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SHORT PAPER 23

What Constitutes Property for Investment Purposes? A Review of Alternative Real Estate Assets

This research was commissioned by the IPF Research Programme 2011– 2015

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A Review of Alternative Real Estate Assets

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What Constitutes Property for Investment Purposes? A Review of Alternative Real Estate Assets

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What Constitutes Property for Investment Purposes? A Review of Alternative Real Estate Assets

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What Constitutes Property for Investment Purposes? A Review of Alternative Real Estate Assets

1. EXECUTIVE SUMMARY

- This report was commissioned by the Investment Property Forum under its Short Paper Series to explore what constitutes property for investment purposes given the rapid growth of investment in non-traditional areas of the real estate market.
- The research team examined prior research, analysed available data and conducted interviews with investors and fund managers to explore definitions of real estate, common features and the challenges faced by the real estate investment community.
- Over the last 10 years, UK allocations to non-traditional real estate (other than offices, retail or industrial) have increased from 4% to 11% of the IPD universe. The range of investment options has increased and some investors group real estate alongside infrastructure and other tangible assets into a generic 'real assets' category.
- The growth of alternative real estate areas is not surprising given the potential scale: the private residential sector in the UK alone has a value five times larger than the conventional commercial real estate market. Nonetheless, the growth of alternatives poses challenges for investors, fund managers, regulators and researchers.
- The definition of what constitutes real estate can be imposed on a top down basis, for example by asset allocation processes or by reference to a set of common characteristics. Type of land and building alone seems insufficient. A better focus would be on the factors that drive risk and return: source of income, exposure to operational risk, legal structure and institutional factors.
- This focus on driver factors is linked to identification of diversifying benefits from the inclusion of alternative or non-traditional real estate assets in a property portfolio. An important distinction is the exposure to business risk in the cashflow, separate from conventional rental income and capital appreciation components.
- Empirical research on the risk return performance of non-traditional assets has been hampered by data availability. Most studies identify some diversification benefits and some performance gains but these vary across asset types and geography:
  - In the UK, farmland, forestry, residential lettings and hotels have out-performed traditional real estate, with much of the outperformance driven by capital growth. Residential property has been more closely aligned to offices, retail and industrial performance, providing some support for its inclusion as real estate;
  - In the US, hotel and apartment returns are more strongly linked to core real estate than farmland and timberland. The latter pair appears distinct, with lower correlations and different performance across booms and slumps. These findings need to be tempered with concerns about the robustness of data.
- Interviews with asset managers, investors and consultants produced varying findings. One notable result was a move away from traditional mean-variance asset allocation and, hence, less reliance on market benchmarks as shaping investment. This created fewer constraints on what was considered as a legitimate investment target.
- Non-traditional property assets were generally seen as part of the real estate (or, increasingly, real asset) allocation. Residential property and student housing were two sub-sectors seen as increasingly mainstream for investors.
- By contrast, infrastructure was seen as more distinct for a variety of reasons: notably the operational risk, ownership structures and the contractual nature of arrangements. Nonetheless, there was a widely held view that minority exposure to non-traditional assets, including infrastructure, would be widely acceptable within a diversified real estate fund.

2 What Constitutes Property for Investment Purposes? A Review of Alternative Real Estate Assets

1. EXECUTIVE SUMMARY

- Operational risk was seen as a key issue and, for some, a major distinguishing feature of alternative real estate assets. Managing operational risk and preparing and evaluating bids for such assets require specific skill sets that may not be present in traditional real estate teams.
- The boundaries formed by skill sets and management structures play a key role in the definition of what constitutes real estate. As with the inclusion or separation of real estate securities from private real estate, this varies considerably across funds and investors and influences the types of asset deemed acceptable.

2. INTRODUCTION

This research was commissioned by the Investment Property Forum under its Short Paper Series to discuss an industry definition of what constitutes property for investment purposes in the context of the growth of non-traditional areas of real estate. The brief was to consider three broad questions: Can generic characteristics be applied? Are there common legal structures (both ownership and occupation) and/or income, liquidity and risk profiles? What areas require further research and investigation?

The doubling in allocations to non-traditional/'alternative' sectors, i.e. sectors outside offices, retail and industry/warehousing observed in the IPD Quarterly Index, was a key motivation for the study and raised a number of questions about how real estate relates to other real assets, what a property asset is and how non-traditional assets can be benchmarked.

The findings reported in this paper are based on a review of the literature on the topic and of some of the data available on non-traditional real estate in the context of the wider real estate market, as well as a series of structured interviews with investors, fund managers and investment consultants. The authors are very grateful for the contributions of all respondents.

This report is not intended to provide definitive answers but is intended to enable and encourage an informed debate around the different dimensions of real estate and current practice and to help identify areas for further research.

3. BACKGROUND AND CONTEXT

Historically, property or real estate, particularly in the UK, has been focused around the main commercial property types of retail, office and industrial. There has also been a long tradition of holding residential property, farms and forests as other sources of long-term income and wealth generation. Investment beyond the main traditional commercial real estate sectors has grown markedly and between 2003 and 2013 residential and 'other' categories increased from 4.2% to 11.3% of the IPD universe as measured by the IPD Annual Index.

The last 25 years has seen the emergence of new types of real assets and investment structures that have led to challenges to investors, asset allocators, managers, regulators and performance measurement firms to clarify what 'real estate' and 'real assets' mean. Real estate was, traditionally, the main form of real asset for institutions but the emergence of infrastructure and a growing interest in commodities/precious metals/natural resources as diversifying tangible assets, also believed to offer some inflation protection, are challenging and potentially changing real estate's role in a mixed asset portfolio.

Traditional investment-grade commercial real estate is a small part of the global real estate/real asset universe. In aggregate, IPD cover $1.3tn of assets globally that it estimates is c. 25% of the 'index' universe of $5tn. However, according to Kennedy and Baum (2012), the commercial real estate universe, including emerging markets, is likely to be nearer $20tn, and, once housing, infrastructure and public buildings, etc. are included, is likely to be c. $100tn.

The estimated size of the UK commercial property stock of c. £0.68tn (Mitchell, 2014[1]) compares to an estimated housing stock in the UK of over £5tn (Savills and authors' estimates based on the IPF Size and Structure report) with an estimated size of the private rented sector of £0.84tn (Mitchell, 2014). The flow of investment into UK economic infrastructure is estimated as £45bn p.a. and there is a pipeline of £375bn of infrastructure (predominantly energy and transport) projects (HM Treasury, 2013). This suggests that economic infrastructure assets are of a comparable scale to commercial real estate, albeit not all investible by the private sector. In addition, the value of social infrastructure assets (e.g. schools, hospitals, surgeries, prisons, courts, etc.) is probably in the range of £100-200bn (source: authors' estimates based on Mitchell, 2014).

Agricultural land and forestry are both substantial sectors globally but with relatively low representation in institutional portfolios and the 'investible' universe. Institutional timberland assets are estimated at c. $90bn in 2013 (Global Forest Partners), with $70bn of this in the US reflecting the relatively undeveloped state of the market as an institutional asset in many parts of the world. This compares with estimates of the total value of timberland of c. $400-500bn (Campbell Group, 2011). Agricultural land is 38% of the world's total land mass, whilst forested land accounts for 31% (source: World Bank). The investible infrastructure market is growing rapidly but from a low base – in the 2013 Towers Watson Global Alternatives Survey, assets under management in infrastructure were only c. 12% of real estate.

In thinking about the dimensions of what constitutes a real estate investment and what are real assets, the research approach is based around the following five dimensions:

- Asset allocation – what is the appropriate split of assets and definition of real estate that informs asset allocation and implementation decisions;
- The type of asset – its use and how that may influence its risk and return profile;

[1] IPF: The Size and Structure of the UK Property Market 2013: A Decade of Change

4. KEY PRINCIPLES AND ISSUES

- The type of income – the degree of contractual certainty of income and its exposure to the operational/ business risk;
- The type of structure/ownership – the boundary between a real asset and a financial asset; and
- Institutional factors – management structure/skills required to manage investments.

Asset Allocation

There are a range of potential approaches to defining the allocation problem and opportunity set depending on the type of investor, their objectives and their constraints. The approaches to asset allocation may vary from a more liability-driven approach, in which contractual certainty of income and liquidity may be the key drivers, to a more traditional multi-asset class approach, in which real estate is seen to provide a particular type of return or diversification benefit.

Real assets can be considered in two ways. The first 'real' can be thought of as distinguishing these assets from financial assets so that these assets are real in that they are tangible, physical assets that have value from their substance and properties – this is considered further below. There is an overlap here with the idea of 'fixed assets' – reflected in European terminology (immobile, immobilier, immobiliare) – and the idea of spatial fixity. The second 'real' is in the sense of inflation hedging and assets that provide returns that protect against inflation. Whilst there may be a degree of overlap, in the sense that physical assets may tend to have prices that move more in line with general inflation than financial assets, it is important to make this distinction. In terms of real estate/property a key characteristic that distinguishes it has been its tangibility but, as discussed below, some elements of real estate, notably properties let on long leases with RPI-linked uplifts, are sought for their inflation-hedging properties. Although real estate is often said to provide inflation-hedging characteristics, empirical evidence for this is decidedly mixed (see Hoesli et al., 2008 for a review and analysis).

The difficulties in deciding on the boundaries of what is real estate are evident from considering an asset allocation approach based on liquidity/illiquidity and contracted/uncontracted income. Within the liquid element would be included listed and readily realisable shares, debt securities, liquid derivatives and other investments. The illiquid element would include all unlisted investments and related, private assets. The contracted:non-contracted income split would reflect the contractual nature and term of the cashflows. In this approach:

- property/real assets with long 'leases' and private real estate/asset debt would be deemed in the illiquid contracted income element (although this might depend on the 'wrapper' – the fund structure, for example);
- property company shares would be seen as a part of the liquid/uncontracted income element;
- listed real estate debt securities/CMBS would be seen as part of the liquid/contracted income; and
- other types of commercial property including, for example, development, would be seen in the illiquid/ uncontracted income element.

Property is not defined by its 'property' characteristics and 'propertiness' is not really a distinct feature but property is simply a means of providing exposure to income flows with particular characteristics. As a consequence, no particular limit on what is included within real estate or distinction from real assets is needed at this stage of asset allocation. Property that has only one particular characteristic, e.g. long-term fixed income property, in terms of income and liquidity, can still be considered property.

4. KEY PRINCIPLES AND ISSUES

A more traditional approach to thinking about allocations to property in a multi-asset class context is to consider property as a distinct asset class from other 'alternative' assets (hedge funds, private equity and commodities), as well as equities and bonds. The target allocation is then derived based on an assumption of property market returns, relative to returns in the other asset classes, in a standard mean-variance framework, possibly adjusting or constraining this optimisation approach to take account of liquidity requirements, downside risks and other sensitivities/adjustments. The inputs into this process include, for each asset class, return expectations, risk (volatility) assumptions and cross-correlation assumptions[2]. An optimal mix of the portfolio can then be estimated to achieve a target level of return with minimum risk or maximum return for a target level of risk. Similar considerations hold for investors allocating capital within an asset liability matching framework.

The results in this approach are sensitive to the disaggregation of asset classes – e.g. if the sub-categories of real assets offer diversification from one another then conducting an asset allocation exercise with infrastructure, commercial real estate, residential and timberland/agriculture separately alongside other asset classes will lead to a different allocation from modelling based on an aggregated index of 'real assets' or real estate alone. The degree of disaggregation in the asset allocation decision is, therefore, an important component in determining allocations to 'property' and real assets. There is no established best practice for how many asset classes are used but a recognition that influences on the disaggregation of asset classes should be the anticipated returns, an interpretation of what is meaningful (for example, scale and investability and views on how assets are correlated) and the drivers behind the asset class returns.

The lack of data for newly emerging asset classes, such as private rented housing in the UK, student housing or infrastructure, has, by necessity, meant that allocations to these 'asset classes' have been difficult to integrate into a standard asset allocation framework, as it has been harder to make assumptions about their risk, returns and relationship with other asset classes. In some cases, assumptions have been based on the performance of listed companies in these sub-asset classes or by using evidence from other countries or, simply, by including them within the asset allocation as real estate and acknowledging there is a significant variation from real estate market 'beta'.

The approach taken to asset allocation is an important driver of the extent to which a definition of real estate is needed. In a traditional multi-asset class approach it is assumed that real estate allocations will produce real estate-like performance. As 'alternatives' grow as a proportion of the overall real estate market this will affect the performance characteristics of real estate and is a potential area for further research.

Finally, risk management approaches that consider a portfolio's exposure to systematic risk factors (for example in a CAPM, APT or multi-factor framework) could also be affected by an extension of real estate investment beyond core sectors to alternatives – particularly where the benchmark used to assess that risk exposure or factor sensitivity is an aggregate commercial real estate index, dominated by conventional sectors. Investors, extending their real estate investment universe into alternatives, could unwittingly find their overall mixed asset portfolio exposed to shocks in systematic risk factors that have not been accounted for in their investment strategy. This issue is revisited in considering the drivers of cashflow in alternative assets.

[2] While much empirical work utilises historic returns, technically all inputs should be expectations, as Markowitz's original formulation makes clear.

4. KEY PRINCIPLES AND ISSUES

Types of Real Estate

The key issue or principle here is whether there are types of 'alternative' assets that have such different characteristics because of their type alone that observers would not consider them to be real estate.

Real assets that are based on land and property include:

- Serviced offices
- Data centres
- Residential – private residential, social housing and ground rents
- Student accommodation
- Hotels and leisure property
- Pubs and bars
- Healthcare facilities
- Economic infrastructure (power generation plants, gas pipelines, ports, bridges, etc.)
- Renewable energy (biomass plants and wind farms)
- Timberland/forests
- Agricultural land/farmland

The use type of real estate, by itself, says little about whether an asset should be considered real estate or not. Infrastructure, for example, includes buildings and other structures on land that create cashflows. Their land and physical structure give these a real estate component but the distinct 'project risk' element to infrastructure is frequently seen as a different source of risk from real estate, reflecting the regulatory/policy and operational risks of infrastructure cashflows and the specific characteristics of infrastructure projects.

In thinking about the drivers of returns for different types of property, these can be distinguished between those reflecting occupational dynamics and those that influence the investment/capital flows that drive yields.

For real estate and much of infrastructure, there is an income stream or cashflow based on a tangible asset, whilst for other 'real assets', invested in because of their tangibility (for example, commodities, precious metals and natural resources), there is not a cash flow in the same way and the drivers of their prices reflect both fundamental demand and supply and investment demand and supply. This clearly affects risk, in that the former deliver both income returns and potential capital growth, while the latter depend on returns solely from capital appreciation.

Within 'real estate' and across the alternative sectors, the drivers of return may include some of the same influences on demand as for core commercial property, e.g. general economic performance, profitability and investment plans; but they may also include many distinctive or specific factors.

4. KEY PRINCIPLES AND ISSUES

For example, residential demand reflects demographic changes and household formation along with some factors shared with commercial property – e.g. incomes and financing conditions and supply that reflects planning and public policy, as well as the construction cost, anticipated absorption and pricing of new homes. The relatively high income elasticity of demand for residential property, combined with supportive demographics and weaker public sector house-building, have all contributed to a difference in long run rental performance relative to commercial real estate.

Student accommodation similarly has its own distinct drivers, including the growth in student numbers, the funding model for higher education, policies on immigration and the regulation of houses in multiple occupation. Healthcare property's performance has been influenced by regulatory changes and policy (including cost pressures from the minimum wage, shifts in the commissioning of health services, changes in care provision and benefit rules) as well as by demographics – all affecting revenues from nursing homes.

Hotel demand reflects both business and leisure tourism; global GDP growth has a strong relationship with overseas nights. Supply, as for other sectors, is influenced by the potential profitability of development. Pub and bar property performance is affected by regulatory changes (drink-driving laws, licensing opening hours), consumer preferences (beer consumption is down/switching to off-sales from supermarkets, etc.), while on the supply side there has been an increase in town/city centre pub/bar provision in response to the switch in consumer patterns. Self-storage, typically, has short income streams, low maintenance and is influenced by turnover in the housing market, growth and the ease of conversion of other properties into self-storage and new supply amongst other factors.

Forestry income depends on the biological growth of trees and the pricing of timber, which in turn reflects global forest product demand and supply conditions (notably construction and newsprint demand). Subsidies, disease and the biological element contribute to a distinct performance pattern but the sector remains exposed to economic growth and its influence on demand conditions.

For farmland property, farm rents are influenced by agricultural prices, which have tended to fall over the very long run – declining by 49% in real terms, equivalent to -0.6% p.a. over the 1893-1998 period – but which have increased in real terms by 0.4% p.a. over the 1998-2010 period. The trend decline in agricultural prices has reflected both relatively low income elasticity of demand and technological advances and the globalisation of agriculture. Farm incomes also reflect ancillary income and the opportunities for increasing income through farm diversification, with other uses including renewable energy, biomass plants and tourism-related activities having influenced recent performance. It is evident, though, that investment returns are dominated by changes in the capital value of land and, hence, by expectations of future growth (possibly anticipating changes in planning regime and the prospect of conversion to more lucrative land uses).

The drivers of investment may differ across types of real estate. Are there features about 'alternative' real estate that lead to fundamentally different investment performance and does that make them 'not real estate'? There are factors that may lead to differences in investment performance beyond the underlying occupational income differences.

4. KEY PRINCIPLES AND ISSUES

Firstly, as non-traditional sectors become more mainstream, the premium for illiquidity will tend to reduce. Secondly, some of these alternative types of property are seen as having a defensive 'store of value' status. This pattern clearly has a self-reinforcing element to it – e.g. gold and other precious metals have a reputation for performing well at times of stress in the economy and so become more heavily invested in at such times, pushing up prices and reconfirming their counter-cyclical properties.

Income Characteristics and Exposure to Operational Risk

Real estate can vary as an asset from something where all cash flows are contracted in advance through to something with no guarantees of future income and possibly even significant operational risk. Real estate investors have invested in hotels with operating contracts, in serviced office businesses and healthcare assets with significant operational risk. Are all of these assets really real estate? Is it enough that there is a property involved[3]?

There seem to be two issues in this respect: firstly, whether an individual asset is considered real estate on its own merits alone or in the context of a wider portfolio and, secondly, whether the asset has characteristics that make it more of a hybrid asset than simply a real estate asset. In respect of the latter, there are parts of the real estate market that overlap with other asset classes (e.g. long-term cashflows, such as ground rents, overlap with bonds, whilst assets with significant business or operational risk look like private equity). In terms of the principle as to whether this is simply considered in a portfolio context or not, materiality is important. That is, if the alternative assets are held as a tiny minority of a portfolio, then this is unlikely to be a major issue for investors.

Ownership and Investment Structures

Real assets can be seen as those tangible physical assets that produce income and, typically, only wear out over time, whilst financial assets provide claims on the income produced by underlying real assets. Is there a degree of financial intermediation in a real estate context that moves something from being considered real estate and a real asset into being a financial asset (equity or bond)? Both real estate securities and real estate debt are sometimes considered as being a part of real estate (for example, in the much reproduced 'four quadrant' model of real estate investment, which partitions assets by two dimensions: debt or equity and public or private market), but is that appropriate?

For senior lending, debt is not anticipated to give exposure to the ownership of the land and property or the upside from growth in incomes and values and, therefore, looks more like fixed income than real estate despite the need to underwrite the loan using the real estate as collateral. Risk of default and delinquency is linked to the underlying asset market, but analysis suggests that the investment performance of debt (and prices in the secondary debt markets) are more influenced by general economic and financial factors, such as interest rate shocks or changes in risk premia and term structure. However, for mezzanine lending, participating loans and distressed debt, there is both a greater likelihood of ownership of the underlying real estate and/or scope for some participation in the upside performance of the underlying real estate.

[3] Consider a major grocery retailer: a huge real estate portfolio is required to capture market share and the supermarkets and distribution warehouses are critical to the operation. In terms of asset value, the real estate would dominate. Yet investors do not consider buying shares in, say, Tesco to be a property investment.

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Listed real estate securities, including listed REITs, over the long term should, in principle, reflect the levered performance of the underlying real estate. Hoesli and Oikarinen (2012) found evidence of a long-term relationship been direct real estate markets and listed real estate markets in the UK. Moss and Baum (2013) note that, potentially, listed real estate can play a role as a proxy for direct real estate, as a more liquid element, notably for funds aimed at retail investors, and as a strategy to access particular sectors or properties. However, despite this, there is a reluctance to use REITs in an integrated way with direct real estate in the UK. The 2013 EPRA survey (Baum and Moss, 2013) of 56 investors and asset managers found that around half (46%) treated listed real estate as outside their real estate allocation and only 14% managed real estate securities in an integrated manner with private real estate.

There are a variety of ownership structures that provide exposure to real estate, and a working principle might be that if the structure does not have a material impact on the performance characteristics of the asset then it may still be considered to be real estate or a real asset.

Institutional Factors/Management Structure

Does management structure influence what is considered real estate and to what extent do alternative sectors require specialist skills? It would not necessarily be expected that management structure would be instrumental in setting the principles about what is real estate. Nonetheless, it is illustrative of some of the issues in managing alternative assets and helps identify areas where specialist skill sets may be needed. It is anticipated that both different expertise and a broader set of skills are likely to be required as a consequence of the growth of 'non-traditional' real estate investment.

5. EVIDENCE FROM LITERATURE

A number of previous IPF studies (e.g. Asset Allocation in the Modern World, 2007, and Real Estate's Role in the Mixed Asset Portfolio, 2012), as well as a considerable body of academic and practitioner research (see Hoesli and Lizieri, 2007, for a review and discussion), have considered the role of property in a multi-asset portfolio. The typical approaches to asset allocation and real estate have been to use commercial property data or estimates of commercial property performance as the basis for asset allocation modelling, using a standard (mean-variance) optimisation framework. There have also been efforts to use the valuation-based property data to identify the factors underpinning return performance to inform the asset allocation approach. However, where 'reliable' data are not available, asset allocators, typically, have had to either make assumptions or, simply, exclude 'property' from the asset allocation framework.

In terms of defining what is an asset class, this can be seen as a collection of fundamental factors or beta sources of risk (Ang et al., 2009, 2011a), e.g. equity risk, credit risk, term risk, liquidity. The challenge in defining real estate and real assets, therefore, becomes what are the common and distinguishing factors that unite the asset class and differentiate it from other asset classes, recognising that the boundaries between asset classes may be 'fuzzy', with some individual assets exhibiting attributes of more than one class or sector.

Types of Property

A number of studies have examined the diversification benefits of including alternative assets in a mixed asset portfolio – mainly in the United States. Some of these studies have a number of technical weaknesses: applying standard mean-variance optimisation techniques and, sometimes, without correcting for appraisal smoothing; typically, these test whether adding a new real estate sector results in superior risk-adjusted returns or a higher efficient frontier in a mixed asset portfolio containing other property sectors and the main financial asset classes. This omits other alternative asset classes and may be inconsistent in treating real estate and real assets at sub-asset class level, while treating equity and bonds in aggregate. Most of the published papers also rely on historic information, rather than on the expectations of returns that modern portfolio theory requires. Few consider the size of the alternative market. Despite these reservations, the papers give some indication of risk-return behaviour and diversification potential.

Newell and Eves (2007), for example, examine the role of US farmland in US real estate portfolios. Examining data from 1984-2006, they find strong performance relative to other real estate sectors and asset classes and low correlations with other real estate sectors (+0.20 with the NCREIF index) and financial assets (zero with stocks, -0.24 with bonds). Partitioning the time series, they find that correlations rise in the second half of the data (1995-2006), to +0.55 with the aggregate real estate index and to +0.18 with US stocks. Treating the data uncritically results in a strong allocation to farmland assets in a mixed asset portfolio. This outcome is broadly consistent with an earlier study by Hardin and Cheng (2002), which finds that farmland enhances portfolio performance but that the diversification effect reduces in times of economic uncertainty.

Newell and Eves (2009) take a near-identical approach to US timberland assets, analysed from 1987-2007. As with farmland, they identify low correlation with the aggregate US real estate index (-0.27 over the whole period, a figure that hardly seems credible, given common macro-economic, fiscal and financial factors affecting both types of asset) but with a rising correlation trend (+0.62 in the period 1997-2007), suggesting that the former low correlation indicates diversification potential. Healey et al. (2005) discuss the economic features and risks of timberland investment, finding higher returns but greater volatility than conventional commercial real estate (1983-2002) and low correlation with traditional financial assets. They examine return drivers, identifying biological growth factors, timber prices and inflation as important, but noting that returns are driven by land value appreciation.

5. EVIDENCE FROM LITERATURE

More sophisticated approaches are applied by Heikkinen (2002), who suggests that timber prices have a long-run co-integrating relationship with bond prices and interest rates, but not with stock prices; and by Scholtes and Spierdijk (2010), who compare both public-traded and private timberland investments, noting that 'including publicly traded timberland investments does not significantly improve mean-variance efficiency'. Apparent gains for private timberland largely dissipate when desmoothing techniques apply, which might suggest that some of the diversification benefits are an artefact of measurement issues. They use a spanning approach and extensive robustness tests. Outside the US, Lundgren (2005) analyses the diversification potential of Swedish timberland using a CAPM approach but, despite identifying valuation as an issue in the composition of returns, does not desmooth or critically consider the impact of smoothing and lagging effects on risk and correlation.

McAllister and Loizou (2009) take a different approach in evaluating data centres. Here they note that, unlike an arm's length conventional lease, data centre operators must provide support infrastructure and often offer complementary services to users/occupiers. Centres are vulnerable to technological shifts, but less prone to depreciation due to building factors or aesthetics: key locational drivers include access to power and to optic fibre networks. They argue that, in the absence of market evidence as a consequence of the thinly traded market and major differences in leasing arrangements, an alternative approach to valuation would consider the cashflow from rents and charges and evaluate it as a bundle of financial instruments, subject to default risk. The critical distinction here from conventionally valued properties, lies in the business component of the cashflow, moving beyond the property rent and residual land value; similar issues arise with hotels, serviced offices, nursing homes and other assets that combine property elements with business provision, which is subject to different risk-return drivers (see also McAllister, 2001; French, 2004).

Day and Kelton (2007) summarise the approach to valuation of pubs and bars. Essentially, there are two approaches depending on the lease type. The profits method dominates, which is based on 'fair maintainable trade' taking into account the various income streams at the outlet (draught beer, bottled beer, wines and spirits and other drinks, food, machine income and accommodation, etc.), the costs, including wages, costs of goods for sale, other operating costs (energy, rates, security, etc.) and finance costs (for stock/working capital) to derive a net profit figure.

Real Estate and Infrastructure

One of the key problems in looking at infrastructure relative to direct property and other asset classes is the lack of data. Newell et al. (2011) use a small set of unlisted infrastructure funds for their analysis of historic performance of infrastructure relative to other asset classes in Australia and globally over the period 1995-2009. They find that unlisted infrastructure, whilst showing a modest correlation with direct property, has low levels of correlation with other asset classes. Newell et al. also note that unlisted infrastructure's correlation with real estate increased in the financial crisis, when they both had low correlations with the main stock and bond indices. This may have reflected that they both had different drivers from other asset classes and their tangible/real asset qualities. Whilst the correlation between real estate and infrastructure is low, it is positive and, under the estimates of Newell et al., is significantly positive, suggesting a blurred boundary between real estate and infrastructure.

5. EVIDENCE FROM LITERATURE

Dechant and Finkenzeller (2013) use a transaction-based (that is, not reliant on appraisal values and, thus, with no smoothing effect) infrastructure index, covering a sample of 930 individual operating infrastructure, or so-called brownfield, projects in the US, as an approximation for direct infrastructure investments for the period 1990-2010. They note that infrastructure's correlation with other assets reduced in the financial crisis; however, they also note a correlation with large cap stocks. They highlight that real estate exhibits higher risk and a higher expected return than infrastructure and that both assets are not very highly correlated. Inclusion of infrastructure as a distinct asset class from real estate is seen to have a significant impact on allocations to real estate but the allocations to real estate may still be substantial and real estate is not replaced by infrastructure. They argue that the distinctiveness of performance suggests that real estate and infrastructure constitute two distinct asset classes.

Finkenzeller et al. (2010) examine the potential role of infrastructure in the mixed asset portfolio, arguing that infrastructure and real estate returns are distinct and complement each other in a portfolio, suggesting that differences in the institutional structure of markets (with infrastructure being less competitive and more prone to monopoly/oligopoly effects and more driven by government activity) drive differences in the patterns of returns.

Infrastructure investments are often labelled as real assets in the context of strategic asset allocation. One definition of real assets is that such assets provide some type of inflation protection. Grelck et al. (2011) consider adding further liquid listed real assets, such as commodities, real estate, infrastructure and shipping, to a portfolio of stocks and bonds in order to earn higher risk-adjusted returns and improve inflation hedging whilst retaining a liquid portfolio. Perhaps not surprisingly, given the assumed starting position of a 50:50 equity:bond split with no disaggregation of these asset classes, they find that the addition of real assets improved portfolio performance. They also find that the diversification benefits of listed infrastructure and listed shipping companies are greater than commodities and listed real estate companies. Cremers (2013) compares infrastructure with timberland, farmland and commercial real estate (using NCREIF data for the last three and the Alerian MLP infrastructure index for infrastructure, which focuses on energy infrastructure) and finds low correlations across real asset classes (with the exception of timberland/farmland at 0.62).

Real estate and infrastructure are seen to have distinct characteristics but also have common features leading to a blurred boundary between the two. Part of the reason for this blurred boundary may reflect the 'real asset' safe haven aspect of both real estate and infrastructure – i.e. the tangible nature of real estate and infrastructure assets attracting capital as a store of value in times of stress. However, whilst infrastructure, like real estate, is a long-term investment in immovable assets, it does have some distinct characteristics reflecting its relationship specificity. As Blanc-Brude (2013) notes, it is the contractual design rather than physical characteristics that matters with three types of commonly used contracts – availability payment schemes, commercial schemes and capped commercial schemes. Under an availability payment scheme, often used for social infrastructure, the public sector makes fixed payment to a private contractor over a pre-agreed period in exchange for the design, construction, long-term maintenance and financing of the project. The terminal value of the project is most often set to zero and the control of the asset is returned to the public sector when the contract expires. This amortisation of the asset over the course of project is notably different to most real estate assets in the UK although it has parallels with real estate in China, where the government retains the freehold title to the land.

5. EVIDENCE FROM LITERATURE

Commercial schemes are more common for transport projects, where the public sector grants the private contractor a variable cash flow through the right to collect tariffs/tolls for an agreed period. The terminal value of such projects under this type of arrangement is also set to zero. Capped commercial schemes involve some degree of revenue sharing between the public sector and the private contractor, e.g. capped/floored equity returns in utilities. The terminal value may not always be set to zero. In some instances, the private contractor owns the facility outright without time limit. The contractual relationship-specific nature of infrastructure means it has a particular set of regulatory and political risks, as well as, potentially, some exposure to global market cycles.

The OECD (2012) identified two groups of investors in its survey of larger pension funds. The first group typically has a significant share of their total assets allocated to so-called 'alternatives' – i.e. not listed equities and bonds – with a target allocation of 30% on average. These investors often treat infrastructure investments as a sub-category of a real asset category or as part of a broader allocation to inflation-sensitive assets. These investors may well have a separate allocation to infrastructure and invest directly, through funds and private loans. Listed bonds are normally treated as fixed income. The second group is made up of smaller pension funds, typically including infrastructure within their respective equity and bond allocations. The OECD argue that the investors' approach to infrastructure investments relates to factors such as maturity of the infrastructure market, pension funds system, regulations and experience in the sector.

Cremers (2013) notes that fewer than 1% of a sample of 800 large pension funds had infrastructure or natural resources exposure in 2000, but this had increased to 28% by 2010 for infrastructure, although infrastructure and natural resources (timberland and farmland) were still less than 1% of total portfolios in 2010 compared to 5.75% for real estate. Similarly, Andonov et al. (2013) estimate that the real estate holdings of a large sample of international pension funds averaged 5.1% in 2009, compared to 1.8% for all other alternative assets bar hedge funds. It is possible that some alternative real assets may be classified as private equity investments.

Probitas Partners (2009) found that only 40% of their sample of global institutional funds had a dedicated infrastructure allocation. Some investors view infrastructure as part of a broader asset category of real assets; others see it as a sub-category of their fixed income investments, while yet others have added infrastructure to their general private equity, alternative or real estate allocations.

6. PRELIMINARY EMPIRICAL EVIDENCE

As noted previously, a major constraint in analysing alternative real assets and their relationship to the performance of core commercial real estate is the poor quality of data available. IPD collects performance data on residential and other property and the strong performance of other property/real assets is evident as recorded in the Table 6.1, with no evidence of this performance reflecting greater volatility/higher risk. No reliable data was found on infrastructure investment performance in the UK.

Table 6.1: Ten-Year Performance to December 2012

Asset/sub-asset class	Annualised total returns (%)	Standard deviation (%)
Equities	8.0	20
Gilts	6.6	6
Retail	6.3	13
Office	6.1	13
Industrial	5.8	12
All Property	6.3	13
Farmland/rural	13.2	10
Forestry	16.3	10
Residential market lets	8.5	9
Hotels	8.5	9

Source: IPD

Farmland/rural property, forestry, residential property and hotels are all estimated to have substantially out-performed the All Property average over the 10 years to end 2012, so much so that, whilst 'property' overall is estimated to have under-performed the other major asset classes, all four of these non-traditional sectors are estimated to have substantially out-performed the major asset classes. It is interesting to note that the performance of the main commercial property sectors was similar. This suggests there is something different from typical commercial property driving the returns of these sub-asset classes providing support to the case for treating these as distinct from real estate.

The difference in returns is also evident in the different profile of income returns and the markedly stronger rental growth of residential and other property.

Table 6.2: Five-Year Average Income Returns and Rental Growth to End 2012 (All Property = 6.2%)

Sector	Annualised income returns (%)	Rental value growth (%)
Retail	6.1	-1.5
Office	6.0	-2.3
Industrial	7.1	-1.6
Farmland/rural	1.7	9.2
Forestry*	3.8	3.8
Residential market lets	2.9	2.8
Healthcare	6.9	2.1
Hotels	6.9	1.2

*Forestry rental growth is shown as weight of timber sales by capital value.

6. PRELIMINARY EMPIRICAL EVIDENCE

Over the long run, real rents have declined across commercial property as a whole, falling by 1% p.a. over the 1980-2012 period, with 0.1% p.a. growth in retail and -1.7% p.a. growth in offices and industrial over this period. Over 2002-2012 period, real rental growth in retail was -2.3% p.a (0.9% p.a. vs 3.3% for RPI), whilst in offices it was -3.6% p.a. and in industrial it was -3.4% p.a. By comparison, residential property has been more resilient with growth of 2.9% p.a. over the 10 years to 2013 versus 3.3% p.a. for RPI, and a more modest real decline of -1.3%p.a. over the 2002-2012 period, whilst over the long-term (1980-2013) it has shown real growth of 0.4% p.a.

Correlations between the main real estate and non-traditional real estate asset classes are shown in Table 6.3 for 1981-2013.

Table 6.3: UK Sector Long-Run Correlations 1981-2013

	Retail	Office	Industrial	Residential	Other	All Property
Retail	1.00					
Office	0.84	1.00				
Industrial	0.84	0.88	1.00			
Residential	0.65	0.71	0.55	1.00		
Other	0.66	0.65	0.71	0.37	1.00	
All Property	0.95	0.96	0.92	0.70	0.71	1.00

This correlation matrix shows that residential and other property performance has been markedly more different from retail, office and industrial property than the difference in performance between retail, office and industrial property. However, residential and other property both have positive correlations with retail, office and industrial property sectors, providing some support to the case for treating them within the real estate asset class.

Real Estate and Alternative Assets: Some US Evidence

Longer run data series are available in the United States. The performance of non-standard property sectors in the United States are examined, using data from the National Council of Real Estate Investment Fiduciaries (NCREIF). NCREIF's family of indices include a number of 'alternative' asset classes that allow a comparison with core (UK) real estate sectors. These include separate indices for farmland and timberland: both are claimed to be total return series, capturing the 'investment performance of a large pool of individual agricultural (timberland) properties acquired in the private market for investment purposes only'. As part of the main 'classic' NCREIF property index (NPI), there are separate indices for hotels and apartment properties (the latter a mainstream investment category in the US). Many of the hotel properties in the index will be on conventional property leases rather than having income derived from the operational business.

NCREIF data is, like IPD data, valuation based. However, in addition to issues of appraisal smoothing, the quarterly indices suffer from a 'stale appraisal' problem, whereby properties are included in the index whether or not they have been valued in that period. As with any analysis using historic data, care should be taken in not over-interpreting the results or assuming that the relationships seen will continue into the future.

6. PRELIMINARY EMPIRICAL EVIDENCE

Figure 6.4 shows descriptive statistics and correlations for these sectors over the period 1998-2013. Hotel and apartment returns appear to behave in a similar fashion to the traditional property sectors. The hotel sector (which has underperformed across the analysis period) has somewhat lower correlations with the main index and with offices, retail and industrial property. Examining the correlations over a longer period (1991-2013), it is noticeable that hotels and apartments have lower correlations, which might suggest that, as sub-sectors become part of the normal investment universe, they tend to behave more like the aggregate index than in the earlier phase of investment. This might also reflect a growing scale of investment, with early returns being based on a smaller number of assets and, hence, more subject to the effects of individual, idiosyncratic return movements.

Table 6.4: US Real Estate Sector Performance, Quarterly, Q1 1998 to Q4 2013

Panel A: Descriptive Statistics

	NPI	Retail	Office	Industrial	Hotel	Apartment	Timberland	Farmland
Geometric mean	2.22%	2.53%	2.59%	2.19%	1.67%	2.24%	1.64%	3.20%
Mean	2.28%	2.56%	2.66%	2.25%	1.80%	2.30%	1.68%	3.23%
Standard deviation	2.55%	2.26%	3.09%	2.59%	3.24%	2.66%	2.71%	3.77%
Skewness	-2.57	-1.60	-2.25	-2.36	-1.73	-2.56	0.96	3.06
Kurtosis	7.54	4.82	6.47	6.87	4.45	8.17	4.37	11.77
Serial correlation	0.85	0.77	0.77	0.82	0.71	0.84	0.22	0.00

Panel B: Correlation

	NPI	Retail	Office	Industrial	Hotel	Apartment	Timberland	Farmland
NPI	1.000							
Retail	0.887	1.000						
Office	0.967	0.833	1.000					
Industrial	0.978	0.829	0.988	1.000				
Hotel	0.912	0.783	0.884	0.899	1.000			
Apartment	0.972	0.852	0.933	0.947	0.856	1.000		
Timberland	0.307	0.335	0.272	0.279	0.421	0.208	1.000	
Farmland	0.185	0.309	0.185	0.137	0.203	0.146	0.697	1.000

The farmland and timberland indices do, however, appear distinct. Not only do they have relatively low correlations with the main real estate index, they also exhibit different distributional characteristics. Farmland returns, in particular, are positively skewed (while the traditional sectors are negatively skewed) and, from the kurtosis figure, the distribution is fat-tailed: that is to say, returns are strongly clustered around the mean but there is a higher chance of extreme returns (and, in particular, extremely high returns) than would be expected from a normal distribution.

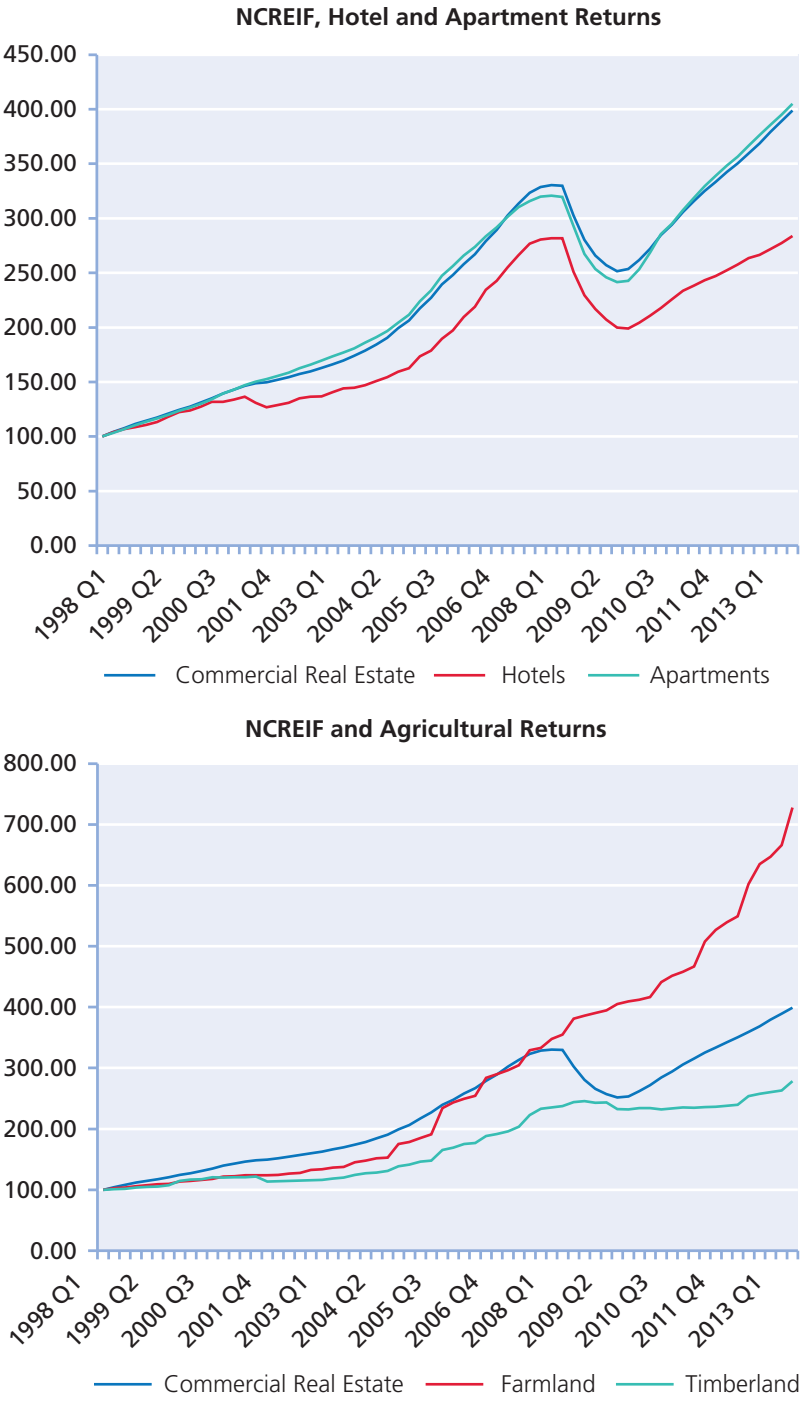
6. PRELIMINARY EMPIRICAL EVIDENCE

Examining the performance over time (Figure 6.1), it can readily be seen that farmland returns have been 'non-conforming', showing continued upward growth through the global financial crisis, driven largely by strong capital growth. Figure 6.2 shows rolling and trailing seven-year correlations (to reflect typical holding periods or fund life) for the four 'alternative sectors' with the main NCREIF property index. All four series converge rapidly on the main index across the first half of the 2000s, linked to the strong growth in real assets over that period. The correlations of hotels and apartments spike up further as the effects of the global financial crisis and property market correction become evident from 2008 onwards (the NCREIF index was slow to reflect falling capital values, partly due to the 'stale' appraisal issue, partly due to appraisers anchoring on past values: the transaction-based indices show earlier falls in value), rapidly approaching +1.00.

By contrast, farmland and timberland correlations fall, particularly in the early phase of the crisis, again driven by sustained land values. The authors are unable to say whether this reflects a measurement issue or represents a real economic difference. If the latter, this might reflect structural shifts in land use, in particular the impact of growing use of biomass for fuel production over this period. At face value, though, the figures suggest that agricultural properties offer diversification potential with respect to the traditional commercial sectors.

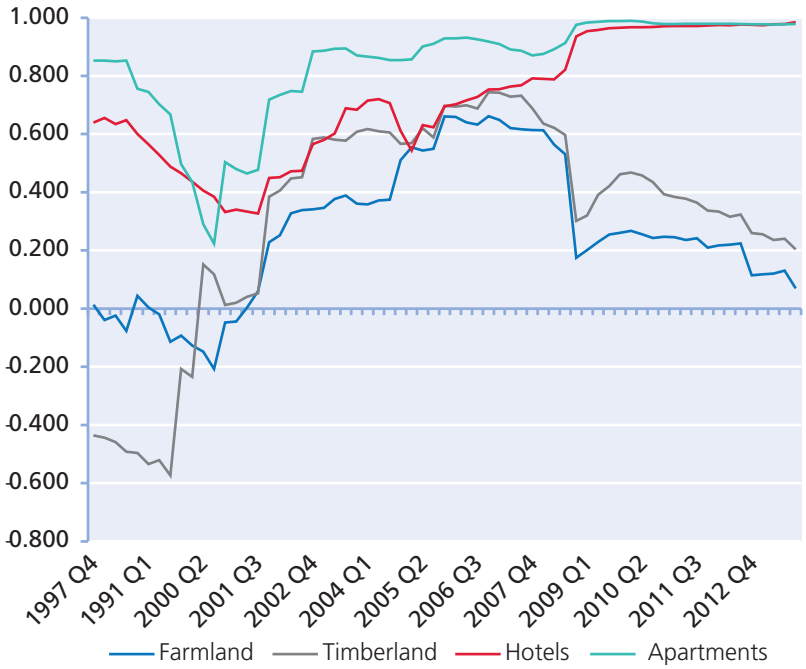
6. PRELIMINARY EMPIRICAL EVIDENCE

Figure 6.1: Time Series Performance of Agricultural, Hotel and Apartment Properties, US, 1998-2013



6. PRELIMINARY EMPIRICAL EVIDENCE

Figure 6.2: Rolling Seven-Year Correlations with NCREIF Index Farmland, Timberland, Hotels and Apartments



For completeness, the performance of the various real estate sectors with US equity market performance were examined, using the S&P 500 total return index as a proxy for the market. The results differed little across sectors, whether conventional or alternative, with typically low positive correlations, often close to zero. In part this reflects the measurement issues noted previously. It is noticeable that correlations increase if the equity index is allowed to lead the real estate index by one or more quarters, rising from an average of 0.196 (contemporaneous) to 0.235 (one-quarter lag), 0.302 (six-month lag) and 0.356 (nine-month lag). This confirms prior research that price-sensitive information is priced rapidly in equity markets but is incorporated much more slowly in appraisal-based indices. In turn, this casts some doubt on the claimed diversification gains from including real estate assets (whether conventional or alternative) in mixed asset portfolios if no account is taken for differences in index construction and measurement procedures.

7. EVIDENCE FROM INTERVIEWS

Asset Allocation

Discussions with managers, investors and consultants found a broad range of approaches, objectives and thinking about how real estate fits within a portfolio. A key change noted is a move from simply modelling real estate allocations to much more emphasis on the potential role that real estate could play in meeting the particular requirements of an investor – e.g. whether as an alternative to bonds to help meet liabilities, or to help the diversification and robustness of the overall portfolio. The 'real'/tangible nature of the underlying assets was noted by several respondents as a key distinguishing feature of the asset classs.

The approach in the UK is notably different from other markets, where data quality issues mean that investors tend to view 'market' benchmarks with considerable caution. It is seen to be markedly harder to identify the return drivers in international markets given the lack of availability of high-quality data.

In addition, the reliance on a benchmark is generally being challenged by a greater focus on investment objectives. The difficulty of investing strategically in asset classes without long term data was noted by some respondents. However, the growth in strategic allocations to infrastructure suggests this has not been a major obstacle.

Absolute or real return targets/benchmarks and combined bond/property benchmarks have become more common in the UK and this may have played a part in supporting the growth in 'alternative' real estate investment. Respondents investing to absolute or real return strategies were less focused on traditional commercial real estate sectors.

Types of Property and What Constitutes Real Estate

In general, residential (student accommodation, private rented, social/affordable housing and ground rents) is seen as part of real estate. The potential scale of the private market-let residential sector was noted by a number of respondents. Distinct performance characteristics were also noted and there were some comments that, as it grows, it is more likely to be considered as a distinct sub-asset/asset class. In other markets, e.g. the US, the Netherlands or Switzerland, residential is seen as a substantial and core part of the real estate mix (influencing the overall volatility and return expectations for real estate).

Healthcare is seen as part of real estate, but with a recognition that specialist skills may be needed, requiring either a specialist team or working with a partner, or investing indirectly. Similar points apply to other 'alternative' real estate types, such as data centres or car parks.

Hotels are similarly seen as generally part of real estate but with the dependence on the operator noted and this being a factor that leads some investors to be very cautious of the sector. The sector is generally seen as more risky than traditional real estate and the motives for investing vary between those that are only willing to consider leases and those willing to take on more operational risk through management contracts.

Farmland and forestry/timberland are generally seen as part of real estate. However, some respondents see them as clearly distinct as different types of real asset from other elements of real asset. In addition, some larger investors may make separate allocations to timberland and farmland in order to achieve a more diversified real asset exposure.

7. EVIDENCE FROM INTERVIEWS

Discussions with consultants, investors and managers generally agreed with the view of infrastructure as having both common and distinct characteristics from real estate. The common characteristics include exposure to underlying incomes from a real tangible physical asset and that those cashflows tend to rise in line with general inflation over the long term. Operational risk and the ownership structures/contractual nature of infrastructure (notably the concession nature/lack of terminal value) are seen as differentiating features by many respondents. In addition, the issue of accessing infrastructure without substantial leverage distorting its fundamental characteristics was noted. Indeed, the lack of unlevered infrastructure opportunities was noted as a difference from real estate that has pushed infrastructure into a distinct category from real estate or into being treated alongside private equity. In general, discussions with investors, managers and consultants supported the view that infrastructure is seen as more distinct than other non-traditional asset classes. Consequently, schools, hospitals, health facilities and other forms of social infrastructure would not normally be considered real estate in isolation, although respondents noted that, as a minority element within an overall real estate fund/portfolio, this would not prevent such assets being considered as real estate. Similarly, wind farms or biomass plants, typically, would be considered as infrastructure distinct from real estate but with the same caveat that, if invested as a minority of an overall real estate fund, this would not change the view of the fund as a real estate fund. This approach of differentiating infrastructure from real estate appears to be common across most markets and, as infrastructure grows as an asset class, it has become more differentiated.

As a general principle, some respondents highlighted the need for an additional risk premium for niche real estate sectors to reflect the potential lack of liquidity in challenging market conditions. No major restrictions by type of real estate were noted and it was recognised that a number of alternatives fall into a middle ground.

Income Security and Operational Risk

As noted previously, operational risk is considered an important differentiating feature for some respondents in terms of differentiating infrastructure from real estate. One view of the boundary was that if there is significant value in the operating business above that of the underlying net asset value of the real estate assets, then this is effectively an investment in the operational business instead of the real estate.

In healthcare, respondents recognised operational risk, as well as regulatory and reputational risks, but healthcare property (e.g. care homes, surgeries etc) is still seen as part of real estate and some investors even expressed a desire to be involved in the operational performance (partly to help manage the risks).

In terms of the hotel sector, it is recognised that the operator, their brand and the local management are all important to underlying income and profitability, but these assets are still generally thought of as real estate. Indeed, the strength of interest in long-leased hotels was noted, despite concerns over credit quality.

Serviced offices and flexible workspace have not seen much direct investment to date and the importance of operational performance has, according to some respondents, made these sectors difficult to integrate into traditional ways of thinking about real estate. Self-storage has similarly not seen much direct investment in the UK as the operators have generally been reluctant to separate the real estate from the operational business and, so, investors wishing to invest in the sector have little choice but to invest in the businesses that own the real estate.

7. EVIDENCE FROM INTERVIEWS

Overall, operational risk is not a major concern of consultants/managers, provided the investment is in buildings not businesses, and even a small element of the latter seems to be acceptable to many investors. International investors seem to be more comfortable investing through businesses and the operational/business risk that this may bring.

Ownership Structures/Vehicles

Not surprisingly, respondents indicated that senior real estate debt was generally distinct from real estate (considered private credit) but that mezzanine debt was considered more akin to real estate (that is, with a positive beta to real estate) and would be more readily invested in within real estate mandates.

The survey indicated that, in the UK context, there continues to be a reluctance to use real estate securities within real estate mandates. It is seen as separate and with a particular set of risks that differentiate it from unlisted and direct investment into real estate, including the risk of capital issuance and equity market/market price volatility risks. Where REITs are part of 'real estate', typically, this is to meet liquidity requirements or as a specialist activity, rather than as an integrated approach alongside other assets. It is interesting to note that the continued use of REITs, as a liquid element and in specific REIT funds, may amplify the volatility of REITs compared to if they were used as a means for long-term investment. Consequently, the structure of investment continues to be important to the definition of what is real estate in the UK.

Management Structure and Skills

The final area the authors were keen to explore was how property is managed. Accordingly, they sought views on the skills needed and how that influences perceptions of what is real estate.

It was noted the non-traditional sectors may require specialist skills but this is not really a distinguishing feature that separates them from more traditional areas of real estate. Similarly, it was felt that a degree of operational and business due diligence skills may be needed for many areas of real estate investment. However, there was a view that these expertise are particularly specialist in nature and a full understanding of the risks was challenging for most property fund managers. In addition, the differentiation of the skills needed for bidding for infrastructure projects and their management was seen as helping differentiate infrastructure from real estate.

The split between private markets and public markets does appear to influence views on what is real estate, with real estate securities being more likely to be seen as falling outside the definition of real estate if the management structure has a public/private markets split.

8. CONCLUSIONS

- There has been a significant change in the way in which consultants and investors think about property over the last five to 10 years. Real estate is thought less about as an asset class and more about in the role it is playing in portfolios and how it is meeting objectives, which has supported the role of non-traditional real estate.
- Benchmarking and mandates are believed to be moving to be more accommodating of non-traditional real estate, with a greater focus on absolute or real returns.
- The downward pressure on fixed income yields has also been a stimulus to investment in non-traditional sectors - this has contributed to a growth in investment into secure income real estate and similar investments as alternatives to fixed income/index-linked gilts.
- Investment in non-traditional real estate has grown and is expected to grow sharply from current levels, given its potential scale and the shifting landscape for real estate investment.
- There are no definitive delineations between real estate and other real assets, whilst interpretations of what fits within real estate vary by consultant and manager. However, infrastructure, timberland and farmland are to some extent distinguished from other land and real estate-related real assets and are seen as more distinct from commercial real estate than housing, healthcare, student accommodation and other non-traditional real estate.
- The common factors that differentiate property from other asset classes are mainly around the ownership structure – e.g. ownership or rights over the ownership of land and property to access the income flows arising from it – and less around how income growth is driven.
- Operational risk is not a major concern of consultants/managers, provided the investment is in buildings not businesses, and even a small element of the latter seems to be acceptable for many investors.
- Despite the introduction of REITs and recognition that the real estate is the long-term driver of returns for REITs, there continues to be a reluctance to use REITs in an integrated fashion with private real estate. Accordingly, the structure of investment continues to be important to the definition of what is real estate.
- Most organisations have broadened their coverage of real estate and this is presenting them with issues of how they co-ordinate different streams of real asset investment. The challenges posed from this change are probably greater for larger organisations.

9. ISSUES FOR FURTHER RESEARCH

A range of issues were identified through the course of the research that would merit further investigation.

There is a major issue of alignment between asset allocation and implementation in real estate (and especially infrastructure). This is particularly the case for global investors. In part, this is simply because reliable market data is not available and, in part, this is because investors have multiple objectives. A number of research questions flow from this, including the extent to which having objectives that are more closely aligned with the objectives for the overall fund influences investment decision-making and performance compared to more peer group/market objectives.

The assumptions that are used for 'property' may be based on historic performance, which, as 'property' changes to include greater exposure to non-traditional asset classes, may unfairly reflect its likely volatility and downside risks.

Operational risk is recognised as an issue but it does not appear that how to price or reflect this in appraisals is widely understood.

Infrastructure is an area where substantial further research is needed, firstly by merely collecting performance data on infrastructure projects and infrastructure funds/vehicles but, also, in differentiating the contractual, operational and regulatory characteristics that explain risks and returns, or taking into account how different investment vehicles may distort the investment characteristics of the underlying investments.

Similarly, investor confidence in the private rented residential sector is impacted by quality of data and its collection; hence, analysis of the drivers of returns and performance will be important in building confidence in the sector.

One key task would be to evaluate the extent to which the returns of the alternative real asset sectors (student accommodation, pubs, hotels, healthcare, etc.) are sensitive to the same factors as conventional core real estate sectors and whether that sensitivity is of a similar scale. Such an exercise is hampered by the paucity of robust and reliable time series data for alternative assets, but could examine a range of macro-economic, fiscal and financial variables and explore the lags between shocks to those factors and price/return responses. Such an exercise is important in understanding the risk-return characteristics of alternatives and the implications for portfolio risk management of their inclusion in investment strategies.

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ORGANISATIONS INTERVIEWED AS PART OF THE RESEARCH

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University of Cambridge Endowment Fund

EXAMPLES OF HOW INVESTORS ARE DESCRIBING REAL ESTATE AND REAL ASSET EXPOSURE

CALIFORNIA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

Extracts from STATEMENT OF INVESTMENT POLICY FOR REAL ASSETS December 16, 2013

I. PURPOSE

The California Public Employees' Retirement System ('CalPERS') Investment Beliefs and Total Fund Statement of Investment Policy, adopted by the CalPERS Investment Committee ('Committee'), sets forth CalPERS overarching investment purposes and objectives with respect to all its investment programs.

This document sets forth the investment policy ('Policy') for the Real Assets Program ('Program'), consisting of the following component programs:

A. Attachment A – Real Estate

B. Attachment B – Infrastructure Program

C. Attachment C – Forestland Program

Real Assets Program Allocations

Program allocation targets and ranges are listed in Table 1 below. Allocations are expressed as a percentage of the market value of the CalPERS Total Fund.

Table 1: Program

Allocations Component	Target*	Range*
Real Estate	10.0%	7.0% - 13.0%
Infrastructure	2.0%	1.0% – 3.0%
Forestland	1.0%	0.0% – 2.0%
Real Asset Class	13.0%	8.0% – 18.0%

To manage the level of risk and return in the Portfolio, assets shall be categorized into risk classifications. Staff shall utilize investment structures including Commingled Funds, Separate Accounts (investment partnerships), Manager Contracts, Real Estate Operating Companies, and Downstream Joint Ventures. The preferred structure shall be Separate Accounts. The focus of the Portfolio shall be in large strategic relationships. Investments may be made in public or private debt or equity positions or other related real estate investments.

1. Core Risk Classification
   The Core risk classification includes investments that produce a predictable current net income yield after debt service. Typically Core assets shall exhibit institutional qualities that are well located within their local and regional markets and of high quality design and construction. Core assets shall include investments located only in Developed Markets. Core assets shall have low leverage and generally low risk/return profiles. Core assets shall be limited to traditional property types: Office, Retail, Industrial, Multifamily, and Hotels. Mixed use projects incorporating the traditional product types are also acceptable. All Public Real Estate Securities shall be considered Core.
2. Value Add Risk Classification
   The Value Add risk classification includes assets that have the expectation to produce a predictable current net income yield after debt service within a reasonable time frame, typically one to three years. Capital investment may be required to develop, lease, redevelop, or renovate the assets. Value Add assets may

EXAMPLES OF HOW INVESTORS ARE DESCRIBING REAL ESTATE AND REAL ASSET EXPOSURE

have moderate leverage and moderate risk/return profiles. The Value Add risk classification shall include investments located primarily in Developed Markets. Stabilized (Core like) private assets in Emerging Markets shall be considered Value Add.

3. Opportunistic Risk Classification
   The Opportunistic risk classification includes assets that have the expectation to produce substantial capital appreciation and higher yields. Current income may be low or non-existent during the holding period of the asset. Opportunistic investments often exist because of inefficiencies in real estate or capital markets. The Opportunistic risk classification shall include investments with assets located in Developed, Emerging, and Frontier Markets. Investments in land shall be categorized as Opportunistic. Opportunistic investments may have high leverage and high risk/return profiles.

CalPERS may invest capital for the Portfolio through a variety of legal structures, including Commingled Funds, Separate Accounts, Manager Contracts, Real Estate Operating Companies, and Downstream Joint Ventures. Investment partnerships in which CalPERS invests may be structured as partnerships, limited liability companies, corporations, or trusts. CalPERS should be a limited liability investor in order to limit any loss to the amount of the investment. CalPERS should possess an appropriate level of control over management of the investment partnership.

Environment Agency Pension Fund – Extract from PERE/discussed with EAPF

The Environment Agency Pension Fund (EAPF) c. £2 billion of assets, decided in 2012 it wanted to develop a global portfolio of real assets made up of property, infrastructure, timberland/forestry, and farmland/agriculture and appointed Townsend in 2013 to manage the mandate. Property was the only asset class it had invested in, so infrastructure, foresty and farmland were new.

The main attraction of real assets is the chance to diversify into investments with good return characteristics, liability-matching and inflation-linked characteristics, but also in areas of economies linked to sustainability. The mandate was a natural extension to the pension fund's exposure to sustainable equities.

The average return expectations are 4 to 6% above inflation, net of fees and costs, via assets with a broad geographic and sector exposure with variable maturity and vintage. The EAPF also said it wanted medium-to long-term risks significantly lower than that of equities, with a capital preservation element desirable. The investments should also be substantially backed by tangible physical assets with reliable annual cash flow, with limited operational risk and economic exposure.

There will be an international component and, in terms of real estate, Townsend has the discretion to make investments as it sees fit into areas including property debt. Opportunity funds, however, are not expected to form a core part of its expanded portfolio.

The ESG component of the mandate was spelled out in detail by the agency in its tender document, with the EAPF saying it had a preference for energy efficient buildings, renewable energy projects, public transport, water treatment facilities, eco-friendly farming and sustainable forestry.

NOTES

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IPF Research Programme 2011–2015

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