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THE LOGIC OF LOGISTICS: SUPPORTING A BIGGER ROLE IN INSTITUTIONAL PORTFOLIOS

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EXECUTIVE SUMMARY

In uncertain economic periods, investors often tilt their asset allocation and portfolio decisions towards defensive assets that are underpinned by well-secured income. Industrial and logistics property generates most of its reward through its income return, and may be considered as having bond-type investment characteristics, as well as a favourable performance history. This paper by CBRE and Mercer uses actuarial-style techniques to assess the relative standing of industrial and logistics, and advocates a greater role for the sector in institutional portfolios. It considers the relative standing of the industrial and logistics sector for institutional investors across four key dimensions: income, inflation-related returns, liability-matching and efficient total returns.

Industrial and logistics property performs extremely well on the **income** dimension, ranking first among the six asset classes considered. Income-oriented investors should consider substantial exposure to industrial and logistics property. Life assurance companies active in the annuity market and endowment funds might fall into this category.

Investors seeking **inflation-related** returns, such as endowment funds, should generally consider tilting their portfolios away from nominal bonds and towards real estate. It is difficult to generalise on precise weightings within the overall real estate allocation for these types of investor, but industrial and logistics is likely to be a core element. Weightings in the retail and office sectors can then be gauged by analysis of their inflation sensitivity on a market by market basis.

As regards **liability-matching,** institutional investors who favour using real estate as a complement to bonds within the matching portfolio should consider industrial and logistics. For instance, mature defined-benefit pension funds and fixed-term annuity providers would fall into this category.

Efficient total return seekers look to achieve the maximum return for a given level of risk or, conversely, to minimise risk for a given level of return. Industrial and logistics achieves a middle-ranking position against other property asset types on this dimension, and real estate in general may offer efficiency advantages over other financial asset classes. Such investors should consider tilting their real estate portfolios towards industrial and logistics assets rather than simply adopting index weightings. This point should be of interest to asset allocators working in institutions such as private banks, family offices and sovereign wealth funds.

High income

Ranked first of six:
1. Industrial & logistics
2. Offices
3. Retail
4. Bonds
5. Equities
6. Cash

Inflation-related returns

Real estate and equity better than nominal bonds and cash. Industrial & logistics tentatively ranked second of three commercial property sectors. Position against equity best over medium-term

Liability-matching

Better for low-duration liabilities; industrial & logistics a useful complement to bonds

Efficient Total Return

Ranked second of six
1. Retail
2. Industrial & logistics
=3. Offices
=3. Cash
5. Equities
6. Bonds

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INTRODUCTION

It is often noted that, in an uncertain economic and performance environment, investors tilt their asset allocation and portfolio decisions towards "defensive" assets – that is, those whose future performance is predominantly underpinned by contracted or well-secured income as opposed to prospective growth. Or put another way, "bond-type" rather than "equity-type" investments.

Property does not fit neatly into the conventional "equity versus fixed-income" analysis since its cash flows contain elements of both, albeit to differing extents across property's sub-sectors[1]. Prime high street retail investments, for instance, which typically trade at relatively low income yields, may be considered as equity-type assets since more of the investment reward is composed of capital growth rather than contracted income. Industrial and logistics property, by contrast, generates most of its reward through its income return and may be considered as more of a bond-type investment. Analysis in this area highlights property's key role in certain types of institutional portfolio and notes the growing importance, in a low interest rate environment, of the bond-like component of property returns.

The performance history is also persuasive. Over the past ten years, industrial and logistics property across the Eurozone has generated an average income return of 7.8% p.a., compared with 5.5% for offices and 6.2% for retail[2].

The income element has constituted over 100% of the total investment return for industrial and logistics property over this period (as it also has for offices)[3] whereas for retail property income makes up 78% of the total return. In terms of absolute level of return, industrials (7.5% p.a.) are only marginally lower than retail (8.0% p.a.) and well ahead of offices (4.8%). In the UK where longer time series are available, similar comparisons emerge.

From a more qualitative perspective too, the sector appears to be finding favour with investors. In the recent CBRE Real Estate Investor Intentions Survey, the industrial and logistics sector emerged as the preferred investment sector in 2012 for 20% of investors. This compares with less than 14% the previous year, and contrasts with declines in the relative popularity of the office and retail sectors. In an environment of low expected rental growth, the appeal of the higher income returns available from industrial and logistics property appears to be increasingly well-recognised.

Moreover, the sector offers attractions for a range of different investor types, as indicated by the profile of acquisitions over recent years. In the three years, 2009-11, direct investment in the sector across Europe totalled €24.2 billion, over 40% of which was acquired by institutional funds and collective vehicles.

Returns and income profiles for property sectors

	Total return (% p.a.)	Income return (% p.a.)
Eurozone 2001-10		
Retail	8.0	6.2
Office	4.8	5.5
Industrial	7.5	7.8
UK 1981-2010		
Retail	10.0	6.0
Office	8.3	6.7
Industrial	10.2	8.3

Source: IPD

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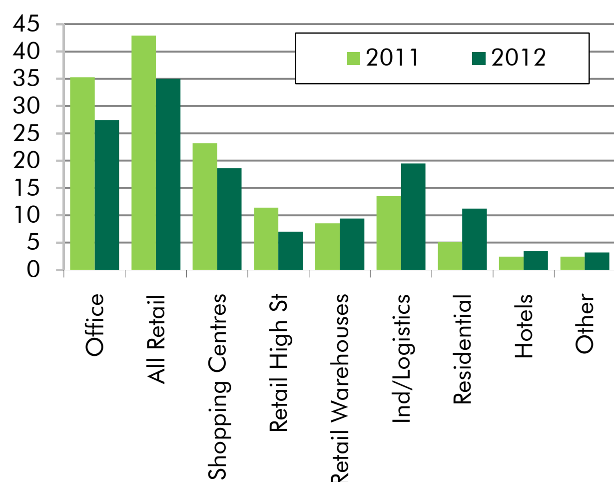
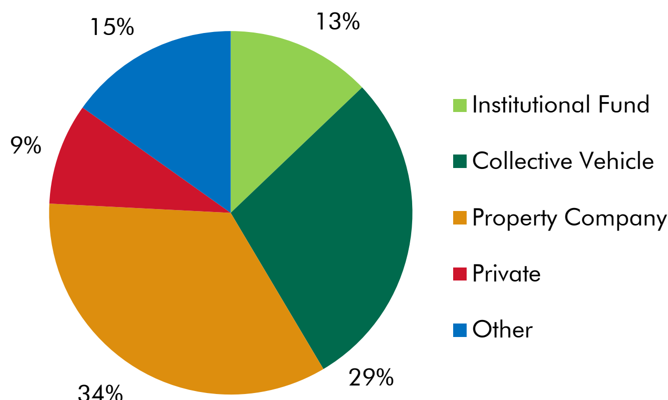
Investors' sector preferences, (%) 2012



Source: CBRE, European Investor Intentions Survey, February 2012

Industrial and logistics investment, Europe, 2009-11



Source: CBRE

EXPLORING THE INVESTMENT RATIONALE

Despite this, industrial and logistics property still comprises less than 10% of the European investment market, and even this figure is an increase on the proportion that was typical in the mid 2000's. There are reasons for the relatively low exposure to industrial and logistics property in institutional portfolios - including high levels of owner-occupation in some markets, specialised building types, low unit value etc. - but equally the current level of economic uncertainty offers a strong rationale for considering increased exposure to an asset type with such high-yielding, bond-like characteristics.

There is regular debate and analysis among actuaries, investment consultants and academics on the composition of real estate portfolios, whether from an ALM (asset-liability matching) or mean-variance optimisation angle. In many cases the focus has been on real estate's investment characteristics in aggregate, with less focus being given to the specific income and capital characteristics of different property sectors.

In addition, while many institutional investors (in particular insurance companies and pension funds) need to consider their liabilities, there are others whose investment needs are different. For example, sovereign wealth funds are often preoccupied with inflation and the need to generate inflation-related returns; endowment funds have an ongoing need for income.

So, to what extent should the sector's characteristics affect investor behaviour towards industrial and logistics property? And how does the industrial and logistics sector sit in the context of current actuarial recommendations for different types of investor?

In order to develop this line of thinking we use actuarial-style thinking and techniques to these issues, by applying Mercer's well-established analytical processes for different investor motives, to performance data on the industrial and logistics market.

FOUR INVESTMENT DIMENSIONS: SECTOR SUITABILITY FOR DIFFERENT INVESTOR TYPES

In this section we assess four important dimensions of industrial and logistics real estate investment in the context of institutional multi-asset portfolios. The word "dimension" applies in this sense because, when assets are combined into portfolios it is possible for each asset to serve several purposes, just as the portfolio as a whole may have several dimensions or purposes. The analysis in this paper applies only to institutional (not retail) investors. Institutional investors come in many forms, including pension funds, endowment funds, sovereign wealth funds, private banks, family offices and insurance companies. Across this group, there may be a range of motives and priorities for investing including, for instance, diversification and capital preservation.

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We consider:

- income
- inflation-related returns
- liability-matching
- efficient total returns

Income: Income-oriented investors will typically prioritise regular cash payments over potential future capital gains. Such investors may need the income to cover expenses (endowment funds and mature pension funds, for example); others may simply have a preference for income-dominated total returns on the basis that it is less risky than returns dominated by prospective capital gains. We have analysed historic income returns for the national markets[4] plus prime yield data aggregated at EU-15 and EU-27 level, supplied by CBRE. We have also compared income returns against other asset classes.

Inflation-related returns: Investors who prioritise this dimension are not necessarily seeking exactly the same things. There may be some who seek inflation hedging in the strict sense of the term: that is, an investment that either exactly matches inflation or is guaranteed to give a return in excess of inflation – in the main such investors will be disappointed. Inflation-related returns are intended to denote returns that have a substantial probability of outperforming inflation in the long run[5]. To analyse this dimension we used the correlation coefficient (r^2) between historic total returns and historic inflation as the test. The correlation coefficient is a number between 0 (indicating no relationship) and 1 (indicating a perfect fit). Our analysis is based on long-term data from the US and analysis from two other major markets, Germany and the UK.

Liability-matching: Institutional investors with liabilities include insurance companies and pension schemes, although the liability-driven approach may also be used for high net-worth clients such as family offices and those served by private banks. Such investors will need to be able to pay liabilities as they fall due and match, to the extent possible, the interest rate sensitivity of these liabilities.

The key measure in this area is modified duration, which is measure of the sensitivity of the value of a fixed-income investment to a change in interest rates. Rising interest rates denote falling bond prices, while declining interest rates mean rising bond prices. Duration is expressed as a number of years. For example, a duration of seven years, signifies that the approximate expected percentage change in price is 7% given a 1% yield change. Real estate does not have "duration" in the true sense. However sensitivity to interest rate changes can be simulated by assuming a fixed holding period and using reasonable estimates of future cash flows. We focussed here on CBRE historic data and some earlier studies[6].

Efficient total returns: Efficiency in this sense means achieving the maximum return for a given level of risk or minimising risk for a given level of return. Return can mean an absolute return, or return relative to an appropriate risk-free rate. There are several financial ratios which may be used to identify the relative suitability of industrial and logistics assets in this dimension. One is the Sharpe ratio, which is calculated by subtracting the risk-free rate from the rate of return for a portfolio and dividing the result by the standard deviation of the portfolio returns. Another is the coefficient of variation (CV), which is a normalised measure of dispersion of a probability distribution. Sharpe ratio measures excess return per unit of risk, so a higher number is better; CV measures risk per unit of return, so a lower number is better. In most cases both ratios lead to the same conclusion[7] as illustrated by the example for the Netherlands in the table below. In addition we analysed the relative volatility of prime rents across the main sectors, using CBRE data spanning twenty years and 14 major European markets[8].

Sharpe ratios and coefficients of variation, Netherlands

	Sharpe ratio (rank)	Coefficient of variation (rank)
Retail	1.11 (1)	0.4 (1)
Office	0.24 (3)	0.7 (3)
Industrial	0.51 (2)	0.6 (2)

Source: IPD

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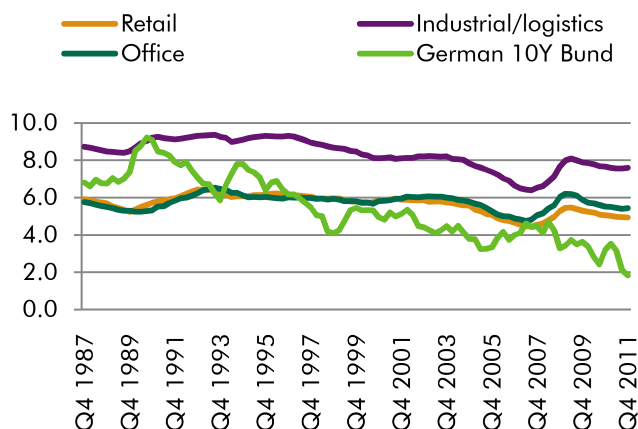
KEY FINDINGS

This section summarises the key findings regarding the position of industrial and logistics across the four dimensions considered, both against other real estate sectors and relative to the main non-real estate asset classes[9].

Income: measured in terms of income generation, real estate as a whole does well compared with equities and bonds, where yields in the 3%-5% range are the historic norm (compared with 4% to 8% in real estate). This part of the analysis followed a similar procedure to that outlined above: that is, we began by comparing[10] the historic income returns of industrial and logistics with that for the retail and office sectors in multiple markets. For each market we then ranked the three sectors best, mid or worst. In every case industrial and logistics was "best" (that is, ranked one of three where one is the best and three is the worst). On repeating this test for a single country (in this case the US) but using a different data set[11], the result was confirmed. Since real estate ranks ahead of other asset classes, industrial and logistics' position at number one in the rankings holds at a multi-asset level as well.

CBRE EU-15 Prime Yields vs German Bund



Source: CBRE, Macrobond

Inflation-related returns: To test for inflation sensitivity we relied on regression analysis performed on a sector-by-sector basis, initially using the NCREIF index from the US. Regression analysis based on a sample (113 observations)[12] from the US indicates that industrial and logistics is worse than the office sector, but better than retail. One possible explanation is that the long construction lead times in the office sector give rise to supply constraints when material and labour costs are rising, thereby giving a performance response in periods of high inflation. Industrial and logistics, with its short construction cycle, low relative construction costs and hence high elasticity of supply, does not have this characteristic and is generally better able to accommodate demand pulses via the supply side.

The results from Germany confirmed industrial and logistics' middle-ranking, though in this case retail was the best and office the worst. In this case we looked at five year rolling returns and their correlation coefficient with German inflation[13].

Research from the UK[14] is not wholly consistent with Germany and the US and show industrial and logistics in a favourable light compared to retail and (excluding the West End of London) offices. This highlights the difficulty of drawing universal conclusions in this area. A separate piece of research[15] in the UK ranks industrial and logistics second.

Real rental growth and inflation correlations

	Real Rental Growth (% p.a)	R-squared to inflation
All Property	-0.7	0.217
Retail	0.6	0.399
Office	-1.7	0.119
Industrial	-1.3	0.359

Source: IPD, UK National Statistics, Legal & General Property

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As regards the sector's position in a broader multi-asset spectrum, it is difficult to be definitive on this topic, but it is reasonable to state that:

(a) real estate and equity are clearly preferred to nominal bonds[16] and cash in this regard.

(b) the relative position of real estate and equity depends on many factors but particularly the holding period. For periods of up to ten years real estate is likely to prove better; for periods of over twenty years equity may prove slightly better; for periods of between ten and twenty years, the difference is more difficult to assess. Clearly in each case investors will need to consider the specifics of their real estate and equity portfolios rather than relying on generic asset class differences.

(c) the inflation regime prevailing at any given time[17] will affect the relative attractiveness of real estate sectors, in particular whether a market is experiencing demand or cost-driven inflation.

Liability-matching: The degree of "match" between the assets and liabilities of life assurance companies, defined-benefit pension funds and other institutional investors is managed in different ways. For example, cash-flow matching is one method; duration matching is another. To test the relative effectiveness of industrial and logistics compared with retail and office, we focussed on duration matching.

First, a note of caution about "duration" in the context of real estate. As mentioned above, duration is a measure of the sensitivity of the value of a fixed-income investment to a change in interest rates. Real estate income may be stable and reasonably predictable[18] but it is not fixed. Furthermore, real estate holdings do not have a fixed redemption date or value. Real estate therefore does not have "duration" in the true sense. Nevertheless, sensitivity to interest rate changes can be proxied by assuming a fixed holding period and using reasonable estimates of future cash flows and yields. We calculated modified duration using (a) an assumed ten-year holding period (b) historic income returns for a broad selection of European countries[19] (c) CBRE historic yield data for the EU-15 group of European countries.

Based on the assumptions above, industrial and logistics has the lowest duration of the three sectors: 6.9 years compared to 7.5 years for both retail and office. Based on this simulation, industrial and logistics is likely to be better suited to shorter duration liabilities, such as the liabilities of very mature defined-benefit pension funds or fixed-term annuities, rather than to those of new or immature pension funds. We tested this outcome using another data set and a different holding period[20] and the results confirmed the relationship.

Simulated "duration" (years) of property sectors

Source: CBRE, IPD, Mercer

This conclusion is likely to hold at a multi-asset level too. Bonds are the clear leader among the asset classes when it comes to liability-matching. While the key measure of duration - interest rate sensitivity - is not strictly applicable to real estate or to equity, sensitivity to interest rate changes can be simulated. Unsurprisingly, equity has the longest duration. It is also notable that the modified durations of a high quality ten-year and fifteen-year Eurozone bond were higher than those shown for industrial and logistics property.

Efficient total returns: This part of the analysis began by comparing[21] the efficiency of industrial and logistics with that of retail and office sectors in twelve markets, using the CV (coefficient of variation) measure described earlier. For each market we then ranked the three sectors best, mid or worst.

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Coefficient of variation scores and rankings

	Retail	Office	Industrial and Logistics	I&L Rank	
Australia	0.57	0.92	0.75	2	Mid
Canada	0.55	0.72	0.68	2	Mid
Denmark	0.34	0.50	0.60	1	Worst
Finland	0.51	0.36	0.30	3	Best
France	0.68	0.85	0.86	1	Worst
Germany	0.32	0.84	0.80	2	Mid
Netherlands	0.40	0.67	0.57	2	Mid
South Africa	0.46	0.57	0.55	2	Mid
Spain	1.04	1.38	1.48	1	Worst
Sweden	0.79	1.39	0.96	2	Mid
UK	1.84	2.25	1.81	3	Best
US	1.21	2.19	1.76	2	Mid

Source: IPD, Mercer

Industrial and logistics finished with an average ranking of "mid" (that is, ranked two of three where one is the best and three is the worst), indicating that overall it was neither the best nor the worst sector in terms of risk per unit of return, measured over the ten-year period in question. It is worth noting that industrial and logistics assets emerged most favourably for the UK market.

We then repeated the test for a single country (Germany) but using a different data set[22]. The result was confirmed. Finally, as a way of validating the outcomes above, we compared the volatility of income across the three sectors, using CBRE data for twenty years, and this reinforced the efficiency findings described above.

Broadening the focus to include non-real estate asset types, and based on historic risk and return statistics for Europe as a whole[23], the efficiency rankings are as follows: retail in first place; industrial and logistics in second place; offices and cash in joint third place; equity in fifth place; bonds in sixth place.

CONCLUSIONS AND RECOMMENDATIONS

The application of actuarial-style analysis and thinking to the sector's performance record highlights some clear aspects of its investment rationale, and clarifies how industrial and logistics can make a viable and attractive investment option for a range of different investor types.

One very clear conclusion is that a greater understanding of the sector's investment characteristics and performance features is relevant to a wide range of investor types, and should form a more prominent part of portfolio strategy formulation and management. Clearly some of these characteristics are well understood - particularly the sector's advantageous income return - but others are less well recognised, sometimes even by investors with existing exposure.

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Summary of key findings

Investor Priority	Industrial and logistics v other property sectors	Industrial and logistics v other assets
High income	Ranked first of three	Ranked first of six
Inflation-related returns	Varies by market and time Tentatively ranked two of three	Depends on time horizon Better than nominal bonds and cash. Position against equity best over medium-term
Liability-matching	Better for low duration liabilities	A key role as a useful complement to bonds
Efficient total return	Ranked second of three	Ranked second of six

A further insight is that market participants in the sector would benefit from "speaking the language" of institutional investors. For most this is not a huge change, but may require a shift in emphasis, away from property-level towards portfolio-level characteristics. It is useful to remember that the institutional investor's mindset is used to thinking in ranges rather than single numbers, and focuses heavily on risk awareness, particularly on the quantification of risk and possible downside outcomes.

As regards the market, it might be argued at a general level that the current environment inherently favours property asset types that display strong bond-like features. With prospective short-term rental growth subdued in all sectors, yields on the highest-rated sovereign bonds at unusually low levels and real estate capital focussed strongly on core income-producing assets, it may be tempting simply to favour assets that offer the largest yield advantage over bonds. This analysis has taken a more granular approach by considering the aims and motives of different types of investor. Some specific recommendations are as follows:

Income: Income-oriented investors who prioritise regular cash payments over potential capital gains should consider substantial exposure to industrial property. For example, life assurance companies looking to use real estate within their annuity-backing portfolios might wish to consider substantial exposure. Industrial and logistics might also be of particular interest to endowment funds and charities, or institutions such as private banks which need income solutions for their clients. There may be a variety of ways of accommodating this increased allocation to the sector, including selling down parts of the non-real estate element of the portfolio.

Inflation-related returns: Investors seeking a return that has a substantial probability of outperforming inflation in the long run, such as endowment funds, should generally consider tilting their portfolios away from nominal bonds and towards real estate. Within the overall real estate allocation, industrial and logistics is likely to be a core element; the weightings in retail and office can then be gauged by analysis of these sectors' inflation sensitivity on a market by market basis.

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Liability-matching: Institutional investors who favour using real estate to match liabilties should consider industrial and logistics. For instance, mature defined-benefit pension funds and fixed-term annuity structures might fall into this category. There is considerable merit in revisiting the question of splitting income returns from changes in capital value in this regard. Real estate in this sense should complement rather than replace bonds.

Efficient total returns: Institutional investors who want more return for a chosen level of risk should consider the fundamental characteristics of each sector rather than relying on capitalisation-weighted indices. This may lead real estate investors to tilt their real estate portfolios towards industrial and logistics assets. At a minimum investors should note the "efficiency premium" that the sector offers when compared with other sectors (particularly the office sector) and asset classes[24]. This point should be of interest to asset allocators working in institutions such as private banks, family offices and sovereign wealth funds; it may also suit insurance companies preparing for the arrival of Solvency II.

Overall, we recommend that institutional investors should consider:

- Substantial exposure to industrial and logistics within income-oriented portfolios
- Core element of industrial and logistics to generate inflation-related returns
- Use of industrial and logistics to complement bonds in liability-matching
- Focus on fundamental characteristics of sectors for improved efficiency

This is, of course, not the final word on the subject and we hope that this analysis will prompt further exploration of the role of industrial and logistics within institutional portfolios. It does, however, demonstrate that the industrial and logistics sector displays performance features that should appeal across a broad range of investor types.

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FOOTNOTES

1. See for example Morrell et al (2004) "An Exploration of Property's Liability-Matching Qualities"

2. Source: IPD

3. A figure influenced by capital value falls in 2008 and 2009.

4. We used IPD data for the following markets: Australia; Austria; Belgium; Canada; Czech Republic; Denmark; Finland; France; Germany; Ireland; Italy; Japan; Korea; Netherlands; New Zealand; Norway; Poland; Portugal; South Africa; Spain; Sweden; Switzerland; UK; US. We also analysed IPD regional indices for the Eurozone, All Europe and Global.

5. Note that "real assets" are used by some investors to denote assets with inflation-related returns but by others to mean tangible assets.

6. Hamelink, F., MacGregor, B., Nanthakumaran, N. and Orr, A. (2002) A comparison of UK equity and property duration. Journal of Property Research, 19 (1). pp. 61-80. ISSN 0959-9916. See also Van der Spek, M. and Hoorenman, C. Duration Perspective of Real Estate Funds, Europe Real Estate Yearbook 2007

7. Sortino ratio is another possibility. It is similar to the Sharpe ratio, except it uses downside deviation for the denominator instead of standard deviation, the use of which does not discriminate between upward and downward volatility.

8. Paris, Berlin, Frankfurt, Hamburg, Munich, Milan, Rome, Amsterdam, Rotterdam, Barcelona, Madrid, Birmingham, London, Manchester

9. Bearing in mind the key differences between real estate and other mainstream asset classes, including volatility of unlisted real estate is smoothed due to the appraisal process, in contrast to listed equities and bonds whose volatility will reflect daily trading patterns; transaction costs for real estate are generally higher; real estate indices are less complete and have a shorter history.

10. Using ten years of IPD data from 2001 to end 2010. This is the longest time period available for such a wide selection of markets.

11. NCREIF index rather than IPD US

12. See Private Commercial Real Estate Equity Returns and Inflation by Haibo Huang and Susan Hudson-Wilson, Journal of Portfolio Management 2007; Property and Inflation: The Hedging Characteristics of U.K. Commercial Property, 1967-1994 by Barber et al

13. Sources: BulWienGesa (Germany) for 1996-2010; Eurostat.

14. Property and Inflation. IPF report November 2010

15. A Different Take On Inflation Hedging From Property. Legal & General Property 2010

16. Inflation-linked bonds, if available, are clearly superior

17. For example, is the pattern of inflation high and persistent or otherwise; expected or unexpected; driven by demand or costs

18. For fully diversified and well-managed core portfolios

19. IPD Europe Index total returns 2001 to 2010

20. BulWienGesa (Germany) for 1996-2010; CBRE prime yield data (average of German markets covered)

21. Using ten years of IPD data from 2001 to end 2010. This is the longest time period available for such a wide selection of markets.

22. BulWienGesa index from 1995 to end 2010. This is the longest time period available for this market.

23. Sources: IPD Multi National Indices 2001 - 2010 inclusive; IPD Solvency II review 2011; Credit Suisse Global Investment Yearbook 2011

24. Please note caveats in point 9. about transaction costs in this regard

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