LISTED AND PRIVATE REAL ESTATE: PUTTING THE PIECES BACK TOGETHER

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A Study of the Drivers of European Listed Real Estate Performance in Association with the European Public Real Estate Association

Bert Teuben, Ian Cullen

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EXECUTIVE SUMMARY

A property owned by a listed real estate company, such as a Real Estate Investment Trust (REIT) or a real estate management and development company, should produce returns close to those of an equivalent asset that is privately owned. In reality, however, the results differ, especially when looking at short-term performance. The challenge for real estate investors is to be able to use both listed and direct real estate in their real estate allocations and understand the drivers of performance for each. Specifically, how do equity market factors, financial structures and individual properties contribute to performance?

Previous studies generally relied on using standard headline index series, which permitted only imprecise analysis due to their varying constituents. This study similarly uses closely corresponding market index series, but also compares precisely matched samples from 19 European listed real estate companies with long term returns at the asset level. This detailed dataset enables us to make an apples-to-apples comparison within and across asset, vehicle and security levels, using custom indexes or composites.

This more granular analysis shows that asset, vehicle and security levels are not as different as they might superficially appear, suggesting that asset owners may be able to combine the three in their total real estate portfolios, provided they conduct the proper performance reconciliation and attribution analyses. We found:

1 **High correlations existed across levels.** Among the selected 19 companies, there were strong correlations across asset, vehicle and security levels, particularly over longer periods, suggesting that listed real estate companies may be used as components of overall real estate portfolio strategies.

2 **Assets drove performance.** When aggregated to a single composite, there remained a close fit between the security- and asset-level results, particularly for Europe ex U.K. companies. Asset-level returns clearly were the main driver of overall equity performance in the long term. However, vehicle/financial factors also influenced returns, especially in phases of weak or strong overall equity returns. Over short time periods, stock market sentiment had a hefty impact on return volatility.

3 **Index returns aligned.** At the highest level of aggregation, asset, vehicle and equity headline index performance trends all appeared broadly synchronised over the longer term, at least to the extent that their overall cyclical patterns largely matched one another. The relationship was much stronger for U.K. companies than for their continental European counterparts.

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INTRODUCTION

Listed real estate performance is clearly a combination of both equity and direct real estate characteristics. Although direct real estate appears in the short term to exhibit stable performance track records that reflect smooth valuation sequences, perhaps giving the impression of bond-like behaviour, analysis using MSCI's real estate dataset and new analytic tools shows that this impression can be misleading. The medium and long-run behaviour of the asset class was demonstrably more cyclical and growth-sensitive [Shepard, 2015].

A central question remains: Are these cyclical patterns essentially the same as those described by the stock market performance of the higher liquidity companies which hold securitised real estate?
A favoured approach to comparing performance between listed and private assets has focused on long versus short time horizons [Hoesli et al., 2012]. In the short term, share prices of listed companies have been more volatile as they are affected by the ups and downs of the stock market, while underlying real estate values are appraised infrequently and thus experience lower volatility. Longer term, Hoesli found that "securitized and direct real estate markets are tightly linked."

The typically low correlations between listed and direct real estate over short time horizons have posed a challenge for institutional investors seeking to understand the sources of risk in their real estate portfolios.

To correct for this, MSCI has complemented conventional valuation-based direct real estate indexes with transaction-linked indicators that are based on the movements of sale prices away from the preceding appraisals, which provide only estimates of market value.

The transaction-linked indicators, which provide a richer picture of the true volatility of an illiquid asset class, have been applied at the pan-European level, for six individual European countries and the U.S. [Devaney et al., 2013], with more recent efforts focusing also on Asia Pacific [Reid, 2014].

Recently, MSCI explored simulating the performance of direct real estate by seeking to reduce volatility and deleverage the listed index [Clacy-Jones et al., 2015]. This methodology is now applied in the MSCI USA IMI Liquid Real Estate Index and the MSCI UK IMI Liquid Real Estate Index. Both indexes have shown very high levels of covariance with their corresponding asset level measures over the period June 2001 through June 2014.

These advances in research and operations enable us to seek answers to the following questions:

- Can long-term investors use listed companies as integral parts of their global real estate strategies?
- What drives long-term returns for real estate securities? Is it asset performance or stock market factors?
- At precisely which levels (asset, vehicle or security), over which periods and by how much do patterns of performance synchronisation break down?

To respond to these questions, however, we must examine each of the three operational levels of investment management and activity: the capital and revenue features of the underlying investment asset; the financial structure of the vehicle in which that asset is held; and the pricing processes of the securities market in which the vehicle is priced and traded.

THE THREE LEVELS OF PERFORMANCE

Asset level

Unlevered returns on individual assets are derived from the capital value growth of those assets and the net income generated from their occupiers and/or other business revenues. Purchases and sales of existing assets and the development of new assets likewise contribute to asset-level performance. An aggregated asset-level return is calculated using the gross asset value (GAV) of the real estate portfolio.

Vehicle level

The layer of return above that of the asset incorporates the impact of active management at the financial level. Vehicle-level returns account for the impacts of leverage, cash balances, other investments and any associated management overheads, costs and fees. The vehicle-level return is calculated using the net asset value (NAV) of the vehicle.

Security level

The security-level performance is based on the share price movement and the dividend of the company in which the property holding vehicle is held, and is calculated using the most recently transacted share prices.

We show the key differences between each of these three levels in Exhibit 1. Teuben et al. (2016) cited these differences as the ones that are most likely to have an impact on the short and/or longer term performance discrepancies between each of these levels.

In the remainder of this paper, we will investigate the scale of these discrepancies and, where possible, their primary drivers.

EXHIBIT 1

The Three Performance Levels of Real Estate Companies

DIRECT REAL ESTATE PORTFOLIO

Allocation strategy and asset management

FUND/VEHICLE

Leverage, fund level costs and other assets

SECURITY

Stock market sentiment

COMPARING THREE LEVELS OF MARKET INDEX RETURNS

In this section, we examine the performance of standard headline indexes across security, vehicle and asset levels. We have focused exclusively upon the European market, making specific comparisons for the U.K. and developed Europe excluding the U.K. We have selected the MSCI Core Real Estate Indexes for detailing performance at security level, IPD fund indexes at vehicle level and IPD valuation-based indexes and transaction-linked indicators at asset level. For more detail on these indexes, please see the Appendix.

SECURITY AND VEHICLE LEVEL PERFORMANCE

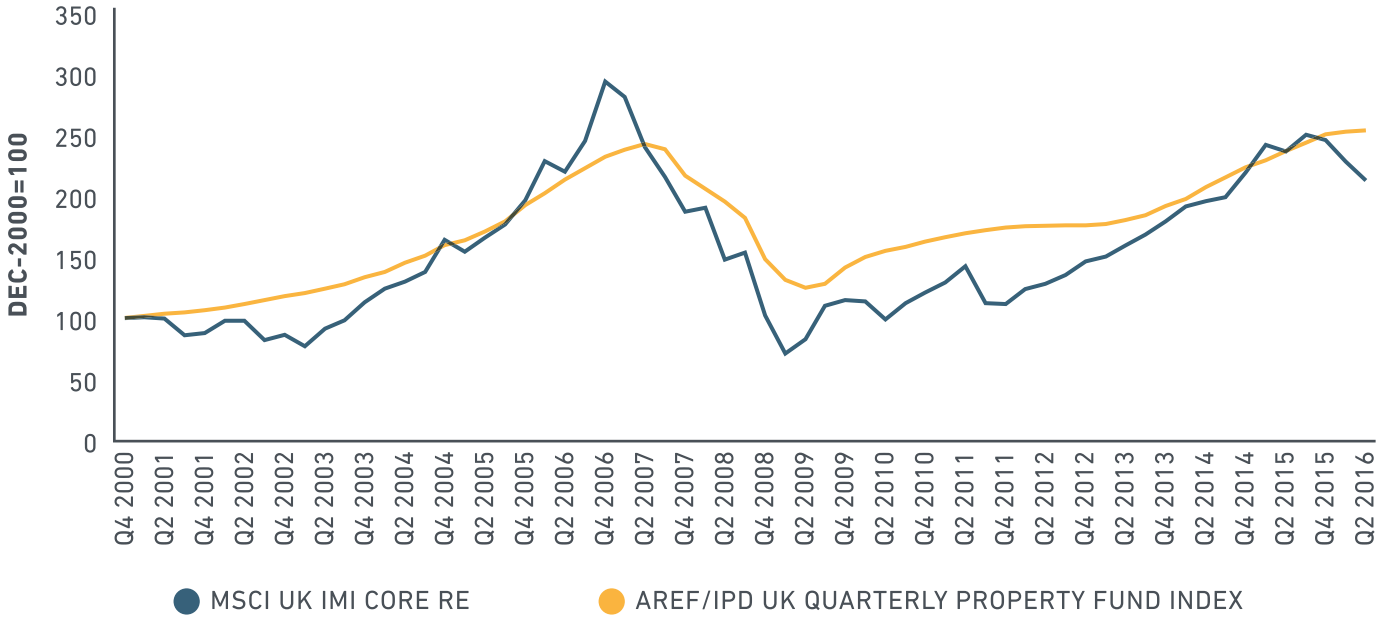
Security- and fund-level performance should in principle track one another fairly closely for real estate investment companies.

The primary difference between the two is that the performance of listed companies is based upon values transacted on an exchange, while the performance of unlisted vehicles is restricted to the net asset value track record of the underlying fund. In an efficient market, these measures should be very similar, but the prices of securities are impacted by stock market sentiment and may also quickly reflect changes in forecast returns. In the U.K., we see that security-level performance has been consistently more volatile than that of the broadly matching index for unlisted real estate funds over the past 15 years. Also, changes in security prices led those of unlisted funds at market turning points, as valuations for private real estate tended to lag the public market.

Clearly, there may be factors other than swings in stock market sentiment that explain the differences between the two series.

EXHIBIT 2

Listed Real Estate vs Fund Index Performance in the UK (2001-2016 Q2)



Source: MSCI

For example, a single-country private fund usually has a limited geographic mandate for its portfolio, but there may be listed companies that have significant non-domestic exposure. Other, often systematic, differences between asset and fund strategies may exist, such as in sector allocations, leverage, building and tenant quality and exposure to development activity. Leverage ratios may differ significantly: the debt ratio within the AREF/IPD UK Property fund index as of year-end 2016 was well below the 5% mark, while for the listed market the equivalent this figure was over 40%. Listed companies and unlisted vehicles often have differences in the amounts of cash they must hold.

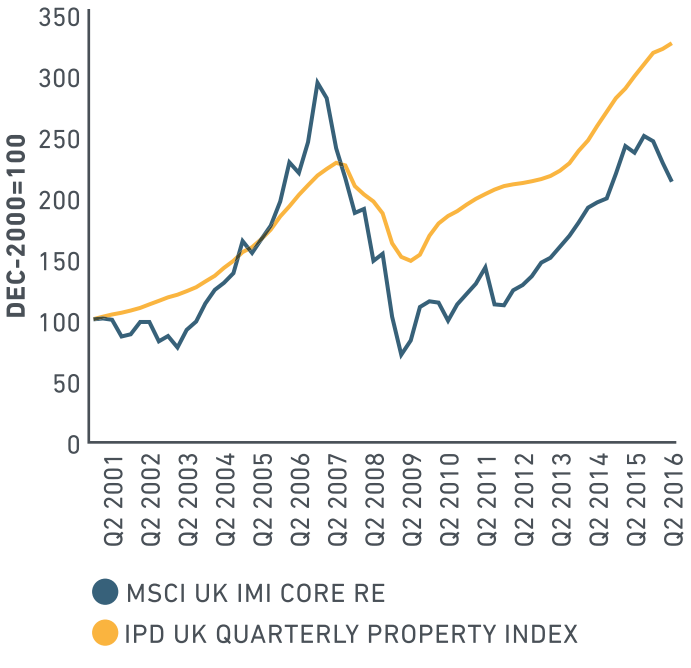
SECURITY AND ASSET LEVEL PERFORMANCE

The differences in returns between security-level indexes (represented by the MSCI UK IMI Core Real Estate Index) and asset-level indexes (proxied by the IPD UK Quarterly Property Index, detailed in Exhibit 3) were considerably greater.

Not only did these differences reflect all of the distinctions between security- and vehicle-level indexes noted above, but several other issues further distanced the two performance measures.

EXHIBIT 3

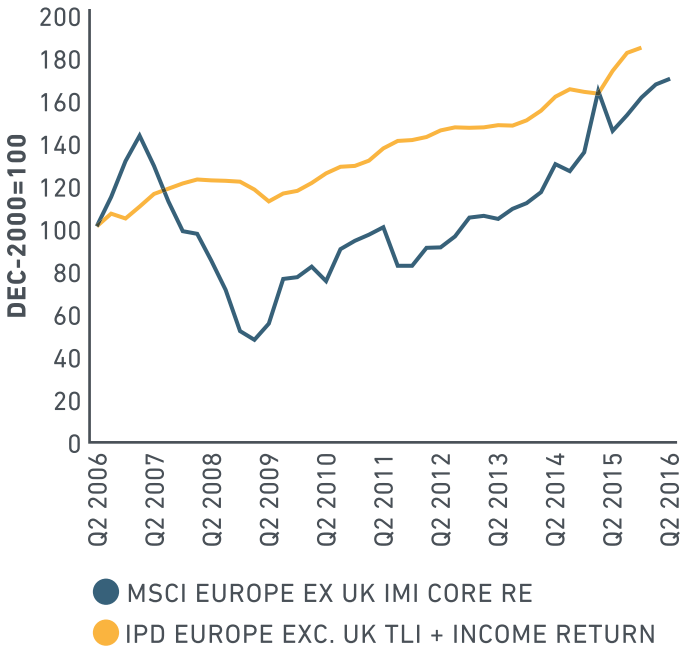
Listed Real Estate vs Asset Index Performance in the UK (2001-2016 Q2)



Source: MSCI

EXHIBIT 4

Listed Real Estate vs Asset Index Performance in Europe ex UK (2006 Q2-2016 Q2)



Source: MSCI

Three key differences between the index specifications affected the results:

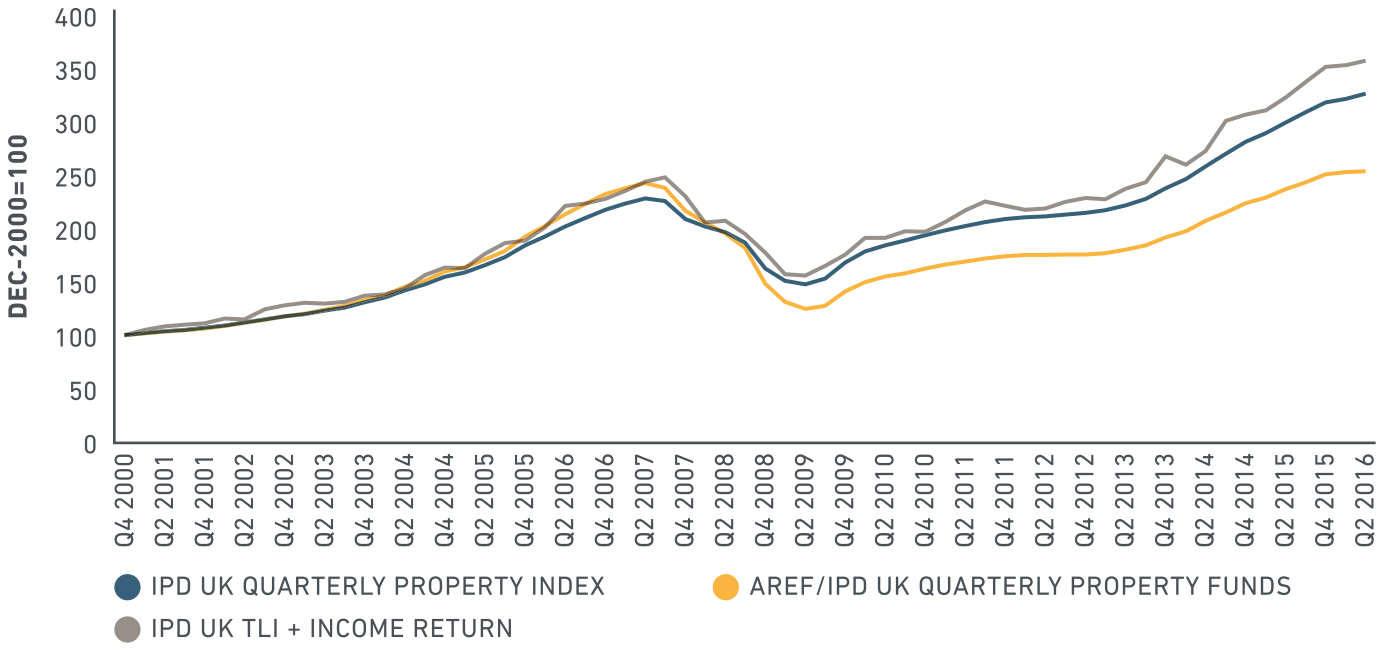
1. Most importantly, asset-level indexes are intrinsically unleveraged and exclude cash.
2. Asset-level indexes are not affected by the range of indirect investments that may potentially be held in both unlisted and listed funds.
3. Asset-level indexes exclude the costs of asset and fund management, which are included in the fees for unlisted funds and within the general and administrative costs for listed companies. These expenses normally average around 1% of the GAV; their long-term impact on the performance track record can be considerable.

Exhibit 4 shows broadly equivalent performance comparisons for Europe excluding the U.K., but in this case substitutes the transaction-linked indicator for the standard valuation-based measure of performance. For most mainland European markets (unlike the U.K.), valuation-based indexes describe a much more heavily smoothed growth path and are thus much more difficult to compare with share price performance.

Even with this adjustment, the cyclical shape of the real estate securities market only roughly approximated that of the underlying direct real estate market. However, the securities market still led asset-level measures, with noticeably higher volatility. Widely differing asset allocations across countries and the typically lower frequency of asset valuations in mainland Europe may have been partially responsible for this looser relationship for continental Europe.

EXHIBIT 5

Unlisted Fund Real Estate vs Direct Property Index Performance in the UK (2001-2016 Q2)



Source: MSCI

VEHICLE AND ASSET LEVEL PERFORMANCE

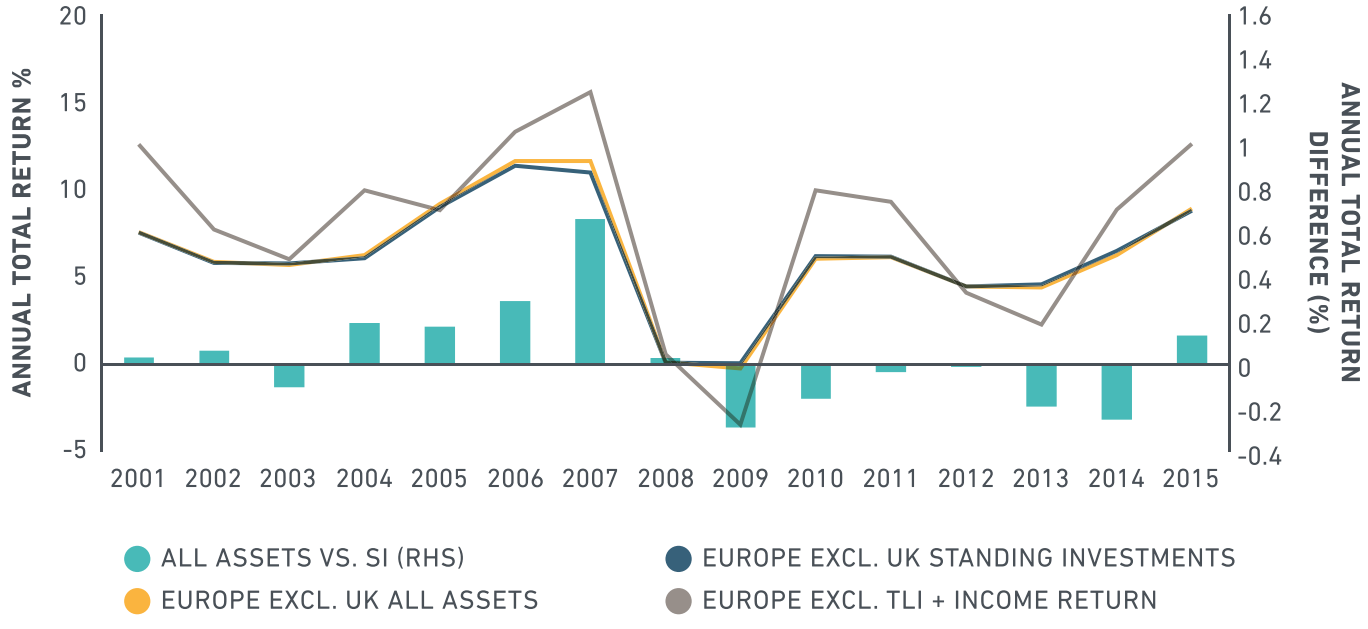
We compare performance at the vehicle and asset level for the U.K. only in Exhibit 5, using both valuation-based and transaction-linked measures at the asset level. The patterns are similar, although fund-level performance (orange line) fell short of both asset-level series on a cumulative basis. This difference can be largely explained by the direct property indexes, whether valuation or transaction based, being unleveraged, reporting neither cash nor indirect investments, and not deducting fees for asset or fund management.

DIFFERENT ASSET LEVEL INDEXES

Finally, Exhibit 6 shows the differences between the valuation- and transaction-linked indexes for Europe ex U.K., purely at the asset level. It confirms that the transaction-linked index tracked a noticeably more volatile path, although the underlying trends were broadly similar. Within the valuation-based index family, there was also a small difference between the all asset index (aimed at reflecting actual investor returns) and the standing investment only measure (designed to reflect underlying market trends), although the difference in each year was less than 100 bps. The all asset level index includes the impact of transactions and developments on bottom line investor returns.

EXHIBIT 6

Direct Property Returns, Standing Investments vs All Assets for Europe ex UK (2001-2015*)



* At the time of writing, Pan-European asset level analyses were confined to datasets running to end-2015

Source: MSCI

INDEX CORRELATIONS RISE AS PERIODS LENGTHENED

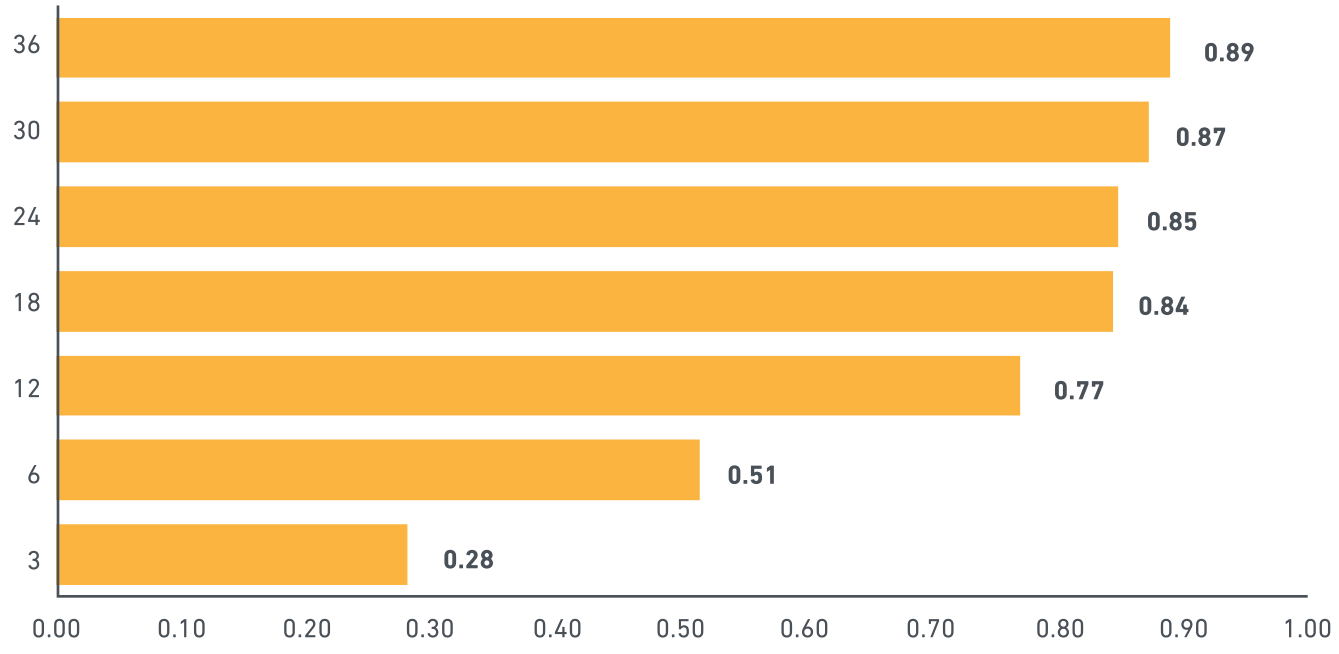
Clearly, the relationship between listed and direct real estate performance is hard to unravel if one looks solely at broad index comparisons. However, a relatively clear bottom line pattern does emerge — one in which correlations climbed from a fairly low level over a three-month performance period to just over the 0.8 mark when the measurement horizon stretched to 18 months and beyond. At this point, the underlying (and slower moving) asset-level fundamentals appear to take control.

There remain substantial differences between the main index level series, each of which contributes something to the dilution of covariance, even over the medium term. For this muddying of the headline statistical waters, discrepancies in geographic and sector composition, operational differences in cash and debt levels, policy divergences on including or excluding indirect investments, and the costs of asset and fund management are no doubt all partially to blame.

In the next section we attempt to explain some of these differences by focusing on a single set of matched companies.

EXHIBIT 7

Asset vs Equity Level Index Correlations Over Periods from 3-36 Months*



* MSCI Europe ex UK IMI Core Equity RE vs IPD Europe ex UK Direct RE (quarterly returns)

Source: MSCI

DIGGING DEEPER: MATCHED SAMPLE COMPARISONS

COMPOSITION OF MATCHED SAMPLES

The matched sample analysis started with the identification of a subset of listed real estate companies, for each of which we could generate medium-term performance series (10 year minimum), at all three targeted measurement levels - asset, fund and security. Given these stringent conditions, this subset comprised only 19 European listed companies (11 from the U.K. and eight from Europe ex U.K.). Based exclusively upon this sample, custom indexes or composites were created at asset, fund and security levels.

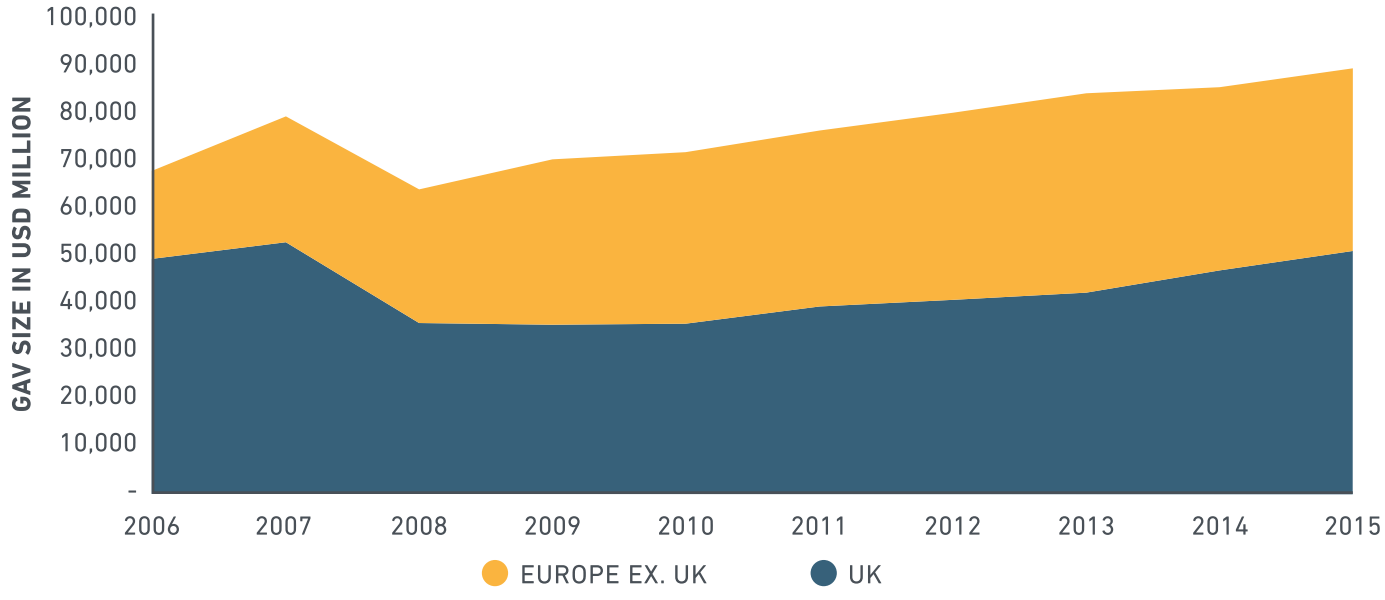
For the creation of the vehicle-level indexes, we used data on each company's debt level, other investments and general and administrative expenses, drawn from their annual reports.

For stock market sentiment indicators, we used European Public Real Estate Association information on NAV premiums and discounts.

To ensure a robustly based time series analysis, we selected only those companies for which we had: 1) at least 10 years of performance history; 2) detailed information at all three of the above measurement levels; and 3) synchronised annual reporting based on financial years ending in December. Given the small size and U.K.'s dominance of the resulting sample, there was a clear bias in favour of the U.K. in matched sample composites when compared with headline indexes. Exhibit 8 shows the pattern of GAV growth within the sample over time, at least half of which was located in the U.K. sub-sample at all dates. The Europe ex U.K. group of companies held assets in a number of countries in developed Europe.

EXHIBIT 8

Breakdown of Matched Samples by Geography (2006-2015)



Source: MSCI

ASSET LEVEL PERFORMANCE

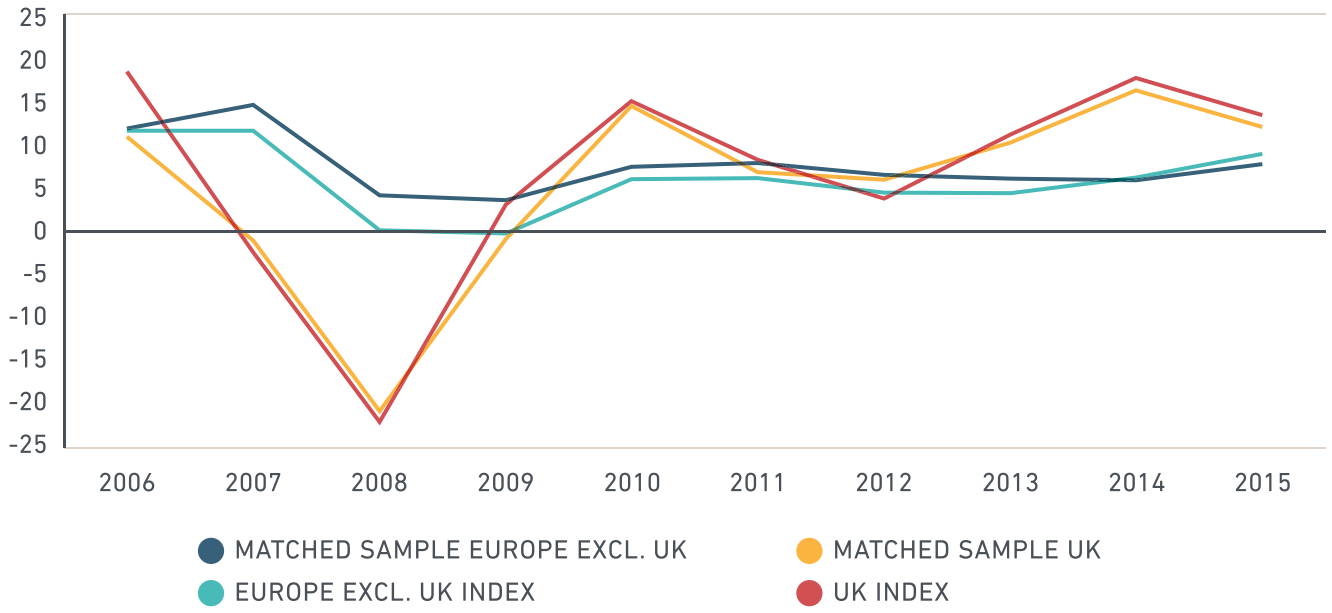
At the asset level, the matched sample performed closely in line with market indexes, though the U.K. subset showed a greater degree of similarity than did the Europe ex U.K. subset.

For measuring asset-level performance, the small size of the sample required that we use valuation-based property indexes, albeit at the all-assets level, instead of transaction-linked indicators. Transaction-linked indexes can only be constructed if a large and continuous stream of trades exists and is consistently available.

Nonetheless, by using valuation-based indexes at the all-asset level, the impact of transaction and development activity can be incorporated. As we see in Exhibit 9, the matched sample for the U.K. shows greater similarity with the index than does the Europe ex U.K. sample — probably because the latter is more affected by the varying growth paths of a range of continental European real estate markets. In nine out of the 20 observations, the deviation between the matched sample and the standard indexes was over 150 bps.

EXHIBIT 9

Matched Samples in the UK and Europe ex UK vs IPD Annual Property Indexes



Source: MSCI

VEHICLE LEVEL PERFORMANCE

At the vehicle/fund level we saw the expected modestly higher deviations from index performance, although less strongly for the U.K.-matched subset.

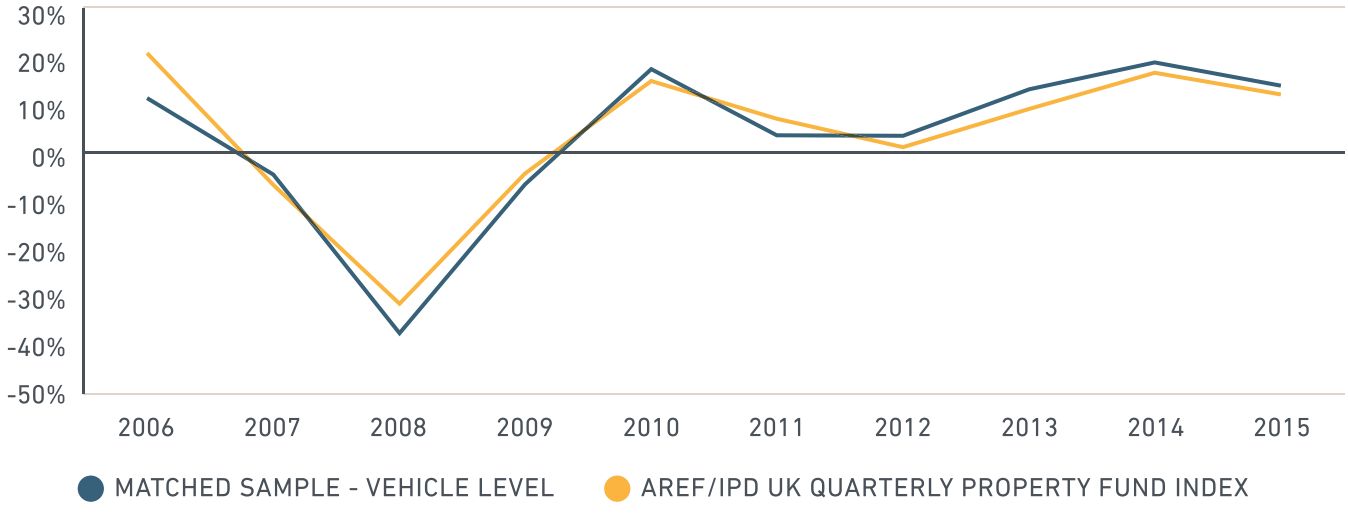
For vehicle/fund level performance comparisons, we added company specific information on non-real estate assets – cash, debt and general and administrative expenses – to the baseline real asset records. This was drawn from the SNL Financial database, which is in turn based on each company's annual published accounts. The IPD/AREF UK Quarterly fund index follows a broadly similar approach, but for unlisted pooled real estate funds. Comparing the U.K. matched sample of listed companies at the vehicle level with this fund index (Exhibit 10), we see that, while they tracked each other very closely, the differences were larger than those at the direct asset level.

This reflected the extra complexity introduced by adding financial overlay variables into the mix. Although the 10-year average annual return differed by less than 100 bps, the average annual absolute difference was 300 bps.

Exhibit 11 provides greater detail on how various drivers affected the difference between direct real estate and vehicle level results for the matched U.K. aggregate. Not surprisingly, fees affected the differences in all years, and over 10 years had a negative impact of roughly one percentage point annually on the total return. Non-real estate assets (including indirect real estate investments and cash) also had a negative impact in most years – reflecting the consistently low interest rate environment. As expected, debt had a consistently positive impact in growth years and a negative one in years of falling values.

EXHIBIT 10

Matched UK Sample (Vehicle Level) vs UK IPD/AREF Quarterly Fund Index (local currency)



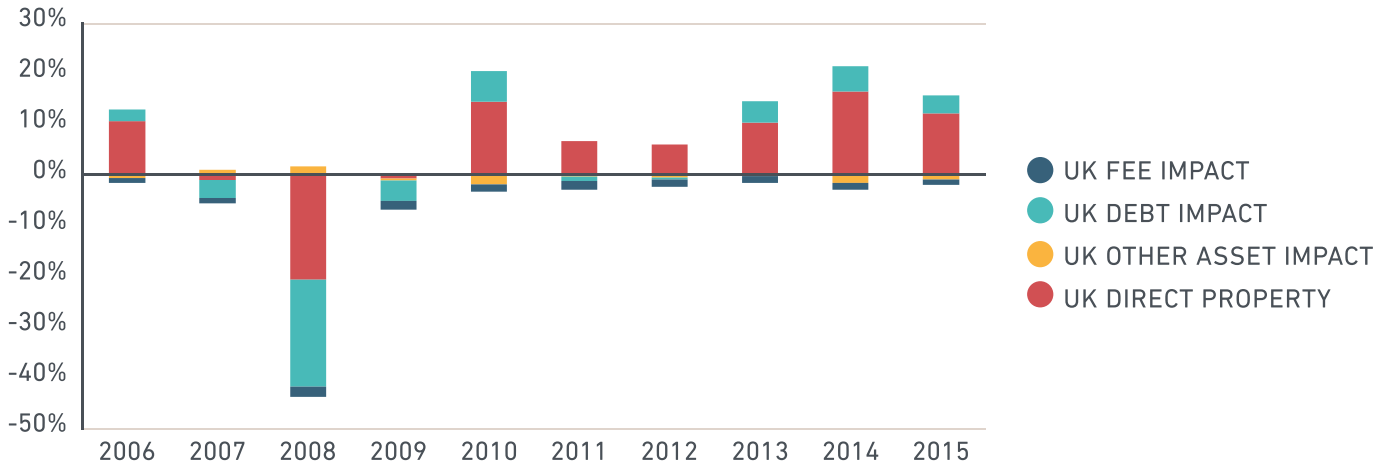
Source: MSCI, SNL

By the end of this period, the level of debt in the matched sample still averaged roughly 45% and had not changed significantly over the previous 10 years. In contrast, the equivalent ratio for the AREF/IPD UK Property Fund Index had dropped from over 10% to less than 2%, and across continental Europe unlisted fund debt levels fell from around 50% to just above 25%.

This partly explains the stronger post-crisis recovery of the matched sample of listed companies, as their retained high gearing levels kicked in to boost capital growth.

EXHIBIT 11

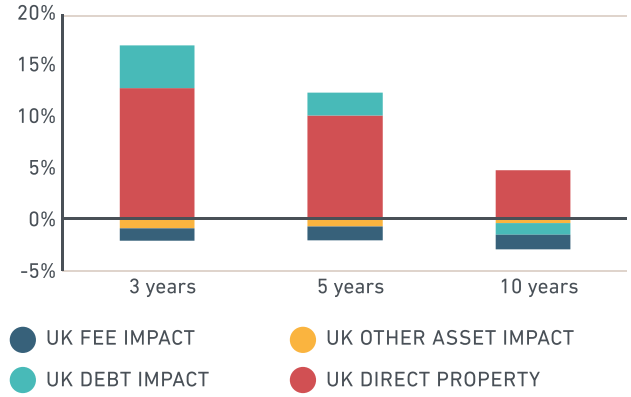
Explaining Differences Between Asset and Vehicle Level Performance for the UK Matched Sample (2006-2015)



Source: MSCI, SNL

EXHIBIT 12

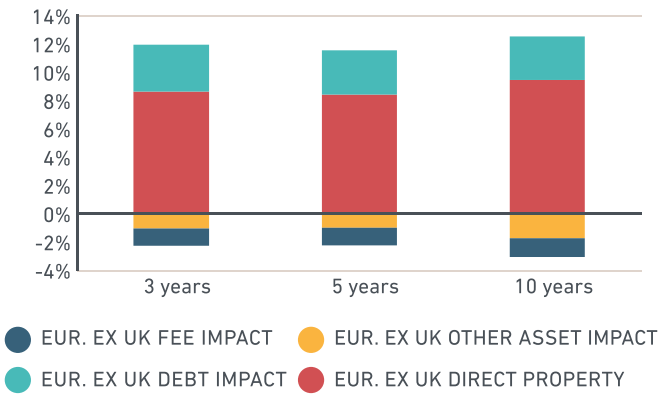
Asset to Fund Vehicle Level Impact in UK (2006-2015)



Source: MSCI, SNL

EXHIBIT 13

Asset to Fund Vehicle Level Impact in Europe ex UK (2006-2015)



Source: MSCI, SNL

Year-on-year, the impact of debt was considerable (particularly in more extreme market circumstances), but its influence over the longer term has been much less, as we can see in Exhibits 12 and 13. The underlying assets consistently were the main longer term drivers of returns at vehicle level, over 3-, 6- and 10-year periods, while general and administrative expenses (similar to the fees for unlisted real estate funds) had a predictably negative impact on returns. Other assets, mostly cash balances but occasionally indirect interests in real estate, also had negative impacts.

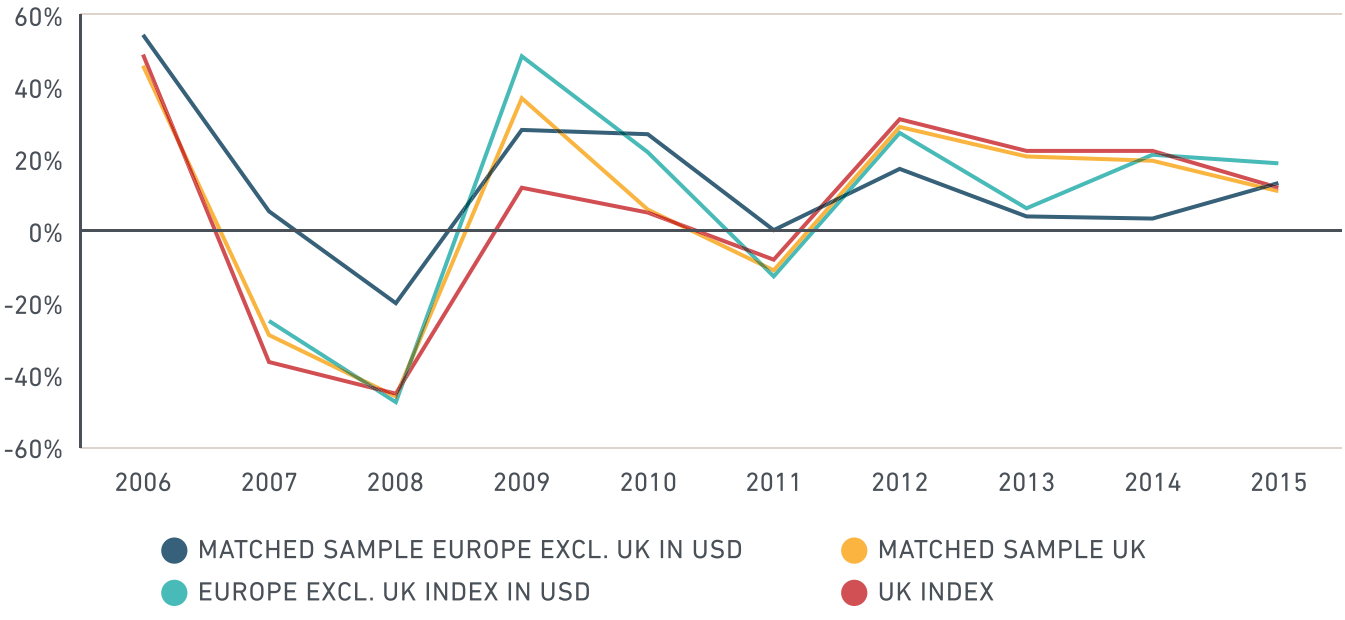
SECURITY LEVEL PERFORMANCE

At the security level, stock market sentiment has had a substantial effect over short periods (up to one year), but much less of an effect over longer periods.

The matched sample security-level custom indexes show results based on the full capitalisation of each of the listed companies, and are not adjusted for free float. Both for the U.K. and mainland Europe, we observe significant discrepancies between the matched samples and the corresponding overall indexes, as shown in Exhibit 14. For the U.K., the overall trends for the matched sample and the standard indexes were broadly similar, with a difference of over 10% occurring only in 2009. However, for the Europe ex U.K. subset of companies, there were many years when the difference was well over 10%.

EXHIBIT 14

Security Level Performance of Matched Sample vs MSCI Core Real Estate European ex UK Index (2006-2015)



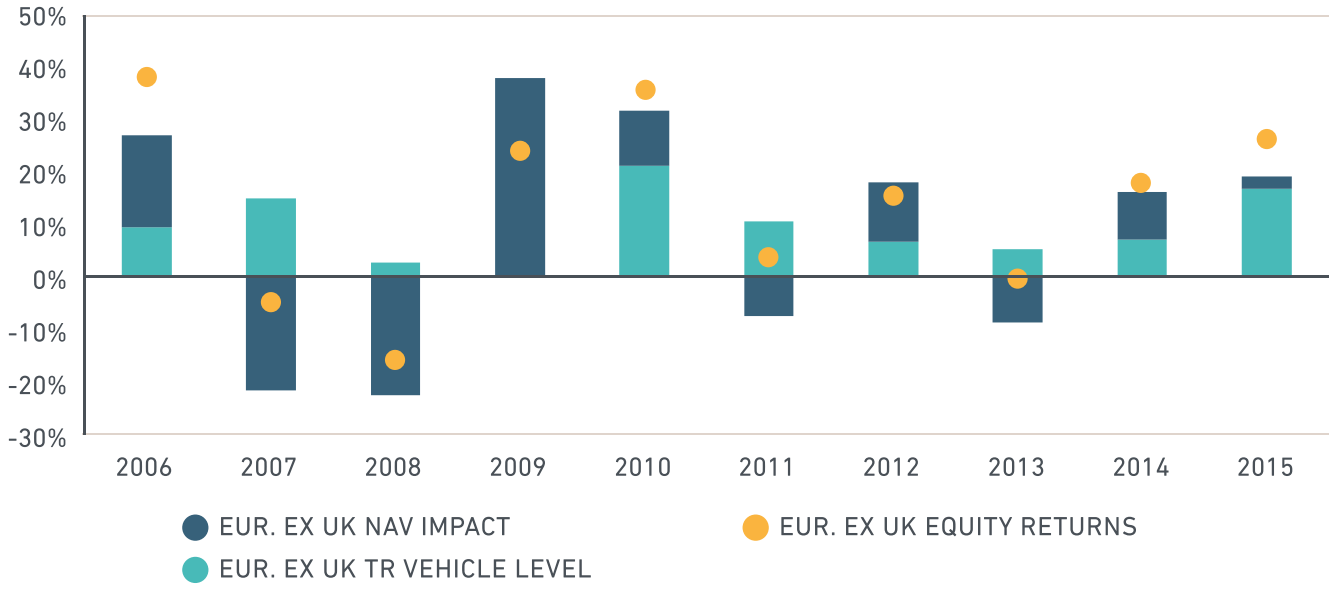
Source: MSCI

Exhibit 15 decomposes the differences between vehicle- and security-level performance using the 19 company matched samples. Stock market sentiment was clearly a key factor in explaining some of the bigger differences between the two custom indexes. We have developed an indicator for real estate stock market sentiment by using NAV premium/discount information from EPRA at the country level. This indicator shows that, over one-year periods, large proportions of at least some of the bigger differences can be explained by the EPRA premium/discount measure. However, over the full 10-year period, the impact of this indicator on medium-term annualised return was small. Furthermore, there was a clear correlation between this premium/discount impact score and the level of overall stock market performance.

These findings are confirmed by the comparisons of U.K. and mainland European returns over 3-, 5- and 10-year periods shown in Exhibits 16 and 17. In each case, most of the discrepancies in return can be explained by performance at the vehicle level, without recourse to the sentiment indicator. It is interesting to note, however, that in the more volatile U.K. market, the impact of oscillating stock market sentiment disappeared altogether over the 10-year period. In the small mainland European subset, stock market sentiment remained a minor but positive driver over all time periods.

EXHIBIT 15

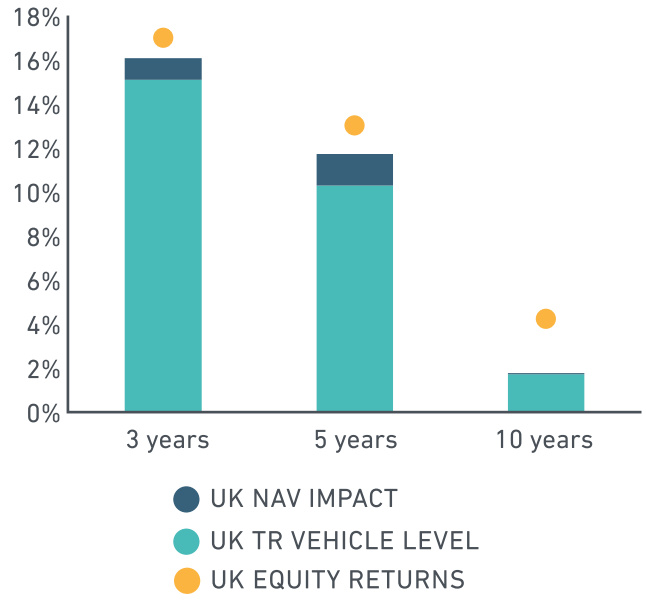
Vehicle and Security Level Performance Drivers for the UK Matched Sample (2006-2015)



Source: MSCI, SNL, EPRA

EXHIBIT 16

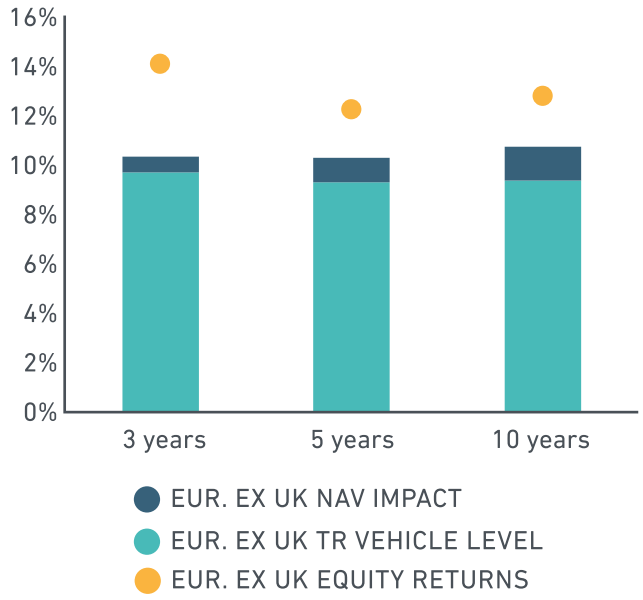
Vehicle to security level impact in UK (2006-2015)



Source: MSCI, SNL, EPRA

EXHIBIT 17

Vehicle to security level impact in Europe ex UK (2006-2015)



Source: MSCI, SNL, EPRA

While we have been able to explain most of the difference between asset and security level performance through stock market sentiment, there still remains a residual piece. Several factors may help explain this residual, including the timing of cash-flows during the year, new capital raising, missing items from balance sheets and income statements, and interactions due to a cross product.

ASSET MOVEMENTS EXPLAIN MOST OF EQUITY RETURNS

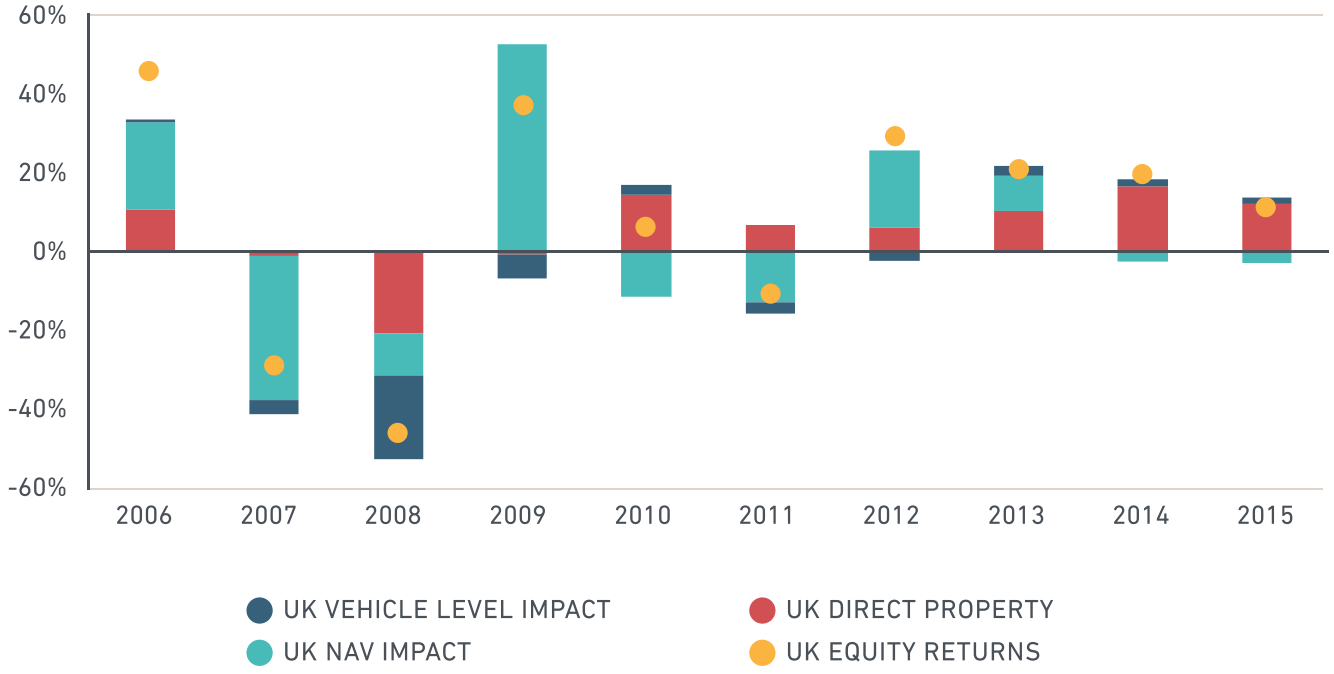
The combined year-on-year effects of the main drivers for the U.K. sample can be seen in Exhibit 18. The overall returns can be partly explained by the underlying return movements at asset level, while most of the drivers of the equity return differences in individual years can be explained by quantifiable stock market sentiment movements ("NAV premium/discount impacts"). An independent vehicle level impact was only seen to be significant during the phase of extreme oscillation (2007–2009).

Looking at 3-, 5- and 10-year periods for both the U.K. and mainland Europe, we see that the bulk of the equity performance can be explained by asset-level movements, which accounted for roughly 70% of overall real estate company stock performance in mainland Europe over five or more years, and an even higher proportion in the U.K.

The absence of even stronger matched sample relationships at this aggregate level may be at least partly explained by investigating possible relationships at the level of the 19 individual listed companies which comprise the sample. We do this in the next section.

EXHIBIT 18

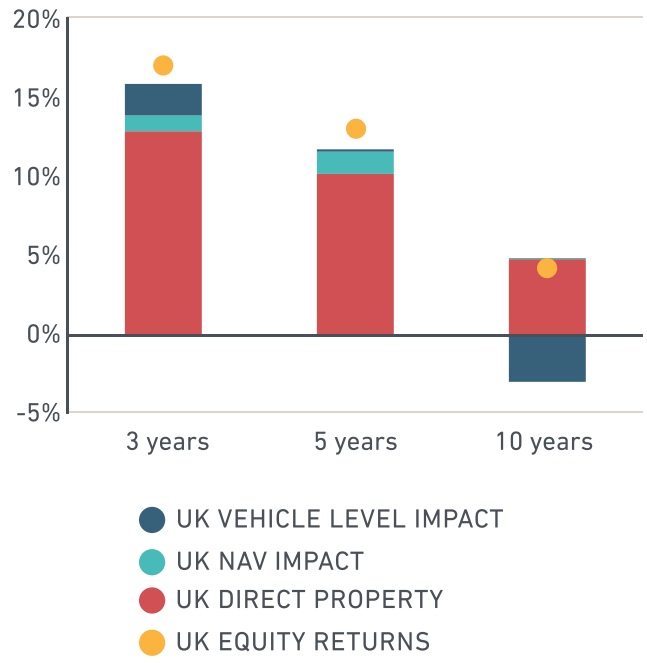
Vehicle and Equity Level Performance Drivers for the UK Matched Sample (2006-15)



Source: MSCI, SNL, EPRA

EXHIBIT 19

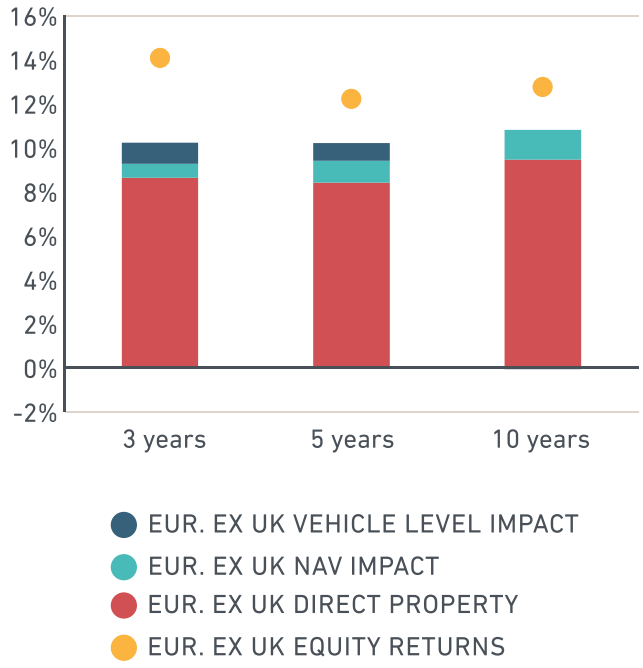
Asset to Security Level Impact in UK (2006-2015)



Source: MSCI, SNL, EPRA

EXHIBIT 20

Asset to Security Level Impact in Europe ex UK (2006-2015)



Source: MSCI, SNL, EPRA

COMPANY LEVEL COMPARISONS: A TOUGH TEST

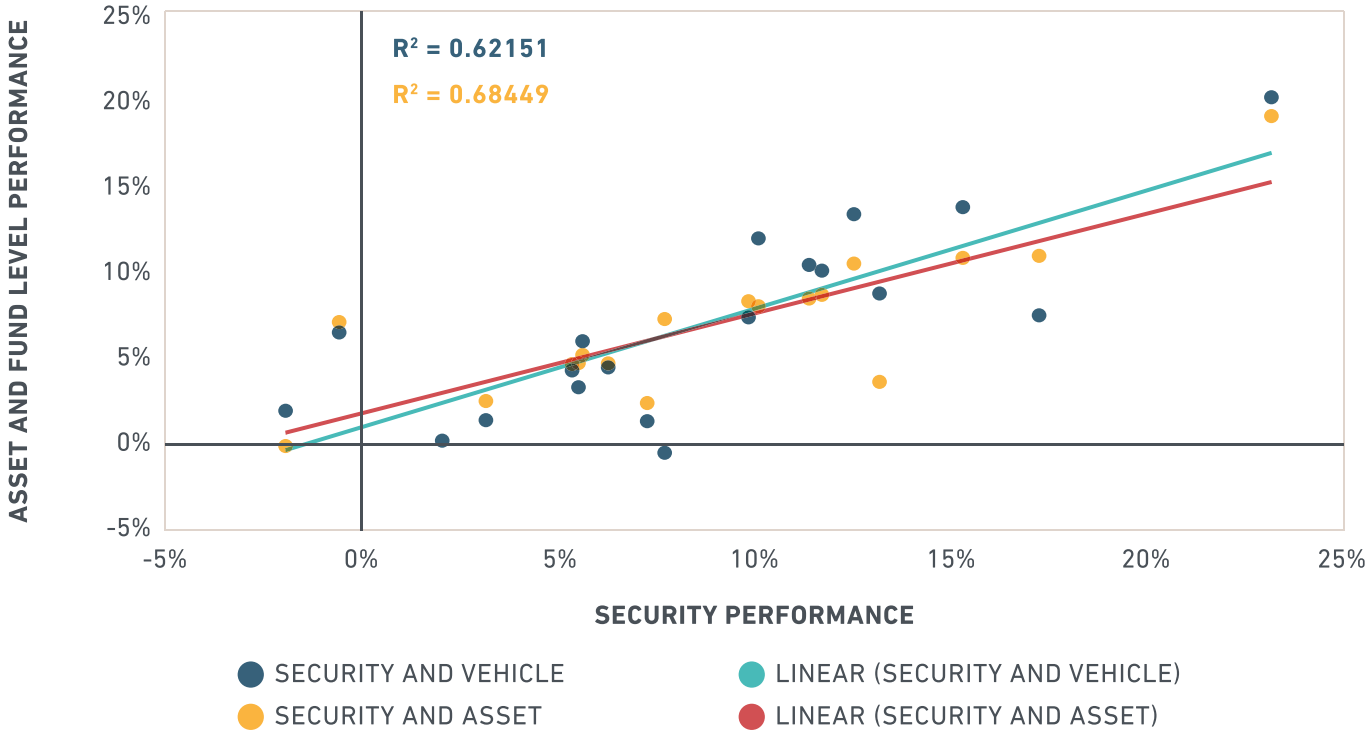
In addition to the aggregated matched-sample comparisons reported above, selected analyses have also been carried out at individual company level. This added level of granularity identifies distorting effects of extreme individual company results. It also imposes a tough test of the consistency of all observed relationships.

The method adopted for these analyses is similar to that deployed at the composite level. In Exhibit 21, results for the individual companies are shown at the three key measurement levels. The performance of each of the companies, even for medium-term five-year averages (2011-2016), still showed a wide spread.

Despite the size of these spreads, there remained a strong relationship between the different levels of performance calculated. Almost 70% of individual company variation in security-level performance could be explained by patterns of performance at asset level. And the variance in vehicle-level performance, which we previously showed to be closely driven by asset level results, explained an only slightly lower (62%) fraction of security level-performance. In these final tests, we are simply determining the extent to which individual company scores at asset, vehicle and security levels show clear patterns of covariance.

EXHIBIT 21

Five-year Annualised Returns (2011-2015) at Asset, Vehicle and Security Levels



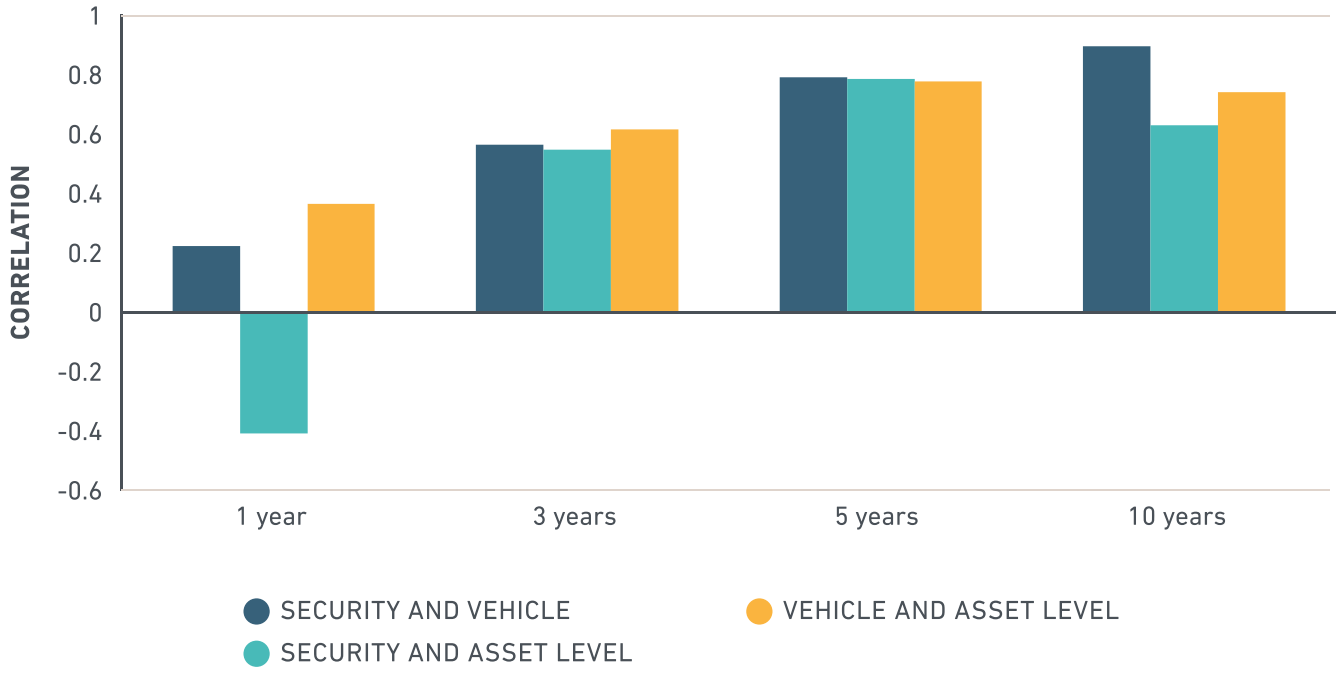
Source: MSCI, SNL, EPRA. Matched sample datasets.

The earlier matched index-level comparisons (Section 3) concluded with a closer look at the ways in which headline measure correlations varied as the performance time scale was stretched. Exhibit 22 repeats that test at the much more granular individual company level. Despite the radical difference in scale, a very similar pattern emerges. Over the shortest period available for inter-company comparisons – 12 months – the equity/asset-level performance correlation was actually negative. So, those companies benefiting from the most positive short-term stock market sentiment reported weaker underlying asset returns over these periods – possibly due to the lead/lag effects noted earlier.

When the measurement horizons are stretched to three years and beyond, the relationship flips into positive correlation territory. Over all of these timescales, a positive equity/asset performance relationship (broadly within the 0.6 to 0.8 correlation window) was consistently revealed, indicating that the "noise" of stock market sentiment oscillations was fully diluted, even at the level of the individual firm, over periods of three or more years.

EXHIBIT 22

Company Level Correlations at Asset, Vehicle and Security Levels (2006-2015)



Source: MSCI, SNL, EPRA. Matched sample datasets.

CONCLUSION

Institutional investors considering the use of both listed real estate companies and directly held assets in their real estate portfolios need to understand the performance drivers for each. But they also need to be confident that they have the right tools at their disposal to perform this analysis. In our study of 19 European listed real estate companies, each of which had a full 10-year multi-level performance track record, we showed how investors can analyze performance at asset, vehicle and security levels to support better allocation and selection decisions.

Our main findings were:

1. Company-by-company, our analyses showed strong correlations across asset, vehicle and security levels of measurement, particularly over 3- and 5-year periods, suggesting that long-term investors may be able to use listed real estate companies as components of their overall real estate portfolio strategies. No individual company exhibited wildly discrepant patterns of performance.

2. When aggregated to a single composite, the 19-company matched sample still produced a close fit between the security and asset level results. Underlying asset level returns clearly were the main performance driver over the longer term. Vehicle/financial factors were also important, especially in phases of weak or strong overall equity performance. In addition, over shorter (annual or quarterly) time periods, stock market sentiment had a hefty impact on return volatility.

3. At the highest level of aggregation, asset, vehicle and equity headline index performance trends were broadly synchronised over the longer term. This reaffirmed the findings of comparable earlier studies, most of which were restricted to similar published index data. However, in this exclusively European study, the relationship appeared much stronger for U.K. companies than for their continental European counterparts.

Investors still have difficult strategic and tactical choices to make. Portfolio liquidity inevitably comes with a pricetag. What this study has shown is that over shorter measurement periods — of up to around 18 months — the cost of increased liquidity has come in the form of additional volatility. Beyond this 18-month window, however, the research has revealed how the performance track records for listed real estate — at both company and market levels — converge ever more closely with those of corresponding directly held assets as the benchmark period approaches the 3- to 5-year mark.

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APPENDIX: DATA AND METHODOLOGY

SECURITY LEVEL PERFORMANCE

Real estate security-level performance is available from MSCI on a daily basis for all major markets in the world. Since August 2016, when real estate became the 11th sector within the Global Industry Classification Standard (GICS®), these indexes have become even more important as routes toward a fuller understanding of the relationship between real estate equity performance and that of the other sectors with which it competes for capital allocations. There are a series of different real estate indexes, each offering a distinct take on the equity performance of real estate markets:

- MSCI Real Estate sector indexes

  The Real Estate sector indexes span the full range of business activities pursued by listed real estate companies, from direct investment and management through to advice and consulting. Prior to the August 2016 reclassification, Mortgage REITs were also included in these indexes, but they have now been removed from the Real Estate sector, though they remain in the Financials sector (MSCI and S&P Dow Jones, Indices, 2015).

- MSCI Equity REITs vs Real Estate Management and Development indexes

  The Real Estate sector is broken down into two distinct sub-industries: (1) Equity Real Estate Investment Trusts (REITs) and (2) Real Estate Management and Development businesses. The formal difference between the two stems from the special tax status which attaches to REITs in certain countries. Not all listed real estate companies in countries where a REIT regime exists are REITs.

  This is because many business activities within the overall real estate sector do not fulfil the very specific requirements for REIT status. Examples include real estate businesses that do not distribute the bulk of their income, have too much leverage, or are constituted as development companies, institutional property managers, brokers and/or advisers.

- MSCI Core Real Estate indexes

  The MSCI Core Real Estate Indexes focus on listed companies directly involved in the ownership and management of core real estate uses: Industrial, Office, Retail, Residential, Healthcare, Hotel/Resort, and/or Storage. These indexes include listed companies engaged in the ownership, management and (modest levels of) development of these core property types, but exclude listed companies remotely connected to direct real estate or focused on investment in very specialised sectors or activity: real estate services, real estate holdings, mortgage REITS and specialised REITs involved in non-core real estate activities (Telecom, Timber, Prisons, Cinemas, Gaming).

- MSCI Liquid Real Estate indexes

  The MSCI Liquid Real Estate Indexes aim to support a liquid exposure to the sector which more closely reflects physical real estate risk and return profiles and corrects for those “side effects” which make REITs, at the pure equity level, imperfect instruments to deliver the returns of a physical real estate portfolio. These indexes start with the MSCI Core Real Estate equity level numbers and at the first stage of adjustment apply reweighting based on “Volatility Tilt” methodology designed to reduce the index volatility and pure equity beta.

The second step combines the smoothed equity series with short-term inflation protected bond prices in proportions implied by the debt-to-price ratio so as to remove leverage and thereby achieve a risk/return profile closer to that of direct real estate, as well as one which adds inflation protection. So although the synthetic series is still ultimately based on security level performance, it is brought closer to the asset level by reducing the volatility as well as removing the impact of leverage.

VEHICLE LEVEL PERFORMANCE

The MSCI/IPD Property Fund Indexes measure the performance of unlisted real estate investment funds. These indexes are built directly upon the open market valuations of the properties held within each fund, but adjust the gross asset value (GAV) performance for the impacts of non-property assets, cash holdings, debt, and fees, to produce an overall investment return to the net asset value (NAV) of the vehicle in which the properties are held. The returns are calculated from both the periodic changes in the NAV as well as the distributions or net investment income, making any corrections needed to reflect capital invested.

- IPD Global Quarterly Property Fund Index

  The IPD Global Quarterly Property Fund Index tracks core real estate investment performance globally and is built from the records of a consistently measured set of open market valued cross-border open-ended funds.

- AREF/IPD UK Quarterly Property Fund Index

  The AREF/IPD UK Quarterly Property Fund Index comprises all non-listed pooled funds with a U.K. domestic focus, whether open or closed ended.

ASSET LEVEL PERFORMANCE

The MSCI/IPD direct property indexes measure the performance of real estate assets which are held in professionally managed portfolio structures for and on behalf of institutional and other real estate investors. These portfolios sit within listed real estate companies, unlisted pooled funds, as well as within segregated private structures like those of insurance life funds and major pension funds. Their returns are calculated based on the periodic changes in capital values, adjusted for capital expenditure and receipts, and the net receivable income generated at the asset level. The net income is based on the gross income minus all the direct property related operating expenses.

- IPD Property Indexes: standing investments versus all assets

  The returns on all assets include all investment properties within the portfolios, including those bought, sold and under development or major refurbishment during the measurement period, as well as owner-occupied properties. Indexes at the all assets level are designed to reflect actual investor returns in real estate including profits/losses from active management and the particular risks and costs associated with investment in a real asset. Standing investment indexes are intended to reflect underlying market trends over the period of analysis. The returns on standing investments reported in the IPD indexes are based solely on directly owned standing investments in completed and lettable properties and exclude any (part) transaction activity. All IPD Property Indexes are appraisal-based, but require open market valuations conducted to a professional standard.

- IPD Transaction Linked Indexes

  The IPD transaction-linked indexes are built upon a hybrid index methodology which combines transaction information with standard valuation data in order to give a more robust measure of the trading-linked volatility in direct real estate markets. These indexes are therefore generally thought to provide users with a more fully representative picture of the true volatility of real estate markets, because appraisal-based indexes are commonly impacted by appraisal smoothing and market lagging.

ABOUT MSCI

For more than 40 years, MSCI's research-based indexes and analytics have helped the world's leading investors build and manage better portfolios. Clients rely on our offerings for deeper insights into the drivers of performance and risk in their portfolios, broad asset class coverage and innovative research. Our line of products and services includes indexes, analytical models, data, real estate benchmarks and ESG research. MSCI serves 97 of the top 100 largest money managers, according to the most recent P&I ranking. For more information, visit us at **www.msci.com**.

ABOUT EPRA

The European Public Real Estate Association (EPRA) promotes listed real estate investment through the provision of industry-specific research and assists institutional and retail investors in their allocations decisions. EPRA is involved in management and guidance on rules governing the FTSE EPRA/NAREIT Global Real Estate benchmark, which tracks listed real estate globally.

For more information, visit us at **www.epra.com**

CONTACT

MSCI

T: +44 20 7336 4783

E: realestate@msci.com

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