are sought? This may mean investing in cash for at least one tactical asset allocation round. What happens if equities fall in price over that period and become attractive again? Should prospective property acquisitions be aborted?

Alternatively, why not invest in property shares? They can be acquired with the same speed with which equities can be sold. So when equities appear expensive or unattractive and property appears cheap or attractive why not buy property shares?

Table 6.3 provides a clear answer to this. Because property company shares were correlated 70% with equities, and only 2% with direct property, the performance of property shares in the short term was likely to be much more like equities than property. What happens to property shares if equities fall in price over that period? Property shares were very likely to have fallen as well. Yet direct property, being slightly (5%) negatively correlated with equities, may have risen in value at the same time.

Table 6.3: Correlation, monthly, UK asset classes, 1987–2006

	Direct property	Equities
Direct property	1	
Equities	–0.05	1
Property companies	0.02	0.70

Source: IPD, Property Funds Research

Moving to a quarterly analysis, we see much the same results, shown in tables 6.4 and 6.5.

Table 6.4: Risk and return, quarterly, UK asset classes, 1987–2006

	Return (%)	Risk (%)
Direct property	2.66	2.25
Equities	2.69	8.24
Property companies	2.51	11.50

Source: IPD, Property Funds Research

Table 6.5: Correlation, quarterly, UK asset classes, 1987–2006

	Direct property	Equities
Direct property	1	
Equities	–0.01	1
Property companies	0.11	0.71

Source: IPD, Property Funds Research

An annual analysis, shown in tables 6.6 and 6.7, presents a slightly different picture, especially in terms of the correlation results, which show returns on property company shares becoming more correlated with property, albeit still less so than with equities.

(The period since the introduction of REITs in the UK has changed the picture somewhat. 2007 and 2008 were poor for both property and real estate shares, with the result that the monthly correlation coefficient rose to 0.25.)

Table 6.6: Risk and return, annual, UK asset classes, 1987–2006

	Return (%)	Risk (%)
Direct property	11.18	8.75
Equities	10.27	15.35
Property companies	9.30	26.76

Source: IPD, Property Funds Research

Table 6.7: Correlation, annual, UK asset classes, 1987–2006

	Direct property	Equities
Direct property	1	
Equities	0.07	1
Property companies	0.30	0.55

Source: IPD, Property Funds Research

6.6.2 Strategic asset allocation

The strategic asset allocation process is designed to produce a set of assets that are most appropriate taking into account the liabilities of a pension scheme. The allocation to property is determined using asset-liability models and inputs that reflect the nature of the assets in terms of return, risk and correlation.

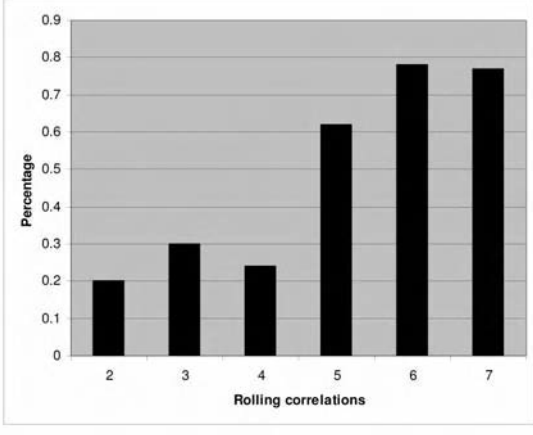
It is therefore important to examine the characteristics of indirect property vehicles compared with direct property to assess whether the use of indirect property vehicles within the property portfolio damages the integrity of the strategic asset allocation. Comparing the longer-term annual total returns of direct property, property companies and equities shows that property companies are a hybrid between property and equities. They have delivered a return since 1971 of close to that on property while being far more volatile than direct property, indeed being more akin to equities. This is broadly true whichever time horizon is examined.

It can also be seen that the pattern of delivery of the historical return on property companies has been more similar to the return on the equity market than the return on the direct property market. On an annual basis, the correlation between property companies and the property market was only 30%, while that between the property company sector and the equity market was around 55%.

Over longer periods, there is evidence that property companies begin to behave more like direct property (see figure 6.2). Over rolling three-year and four-year periods, the relationship between property companies and direct property remains low, but rolling five, six and seven-year analyses show much higher correlations, approaching 80%.

Property shares might therefore be an appropriate way to access longer-term property exposure and returns. And REITs may have

Figure 6.2: Rolling correlations, property shares and direct property, 1987–2006



Source: Curzon, March 2007

advantages over REOCs. We have inadequate performance history in Europe to examine this empirically, and for evidence we must turn to the US.

6.7 The US REIT experience

REITs were created in the US in the 1960s to allow smaller investors to participate in property markets. They are tax neutral, or tax transparent, vehicles provided they meet the qualification rules. In the US, these rules include the following.

- There must be a minimum of 100 shareholders, with limited insider dominance.
- At least 75% of total assets must be held in real estate assets, cash or government securities.
- At least 75% of gross income must be generated from rents of real property, interest on mortgages, gains on sales of property and dividends from other REITs.

US REITs can be public or private vehicles; in this chapter we focus on the listed (public) variety. There are equity REITs, mortgage REITs and hybrid REITs. In this chapter we focus on the equity variety.

The major growth period for US REITs began in 1991, as the vehicle proved ideal for re-capitalising a distressed real estate market. The creation of the Umbrella Partnership REIT or UPREIT in 1992 allowed a boom in securitisation, as it permitted owners of assets to contribute them to a REIT in return for shares, without having to pay capital tax on the transfer.

US REITs are now one of the longest-standing and most researched tax-transparent property vehicles in existence. There is a large number of articles in the academic literature relating to REITs, focused on the extent to which US REITs perform like real estate or stocks (see reviews of the literature in Corgel et al, 1995 and Worzala and Sirmans, 2003). This is a key question, and there is a strong lobby that argues that REITs will be more like pure real estate equity than will REOCs. A possible reason for REITs performing more like direct real estate are the regulations that have the effect of maintaining income distributions (see section 6.7.1, which is derived from Baum and Devaney, 2008).

6.7.1 Distributions

When REITs were introduced in the US in 1960, a high compulsory income distribution level of 90% was set. This was designed to ensure that the risk to investors was reduced (after all, "a bird in the hand is worth two in the bush").

The distribution level was later increased to 95%. These distributions were to be made from net income after the deduction of expenses, interest and (as is common in accounting for any company) a depreciation allowance, recognising the following.

- Real estate vehicles need the ability to retain some earnings through which reinvestment and renewal of the stock can be made.
- In a particular year, a real estate owner can be faced with significant costs to repair and maintain buildings for existing or prospective occupiers.

More recently, in the REIT Modernisation Act 1999, the compulsory distribution level was reduced to 90% of net income. The change did

not appear to have a big impact on US REIT values. The reason for this limited impact was that REIT dividends are only partially constrained by the minimum distribution requirement. The average payout by US REITs is often over 100% of accounting earnings. This is confirmed by the studies of Wang et al (1993) and Bradley et al (1998), with the former reporting an average payout ratio of 1.65, where payout ratio is the ratio of dividends to reported net income. This was compared with an expected 0.95 if regulation were the only driver.

(In 2009, extreme circumstances forced many REITs to cut or suspend dividends. This encouraged the US Internal Revenue Service to provide REITs with the option of paying up to 90% of the dividend in stock.)

The reason for these high payout proportions is that there is a big difference between reported net income and the net cash flow that an equity (property-owning) REIT has available to distribute. This difference is created by large provisions for depreciation and amortisation, associated with the cost-based treatment of commercial real estate assets in accounts.

In the US REIT industry, it is recognised that the accounting measure of net income is not a useful measure of equity REIT profitability (Yungmann and Taube, 2001). Therefore, other measures have been developed, such as Funds from Operations (FFO), Adjusted Funds from Operations (AFFO) and Funds Available for Distribution (FAD). FFO adds back the depreciation allowance necessitated by cost accounting to estimate the cash flow that can be capitalised to assess value per share; AFFO makes a deduction from this cash to reflect the fact that property depreciates and that without it an overdistribution might lead to overvaluation, ignoring the cost of property refurbishment.

While these different metrics offer alternative ways of assessing REIT earnings, there is a lack of consistency in how they are calculated between firms. Nonetheless, the maintenance of higher distributions than can be relied upon from a REOC is likely to stabilise returns and create a more real estate-like asset. Does the data support this hypothesis?

6.7.2 Performance

Table 6.8 shows the annual returns on direct property (the NCREIF Property Index, or NPI), US REITs (the NAREIT Index) and US Equities (the S&P 500). Unlike UK property companies, REITs have

outperformed direct property, and the increase in risk has not been disproportionate.

Table 6.8: Risk and return, annual, US asset classes, 1978–2006

	Return (%)	Risk (%)
NPI	9.53	9.70
NAREIT	14.79	15.77
Equity	13.41	14.53

Source: NCREIF, NAREIT

The correlation data shown in table 6.9 is also more positive for REITs. While US REITs have been more highly correlated with equities on an annual basis than with direct property, the correlation of 30% is less than the UK REOC equivalent of 55%.

Table 6.9: Correlation, annual, US asset classes, 1978–2006

	NCREIF	NAREIT
NAREIT	0.07	1
Equity	0.11	0.3

Source: NCREIF, NAREIT

Rolling monthly correlations (see figure 6.3) show that the relationship between direct real estate and REITs has strengthened over time, from 20% around 2001 to 55% in 2007. Nonetheless, this value remains below the strength of the correlations with equities and bonds, firm at around 80%.

In conclusion, there are promising signs that, when compared with REOCs, REITs offer superior performance characteristics for real estate investors.

Figure 6.3: Rolling correlations, REITs and other asset classes, 1996–2007



Source: UBS, NCREIF, NAREIT

Box 6: Case study: have US REITs been beneficial for US investors?

This study examines the evidence of the returns delivered by REITs to investors over two decades (1979–1998). It sets out to answer the question: over this period, have US REITs been beneficial for US investors?

In this case study, the following definitions are used.

- NAREIT is the return series for REITs maintained by the National Association of Real Estate Investment Trusts.
- S&P 500 is the Standard and Poor index of the performance of the largest US stocks.
- R2000 is the Russell Company's index of the performance of smaller US stocks.
- 90-day is the return delivered by 90-day treasury bills in the US.
- NCREIF is the return series for private real estate maintained by the National Council of Real Estate Investment Fiduciaries in the US.
- Mean is the arithmetic mean of annual returns.
- SD is the standard deviation of annual returns, a measure of risk.
- Correlation is the correlation co-efficient between two variables, with a maximum value of 1 indicating perfect positive correlation, a minimum value of –1 indicating perfect negative correlation and a value of 0 indicating no correlation.

For the multi-asset US investor, for example a US pension fund, did REITs add to return or reduce portfolio risk? Were they demonstrably superior in these respects to direct US real estate?

Table 6.10, which uses quarterly data, shows that REITs (3.17%) outperformed direct US property (2.2%) over the period 1979–98 by almost 1% per quarter, in return for significantly higher volatility (7.49% against 1.84%). For an investor who requires liquidity, REITs have a great advantage over the private market, but the volatility would be a serious problem. On the other hand, the outperformance may have been enough to compensate for this.

Table 6.10 also shows that REITs underperformed both larger stocks (3.17% against 4.40% for the S&P 500) and the smaller stock benchmark, which is accepted as more appropriate (4.11% for the Russell 2000). Volatility for REITs was similar to that of the larger stocks, but the Russell 2000 showed greater volatility (10.77%) than REITs. Comparing REITs with smaller stocks also seems to reveal a fair game: REITs produced slightly less return for slightly less risk.

Table 6.11 shows that the S&P 500 and Russell 2000 were themselves highly correlated (88%), and REITs were reasonably highly correlated with both. REITS, as expected, attached themselves more to the smaller Russell 2000 benchmark (72% correlation against 59% with the S&P).

Private property represented by the NCREIF offered much greater diversification (effectively nil correlation) against stocks; but, while T-bills were quite highly correlated with NCREIF, they showed no correlation with REITs. REITs would have been better diversifiers than private property for a fixed interest investor, but slightly less effective than stocks.

Table 6.10: Stock, bond, real estate and REIT performance, 1979–98 (quarterly)

	NAREIT	NCREIF	S&P500	R2000	90-day
Mean (%)	3.17	2.20	4.43	4.11	1.75
SD (%)	7.49	1.84	7.45	10.77	0.68

Source: NAREIT, NCREIF, Datastream

Table 6.11: Stock, bond, real estate and REIT correlation, 1979–98 (quarterly)

	NAREIT	NCREIF	S&P500	R2000	90-day bills
NAREIT (%)	100				
NCREIF (%)	–4	100			
S&P500 (%)	59	–1	100		
R2000 (%)	72	–5	88	100	
90-day T-bills (%)	–2	54	–13	–6	100

Source: NAREIT, NCREIF, Datastream

Conclusion: over this period, REITs performed similar to low-risk, lower-return, smaller US companies. They offered greater returns than the private property market and better diversification against T-bills, but provided less diversification against stocks than direct property.

6.8 The UK REIT

The UK REIT market began trading on 2 January 2007. A small number — but all of the largest by value — of traditional property companies became (at the price of a one-off tax charge) early converters. The converting companies included Land Securities, Hammerson, British Land and Brixton.

The rules under which they must operate include requirements to:

a) be a 'property rental business', with 75% of income arising from that business and 75% of assets dedicated to it (2006 Finance Act, s 108). However, as long as these tests are satisfied, a UK REIT may carry out taxable ancillary activities, which can include property (re-)development; and

b) distribute at least 90% of the profits of the property rental business (2006 Finance Act, s 107). This does not include capital gains from selling property, though, which can either be distributed or re-invested in the portfolio (2006 Finance Act, s.118).

The qualifications to each requirement are important, as they appear to give UK REITs flexibility to renew their portfolios. It is important that distributions will be from profits rather than gross income. These steps have, on the face of it, reduced the level of dividends to investors. However, because UK and European property companies adopt accounting standards that do not permit the deduction of depreciation, those profits (and therefore the distributions) are higher than would be the case in the US. If distributions were to be made from gross income, UK REITs could have been left with insufficient cash to maintain properties and thus forced to defer expenditure, sell assets or make regular capital issues, with potentially serious impacts on vehicle performance and success.

Because UK REITs are required to carry properties at market value in their accounts and no allowance for depreciation is made to offset taxable income, values change with market conditions rather than being written down each year. This key difference from the US treatment means that the distributable profits of a UK REIT will be much closer to its cash flow.

Other differences exist between accounting practices and various REIT regimes that may influence distribution and retention decisions. In particular, a key difference lies in the nature of the leases granted in each country. The terms and conditions of leases granted will determine whether the REIT or the tenant is responsible for repairs and maintenance. This, in turn, not only influences the pattern of income and expenditure, but potentially also the extent and amount of depreciation in the portfolio (Baum and Turner, 2004).

Although UK leases have become shorter and opportunities to break have increased, traditional repairing and rent review provisions still predominate (Crosby et al, 2005). In the US, leases are shorter on average and more of the repairing obligations are borne by the landlord. This means that there are more opportunities for the US owner to actively manage its buildings and more incentive to do so owing to the need to achieve re-lettings more often. In contrast, UK leases have encouraged more passive management of the stock. Responsibility for regular maintenance to combat physical deterioration is passed to the tenant, especially in single-let buildings, but there is no guarantee that the tenant will perform these obligations in the same way and, often, they are discharged through payment of a dilapidations charge at the end of the lease. While, in theory, this compensates the landlord for lost value, the impact of not performing work when it is necessary may mean greater depreciation overall.

Both accounting and property market differences mean that the experiences of the US and other jurisdictions are of limited value when assessing the likely returns from the UK REIT.

6.9 REIT pricing: introduction

6.9.1 Earnings or asset values?

The valuation of a REIT involves different approaches in different regimes. In the US, REIT valuations are typically made by reference to earnings (defined in different ways — see section 6.7.1) and a price/earnings ratio, or a variant of this model. In the UK, valuations of assets are available and pricing by reference to net asset value is common.

It has also become common to analyse REIT prices by reference to implied yields. For example, a City office building yielding 6.5% may appear unattractive if the 'correct yield' (see chapter 4) is assessed as 7.5%. A listed property company owning City offices and trading at a 30% discount to NAV would have a higher implied yield, say 8%, which may be attractive.

Although the pricing of listed securities is linked to that of the real estate portfolio, there is also a significant degree of variability around the underlying net asset value. This is because both REITs and property company shares are influenced by price movements in the equities markets in general. Consequently, there can be price anomalies compared with the underlying real estate market that can be exploited tactically. (It is commonly suggested by REIT analysts that property equities, unconstrained by valuations and comparable evidence, forecast the direct market by up to 18 months ahead.) However, this issue can also increase the risk of REITs underperforming the underlying property market, and REITs are unlikely to provide access to the same level of pure real estate performance in the short term as the unlisted market.

6.9.2 Market capitalisation and net asset value

EPRA and NAREIT maintain REIT and listed property vehicle data of the type one would expect to find in listed securities markets. The market capitalisations of the global REIT markets are therefore readily available. But to estimate how much of the world's real estate is held by listed vehicles, as we did in chapter 2, we need the gross asset value or GAV.

Simplifying, GAV = net asset value (NAV) plus debt, so we need to estimate the vehicle's debt or gearing, and then we can arrive at NAV. However, the value of a REIT is reported as its market capitalisation. This is almost the same as NAV — but not quite, because shares can trade at a premium or discount to NAV. Market capitalisation is therefore equal to NAV +/– the discount or premium to NAV.

6.9.3 Premium or discount to NAV?

Data produced by Green Street Advisers suggests that over the period 1990–2007 US REITs traded at an average premium to NAV (this is estimated NAV — REITs are not required to value their assets) of 4.8%. At the end of 2008, however, the estimated discount to NAV was around 40%, rivalling the record discount seen in 1991, while in 1997–98 the estimated premium to NAV touched 30%. What explains the premium — or discount?

Arguments about the source of this variation can become heated. This is because the well-known valuation smoothing issue, which affects direct real estate prices is seen by some — REIT proponents included — as wholly destructive of the value of valuations and, by extension, NAV estimates. Compared with 'real' pricing in the stock markets, this is mere opinion, and systematically flawed at that. To proponents of direct property, valuations can and should be professional estimates of the most likely selling price of a property in the absence of a distressed market, while stock market prices are volatile, unreliable reflections of short-term sentiment in the absence of a more objective logic. The debate is philosophical and unresolvable.

Assuming that both NAV estimates and REIT trading prices contain useful information, why might the price of a REIT share be higher (or lower) than its NAV per share? Several commentators (for example, Clayton and MacKinnon, 2000) have considered this issue. The following propositions are the most convincing.

6.10 Explaining the premium/discount to NAV

6.10.1 Instant exposure

In chapter 7, we will examine the so-called J-curve effect. This describes the phenomenon that affects any investor in direct real estate or in a

blind (unpopulated by assets) real estate fund. $100m invested in either of these formats is converted, all things held equal, into around $95m of assets, because legal fees, other due diligence costs and property taxes (stamp duty, for example) will likely add up to around 5% of the acquired property's value.

Investors in REITs and REOCs do not suffer this problem. The investor usually gains instant exposure to a fully invested real estate portfolio in the assembly of which these costs have already been incurred. All things held equal, this should drive REIT prices to a natural premium of around 5% — close to the observed average premium in the US.

6.10.2 Liquidity/divisibility

What creates liquidity? Listing a security provides a shop window, advertising the product and encouraging buyers and sellers to transact. But a quotation is not sufficient to attract the attention of a market maker. Many quoted assets — including many small property companies — will not be taken onto the market maker's book. He will require matched bargains and/or require a large spread from buy to sell price.

Market makers are essential to ensure that a market can operate at volume. Hence market makers are important in the delivery of liquidity. They require:

a) a large spread between buying and selling prices;
b) high market capitalisation; and
c) derivatives to offset risk.

Speculators or arbitrageurs also need to be attracted to add to market capacity. They also help to provide volume, but they require volatility to encourage them to transact. This will mean that average holding periods become shorter. They also require perfectly standard vehicles that they can understand and arbitrage between. We can now add the following requirements:

a) daily quotation of prices; and
b) standard vehicles.

In summary, volume is crucial: and it will be created by large market capitalisation of the combined sector of standard vehicles plus short

average holding periods. Short holding periods and volatility go together, hand in glove, and require the participation of market makers, investors and speculators. They, in turn, will be attracted by large spreads, a large volume of similar vehicles, and quotation, plus the opportunity to offset risk through derivatives.

The case for REITs revolves around the solution they provide to the twin problems direct property investors face — illiquidity and lot size. The best remedy for illiquidity is a public market quotation, and the problem of lumpiness is solved by the securitisation of real estate and the consequent divisibility of the REIT instrument.

Given a REIT's potential liquidity, these advantages should drive REIT prices to a premium to NAV. When REITs trade at premiums, the sector can be expected to grow, as REITs can buy property for less than the increase in share price which results. This is accretive to earnings. In these circumstances, rights issues by existing companies, and new REIT launches, become attractive to investors.

6.10.3 Asset values are higher than the reported NAV

If asset values are perceived to be higher than the reported NAV, then efficient REIT pricing will drive share prices above NAV. Because valuation smoothing is expected to depress valuations below trading prices in a rising market, this is a likely phenomenon in a strong market for property investing. (Observed or estimated US REIT premiums have generally been positive in strong markets and negative in weak markets.)

If asset values are perceived to be lower than the reported NAV, then REIT prices can be expected to be below NAV. This is a likely phenomenon in a falling or weak market for property investing.

6.10.4 Projected asset values are expected to exceed the reported NAV

If asset values are expected to rise, REIT prices might act as a coincident indicator of these expectations and a leading indicator of property prices. Because property prices are somewhat auto-correlated, this is a likely phenomenon in a strong market for property investing, and will work in the same direction as the perceived difference between current and reported NAVs. Note, however, that these are different, albeit related, factors.

If asset values are expected to fall, then REIT prices will be expected to be below NAV.

6.10.5 Other issues

Other factors often considered in connection with the REIT premium/discount include the following.

Management skills

If management skills and efficiency are perceived to be of high quality relative to the overheads of running the business, it is argued that this would drive REIT share prices to a premium against NAV.

Tax

If there is an embedded tax liability (usually a capital gains tax liability which is contingent on the sale of assets) this is likely to drive prices to a discount to the gross of tax NAV. As with many factors, it is difficult to estimate how large this effect will be. If a property company is sold with such an embedded contingent liability, there is usually a negotiation about how much of that tax risk is deducted from the price, as it is not possible to be certain how large the tax will be or, indeed, if any tax will arise.

Debt

REOCs and REITs will have agreed debt facilities and loans in place. The interest rate will be fixed, or a varying rate agreement may have been swapped into fixed price debt. The average interest rate on this debt may be above or below current market rates, or the average for the sector. In either case, the cost of this debt may be 'marked to market', so that expensive debt will reduce the REIT share price below NAV, while cheap debt will have the opposite effect.

Box 7: What next for US REITs?

New Year's predictions are normally a fool's game, but a forecast for '09 that can be taken to the bank is that it will be one of, if not the, toughest years for owners of/investors in commercial real estate in modern history. Property operating fundamentals will decay across virtually all sectors, and looming maturities of unrefinancable debt will cast a dark shadow on both the availability of capital and the value of properties. However, because one man's distress is usually another's opportunity, 2009 will also be a year in which the savviest, best-capitalized real estate companies begin to take advantage of what is stacking up to be one of the greatest "buyer's markets" of all time. Performance for any given REIT will be dependent on whether the company is likely to spend the next few years on its heels playing defense or whether it will be able to play offense when opportunity knocks.

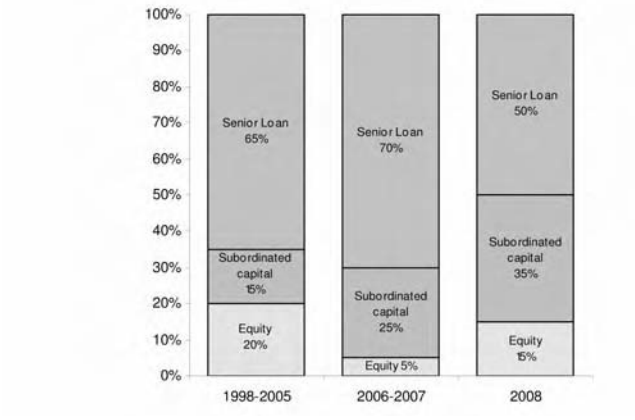
Of all the boogeymen that visited the REIT sector in 2008, none was scarier than the prospect that a sizable number of REITs could encounter severe financial distress if credit markets remain dysfunctional. Unfortunately, this fear is likely to persist through 2009 and beyond, as worsening fundamentals and maturities of unrefinancable debt are problems without easy resolutions. While this theme will continue to weigh heavy on the share prices of many REITs, 2009 is likely to be a year in which REIT investors grow increasingly intrigued with the flip side of this story: one man's distress can be another's opportunity.

On the heels of a year in which REITs have been thrashed, the idea that they may be able to capitalize on, as opposed to being the victims of, distress may seem a stretch. However, the last time the real estate industry went through a deep downturn — '89–94 — REITs played a major role in cleaning up the mess, as numerous landlords went bankrupt, foreclosures were commonplace, and no other source of capital wanted to have anything to do with real estate. A review of that history provides a reasonable scenario as to what may lie ahead for REITs. Suffice it to say that savvy landlords with solid balance sheets should soon begin to have exciting external growth opportunities.

Meanwhile, many REITs will be so busy playing defense over the next few years that they are unlikely to have the opportunity to take the offensive side of the field. Prices of both equity and debt indicate that investors are assuming that a sizable number of REITs will encounter financial distress, and this factor will almost certainly impact pricing for a long time to come.

Green Street Advisors, 5 January 2009

Figure 6.4: A typical real estate capital structure



Source: CBRE Investors

6.11 Public debt and mortgage-backed securities (CMBS)

The value of debt-like property investment has been evidenced in the UK for many years by the appeal of the fixed incomes produced, for example, by over-rented office property in the City of London since 1991. It was brought into sharp focus by the activities of Rotch, a property company that exploited the yield gap between high-yielding long lease property and corporate bonds, by the securitisation of Broadgate by British Land and by other 1990s asset-backed securitisations.

The property-backed debt market in the US, including the enormously successful public commercial mortgage-baked securities (CMBS) market, is huge. American players and others encouraged the securitisation of property-backed debt in some volume in Europe, and as a result the European property market entered a new phase. The introduction of public debt securities provided opportunities for corporates and developers to raise finance by selling property-backed debt instruments, either quoted securities or private mortgage-type paper. It produced interesting implications for the valuation, performance and tradeability of residual property interests.

CMBS are securities that provide the right to receive interest and capital payments from a (hopefully) diversified package of borrowers. They may be listed to provide liquidity and a broader buyer universe, dominated by institutional investors seeking higher yields than government bonds provide, yet secured against low-risk real estate assets. They are debt securities collateralised by a pool of senior commercial real estate mortgage loans, themselves secured against a diverse portfolio of commercial real properties.

CMBS are credit rated by independent agencies. The credit rating attached to CMBS securities is dependent upon several factors, including in particular the position or seniority of the securities' claim on the cash flow from the underlying portfolio of loan cash flows, which may be supporting more than one source of debt, as shown in figure 6.4.

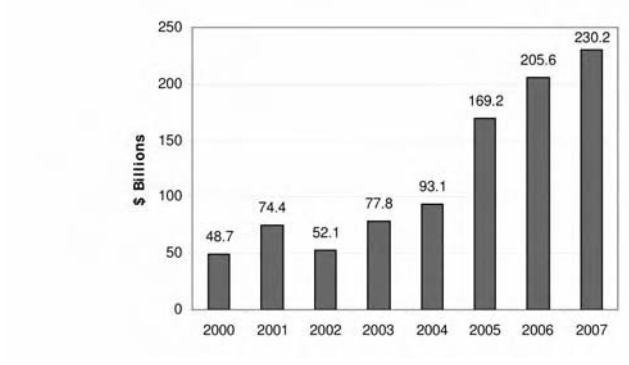
The 'senior loan' will have first call on any cash flows from the asset, while the subordinated loans will have the next call. At the time the loans are made, interest cover (interest as a proportion of net rents) limits will mean that the 'stabilised' (expected) cash flow produced by the asset will be more than enough to pay all interest charges on all loans with something significant left over for the equity owners. However, things can change: variable rate interest charges can rise, and vacancies and defaults can arise in tenancies.

If and when the cash flow declines relative to its expected level, the equity owner will have to lose all of his income before the subordinated debt provider loses some of his. Only if the net income falls a long way, and both the equity owner and the subordinated debt provider lose all of their income, will the senior debt provider be at risk. Hence the senior debt will be more highly rated than the subordinated debt. This applies to CMBS issues, which will typically be split into 'tranches' of debt to maximise their value. Through this mechanism, loans could be re-engineered to have a higher aggregate market value. This led to a boom in CMBS issuance in the US (see figure 6.5).

A CMBS issuance comprises a pool of first mortgages secured by income-producing commercial real estate (office, retail, industrial, multi-family and hotels). The mortgages are in turn bundled together into a pool or portfolio, tranched according to their priority entitlement to the underlying mortgage loan payments, assigned a credit rating and sold to third-party investors who buy the bonds based upon their risk/return objectives.

The highest rated bonds are AAA and the lowest rated are non-investment grade. Accordingly those with the highest ratings (AAA) achieve the tightest pricing and therefore the narrowest spread to the

Figure 6.5: CMBS issuance, US, 2000–07



Source: Commercial Mortgage Alert

risk-free rate or treasuries, while the lowest ranking securities have higher spreads.

The probability of defaults and the expected returns for each class of a securitisation vary with its rating. AAA-rated tranches offer the lowest probability of default and the lowest returns, whereas below-investment grade and unrated tranches offer higher returns as well as higher risks of default. Because the default probability is highest for below-investment grade and unrated classes, investors in these classes have traditionally been real estate private equity-focused organisations with in-depth knowledge of the underlying assets and their respective markets and with property asset management skills on hand.

As the ratings within a specific CMBS issuance decline, the interest rate spread or margin over base rate and relative to more senior and protected tranches increases. As the debt investment becomes more junior in the capital structure, the performance return becomes less predictable and interest rate sensitive and more reliant on the changes in the net cash flow of the collateral commercial real property.

Senior tranches (AAA through BBB), also known as 'rated' tranches, should earn their return from the coupon (interest payment) on the tranche and should be viewed as a fixed-income investment in 'normal' market conditions. Moving from BB, the first level of 'unrated tranches', up the risk scale in any CMBS issuance to B and Z tranches, investors get less and less protection and more risk of loss.

The US residential subprime mortgage shock that emerged in mid-2007 triggered a wave of global risk repricing. Due to a sharp increase in risk aversion and liquidity preference, credit spreads widened dramatically on both residential and commercial real estate debt securities, as shown in table 6.12.

Table 6.12: Indicative debt investment spreads

Yield range	1Q07 (%)	2Q/3Q08 (%)
CMBS — AA & A	T+5–6	T+7–20
CMBS — BBB	T+6–7	T+10–25
CMBS — sub-investment grade	T+8–20	T+20–50
B-notes	T+6–12	T+7–15
Mezzanine loans	T+7–13	T+8–20

Source: Markit, ING Clarion Capital

Note: T means the yield on treasuries.

As a result of the pricing change, CMBS issuance dried up completely for a period. For example, while 2007 issuance was $230bn only $12bn was issued in 2008.

Despite the fall in new issuance, the CMBS market experienced an imbalance of supply and demand. Investors retreated in the face of aggressive underwriting standards and a lack of available capital. This imbalance placed substantial pressure on CMBS spreads to widen further and opportunities arose to negotiate investments in the secondary market on very favourable terms (high coupons or running yields).

After the credit crunch, it became clear that financial market investors failed to adequately assess real estate fundamentals and credit risk. This lack of focus on the true underlying real estate fundamentals meant that loan pools were overpriced in the period before mid-2007. In the aftermath, the spreads seen on commercial real estate debt securities, notably AAA CMBS securities, clearly exaggerated the losses that might be anticipated even in a severe recessionary phase, presenting a unique buying opportunity and

momentarily replacing equity investment for some investors. There is little doubt that this opportunity would be brief, and that the normal capital return relationship would re-assert itself, with equity expected to earn considerably more than debt.

7 Unlisted real estate funds

7.1 The explosion of unlisted real estate funds

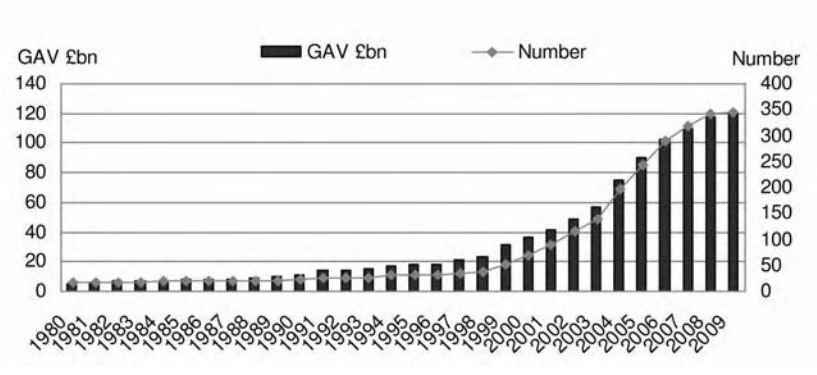
Over the period 1998–2007, a change in the investment strategy of pension funds and other professional investors generated an increased investor appetite for global real estate investment. The world's top investors went global, and real estate investment managers facilitated this through the creation of innovative indirect real estate investment solutions. The most popular of these indirect solutions can be called real estate funds. While the REIT market has seen steady growth in the US and in European and Asian markets as the necessary legislation has been passed, it is the universe of unlisted real estate vehicles that has recently grown more dramatically.

7.1.1 The appeal of the unlisted fund

The pension fund and the insurance company typically invest in property to achieve diversification and liability matching. Because some of the diversification advantages of real estate will be lost by using liquid securities, unquoted vehicles offer advantages.

However, some liquidity can be achieved by the manager arranging matched bargains between buyers and sellers, or by the manager dealing directly with the market through an open-ended structure. In addition, there is often a healthy secondary market for units in both open- and closed-ended funds (see section 7.5.4).

Figure 7.1: Growth in UK unlisted real estate funds, 1980–2009



Source: Property Funds Research, January 2009

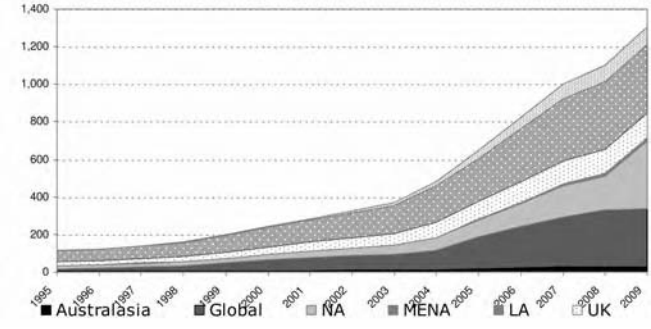
Liquidity will be promoted by widening the net of potential buyers, and some funds are established offshore largely to improve liquidity by attracting tax-exempt international investors. Increasing harmonisation of rules and taxes can be is expected to allow European pension funds to invest cross-border without penalty, and liquidity will improve as a result.

Property unit trusts or unit-linked pension or insurance products have been regarded as perfectly adequate vehicles for providing pension funds or insurance funds with a means of diversifying into domestic property, but these have been supplemented by specialist closed-ended funds. As a result, growth in the gross asset value held in UK unlisted funds has been around 15% since 2000. This data, compiled by UK research firm Property Funds Research (PFR), is illustrated in figure 7.1.

In Europe, the number of funds in the PFR Universe grew on average by over 20% per annum over the past 10 years. Over the same period, GAV grew by 14% annually in the European market while explosive, albeit more recent, growth is evident in Asia and the emerging markets. This had become a truly global phenomenon which greatly facilitated executable global real estate investment strategies and expanded the investable opportunity set for the benefit of many.

The global real estate fund market can be categorised in several ways. There are listed funds and unlisted funds, although a more

Figure 7.2: Growth in the PFR database of unlisted indirect vehicles, GAV (€bn)



Source: Property Funds Research, January 2009

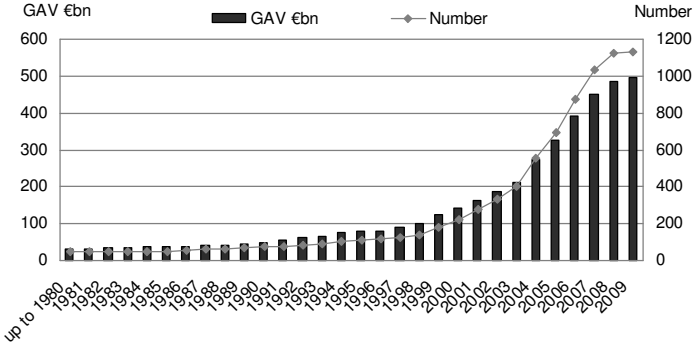
useful distinction is between those actively traded on major stock exchanges and those which are not; there are open-ended and closed-ended funds, both listed and unlisted; there are low-risk core funds and high-risk private equity or opportunity funds; and there are funds for private investors and funds for institutional investors. There are also different legal forms of fund: the most common forms of UK unlisted fund structures include limited partnerships and property unit trusts.

7.1.2 The global unlisted property market universe

PFR's estimate of the size of this market is around $2.3trn (€1.8trn), of which data is held on funds with over $1.6trn or €1.2trn in gross assets at the end of 2008. This accounts for around 14% of all global investable property (see section 7.3). The universe of unlisted property vehicles grew dramatically between 2003 and 2008. This explosive growth is demonstrated in figure 7.2.

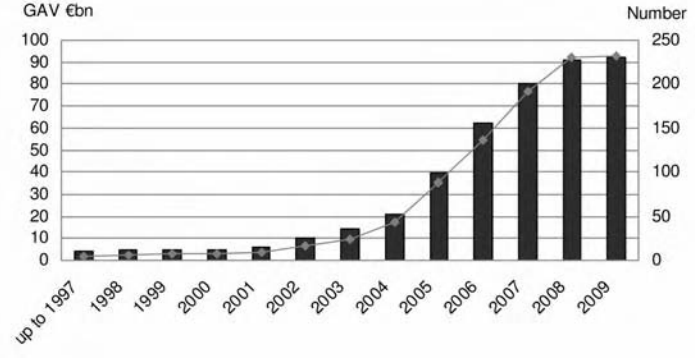
The largest markets in PFR's vehicle universe are those of continental Europe, the UK and North America. As figure 7.3 shows, growth in the European market, including the UK, was rapid until 2007 but began to tail off in 2008, as focus turned to the emerging markets of Asia, the Middle East, Africa and Latin America. From 2004 onwards, Asia in particular experienced a boom, as shown in figure 7.4.

Figure 7.3: Growth of the European (inc. UK) unlisted indirect market



Source: Property Funds Research, January 2009

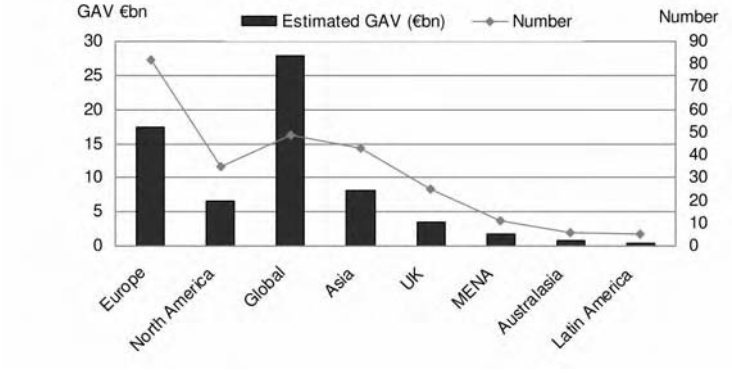
Figure 7.4: Growth of the Asian unlisted indirect market



Source: Property Funds Research, January 2009

Nonetheless, as figure 7.5 shows, Europe was the single most popular target location for funds launched in 2008 by both estimated GAV and number. Asian funds were second most popular in terms of estimated GAV, while global funds surpassed all single region funds by estimated GAV and number. North American funds were also popular, with 35 being launched in that year. By the beginning of 2009, there had been a marked global slowdown in fund launches.

Figure 7.5: Total number of vehicles launched in 2008 by location and value



Source: Property Funds Research, January 2009

7.2 What is a real estate fund?

One of the primary drawbacks of investing in direct real estate is the lumpy, illiquid nature of the asset class (see chapter 1) and a move to indirect investment is an appealing alternative. As this chapter will illustrate, real estate funds *per se* do not solve the liquidity problem, but some formats are more liquid than direct real estate holdings. Private real estate equity funds (sometimes referred to as unlisted, or non-listed funds) primarily include open-ended core funds and closed-ended private equity real estate (or opportunity) funds.

The recent pace of change in investor attitudes has been rapid. Taking UK pension funds as an example, balanced, unlisted real estate funds began to dominate institutional investment strategies early in the new millennium, and domestic multi-manager mandates, which focused on these funds rather than direct real estate, became common. In 2005–06, pan-European pension fund mandates became typical and global multi-manager mandates and global listed/unlisted mandates started to appear.

Given time, the standard pension fund mandate will almost certainly become global, and will continue to require the development of more global listed and unlisted funds. This is generally a good thing. High-quality real estate is a fundamental necessity for a developed

global economy, and continued improvements in transparency are both essential and inevitable in the drive to attract institutional investment in the global markets that are most in need of capital investment.

These markets will also offer both diversification and the highest rewards, and unlisted real estate funds clearly have the potential to play a significant part in this process.

7.3 How much global real estate is in unlisted funds?

The value of global commercial real estate owned by institutional investors was estimated to be around $16trn (€12.6trn) at the end of 2006 (see chapter 2). This is the investable stock, meaning stock that is of sufficient quality to become an institutional investment product, and which therefore represents the potential for growth in securitised products if owner-occupation rates were to tend to zero.

UK-based real estate funds specialist Property Funds Research (PFR) has made estimates of the gross asset values (GAVs) of stock held in both listed REITs and property companies and unlisted funds. The €12.6trn investable stock of real estate can be broken down to the regional level and further disaggregated by ownership structure (see table 7.1).

Table 7.1: The global real estate investment universe (€bn)

	Europe	Asia	Emerging	North	Total
Size of market (€m)	4,951	2,681	378	4,577	12,587
Listed market size (€m)	433	1,049	216	493	2,191
Unlisted market size (€m)	850	343	32	577	1,802
Direct market size (residual) (€m)	3,668	1,289	130	3,507	8,594

Source: Property Funds Research, RREEF, EPRA, December 2008

Publicly available REIT and property company market capitalisation data has been used and grossed up as shown to reflect the use of debt in the capital structure of the typical listed company. This represents around €2.2trn, or 17%, of the global market gross asset value.

PFR estimates that the much less mature unlisted real estate fund market has a value of $2.3trn (€1.8trn), around 14% of the investable stock, and that Europe (excluding the UK) represents the biggest component of this market, holding around 47% of the global unlisted fund market (by number of funds). Unlisted fund GAVs have been estimated by PFR using a combination of individual fund data from the PFR fund universe (over 2,350 funds worth $1.6trn or €1.2trn, a 66% sample: see table 7.2) and extrapolation. The US and hence North American data is a minimum estimate.

Table 7.2: PFR's unlisted fund vehicle universe (€m)

Regional focus	Estimated GAV (€bn)	Number
Europe (ex UK)	388	866
Global (pan-region)	327	310
North America	212	357
UK	133	365
Asia	99	261
Australasia	32	92
Latin America	11	67
Africa	4	19
Middle East	2	19
Total	1,208	2,356

Source: Property Funds Research, January 2009

According to PFR estimates, therefore, the €12.6trn investable market splits as follows. €4trn or just over 30% of the total stock is held by listed and unlisted real estate vehicles, with 17% held in listed vehicles and 14% in unlisted funds. PFR's estimate of the size of the unlisted fund market is a minimum of around €2.2trn, of which data is held on over €1.2trn. The remaining €8.6trn, or 68% of the global universe, splits into directly held investment stock and owner-occupied real estate.

The global market is split by GAV into 50% Europe, 25% North America, 18% Asia and 8% emerging markets. Within this split, Europe is relatively fully supplied with unlisted product, while Asia is undersupplied. Asia, on the other hand, has been well served by the listed sector, and (with emerging markets) has the fastest-growing unlisted fund market.

7.4 Unlisted fund structures

Being unlisted means there is no requirement to be public, so unlisted fund data is hard to find. PFR holds the largest global dataset of unlisted funds. INREV (The European Association for Investors in Non-Listed Real Estate Vehicles) is also tracking the market and promoting best practice, as is AREA (the Asian Real Estate Association) in Asia, and IPD produces directories of unlisted real estate funds. There are other information sources, such as Prequin and Private Equity International, aimed primarily at the higher-risk opportunity fund sector. Information on REITs and other listed funds is more readily available (through, for example, NAREIT — the National Association of Real Estate Investment Trusts — and EPRA, the European Public Real Estate Association).

PFR suggests that there are four popular legal structures in use globally. These are (i) companies; (ii) partnerships; and (iii) trusts, all backed by the general body of law relevant to each; and (iv) contractual agreements, backed by special laws, especially common in Germany, France and Luxembourg.

In the UK, core (lower risk) real estate funds are typically open-ended property unit trusts, while private equity real estate funds are all closed-ended limited-life structures. Liquidity is the key issue that defines the relevant structure. A REIT or listed fund can usually be traded quickly on a major stock exchange, but an unlisted fund cannot. Investors in unlisted funds need to know how they can receive their money back, and how much they will get.

In the absence of an active secondary market for units in unlisted funds, which appears from time to time in the UK but does not generally exist anywhere in the world, the open-ended fund appears to guarantee 'redemption' of capital by the manager at something close to net asset value; in the absence of this, closed-ended funds have to have a termination date at which point all assets can be sold and capital returned. This is dealt with further in section 7.5.4.

7.4.1 Limited partnerships

Conceived by the Limited Partnership Act of 1907, this vehicle became popular in the UK real estate market in the 1990s. The limited partnership (LP) enables a pool of investors to invest together in one or more assets. The number of partners is now unlimited in number, one of which, the general partner (GP), must have unlimited liability

while the other partners have limited liability. The investment vehicle is tax transparent.

It is common practice that limited partnerships have a predetermined lifespan, usually between six and 10 years. There is a statement of intent, when the partnerships are established, that at the end of the period the partnership will be wound up and the assets disposed of, although this need not be the case if the partners vote to extend the vehicle life.

LPs can be complex in their management structures, but a GP will usually be created by the originator of the concept and/or will act as lead investor. The GP may be a special purpose company owned by more than one lead investor, and will have unlimited liability in respect of the partnership. The GP will usually appoint an operator, required by the Financial Services Act (FSA) of 1986 to be an FSA regulated body, which will be responsible for a defined set of administrative functions.

In establishing the pool of capital required, the GP may appoint a promoter to raise capital from limited partners; in some cases, the promoter may be the originator of the concept and seek a GP to act as lead investor. Limited partners will contribute capital and may form an advisory board, but cannot be seen to be making decisions without losing their limited liability status. Limited partners may contribute non-executives to the GP.

The GP will also appoint an investment manager or an asset manager; in turn, the investment or asset manager may appoint a real estate manager. The relationships of promoter, operator, GP and asset manager can be subtly or obviously connected: in some cases, the same financial services group will provide all of these functions.

7.4.2 Property Unit Trusts (PUTs)

In practice, PUTs fall into four categories: exempt, non-exempt unauthorised UK trusts, authorised PUTs and offshore trusts.

PUTs can either be authorised or unauthorised.

Unauthorised PUTs

The much more common unauthorised PUTs are unregulated unit trust schemes and may only be offered to institutional investors. There is an exemption from capital gains tax where all issued units are held by

investors who are themselves wholly exempt from capital gains tax or corporation tax (primarily pension funds and charities). The requirement is that units are held only by "pension funds, charity or other investors which are exempt approved or treated as approved under chapter 1, part XIV of the Incomes and Corporation Taxes Act 1988 or otherwise permitted by the Inland Revenue to hold units without prejudicing the exemption of the trust from tax on capital gains under Section 100(2) of the Taxation of Chargeable Gains Act 1992".

Investors in unauthorised PUTs tend to be professional investors. While the operator/manager of the fund will be regulated in the UK by the Financial Services Authority (FSA), the fund itself will not be subject to the regulations set down by the FSA. Accordingly, the fund may be run with more flexible investment objectives and restrictions to meet the investment needs of more sophisticated investors. These objectives and restrictions will in some cases be the responsibility of a supervisory board representing the interests of investors.

Authorised PUTs

Authorised PUTs are designed primarily for retail investors. The Financial Services (Regulated Schemes) Regulations 1991 led to the authorisation of unit trusts as real estate funds. The authorised property unit trusts (APUTs) were designed primarily for retail investors, giving them a medium whereby they could invest in units of a collective real estate fund offering exemption from capital gains tax on disposals of investments in the fund, with income taxable in the fund at 20%. On distributions from the fund there is no further tax liability for corporate or exempt investors, but no credit of the tax paid in the fund is available.

This structure is therefore less attractive to exempt funds as there is an absolute tax cost, which can be avoided by investing through an unauthorised unit trust. Given this, and the restrictions placed on investment and liquidity, the structure has had very limited impact.

Offshore PUTs offer greater flexibility, as they are tax effective for a greater range of UK and international investors. The vehicle can be more efficient for both tax-exempt and taxable institutions. Non-resident PUTs, which are structured to give unit holders immediate entitlement to any income, are tax transparent for income — thereby giving a cash flow advantage and preventing possible tax leakages — and are also exempt from capital gains tax at the level of the PUT by virtue of non-residence. In addition, these vehicles are less heavily regulated.

PUT structures can be complex. A supervisory board may be appointed to represent what is usually a large pool of investors. The supervisory board will appoint a trustee to operate the fund, and an investment manager to buy and sell assets and act as issuer and redeemer of units. The promoter or originator of a PUT will usually be the investment manager, who will then appoint the supervisory board and effectively appoint the trustee; but there have been recent examples of supervisory boards terminating their investment manager's contract and appointing a new manager. This is different from the LP model, in which the GP cannot usually be removed and also appoints the asset manager, which is often a connected company.

The largest UK PUT is the Schroder Exempt Property Unit Trust, established in 1971, with a real estate portfolio valued in June 2007 at in excess of £2bn (falling to £1.6bn as a result of revaluations and redemptions by June 2008).

7.4.3 Property Authorised Investment Funds (AIFs)

UK Real Estate Investment Trusts (REITs) were launched on 1 January 2007. Given that REITs were tax transparent but APUTs were not, the UK Government considered the tax position of Authorised Investment Funds (AIF) investing in real estate in order to try to produce a level playing field between listed and unlisted funds. As a result, the point of taxation was moved in the 2007 budget from the AIF to the investor, with the effect that investors face broadly the same tax treatment as if they had owned real estate or REIT shares.

Access to the AIF tax regime is available only to AIFs whose investment portfolio comprises predominantly real estate or shares in UK REITs. However, unlike REITs, FSA regulations require property AIFs to value their fund each day.

Property AIFs can be constituted either as Authorised Property Unit Trusts (APUTs) or as Open-Ended Investment Companies (OEICs). APUTs can convert to AIFs, but any new property AIF regime will be available only to those established as OEICs.

There are other categories of funds that could consider joining the Property AIFs regime: in addition to the existing UK-based retail APUTs these include offshore unit trusts (constituted as qualified investor schemes) and new funds constituted as retail funds or qualified investor schemes in the form of an OIEC.

7.4.4 Managed funds

Managed funds (life managed property pension funds) are the insurance companies' equivalent of the pension funds' property unit trust. They are usually managed by insurance-based fund managers. Managed funds are unit-linked funds. Some are sold to retail clients; some are sold only to institutional investors.

The same fund may have both investor types, and charge different fees based on the source of capital. In return for an investment in a managed fund, a life policy is issued by the life company to the pension fund.

7.4.5 Funds of funds

There are four ways to invest in unlisted funds. Investors may:

a) select a single diversified fund;
b) use advisors or an in-house team to select a group of funds;
c) appoint a discretionary manager to select a group of specialist funds (a multi-manager mandate); or
d) invest in a fund of funds.

The multi-manager and fund of funds models are highly appropriate for pension funds of significant size without expert in-house teams.

A fund of funds is a wrapper placed around other wrappers (the underlying real estate funds). As in a multi-manager mandate, two sets of fees are charged: one by the fund of funds manager, and a second layer by the managers of the underlying funds. The fund of funds manager needs to justify the additional layer of fees either by the additional diversification and risk reduction produced by the strategy, or by its skill in identifying and sourcing excellent underlying funds, or both.

The first large real estate fund of funds was launched in 2005, but this market has grown rapidly, and as at May 2008 PFR held data on over 100 real estate fund of funds products. The vast majority of UK funds of funds are open-ended, investing in a mix of open-ended and closed-ended specialist funds. The majority of continental European funds of funds are closed-ended.

7.5 Characteristics of real estate funds

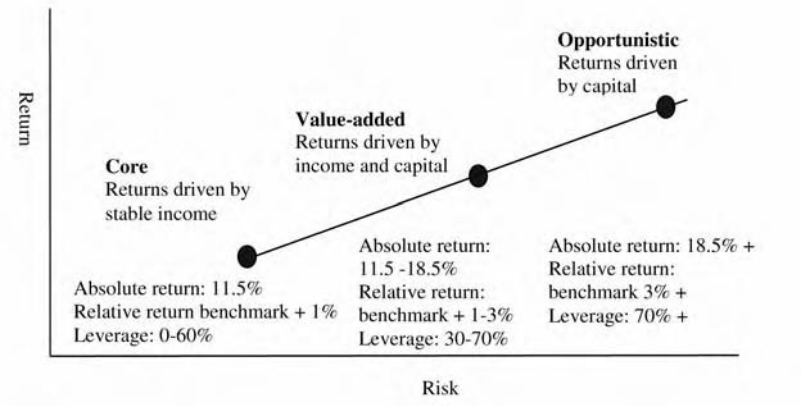
PFR held detailed information on 381 UK unlisted real estate funds as at May 2008 (365 at January 2009: see table 7.2), with a total gross asset value of around £116bn. This dataset is used as in the following descriptive statistics.

7.5.1 Style

Funds are differentiated by risk types. Some industry participants have distinguished funds by using four styles — core, core-plus, value-added and opportunity. The vehicles included in PFR's universe are classified as being one of three styles (core, core-plus/value-added and opportunity) while the trade body, INREV, similarly recommends three styles: core, value-added and opportunistic. This classification system has become the industry standard.

Figure 7.6 illustrates the INREV criteria used to distinguish global unlisted fund styles.

Figure 7.6: Unlisted fund risk styles



Source: Property Funds Research, 2008

Core funds are low-risk funds with no or low gearing, often open-ended, and should aim to closely replicate returns on the IPD UK

index of direct real estate. The INREV definition of a core fund is as follows:

a) the fund assets provide stable income returns, which are a key element of the total return;
b) its overall target (post tax and fees) return is up to 11.5% per annum, or its target return (post tax and fees) is less than 1% above a specified property or peer group benchmark; and
c) its permitted capital leverage ratio is below 60% of gross asset value.

Value-added funds have some potential for value-enhancement through re-letting empty space, refurbishment work, or other active asset management activity. The INREV definition of a value-added fund is as follows:

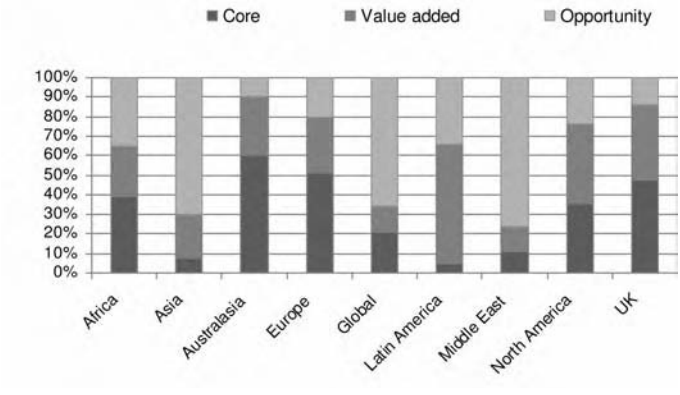
a) returns are driven by a combination of income and capital return;
b) its target (post tax and fees) return is between 11.5% and 18.5% per annum, or its target return (post tax and fees) is 1–3% above a specified property or peer group benchmark; and
c) its permitted capital leverage ratio is between 30% and 70% of gross asset value.

Opportunity funds are higher risk, higher target return funds with high levels of gearing. The INREV definition of an opportunistic fund is as follows:

a) returns are driven primarily through capital return;
b) its target (post tax and fees) return is in excess of 18.5% per annum, or its target return (post tax and fees) is greater than 3% above a specified property or peer group benchmark; and
c) its permitted capital leverage ratio is in excess of 70% of gross asset value.

PFR data as at May 2008 shows an even split of core and core-plus/value-added funds — roughly 45% each of the database — with the remaining minority constituted by opportunity funds. Until the end of the 1990s European value-added and opportunity funds were barely in existence. At the beginning of the 1990s, core funds accounted for 97% of the market by GAV. This compares to just over 60% at January 2008. Opportunity funds experienced rapid growth between 2000 and

Figure 7.7: Vehicle style by regional focus



Source: Property Funds Research, January 2009

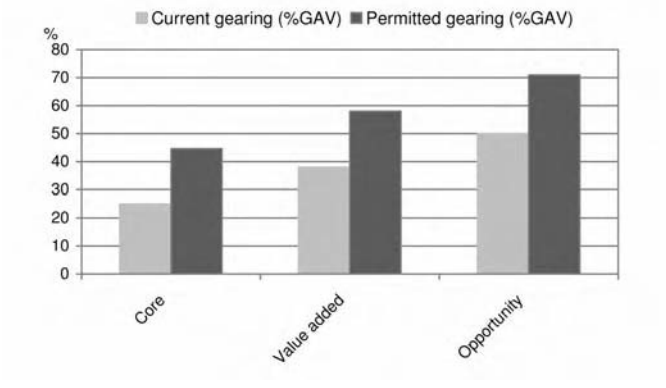
2003 but value-added funds then emerged as the style of choice. The majority of funds launched between 2005 and 2008 were value-added.

Figure 7.7 shows that core funds tend to be the style of choice for the more developed markets of Europe, North America and Australasia, while opportunistic funds are a significant fund type in most developing markets (with Africa currently dominated by the developed South African market).

PFR also records permitted gearing based on the level of debt in a vehicle as a percentage of GAV. Funds have permitted gearing levels ranging up to 85%, although typical gearing levels are far more conservative than this. Figure 7.8 illustrates that (as at January 2009) all vehicle styles carry a lower level of debt than is permitted, as the average is affected by funds that are not fully invested. Actual gearing levels average 25% for core funds, just below 40% for value-added funds, and around 50% for opportunity funds. Permitted gearing levels are around 45%, 58% and 70% respectively.

Vehicles in PFR's universe have a variety of investment restrictions aimed at limiting the risk of a particular portfolio of investments. Diversified funds may be permitted to invest between 30% and 50% of GAV in a particular sector. Pan-European funds may have prescribed limits on the countries in which they can invest, which may be anywhere between 30% and 50% of GAV in each country. Development

Figure 7.8: Current and permitted gearing by fund style



Source: Property Funds Research, January 2009

is limited to anywhere between 10% and 30% 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% of GAV. Similarly, income restrictions are likely to be placed on a fund. Income derived from a single tenant/company is typically limited to around 15% of GAV.

7.5.2 Domicile and structure

Limited partnerships make up roughly 40% and unit trusts make up around one-third of the UK universe by number of funds, but PUTs are larger in terms of current and target gross asset values (£490m and £350m respectively for PUTs compared with £210m and £255m for LPs). The UK is the most popular domicile, as would be expected given that UK limited partnerships appear to be the vehicle of choice. Channel Islands funds (usually PUTs) define 30% of the sector.

7.5.3 Sector focus

As at January 2009, 44% of UK unlisted funds by number in the PFR database were diversified. Many more funds than is represented in the IPD direct real estate index were targetting residential and other real

estate, including healthcare, student housing and infrastructure. Retail was the most popular 'traditional' sector, with 13% of funds by number, then offices, with 10%.

7.5.4 Open or closed?

Twice as many funds by value are closed-ended rather than open-ended (69% against 31% by number respectively, and 58% against 42% by value). Over 50% of funds by value are closed to new investment, mostly closed-ended funds that had completed capital raising but including a very small number of open-ended funds that had closed their doors to new investment.

7.5.5 Target equity and permitted gearing

The average target equity level per unlisted fund is approaching £161m. Defined as a percentage of gross target assets, permitted gearing levels vary from zero to 90%, with most funds limited to between 50% and 70%. Core funds' permitted gearing levels averaged 40%, core-plus/value-added 43% and opportunity 70%. Permitted gearing levels are shown in more detail in table 7.3.

Table 7.3: Permitted gearing levels

Levels of permitted gearing (% of GAV)	%	Number
0–9	6	12
10–19	2	3
20–29	8	15
30–39	3	6
40–49	2	3
50–59	23	44
60–69	23	44
70–79	23	43
80–89	7	14
90	2	4
	100	188

Source: Property Funds Research, January 2009

7.6 Liquidity and valuation issues

7.6.1 Liquidity

The lumpy, illiquid nature of real estate as an asset class means that indirect investment may be an appealing alternative. However, liquidity in unlisted funds is generally limited, although different fund types offer different degrees of liquidity. Open-ended funds offer monthly, quarterly, or annual redemptions, although sometimes with an initial lock-up period of three or four years. Following the example provided by the relatively mature UK market, there is an increasingly active secondary market in European closed-ended funds and this may develop in international markets. Nonetheless, closed-ended funds generally offer little liquidity.

Given that unlisted funds are not stock market traded, an alternative mechanism is needed to provide this liquidity. The key issue is whether the fund is open-ended, semi-open-ended or closed-ended.

Open-ended fund units can be redeemed on demand, and new investors will normally be allowed and encouraged to buy new units on demand. The manager will issue units at NAV plus an allowance for the costs of buying new properties with the new cash (the offer price), and will undertake to return capital to the investor at the latest NAV estimate less a deduction for trading costs (the bid price). (Technically, the NAV is adjusted to offer price by adding real estate acquisition costs and offer is reduced to bid by deducting the round trip costs of buying and selling real estate.)

Semi open-ended funds will have a 'lock-up' period, typically up to five years, during which investors are not allowed to redeem units and after which limited redemptions will be permitted.

Open-ended and semi-open-ended funds can have infinite lives, and this is an obvious attraction for managers. Closed-ended funds, on the other hand, have a limited number of units in issue at any time (hence the term) and do not have a redemption facility, so that investors are reliant upon secondary market trading, which with some notable exceptions may be thin or non-existent. The manager of a closed-ended fund is therefore forced to offer a termination date at which investors can force assets to be sold and capital returned. This is typically 6–10 years from launch.

Despite the obvious appeal of the open-ended structure, there are severe limitations. Investors will not redeem units from the manager if they can sell units in the secondary market for a higher price, and new

investors will not subscribe for new units if they can buy units for less in the secondary market. Where there is a balance of buyers and sellers, buyers and sellers will deal directly with each other at something close to mid price (half way between bid and offer), and the bid-offer spread imposed by the manager is not justified because there is no need to undertake any direct real estate trading to grow or reduce the real estate portfolio. The manager may then wish to orchestrate a secondary market, either in search of broking fees or to offer a service to investors and to maximize the market appeal of the fund.

The open-ended structure can be fatally flawed in 'one-way' markets where there is a large preponderance of buyers or — much worse — sellers. A rush of buyers can flood the manager with cash, thereby diluting the real estate return delivered by the fund and damaging the manager's performance. A rush of sellers can be much more damaging. Unfortunately, there may be a double problem in such circumstances.

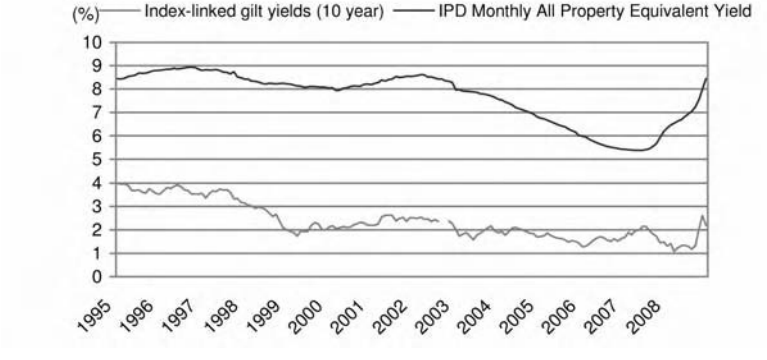
If a majority of investors feels that the time is right to sell real estate units, this may be for either or both of two reasons. First, investors may feel that the units are fairly priced but that the future market return will be relatively unattractive. Second, investors may feel that the units are overpriced and will wish to exploit a pricing anomaly by selling. On several occasions, with late 2007 being the latest example, these two factors combined to create the equivalent of a 'run on the bank'.

In 1990, Rodamco, then an open-ended Netherlands fund, was forced to close its doors to prevent investors from exiting. In 2005, German open-ended funds suffered a large exodus of investors, forcing an immediate revaluation and audit of one large fund and the risk of its closure though mass withdrawals. Following this, the pricing of German open-ended funds was publicly debated, fraud was discovered in two cases and questions about investor protection were openly raised.

In 2007 in the UK, a weakening real estate market was coupled with the predictable conservatism of valuers reluctant to mark prices down without clear evidence and yet strong external evidence in the derivatives and REIT markets of much lower real estate prices. The September quarter-end valuation of most open-ended funds was too high. Professional investors, primarily fund of funds managers, wished to exploit this anomaly by selling over-valued units in open-ended funds. The reaction of several open-ended fund managers was to defer redemptions and to reduce the valuation retrospectively, thereby preventing investors from exiting at valuation. At the time of

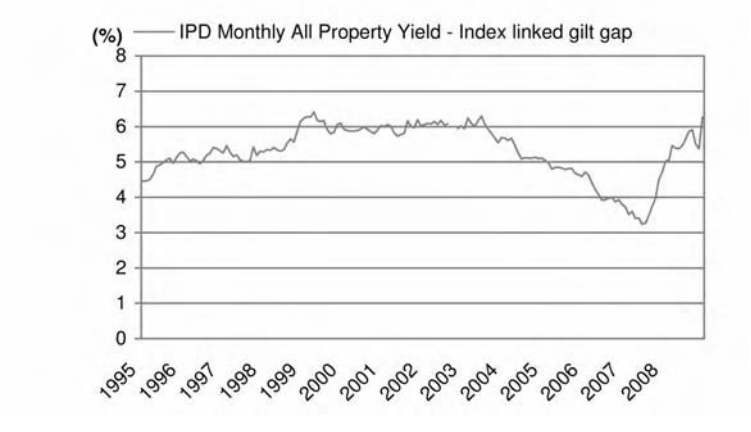
writing the consequent damage caused to the open-ended fund industry is difficult to quantify but may prove to be significant.

Figure 7.9: Real estate yields and index-linked gilt yields, 1995–2008



Source: IPD, FT, Property Funds Research, 2009

Figure 7.10: Real estate yields less index-linked gilt yields, 1995–2008



Source: IPD, FT, Property Funds Research, 2009

7.6.2 Valuation

As the secondary market trading of funds has begun to grow, pricing of these units has begun to take place at discounts and premiums to net asset value. This challenges market convention, as, unlike REITs, which trade in the stock market at market-determined prices in real time, unlisted funds are priced by reference to market valuations. For higher-risk opportunity funds, valuations may be irregular and unimportant, as investors expect to see a return of capital within three to seven years and interim valuations may not be helpful where development or other value-adding activity is the key focus of the fund. For low-risk core funds with longer or indefinite lives regular valuation is a more accurate and necessary indicator of the manager's progress, and monthly valuations are not uncommon, so secondary market premiums and discounts can appear to challenge the published valuation.

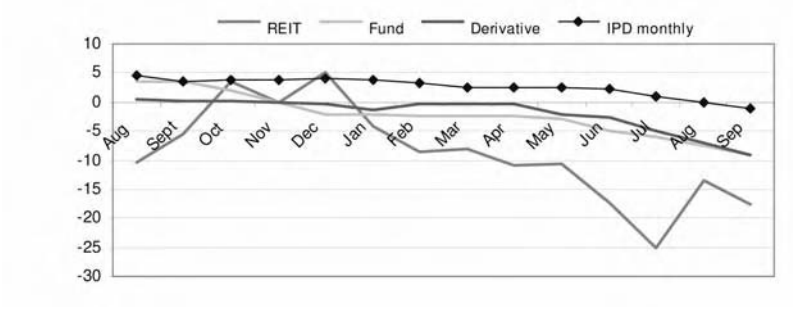
In late 2007, the UK real estate investment market had entered a period of relative crisis. Prices had been falling, liquidity had disappeared, and open-ended funds had closed their doors to those trying to exit. Why the loss of liquidity? Why had investors suddenly become trapped within an asset class — and an apparently liquid structure — that had been performing so well but suddenly froze? The answer lies in the unique nature of real estate as a 'big ticket' asset class, but also in the defects inherent within the practice of real estate valuation.

Figure 7.9 shows real estate yields and index-linked gilt yields for the period 1995–2008. It shows a remarkable correlation. The market appears to treat these asset types similarly, as excellent inflation hedges. However, by late 2006 the gap had closed, making real estate relatively expensive. This is illustrated more clearly in figure 7.10.

Real estate was looking expensive at the beginning of 2007. By this point, average premiums to NAV on unlisted funds had begun to fall, followed quickly by falls in REIT premiums and derivative margins. However, it was not until the summer of 2007 that returns on the IPD monthly index — the best indicator of prices in the direct UK market — begin to turn down.

Figure 7.11 shows average three- (calendar) year real estate swap margins over LIBOR from August 2006 to September 2007, turning from 0.4% over LIBOR to 9% under LIBOR (Merrill Lynch estimates). Unlisted fund premiums over NAV fell (according to Jones Lang LaSalle estimates) from 4% on average to –9% in September. REIT prices collapsed from premiums to NAV at the start of 2007 to big discounts by summer 2007.

Figure 7.11: REIT and unlisted fund discounts to NAV, real estate swap margins over LIBOR, IPD monthly returns, August 2007 to September 2008



Source: IPD, JLL, CBRE, Merrill Lynch, Property Funds Research, 2009

Meanwhile, the IPD monthly index (unlike the other indicators, including income) produced its first negative return (–0.1%) in September 2007. This — at the very least — suggests some lagging in the IPD monthly index.

Why has the IPD monthly index lagged other real estate indicators? The answer lies in the nature of the asset class and the conservatism built into UK real estate valuation practice.

7.6.3 Real estate as an asset class

Real estate is just one of a set of conventional and alternative assets for investment funds and must compete directly with them. In the UK and US over the long term, equities have performed best, real estate second best and bonds worst. But in the UK the volatility of real estate, as measured by the standard deviation of those returns, is much lower than the other two.

However, there are problems with this argument. The capital values of real estate used in the performance calculations are produced by valuations and are not transaction-based. It is commonly argued that the way in which valuations are produced means they tend to lag market movements, producing a lagging effect in the performance figures that tend to smooth the peaks and troughs of movements in prices (see chapter 1).

Valuation issues, along with considerations of liquidity and the depreciation of real estate, have been cited as issues that have been used to disadvantage real estate in the asset allocation process. Yet when these differences are exposed they provide an opportunity for professional investors to make money through the identification of pricing anomalies, which hedge funds (for example) increasingly try to do. In the UK, the recent introduction of a UK REIT and the development of derivative products are both illustrations of the driving together of real estate and the capital markets, the opportunity for arbitrage and the impossibility of real estate appraisal methods standing apart from these markets. This is a good thing for markets, investment managers and investors.

7.6.4 How market prices are estimated

However, real estate is different from liquid assets because market valuations are required for performance measurement purposes. The established doctrine underpinning the identification of market value requires best evidence of trading prices of other similar assets. This doctrine is underpinned by the courts and by the perceived best practice of other competent practitioners.

'Other similar assets' is invariably interpreted as other similar *real estate* assets; and the use of transactions in similar properties means that a lag is built into real estate valuations. From 1996–2006, a period of rising prices, IPD estimates that sale prices were around 3% higher than valuations. This suggests some lagging of valuations. As a result, few analysts accept that appraisal-based indices reflect the true underlying performance of the real estate market. Such indices fail to capture the extent of market volatility and lag underlying performance.

Real estate valuation is founded primarily on the use of comparable sales evidence. Similarity in real estate characteristics is paramount and good recent comparables may be rare. Hence the evidence used to value a property as at 31 December 2007 may be collected over the period July to December. In a rising or falling market, this will again result in a lower variance of prices. As a result, valuations will be based upon the previous valuation plus or minus a perception of change, and the perceived changes, unless the subject of very reliable transaction evidence, will be conservative.

There may also be client influence. The way property fund managers are typically rewarded, with an annual fee and a performance

fee based on delivered returns with no reference to risk, may mean they will benefit greatly from a particular performance outcome, which will earn a bonus or carried interest, or support a track record to win or retain fee-earning business.

There are circumstances in which clients and other stakeholders may put pressure on the valuer to report a specific outcome. For example, in early 2006, some German open-ended funds with unit prices set by valuations were subject to very high withdrawals from investors, and it has been suggested that this was because investors did not trust the valuation-based price levels.

Given that valuations tend to lag price increases and falls, valuations in a bear market will not follow price reductions down as quickly as they occurred. If this bear market continued for a long term, which was the case in Germany, valuations could become higher than prices. It is not surprising therefore that investors would be nervous of this cocktail of moral hazards, with plenty of incentives for the funds to influence valuers, and that some investors lost confidence in the valuation levels being reported.

In the UK, there is thankfully no evidence of client influence maintaining artificially high price levels (Baum et al, 2003). However, there is a secondary market for units in unlisted funds. There is also a growing real estate derivatives market, and a REIT market, not to mention a securitisation (CMBS) market. All offer pricing indicators to valuers of direct real estate. Yet while there was patent overpricing in a falling market in the second half of 2007, valuers claimed a lack of comparable evidence, with few transactions.

Evidence is all around in the capital markets and unlisted real estate vehicles, and valuers are beginning to be influenced by the evidence provided in increasingly integrated markets for direct real estate and real estate funds.

Their professional integrity, and a clear absence of client influence, is paramount to the working of the unlisted real estate fund market.

7.7 The case for and against unlisted real estate funds

7.7.1 The case for unlisted real estate funds

Unlisted real estate funds can diversify real estate specific risk

A great deal of money is needed to build a diversified real estate portfolio. The capital investment required to mimic the performance of a real estate index depends on both the efficiency of diversification within the segment and upon the average lot size within each segment. Investors with higher levels of risk aversion require more capital investment in real estate segments in order to reduce the specific risk component of the portfolio to the desired level.

For example, Baum and Struempell (2006) found that over £1bn is needed to build a diversified portfolio of London offices with a 2% tracking error. This presents a very strong case for using an unlisted fund focused on London offices. Assuming that such a fund is financed by 50% debt and 50% equity, 20 investors committing £25m each will produce enough capital to achieve the diversified fund. Yet the investor's £25m is enough to buy only one or two London offices of average lot size.

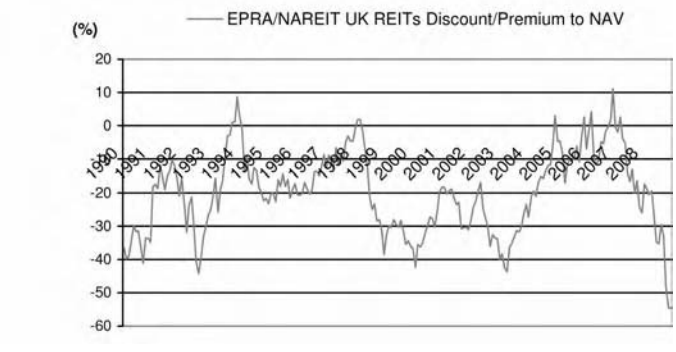
Unlisted funds are priced by reference to NAV

The above argument could also be used to justify investments in listed property securities. However, the pricing of listed REITs and property companies will vary from real estate prices and in the short to medium term (0–5 years) distort the performance of the securities relative to the underlying real estate market. Since 1990, US REITs have traded at discounts and premiums varying from –35% (in 1991) to +30% (in 1997).

Figure 7.12 shows the premium and discount to NAV (net asset value) that coloured the performance of the UK PropCo/REIT sector over the period 1990–2008. It shows how there is some short-term volatility, and that significant discounts to NAV can affect pricing for periods as long as five years.

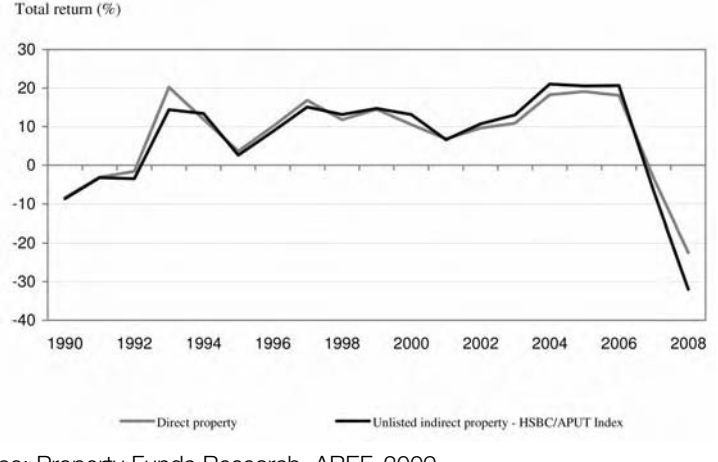
On the other hand, core open-ended unlisted funds appear to track real estate NAVs. Figure 7.13 shows how core (lower risk, often open-ended) UK funds have tracked the UK IPD index of direct real estate returns.

Figure 7.12: UK REIT pricing relative to NAV, 1990–2008



Source: Property Funds Research, EPRA, 2009

Figure 7:13: UK core unlisted funds — performance relative to NAV



Source: Property Funds Research, AREF, 2009

This could be highly misleading. Figure 7.13 shows how appraisal-based returns on core funds track appraisal-based returns on the index. It does not purport to show how trading prices track the index (see figure 7.11). This became a problematic issue in 2007-08, as described in section 7.6.2.

Unlisted funds provide access to specialist managers

It is likely to be the case that specialist managers, meaning experts in a market sector or a specific geography, will produce better performance than a manager or investor located in a single market yet attempting to buy assets globally. PFR global data shows that the majority of closed-ended unlisted funds are typically focused on a geography (India, London) and sector (shopping centres, London offices). Good fund and manager selection can lead to the holy grail of lower risk and higher returns.

7.7.2 The case against unlisted real estate funds

Investing in unlisted funds suffers from four key challenges. First, cash may not be taken immediately by the discretionary manager, fund of funds or selected fund(s). This produces a slow expected cash drawdown profile. Second, the initial performance will be coloured by the costs involved in the manager buying the initial portfolio, producing what is known as the J-curve effect. Third, manager fees can challenge thoughtful investors. Finally, trading prices may not track NAV, even for open-ended funds.

The drawdown profile

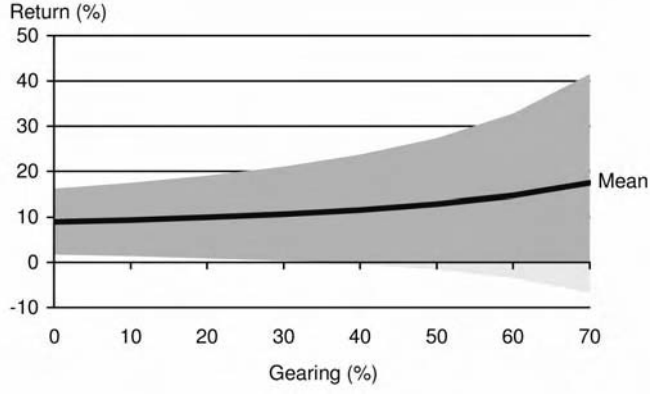
Managers will not wish to draw cash immediately for a variety of reasons, the key issue being their desire to deliver real estate returns not coloured by cash returns. Hence, cash is drawn from investors as and when it is needed to complete the purchase of assets. The result is a delay in attaining full exposure.

Gearing and the J-curve effect

The performance of an allocation to unlisted funds will also be damaged in the short term by the costs involved in the manager buying the initial portfolio. The result can be poor short-term performance. In the early years, newly launched funds' performance can be negative relative to the direct real estate index — but after fund costs are amortised, and the gearing in the unlisted fund takes effect, the unlisted funds can outperform the direct market.

The typical European fund, whether core or value-added, is likely to be somewhat different from a UK open-ended fund. It will probably

Figure 7.14: The impact of gearing on return



Source: Baum and Struempell, 2006

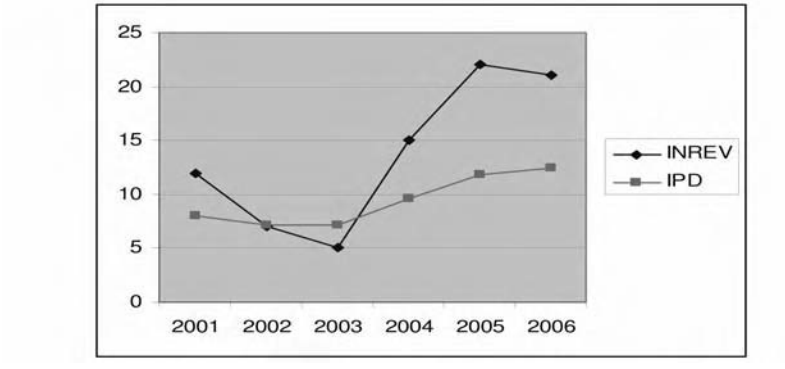
be geared and closed-ended. Adjustments will therefore need to be applied to the direct real estate risk, return and correlation data that encouraged investment in real estate.

A financial structure of 50% equity and 50% debt means that only half of the required investment is needed to attain the same exposure. This increases the appeal and efficiency of unlisted vehicles even more. Unfortunately, this factor carries with it financial risk, which, to some extent, will offset the reduction in specific risk. It is known that gearing increases risk and volatility. It also makes performance more responsive to interest rates and the bond market, depending on whether the interest rate is fixed or floating. Debt can alter the cash flow, and will typically decrease the investor's income return. In summary, the risk of a geared fund is likely to be higher than the risk of an ungeared fund, as shown by figure 7.14, in which the shaded area shows the likely spread of returns, increasing as gearing increases.

Hence the price of specific risk reduction achieved by unlisted vehicles may be higher volatility introduced by gearing — albeit balanced by higher prospective returns.

The INREV Index, which began in 2001, measures annual net asset value (NAV) based performance for non-listed real estate funds investing in Europe. The 2006 Index release covered 206 funds with a

Figure 7.15: The J-curve effect



Source: INREV, IPD, Property Funds Research, 2006

NAV of €153bn. Performance from 2001–06 averaged 13.67% compared with 9.35% for the ungeared direct property market measured by the Investment Property Databank (IPD pan-European index).

The INREV index (see figure 7.15) describes a classic J-curve relative to the market, showing how fund set-up and acquisition costs damage early year returns as funds are being established. Figure 7.15 also shows how funds outperformed the direct index by around 10% per annum over the 2005–06 period.

In the INREV index release for 2006, INREV reported fund returns split by gearing level. A low-geared fund has a gearing level of less than 50% of NAV (gearing of roughly 33% of gross asset value or GAV); medium gearing is defined as 50–150% of NAV (33–60% of GAV) and high gearing is above 150% of NAV (above 60% of gross asset value or GAV).

In 2006, INREV-classified, high-geared funds outperformed low-geared funds with returns of 29.9% against 10.2% respectively. This huge difference may be explained by other factors as well as gearing, but it almost certainly illustrates the power of leverage in a strong capital growth environment.

Excessive fees

Fees charged by the manager of a real estate fund (or a fund of funds) will usually be charged on an annual *ad valorem* basis, typically between 50bp and 100bp every year on a growing gross asset value, despite the fact that much of the manager's activity is front-loaded. In addition, performance fees may be charged and related to absolute returns or returns relative to an index. Often, the use of high gearing will mean that the manager has increased the risk profile of real estate investing but, to the extent that this delivers extra returns, will be paid for the risks taken with client's capital. These issues are challenging for managers to justify.

In addition, double fees charged in funds of funds may be hard for clients to bear. Managers need to be able to justify the additional fee layer by proven added diversification and risk reduction, or alternatively by the provision of expert access to outperforming managers at a reduced cost.

Do trading prices track NAV?

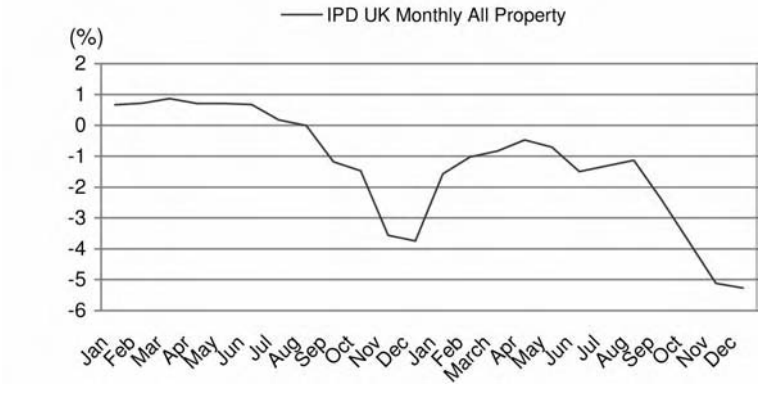
A large component of the case for unlisted real estate funds, as argued above, is that unlisted funds are priced by reference to NAV and can therefore be expected to deliver property-style performance, whereas REITs and listed property companies exhibit volatility and correlation with equities. But the events of 2007-08 call this into question.

Take the case of a UK open-ended fund in mid-2007. The fund is valued monthly by a well-known chartered surveying practice/ property services provider. The valuation instruction is to estimate the asset value of the properties in the fund; any adjustments needed to estimate the fund net asset value are usually undertaken internally as an accounting function, dealing primarily with the addition of cash holdings and the deduction of debt.

From January 2007 to June 2007, the IPD monthly index had been showing positive capital growth of between 0.27% and 0.46% for each of the six months of the first half of the year (see figure 7.16). The fund also showed positive NAV growth.

In the summer of 2007, there was a change in market sentiment. This was evidenced by some circulars from fund managers to their clients warning of poor returns to come. It was reflected to some extent in the IPD monthly index, which produced its last positive total return of the cycle in July, disguising a tiny fall in capital value of 0.22%,

Figure 7.16: IPD UK monthly index, monthly total returns, 2007–08



Source: IPD

followed by a negative capital return in August of 0.4%, marking a turning point in retrospective but hardly indicative of a crash. The fund's values were flat over this period, as they were through the end of September. However, the IPD monthly index for September had taken a more significant downward turn of over 1.5%, a figure that was not available to the valuer of the fund's properties at the time the September valuation was produced. The effect of this was that the fund's values stayed flat over the summer quarter, while the IPD monthly index fell by over 2% for the quarter.

Open-ended fund units can be redeemed on demand, and new investors will normally be allowed and encouraged to buy new units on demand. The manager will issue units at NAV plus an allowance for the costs of buying new properties with the new cash (the offer price), and will undertake to return capital to the investor at the latest NAV estimate less a deduction for trading costs (the bid price). (Technically, the NAV is adjusted to offer price by adding real estate acquisition costs and offer is reduced to bid by deducting the round trip costs of buying and selling real estate.)

Open-ended funds in the UK typically have quarterly redemptions. The quarter-end NAV is important, as it sets the bid and offer price. For example, the relevant data for the fund might be as follows:

Figure 7.17: Secondary trading premiums (discounts) in UK closed-end funds and UK REITs, August 2006 to December 2008



Source: EPRA, JLL, 2009

- The fund's net asset value is £995.05m. The number of units in issue is 19,082,778. The NAV per share is £995.05m/19,082,778 = £52.15.
- The offer price — the price paid by an investor on entry — is set at NAV plus 4.75% = £52.15*1.0475 = £54.63.
- The bid price — the price received by an investor on exit — is set at offer price less 6.25% = £54.63*0.9375 = £51.21.
- The bid-offer spread = (offer-bid)/offer) = (£54.63 – £51.21)/(£54.63) = 6.25%.
- Mid price = (bid+offer)/2 = (£54.63 + £51.21)/2 = £52.92.

In mid-October 2007, the fund's manager found itself in a 'challenging' position. Market sentiment had clearly changed. The UK REIT market had moved to huge discounts to NAV, moving downwards from a small premium in March 2007 to a discount touching 20% in September 2007 (see figure 7.17).

Meanwhile, the fund's NAV had stayed flat over the summer. Unlisted funds in general were in a strange position — secondary

trading had dried up as the market sought a new price level, as Jones Lang LaSalle's (JLL's) estimates of closed-ended fund premiums and discounts show. Only by November had the repricing become evident.

Professional investors could see a clear arbitrage opportunity, and were prompted to exploit it. They served redemption notices effective at the end of September, expecting to be paid out at the NAV-based bid price. This was broadly the same as it had been in June, at the peak of the market, but by October values were clearly falling. The manager was faced with the prospect of selling properties in a very weak market for prices that would clearly not be as high as the September NAV.

This might be a fair game as far as the exiting professional investor would view it, but it might not be fair from the perspective of an existing unitholder who wishes to stay in the fund. If a large number of properties are sold considerably below NAV but existing unitholders are paid out at NAV, the remaining unitholders suffer the loss. If this is the case, then all unitholders will be tempted to exit at the same time, challenging the continued existence of the open-ended fund, which has been a perfectly acceptable and stable investment for many small pension funds for over 15 years since the last market crisis of 1991.

The trust deed allowed the manager to defer redemptions, and also to make adjustments to the NAV in exceptional market circumstances. It was judged that these circumstances were indeed exceptional, and a large discount was applied to the NAV in October, and a further discount was applied in January; redemptions were deferred, but sales took place and exiting investors (who had been able to withdraw their redemption notices give the downward price revision) were paid out on time, albeit at the lower bid price, by now revised down to around 80% of the NAV.

The consequences are disturbing. While unlisted fund NAVs may continue to track the IPD index (see figure 7.13) and demonstrate high correlation, there is less reason to suppose that will reflect either trading prices of funds on the secondary market, or the prices received by investors exiting open-ended funds. Nonetheless, given the history of the UK market, it may be that this is a once in 17-year event (see chapter 2).

7.8 Performance measurement and return attribution for property funds

7.8.1 The asymmetry of performance fees

As explained in section 7.2, performance fees may be charged by managers of unlisted funds, especially those at the riskier end of the spectrum, and will be related to absolute or relative returns.

The use of high gearing increases the risk of the client's capital and should generate extra returns. This can be called beta investing, whereby the manager increases the exposure of the client's capital to the market (see chapter 5). It is different from alpha investing, whereby the manager uses skill to outperform the market competition at the relevant risk level. It can be expected that more focus is placed on defining and distinguishing alpha and beta investing in real estate funds, if only because performance fees charged purely for beta are commonplace, yet plainly unfair.

This issue, among others, will add to the debate about transparency which is necessary to bring self-regulation to a growing and globalising market for real estate funds. Aided by the participation of world-class global managers and investors, real estate funds are likely to be the engine that drives best practice in a truly international real estate market.

Since the mid-1990s, in a generally strongly performing property market, fund managers have been able to raise significant capital for unlisted funds that reward them with performance fees, without the manager necessarily being able to provide clear evidence of historic outperformance against market benchmarks or targets.

Table 7.4 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%, or just over 20% 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.

Property Funds Research data suggests that typical annual fund management fees, excluding performance fees, average around 0.8% of gross asset values, taking away less than 1% return every year. Hence the fee impact shown in table 7.4 seems high, and is explained by 'carried interest' or performance fees. High fees may be justified if the manager has earned the fee through the exercise of skill. But, as we have seen, a higher-risk portfolio should outperform a lower-risk

Table 7.4: Total returns, fund series — fee impacts (rounded)

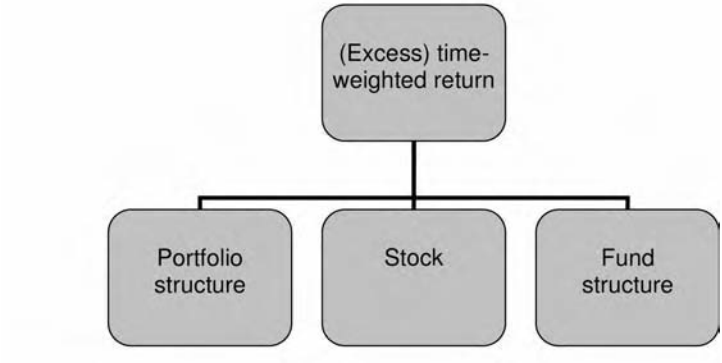
Fund	Gross IRR (%)	Net IRR (%)	Fee impact (%)	Fee impact (%)
1	29.0	25.0	4.0	13.8
2	17.0	13.0	4.0	23.5
3	33.0	25.0	8.0	24.2
4	35.0	30.0	5.0	14.3
5	27.0	21.0	6.0	22.2
6	46.0	37.0	9.0	19.6
7	21.0	16.0	5.0	23.8
8	34.0	27.0	7.0	20.6
9	16.0	13.0	3.0	18.8
10	20.0	15.0	5.0	25.0
11	18.0	14.0	4.0	22.2
12	20.0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

Source: Baum and Farrelly (2008)

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 reward alpha, but they may reward pure beta. 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 (there is an 85% correlation between the gross IRR and the fee impact in table 7.4) 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, which is good; but whether alpha or beta delivers those returns may be immaterial, and that is not good.

Figure 7.18: Time-weighted return attribution for a property fund



Source: Property Funds Research

7.8.2 An attribution system for funds

To enable performance fees and track records to be judged, risk and return attribution systems need to be developed for property funds and property fund managers. As an example, Baum (2007) focuses on the additional return and risk contribution of fund structure — gearing, for example — 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.

Fund structure is a factor specific to property held in a vehicle or wrapper. This factor will have an impact on the returns from listed REITs and property companies and from 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 'degearing' 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 (see chapter 5).

Using the sets of data described above, the tracking errors 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 with the predicted fund tracking errors. The fit between actual and predicted fund tracking errors was higher than the fit between actual and observed property tracking errors, 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 (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.

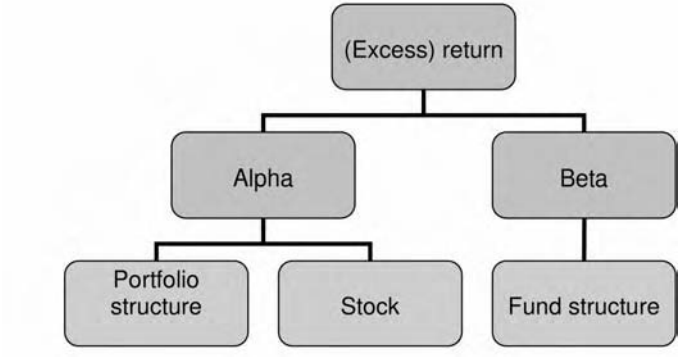
As discussed above, if all portfolio segments are of similar risk, then positive excess returns generated by the portfolio structure relative to a benchmark will produce alpha. If they result from taking overweight positions in high-risk markets, then they generate beta. In the context of unlisted funds, 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. This taxonomy is illustrated by figure 7.19.

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 approach is appropriate for return measurement. The benchmark, however, will report a time-weighted return, so that the difference can be attributed to investment timing and fund drawdowns.

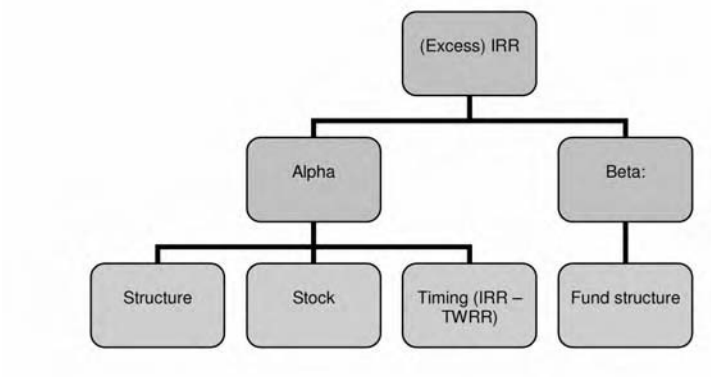
We arrive at a four-stage first tier of alpha/beta IRR attribution, illustrated by figure 7.20. This is as follows.

Figure 7.19: Time-weighted alpha and beta attribution for a property fund



Source: Baum and Farrelly (2008)

Figure 7.20: Money-weighted return attribution for a property fund



Source: Baum and Farrelly (2008)

- 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.

- Portfolio structure needs to be judged as either an overweight position to more risky, 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 and core-plus funds this is most likely to be an alpha-generating activity.

- 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 and core-plus funds, this is most likely to be an alpha-generating activity.

- 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 will be easy or non-controversial. The choice and/or availability of benchmarks, in particular, are limiting factors.

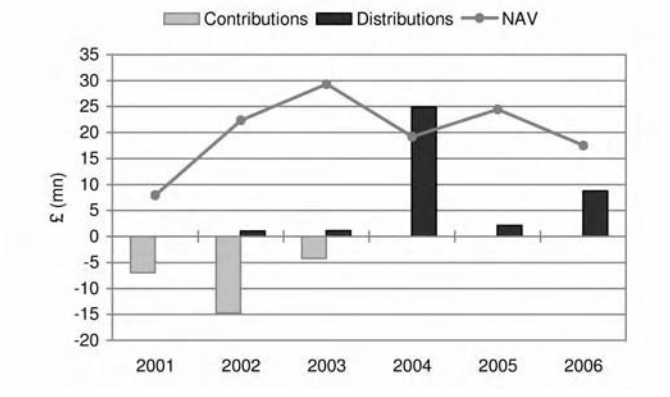
Judging whether greater risk is being taken at the structure or stock level will be a matter of opinion and is therefore a pragmatic question.

7.8.3 Alpha and beta in property funds: a case study

We use a case study to illustrate the property fund attribution framework set out above.

The case study examines a closed-ended, value-added, UK-focused unlisted fund, which commenced its acquisition programme in 4Q 2001 and was effectively liquidated by 4Q 2006. Quarterly performance data was made available for this entire period, although we only had sufficient data to conduct full attribution analysis from 1Q 2002. The fund purchased 22 assets with an average book cost of £4.5m and a total portfolio book cost of £99m. Equity contributions totalled £26m and leverage ranged from 65–70% throughout the fund's life.

Figure 7.21: Cash flow profile, case study fund



Source: Baum and Farrelly (2008)

The average holding period of the assets was 2.5 years. The manager was looking to exploit deal-making and transaction skills. This level of turnover is not unusual for value-added and opportunistic funds, but it is relatively high. As a result, capital was distributed back to investors soon after the investment period had been completed, as illustrated by the overall cash flows of the fund shown in figure 7.21. Thus, the timing effect was expected to be significant.

For property fund attribution analysis, both the fund and property level time-weighted returns 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. (We excluded the first quarter's performance for detailed attribution analysis as time-weighted property level returns were not available.)

The fund had a mandate to invest across the UK, so we chose to perform the property fund attribution analysis against the UK IPD universe. The fund was very concentrated from a portfolio structure perspective, with holdings in only four of the 12 UK PAS segments and 55% 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.

The results of the attribution analysis are detailed in table 7.5. Addressing property level performance first, the fund has produced relative outperformance of 1% per annum over the five-year measurement period. The manager has underperformed, due to portfolio structure, by almost 2% per annum.

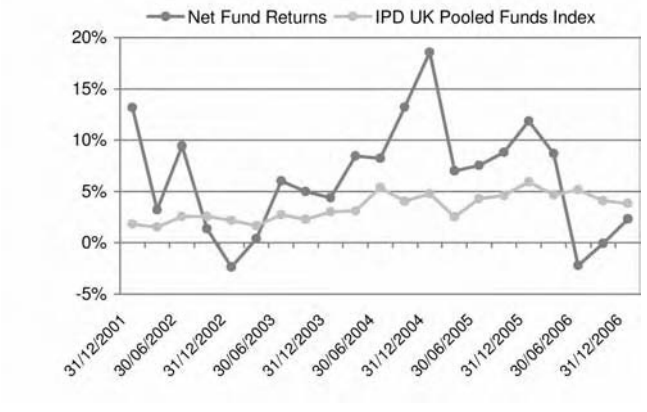
Performance attribution suggests that the manager has outperformed due to stock selection. With such a relatively high stock score and relatively concentrated segment exposures, we can say that the manager has outperformed by concentrating in preferred segments. However, at this stage we cannot be sure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

Table 7.5: Property fund return attribution (%)

	2002	2003	2004	2005	2006	5 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: Baum and Farrelly (2008)

Figure 7.22: Quarterly time-weighted returns — fund versus IPD Index



Source: Baum and Farrelly (2008)

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 investment manager fees, inclusive of performance fees.

The gross structure added 12.9% to the property level return. Fees to the fund manager reduced the gross structure effect by 4.1% (or 17.2% in relative terms), and this impacts on beta. Outperformance peaked in years three and four of the fund, when investments were being realised and value-added initiatives completed.

Finally, over the measurement period the timing of property cash flows added 4.3% to the time-weighted total return, to give investors an IRR of 29.9%. We were unable to conclude how much of this was attributable to alpha, although we suspected that the manager had delivered outperformance given the relatively short hold period of assets in the portfolio.

The fund's annualised total time-weighted return over the measurement period was 25.6% versus its benchmark return of 14.9%. However, the fund's annualised standard deviation was 23.0% compared with the benchmark equivalent of 5.3%. We therefore proceeded to employ the CAPM model to assess the risk-adjusted performance of the fund over the performance measurement period to complement the above attribution analysis. The result is an alpha of zero but a positive and significant beta.

Table 7.6: Case study alpha and beta estimates for case study net total returns

	Alpha	Beta
Coefficient	0.00	1.73
t – statistic	–0.04	1.98
R – squared	0.18	
Observations	20	

Source: Baum and Farrelly (2008)

Unfortunately the CAPM regression is not particularly robust statistically, with the alpha co-efficient being insignificant. However, the beta co-efficient is significant and the equation provides some insight into performance. It is suggested that much of the outperformance was the result of higher beta and also the timing of sales and purchases.

The high beta reflects the level of gearing at the fund level, and the asset level and portfolio structure risk. The beta co-efficient is also much higher than previous UK property fund beta estimates that have focused 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 did point to positive alpha, although this was insignificant. The combination of structure and stock appears to add 1% return.

This is a small fund, and statistical significance may be elusive. Nonetheless, it appears that a regression-based CAPM approach confirms that there is no evidence of alpha in these performance results. Beta, on the other hand, is significant.

7.9 Unlisted fund performance: 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 outperformance to justify performance fees.

We used a case study of a single value-added unlisted fund to compare traditional attribution results with an examination of CAPM-style alpha and beta return attribution.

Fund structure, which is largely the leverage impact, contributes primarily to beta. In the case study, we found this effect to be very large.

Portfolio structure needs to be judged either as 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 and core-plus funds this is most likely to be an alpha-generating activity.

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 and core-plus funds this is most likely to be an alpha-generating activity.

The return impact of the timing of drawdowns can potentially be attributed to the manager's skill in timing. This is an alpha activity, although this is difficult to measure in practice.

A full analysis of unlisted fund performance will become increasingly necessary. This will require the use of both performance attribution approaches and a professional and pragmatic interpretation of the results, for the benefit of both manager and investor alike.

Property derivatives 8

8.1 The search for the perfect vehicle

A derivative is a financial instrument whose value is 'derived' from the value of another asset or index; thus real estate derivatives would derive their value from real estate indices representing the underlying real estate markets. In its simplest form, a derivative represents a contract between two parties where one party wishes to increase his exposure to a certain asset and the other party wants to reduce his exposure to the same asset. Real estate derivatives could allow investors to increase and decrease real estate exposure without buying or selling properties. This potentially overcomes many of the negatives of investing in direct real estate, for example specific risk, illiquidity and high transaction costs, and deals directly with the traditional inability of investors to hedge market risk. Derivatives offer well-diversified market exposure, allowing smaller-scale investors to achieve their desired exposure.

The fundamental problem confronting property investors and property investment managers in the UK and many other European countries is this: to achieve a diversified, liquid property portfolio which delivers pure property-style returns, replicating the return on a property index without specific risk and thereby offering diversification against stocks and bonds. Could this be achieved by investing in a single real estate index derivative vehicle?

In the last decade many innovative property vehicles have been offered as solutions to this challenge, as industry groups lobbied government to produce changes in tax and listing rules, which enabled

property derivatives be created. We have seen that listed real estate equity securities are imperfect due to their return characteristics. We have also suggested that unlisted vehicles have their own particular challenges. Derivatives, or synthetics, on the other hand, can overcome many of those challenges.

Derivative transactions take place with minimal legal fees and transaction costs, so that due diligence is focused on third-party credit risk, rather than the complexities of properties. Hence derivatives could offer less expensive access to real estate exposure than investing directly or in some other indirect vehicles.

Derivatives have been widely used for some time in the securities markets, but their use for property, although established for over 10 years in the UK, remained limited until 2004. Since then, the property derivative market has experienced significant growth with annual notional volumes increasing from £850m in 2005 to £7.2bn in 2007 and £7.1bn in 2008, with total cumulative trades of £19.3bn since the beginning of 2005. Currently the UK market is the largest and most liquid property derivative market. Could this market provide the perfect property vehicle?

8.2 A short history of the UK real estate derivatives market

8.2.1 Introduction

Commercial real estate was, until recently, the only major asset class without a well-developed derivatives market. Early attempts to establish such a market in the UK were unable to achieve critical mass or trading volume.

This brief history, taken from Baum, Lizieri and Marcato, 2006, highlights the main developments that have led to the current market for total return swaps, structured notes and other forms of derivatives. The UK property industry has long sought to develop a derivatives product that would enable strategic and tactical portfolio management and allow investors to alter their exposure to real estate without incurring high transaction costs or being exposed to public market price volatility. However, attempts have been hamstrung by complications concerning regulatory requirements and tax treatment and by the nature of the underlying indices.

8.2.2 FOX, PICs and REIM

The first formal attempt to establish a commercial property derivatives market was led by the London Futures and Options Exchange (FOX). In May 1991, FOX launched a number of simple index derivatives based on the IPD Annual Index. This was a time of severe market illiquidity, and the market never developed sufficient depth or volume of trading activity. It was suspended in October 1991 amid allegations of trading irregularities and phantom cross-trading by market makers. The failure of FOX was damaging for the development of a market for property derivatives, blighting attitudes of investors and regulators alike.

In 1994, BZW launched Property Index Certificates (PICs). PICs (a form of structured note — see section 8.6) are structured as Eurobonds with coupon payments linked to IPD index income returns each year, and a capital redemption value linked to the IPD All Property capital gain over the life of the certificate. If acquired at par, this instrument effectively replicates IPD returns (less any dealing fees and spreads) for the bond holder, although any exit before maturity may result in a price out of line with the index and a consequent tracking error. They provide a low-cost means of investing in commercial real estate but are somewhat inflexible as a hedging tool.

PICs and Property Index Forwards (a simple contract for difference product linked to the IPD All Property Index) were issued in 1994, 1995, 1996 and 1999, and in 2005 and 2009, these last issues being made by Protego Real Estate Investors and Barclays Capital (who support a secondary market). The issues are listed on the London Stock Exchange. Around £800m of PICs were issued in the 1990s, and the new issues totalled £464m. Typical maturities are short: one to four years is typical, the 2009 issues maturing in 2012 and 2013.

Other investors sought to create markets for total return swaps (for example, the proposed real estate investment market, or REIM) but development was hampered by regulatory constraints (particularly limitations on life funds holding property derivatives) and by taxation and accounting uncertainties. The Property Derivatives Users Association (now the Property Derivatives Interest Group, part of the Investment Property Forum) lobbied for clarifications with considerable success.

In 2002, the FSA confirmed that life insurance companies could use property derivatives for efficient portfolio management, incorporated into the IPRU (Integrated Prudential Source Book). The taxation issue was largely resolved in December 2003, when an Inland Revenue consultation paper confirmed that property derivatives

would fall into the 'standard' derivatives regime, with most net cash flows subject to income tax not capital gains. This was confirmed in the 2004 Finance Act.

Finally, the implementation of FSA consultation paper CP185 as the new collective investment scheme sourcebook COLL in 2004 allowed authorised retail and non-retail funds to hold property derivatives, subject to various prudential limitations. Thus, the constraints that existed in the regulatory environment had largely been removed by late 2004.

8.2.3 The new market

By 2005 most of the regulatory restrictions on the development of a property derivatives market had been lifted, and commercial real estate index total return swaps have been traded in the UK since the beginning of that year, marking 2005–08 as the first phase of the new market. During this period, a degree of standardisation of commercial terms occurred, and the standard form of total return swap commonly traded in the inter-bank market property became the property derivative structure of choice.

The emergence of financial intermediaries (derivatives brokers, in particular) and the leading banks acting as market makers prepared to take positions, warehouse deals and carry inventory costs was critical in the development of a more liquid market and the emergence of price signals, as were partnerships between real estate service providers and derivatives brokers (CBRE and GFI, and DTZ and Tullett Prebon, for example.)

Once established, derivatives markets tend to display impressive growth in traded volumes. Good examples of this include credit derivatives and freight derivatives, both of which have shown exponential growth over prolonged periods. In these cases the market started with a steady but not too spectacular growth rate, during which time participants were being introduced to the product and standardisation of documentation and commercial terms was occurring. Within a few years, derivatives cease to be treated as stand-alone products and become part of the core activities of players in the underlying market. Once this occurs volumes can rapidly grow to exceed the underlying market size.

It is too early to tell whether property derivatives will follow this pattern, but the early signs were positive. There were around £800m

(notional value) of trades in 2005. Almost all trades were over-the-counter bipartite deals, although investment banks were active in arranging these deals. The UK market grew very rapidly from this beginning, with outstanding notional principal passing the £1bn mark by the end of 2005, £6bn by the end of 2006 and £9bn by the end of 2007.

Although trading volume fell as underlying asset market conditions worsened, there were 802 recorded trades in 2008, and for the first time volumes in the underlying market — albeit weak — began to converge with derivative volumes. The UK property derivatives market traded around £7.1bn of trades in 2008; by comparison, there was £24bn trading of direct UK property investments in 2008, down nearly 25% on 2007.

8.3 International developments

8.3.1 Introduction

Developments in the UK form part of a wider global move towards the creation of property derivatives. While the UK is in most respects ahead of the global market, the only traded property futures market (see section 8.9) is in the US, which, as might be expected, has seen considerable creative activity.

8.3.2 The US

In the US market, the development of derivative products in the real estate market is also quite recent, although the first real estate-linked swap was launched in 1991. CMBS swaps have existed for some time, based on the Lehman or Bank of America CMBS indices. In 2006, the S&P CME housing futures and options contracts were launched in Chicago, based on the Shiller-Weiss indices.

A total return swap based on the NPI was announced and offered by Credit Suisse First Boston (CSFB) in the US in 2005, and in 2006 Real Capital Analytics and MIT announced a set of indices tracking US commercial property prices, which were designed to be the basis for derivative trading.

The US real estate derivatives market has been much slower to develop than the UK market, with total notional traded values reaching $0.6bn at the end of the first quarter of 2008. This is likely to grow, as the IRS recently ruled that no cross-border tax will be

imposed on international investors acquiring US real estate exposure via derivatives and have put the derivative market at an advantage over other forms of cross-border real estate investment into the US.

The US offers four commercial real estate indices for derivative trading. As with the IPD, the NCREIF NPI is appraisal-based, but (uniquely in commercial property as at early 2009) there are also transaction-based indices. The available commercial indices in the US are shown in table 8.1.

Table 8.1: US real estate indices

NCREIF NPI	Appraisal-based
Moody's/REAL commercial property index (CPI)	Transaction-based
S&P GRA commercial property index	Transaction-based

Source: Baum, 2008

The only currently licensed US commercial index is the NPI, anticipated to remain the leading index for derivative trading in the US commercial sector. However, the case for a derivative product based on a transactions-based index is strong, to be examined later.

8.3.3 A global property derivatives market?

Outside the UK and US, there is an active Listed Property Trust futures contract traded on the Australian Stock Exchange and there are exchange traded products based on the European EPRA indices. More recently, residential property derivatives have been traded in Hong Kong and Switzerland, and commercial real estate total return swaps based on IPD indices have been traded in Australia, Canada, France, Spain, Germany and Japan.

8.4 Total return swaps

The two types of derivative structure actively utilised in the UK commercial real estate market are:

a) total return swaps; and
b) real estate index notes, or structured notes (see section 8.7).

The main difference between these instruments is that swaps do not require that any principle is exchanged — in other words, there is no upfront price paid.

The most popular type of UK property derivative contract based on commercial property indices is the total return swap.

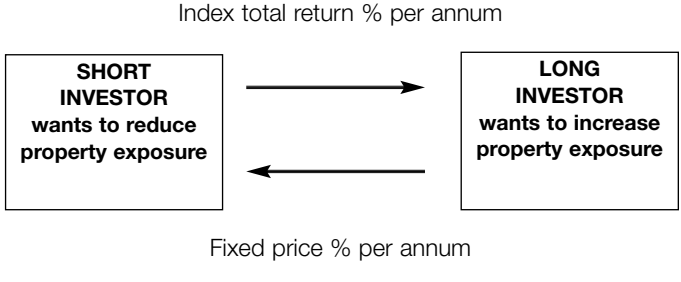
8.4.1 Total return swaps: an introduction

The structure of a standard total return swap is as follows. At the beginning of the contract, the purchaser of property exposure agrees to pay a fixed price each year for the duration of the contract, based on a notional contract size. In return, the buyer receives the annual total return of the relevant index that the contract is based upon from the counterparty.

The fixed price agreed might appear to provide an estimate of the expected annual return of the index over the life of the contract. (This appears obvious to many, yet is debated: see section 8.5.) Only the net cash flows are exchanged, depending on the relative performance of the property index versus the fixed price, based on the notional size of the contract.

Figure 8.1 shows how a standard total return swap works between principals on a matched bargain basis.

Figure 8.1: A total return swap — matched bargain



Source: Baum, 2008

These are traded over the counter (OTC) rather than on any formal exchange. Investors entering into a swap need to use an International Swaps and Derivatives Agreement (ISDA) to regulate the terms of the trade. Because the total notional is not usually handed over at the start of the contract, total return swaps have less counterparty risk than a structured note.

Investors are required to post a margin, determined by the inventors' credit, generally 5–20% of the notional, to provide 'insurance' for their position. This margin is, in effect, similar to the equity component invested in the acquisition of a direct property; the remaining 80–95% exposure is synthetically leveraged. Investors can alternatively provide a 100% margin to facilitate an unleveraged investment.

Market participants suggest that the swap price represents the implied expected return on the market. For example, a swap price of 1% per annum indicates that the expected return on the index is an average of 1% per annum over the life of the contract. The investor buying exposure will pay 1% per annum in exchange for the IPD total return, and this provides investors purchasing exposure with a net expected return of IPD –1%.

If swap prices are negative, a price of (say) –1% per annum indicates that the expected return on the index is an average of –1% per annum over the life of the contract. This provides investors purchasing exposure with an expected return of IPD +1%.

It is argued in the market that the investor is taking a view on the expected index return compared to the price paid. If investors believe the index return will be higher than as is indicated by the price, they take a buying position. If investors believe the index return will be lower than as is indicated by the price, they take a selling position.

8.4.2 How can swaps be used in portfolio management?

Swaps will eventually allow for quick re-allocation between asset classes within mixed-asset portfolios. For example, let us assume that an investor has a mixed-asset portfolio composed of equity, fixed income and real estate. The goal is to increase exposure to real estate after a valuation decrease in the real estate sector has resulted in an imbalance between the target allocations and the portfolio weights. This can be accomplished by buying a 'long' position on the IPD index through a swap.

In general, derivatives can provide immediate access to real estate exposure, without the lead time required to invest in direct real estate. This will allow investors to obtain instant exposure to new market returns (provided an acceptable index is available), without the required expertise of locating and underwriting suitable direct investment opportunities. Investors can acquire synthetic exposure and then take their time in locating specific direct investments. The immediate synthetic access creates opportunities to bridge the gap between the decision to invest and the implementation of the investment through traditional direct real estate.

As we saw in chapter 5, there are two commonly recognised components of risk and return. These are sector structure and stock selection. Sector structure bets can produce outperformance of an index through tactical asset allocation in return for an increase in tracking error relative to a benchmark; while successful stock selection activity produces a reward for successfully taking on specific risk. This is closely related to alpha (see chapter 5, section 5.15). Swaps allow investors sensing a real estate downturn to sell market exposure for a pre-determined time using a derivative, while retaining the ownership of preferred assets. This position effectively hedges market exposure and allows investors to retain any excess stock performance generated by the management of the physical assets ('alpha').

In a similar manner derivatives can be employed to more efficiently manage cyclical risk in the property market. Selling sector exposure allows investors to hedge their subsector market risk for short to medium timeframes without selling physical assets.

In chapter 5, table 5.8, we demonstrated an unsuccessful fund that was overweight in Scottish retail largely as a result of holding one very large shopping centre. The managers were removed. The obvious action taken by the succeeding manager was to sell the shopping centre to reduce tracking error despite a very strong forecast for the sector and the asset. He did so, and missed out on rapid and considerable capital growth from an asset he knew intimately.

One major attraction of a swap instrument would be the opportunity for the new manager to retain the alpha of the shopping centre (its outperformance relative to Scottish retails) while reducing tracking error by retaining the shopping centre but swapping out of Scottish retail index performance. This is one of several potential uses of an active property swaps market.

8.4.3 Single (specific) property swaps

Assume Property Company B, a City office specialist, wishes to access shopping centre performance and exit City offices. It might swap returns on its investment in Broadgate, an office complex, for returns on Lakeside, a shopping centre.

This (known as a specific property swap) would achieve a property deal with low fees; no actual property exchange would take place. The specific risk of Broadgate would be transferred for the specific risk of Lakeside. This may, however, create a potential conflict of interest for each owner, because each owner is giving away the returns on the asset he manages.

8.4.4 Property sector swaps

Alternatively, to engineer no loss of long-term control, alpha or specific risk, a sector index swap might be agreed. Company B would swap the City office index for the shopping centre index to achieve portfolio rebalance or tactical asset allocation, while retaining the short-term alpha/specific risk of Broadgate, the asset it owns and manages. On the other side of the bargain, the shopping centre owner would achieve a similar result. There would be no conflict of interest.

This type of swap is also of benefit for developers who wish to hedge market risk (see section 8.8.4).

8.4.5 Multi-asset level swaps

Assume Fund A wishes to assemble a synthetic property portfolio, with no management responsibility (and no tracking error or specific risk). It might swap all-property total returns for other asset classes: say equities, using the FTSE index, or cash, using the London inter-bank borrowing rate (LIBOR). On the other side of the bargain would be property investors wishing to reduce their exposure.

8.4.6 International index swaps

International property investment is difficult partly because of market unfamiliarity and the specific risk that the foreign investor is forced to take on (see chapter 9). International index swaps would allow this to be avoided.

Assume Fund C wishes to gain continental European exposure, and to do so swaps returns on the UK index for the returns on an overseas index. It does not take on the specific risk of overseas assets, and has no need for specialist local knowledge.

It reduces its UK exposure without selling buildings or increasing its tracking error, and thereby retains alpha/specific risk in the market it knows best, while gaining an indexed exposure to a market it wishes to enter.

8.4.7 The mechanics of property swaps

Prior to entering into a contract, investors need to have a clear understanding of the risks and benefits of utilising derivatives, and the often unique mechanics of this particular derivatives market. A key challenge is the fact that property is an alien asset class to derivatives experts and derivatives are difficult for traditional property professionals to understand.

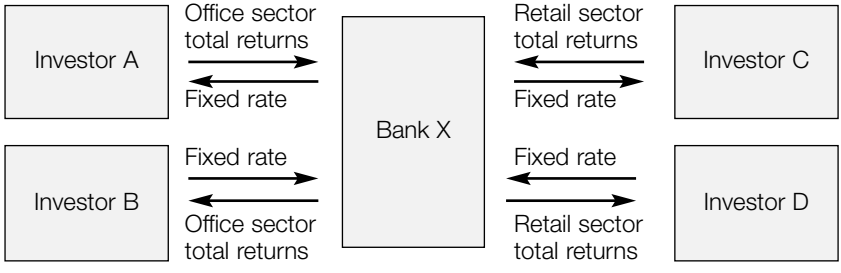
Investors need to be comfortable with property index construction methodology and have a view of expected index returns over the life of the contract. They will need approval to use property derivatives from clients or trustees, and mandates will be required that state allowable contract durations and the maximum allowable derivative exposure.

In order to trade swaps, investors need to have the legal documentation set in place between the trading entity and investment banks. Swaps require International Swaps and Derivatives Agreements (ISDA); these documents can take up to six months to complete. Investors need to agree an ISDA with every investment bank they could potentially trade with. During the process of setting up an ISDA, the investment banks will conduct a full credit analysis on the investor to determine the terms associated with trades.

The basic structure of the UK swap is an over-the-counter contract for difference where parties swap an annual Investment Property Databank (IPD) property index total return for an agreed interest rate. In the initial development of the total return swaps market, the standard contract pricing was based on the three-month LIBOR rate plus or minus a spread (or margin) expressed in basis points. The IPD 'leg' was based on the calendar year return, but due to delays in return reporting settled on the last business day of the March following the year-end.

The LIBOR leg accrued over three-month periods corresponding to calendar quarters, settling on the last business day of the quarter (that is, the last business days of March, June, September or December).

Figure 8.2: A total return swap — bank as intermediary



Source: Baum, 2008

The initial index level used to calculate the first IPD cash flow was, by market convention, the most recently published IPD monthly estimate of the annual total return. These indices are typically published two weeks after the end of each month. This had the effect of giving the swaps a retrospective start date of between two and six weeks. The LIBOR, or fixed rate, leg started to accrue on the same date as the IPD leg. To fit in with standard quarterly settlements, the first LIBOR or fixed payment was in the form of a one or two-month short 'stub' or, very occasionally when a payment would be due before the trade date, a four-month long stub.

In January 2007, there was a shift towards a simplified annual contract on a fixed-interest basis. This is illustrated by figure 8.2.

The new mechanism replaces the variable rate LIBOR leg with a fixed rate, which is somewhat simpler to analyse. The move to a fixed interest rate does not alter the basis of the typical pricing analysis, since investors could easily have swapped out the floating LIBOR payments for a fixed rate in the interest rate swaps market. However, the trading mechanics became somewhat simpler. The contracts are normally based on calendar years, and trading in the 2009 contract will take place until publication of the IPD return for 2009 in early 2010. Once this is published, attention will focus on the 2010 contract, and, as time goes on, the publication of the IPD monthly index will change expectations of the calendar year result.

There are several significant differences between this structure and most other forms of financial market swap. Most notable is the retrospective start. This is necessary as there will always be a delay

between the index date and the publication of the index for property, whereas in equities the initial index can be set at the moment that the trade is done. The settlement of the IPD leg is also affected by the delay in publication of property indices.

Also, the cash flows are not settled with the same frequency. There will be a number of LIBOR or fixed-rate payments made before the first IPD payment is due. This gives rise to both pricing and counterparty credit issues.

8.5 Pricing property derivatives

8.5.1 Introduction

In this section, we compare academic and practitioner analyses of prices. The academic approach is important, as it may point the way toward the future pricing of a new market as it matures.

We focus first on the academic approach, using two papers: Baum, Lizieri and Marcato (2006) and Lizieri, Marcato, Ogden and Baum (2009). The former, *Pricing Property Derivatives*, produced for the Investment Property Forum in 2006, introduces a key challenge in analysing derivative prices, specifically that a theoretically sound approach to property derivative pricing appears to have produced different results from practitioners' typical analyses in the early stages of the market.

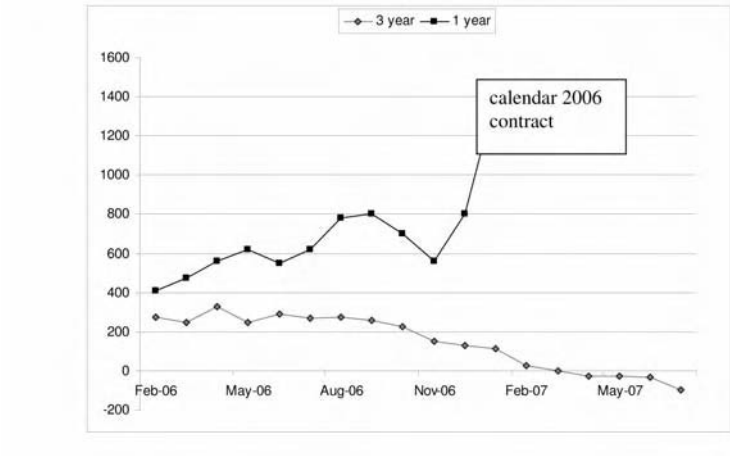
In these papers, Lizieri, Marcato, Ogden and Baum examine the evolving UK market for total return swaps based on the Investment Property Databank index. Given that total return swaps involve an exchange of returns based on IPD returns and returns based on LIBOR plus or minus a margin or spread, what explains that margin?

In contrast to the spreads found in, for example, equity index swaps, the spreads for real estate total return swaps have been as large as hundreds of basis points, and clearly moved over time as market sentiment deteriorated through the 2006–08 period (see figures 8.3 and 8.4). What are the reasons for such a spread?

8.5.2 A simple pricing example

The obvious answer to this question — and the view expressed by many market participants — is that the margin reflects the anticipated difference in performance between the two legs of the swap.

Figure 8.3: Indicative LIBOR margins, IPD UK all property swap contracts, February 2006 to July 2007



Source: Brokers' estimates

Let us use a simple example. At the end of 2005, the UK Investment Property Forum published a survey of consensus forecasts for the total return on the IPD index for 2006, 2007 and 2008. The mean expected return was 7.8%. At that time, a standard swap would have been with variable rate LIBOR plus a margin. At the time, the expected average LIBOR rate over three years was 4.80%.

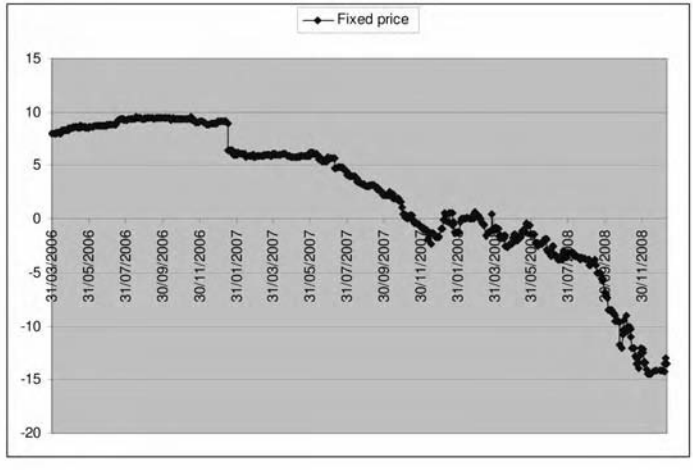
Assuming that a three-year swap is to be negotiated, and using the old pricing mechanism, it appears that, in very simple terms, the buyer of IPD/seller of LIBOR should pay a margin of 3% per annum to receive the IPD return.

If expectations were correct, then no cash would change hands, as the two legs of the swap would equate.

If the returns were the same each year, and the notional were £100m, then the seller of IPD would have to give away 7.8% of £100m, or £7.8m, at the end of each year, while the seller of LIBOR/buyer of IPD would have to give away (4.8% + 3%) = 7.8% on £100m, or £7.8m at the end of each year.

The two amounts of £7.8m would net to a payment of zero each year.

Figure 8.4: Indicative fixed prices, IPD UK all property 3-year swap contracts to 10 December, March 2006 to January 2009



Source: Brokers' estimates

In simple terms, this appears to be the way it has to be: if each side has the same expectations, the expected value of the trade must be zero. Of course, expectations usually turn out to be wrong, so one side will likely do better. If IPD does better than 7.8%, say 8.8%, the buyer of IPD/seller of LIBOR will be paid, at the rate of £1m at the end of each year. If IPD does worse than 7.8%, say 5.8%, the seller of IPD/buyer of LIBOR will be paid, at the rate of £2m at the end of each year.

This analysis can be made more realistic and complex in a variety of ways. For example, we can take account of time-variant returns. For example, if the IPF consensus forecasts for 2006–08 are 8.6%, 6.9%, and 7.5% respectively, and LIBOR is expected to deliver 4.5%, 4.75%, 5% respectively, we can estimate the expected cash flows and discount them.

In table 8.2 we use a discount rate of 7%, a required return for property based on a 10-year gilt yield or risk-free rate of 4.5% and a risk premium of 2.5% (see chapter 4). The cash flows are based on £100m notional contract value.

Table 8.2: A total return swap — cash flows, no margin

Year	IPD (%)	LIBOR (%)	Diff (%)	Value (£)	PV (£)
1	8.60	4.50	4.10	4,100,000	3,831,776
2	6.90	4.75	2.15	2,150,000	1,877,893
3	7.50	5.00	2.50	2,500,000	2,040,745
				Total	**7,750,414**

Source: Baum, 2008

If no margin above LIBOR were paid for this swap, the buyer of IPD has an expected gain with a present value of £7.75m. However, simplifying, the present value of the expected cash flow should be zero. What margin over LIBOR will create a present value of zero?

This is given by the following:

£7,750,414/PV £1 pa for three years at 7%/£100m
= £7,750,414/2.6243/£100m
= £2,953,308/£100m
= 2.953%

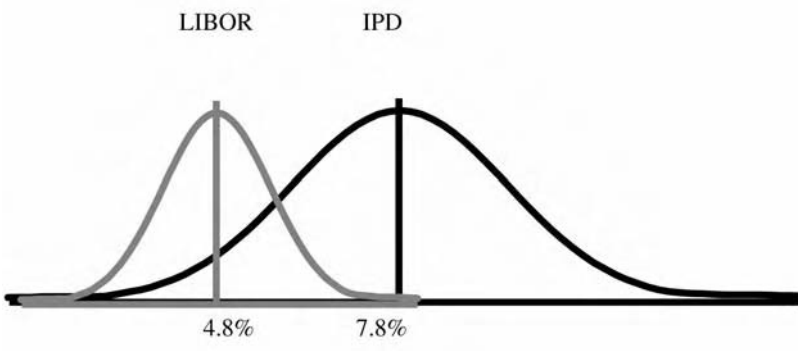
Applying this margin to the LIBOR leg, we achieve the present value shown in table 8.3.

Table 8.3: A total return swap — cash flows, with margin

Year	IPD (%)	LIBOR + 2.95% (%)	Diff (%)	Value (£)	PV (£)
1	8.60	7.45	1.15	1,146,692	1,071,675
2	6.90	7.70	–0.80	–803,308	–701,640
3	7.50	7.95	–0.45	–453,308	–370,034
				Total	**0**

Source: Baum, 2008

Figure 8.5: A total return swap — probability of loss



Source: Baum, 2008

8.5.3 Dealing with risk

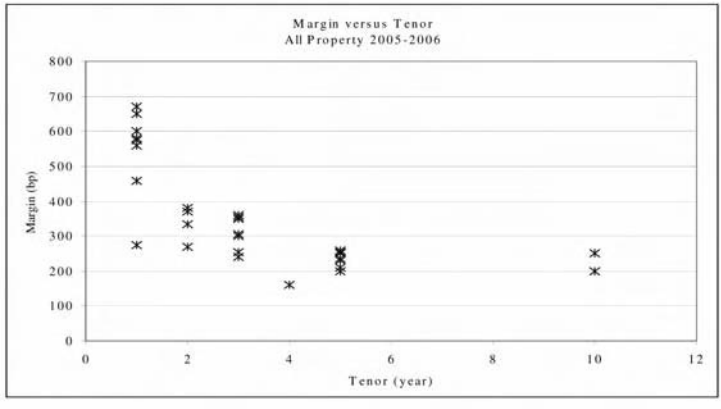
We can now add a consideration of risk. Using the old pricing basis again, for illustration, which of the two parties' cash flows are most uncertain? From 1987–2004, the annual standard deviation of LIBOR was 3.2%, but the standard deviation of the total return on the IPD annual index was 9.6%, so the IPD leg appears to be three times riskier. What is a fair price for that uncertainty? Our analysis uses a risk premium of 2.5%; a 1% increase in this premium would create a 4bp movement in the margin. This may or may not be a fair value for the risk premium (see below), but its impact appears limited.

This again is simplified. What is the probability of different payouts? The ranges of possible returns for IPD and LIBOR are shown in figure 8.5.

The probability of IPD delivering less than LIBOR is affected by the expected values and standard deviations of the two curves (assumed to be normal), but also by the correlation of the two series. If they are positively correlated, IPD is likely to stay ahead of LIBOR, but if they are negatively correlated, then IPD could fall behind LIBOR. Given that, empirically, the series have been slightly negatively correlated, then this increases the risk of buying (going long) the IPD leg and may add to the risk premium and margin.

There are other considerations: for example, is 2.5% (derived in chapter 4 as the risk premium for a typical real estate portfolio) a fair

Figure 8.6: Total return swap margins versus tenor, IPD UK all property



Source: Baum, Lizieri and Marcato, 2006

risk premium for a property portfolio that has no specific risk? And how can we take account of the trading costs that are avoided by the buyer of an IPD swap when the alternative is buying a portfolio of property with round trip trading costs of around 7.5%?

Figure 8.6 illustrates pricing in the early stages of the UK property swap market. In 2005, in a bullish market for real estate with strong short-term return expectations, short tenor swaps were earning margins above LIBOR of as much as 7%. At the longer end, by which time long-term return expectations were likely to revert to the mean required return of around 7% (see chapter 4), the margin had fallen to 2%. This appears to suggest that the margin is affected by the amount by which the market expects that IPD will outperform LIBOR.

8.5.4 Backing out the implied market return

Assuming that the margin reflects an implied market return, how can this implied return be calculated?

In table 8.3 we showed a margin of 2.95% for a three-year swap. Expected LIBOR rates were 4.5%, 4.75%, 5% respectively. We used a discount rate of 7%, a required return for property based on a 10-year

gilt yield or risk-free rate of 4.5% and a risk premium of 2.5%. The cash flows were based on £100m notional contract value. Table 8.4 shows how we would estimate the present value of the long LIBOR leg.

Table 8.4: A total return swap — cash flows, with margin

Year	LIBOR (%)	LIBOR (%) + 2.95%	Cash (£m)	PV @ 7%
1	4.50	7.45	7.45	6.96262
2	4.75	7.70	7.70	6.72548
3	5.00	7.95	7.95	6.48957
			Present value	**£20.18m**

Source: Baum, 2008

The LIBOR leg throws up a cash flow whose present value must equate with the present value of the expected IPD leg (effectively discounting the net cash flows at the property risk adjusted rate). This value is £20.18m, which must now be decapitalised at 7%.

£20.18m/PV £1 pa for three years at 7%
= £20.18m/2.6243
= £7.6887m

This suggests an average expected return on the IPD index of 7.69%, close to the mean of the expected calendar year returns of 8.6%, 6.9%, and 7.5 used in table 8.2. Note that the backed-out return is dependent on the risk premium used, but the result is not very sensitive to this input. A 5% risk premium, for example, produced an average return of slightly less (7.68%).

Expected returns for individual years can be backed out by using single year swap data. The results can appear arresting. For example, a typical practitioner analysis of market pricing using a variant of the above logic led to a circular suggesting in January 2009 that the IPD swaps curve was pricing in a peak-to-trough decline in capital value of 59% from July 2007 to December 2010.

Box 8: Derivatives as leading indicators of the market

Table 8.5 below, produced in November 2008, shows one house's view of the implied IPD annual index returns per annum based on the derivative market from December 2007. This is compared with the house return forecasts of returns over the same period. The differences indicate potential trading strategies.

Figure 8.7 shows this information broken down to individual year forecasts.

Table 8.5: Derivative-implied cumulative return forecasts

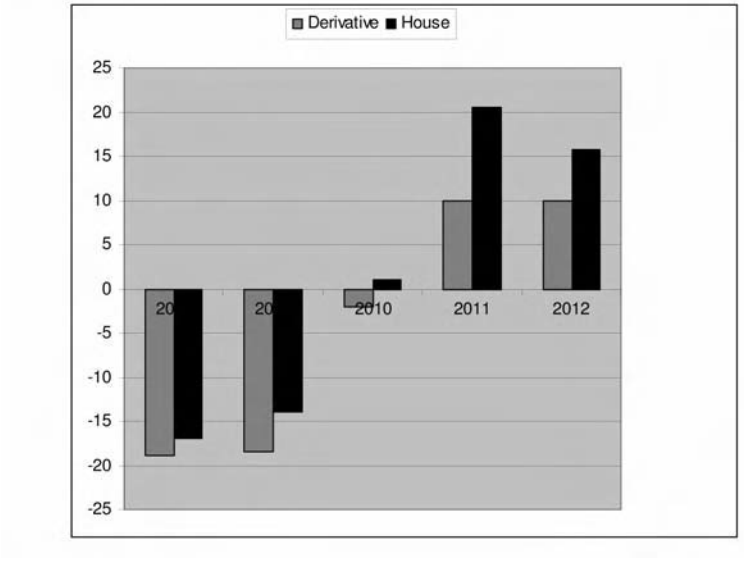
	Implied forecast (%) pa	House forecast (%) pa
Dec 07–Dec 08	–18.90	–17.00
Dec 07–Dec 09	–18.50	–15.60
Dec 07–Dec 10	–13.50	–10.20
Dec 07–Dec 11	–8.00	–6.00
Dec 07–Dec 12	–4.70	0.30

Source: Baum, 2008

"The derivative market is pricing in a peak-to-trough fall in UK property values of over 50%, with no recovery until 2011. Thereafter the derivatives market is predicting a total return of 10% per annum, which would be primarily derived from income — since the forecast fall in values would mean that income was in excess of 9%. In other words, the derivative market is pricing in very little recovery in capital values through 2012."

Source: UK property house, November 2008

Figure 8.7: Derivative-implied calendar return forecasts



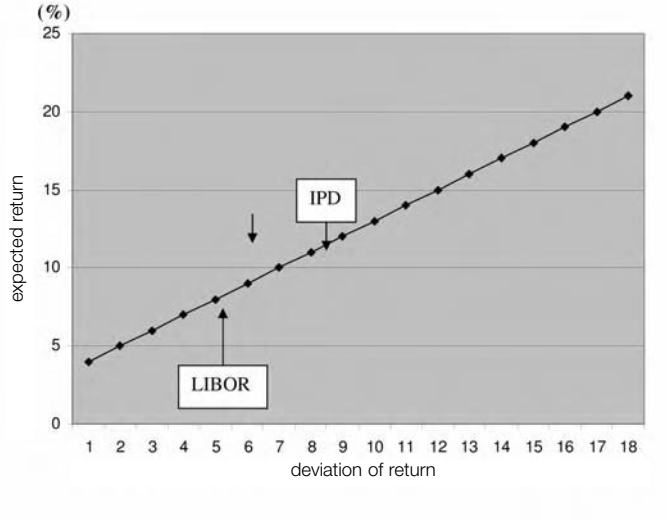
Source: Baum, 2000

8.5.5 Swap pricing principles and real estate

The analysis shown in section 8.5.2 is not in line with general swap pricing principles. The starting point for a consideration of swap pricing comes from the general literature on efficient market pricing and the more specific literature on the pricing of interest rate swaps, which developed from the 1980s.

Efficient market pricing posits a link between return and risk. Risk-adjusted returns should equalise, as higher-risk assets earn a higher return. In an efficient market, the market should make sure that the available risk premium is fair taking account of all publicly available information. If an investor takes a low-risk asset in return for a high-risk asset he should not expect to be paid any premium or margin — the higher expected return is wholly explained by higher risk. This is shown by the security market line in figure 8.8.

Figure 8.8: The security market line (%)



Source: Baum, 2008

It is difficult to reconcile the finance literature with the observation that the swap margin was as high as 800bp for a six-month swap in figure 8.3. A possible explanation is that the risk is high and the premium needs to be this large — but this does not chime with our suggestion in chapter 2 that a risk premium of 2.5–3% appears to be appropriate. And why is the premium so time variant? The only other supportable propositions are that the market is not efficient, an argument that is anathema to most financial economists, or that there is some technical effect that drives the pricing to this level. The latter argument is easily supported by the facts.

Most contemporary pricing models are based on an arbitrage-free efficient market model. In considering financial market swaps — for example, parties swapping returns based on an equity market index for LIBOR-based interest rate payments — the same arbitrage principles apply. Under these principles, market pricing ensures that it is impossible to achieve high returns without taking a high risk.

In figure 8.3, despite the high market return for six months implied by a margin of 800bp, it may not be possible to capture that

return in the property market, because this requires that the following all hold:

a) there is no cost of entry;
b) there is no cost of exit;
c) there are no management costs;
d) the entry price is the exact IPD index level at that time (there is neither index smoothing nor basis risk); and
e) the exit price is the exact IPD index level at that time.

In the property market, these are all unlikely or false, meaning that in the short term at least the margin is explained by other issues than the risk taken.

In contrast, the expected return on the equity market might be higher than forward expectations of interest rates, but cannot detach itself from the security market line (SML). Furthermore, the existence of an investible underlying index-replicating asset (not available in property) anchors spreads around LIBOR to very low numbers. This is because the investor receiving LIBOR can use the cash flow to support borrowing that, in turn, can be used to acquire the appropriate index-tracking equity portfolio. Given that this is a riskless portfolio, because the investor can be equally long and short the equity market, the price of the interest rate leg should be set to ensure that the swap does not generate excess abnormal returns. There are small transaction costs in acquiring the matching portfolio and small carry costs in managing the portfolio, but, amortised over the life of the swap, these will be marginal.

A common principle here is that a riskless, self-financing portfolio can, in practice, be created by an investor. In all cases, a perfectly matched long/short position can be acquired with reasonably low transaction costs. As a result, differences in risk between the swapped assets become irrelevant. More importantly, differences in expected returns also become irrelevant. The only reason for a spread, then, relates to the costs involved in creating the position. These points do not (yet?) appear to hold for property.

8.5.6 Real estate swap pricing models

The principle of the riskless portfolio forms the basis of the theoretical models of real estate derivative pricing introduced by Titman and Torous (1989), Buttimer et al (1997) and Bjork and Clapham (2002).

Such models produce low to zero spreads over the matching interest rate return. Other authors have noted that drawing direct analogies with interest rate and equity index swaps is problematic. Park and Switzer (1996) note problems of basis risk (when the assembled portfolio does not track the market index); Okata and Kawaguchi (2003) note problems of swap pricing in incomplete markets where the underlying asset is indivisible, has high transaction costs, limited liquidity and unobservable fundamental prices.

Geltner and Fisher (2007) also consider pricing issues for swap contracts based on real estate indices. They argue that real estate indices differ from conventional financial market indices since they are based on appraisals and because investors cannot hold the underlying portfolio. They suggest that the appraisals have two impacts on the index through introducing (i) noise and (ii) lagging effects.

Noise comes from the random deviation between reported index values and the 'true' prices of the underlying market — this is said to add short-run volatility to the index and to induce some negative autocorrelation. Given that the underlying index cannot be traded, they argue that these factors must be accounted for in any equilibrium pricing model. Momentum effects may mean that the short to medium-term expected return on the index may differ from its equilibrium required real return.

They then determine a feasible trading range by considering the position of a bullish investor taking a long position and a bearish investor taking a short position. The investor going long may expect higher growth in the index than would be necessary to deliver the equilibrium return: thus the bullish investor will be prepared to pay LIBOR plus the additional growth anticipated plus (or minus) any lag effects from the index construction process.

The investor going short may hold a portfolio that he believes could deliver positive alpha — returns greater than those delivered by the index. He too will have a growth expectation that may differ from that of the bullish investor. The two trading conditions define a feasible trading window. If both parties have the same expectations, then the only feasible trading price is a point that is defined by the underlying interest rate and the index lag effect. But if growth expectations differ or if the investor shorting the market feels that his portfolio can deliver alpha, then a range of feasible positions emerge. The paper implicitly suggests that the contract price will be a rate that is a midpoint between the minimum and maximum prices in the trading range, after allowing for a bid-ask spread.

Baum et al (2006) made very similar arguments, concluding that the spread from property index total return swaps should, in principle, be close to zero but that underlying asset market efficiencies make trading at non-zero spreads rational. While the margins should not reflect return differentials between LIBOR and expected real estate returns once risk is accounted for, there are rational reasons why margins should exist. But are these asset market differences sufficient to explain the large spreads (and their changes in signs) observed in practice (for example figure 8.3)?

Transaction costs

A first constraint facing any investor seeking to create a self-financing arbitrage portfolio is the existence of high transaction costs in the underlying real asset market. For UK direct real estate acquisitions, round trip costs of around 7.5% can be assumed (with higher entry costs than exit costs due to stamp duty).

Other property investment vehicles may serve to lower the transaction costs — for example buying into a property unit trust (where there still exist bid-ask spreads and dealing costs), buying property within a company wrapper or investing in a private equity fund: however, they bring other problems.

In principle, one might invest in a REIT or property company, greatly reducing transaction costs, but the return patterns of real estate securities show low correlations with the IPD index used in the swap contract, producing unacceptable basis risk.

Execution time

A second constraint faced is execution time. Acquiring (and selling) real estate involves a search process that could easily take six months, and a lengthy time to transact. Investors in private funds face a draw down problem (they may make a commitment to invest, but the fund manager may delay the call for capital); investors in property unit trusts may face delays in redemption, particularly in falling markets, or may find funds closed to new capital in hot markets. REIT execution times are fast, but the basis risk precludes this as a strategy.

Basis risk

Allied to the execution time issue is the problem of large lot size. This makes it very hard to diversify the investor's exposure to real estate at low cost via direct acquisition of land and buildings (and certainly not at the same notional cost of most swap contracts). In turn, given high levels of specific risk in commercial real estate markets, this makes it unlikely that any portfolio will effectively track the IPD index (or equivalent) creating basis risk.

There is no guarantee that an assembled portfolio will produce IPD returns. Commercial real estate is also heterogeneous. A property owner whose mimicking strategy involved selling all or some of their portfolio would find it very difficult to reassemble the exact portfolio through re-acquisition at the end of the swap contract, even ignoring the transaction costs faced. This is very different from the situation facing a party in an equity index swap.

Taken together, these factors mean that, in the absence of a simple to construct, reliable self-financing arbitrage portfolio, the institutional characteristics of the underlying asset market may be significant in determining traded spreads.

These characteristics of the underlying asset market are neither symmetrical nor time invariant. Some appear symmetrical — the tracking error/basis risk problem faces buyer and seller, so the portfolio management obligations are a symmetrical cost and saving. Others are quasi-symmetrical. Both parties would face round trip transaction costs, but the acquirer faces higher initial costs than the seller (hence the NPV of the buyer would be less than that of the seller).

Heterogeneity creates asymmetry. Sellers cannot recover their original portfolio, a risk not faced by a buyer. Asymmetries in relation to execution time vary over the market cycle. In a rising market, the buyer unable to get into the market faces a loss of upside return. In a falling market, the illiquidity facing a seller locks in losses and poor returns.

One other reason for the existence of margins is the belief on the part of investors that their portfolio can generate abnormal returns or alpha. Geltner and Fisher (2007) include this in their formulation of a fair trading range. If the investor does believe that his held portfolio can generate positive risk-adjusted returns despite adverse market conditions, he may choose to short the market while retaining the real estate assets: he will be prepared to pay a premium up to the value of alpha to sell real estate returns.

Finally, a key property of appraisal-based real estate indices is the presence of strong auto-correlation that may result from the valuation smoothing process and from asynchronous valuations and lagging effects.

Given the existence of serial correlation, it is possible that investors will be able to detect periods when the delivered index returns will be higher (or lower) than the longer-run equilibrium risk-adjusted return appropriate for an index-tracking investment and that this would induce a rational positive or negative spread around LIBOR in swap transactions. Swaps based on a transactions-based index would arguably be more efficient, as this spread would be removed.

8.5.7 Reconciling theory and practice

The implication of these imperfections in the underlying market (and the absence of an arbitrage portfolio) is that (using the old pricing system for illustration) it may be rational at certain points in the market for a party in a real estate total return swap to pay a margin above or below LIBOR.

Thus, a property owner wishing to reduce exposure to the real estate market for a period, but also wishing to retain their existing portfolio, might be prepared to pay IPD and receive LIBOR minus a margin. An investor wishing to gain short-term exposure to UK real estate may be prepared to pay LIBOR *plus* a margin to avoid round trip transaction costs, and that margin might be higher if they are confronted with difficulties in gaining exposure in the underlying market through supply constraints or long execution times.

The theory-based argument implies that there should be a *rational trading window* around the zero spread equilibrium position. Actual trades should occur within the trading window and, if there is critical mass, liquidity and a balance between buyers and sellers of the IPD leg, one would expect that trades would occur close to the zero spread. However, in a nascent swaps market that is immature, with restricted liquidity and, critically, with an underlying asset that is cyclical in nature, that balance between buyers and sellers (those wishing to go long versus those wishing to short the market) is likely to be disturbed.

As a result, the shape and position of the trading window will shift over time. It should be emphasised that this is not (primarily) as a result of differences in return expectations, but rather results from changes in the numbers of participants prepared to pay a premium

over LIBOR to those prepared to accept a discount to LIBOR. In this restricted sense alone, the spread observed will reflect market sentiment and return forecasts.

It is difficult to reconcile this theoretical research, which suggests that the spread on a real estate total return swap should be zero or close to zero, with the empirical observation that swap spreads are both large and volatile, and the persistent market practitioner belief that the margins for different maturities reflect expected return differences and thus act as a forecast of property market performance.

As an example, after June 2007, swap market pricing in the US real estate derivatives market dropped significantly, resulting in investors paying a considerable premium return for giving away the benchmark index. A negative swap price indicates that the investor buying exposure will receive the index plus a margin, arguably reflecting a poor implied market return. As at 18 June 2008, US real estate index notes offered a return of the NPI + 3.50% per annum for a two-year contract (CBRE/GFI US analysis).

For now, we need to be aware of both academic and market approaches to pricing.

8.6 Structured real estate index notes

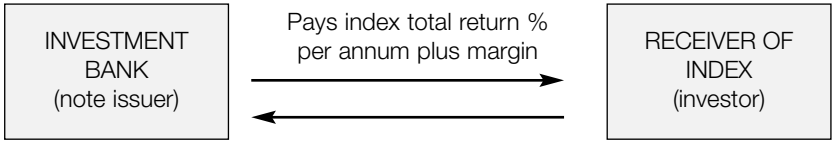
Real estate structured notes are bonds that pay a coupon linked to the performance of a real estate index. These structures involve the payment of a capital sum to the note issuer (investment bank) at the start of the contract and replicate investing in a spectrum of direct real estate.

Unlike swaps, structured notes are funded products, meaning that cash is exchanged at the beginning of the trade. (In a total return swap no principal is exchanged, but the same effect can be engineered by placing cash on deposit to earn the cash interest rate that is paid out in return for the IPD return.)

The structure of the notes can be flexible and determined by the preference of individual investors. There is no need for ISDA documentation and they are relatively simple and straightforward to execute. However, because cash is handed over at the beginning of the contract, structured notes have greater counterparty risk (issuer credit risk) than a total return swap.

Figure 8.9 shows how a standard structured note works. The investor receives the IPD total return plus/minus a premium throughout the life of the contract and the capital sum is returned to

Figure 8.9: A real estate structured note



Source: Baum, 2008

the investor at contract termination. Cash flows can be structured in any custom manner but investors traditionally receive the IPD income payment on a quarterly basis with the capital growth plus the margin premium at the year end.

Pricing is determined by the total return swaps market. When expected returns on the property index are low, these notes can guarantee outperformance of the index by offering a cash-based return, and can be highly attractive to a relative return investor (see chapter 3). This is because the investment bank can accept IPD returns from a counterparty by giving away LIBOR, and then hedge (remove) its risk by giving away IPD in return for LIBOR — plus a profit or margin, of course.

As an example, the implied expected returns on the IPD index as at December 2008 appeared to be as shown in table 8.6. Given fixed interest rates of around 4%, a bank would be able to take IPD total return risk for calendar year 2009 by giving away LIBOR minus 19% - in other words, being paid 15% to take it on, gaining 19% plus IPD and giving away LIBOR. It can then give away IPD returns plus up to 19% — say 17% — in return for taking LIBOR. Then the bank makes 2%, and the relative return investor outperforms the index by 17%. This is a wonderful — unrepeatable? — opportunity for a fund manager charged with delivering relative returns!

Table 8.6: Pricing analysis, structured note (%)

Maturity Dec 07 to	Note pays IPD + (%)	Expected return (%)	Income return (%)	Capital return (%)
01 December 2008	24.54	–20.25	5.50	–25.75
01 December 2009	22.96	–18.95	7.00	–25.95
01 December 2010	17.83	–4.10	9.00	–13.10
01 December 2011	11.83	11.55	10.00	1.55
01 December 2012	8.77	11.75	10.40	1.35

Source: CBRE/GFI 11 December 2008

Box 9: Using derivatives to outperform the index

It is summer 2007. The client has a relative return mandate with an objective to outperform the IPD Annual Index by 50bp per annum over a rolling three-year period, and has cash to invest. Property Index Notes were available, offering IPD returns plus a premium.

Research was complete by October and at this point the offering house priced the note at IPD returns + 6% per annum until December 2009. This offered less expensive access to real estate exposure than investing in direct property, and also offered a significant premium return over the benchmark index.

The cost of trading the note was 10–15bp plus legal fees to review the term sheet.

The client purchased £13m of IPD exposure through a Property Index Note from October 2007 to March 2010.

However, market sentiment had begun to turn by October 2007. This note was valued at cost (100%) in October 2007, but soon lost value. The monthly mark-to-market values were as follows: November, 96.35%; December, 85.26%; January, 83.12%; and February, 86.26 %.

The monthly mark-to-market values result in accounting volatility. However, the intention is to hold the position until maturity. If the client does this, he will receive IPD + 6% throughout the contract. This may be a very poor return in absolute terms, but clearly achieves the relative return objective to outperform the IPD Annual Index by 50bp per annum over a rolling three-year period.

8.7 Property derivatives: pros and cons

In section 8.1, we asked: could this market provide the perfect property vehicle? In this section, we provide an answer.

The development of the property derivatives market now adds another method of accessing real estate exposure for investors. It provides portfolio managers with an increased number of options through which to manage real estate exposure and risk. However, over-the-counter derivatives have different advantages and disadvantages to other forms of investment in property. We outline these below.

8.7.1 Property derivatives: advantages

- Low transaction costs — property derivatives have low transaction costs compared with direct property/funds where round trip costs equate to 7.0–7.5%.
- No management costs — investment in direct property and funds will incur portfolio management fees whereas exposure through derivatives does not.
- Speed of trade — a derivative provides immediate access to property returns without the long lead time associated with investing in direct real estate.
- Diversification — exposure to the property index provides a fully diversified exposure to property returns.
- Leverage — for investors using total return swaps, a margin of up to 20% of the notional size of the contract is usually paid upfront, achieving synthetic leverage without needing debt.
- Ability to short the market — property derivatives for the first time allow investors to take short positions on the direct market, thereby opening up hedging and other strategies.
- Tax efficiency — the use of derivatives in international investment could offer advantages regarding withholding tax as they allow investors to enter new markets without the tax implications associated with cross-border investments through direct investment or indirect funds. Under current legislation, derivatives are not subject to withholding tax.

8.7.2 Property derivatives: disadvantages and risks

Illiquidity

Volumes have increased steadily over the past few years, but the market is immature and liquidity can be limited for large trades.

Leverage

We know that significant losses can result from highly levered, speculative derivative positions, as the Leeson/Barings and Kerviel/Société Générale disasters illustrated, well before the many illustrations thrown up by the 2007–08 crisis, AIG being a high-profile example. Investors can acquire positions that attain more leverage than a bank would directly provide for direct investments, and highly leveraged speculative buying and selling positions could result in losses far exceeding margin values on any trade.

Investors taking highly leveraged, speculative short hedging positions could suffer losses if the market turns positive. When taking a short position, investors may be expecting lower market returns than the implied price; thus, if the market return increases, short investors have to pay out more than was anticipated at the start of a contract and payments may exceed any collateral or margin available. In order to mitigate this risk, investors may be advised not to take a short position for which they do not manage a matching or closely correlated portfolio of real estate assets.

Counterparty risk

Cash flows from a property derivative are subject to the counterparty's credit risk. This became a key issue in the market of 2008. Counterparty risk is the risk that the counterparty will default on their quarterly payments and, in the case of notes, the redemption of principal at the end of the contract. The counterparty will almost always be one of the major investment banks, which was not an issue of concern prior to 2008, but the collapse of Lehman Brothers, a leading player in the UK market with a strong credit rating, changed perceptions somewhat.

It is possible to hedge the credit risk of the counterparty, although this involves additional cost. Credit default swaps can be used to mitigate this risk, but the traded futures market (see section 8.9) may become a more popular way to avoid counterparty risk altogether.

Basis risk

When hedging the market risk of an owned portfolio, there is basis risk between the performance of the portfolio and the underlying index. Basis risk is especially important in a position where an investor sells exposure. The investor is selling (paying) the real estate index return and earning the return on his portfolio. It is important that the portfolio being hedged has a high or known correlation with the index used for the hedge, but this is very challenging, as suggested in chapter 1.

In-house management risk

The inherent risk of rogue traders and mismanaging derivative positions in-house is a new challenge for property investors and fund managers. As in all positions of fiscal responsibility, appropriate policies and controls need to be in place before derivative positions are taken.

Accounting volatility

The performance of derivatives will be driven by daily pricing, which in turn will be driven by market expectation of returns. As a result, mark to market valuations can be volatile and will be different to the performance of the underlying index prior to maturity.

Derivative positions result in significant accounting volatility as the contracts are marked-to-market on a monthly basis. For example, assume an investor purchases exposure through a property index note. The position is purchased at par, 100%, and the investor receives the index return plus/minus a margin. Market pricing changes daily and the monthly mark-to-market value of the position will fluctuate to say 98% for month one and 104% for month two (see box 9 for an example).

If investors hold a position to maturity, the position returns to face value at the end of the contract and they receive the index return plus expected premium over the life of the contract. But if investors close out a contract prior to maturity, the position will have to be sold at the prevailing market price. This exposes the investor to volatility of the market pricing as the new price could be very different to the price paid when entering to the contract. Investors could then make or lose money depending on the difference between the original contract price and the new market price.

Re-investment risk

At the end of a swap contract, or as a note matures, the investor is left with a reversed position. There is thus a re-investment risk for an investor looking to achieve a long-term exposure.

8.8 Property derivatives: spin-offs

An active market in property swaps might not provide the perfect property vehicle, but it will enormously improve the efficiency of the market and attract new capital into the sector. Dealing in put and call options and traded futures will become possible, and an exchange-traded property futures market was launched in Europe in 2009.

Swaps in particular would bring access to all segments of the market for all investors and allow quick, cheap and easy-to-achieve tactical asset allocation. This would encourage managers to specialise in property types to retain alpha without being penalised for the tracking error that inevitably accompanies specialisation.

The risks of property development will become more manageable, and homeowners (or those seeking to buy) will be able to hedge their exposure (or lack of it).

8.8.1 Hedge funds

A hedge fund is an investment vehicle that can 'go short' — that is, it can sell a liability to pay out future cash based on the performance of a security or index. It is also described as an investment vehicle aiming to be market neutral, meaning that it can deliver a good return even if the market performs badly. By being market neutral it can aim to deliver an absolute return rather than aim to perform well relative to a benchmark. Before the establishment of an active derivatives market, a property hedge fund can only be a fiction; after 2005, several were created.

An example of a hedge fund strategy is as follows.

US REITs trade at discounts and premiums to their net asset value, apparently reverting to a mean premium of around 5%. Buying a basket of REITs at a 30% discount to NAV is clearly interesting and possibly attractive: but the risk involved is that the NAV falls by enough to negate the prospective profit even if pricing moves to a NAV premium. Using a swap to short the IPD index will have the effect — albeit imperfect, due to basis risk and other technical

imperfections — of neutralising the NAV movement and capturing the removal of the NAV discount. This is one of the potential strategies used in the Iceberg Fund, described by its manager (Reech AIM) as a relative value, market neutral fund.

Since the launch of Iceberg in May 2007, broadly coinciding with the downturn in UK property market sentiment, the fund delivered +24.51% (net of fees and expenses) despite the challenging real estate investment market conditions, while outperforming the EPRA UK index of listed property companies by 61% (EPRA UK: –36.8%) and the IPD index by over 40%.

More hedge funds can be expected, and strategies designed to exploit anomalies in the relative pricing of REITs, unlisted funds and other forms of real estate exposure will no doubt be developed.

8.8.2 Derivatives funds

In a new market, such as the UK property derivatives market, pricing anomalies are likely to exist, especially where trading is thin. Derivatives experts may be able to spot such anomalies and recommend trading strategies to clients, or, alternatively, to take on discretionary mandates to execute those strategies. As an example, Alpha Beta Fund Management LLP (ABFM) was set up in 2007 as a focused property investment firm dedicated to providing investors with an efficient means of accessing the returns of the physical property markets though investments in property-indexed instruments.

8.8.3 Managing development risk

Property development is a high-risk activity. Planning risk is an issue, construction costs are difficult to manage, and there are many other risks to be controlled. However, the risk that developers have been hitherto powerless to manage is the market.

It is often suggested that land values and development profits are highly geared, and market volatility is the key reason for this. Assume, for example, a development of 1,000 sq m; rental values of $100/sq m; capitalisation rates on the sale of the property of 5%; building costs of $800/sq m; and a land price of $1m. What is the developer's profit as a percentage 25% of total costs?

Gross development value = cost of land + cost of building + profit

Gross development value = 1,000 * $100/.05 = $2m
Cost of building: 1,000 * $800 = $800,000
Land price: $1m

Profit = $2m – $800,000 – $1m = $200,000, or 25% of costs.

Now assume resale yields rise from 5% to 8%. In the new case, what is the profit?

Gross development value = 1,000 * $100/.08 = $1.25m
Costs: 1,000 * $800 = $800,000
Land price: $1m

Profit: $1.25m – £800,000 – £1m = –$550,000

Hence, for a small change in rental values (a 20% fall) and a rise in yields from 5% to 8%, the impact on profit is to destroy it - and the developer, too. A fall in property values of 37.5% has produced a fall in profit values of 350%. This is the gearing effect — land value and developers' profits are both geared residuals.

Derivatives can help to manage this risk, as suggested in Baum, Beardsley and Ward (1999a), and as illustrated by the case study shown in box 10.

Box 10: Using derivatives to manage development risk

It is late in 2006. HotCo, a property development company, is developing a project with total estimated costs of £120m. The project involves the construction of a 100,000 sq ft London West End office building.

On completion, the developer will sell the completed development at market value. Completion and sale is planned for late 2008.

The initial development appraisal envisaged an average letting value of £85/sq ft and a resale capitalisation rate of 6.25%. On this basis, the scheme had an anticipated development value of £136m (100,000 * £85 / 6.25%).

The average letting value at late 2006 had already reached £80/sq ft. The market was strong, and the estimated capitalisation rate for the scheme at that point had fallen to 5%. The development value at the point was £160m (100,000 * £80 / 5%). However, due to commodity price inflation, estimated costs had risen to £130m. Nonetheless, the strong market meant that at that point the scheme remained profitable.

At the end of 2006, market returns had been strong, but the development company felt that a downturn was a strong probability. Table 8.7 shows the company's views of expected market returns and their associated probabilities.

Table 8.7: Case study return scenarios (%)

Market scenario	2007 (%)	2008 (%)	Probability (%)
Stronger	20	15	20.0
Strong	15	7	30.0
Weak	–5.5	–15	50.0

Source: Baum, 2009

What action could the board take in late 2006 to manage its risk?

The price of buying a two-year IPD total return swap at December 2006 was LIBOR (5%) plus a 5% margin. Assume the developer sells IPD exposure for this price. Its exposure to date is £130m, so it could go short £130m.

1. Assume the market 2007 out-turn is stronger. In December 2007 (or early in the following year), HotCo will receive 10% (LIBOR of 5% plus the 5% margin) on £130m = £13m in payment of the LIBOR leg. It will pay out the IPD total return for 2007 of 20% on £130m, or £26m. The total loss for 2007 is £13m.

   The 2008 out-turn is a 15% return on IPD. In December 2008, HotCo receives £13m for the LIBOR leg and pays the IPD total return of 15% on £130m = £19.5m, producing a net loss of £6.5m.

   There are further cost over-runs in 2007 and 2008. By the completion date, the total cost has risen to £150m. The completion value of the scheme in a strong market is high at £170m, with capitalisation rates down to 5% and rents firm at £85 (100,000 * £85 / 5% = £170m). HotCo's net position is a profit on the project of £20m, plus a swap loss of £19.5m. This creates a small profit of £500,000, compared with a do-nothing (no swap) profit of £20m.

2. Assume the market 2007 out-turn is strong. In December 2007, HotCo will receive 10% (LIBOR of 5% plus the 5% margin) on £130m = £13m in payment of the LIBOR leg. It will pay out the IPD total return for 2007 of 15% on £130m, or £19.5m. The total loss for 2007 is £6.5m.

The 2008 out-turn is a 7% return on IPD. In December 2008, HotCo receives £13m for the LIBOR leg and pays the IPD total return of 7% on £130m = £9.1m, producing a net return for 2008 of £3.9m.

The total project cost is £150m. Capitalisation rates have remained low, at 5.25%, and the rent is again firm at £85/sq ft. The completion value of the scheme is around £162m (100,000 * £85 / 5.25% = £161.9m). HotCo's net position is a gain on the project of £12m, plus a swap loss of £2.6m: this is a net gain of £9.4m (compared with a do-nothing gain of £12m).

3. Assume the market 2007 out-turn is weak. In December 2007, HotCo will receive 10% (LIBOR of 5% plus the 5% margin) on £130m = £13m in payment of the LIBOR leg. It will pay out the IPD total return for 2007 of –5.5%% on £130m, or –£7.15m (a net receipt). The total income for 2007 is £20.15m. The 2008 out-turn is a negative 15% return on IPD. In December 2008, HotCo receives £13m for the LIBOR leg and pays the IPD total return of –15% on £130m = –£19.5m (receiving £19.5m), producing a net swap return for 2008 of £32.5m.

   The total project cost is £150m. In the now-weak market, capitalisation rates have reverted back to 6.25% and the rent is lower at £80/sq ft. The completion value of the scheme is now £128m (100,000 * £80 / 6.25% = £128m.) The project now makes a loss of £22m. The combined position is a loss on the scheme of £22m plus a swap gain of £52.65m: a net gain of £30.65m (which compares with a do-nothing loss of £22m).

   These scenarios are summarised in table 8.8. The swap has a very positive effect on both the average (over £10m better) and probability-weighted (over £21m better) out-turns. A profit is made in all three out-turns, which is not true if no swap is put in place.

Table 8.8: Case study out-turn scenarios

	Do nothing (£m)	Swap (£m)	Probability (%)
Stronger	20.00	0.50	0.20
Strong	12.00	9.40	0.30
Weak	–22.00	30.65	0.50
Mean	3.33	13.52	
Weighted mean	–3.40	18.25	

Source: Baum, 2009

8.8.4 Strips and exotic swaps

Cash flows from property in the form of rentals lend themselves readily to swap analysis using derivatives pricing techniques that are now being applied to real estate internationally. However, the UK lease structure offers a particular opportunity to explore this means of analysis because of the complex option-like characteristics of the typical institutional lease.

Property cash flows can be readily 'partitioned' using derivatives pricing techniques with risk-neutral valuation techniques and Monte Carlo simulation (see Baum and Crosby, 2008). The resultant cash flow 'slices' can be swapped or sold both to enable portfolio diversification between funds and to provide funding for developers and corporate owners of property.

In effect, a surrogate partial property sale can be synthetically structured for low cost with (say) the reversion belonging to the seller of the swap. For property developers or corporations seeking funding, parties can enter into future or forward contracts to sell the cash flows.

In Baum, Beardsley and Ward (1999b), we examine pricing and market infrastructure issues surrounding the establishment of markets in both rental swaps and strips or sales. The paper shows how these concepts might be applied to standard UK leases.

We show how such structures might be applied to swapping property rentals using an example of a 25-year lease with (a) upward-only rent reviews and (b) open market rent reviews. Finally, we offer some indicative pricing parameters based on the above model for:

- swapping a five-year, upward-only lease on one property for a five-year, freely floating lease on another property with the same drift (growth) and the same volatility; and
- swapping a five-year, upward-only lease on one property for a five-year, upward-only lease on another property with different drifts and volatilities.

The examples are based on swaps only. Outright sale of expected rentals may be priced in the same fashion. The markets for strips, swaps and sales of property rentals would solve problems for very many potential participants. Many other advances from this idea are possible.

8.9 Traded property futures and options

In the beginning was barley, and along came farmers and breweries. Breweries want certainty regarding the price of the barley they will have to buy to brew beer, and farmers want certainty regarding the price of the barley they will sell. A deal is there to be done, and it takes the form of a forward contract. (The swap we have discussed in this chapter is a two-sided variant of a forward.)

Forward contracts lead to traded futures. What happens to a forward contact if the farmer wants to retire before delivering the barley? Can he sell his obligation? If the price of barley has fallen to well below the agreed forward price, then yes, he can. The mechanism used is likely to be a traded future.

A futures contract is a standardised contract, traded on a futures exchange, to buy or sell a standardised quantity of a specified commodity of standardised quality at a certain date in the future, at a price (the futures price) determined by supply and demand among competing buy and sell orders on the exchange at the time of the purchase or sale of the contract. The futures contract has the great advantage over a forward contract of avoiding the need for an equal and opposite, simultaneous coincidence of desires, providing both divisibility and liquidity. It also establishes the basis for the huge traded options market.

A futures contract gives the holder the obligation to make or take delivery under the terms of the contract, whereas an option grants the buyer the right, but not the obligation, to establish a position previously held by the seller of the option. In other words, the owner of an options contract may exercise the contract, but both parties of a futures contract must fulfill the contract on the settlement date.

The seller delivers the underlying asset to the buyer, or, if it is a cash-settled futures contract, then cash is transferred from the futures trader who sustained a loss to the one who made a profit. To exit the commitment prior to the settlement date, the holder of a futures position has to offset his/her position by either selling a long position or buying back (covering) a short position, effectively closing out the futures position and its contract obligations.

Futures contracts are exchange-traded derivatives. The exchange's clearing house acts as counterparty on all contracts, sets margin requirements, and crucially also provides a mechanism for settlement.

Real estate, formerly recognised as the world's largest asset class without an internationally developed derivatives market, is now (at

the beginning of 2009) the world's largest asset class without a full internationally traded futures market. However, in December 2008 Frankfurt-based Eurex, one of the world's largest derivatives exchanges and the leading clearing house in Europe, announced an exclusive 10-year contract with IPD to use its proprietary data on commercial property values (initially in the UK but then throughout Europe and globally) to launch the first exchange-traded property futures and options in February 2009.

These exchange-traded products will provide many new possibilities for investing/hedging/underwriting in the property market by financial institutions, pension funds and insurance companies, property and other corporates, hedge funds and many other interested parties.

The superiority of exchange-listed derivative contracts over OTC contracts such as IPD total return swaps, which rely entirely on banks having credit lines with each other, is clear.

Exchange-traded contracts ensure that all parties have the required collateral lodged with the exchange on a real time basis to ensure that losing positions can be covered. The exchange is also AAA-rated and there is therefore reduced counterparty risk.

The contracts are daily priced, require 5% margins and are available in £50,000 lots. The potential for growth in this market is huge, but success is not guaranteed as the lessons learned by London FOX, which launched in a weak market, illustrate.

8.10 Conclusions

Looking into the future, the implications of an active property derivatives market are substantial. The availability of property derivatives may increase the aggregate demand for commercial property, as efficient risk management becomes possible. A successful traded futures market would mean that counterparty risk will disappear and more efficient price discovery will reduce barriers to entry.

As the global commercial real estate derivatives market continues to grow, property derivatives will offer increasing benefits to real estate investors, including risk management, more efficient portfolio rebalancing, and the potential for immediate exposure to new markets.

Time will tell how the crisis of 2007–09 challenges the progress of this true innovation.

Part 4

International real estate investment

9 International real estate investment: issues

9.1 Introduction

An increased investor appetite for global investment in equities and bonds, and later property, has generated a structural market shift observable since the mid-1990s. The change has had two main impacts: first, international or cross-border investment has boomed in general; and second, indirect property investment (investing through securities and funds) has become commonplace.

The globalisation of business activity was, prior to 2007–08, a continuing process, driven both by the conversion of ownership of successful companies from domestic to multinational concerns, and by the increasing opportunities offered to corporations and institutional investors and banks to own overseas assets through globally-traded stock markets. The result has been a surge in foreign direct investment, with Asia-Pacific a particular beneficiary. In this region, real estate investment (the construction of manufacturing facilities, for example) accounted for more than 40% of all foreign direct investment in the decade to 2001. Both occupier demand and the ownership of corporate real estate facilities have become increasingly driven by the needs of the multinational enterprise.

European and global cross-border investment has also been increasing in popularity throughout the 1990s. In the City of London, for example, foreign ownership rose from around 4% in the mid-1980s to 45% at 2006 (Lizieri and Kutsch, 2006).

Diversification by institutional investors is a powerful driver of this activity, while other investor groups seek higher returns by

playing the global property cycle. If returns going forward in the US property market are perceived to be disappointing, US money will look abroad. The rise of international benchmarks and improvements in data provision, coupled with globalisation in general and the growth of the international investment house in particular, have added to the appeal of international investment. Sheer weight of money drives some funds, such as the Abu Dhabi Investment Authority, (estimated assets: around $1trn) to place its investments abroad.

The world's top investors have gone global. According to Property Funds Research data (see chapter 2), of the top 10 global investors seven have global real estate portfolios and the other three have announced plans to invest in global real estate for the first time. It is now unusual among large investors not to have a global property strategy.

Currency hedging is, however, expensive and difficult to achieve efficiently (Lizieri, Worzala and Johnson, 1998) and vehicles are rarely fully hedged. This problem leaves investors at the mercy of currency movements. The use of debt in the local currency (see chapter 1 and below) appears to serve a partial hedging function. However, this introduces leverage, and the experience of overleveraged US investors in Randsworth Trust in 1989, which suffered a complete loss of investors' equity through rising interest rates and falling rents, plus the massed ranks of overleveraged players in 2007 and 2008, should serve to warn of the dangers of investing in a geared vehicle in an overheating economy.

Other perceived difficulties, including the dangers of operating from a distance with no local representation, increases the attraction of investing internationally through liquid securitised vehicles (chapter 6) and unlisted funds (chapter 7). The experience investors have had with REITs (see chapter 6 and box 11 in this chapter) serves to illustrate the advantages and disadvantages of this approach.

9.2 The rise of cross-border capital

In 1972, over 94% of the floorspace in a large database of City of London office properties (see Baum and Lizieri, 1999) was owned by UK firms; just less than 3% of space was owned by Middle Eastern interests; and around 2% was European owned. Research found no properties owned by German, Japanese or US firms at that time.

By 1997, 21.9% of the buildings covered in the survey were in

overseas ownership. 7% of the properties were in Japanese hands, 5% were German owned, 4% were owned by US firms and just under 3% were, as in 1972, in Middle Eastern ownership.

By 2006, 45% of the office space in the City was owned by non-UK firms. Japanese ownership had been in decline, while the US and German presence had been on the increase, but the most interesting change had been the emergence of international vehicles with indeterminate ultimate ownership — Luxembourg, Cayman and Channel Islands funds, for example.

This growth was, in part, the child of mid-1980s financial deregulation. In 1975, the New York Stock Exchange abolished minimum commission rates: 35 broking firms went out of business but stock market turnover exploded. In 1979, UK exchange controls were abolished, allowing capital to move freely around international markets, a move paralleled in other developed economies. By 1986, the implementation of financial deregulation ('Big Bang') meant that merchant banks, jobbers and brokers could combine to become full capacity investment banks, and overseas players could join the London Stock Exchange. Financial business had become global, and London became one of the global financial capitals.

Over the period 1991–96, market globalisation intensified, so that the overseas ownership of UK equities increased from 12% to nearly 17% over the five years to the end of 1996. The overseas acquisition of UK finance houses, culminating in 1994–97 in the purchases of Warburgs, Morgan Grenfell, Barings, Kleinworts, Smith New Court, BZW and Mercury by Swiss, Dutch, German, French and American banks, is explained largely by the need of the City economy to access wider markets.

At the same time, savings-based liquidity in Japan, the relaxing of Swedish and German cross-border investment restrictions and changes in German tax policy pushed funds out from these savings-oriented countries, and much of the money flowed into UK property. In addition, international capital flowed into major listed property companies and REITs.

European Monetary Union is another process of radical change that has been gathering momentum since the Maastricht Treaty (and the planned development of the Single European Market it prescribed) made 1992 a landmark date in European history. The 1999 introduction of the Euro as a common currency for 11 countries and its subsequent expansion to 16 countries, with more expected to join, is the latest major development in that process.

Table 9.1: Correlations between UK assets and global property markets (2002–06)

	UK property	UK equities	UK gilts
France	0.7	0.4	–0.5
Germany	–1.0	–0.7	0.1
Portugal	–0.4	–0.9	0.2
Spain	0.9	0.5	–0.3
Sweden	0.8	0.4	–0.3
Switzerland	0.0	–0.4	–0.4
Nordic countries	0.8	0.4	–0.4
North America	1.0	0.7	–0.1
Australia	0.8	0.7	–0.5
Japan	0.8	0.3	0.9
South Africa	1.0	0.7	–0.2

Source: IPD, CBRE Investors

Table 9.2: Total returns, local currency, global markets, 2002–06

	2002	2003	2004	2005	2006	3-year	5-year
UK	9.6	10.9	18.3	19.1	18.1	18.5	15.2
France	8.6	8.0	10.1	15.2	21.7	15.7	12.7
Germany	3.9	2.9	1.1	0.5	1.3	1.0	1.9
Netherlands	8.8	7.1	7.8	10.2	12.5	10.2	9.3
Portugal	13.8	9.8	10.5	10.5	12.0	11.0	11.3
Spain	8.3	8.4	11.4	17.2	17.4	15.3	12.5
Nordic countries	5.1	4.2	6.6	13.0	15.6	11.7	8.9
Canada	8.8	8.4	13.0	18.7	18.6	16.8	13.5
US	6.8	9.0	14.5	20.1	16.6	17.1	13.4
Australia	9.5	12.0	13.1	15.2	16.9	15.1	13.3
Japan	na	4.0	6.3	11.7	na	5.2	na

Source: IPD

To a significant extent, currency risk has disappeared for Euroland investors and international investing has been much simplified for non-Europeans entering Europe. Regulation and taxation rules have very slowly begun to converge. Investment benchmarks are slowly becoming global. This will create a significant change in investor behaviour: from a position where any exposure to overseas assets is a risk against a domestic benchmark, growing recognition of wider non-domestic benchmarks would lead to a need to invest overseas to *reduce* risk relative to these benchmarks.

The credit crunch of 2007–08 threatens a return to protectionism and trade barriers, and will likely slow down the globalisation process. The strategic trend to international real estate investing nonetheless appears irreversible.

Two dominant styles of international real estate investment vehicle have emerged since the 1990s, driving much of the recent international activity. These are distinguished by the objective being pursued. The key drivers for investing outside the domestic property market and buying global property are the increased opportunities for either or both of (i) diversification and (ii) enhanced return. These potential benefits come at a cost of increased complexity of execution.

9.3 The case for international real estate investment: diversification

It is common to find simplistic assertions that international real estate investment will provide effective diversification for pension plans. This model, which assumes an investor objective defined in terms of expected return and the standard deviation of expected return, is highly flawed, both because it fails to recognise the diversity of real investor objectives and because there are many costs of international diversification that are unrecognised in the measure.

Table 9.1 shows the correlations between various overseas markets and the main asset classes in the UK. The mature property markets appear to have been effective diversifiers against all domestic assets, especially gilts and equities, but more efficient diversification has, surprisingly, been available from certain European property markets. In addition, both the mature core and emerging markets appear to have acted as good diversifiers against a UK property portfolio over a short period (see table 9.2).

However, these correlations are based on returns in local currencies, and they are based on a short time series. They should be adjusted for future expectations when used to model a potential portfolio.

This data is compiled from IPD global market indices, which are comparable and consistent, but have not been available for very long in several of the markets shown, and are not available at all in other markets. Hence, there is a compromise to be made between the length of the data runs and the number of countries to be examined and compared. The result is, unfortunately, a dataset that is so limited as to be non-significant. It also suffers from the following rather large deficiencies, all of which severely limit the ability of investors to replicate these returns in practice.

9.3.1 Index replication

The problem of specific risk, introduced in chapter 1 and amplified in chapter 6 at section 6.2, means that investors find it difficult to replicate the return delivered by a national index without suffering a significant tracking error. This sampling error, amplified by the non-substitutability of real estate assets across portfolios, adds a layer of risk that is not represented in the index data shown in table 9.2.

9.3.2 Currency

The returns shown in table 9.2 are in local currency. In order that an international investor can achieve local currency returns, there must either be no movements in exchange rates, or the investor must be able to perfectly and fully hedge his currency risk. This is not possible (see section 9.6).

The IPD Global Index was published for the first time in June 2008. It reports the market weighted returns for the 22 most mature markets measured by IPD (Austria, Australia, Belgium, Canada, Denmark, France, Germany, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, South Africa, South Korea, Spain, Sweden, Switzerland and the UK) plus KTI Finland and NCREIF in the US, together worth an estimated €3.25trn as at the end of 2007.

In 2007, the all-property total returns across global real estate markets in local currencies were lower than those in 2006, falling from 14.9% to 11.5%. But a dollar investor made 22.0% and 16.6%, while a Euro investor made 9.3% and 5.2% — and for a sterling investor

Table 9.3: IPD global index returns, 2002–07

Currency	2002	2003	2004	2005	2006	2007
Euro	–1.4	–0.9	8.0	23.6	9.3	5.2
GBP	16.1	19.1	16.4	7.5	7.3	14.7
USD	5.0	7.1	8.6	20.1	22.0	16.6
JPY	5.2	7.5	11.3	23.4	23.3	9.3
Local	7.1	7.8	11.4	15.5	14.9	11.5

Source: IPD

returns doubled, from 7.3% to 14.7%, as both the market and the pound weakened!

9.3.3 Taxes and fees

Returns achieved by investors will be damaged by taxes and fees. Pension funds that are tax-exempt in their own domicile may suffer some taxation when investing internationally. To limit the impact of taxes may involve complex structuring of the investment (see section 9.9 and box 12) and the payment of legal and consulting fees, and investment management fees for international mandates and products will often be higher than domestic fees.

9.3.4 Leverage

Leverage will often be used when investing internationally. There are several reasons for this. First, pension funds will often choose to invest internationally through a special purpose vehicle or unlisted fund. If the investment is through a fund, the fund manager will normally have a selfish preference for using leverage to boost assets under management, and hence fees, as well as a mutually beneficial aspiration to boost return on equity (and, less mutually beneficially, risk). If a special purpose vehicle is used by the investor, he may choose to use leverage to boost return, but is more likely to be driven to do so for the following reasons:

(i) it is tax efficient to do so;

(ii) it permits greater diversification of specific risk; and
(iii it can partially hedge currency risk.

We deal with the methods used to hedge currency risk later (section 9.6); for now, we can state simply that borrowings in foreign currency perfectly hedge the currency risk of the debt component of the investment made.

The tax efficiency of a non-domestic property acquisition by an investor that is tax-exempt in its own market can be boosted by using leverage. This is because the tax penalty most likely to be suffered is a withholding tax, applied to income. If net taxable income can be reduced by offsetting loan interest payments against the rent, then income returns are effectively transformed into capital gains on equity, which are less likely to be taxed.

Greater diversification is clearly attractive in an international context when the amount of capital needed to buy a globally diversified portfolio is so great (see chapter 6). Hence, the use of (say) 50% leverage is attractive, simply because it allows twice as many assets to be acquired.

(Because leverage has so many advantages both for the fund manager and the investor, it went hand in hand with international investing in the 1998–2007 period, and the withdrawal of debt facilities in 2008–09 held a very negative implication for the immediate future of international real estate investing.)

To summarise, the data shown in table 9.2 appears to offer some promise to investors seeking diversification. But it is not statistically significant, and it does not represent the net of tax and fees, domestic currency, leveraged and specific risk-laden returns available to investors. Data such as this should only be presented with reservations and should only be received with healthy scepticism. Nonetheless, the nature of the economics driving local rental markets coupled with the clear difference between the developed markets of North America and Northern and Western Europe and the emerging markets in Asia and elsewhere suggests that, theoretically at least, diversification benefits should be available.

The extension of the Euro suggests that the diversification benefits offered within the mature Eurozone markets may be a little weaker in future, and the expansion of mature Europe suggest less diversification benefits for a commitment to emerging central and Eastern Europe (but see Lizieri, McAllister and Ward, 2003 and McAllister and Lizieri, 2006). However, it is clear that the risk and return characteristics of a

UK portfolio combined with a diversified European exposure to both the core and emerging markets should be significantly better than the UK portfolio alone, at least before the complications listed above are accounted for. Adding a global exposure to continental European investments introduces the opportunity to include the US (a highly mature market, which, on its own, is as big as the European market) and the Asian and emerging markets.

However, the US has not offered an irresistible market for an investor with an existing UK property portfolio. There is dominant local capital, which limits the opportunities for outstanding performance, including a deep and efficient REIT market with a low cost of capital. The US has underperformed the UK over a long period and was highly correlated with it, very highly indeed until the crash of 2007–08 (see table 9.4). The correlation of returns for 2002–06 was 95%; for 2002–08 it was 88%. (Many commentators suspected that a technical index lag rather than fundamentals was the cause of the minor decoupling.)

Table 9.4: Total returns, UK and US, 2002-08

	2002	2003	2004	2005	2006	2007	2008	5 years to 2006	7 years
UK	9.6	10.9	18.3	19.1	18.1	–3.4	–22.0	15.2	7.2
US	6.8	9.0	14.5	20.1	16.6	10.3	–6.5	13.4	10.1

Source: IPD

(However, the high UK/US correlation is in local currency. As table 9.3 shows, the unhedged domestic currency returns have been very different. A dollar investor would have had far worse returns than a mere –22% in the UK in 2008 thanks to the pound weakening against the dollar. The average number of dollars bought by a pound in January was 0.5; in December it was 0.67. If –22% were a simple capital return in sterling, in dollars it would have been –42%.)

Asia includes several interesting mature markets (Japan, Korea, Singapore, Hong Kong) and also holds many of the large emerging markets (China, India, Pakistan, Middle East, Indonesia, Vietnam and others). The mature markets have been highly volatile, offering tactical

opportunities, while the emerging markets should offer the highest long-term returns. In both cases, performance will be underpinned by the fastest expected global rates of economic growth, which drives real estate demand. In addition, it appears that an Asian exposure can be expected to act as an effective diversifier against UK property, which would compensate for higher volatility.

However, we do not yet have sufficiently good data to be confident that long-term diversification benefits have been available, and a view formed from a combination of economics, property research and institutional (property market) experience is required.

Box 11: Have US REITs been beneficial for UK investors?

This study, taken from the first edition of this text and undertaken in 2000 for NAREIT, examines the evidence of the returns delivered by REITs to investors over a decade. It sets out to answer the question: were US REITs beneficial for UK or European property investors?

In this study, the following definitions are used.

- NAREIT is the return series for REITs maintained by the National Association of Real Estate Investment Trusts.
- S&P 500 is the Standard and Poor index of the performance of the largest US stocks.
- R2000 is the Russell Company's index of the performance of smaller US stocks.
- 90-day is the return delivered by 90-day treasury bills in the US.
- NCREIF is the return series for private real estate maintained by the National Council of Real Estate Investment Fiduciaries in the US.
- Mean is the arithmetic mean of annual returns.
- SD is the standard deviation of annual returns, a measure of risk.
- Correlation is the correlation co-efficient between two variables, with a maximum value of 1 indicating perfect positive correlation, a minimum value of –1 indicating perfect negative correlation and a value of 0 indicating no correlation.
- IPD monthly is the IPD monthly index of UK property returns.
- IPD annual is the IPD annual index of UK property returns.
- FT gilts is the Financial Times index of returns on UK government bonds.
- FTA is the Financial Times/Actuaries index of UK all share returns.
- UK prop shares is the property sector within the Financial Times/Actuaries index of UK all share returns.

All analyses have been carried out using returns in local currency.

For the European property investor, for example a UK pension fund, would REITs have added to return or reduced portfolio risk? Would direct/private US property or UK property shares have been a better diversifier for the UK property investor?

Using annual data, table 9.5 shows that NAREIT (10.75%) underperformed the IPD annual index (12.8%) by around 2% per annum over the period 1973–99. The volatility of NAREIT (21.31%) was close to double that of IPD (11.18%). This is not good news for REITs.

However, from table 9.6 it is clear that the diversification potential for a UK property investor was strong, the correlation over this period being –53%. Over the more recent period 1991–99, the diversification potential increases (a –70% correlation), while the NAREIT (12.5%) easily outperformed the IPD (just under 7%) for a similar doubling of volatility (18.6% against 9.7%).

Table 9.5: REIT and UK real estate performance, 1973-99 (annual)

	NAREIT (%)	IPD annual (%)
Mean	10.75	12.80
SD	21.31	11.18
Correlation		–53.10

Source: NAREIT, IPD

Table 9.6: REIT and UK real estate performance, 1991–99 (annual)

	NAREIT (%)	IPD annual (%)
Mean	12.46	6.80
SD	18.63	9.73
Correlation		–70.3

Source: NAREIT, IPD

Would direct US property have been a more effective diversifier for the UK property investor?

From table 9.7, the IPD outperformed both NAREIT and NCREIF by 50 and 100bp each quarter respectively over the period 1987–99, with somewhat greater volatility (2.73%) than the NCREIF (1.8%) and, of course, much less than the NAREIT (just over 7%). NAREIT outperformed NCREIF over the period by 50bp per quarter for a significant increase in risk.

However, from table 9.8, the risk of REITs for a UK property investor becomes much less in a portfolio context, with a negative 13% correlation for REITs/IPD compared with a positive 39% correlation for US/UK private property.

This, in combination with the higher return, would have made REITs a significantly better bet for a UK property investor wishing to diversify into the US property market.

Table 9.7: REIT and US and UK real estate performance, 1987–98 (annual)

	NAREIT (%)	NCREIF (%)	IPD annual (%)
Mean	1.96	1.46	2.53
SD	7.05	1.80	2.73

Source: NAREIT, NCREIF, IPD

Table 9.8: REIT and US and UK real estate correlation, 1987–98 (annual)

	NAREIT (%)	NCREIF (%)	IPD annual (%)
NAREIT	100		
NCREIF	–14	100	
IPD annual	–13	39	100

Source: NAREIT, NCREIF, IPD

Does the more recent period of 1991–98 produce a different story?

Table 9.9 shows that over the period 1991–98 the picture improves considerably for REITs, which outperformed UK property by nearly 1.4% per quarter and the NCREIF by more. Table 9.10 shows that the diversification offered by REITs became even greater over this period, while the correlation between NCREIF and IPD remained reasonably strongly positive at 35%.

Table 9.9: REIT and US and UK real estate performance, 1991–98 (annual)

	NAREIT (%)	NCREIF (%)	IPD annual (%)
Mean	3.51	1.35	2.13
SD	7.02	2.09	2.19

Source: NAREIT, NCREIF, IPD

Table 9.10: REIT and US and UK real estate correlation, 1991–98 (annual)

	NAREIT (%)	NCREIF (%)	IPD annual (%)
NAREIT	100		
NCREIF	–14	100	
IPD annual	–33	35	100

Source: NAREIT, NCREIF, IPD

Would UK property shares have been a more effective diversifier than REITs?

Table 9.11 demonstrates that the returns offered by REITs and UK property shares over the period 1987–98 were very similar, at 11.58% and 11.96% respectively. The volatility of NAREIT was, however, considerably lower at 16.4% than that on the FT property share sector (26.8%).

In addition, as table 9.12 shows, the diversification offered by NAREIT considerably exceeded that offered by UK property shares. The correlation between IPD and NAREIT, at –52%, is of more value to the UK property investor than the negative 23% offered by property shares. This confirms the intuitive notion that international diversification through REITs should be more effective than diversification into domestic securitised products.

Table 9.11: REIT, UK property shares and UK real estate performance, 1987–98 (annual)

	NAREIT (%)	IPD annual (%)	UK prop shares (%)
Mean	11.58	10.84	11.96
SD	16.39	9.67	26.83

Source: NAREIT, IPD, Datastream

Table 9.12: REIT, UK property shares and UK real estate correlation, 1987–98 (annual)

	NAREIT (%)	IPD annual (%)	UK prop shares (%)
NAREIT	100		
IPD annual	–52	100	
UK prop shares	34	–23	100

Source: NAREIT, IPD, Datastream

There is little doubt that, over the 1990s, REITs offered excellent potential for the UK property investor to access the US real estate market, to increase portfolio returns and to significantly reduce portfolio risk. This would not have been possible using the private US market. Using UK property shares would have been slightly less effective than using REITs.

The liquidity offered by REITs was an additional bonus. Over the analysis period, US REITs performed similar to low-risk, lower-return, smaller US companies, offering greater returns than the private market and better diversification against T-bills, but no real diversification against stocks.

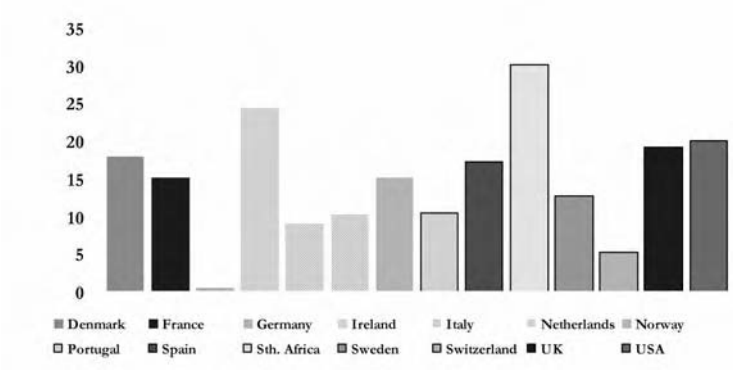
For a UK multi-asset investor, there is little to be said for REITs as a diversifying asset: UK property has been much more effective, for no currency risk. However, it is clear that, over the 1990s, REITs offered excellent potential for the UK property investor to access the US real estate market, to increase portfolio returns and to significantly reduce portfolio risk. This would not have been possible using the private US market. The price of the liquidity offered by REITs was negative over that period.

The analysis ignores tax and currency risk: see below.

9.4 The case for international real estate investment: enhanced return

Europe alone combines large and relatively mature, liquid and lower-risk markets with risky emerging markets, with the result that investments are available across the risk spectrum in what are known

Figure 9.1: Direct property total returns, 2005



Source: IPD composite indices, 2006

as core, core-plus, value-added and opportunity categories. (See figure 7.6, which summarises the risk/return characteristics of typical property funds in these categories.) Enhanced returns are likely to be available in the riskier markets and funds.

International investment can provide access to higher potential returns than are available domestically. Figure 9.1 demonstrates the returns that would have been achieved in different markets in one year, 2005. UK returns were strong at 19%, but well behind those achieved in South Africa (31%). Meanwhile, Germany suffered capital value falls and struggled to deliver a positive return (0.5%).

The range of these (local currency) returns means that a global unconstrained mandate is usually likely to offer the potential for higher returns than domestic-only strategy.

9.5 Other drivers

9.5.1 Liability matching

Insurance companies build books of liabilities to pay out insurance claims and savings income in international markets. As an example, the UK insurance conglomerate Norwich Union changed its trading brand to Aviva in 2009 as a sign that its business was international. The

insurance fund has to match liabilities with assets in order to remain in business, so it is natural to build investment portfolios in different markets and currencies, including real estate assets.

9.5.2 Lack of local product

There are stark examples of very wealthy investors based in one domicile, which contains a very small real estate market in global terms. These investors are forced to invest internationally. Examples include sovereign funds in the Middle East (Qatar, Abu Dhabi) and others. The argument has also been used by pension funds in larger markets, such as the Netherlands and Australia.

In addition, the Government of Singapore Investment Corporation (GIC) and other sovereign wealth funds are prevented by their mandates from investing in their domestic (real estate) market. This is related to the size of the domestic market and is designed to prevent (i) overheating of the market through weight of capital, (ii) poor return prospects and (iii) poor diversification.

9.5.3 Fee generation

Part of the wave of international real estate investing has been encouraged by investment managers making a stronger case for diversification than the data permits, while higher fees can be earned on an international property fund. Because higher fees can be earned does not mean there is more profit to be made, but there is little doubt that fund management businesses with a mission to build a global franchise have been very keen to sell international products and take capital across national boundaries.

9.5.4 Fashion

It has also been evident that international real estate investing happens in waves, affecting both the capital source and the target destination of the capital. This can be grounded in market pricing and institutional economics, but it can also be influenced by fashion — peer group pressure — and by the opinions of firms of investment consultants with influence over client groups. Hence many Dutch pension funds went international in the 1990s, using a mixture of REITs and unlisted

funds, while UK pension funds made the move roughly 10 years later, using unlisted funds, funds of funds and rarely REITs.

A more positive effect of this fashion is to introduce education to otherwise domestically focused professionals and analysts who gain transferable skills and knowledge. Marketing is another side effect. For example, it may be an unpriced benefit of real estate development to use a multi-storey tower to advertise the brand of an international bank in red neon.

However, neither training nor marketing *per se* are good arguments for international real estate investing, which, to return to the beginning of this section, should be driven either by diversification or by the search for high returns. But what are the costs?

There are significant challenges involved in executing a global property investment strategy. Research and expertise is needed. Property comes in large lot sizes, so it is very difficult to buy enough assets to build a diversified portfolio. There may be political risks in certain countries, for example a risk of taxation of foreign investors, title risk or even forced land nationalisation.

There will be a currency risk that may be impossible to perfectly hedge. International investment may result in less liquidity, and gearing the portfolio may be unavoidable. We now deal with these issues.

9.6 Currency risk

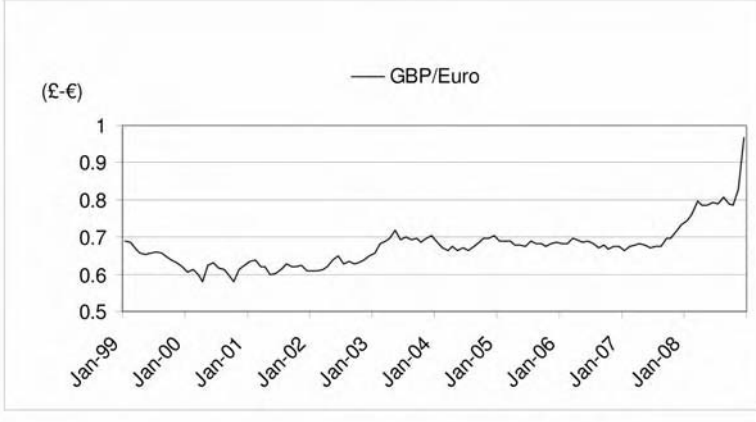
9.6.1 Introduction

As we saw in section 9.3.2, movements in currency exchange rates have a large impact on delivered returns to investors, and greatly complicate a global strategy. Currency fluctuations can be significant — as an example, see figure 9.2 — and, if left unhedged, currency exposure would significantly increase the overall riskiness of the investment.

Given that, as we have seen, as much as two-thirds of the returns from an international property portfolio can be explained by currency movements and one-third by property returns, it can be more important to develop a currency strategy than a property investment strategy. At the same time, given that property investors and property fund managers are not currency experts, and that forecasting currencies is notoriously difficult, our focus needs to be on the risk component of currency and not its return potential.

There are other side effects of currency movements that can be damaging to investors and fund managers. The quick and steep

Figure 9.2: The sterling/Euro exchange rate, 1999–2008



Source: European Central Bank, 2005

devaluation of sterling in 2008, for example, had an unforeseen impact on investors who had committed to non-sterling investments. We saw in chapter 7 how the drawdown period for an unlisted fund might extend to three years. Investors make forward commitments, say in Euros, while their domestic currency may be sterling. There may be an initial drawing (say 10% of the commitment) but if 90% remains undrawn and sterling depreciates by 20% the capital required is now 118% of the original sterling commitment.

Generally, investors and managers will focus on neutralising currency risk as much as they can. Here are three main approaches.

9.6.2 A currency overlay

Large multi-asset investors and managers may have the luxury of an in-house team of currency experts whose job it is to maximise the risk-return profile of the house's net global currency exposure. This exposure will be attained through all asset types, including private equity, hedge funds, real estate, stock and bonds as well as cash, held either for liquidity or specifically to access an attractive currency.

The currency team will have an optimal currency exposure policy, perhaps influenced by liabilities. It will measure the undesired currency exposure and manage it. It can use a variety of instruments to manage currency exposure, but the most common instrument used will be the currency swap, which hedges (neutralises) an undesired exposure. If a currency team operates in this way for the house, then a 'currency overlay' avoids any need for the property investment team to manage currency exposure. The price of this may be a directive to avoid or limit investment in certain property markets because the undesired currency exposure is too expensive to manage.

9.6.3 Using leverage

When and where debt finance is available, property funds investing in non-domestic property typically employ local currency leverage, in the range 50–70%. The leverage has more than one benefit. It enhances the income return if property yields exceed debt rates, so that dividend yields for continental European property funds were generally higher in nominal terms than for UK property funds when (as in 2000–07) the UK interest rate exceeded the Euro interest rate.

Leverage enhances the prospective total return/IRR as long as the prospective IRR exceeds the cost of debt.

Leverage also provides a partial hedge against the effect of currency movements on capital values. For example, if the leverage ratio is 50%, 50% of the property capital value will be hedged by equal and opposite changes in value of the local currency debt.

Let us assume that a UK property is acquired in 2003 for £100m by a US investor. The sterling–dollar exchange rate at the time of purchase is £0.5:$1. The investor exchanges $100m for £50m and borrows £50m from a UK bank.

He holds the investment for five years, and sells the building in 2008 for the price he paid, and achieves a 5% total return on the project, all through income. At the time of the sale, the sterling–dollar exchange rate has weakened to £0.7: $1.

His capital gain in dollars is negative. He owes the bank £50m, which he can pay back out of the sale proceeds of £100m, leaving his equity of £50m, now worth $71m. He has lost $29m.

If he had financed the building through 100% equity, he would have lost $58m, so he has been approximately (because we have not dealt with income) 50% hedged.

If he had used 75% leverage, he would have lost only $14.5m. His upside gain would have been similarly limited by increasing levels of gearing.

9.6.4 Hedging

The value of the equity investment in a non-domestic property investment or fund can be hedged in the money market. Taking as an example a UK fund investing in the Eurobloc, the Euro equity exposure can be hedged by using currency swaps.

We saw in chapter 4 that Fisher's equation explaining interest rates has three explanatory variables: these are the real risk-free rate, or a reward for liquidity preference, the expected rate of inflation and a risk premium.

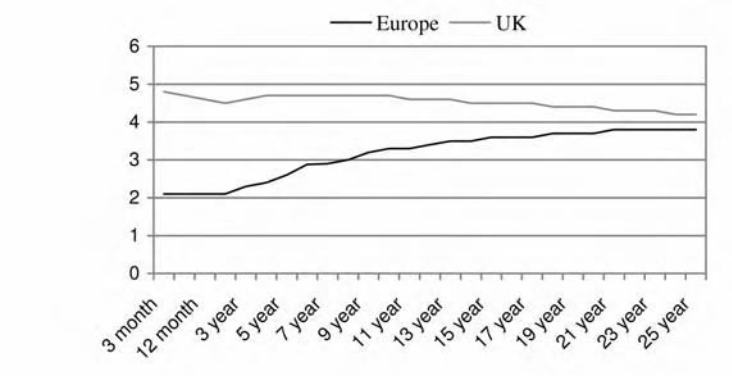
$$R = I + i + RP$$

Hence, there is a unity relationship between the rate of interest (R) and the expected inflation rate (i). There is also a unity relationship between the expected inflation rate and the currency exchange rate, suggested by the theory of purchasing power parity. Imagine that goods are made in Japan and the UK, and that the UK suffers an inflation rate of 5% while prices in Japan are stable. The prices of goods in the UK rise by 5% every year, while prices in Japan stay the same. After 10 years, prices in the UK are 63% higher than in Japan. UK manufacturers would be tempted to source parts in Japan. To buy them, they would have to sell sterling and buy yen. This would be a profitable arbitrage until the yen appreciated against sterling by 63%. As long as it remained profitable, it would continue to happen, resulting in net sales of sterling and net purchases of yen, driving the yen upwards against sterling until parity were reached. In an efficient market, the adjustment would be daily.

Given a unity relationship between interest rates and expected inflation, and between inflation and currency exchange rates, the interest rate differential is a predictor of currency exchange movements. The banking system holds and uses this information on a real time basis as it makes a market for currency swaps.

Let us refer back to our example of the US investor buying a UK property. He may use 50% leverage but wishes to hedge the equity component. What he would like to do is guarantee that he can exchange £50m for $100m in five years' time, or five years forward.

Figure 9.3: UK and Euro interest rate yield curves



Source: Bank of England, EuroStat, June 2005

There is an active currency swaps market, so he can offer this deal to a bank or 'inter-dealer broker'.

The bank is being asked to swap $100m of its own cash for the investor's £50m in five years' time. Is this an attractive proposition? This depends on expectations of the future exchange rate. If the pound is expected to weaken against the dollar, it is not attractive; if the dollar is expected to weaken against the pound, it is attractive. As we showed above, the market consensus expectation of future currency exchange rates is given by the interest rate differential.

The cost of a currency hedge is therefore related to the interest rate differential between sterling and the dollar over the relevant time horizon (see figure 9.3). If US interest rates are 2% when UK interest rates are 4%, sterling will be expected to depreciate by 2% each year against the dollar. The bank will then charge 2% of the hedged amount every year in order to guarantee to swap £50m for $100m in five years' time (although, in practice, a series of shorter period swaps is more common).

Using another example, assume that the expected return on a Eurobloc property is 8% (6% through income). The expected return on a UK property over the same period is also 8% (6% through income). The Euro base rate is 4.25%, while the UK interest rate is 5.25%.

A UK investor is looking at each alternative for a five-year hold. The property value of each property is the same — £6m and €10m, with an exchange rate of £0.6:€1.

Assume that the expected value of the Eurobloc property in five years is, as expected, €10m *(1.02)^5 = €11.04m. What is the value in sterling? This is £6.62 at the current exchange rate, but the exchange rate is expected to change. What is the expected value of €11.04m in sterling? The 1% interest rate differential suggests a decline in the value of sterling of 1% each year against the Euro. €11.04 * (1.01)^5 * 0.6 = £6.96. The UK investor could let the currency bet ride and get a capital return of £6.96/£6 = 1.16 = 3% pa, 1% better than the UK alternative. But this is risky!

If the investor arranges a forward swap of Euros for sterling by a Euro bank, the bank will be happy. It is beneficial to be promised Euros in exchange for sterling in five years' time, because the Euro is expected to appreciate. The UK investor is happy to receive sterling in exchange for Euros in five years' time. The markets expect Euros to appreciate by 1% per annum, so the swap margin is 1%.

Assume the investor swaps €1 one year forward for £0.60. The bank expects to pay a margin of 1%, so the property investor will get €1.01 for £0.60. In five years he will get €1.01^5 = €1.051. So he sells the property for €11.04, swaps into £ at €1.051, gets £11.04*1.051*0.6 = £6.96. The capital return is again 3%, but this time there is no currency risk.

In practice, hedging is implemented through the money markets, either using forward foreign exchange (FX) contracts or options. Nonetheless, it is difficult if not impossible to achieve a perfect hedge. The practical issues arising include the following.

- The FX gain/loss on the investment is unrealised, while the gain/loss on the hedge is realised. In the event of a loss on the hedge, this gives rise to a funding requirement in cash, unmatched by cash flow from the asset.
- Changes in value are not immediately hedged. The investment will be hedged at cost. If the value of the investment changes, the change in value is unhedged. This can be dealt with by using shorter duration hedges and renewing the hedge based on the new valuation at each quarter end.
- Regulators may not allow a 100% hedge, as this may result in an overhedged position when values fall. For example, in Ireland the regulatory maximum is a 97% hedge.

- The dividend yield on the investment remains unhedged using the approach described.
- The hedging transaction will involve transaction costs, so the net benefit will be less than the full interest rate differential. Transaction costs (spreads), typically very low in the three-month Euro/GBP and other major markets, are higher for minor currencies.
- Forward commitments are difficult to hedge. Once an investor has made a commitment to a project or fund, it may not be possible to know how much will be drawn, and it is very unlikely to be known at what time.

Nonetheless, something approaching the elusive 'free lunch' (in this case a higher return for a lower risk) may hover into view. In the period 2004–07, for example, nominal returns in Euros were enhanced by the interest rate differential flowing from the hedge, resulting in attractive returns in GBP, while neutralising the majority of the currency exposure.

9.7 Political and title risk

Poor or stressed government action will often express itself in the form of inflation, currency devaluation, high taxation, low economic growth and other impacts that are not conducive to successful property investment.

A purer form of political risk can encompass a range of hazards, from punitive taxation of foreign investors, exchange controls, new limits on non-domestic ownership of real estate assets, and even land and property nationalisation.

Political risk can also be extended to cover the risk of defective legal title, a potential problem in the former communist countries of central and Eastern Europe.

Political risk can be exaggerated by international investors who are ignorant of a country's history and institutions. At its most extreme, however, grounded or ungrounded perceptions of political risk can make a country uninvestable (see chapter 10).

9.8 Specific risk

Specific risk has a technical meaning in the context of modern portfolio theory (see chapter 1). It also has a popular meaning in the context of international real estate investing. Both concepts are relevant here.

The technical meaning was explored in this context in chapter 6 (section 6.2). A large amount of capital is needed to purchase a portfolio of directly owned real estate assets. If this is concentrated in the domestic market, and the benchmark is domestic, then specific risk will be a challenge for all investors except the very largest. If the benchmark is global and the same amount of investment capital is, alternatively, spread around the world, then the specific risk — and tracking error — will be greater.

The popular meaning concerns the perception that foreign assets are, dollar for dollar or pound for pound, more risky than domestic assets through 'information asymmetry', or the belief that local players know more about the asset, the legal and tax environment and the market than a foreigner. This may be the case, and explains why international investors will often choose to invest through a joint venture with a local partner.

To some extent, and on occasion, this may be balanced by the perspective advantage an external buyer might have when looking into a market where local players have lost confidence (Baum and Crosby, 2008, chapter 9, describes a case where German buyers did very well in these circumstances in London in 1993).

9.9 Other problems

9.9.1 Fees and costs

The structures set up to invest internationally can be very expensive to create and to manage, as will be clear from the remainder of this chapter. Consulting fees, legal costs, directors' fees, accounting and audit fees, fees charged on the provision of debt and the costs of annual reporting combine to produce a hefty initial and annual expense, which means that the tax savings created are not wholly for the benefit of the investor.

Fund management fees have tended to be higher for international funds and mandates than for domestic investment allocations. A domestic fund may cost an additional 25bp (around one-third of the typical fee) in total annual management charges excluding performance fees.

9.9.2 Global cycles, converging markets

It has been suggested that the impact of globalisation in its broadest sense has been to increase correlations between markets and thereby reduce the benefits of international diversification.

It is not possible to test this hypothesis by producing convincing evidence of changes in the diversifying benefits of an international real estate programme, due to deficiencies in the available data (see section 9.3).

However, Lizieri, McAllister and Ward (2003) and McAllister and Lizieri (2006) examine the changing diversification benefits available to cross-border investors using listed property securities in the newly converging Eurobloc and find evidence of continuing benefits.

9.9.3 Loss of focus and specialisation

For a REIT or investment manager that has a strong track record and long experience of a particular market, especially when specialised in a single sector, there is much to be said against diversification. It is commonly held that diversification is better achieved by the investor, and that REITs and funds should 'stick to the knitting'.

9.10 Taxation issues

9.10.1 Introduction

Pension funds are usually tax exempt in their own domicile, but may suffer withholding taxes — and other taxes specific to the foreign environment — when investing abroad. Withholding tax is a tax on income, so called because the income is withheld from the foreign investor at source. Using leverage to reduce net income, if permitted, is a natural way to mitigate this.

In addition, there may be tax shocks. Examples of specific tax shocks include a French tax on non-domestic owners of immovable property, which is no less than 3% of the market value of such properties charged annually. All legal entities in the ownership structure are jointly and severally liable for the payment of this tax, which can often be avoided, but at a cost.

Sometimes, properties will be held within single asset companies to allow shares rather than the building to be sold or other taxes to be minimised. This may be tax advantageous, but introduces another

taxable layer: as a result we will now have potentially taxable properties, companies, fund entities and investors.

Taxes may be applied to investors in the domicile of the fund (for example, withholding tax, and taxes on capital gains). Taxes may be applied to the investor in its home domicile (income tax, taxes on capital gains). Taxes may be applied to the investor in the domicile of the property (for example, the French 3% tax). Taxes may be applied to the holding entity in the domicile of the property (local taxes); or the domicile of the fund (corporate taxes, withholding tax). Taxes may be applied to the entity in the domicile of the entity (corporate taxes). Taxes can be applied to the property in the domicile of the property (VAT, stamp duty and other transfer taxes).

There are many other tax risks facing the global investor, and the complexity of the problem is perhaps best illustrated by case studies and examples. Suffice it to say, expert tax advice is unhesitatingly used by professional investors and fund managers when contemplating non-domestic investment and new international property funds, and the resulting structures can be mesmerising.

We use two examples to illustrate these issues. A relatively simple example is presented in section 9.10.2, and a more complex illustration in box 12. Both concern investment into French assets by non-French investors.

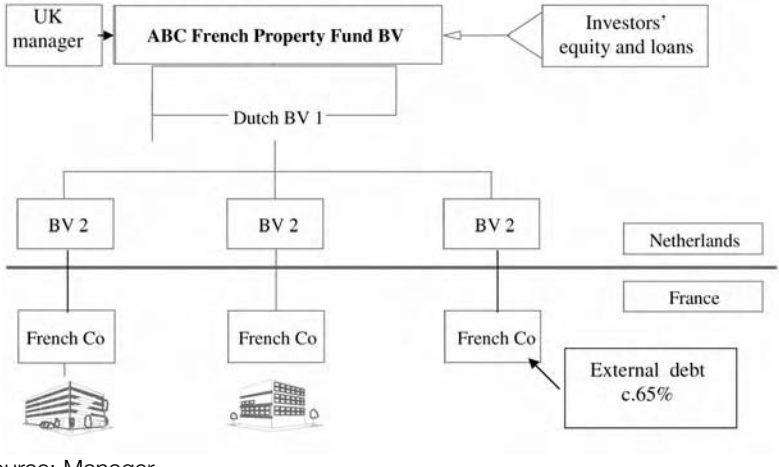
9.10.2 Tax case 1 — a French property fund, late 1990s

A UK investment manager with a captive (in-house) insurance fund has determined in 1998 that performance prospects for French property, especially Paris offices, are attractive. There is also known to be demand from a Dutch pension fund as a likely co-investor. Attractive fees can be earned from an unlisted fund set up to access this market, and the in-house insurance fund will benefit from higher return prospects than are available in the UK.

However, there is a tax penalty for overseas investors in France (see above). There was also (at the time) a transfer tax of 18.5% on the purchase of buildings.

There is a 1.75% tax on the transfer of companies. In addition, a company with limited liability is helpful in making sure there is a layer of protection between the fund's operations and the fund itself.

Figure 9.4: French property fund, 1998



Source: Manager

There is a tax treaty between France and the Netherlands, and a tax treaty between the UK and the Netherlands, but no tax treaty between France and the UK. Tax treaties are set up to avoid double taxation of legal persons who are resident or domiciled or otherwise have interests in two locations. The tax treaty also means that pension funds that do not pay tax at home may be shielded from tax when investing internationally.

There is income tax relief on loan interest in France, and lower taxation of loan interest than equity dividends in the Netherlands.

The structure used is shown in figure 9.4.

The way the fund works (in simplified terms) is as follows. The fund is a Dutch limited liability company, which must be controlled by a majority of Dutch nationals based in the Netherlands, where board meetings will be held. The Netherlands–UK tax treaty means that no tax is paid in the Netherlands by a tax-exempt UK life fund.

The fund owns a single limited liability holding company (BV) to allow a sale of the entire portfolio without collapsing the fund, and to insert a layer of limited liability. This, in turn, owns a series of special purpose Dutch BV, which, in turn, each own a single French property company. This structure widens the net of possible tax-efficient buyers.

The tax treaty between the Netherlands and France means that no tax is paid by Dutch tax free entities on French income. The French companies own the French buildings in order to avoid the transfer tax of 18.5% on acquisitions and to put in its place a 1.75% company transfer tax. The French property companies use debt to reduce taxable income and to reduce French income tax on dividends paid.

At the fund level, the investors provide loans to reduce the tax on income received, but 'thin capitalisation' rules limit the extent to which loans can be used in place of equity. The loans pass down through the structure subject to the tax efficiency of the structure at each stage.

Each company will have its own cash and its own revenue statement. If the structure works well, the loans and equity pass down through the various companies, and are used to provide the equity for the property acquisitions. The companies will receive rents, and pay operating expenses and two sets of loan interest (one to the local bank, and one back up to investors), and make a small profit which is available for distributions up through the structure with enough cash to fund them, but not so much cash so that it becomes trapped in the subsidiaries.

9.11 Conclusion

International property investment is not straightforward. Tax and currency issues are considerable, and the data required to fully support a case in the face of these obstacles is not yet available. But at the peak of the market in 2007 the investment management teams were in place and the vehicles were available. A period of reflection and retrenchment was inevitable following the 2007–09 crash, but a slow but sustained recovery in the appetite for and supply of global real estate investment solutions is to be expected.

The data available to support a decision to invest internationally is illustrative of possibilities and of limited value: it describes investments in direct property, and also describes the performance of diversified market indexes, which cannot be perfectly captured. The argument needs to be set in the context of the execution model, by which we mean the use of unlisted property funds and listed REITs.

How can a global investor capture the desirable performance characteristics described in this section? This is dealt with in chapter 10.

Box 12: A detailed tax case

This fund structure was set up in 2007 for the purposes of establishing a fund for multi-domicile investors investing in a variety of European markets. This was a pan-European fund holding French property through a Luxembourg structure.

The manager had identified the following key requirements. The fund structure had to be:

a) tax efficient, putting investors, as far as possible, in as good a position (as regards income, capital gains, transfer and other taxes) as if they had bought property directly;

b) capable of benefiting from an exemption from the French 3% tax;

c) subject to regulation that is not unduly limiting given the fund's investment strategy;

d) capable of accommodating VAG investors (investors subject to the provisions of the German Insurance Supervision Act), using their equity quota;

e) flexible enough to accommodate a wide range of European investee jurisdictions and a wide range of international institutional and high net worth investors; and

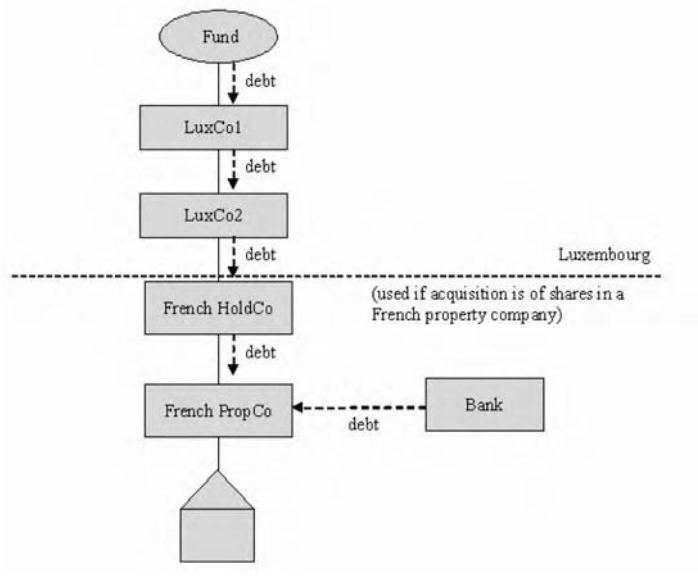
f) in a recognisable and market-familiar fund structure that investors will generally be comfortable with.

Figure 9.5 shows that in most investment jurisdictions (France is illustrated) a property company is set up in the jurisdiction concerned as a fully taxable company.

The holding of investments via PropCos provides maximum flexibility in structuring disposals via a sale of the underlying investment out of a PropCo, or via a sale of the shares in the PropCo (or intermediate holding company) concerned.

The fund, an English limited partnership, will finance LuxCo 1 up to 99% by debt and up to 1% by equity. LuxCo 1 will then finance LuxCo 2 up to 99% by debt, which mirrors the loan from the Fund to LuxCo 1, and 1% by equity. This allows the effective rate of withholding tax on income paid from LuxCo 2 to LuxCo 1 and then from LuxCo 1 to the fund to be reduced to as little as 0.42%.

Figure 9.5: The investment structure — France



Source: Manager

This structure enables the fund to minimise tax on dividends and capital gains derived from the PropCos (via intermediate holding companies where applicable) and on the disposal of the PropCos (or intermediate holding companies). Subject to the observance of local borrowing limits, interest payments made by each PropCo to LuxCo 2 will not be subject to withholding tax in the jurisdiction of residence of PropCo, and will be subject to reduced taxation in Luxembourg due to the ability to shelter interest income in LuxCo 2.

Debt from XBank and other senior lenders would normally be provided to the PropCo, so that:

(a) ring fencing on a property-specific or at least country-specific basis can be achieved (institutional investors would expect this);
(b) effective security can be given locally; and
(c) interest payable under the loans can be deducted against the income of the PropCo for corporate income tax purposes.

In both Germany and the Netherlands, rules restricting the deductibility of interest paid on connected party loans will restrict gearing to 60:40 in the case of Germany and 75:25 in the case of the Netherlands and, subject to certain exceptions, 60:40 in the case of France. Unless external lending is utilised, the denial of the deductibility of interest to the extent that the gearing exceeds the prescribed limits will result in tax leakage in the relevant jurisdictions.

The French 3% tax provides that legal persons that own immovable properties in France must pay an annual tax of 3% on the market value of such properties. All legal entities in the ownership structure are jointly and severally liable for the payment of this tax. The general partner (GP, a UK company fully taxable in its own jurisdiction) will benefit from an exemption provided that the GP complies with certain filing requirements. The GP's direct or indirect shareholders would have to be able to claim the exemptions themselves with respect to the French 3% tax. The tax does not apply to the fund since, as an English limited partnership, it does not have a separate legal personality.

LuxCo 1, LuxCo 2, French HoldCo, and French PropCo (all being Luxembourg companies fully taxable in Luxembourg or French companies) will also all benefit from an exemption provided that they comply with certain annual filing requirements.

The investors, insofar as they are non-natural persons, need to identify where they have their corporate seat, so that the French 3% tax position applicable to them can be determined. The same applies to their direct or indirect shareholders.

Why Luxembourg?

Luxembourg is often chosen as an intermediate jurisdiction for the incorporation of holding companies acting as special purpose vehicles because of its flexible company law, its large treaty network and the favourable domestic participation exemption, whereby dividend and capital gains from substantial participations may, under certain conditions, be tax exempt (under, for example, the 'Soparfi' regime).

The Luxembourg Soparfi regime covers four different aspects of tax exemption:

(a) exemption from corporate tax on dividend income received at the level of LuxCo 1 and LuxCo 2;
(b) exemption of capital gains on the alienation of shares realised by LuxCo 1 and LuxCo 2; and
(c) exemption of withholding tax on dividend distributions made to the shareholders of LuxCo 1 and LuxCo 2.

Corporate tax

LuxCo 1 and LuxCo 2 are fully taxable Luxembourg companies. As such, they are in principle subject to corporate income tax at a rate of 22% (*impôt sur le revenu des collectivités*), municipal business tax at a rate of 6.75% in Luxembourg City (*impôt commercial communal*; the rate varying from one municipality to another, although most municipalities apply a tax rate of 7.5%) and a contribution to the unemployment fund of 4% on the corporate income tax. The overall combined corporation tax burden thus (at 2008) stood at 29.63% in Luxembourg City.

LuxCo 1 and LuxCo 2 are assessed on the basis of their worldwide profits, including interest income from loans and bank deposits, trading income, real estate rental income or foreign exchange gains, after the deduction of allowable expenses and charges, determined in accordance with Luxembourg general accounting standards.

In addition, LuxCo 1 and LuxCo 2 will be subject to wealth tax (*impôt sur la fortune*) at a rate of 0.5%, assessed on the estimated realisation value of its assets on the wealth tax assessment date. Retained earnings and portfolio investments held each year on the wealth tax assessment day will be subject to wealth tax.

Article 166 of the Luxembourg income tax law (LIR) provides for the corporate income tax exemption of dividend income through a set of conditions, which pertain to the tax status of the parent and of the subsidiary, as well as to the participation threshold and the holding period. The participation exemption is available to Luxembourg fully taxable companies having capital divided into shares, to certain public entities and to permanent establishments of foreign companies. Luxembourg companies that have their capital divided into shares are public limited companies (*sociétés anonymes*), private limited companies (*sociétés à responsabilité limitée*) and partnerships limited by shares (*sociétés en commandite par actions*). LuxCo 1, being a fully taxable company having a capital divided into shares, will thus qualify as a parent company.

A direct participation of the parent (LuxCo 2) in its subsidiary (PropCo or an intermediate holding company) is required, and the owner (LuxCo 2) must have in principle full ownership of the relevant shares. The participation held by the parent company must further be substantial. A participation of at least 10% in the share capital of the subsidiary or with an acquisition price that amounts to €1,200,000 is deemed qualifying.

The above qualifying participation in PropCo (or HoldCo) has to be held by LuxCo 2 for at least 12 months. Each foreign subsidiary has to be fully taxable in its jurisdiction. Under Luxembourg tax administration practice, a company is deemed fully liable to corporation tax in its jurisdiction of residence if:

(a) the nominal foreign corporation tax rate is at least 11%; and

(b) the tax basis is determined by the application of rules similar to those existing in Luxembourg; or

(c) the company is listed in the EU Parent/Subsidiary Directive 90/435, as amended by Council directive 2003/123 dated 22 December 2003 (the Parent/Subsidiary Directive).

Capital gains

The structure will benefit from Luxembourg's tax treaties on capital gains made on the disposal of shares in a company whose assets principally comprise immovable property. However, the treaty with Spain expressly provides that such gains are taxable in the state where the immovable property is situated, so that a Dutch fully taxable holding company needs to be interposed between LuxCo 2 and the Spanish PropCo, as the double tax treaty between the Netherlands and Spain does not provide for taxation in Spain on the sale by a Dutch company of shares in a Spanish company whose assets consist mainly of Spanish real estate.

In the treaties with Italy, the UK, the Netherlands and Poland such gains fall within a 'catch-all' provision for all gains not expressly mentioned, and are taxed in the state of residence of the company making the gain (Luxembourg). The treaty with Germany also provides for such gains to be taxed in the state of residence of the company making the gain, under provisions stating that any income not specifically mentioned in the treaty is to be taxed in the state where the beneficiary (LuxCo 2) is resident.

A Luxembourg parent company (LuxCo 2) may benefit from an exemption from capital gains realised on the transfer of shares (in PropCo or HoldCo) forming part of a substantial participation. The exemption may be claimed on a sale, but also on other changes of ownership, such as a contribution to the share capital of a company. To be eligible for this exemption similar rules to those for the exemption of dividend income apply.

The Luxembourg parent (LuxCo 2) that realises a capital gain may be a public or a private limited company or a partnership limited by shares. The subsidiary, the shares of which are sold (PropCo or HoldCo) must be fully taxable in its jurisdiction.

The availability of the participation exemption is conditional on a holding period requirement. The parent company must have held a participation of 10% in the subsidiary's share capital or, alternatively, the acquisition cost of the participation must have been at least €6,000,000. The qualifying participation must have been held for at least 12 months at the beginning of the financial year in which alienation occurs.

Withholding tax

Under Luxembourg domestic law, dividend distributions and other (deemed) profit distributions, as well as interest payments on certain profit sharing bonds made by Luxembourg resident companies, are, in principle, subject to 20% Luxembourg withholding tax (WHT). To the extent that distributions by a Luxembourg company are subject to dividend WHT, the applicable dividend WHT rate may be reduced by treaty claims from eligible shareholders.

In the fund structure, a limited partnership is interposed between the investors and any Luxembourg company. However, Luxembourg doctrine considers that the setting-up of a transparent entity should not prevent members of this transparent entity, who are residents of another contracting state, being granted treaty benefits for income derived through that transparent entity from the other contracting state.

An exemption may be secured on the basis of an applicable double tax treaty or on the basis of the Parent/Subsidiary Directive. This exemption applies to dividends allocated by a Luxembourg company having a capital divided into shares (which will be the case for both LuxCo 1 and LuxCo 2) to, in particular:

(a) another Luxembourg resident company having a capital divided into shares;
(b) a company benefiting from the Parent/Subsidiary Directive;
(c) a permanent establishment of an EU company; or
(d) a permanent establishment of a company having a capital divided into shares, enjoying treaty protection.

In relation to payments by LuxCo 1, the benefit of the withholding tax exemption may also be secured if, as here, a tax transparent partnership is interposed between LuxCo 1 and the investors. In the case of investors who do not benefit from either the Parent/Subsidiary Directive or an applicable double tax treaty, the effective rate of withholding tax may be brought down to 0.42–0.45%.

The participation threshold and the holding condition are the same as those for the dividend exemption, namely a 10% participation in the subsidiary's capital or a participation having an acquisition value of €1.2m that must be held for at least 12 months.

The liquidation proceeds distributed upon the liquidation of LuxCo 1 and LuxCo 2 are not subject to Luxembourg dividend WHT under current law, regardless of the residence of the investors.

Debt financing and thin capitalisation issues

Each Luxembourg company (LuxCo 1 and LuxCo 2) will be financed through a mix of debt and equity. Unlike dividend payments, payments in relation to indebtedness (interest and reimbursement of principal) are *a priori* not subject to withholding tax and interest payments are in addition tax deductible for corporate income tax purposes, subject to compliance with Luxembourg thin capitalisation requirements.

LuxCo 1 and LuxCo 2 are financed up to 99% by debt, which exceeds the 85% limit pursuant to the Luxembourg thin capitalisation rules. Interest payments on the excessive portion of the debt may therefore be deemed by the tax administration to be a hidden profit distribution, subject to dividend withholding tax (currently 20%) and no deduction will be available to LuxCo 1 and LuxCo 2 in respect of this excessive interest.

However, even if LuxCo 2 is over-indebted, no withholding tax is due in Luxembourg by virtue of the EU parent-subsidiary regime as LuxCo 1, which is the beneficiary of the dividend payments, is a Luxembourg fully taxable limited company, provided LuxCo 1, at the time of the distribution, has held or commits itself to hold for an uninterrupted period of 12 months at least 10% of the share capital of LuxCo 2.

At the level of LuxCo 1, 15% of the loan to LuxCo 2 will be considered a hidden participation. Consequently, 15% of LuxCo 1's debt corresponding to this hidden participation will, in turn, be excessive indebtedness generating hidden dividends subject to withholding tax at a rate of 20%. This implies an overall effective rate of withholding tax of 0.42% to 0.45%, depending on the precise level of equity.

Taxation of capital gains realised by investors

When selling their shareholdings in the fund, investors may realise a capital gain on such sale (which will be treated as a disposal of shares in LuxCo 1). Under current applicable law, a non-resident investor, having no permanent

establishment in Luxembourg to which the capital gains are allocated, is in principle not taxable in Luxembourg on the capital gains realised upon the disposal of the shares held in LuxCo 1, provided:

(a) the investor has not held (via its holding in the fund) more than 10% of the share capital of LuxCo 1; or

(b) if the investor has held (via its holding in the fund) more than 10% of the share capital of LuxCo 1, such investor has not alienated its shares within six months of their acquisition.

If all the shares held by a non-Luxembourg resident shareholder, not holding their shares through a Luxembourg permanent establishment, are redeemed, and this shareholder thus completely exits the company, the redemption is not taxable in Luxembourg as it is considered a partial liquidation.

Issues specific to French holdings

According to the France-Luxembourg tax treaty dated 1 April 1958 (as amended), rental income generated by French property is currently not taxable in France provided that such rental income is not derived through a French permanent establishment of a Luxembourg company. The same applies in respect of capital gains made by a Luxembourg resident company on the disposal of a French property. Since such income or gains are also exempt in Luxembourg, French property investments are usually structured in a way such that the French property assets are directly held by a Luxembourg company.

For this reason, real estate investments in France would be owned by a French PropCo, incorporated and resident for tax purposes in France. The French PropCo would itself either be a wholly owned subsidiary of another French incorporated and tax resident company (French HoldCo) or it would be wholly owned by LuxCo 2. French PropCo and, as the case may be, French HoldCo would be financed by a combination of debt and equity from their respective members and possibly with third-party (bank) debt.

Taxation of French PropCo and French HoldCo

Rental income arising from the French property would constitute taxable income for the French PropCo. Such income will be taxable at the standard corporate tax rate (up to 34.43%) after the deduction of allowable charges, such as general expenses, interest (subject to certain restrictions concerning interest on intra-group loans), and capital allowances. Capital gains made upon the disposal by a French PropCo of the underlying property would be subject to corporate tax at the standard corporate tax rate.

French Holdco will only receive periodical dividend income and, as the case may be, interest paid by the French PropCo. Dividends received should be exempt from French corporate tax under the participation exemption. To qualify for the participation exemption, dividends must be paid on shares that represent at least 5% of the share capital of the distributing company, and the shareholder must hold such shares for a period of at least two years. Interest received would be subject to corporate tax to the extent that it exceeded allowable expenses. Improvements (as opposed to land) and the various components of the building (fittings, lifts) can be depreciated over their individual useful life.

Capital gains made upon the disposal by French HoldCo of its shares in French PropCo would be subject to corporate tax at the standard corporate tax rate if the shares have been held for less than two years. If shares have been held for two years or more, capital gains will be subject to tax at a rate of up to 15.49%.

Thin capitalisation rules mean that intra-group loans made to French HoldCo from related parties would need to be granted on market terms and would be subject to the following restrictions:

(a) the amount lent must not exceed 150% of the borrower's net equity;

(b) interest paid on such loans must not exceed the amount of interest received from a related company; and

(c) interest paid on such loans must not exceed 25% of the company's adjusted EBITDA.

These restrictions would not apply to interest on loans granted by a non-related entity (for example, a bank as senior lender).

Disposal by LuxCo 2 of its investment in French HoldCo (or in French PropCo)

Capital gains made by LuxCo 2 upon the disposal of shares in French HoldCo (or in French PropCo) should not be taxable in France because of the relevant tax treaty. Disposal of the French investments should therefore be more tax efficient if made by LuxCo 2 selling the shares in its French subsidiary than if made by way of having French HoldCo selling its investment in French PropCo or French PropCo selling its real estate investment.

Profit extraction

Profits made in French PropCo may be paid upstream by way of dividends. If dividends are paid to French HoldCo, no taxation would arise at this stage by way of withholding tax. French HoldCo should be subject to tax on this dividend

income, but it should be able to benefit from the participation exemption in respect thereof, resulting in no effective tax being payable in France.

Dividends paid to LuxCo 2, whether by French PropCo or by French HoldCo, should be exempt from withholding tax in France on the basis of the Parent-Subsidiary Directive, as implemented under French domestic law.

In broad terms, the Parent/Subsidiary Directive will apply if:

(a) the dividend paid by French PropCo or by French HoldCo is paid to a company that is a resident of Luxembourg where it is subject to corporate tax, and

(b) this Luxembourg company is the beneficial owner of the dividend and holds at least 10% of the capital of the distributing company.

In addition, the French tax authorities require that the Luxembourg company provides evidence that it is not ultimately controlled by entities that are not resident in an EU member state.

Profits may also be extracted by way of interest payments. Such payments, if made to LuxCo 2, should, in practice, be exempt from any withholding tax in France. Dividends received by LuxCo 2 from its French affiliates will be received free of Luxembourg corporation tax by virtue of the Luxembourg participation exemption.

French tax should not be chargeable on profits distributed nor on interest payments made by French PropCo to French HoldCo. French HoldCo may distribute its profits to LuxCo 2 free of Luxembourg corporation tax by virtue of the Luxembourg participation exemption.

VAT

In some cases, VAT rather than registration duties may be payable upon acquisition of a French property (for example, for properties that are disposed of for the first time within a period of five years following completion). This VAT, charged at 19.6%, is, however, recoverable if the property is let to a tenant and the rent is subject to VAT.

The letting of French commercial property may be subject to VAT upon election of the lessor. Such an election could be tax efficient if the acquisition of the French property has been subject to VAT or if the lessor incurred some VAT (for example, on refurbishment costs), as it enables the lessor to recoup the VAT incurred.

Local tax

A local tax (*taxe foncière sur les propriétés bâties*) is assessed annually on companies that own French property. This tax is charged at rates decided by the local governmental authorities and is assessed on the administrative rental value of the property (which, in practice, is much lower than market value).

The tax is assessed by the tax administration in the name of the owner. Other taxes may also be due in certain circumstances, but they are usually charged back to the lessee.

French 3% tax

Under article 990 D *et seq*. of the French Tax Code, legal entities that, directly or indirectly through affiliate(s) hold French property may be subject to an annual 3% tax charged on the fair value of the underlying property.

For these purposes, a legal entity means any legal person (as opposed to a natural person), notwithstanding the form of the entity concerned, that has, under the laws of the jurisdiction in which its statutory seat is located, a legal personality which is distinct from that of its members. The 3% tax is charged without taking into account any indebtedness, and is charged in proportion to the total interest owned (directly or indirectly) by the taxpayer in such property.

However, a large number of exemptions may apply to companies resident in a country that has signed an appropriate tax treaty with France, subject, however, to (generally burdensome) compliance obligations. In practice, therefore, this tax is mainly applicable when a French property is ultimately (directly or indirectly) owned by a legal entity based in a jurisdiction that has not entered into an appropriate tax treaty with France. The investors should also ensure that they can individually benefit from an exemption from the 3% annual tax.

Filing requirements are not only imposed on the investor, but on every entity with a direct or indirect interest in that investor and on every entity holding French property in which that investor has an interest.

Transfer tax

Acquisitions of French real estate by French PropCo will be subject to registration duties at an effective rate of 5.19% (including a 0.1% land registry fee). Where French real estate acquired by French PropCo is subject to VAT,

registration duties are charged at an effective rate of 0.815% (including a 0.1% land registry fee). Notary fees are payable in addition to registration duties.

Further, the sale of shares in a company whose assets mainly consist of French-based properties will be subject to registration duties at a rate of 5% (assessed on the fair value of the shares transferred), even if the company is not a French company.

Registration duty is usually payable by the purchaser unless otherwise agreed by the parties.

10 Building the global portfolio

10.1 Introduction

As we saw in chapter 9, international property investment is not straightforward. Tax and currency issues are considerable, and the data required to fully support a case in the face of these obstacles is not yet available. But investors and managers are creating solutions, albeit with varying degrees of efficiency, with an intended net effect that is advantageous to the investor seeking higher returns and/or diversification of real estate exposure. In this chapter, we describe a recommended approach for a large institutional investor with, say, €500m to invest.

While direct investment is popular with individuals, even very wealthy family offices, unlisted funds are the natural route to gaining global property exposure for most institutional investors of this scale. This is because their performance characteristics are most in line with the direct market over the short to medium term, meaning that efficient diversification is possible against financial market assets. Sufficient unlisted funds with the right risk and return characteristics exist in most markets, with some exceptions where listed REITs are expected to be the dominant routes to market.

Building exposure to a portfolio of unlisted funds is an attractive way to gain exposure to global property markets, as they provide a means of accessing property-type returns with diversification at the property level. REITs may be a useful addition, providing useful liquidity, a different tax treatment, and, on occasion, very attractive pricing. However, while the overall REIT exposure should be limited

by the sector's short to medium-term performance characteristics, the limitations on unlisted fund investment in certain geographies, coupled with the occasional pricing advantages of the listed sector, mean that the addition of a selection of REITs brings several benefits at the property portfolio level.

Table 10.1 illustrates a view of the relative strengths of the unlisted fund and listed security routes to overseas investment.

Table 10.1: Unlisted fund and REIT characteristics

	Unlisted funds	Listed REITs
Pure property exposure	* * *	*
Diversification against other assets	* * *	* *
Management quality	* * *	* * *
Investment size	* *	* * *
Diversification of specific risk	* *	* * *
Liquidity	*	* * *

Source: CBRE Investors

10.2 The global real estate market

10.2.1 Core, developing, emerging

Many US investors and most UK investors looked first at investing in continental Europe. This is explained wholly by familiarity and perceptions of risk. However, US opportunity funds opened up the new emerging markets of Central and Eastern Europe in the early 1990s and entered Latin American and Asian markets in force in the following decade.

Table 10.2 shows a split of the main countries of Europe into core, developing and emerging markets as defined in the first edition of this book. Low-risk investors would be more likely to go to core markets; high-return investors, such as opportunity funds, might seek out emerging markets.

Table 10.2: Market definitions

Core	Developing	Emerging	Opaque
UK	Portugal	Czech Republic	Belarus
Germany	Spain	Hungary	Moldova
France	Italy	Poland	
Ireland	Denmark	Slovakia	
Sweden	Austria	Baltic States	
The Netherlands	Norway	Turkey	
Switzerland	Finland	Greece	
Belgium	Luxembourg	Slovenia	

Source: CB Richard Ellis, Baum, 2000

The allocation of countries to core, developing and emerging property investment markets is somewhat arbitrary and changes over time. Nevertheless, broadly speaking, core markets have a benchmark (for the relevance of this, see chapter 3), are politically stable, have a stable currency, offer professional services necessary for institutional investment and are liquid and transparent. Developing markets generally have no benchmark, are smaller, have less liquid markets (but liquidity is either growing or is expected to grow) and are politically stable with a stable currency. Emerging markets have low liquidity, less political or currency stability, fewer professional services and no benchmark.

10.2.2 Transparency

There are also perceived 'red-lined' or non-investable markets. These are defined as 'opaque' by Jones Lang LaSalle (JLL) in its Real Estate Transparency Index, first published in 1999, latest version 2008. This survey-based measure uses judgments about the following:

a) the availability of investment performance indexes;
b) market fundamentals data;
c) listed vehicle financial disclosure and governance;
d) regulatory and legal factors; and
e) professional and ethical standards.

This information is used to arrive at a single index measure, with the highest transparency score awarded to Australia and the US. The opaque markets included Algeria, Belarus and Cambodia.

The JLL transparency survey looked at 11 countries in the Americas, with Canada and the US the most transparent; semi-transparent markets included Argentina, Brazil, Chile, Mexico and Colombia; Costa Rica, Panama, Peru, Uruguay, Venezuela and the Dominican Republic remained as markets marked by low real estate transparency.

The Middle East and North Africa region had the lowest average transparency when compared with other surveyed regions. Asia Pacific contains high transparency markets, such as Australia and New Zealand, but also houses Cambodia, which is classified as having an opaque real estate market. India, China and Vietnam were 2008's most improved markets in the region, while Indonesia, Malaysia and South Korea showed little improvement.

While Europe as a region performs well in the JLL Index, there are significant variations between subregions within the continent. These differences show up between Western, Central and Eastern European countries, with countries outside Western Europe performing less well.

10.2.3 The limits to globalisation

Baum (2008) sets out to describe the role played by unlisted property funds in facilitating cross-border investing. In particular, our research focuses on the development of unlisted funds as intermediary structures carrying institutional capital from developed to developing markets.

The research relates the number of funds targeting particular countries to population and GDP per capita. It finds that there is a very strong relationship between the popularity of a country for investment through this vehicle format and these independent variables. More interesting, perhaps, is the identification of outlier countries where the amount of investment is significantly less — or greater — than that predicted by population and GDP per capita.

In the research, we define the emerging markets as the regions outside Europe, Australasia and North America, and focus on the largest 55 countries in these regions by population. This produces a country cut-off of a minimum of roughly 20 million population and includes Asia, Latin America, Africa and the Middle East.

GDP per capita and population were used as independent variables to explain the number of funds targeting an emerging country. Both

appear to be correlated with our measure of investment. GDP per capita is a reasonably good explanatory variable but population is better, with a correlation co-efficient of 71%, an adjusted R-squared of 49% and a t-ratio of over 6, indicating significance at greater than the 95% level.

The multiple regression equation shown in table 10.3 suggests that the number of funds targeting a country is predicted to be equal to the following:

(–3.67) plus (0.0000000432)*population plus 0.001312*GDP per capita plus or minus a standard error of 6.06

This equation explains 84% of the variation in the number of funds targeting any country. The two independent variables are highly significant.

The predicted number of funds targeting the country can be compared with the observed number. The countries receiving significantly more investment than that predicted by the equation are Brazil, Malaysia, Mexico, Argentina and Vietnam. Three of these are located close to the US, the main supplier of capital in the survey.

Table 10.3: Multiple regression results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	–3.670517	1.225576	–2.994933	0.0048
GDP	0.001312	0.000147	8.938075	0.0000
Population	4.32E-08	3.75E-09	11.53275	0.0000
R-squared	0.840713	Mean dependent variable		6.878049
Adjusted R-squared	0.832330	SD dependent variable		14.80742
S.E. of regression	6.063278	Akaike info criterion		6.512734
Sum squared residuals	1397.007	Schwarz criterion		6.638117
Log likelihood	–130.5110	F-statistic		100.2817
Durbin-Watson stat	2.264342	Prob (F-statistic)		0.000000

Source: Baum (2008)

More interesting, perhaps, are the countries receiving significantly less investment than that predicted by the equation. These are Taiwan, Saudi Arabia, Venezuela, Indonesia, Iran, Pakistan, Columbia, Nigeria, Bangladesh, Algeria, Thailand and Peru.

We find that the JLL Transparency Index results (and, in some cases of course, limits on foreign investment) fit well with countries receiving significantly less investment than as predicted, while the countries receiving significantly more investment than that predicted by the equation are generally semi-transparent or improving.

10.2.4 Risk and return

In Europe, the core markets are defined broadly in terms of all or most of the following criteria: membership of the EC; membership of the Euro; political stability; generally having a benchmark (the exceptions are Belgium and Switzerland); size; quality of professional services; and liquidity. The developing markets are less liquid (although they are likely to have growing liquidity) and have no benchmarks, but are politically stable, either within the EC or the Eurobloc.

In 2000, using CB Richard Ellis data describing returns notionally available on new buildings, this core/developing classification proved to be surprisingly meaningful. In both retail and office markets, the group of core markets showed both lower returns and lower volatility of returns over the period 1985–97, confirming the different market maturities of these two groups. This is shown in table 10.4.

Table 10.4: Core and developing countries, return and risk, 1985–97

Market group	Return (%)	Risk (SD, %)
Core retail	12.01	17.56
Developing retail	16.44	25.88
Core office	11.56	17.65
Developing office	13.43	25.76

Source: Henderson Global Investors

By 2000, several funds had already assembled capital to attack these developing markets, typically short of capital to fund the property development programmes that were needed to support their economies as they emerged from communist influence. Hence high returns were obtained by pioneer investors, who limited their risk by the payment of rents in US dollars (Poland) or Euros (Hungary), and by achieving going-in yields as high as 15%.

By 2009, many of these markets were no more attractively priced than the UK and had completed a transition from emerging to developing markets. At this point, huge changes in the risk and return relationships around the world suggested a temporary retrenchment to the core markets, with the possible exceptions of the powerhouse economies of China and India.

The global geography of real estate market attractiveness is constantly changing, and forms the first key challenge in developing an investment strategy.

10.3 Building a strategy

How can this information be used together with capital market, currency, economic and property pricing data to assemble a global portfolio?

We suggest a top-down approach, which assumes that tax and structuring issues are generally soluble without prohibitive cost. The following issues need to be considered:

- pricing;
- the regional allocation;
- the property type allocation;
- the fund risk style allocation; and
- leverage.

As a start, we need to identify investable and attractive markets. We have already considered which markets may be investable. Tax advice will be needed to further refine this checklist. Otherwise, market attractiveness is a function of pricing. We consider pricing in section 10.4 and portfolio construction in section 10.5.

10.4 Pricing

10.4.1 Pricing models and currency

In chapter 4, we built a property appraisal model that combined Fisher and Gordon equations to produce the following:

$$K = RF_N + RP - (G - D)$$

Using assumed data, we may have the following information:

$$K = 4.5\% + 3\% - (3\% - 2\%) = 6.5\%$$

The correct yield appears to be 6.5%. If the current yield is 5%, offices are overpriced. Can we use this approach when looking at international markets? Unfortunately, we cannot, without adjustment. This is because currency movements are excluded from the analysis, and perfect hedging is both unavailable and may reduce or enhance returns. Without knowing anything else, a high yield makes a market look attractive, but might simply imply high bond yields, high inflation and a depreciating currency.

Remember that the Fisher equation considers the components of total return on an investment. It states that:

$$R - l + i + RP$$

Where:
R is the total required return
l is a reward for liquidity preference (deferred consumption)
i is expected inflation
RP is the risk premium

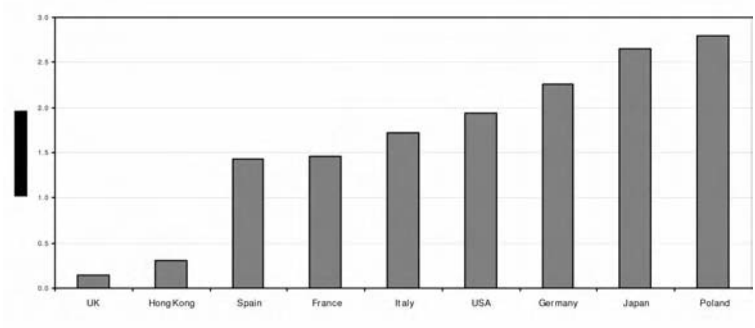
From this we can see that the bond yield may be high only because expected inflation is high, in which case the currency can be expected to depreciate, damaging returns in the home currency. In chapter 9 we also saw that the cost of a hedge will be equal to the interest rate differential, so the high bond yield again suggests damaged return prospects even if a hedge is used.

10.4.2 A total return model

Figure 10.1 takes the analysis a step further, neutralising the effect of the expected inflation rate and currency movement by deducting the bond yield from the property yield in each country.

The data shows that Poland has the highest positive difference between its property market yield and its bond market yield, and the UK the smallest. At first sight, this makes Poland more attractive than the UK. But this does not provide the full picture. The data identifies the size of a positive yield gap between property and gilt yields by using the following identity:

Figure 10.1: All property yields versus local 10-year government bond yields



Source: CBRE Investors, 2006

$$K - RF_N = RP - (G - D)$$

It is clear from this that a positive yield gap between property and bonds could indicate a high risk, or low net rental growth. However, if these variables were the same across the markets examined, then the analysis suggests an attractive market (the left-hand side having a lower value than the right-hand side).

So we need a more comprehensive pricing model that deals with the following: how risky is the market? What is the required risk premium? How much net growth will the market deliver? What is the expected IRR on the market? What is the 'excess' return (IRR versus required return)?

Assume we have a market where the following data has been estimated: the required return = RF_N + RP = 4.5% + 3% = 7.5%; the expected return = K + G – D = 5% + 3% – 2% = 6%. The property market is expensive; negative excess returns are on offer.

Assume we have a market where the following data has been estimated: the required return = RF_N + RP = 4.5% + 3% = 7.5%; the expected return = K + G – D = 5% + 6% – 1% = 10%. Here the property market is cheap; positive excess returns are on offer.

In chapter 4 we presented an analysis of required and expected returns, which is repeated in an international context in table 10.5. How does this analysis work across international markets?

Table 10.5: Hypothetical required and expected returns, international markets (1)

	RFr	+ i	+ RP	Buy?	K	+ G	– D
UK bonds	1.5	2.0	0.5	=	4.0	0	0
UK property	1.5	2.0	4.0	=	6.5	2.0	1.0
Japanese bonds	1.5	2.0	?	?	1.0	3.5	0
Japan property	1.5	2.0	?	?	4.5	?	?
France property	1.5	2.0	?	?	5.5	?	?
South Africa property	1.5	2.0	?	?	12.5	?	?

Source: Baum, 2008

Difficulties of analysis arise because RP and G are both affected by currency. RP may be influenced by other variables relevant to differences between the international markets, but what risk does currency introduce?

More challenging, perhaps, is the following question. What growth in income is to be expected? Let us assume that expected rental growth in all property markets is 2%. But if the return is in the domestic currency of the investor, it not only comprises market growth, but also currency appreciation.

The total required return comprises three parts: R = l + i + RP, where l is a reward for liquidity preference, i is expected inflation and RP is the risk premium. As we saw in chapter 9, interest rates and expected inflation rates are directly related.

Purchasing power or interest rate parity also directly relates interest rates and exchange rates. The identity is theoretical: there is evidence to support as well as to refute the concept. Interest rate parity says that the spot price and the forward or futures price of a currency incorporate any interest rate differentials between the two currencies. So interest rate differentials and expected currency exchange rate movements are directly related.

In theory, interest rates and expected inflation rates are directly related, interest rate differentials and expected currency exchange rate movements are directly related, and therefore expected inflation rates and expected currency exchange rate movements are directly related. A higher inflation currency will depreciate relative to a lower inflation currency — and will have higher interest rates (absent government

policy distortions). Hence, if we know that UK government bonds earn yields of 3% more than Japanese bonds, then we can expect 3% higher inflation in the UK and a 3% appreciation in the yen against sterling.

(In practice, interest rates, expected inflation rates and currency exchange rate movements may not be related in the short term. For example, in what is known as the carry trade investors successfully borrow low-yielding and lend/invest in high-yielding currencies and assets. This is effective in periods of global financial and exchange rate stability, but it is risky.)

So, to recap, we might be initially attracted to high nominal returns in the local currency, but this is subject to currency risk. It also promotes high-risk markets. We might therefore aim for high nominal returns in our domestic currency, but this requires a forecast of the currency exchange rate, which is not easy (see chapter 9), and again promotes risky markets.

10.4.3 The positive effect of leverage

Low interest rate markets are attractive because the currency risk can be managed more easily, and (if hedged) can even deliver return while reducing risk. They have other advantages, as less equity is needed and greater diversification is possible. In addition, positive leverage is more likely to be achieved in a low interest rate environment, and (as we saw in chapter 1 and chapter 9 at section 9.6.3) this can add to return (and risk).

Cash-on-cash yields (income return on equity) can also be enhanced. If we buy an asset for $100m, with a $10m income, we achieve a 10% income yield. If we use 50% leverage and an interest-only loan at a rate of 5%, we lose $2.5m in interest but now receive a cash-on-cash return of $7.5m, which, as a percentage of equity, is $7.5m/$500m = 15%.

Box 13 includes an illustration of the positive effect of leverage.

10.4.4 Using local excess returns

For reasons we develop in this section, we recommend looking for high nominal excess returns in the local currency. This takes account of market risk, takes out the inflation — and currency — effect and requires no currency forecasting skill.

Note that $K = RF_N + RP - G$ where k is an initial yield, R is the required return, and G (nominal) = Gr (real) + Gi (inflation). Then:

$$RF_R + i + RP = K + Gr + i - D$$

This suggests that high nominal *excess* returns are delivered where the expected return is higher than the required return. Because i appears on both sides of the equation, this rule holds in theory in high and low-inflation markets. A high nominal return is not attractive *per se*. Investors should therefore aim for high excess returns on property relative to returns on local bonds plus a risk premium (high excess returns). This rule is not affected by high inflation, because this boosts both expected and required returns, but not excess returns. In this measure, there is no expected return from currency movement. How can we deal with this?

As an example, let us revisit the example used in chapter 4 (tables 4.7–4.10) and take four government bond markets: UK, Japan, France and South Africa, with 10-year issues yielding 4%, 2%, 3% and 10% respectively. UK indexed bonds yield 1.5%.

A pricing analysis is shown in table 10.6. The analysis is from the perspective of the local investor. All fixed interest bond issues carry a small inflation risk premium of 0.5%: there is no currency risk. The real risk-free rate is given by the UK indexed bond yield of 1.5%. All markets, being efficient for local investors, are in equilibrium.

Table 10.6: Bond pricing analysis

	RF_R	+ i	+ RP	=	K	+ G	– D
UK indexed bonds	1.5	2.0	0.0	=	1.5	2.0	0.0
UK bonds	1.5	2.0	0.5	=	4.0	0.0	0.0
Japanese bonds	1.5	0.0	0.5	=	2.0	0.0	0.0
France bonds	1.5	1.0	0.5	=	3.0	0.0	0.0
South Africa bonds	1.5	8.0	0.5	=	10.0	0.0	0.0

Source: Baum, 2008

The differences in expected inflation rates signify expected movements in currency exchange rates against the pound. The yen is expected to appreciate by (4% – 2% =) 2%; the Euro is expected to appreciate by (4% – 3% =) 1%; and the rand is expected to depreciate by (10% – 4% =) 6%.

From the perspective of a UK investor, all fixed interest bonds are expected to deliver the same return in sterling, as shown in table 10.7, which adds Gc, growth from currency movements, to the analysis.

Table 10.7: Bond returns — UK perspective

	Return	=	K	+ G	+ Gc	– D
UK indexed bonds	3.5	=	1.5	2.0	0.0	0.0
UK bonds	4.0	=	4.0	0.0	0.0	0.0
Japanese bonds	4.0	=	2.0	0.0	2.0	0.0
France bonds	4.0	=	3.0	0.0	1.0	0.0
South Africa bonds	4.0	=	10.0	0.0	–6.0	0.0

Source: Baum, 2008

We can now extend the analysis to property. Let us assume that property yields in the UK, Japan, France and South Africa are 6.5%, 4.5%, 5.5% and 12.5% respectively.

Table 10.8 is an equilibrium pricing analysis from a local perspective. Returns on offer to local players in the UK, Japan, France and South Africa are 7.5%, 5.5%, 6.5% and 13.5% respectively. These are all excess returns over bonds of 3.5%, the additional risk premium for property over fixed interest bonds.

Table 10.8: Property returns — local perspective

	RFR_r	+ i	+ RP	=	K	+ G	– D
UK property	1.5	2.0	4.0	=	6.5	2.0	1.0
Japanese property	1.5	0.0	4.0	=	4.5	2.0	1.0
France property	1.5	1.0	4.0	=	5.5	2.0	1.0
South Africa property	1.5	8.0	4.0	=	12.5	2.0	1.0

Source: Baum, 2008

From a UK perspective, growth in income from the expected currency movement — or hedge — must be added. The UK analysis is shown in table 10.9.

Table 10.9: Property returns — UK perspective

	RFR_r	+ i	+ RP	=	K	+ G	+ Gc	– D
UK property	1.50	2.00	4.00	=	6.5	2.00	0.00	1.00
Japanese property	1.50	0.00	4.00	=	4.5	2.00	2.00	1.00
France property	1.50	1.00	4.00	=	5.5	2.00	1.00	1.00
South Africa property	1.50	8.00	4.00	=	12.5	2.00	–6.00	1.00

Source: Baum, 2008

All four property markets are offering the UK investor a return of 7.5% in sterling. However, this assumes that the investor estimates the same risk premium, the same rental growth potential and the same depreciation for each market.

In practice, these estimates will differ greatly. Given that rental growth is partly inflation-driven, we can expect more rental growth in South Africa and less in Japan. The economies may be offering different real growth prospects. Market leasing practice and construction standards may drive differing depreciation. The risk premium in non-domestic markets is likely to be higher, largely to deal with the risk of currency movements, but also to cover the costs and risks systematically incurred by international buyers.

Table 10.10 is a possible (hypothetical) analysis from a UK perspective. (On the required return side of the equation, remember that the UK investor needs to beat UK inflation.)

Table 10.10: Property returns — UK perspective, non-equilibrium

	RFR_r	+ i	+ RP	Req	K	+ G	+ Gc	– D	Exp
UK property	1.50	2.00	4.00	7.50	6.5	2.00	0.00	1.00	7.50
Japanese property	1.50	2.00	5.00	8.50	4.5	1.00	2.00	0.50	7.00
France property	1.50	2.00	4.50	8.00	5.5	3.00	1.00	0.50	9.00
South Africa property	1.50	2.00	8.00	11.50	12.5	5.00	–6.00	2.00	9.50

Source: Baum, 2008

On the basis of this analysis, the UK market is a hold, Japan a sell, France a buy and South Africa a sell (see table 10.11).

Table 10.11: Property excess returns — UK perspective

	Expected	Required	Excess	Decision
UK property	7.50	7.50	0.00	Hold
Japanese property	7.00	8.50	–1.50	Sell
France property	9.00	8.00	1.00	Buy
South Africa property	9.50	11.50	–2.00	Sell

Source: Baum, 2008

Note that UK property is expected to deliver the UK bond yield plus the additional UK property risk premium over bonds. Japan property delivers the UK bond yield (4%) plus the additional Japan property risk premium (4.5%), less the excess (–1.5%) = 7%. France property delivers the UK bond yield (4%) plus the additional France property risk premium (4%), plus the excess (1%) = 9%. South Africa property delivers the UK bond yield (4%) plus the additional South Africa property risk premium (7.5%), less the excess (–2%) = 9.5%.

Our recommended simple rule, therefore, is to look for high nominal excess returns in the local currency. This takes account of market risk, takes out the inflation — and currency — effect and requires no currency forecasting skill. How would this rule work in the example? This is illustrated by table 10.12.

The expected sterling returns remain as shown in table 10.10. South Africa is not attractive, despite having the highest initial yield and the highest expected return in local currency; France is attractive, despite having a lower initial yield than the UK.

(Note again that the risk premium in this table is the additional risk premium above the bond risk premium of 0.5%. This ensures that the local required return is correctly estimated.)

Seeking high nominal excess returns (expected returns less required returns) in the local currency will therefore put in place a process that is designed to deliver a minimum of the domestic risk-free rate plus the local risk premium, and to select markets on the basis of their excess returns without the complications of currency forecasts.

Table 10.12: Property excess returns — recommended approach

	Bond	+ RP	Required	K	+ G	– D	Expected	Excess	Decision
UK property	4.00	3.50	7.50	6.5	2.00	1.00	7.50	0.00	Hold
Japanese property	2.00	4.50	6.50	4.5	1.00	0.50	5.00	–1.50	Sell
France property	3.00	4.00	7.00	5.5	3.00	0.50	8.00	1.00	Buy
South Africa property	10.00	7.50	17.50	12.5	5.00	2.00	15.50	–2.00	Sell

Source: Baum, 2008

10.4.5 Leverage, tax and fees

How can currency risk be managed? As we saw in chapter 9, investors can use local debt to reduce the capital at risk. The equity can be hedged, and the cost of hedging will be determined by interest rate and inflation differentials. This will add to return if the target market has low interest rates.

If a UK investor hedges an international investment, this will damage return if the target market has high interest rates. It will enhance return if the target market has lower interest rates. In addition, leverage will have a more positive effect on returns if there is a positive carry (property yields are higher than borrowing costs).

Using funds means that returns will be geared or leveraged. Returns will be net of tax, and also net of fees. In a pricing analysis, we need to use excess returns that are leveraged, and net of fees and taxes. If using a hedge is attractive because the target market has low interest rates, then this is easily taken into account, as shown in box 13. (The analysis would be the same, albeit with more risk, if no hedge were used but we instead relied upon currency appreciation.)

Box 13: A cross-border comparison

A UK investor has a choice of buying a UK shopping centre for £100m or one based in France, a Euro currency area, for €100m. He plans to use 50% gearing. The UK shopping centre has a yield of 5%, and throws off a rental income of £5m. The French shopping centre has a yield of 5.5%, and throws off a rental income of €5.5m.

Management fees of 6% (£300,000) in the UK are higher *pro rata* in France where there is less competition to provide such services, and where the structure used to shelter tax involves some administrative expenses, totalling in this case €500,000 or 9%. Interest is charged at 6.2% in the UK and 5.2% in the lower interest rate Euro area, a cost of £3.1m (6.2% of a £50m loan) in the UK and €2.6m (5.2% of a €50m loan) in France. The net income on equity is £1.6m and the cash-on-cash yield is 3.2% in the UK, and the net income on equity is €2.4m and the cash-on-cash yield is 4.8% in France.

Table 10.13: Shopping centre comparison, Eurobloc and UK

£100m shopping centre with 50% leverage	**£m**	**Return on equity (%)**	**€100m shopping centre with 50% leverage**	**€m**	**Return on equity (%)**
Net rental income	5.0		Net rental income	5.5	
Management fees	–0.3		Management fees	–0.5	
Interest	–3.1		Interest	–2.6	
Net income	1.6	3.2	Net income	2.4	4.8
Capital growth	2.0		Capital growth	2.5	
Tax leakage	0.0		Tax leakage	–0.3	
Total return	3.6	7.2	Total return	4.6	9.2
			Hedging return		1.0
			Total return incl. hedge		**10.2**

Source: Baum, 2008

It is reckoned that rental and capital growth in the UK will slightly underperform rental and capital growth in France, running at 2% and 2.5% respectively, and adding £2m and €2.5m respectively to the investor's equity and total return each year.

The French centre will be held in a tax-efficient structure, but there will still be some leakage, estimated at €300,000 each year. The UK property shows a net annual total return of £3.6m, 7.2% on equity, while the French centre shows a net annual total return of €4.6m, 9.2% on equity.

Finally, the interest rate differential of 1% will add 1% to the sterling return each year, either though currency appreciation or through the hedge. The result is a return in sterling of 7.2% in the UK and 10.2% in France, the outperformance coming from a combination of property, leverage and currency factors.

10.5 Portfolio construction

10.5.1 The top-down process

Given a view of target markets, how can we think about the top-down portfolio construction process?

We begin with a recap. For real estate as an asset class, we expect long-term returns superior to bonds but inferior to equities. Volatility (by reference to appraised valuations) is low, but smoothed. Real estate is a good diversifier against bonds and equities, with a high Sharpe ratio. An optimiser can be used to model the ideal property weight, and the ideal geographical portfolio distribution. Given the rule we developed in section 10.4, we would optimise excess returns in local currency.

Direct portfolios carry high property-specific risk, because property is not homogeneous and individual lot sizes may be large. Listed and unlisted funds can diversify specific risk; unlisted property is illiquid, but listed property companies and REITs provide limited diversification against stocks and bonds.

Using funds means that returns will be geared or leveraged, and significant specific risk will remain relative to a global index or benchmark. Returns will be net of tax, and also net of fees. So what returns should be optimised? Given the pricing analysis, we need to optimise excess returns that are leveraged, and net of fees and taxes.

10.5.2 A case study

To illustrate a possible approach, we assume that optimisation tools are available, and focused on the appropriate variables as specified above.

We manage an endowment fund with a new $500m real estate investment allocation. We are seeking exposure to global real estate, and we are a US investor with dollar-denominated liabilities. The fund has no current exposure to real estate, has a long-term horizon, a moderate risk appetite and a skeleton in-house team. The issues to be confronted are as follows.

- What allocations should be made to direct and indirect forms of property, including derivatives? What allocations should be made to domestic and international property respectively?

- How much of an indirect allocation should be listed and how much unlisted? How much should be allocated to funds with core, value-added or/opportunity styles?
- What regional and geographic split of the allocation is advisable? What sector split is to be recommended? Should we use optimisation, or an equilibrium (market value weighted) approach?
- What execution model is appropriate? Should the fund hire in-house personnel and choose funds? If so, where should they be located? If not, what mandate can be designed and how many advisors or managers are required? Should funds of funds or a multi-manager approach be used?

The board has determined the following. There will be no direct property — this is regarded as too lumpy for a global $500m allocation. There will no use of derivatives, as the appropriate risk controls are not in place. As a US investor, the fund will be overweight US assets because liabilities are dollar-denominated and the tax treatment of domestic assets is favourable. The long-term investment horizon and limited requirement for liquidity encourages an exposure to unlisted funds at the expense of listed securities, but there is a preference for the risk profile of REITs over REOCs and other listed property securities.

The fund's risk appetite allows an exposure to some opportunity funds and also to currency risk. The minimum/maximum investment to each fund is $25/50m (say 20 unlisted funds maximum). A single advisory manager is to be used to guide fund selection and ongoing review, with the fund board retaining discretion over investment decisions.

After a working session between fund and advisor, using a neutral or equilibrium approach adjusted by an optimisation of excess net returns, the recommended regional and sector allocations and fund style choices have been made. The regional and sector allocations are shown in tables 10.14 and 10.15. The recommended weights are summarised in table 10.16. They can be broken down further, as shown in table 10.17.

The advisor has reminded the fund that gearing — typically 33% for unlisted core, 50% for listed, and 65% for opportunity funds — will alter the equity required to attain the desired geographical and sector exposure. The impact of this is shown in table 10.18.

Table 10.14: Regional allocations (%)

	Neutral	Position	Bet
US	41	50	9
Asia	15	10	–5
Europe	36	25	–11
Emerging	8	15	7
	100	100	0

Source: Baum, 2008

Table 10.15: Sector allocations (%)

	Neutral	Position	Bet
Office	40	25	–15
Retail	25	35	10
Industrial	10	20	10
Residential	15	5	–10
Other	10	15	5
	100	100	0

Source: Baum, 2008

Table 10.16: Property style allocations (%)

	Neutral	Position	Bet
Direct	0	0	0
Listed	44	30	–14
Unlisted core	49	55	6
Opportunity	7	15	8
	100	100	0

Source: Baum, 2008

Table 10.17: Fund style and regional allocations (%)

	US	Asia	Europe	Emerging	Total
Listed	15.0	5.0	5.0	5.0	30.0
Unlisted core	35.0	0.0	20.0	0	55.0
Opportunity	0.0	5.0	0.0	10.0	15.0
	50.0	10.0	25.0	15.0	100.0

Source: Baum, 2008

Table 10.18: Equity allocations (%)

	Position	Gearing	Equity ($m)
Direct	0	0	0
Listed	30	50	132
Unlisted	55	33	321
Opportunity	15	65	46
	100		500

Source: Baum, 2008

Box 14: How robust is your strategy?

How robust is the allocation? Imagine the following:

China announces that it will no longer hold dollar reserves. The Fed jacks up interest rates and investors leave the country, precipitating a major US recession.

Management at a major real estate fund manager is revealed to have taken bribes to provide capital to 'favoured' developers.

Renewed terrorist activities lead to a new slump in global stock markets.

The sole tenant in one of the largest buildings in your direct property portfolio becomes bankrupt.

Your investment committee sees an opportunity in global utility stocks, and demands that you reduce your real estate allocation 'as soon as possible' by $100m.

A new global environmental agreement looks as though it could herald a new era of stable, low-inflationary growth.

Afterword

Property is a factor of production, a place to work and the main input into the production of food. It provides shelter and leisure facilities. It is the essential source of work, rest and play.

For a corporation, property is of key importance as a factor of production. For a bank, it provides ultimate security for the majority of all loans. For an investment institution, it represents a significant source of fees. For the nation, it is the basis of a large proportion of the nation's savings, investments and future pensions. While its performance in the past 25 years has not matched that of equities, it has sufficient advantages in terms of liability matching to continue to be a popular investment class in future.

Forces of change will continue to challenge our perceptions of the place and importance of property. Globalisation means that domestic markets cannot remain insular. Securitisation is a response to global investors placing more emphasis on the liquidity and divisibility of investments. In tandem with this, more unquoted pooled vehicles will be provided to enable global investors to diversity more effectively.

A growing and more affluent population is leading to congestion and a re-emphasis on town centres for sustainability and lifestyle. Careful planning and sensitive land management and development are ever more important. Property investment managers will be required to look beyond the demands of fees and returns, and to play their part in the efficient and sensitive management of this global asset.

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