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The Determinants of European Real Estate Investment Performance

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This Programme supports the IPF's wider goals of enhancing the understanding and efficiency of property as an investment. The initiative provides the UK property investment market with the ability to deliver substantial, objective and high-quality analysis on a structured basis. It encourages the whole industry to engage with other financial markets, the wider business community and government on a range of complementary issues.

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INTRODUCTION

In 2023, the IPF Research Programme launched its second grants scheme to provide financial assistance to promote real estate investment research. No specific themes were suggested and prospective applicants were encouraged to examine issues that would advance the real estate investment industry's understanding of and implications for asset pricing, risk-adjusted performance and investment strategy. The scheme was also open to individuals, working within institutional organisations, where the grant may be used to fund data acquisition.

The Grant scheme was first run in 2021 when three applicants were awarded grants. This time, an appraisal of proposals received by the deadline of 31 August 2023 resulted in the provision of grants to seven submissions, with limited supervision afforded by a sub-committee of the IPF Research Steering Group during the research period.

Each paper is available to download from the IPF website. We hope you find them a diverse and interesting read.

The following paper has been written by Daniel McKegney, Heitman Investment Research.

Richard Gwilliam
Chair IPF Research Steering Group
June 2024

The Determinants of European Real Estate Investment Performance

Daniel McKegney, Heitman Investment Research

June 2024

Executive Summary

This paper examines the performance of European private real estate during the period 1999-2023. Our study utilises data on non-listed vehicles and direct real estate, and the existing real estate literature, to provide insights on the historical composition of investment returns and factors influencing performance during different phases of the economic cycle. This includes fund characteristics and market-level factors. We find significant differences in the response of real estate returns to these factors depending on the time period, country, and property sector in question. We also explore market dynamics and emerging trends that are less well-covered in the existing literature, but which also appear to be significant for property returns. In addressing such factors, we aim to provide real estate investors with a framework for analysing past performance and forming forward-looking expectations in a fluid market environment.

Contents

1. Introduction

Many investors have heard the notion that no two cycles are the same. The idea still has merit approximately two years on from the decision by several major central banks to raise interest rates. This prompted one of the broadest, deepest real estate corrections in recent decades. The cause of that policy shift—inflation following a global pandemic, significant fiscal and monetary stimulus to stabilise conditions, and geopolitical conflicts—underline how uniquely that cycle ended. Such volatility in inflation and interest rates had not been seen for many years, requiring investors to look back to the 1970s and 1980s to study the relationships between these variables and investment performance.

To what extent does real estate provide an inflation hedge? How closely related are real estate yields to government bond yields? These questions became central as the investor community attempted to form an outlook for real estate performance. Terms such as defensive and cyclical—useful in previous market downturns that were mainly driven by recessions—became less helpful for explaining the correction in 2022-23 which saw, for example, rented residential (considered defensive) underperforming retail (considered cyclical).[1] These shifts required a more nuanced approach by investors.

The previous cycle was also unique due to structural demand forces that brought into question the dominance of commercial real estate's two largest sectors – office and retail. These represented 70% of European investment volumes in 2007, but only 45% in 2023.[2] Previous literature studying investment performance has typically focused on macroeconomic forces such as GDP, interest rates, and inflation, and so would have been unable to predict the underperformance of these property sectors in recent years. Structural changes in how people work, live, and consume goods and services can clearly be significant for investment performance and need to be considered.

Some structural changes created more opportunities for investors in the previous cycle. For example, growth in e-commerce and supply chain reconfiguration, among other factors, helped cement logistics as a mainstream property sector. Rented residential continued to grow in established markets like Germany and the Nordics, and emerged rapidly in other countries such as the UK and Spain. Numerous alternative real estate sectors, including student housing and senior housing, became liquid and investable across multiple jurisdictions. The greater role of alternatives in investor portfolios warrants deeper understanding of their performance drivers, which are less well-covered in the literature compared to sectors such as office and retail.

Several other trends relevant to investment performance emerged during the previous cycle, including sustainability, housing affordability, and automation, among others. These are beginning to manifest in investment performance or may do so during the next cycle, such as through price discounts for assets with poor energy efficiency ratings or tighter rent controls in the rented residential sector. As well as the economic and structural demand forces already mentioned, we think these other trends will increasingly influence investment performance but today are less well covered in the literature.

European real estate is reacting and evolving in response to these various market forces. This presents investors with uncertainty as they consider the risk-return profile of different property markets, portfolio construction, and the vehicles and investment structures through which to drive returns. This paper aims to address these challenges by consolidating and analysing various data sources and providing a synopsis of the real estate literature. We review historical real estate performance across geographies, sectors, and funds to draw insights that may help inform investors on the significance of market factors and fund characteristics for future investment performance.

Section 2 discusses the datasets used, their size, scope, limitations, and usefulness in drawing insights about European investment performance. Section 3 provides a brief history of this performance. Section 4 decomposes investment performance to identify its key constituents and provide a framework for analysing how various fund-level and market-level factors influence real estate returns. Sections 5 and 6 address these factors individually. Section 7 covers emerging trends that may play an increasing role in determining investment performance over time. In Section 8 we provide a list of key conclusions.

2. Datasets Employed

Our study uses European real estate performance data from three main datasets. These are:

Dataset	Fund Level Data	Asset Level Data	Available Time Period	Limitations
Preqin	• Returns for 500 European funds (mainly value-add and opportunistic funds) • Non-listed funds and SMAs	• None	• 1995-2023	• Returns are only available by fund vintage year, as opposed to an annual basis where the return achieved during the year is given
INREV	• Returns for 300 European funds (mainly core funds) • Non-listed funds only	• Returns for 6,500 assets within 160 non-listed funds	• 2001-2023	• Low level of data granularity outside major countries and sectors • Limited data on value-add funds
MSCI	• Limited	• Extensive dataset covering over 46,000 assets in the European index[1]	• 1981-2023 (UK) • 1990s/2000s-2023 (most other European countries)	• Limited fund-level data

The Preqin and INREV datasets are useful for analysing fund-level characteristics such as fund size, leverage, structure (e.g., closed-end, open-end), and investment styles (e.g., core, value-add), and their relationship with investment performance. However, as funds typically have multi-sector strategies or are focused on a single major property sector (e.g., office or industrial), these datasets lack the granularity to review performance of subsectors (e.g., shopping centres, high street retail) and alternative sectors (e.g., healthcare, student housing). Fund-level data also lacks the granularity to analyse investment performance at the sub-national level (e.g., capital cities versus regional cities). INREV has recently begun to provide asset-level data via its 'Asset-Level Index', which has the granularity to study subsectors and submarkets,

although the time series is relatively short (2014-present) and the available data is relatively thin outside of the major countries and sectors.

The MSCI dataset is based on asset-level data and so enables a more comprehensive analysis of different subsectors and submarkets. The dataset also has greater coverage across European countries and includes a greater number of variables (e.g., rent growth and yield effect instead of just capital growth). MSCI's fund-level database is more limited than those of Preqin and INREV and so is less helpful in analysing fund-level characteristics and their influence on investment performance.

Such context on the size, scope, and limitations of these datasets is useful for understanding why they are used at varying times in the following sections of this paper, and why they are used by the authors of the various papers cited throughout this study. We find that by using all three datasets, we may conduct a more comprehensive review of fund and market characteristics, and how they relate to investment performance.

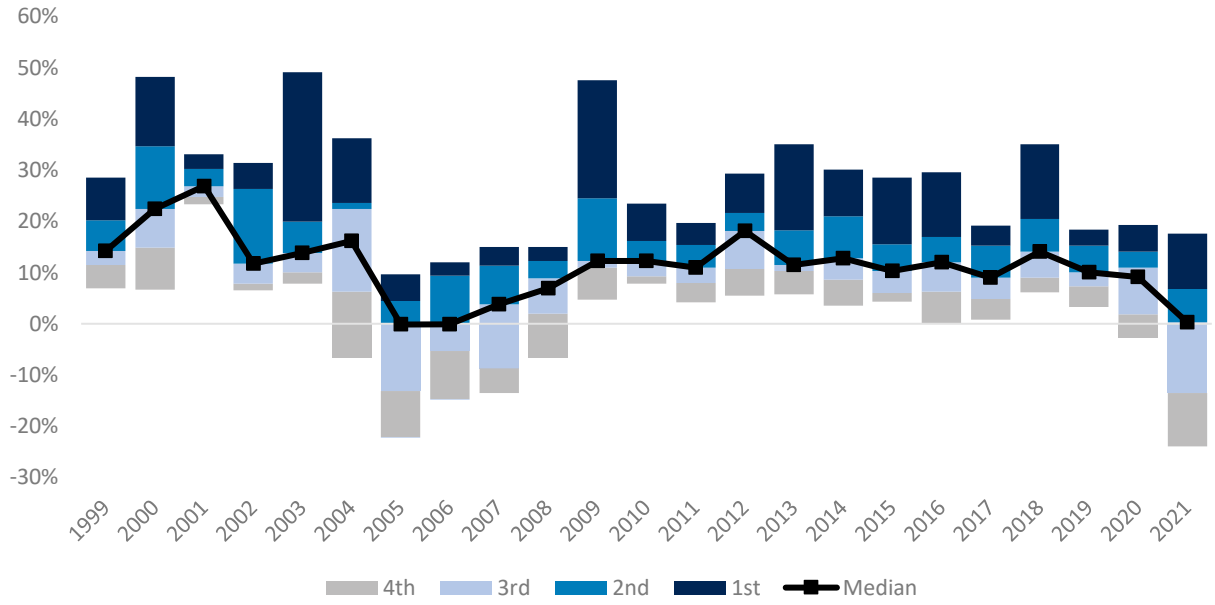
3. A Brief History of European Investment Performance

There has been significant variation in European real estate performance over time. This is clear from looking at the returns of value-add fund vintages, which are available for the period 1999-2021 and shown on Chart 1 below. Funds launched during this whole period achieved a net return of 10.4%. We can decompose this period into four main subperiods:

- **1999-2004: Pre-Global Financial Crisis (GFC)**
  - This was a strong period for fund vintages, with a median return of 16.7%. This makes intuitive sense as capital deployed during this time benefitted from a period of relative calm in the economy, also known as the 'Great Moderation'.[3] Relatively high levels of leverage were also used by property funds during this period, which served to boost returns.[4]
- **2005-2008: Market Peak & Beginning of GFC**
  - This was a weak period for fund vintages, with a median return of 2.3%. New funds were acquiring assets at prices that were close to cyclical highs.[5] Performance suffered as the GFC caused operating fundamentals to weaken and credit conditions to tighten.[6] A sharp decline in capital values and their slow recovery in the period immediately afterward meant even the best performing funds launched in this period struggled to make double-digit returns.[7]
- **2009-2019: Trough & Market Recovery**
  - This was a relative benign period for fund vintages, with a median return of 11.5%. Highly accommodative monetary policy and a decline in global real bond yields supported significant yield compression in most property sectors during this time.[8] Returns were accordingly consistently positive, despite a sluggish economy meaning NOI growth was relatively muted in most property sectors until the late stage of the cycle.[9]
- **2020-2021: Pandemic-Era**
  - This is the most recent period for fund vintages and includes some funds that have not yet fully liquidated. The J-curve effect and early stage capital value appreciation/depreciation will have accordingly played an outsized role in their performance relative to earlier fund vintages. This requires consideration as their returns are not yet fully crystalised and may change significantly given recent volatility in property

markets. Nonetheless, we observe a median IRR of 2.8% for these funds at the time of writing. While the COVID-19 pandemic initially adversely impacted performance—particularly for retail and secondary office space—consequent monetary and fiscal stimulus generally stabilised conditions in property markets.[10] The decline in returns, especially in 2021, may be better explained by the shift in market dynamics observed in 2022-23, particularly the rise in interest rates. It is possible that a market recovery in the years afterward may cause the IRR for these vintages to improve materially.

Chart 1: European Net Fund Return Dispersion by Quartile, Value-Add and Opportunistic Funds



Source: Preqin, Database, March 2024. Excludes top and bottom 10% percentile returns for each vintage. Also excludes 2022-23 fund vintages as they are in the J-curve and thus considered to have less meaningful performance as of publication.

The dispersion of returns within a given year is also notable. The year in which a fund is launched, and the associated economic and financial market environment, appear to explain investment performance only partially. High levels of differentiation between funds suggest other factors such as fund specification, sector selection, business plan, and manager skill may also be important.

The dispersion of funds launched in 2021—while likely to narrow somewhat as funds progress through their life cycle—mirrors similar dispersion in MSCI returns and so is likely to partly reflect a myriad of market dynamics at play in the current investment environment.[11] In the pages that follow, we will attempt to address these dynamics and explore the transmission mechanisms through which they influence investment performance.

4. Return Composition

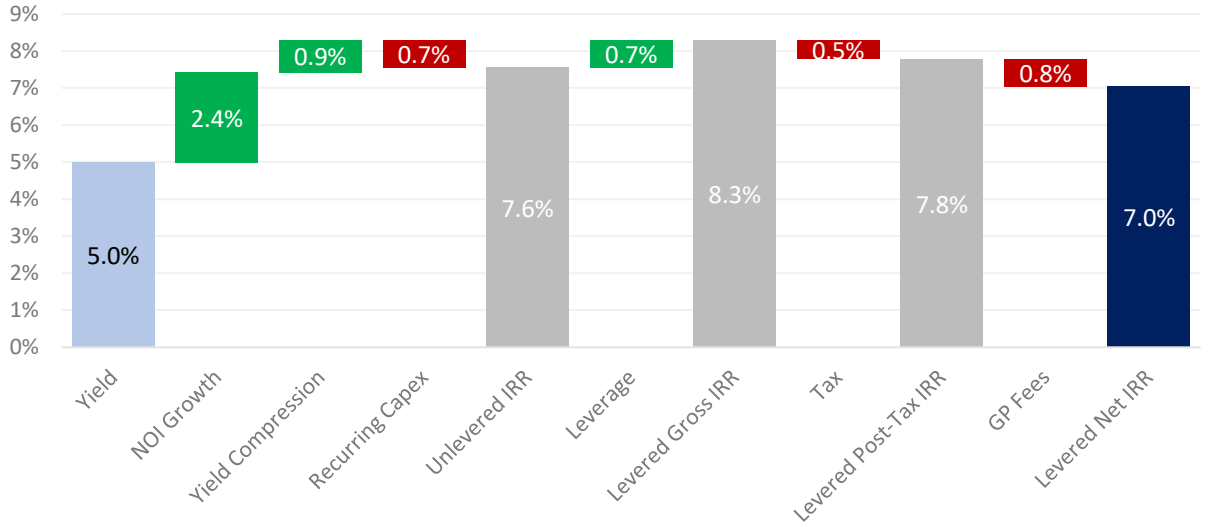
4.1 Building Up to Total Return

Decomposing a real estate total return into different parts can help in understanding the transmission mechanisms through which different fund characteristics and market dynamics influence investment performance. There are various levels of granularity at which to decompose returns, the most common being a simple breakdown to income return and capital growth. These are defined by MSCI as:

- Income return: Income receivable divided by capital employed over a period of time (also known as the yield). Income is net of all irrecoverable costs incurred by the investor and is often called 'net operating income' (NOI). Capital expenditure (capex) is added to the denominator.[12]
- Capital growth: The change in asset capital value divided by capital employed over a period of time. Capital growth considers the effects of changing NOI and yields. The calculation is net of any capital expenditures and receipts over the period. Capex is added to the denominator.[13]

Capital growth can be further broken down into the effects from changing yields (termed by MSCI as 'yield impact') and growth in NOI. At this stage, it is clear that NOI, yields, and capex are key components in understanding real estate total returns. However, these returns do not consider the effects of leverage, tax, and fees charged by the investment manager, each of which are included in the calculations of net return used on Chart 1. A hypothetical return bridge is shown below on Chart 2, to illustrate how these different components—the yield, NOI growth, yield impact, capex, leverage, tax, and fees—all may influence investment performance. These will be explored in later sections of this paper.

Chart 2: Hypothetical IRR Bridge For UK Industrial Investment



Source: Heitman Research. Assumptions: Core investment as of late 2023; 10-year hold; 5.00% entry yield; 3.3% NOI growth years 1-5; 2.0% NOI growth years 6-10; 50bps yield compression by exit; all-in debt cost of 5.86% at 30% LTV; 15% capex reserve; 50bps tax drag; 75bps fee drag.

4.2 Different Drivers for Different Investors

While total returns for almost all real estate investments are likely to be affected by each of the components shown on Chart 2, their expected share of return will depend on the specific risk appetite of the investor. Different investors will accordingly have varying levels of exposure to specific components and varying need to analyse their underlying drivers.

Real estate investors have a wide range of choices for risk levels. Investment opportunities are typically categorised according to their risk level, although no precise definitions exist for each category. The main risk buckets in use today—core, core plus, value-add, and opportunistic—are explained below.

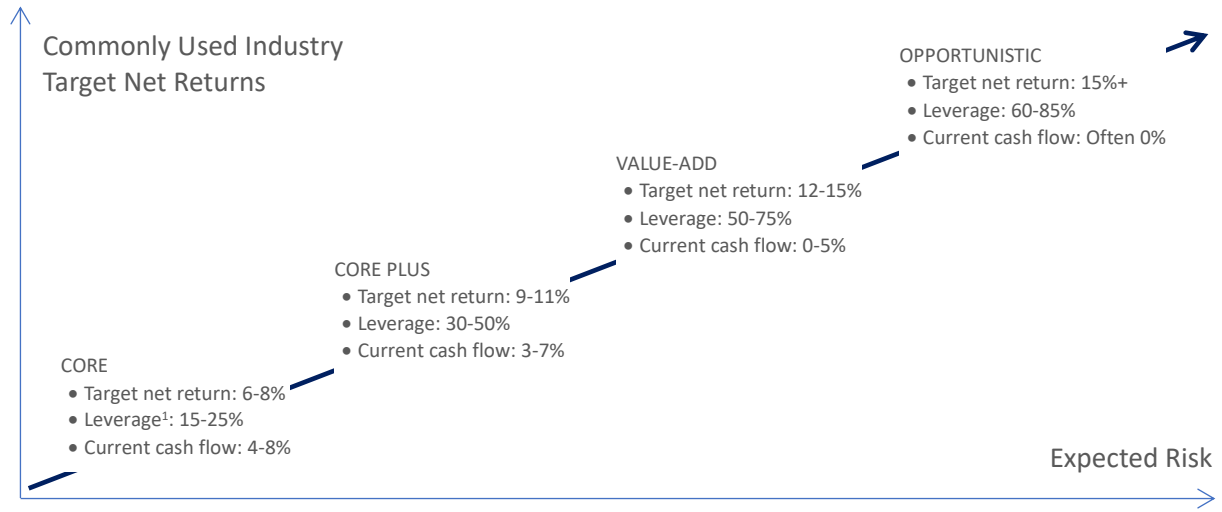
- **Core**
  - Investments in high-quality properties
  - Low levels of leverage
  - Properties are performing at their potential, are well-maintained, and well-leased
  - Assets are well-located in liquid markets
  - Returns are dominated by income return in the long term
  - Current income and diversification are often key priorities
- **Core Plus**
  - Core-like investments with some additional risk
  - Moderate levels of leverage
  - Properties may be performing slightly below their potential
  - Assets may require some additional capex
  - Properties may be secondary in terms of quality or location
  - Returns mainly driven by income
  - Current income and diversification are often key priorities
- **Value-Add**
  - Investments in assets that are slightly impaired
  - High levels of leverage
  - Assets are often performing below their potential, such as by having elevated vacancy
  - Higher capex may be required to unlock reversionary potential or reposition the asset
  - Properties may be secondary in terms of quality, location, or both
  - Returns mainly driven by capital growth
  - Absolute total return is often the key priority
- **Opportunistic**
  - Higher-risk investments
  - High levels of leverage
  - Includes development, major releasing, repositioning or change of use
  - Assets may be in secondary or high-risk locations
  - Returns are dominated by capital growth
  - Absolute total return is often the key priority

Some key features of different risk profiles are also summarised below on Chart 3. We can see that core and core-plus strategies are more focused on generating return through income, while value-add and opportunistic strategies are more focused on capital growth. These latter strategies also use higher leverage to generate returns.

The lower risk profile of core and core-plus investors means they will prioritise stability of cash flows. Combined with longer hold periods, resilient cash flow helps to mitigate the return impact of adverse movement in market rents and yields. Nonetheless, each of these variables is still important for core and core plus investors.

Value-add and opportunistic investors accept lower initial cash flow and cash flow stability in exchange for potential upside through capital appreciation. The shorter hold period of these investors means they are more sensitive to adverse movements in market rents and yields. This can generate strong returns, particularly during a market recovery, but can lead to greater loss of capital during a market downturn. Returns will be more amplified by leverage than for core and core-plus strategies. Greater execution risk—namely the risk associated with successfully implementing the business plan for an investment or set of investments to achieve a desired outcome (e.g. through asset management)—also needs to be considered.

Chart 3: Real Estate Risk and Return Strategies



Source: StepStone Real Estate, *Real Estate Primer*, February 2024

[1]Note that leverage levels shown are at a fund level. For core funds, it is not uncommon for some assets to have no leverage while others may have leverage up to c. 50%

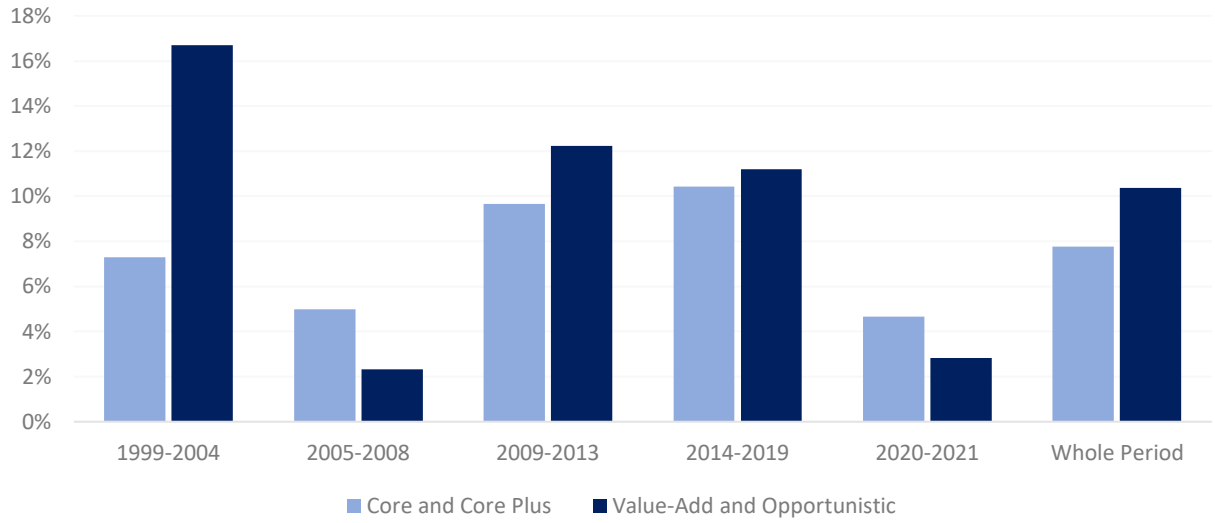
We accordingly see that income return and capital growth vary in their significance for different investors. The hold period for each strategy also influences the importance of these two components. We nonetheless observe significant variation in the performance of lower-risk strategies (core and core-plus) and higher-risk strategies (value-add and opportunistic) over time, indicating that other fund characteristics and market dynamics during those periods remain important for both types of investor. This is clear from Chart 4 below, which shows investment performance between the two strategy types for different stages in the economic cycle. The periods used are the same as those in Section 3, with the post-GFC recovery period broken into two parts. We can make two additional observations:

1. Value-add and opportunistic funds experience greater variation in median returns during different stages in the cycle. They outperform core and core plus funds in more benign periods for launching

funds (e.g., 1999-2004 and 2009-2019) and underperform during more volatile periods (e.g., 2005-2008, 2020-2021).

2. Value-add and opportunistic funds experience higher median returns over the whole period 1999-2021. This is consistent with the first point and our *a priori* expectations; higher risk strategies should offer higher returns.

Chart 4: European Median Net Fund Return by Strategy Type and Fund Vintage



Source: Preqin, *Database*, March 2024

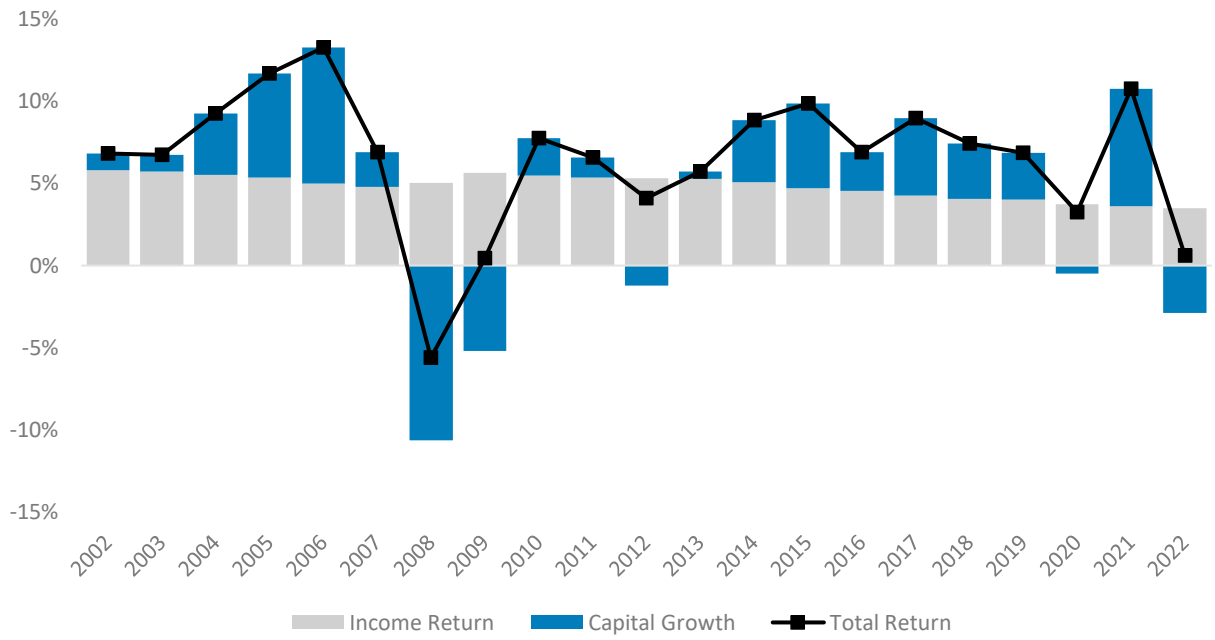
While greater reliance on income return and lower use of leverage can help to explain the less volatile performance of core and core plus funds relative to value-add and opportunistic funds, these factors are less helpful in explaining the large variation of core and core plus vintages over time. Capital growth clearly plays an important role in determining performance for these funds as well as for higher risk strategies. The significance and potential volatility of capital growth for all major strategy types means it deserves additional investigation.

4.3 Decomposing Capital Growth

The relative volatility of capital growth is evident from Chart 5 below. This shows unlevered total returns broken down into income return and capital growth for all properties in MSCI's European real estate index. These properties are part of strategies across the risk spectrum, with 756 contributing portfolios in total.[14] These returns—which were achieved during the year shown—explain the performance of fund vintages as illustrated on previous charts, with an expected lag effect as vintage is defined, by Preqin, as the first year of investment and does not capture full capital deployment by a fund. Compounding from 2001, income has since made a cumulative 170% return, compared to 38% for capital growth. This underlines

the significance of income return for investors with longer hold periods. The capital growth component can clearly play a much more significant role over shorter time periods, such as in 2004-2006, 2008-2009, and 2014-2019, especially when applying leverage.

Chart 5: European Unlevered Returns



Source: MSCI, *Database*, March 2024

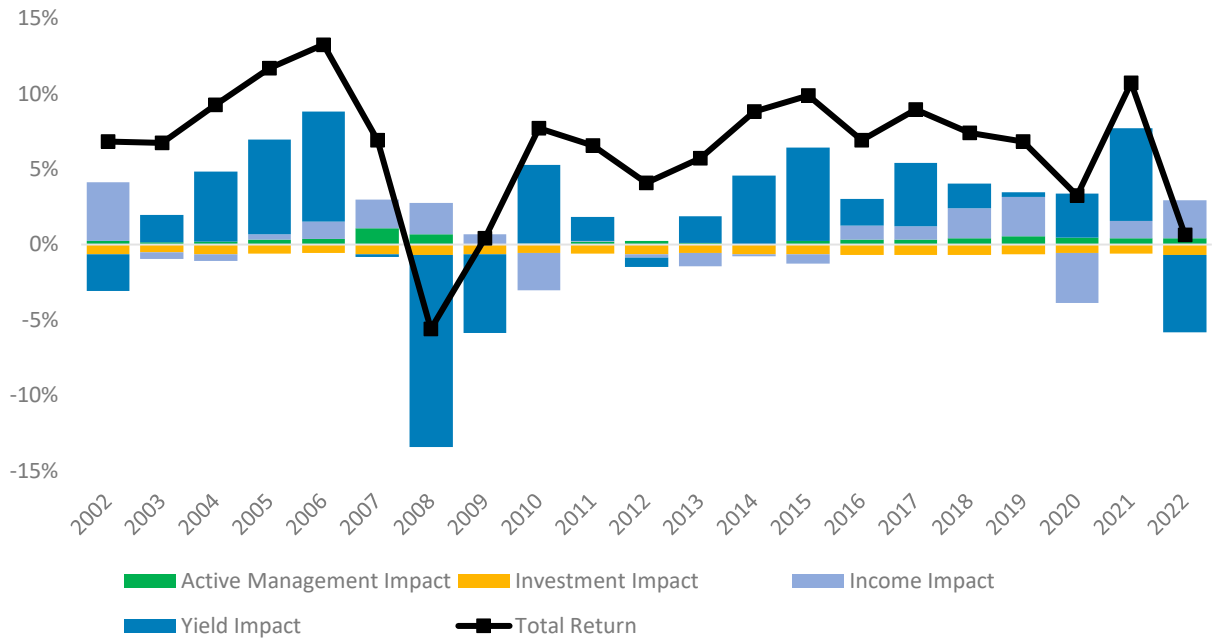
As shown in Section 4.1, capital growth can be broken down into rent growth and yield impact. This is helpful for analysing how variables such as occupational demand and interest rates transmit to capital value growth, as we will see later in this study. Alternative breakdowns can provide additional perspective. For example, MSCI provide a decomposition of capital growth for their European indices into the following subcomponents:

- **Active management impact**
  This represents how much transactions and developments contributed to capital growth.
- **Yield impact**
  - This shows to what extent yield movement contributes to changes in asset values.
- **Income impact**
  - This represents how much of the change in asset value came from growth in initial and expected rental income.
- **Investment impact**
  - This is the difference between asset value growth and capital growth, which equals the amount of capital expenditure reinvested in the property or portfolio.[15]

These subcomponents are shown below on Chart 6, which is a decomposed version of Chart 5 with income return removed. We can see that since 2002, yield impact (i.e. movement in yields) has been the most

volatile and typically the largest source of capital appreciation or depreciation. The cumulative impact for this subcomponent was 32%. Next most significant was income, at 12%. The contribution of capex was -12%, while the contribution of active management was 7%. It is important to reemphasise that these components can play much larger roles than implied over shorter time periods. As discussed in Section 4.2, value-add and opportunistic strategies would also be expected to have more significant contributions from these subcomponents, given their greater reliance on factors like capex and rent growth.

Chart 6: European Unlevered Returns (Capital Growth Only)



Source: MSCI, *Database*, March 2024

The yield impact appears to dominate across property sectors over the very long term, with rental growth playing a smaller but still sizeable role. The same is true over the past 10 years for which there is data (2012-2022). Interestingly, during that 10-year period, rental growth played a large role in driving capital growth for industrial and residential properties but was more muted in office. The cumulative yield effect was limited in retail during that time, which we will see later on was due to an initial period of yield compression being offset by a period of rising yields as retail underwent adverse structural adjustments.[16] This breakdown is helpful in underlining the significance of both yield movement and rent growth for capital appreciation. It is also important to emphasise that these components are interrelated. For example, higher capex spend (i.e. investment impact) in value-add strategies may be associated with better rent growth and additional yield compression if they are executed successfully.

Table 1: Cumulative Contributions to Capital Growth

Cumulative Impact on Return, 2002-2022					
	Active Management Impact	Investment Impact	Income Impact	Yield Impact	Total
All Sectors	7%	(12%)	12%	32%	38%
Office	9%	(12%)	2%	27%	27%
Retail	3%	(14%)	14%	10%	13%
Industrial	3%	(13%)	17%	56%	63%
Residential	8%	(10%)	35%	70%	103%
Hotel	3%	(12%)	23%	13%	28%
Other	6%	(12%)	13%	26%	33%

Cumulative Impact on Return, 2012-2022					
	Active Management Impact	Investment Impact	Income Impact	Yield Impact	Total
All Sectors	3%	(6%)	5%	27%	29%
Office	4%	(6%)	4%	30%	32%
Retail	1%	(6%)	(9%)	6%	(8%)
Industrial	2%	(6%)	24%	53%	73%
Residential	4%	(6%)	19%	35%	52%
Hotel	2%	(6%)	12%	8%	17%
Other	2%	(7%)	8%	18%	21%

Source: MSCI, *Database*, March 2024

4.4 Decomposing Income Return

While income return (i.e. the yield) of an investment tends to be less volatile than capital growth, Section 4.3 highlights that movement in yields can have a significant impact on investment performance. This is especially true at lower yield levels where the convexity of the yield-value relationship means the same level of yield movement causes a proportionally larger change in capital value. This is shown on Table 2 below. The greater sensitivity of capital values at lower yield levels helps to explain the magnitude of the property market correction in 2022-23, when values fell sharply in response to higher interest rates. Conversely, values can rise sharply when yields compress. The significant influence of yield movement warrants additional discussion of its causes.

Table 2: Capital Value Sensitivity

Capital Value Impact From a 50-Basis Point Increase in Property Yields						
Starting Yield	2.50%	3.00%	3.50%	4.00%	4.50%	5.00%
Capital Value Impact	(16.7%)	(14.3%)	(12.5%)	(11.1%)	(10.0%)	(9.1%)

To understand why yields change over time, it is helpful to decompose them into different parts. This can be done in various ways, with the most common being the fundamental investment pricing equation.[17] In its simplest form this can be given as:

$$y + g = r + rp \qquad (1)$$

Where y is the initial yield, g is expected capital growth, r is the risk-free rate of return, and rp is the risk premium. y and g are essentially the two components of total return (income return and capital growth), meaning that the expected total return of an investment should be equal to the risk-free rate plus a risk premium commensurate with the perceived risk of an investment. The risk premium in real estate has numerous different components, which include premiums for relative illiquidity (versus public equities, for example), transaction and management costs, the credit risk of the tenant, additional costs associated with the property (such as capex works deemed necessary to improve sustainability criteria), etc.[18] We can easily rearrange this formula for:

$$y = r + rp - g \qquad (2)$$

Here we see that the yield on an investment should be equal to the risk-free rate plus a risk premium less the expected capital growth of said investment. Higher risk-free rates and risk premia are positively related to yields, meaning that as they increase they put upward pressure on property yields. The opposite is true for growth expectations; as they increase they put downward pressure on property yields. In this way we can see that different market forces, such as rising interest rates and accelerating market rent growth, may simultaneously apply opposing forces on property yields. To reliably form expectations for yield movement—the most significant driver of capital growth—investors must understand the magnitude of and sensitivity to these different forces. We explore these in the next two sections of the paper.

We turn now to how the components of return interact with fund- and market-level factors (also known as 'risk factors'). Having established the key roles played by income return (or yield), NOI growth, and yield movement, our analysis predominantly focuses on these three sources of investment performance.

5. Fund Characteristics

Investment managers have various choices when setting up a real estate fund. These include the characteristics shown below, among others. The investment strategies, tactics, and business plans used to drive returns are also important, such as location selection, market segment, development, etc.

- Risk-return profile / strategy type (e.g., core, value-add)
- Fund structure (e.g., closed-end or open-end)
- Fund size
- Leverage
- Single country or multi-country exposure

- Single sector or multi-sector exposure

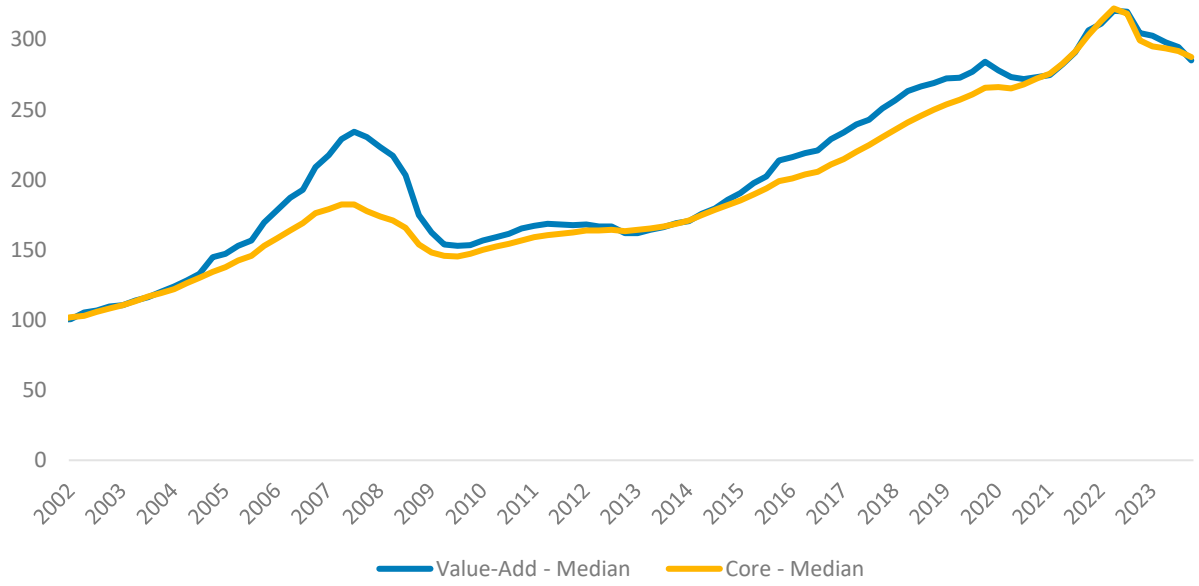
Numerous academic studies have been undertaken over the years to isolate the significance of these different fund characteristics for investment performance. The literature in the US is relatively well-established and dates back to the early 1980s, partly reflecting longer datasets available in that market. The literature has also expanded in Europe, particularly since the 2000s. These studies have used econometric techniques such as panel regressions to isolate the individual contribution of these characteristics to investment performance. They have also investigated features such as fund vintage and fund age. We now incorporate this literature as we review the significance of fund characteristics.

5.1 Risk-Return Profile / Strategy Type

We established in Section 4.2 that higher-risk strategies such as value-add and opportunistic funds have tended to outperform core and core plus funds in terms of total return over the long term. This is in line with our *a priori* expectations given the greater focus of these former strategies on maximizing absolute return. This has however come at the expense of increased volatility throughout market cycles, with higher-risk strategies tending to outperform during benign market environments and underperform during market downturns.

Delfim and Hoesli (2016) analysed core versus value-add performance in their comprehensive study of risk factors for European non-listed funds, using INREV data for the period 2001-2014.[19] They found that core funds offered higher returns and lower risk than value-add funds, based on funds existing within the INREV universe at the time. Yet as the number of funds reporting to INREV has risen and the dataset has widened, the performance of these strategies has narrowed. Interestingly, using the same INREV dataset today, updated to Q4 2023, we see that the median cumulative return achieved since 2001 is almost exactly the same (at c. 187%, or 4.9% per annum), with value-add funds experiencing greater volatility. INREV data accordingly indicates that fund returns have been more similar between these two strategy types than suggested by the Preqin data shown earlier. Slight differences in the time period covered may also play a minor role.

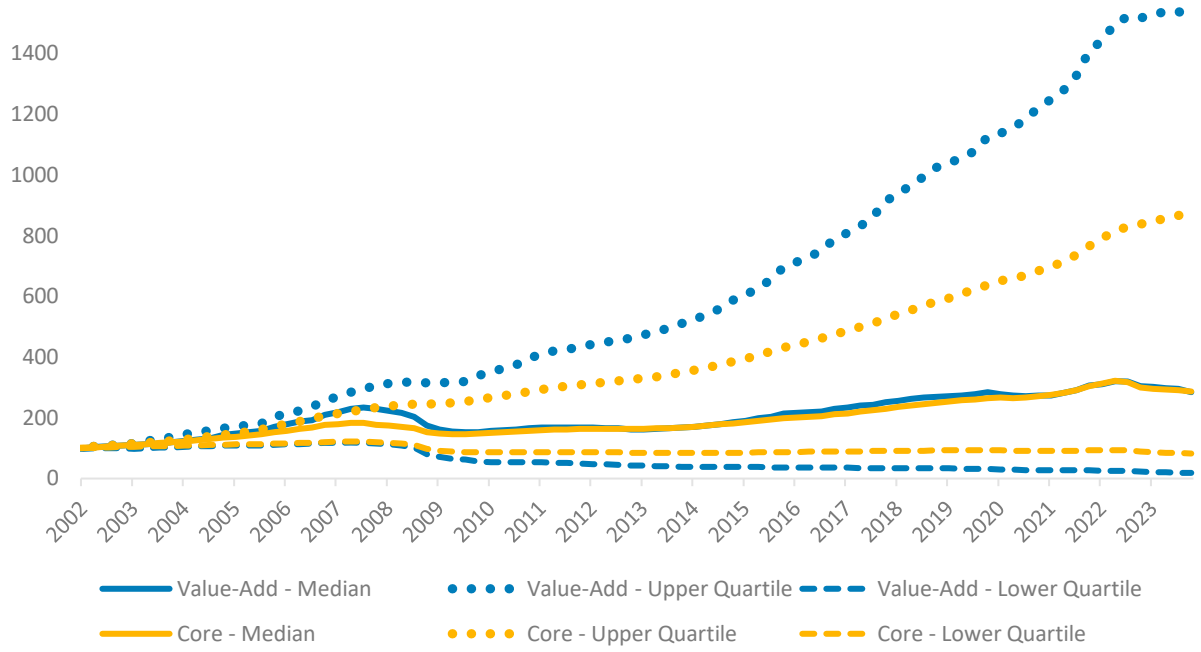
Chart 7: INREV Cumulative Net Returns, Indexed



Source: INREV, Database, March 2024. Note: Includes all funds in Europe that report to INREV. Q4 2001 = 100

A notable feature of the INREV dataset is the significant divergence between funds according to quartile. This is shown on Chart 8 below. We see that the cumulative return of the best performing value-add funds has been 1,413% since 2001 (or 13.1% per annum), compared to -82% (-7.6%) for the worst performing funds. Comparative figures for core funds were 774% (10.4%) and -18% (-0.9%), respectively. In this way we can see that value-add funds exhibit wider dispersion in total returns than core funds, which makes intuitive sense given their higher-risk profile and greater use of leverage. The greater dispersion of value-add returns may also indicate wider scope for differentiated performance by investment managers with superior skills, information, or market access.

Chart 8: INREV Cumulative Levered Returns



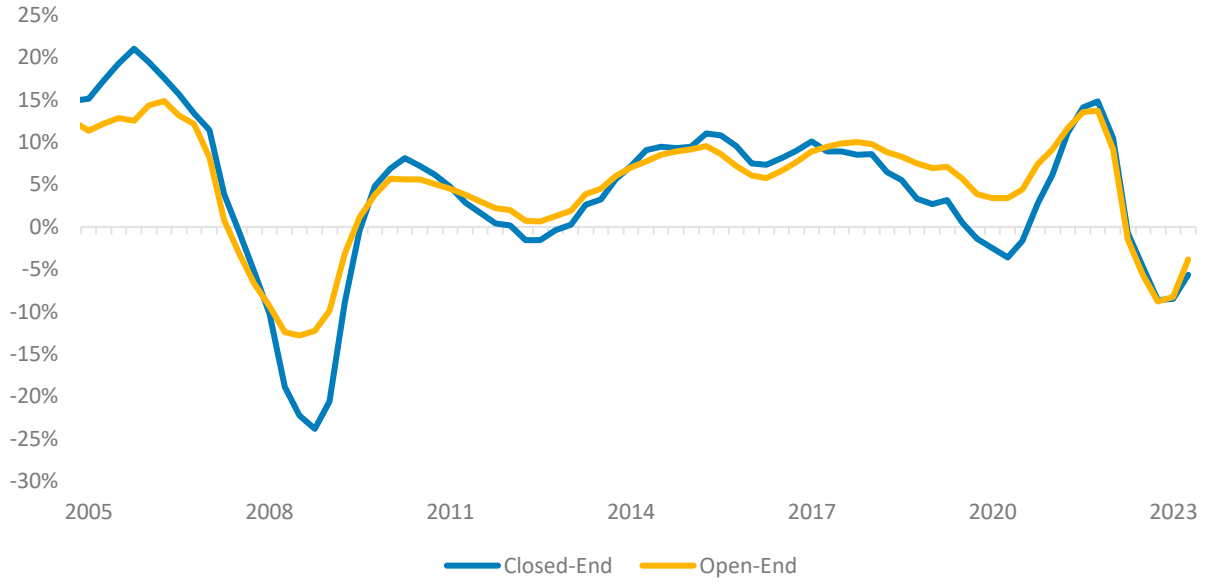
Source: INREV, *Database*, March 2024. Note: Includes all funds in Europe that report to INREV. Q4 2001 = 100

5.2 Closed-End vs. Open-End

Non-listed real estate funds come in two types of investment vehicle: closed-end or open-end. Closed-end funds issue a fixed number of shares to their investors, while open-end funds can issue an unlimited number of new shares. Open-end funds typically have core or core plus investment strategies that prioritise liquidity, cash flow, and stability for their investors. Closed-end funds, on the other hand, adopt a wide range of investment strategies but these tend to be higher risk than those adopted by open-end funds. Delfim and Hoesli (2016) identify strategy type as one possible reason for open-end funds tending to experience more limited losses than closed-end funds during crisis periods. They also suggest that open-end funds may experience lower volatility due to them being larger and thus better able to diversify their exposure. Open-end funds having more flexibility in their investment periods may also help them to time investments better and reduce downside risk.

Chart 9 below shows how closed-end funds have tended to experience greater volatility than open-end funds over the long term. Some insight into the potential causes of this comes from Fuerst, Mansley and Wang (2021), who use INREV data for the period 2001-2019 to analyse various fund characteristics.[20] Interestingly, they find that open-end funds actually underperform closed-end funds once controlling for strategy type, fund size, vintage, and leverage, suggesting that any performance benefits for open-end funds may be attributable to these four factors instead of the investment vehicle itself.

Chart 9: INREV Levered Annual Returns by Vehicle Type



Source: INREV, *Database*, March 2024. Note: Includes all funds in Europe that report to INREV

5.3 Fund Size

Numerous studies have considered the role played by fund size. Using Preqin US private equity real estate (PERE) data for non-core funds for the period 1980-2009, Tomperi (2010) finds that returns are positively related to fund size after controlling for strategy type, the experience of the manager, and market factors such as GDP and inflation.[21] Arnold et al. (2019) uses US-based, closed-end PERE fund data from Cambridge Associates for 2006-2017 and finds that performance is positively linked to fund size.[22] In Europe, Delfim and Hoesli (2016) find a quadratic relationship between fund size and investment performance, suggesting there is an optimal fund size. Their findings suggest that smaller funds may be unable to achieve sufficient economies of scale and diversification, while funds that are too large may suffer from a loss of efficiency in investment management. This is corroborated by Fuerst et al. (2021), who find that a fund's total return increases with fund size but at a decreasing rate.

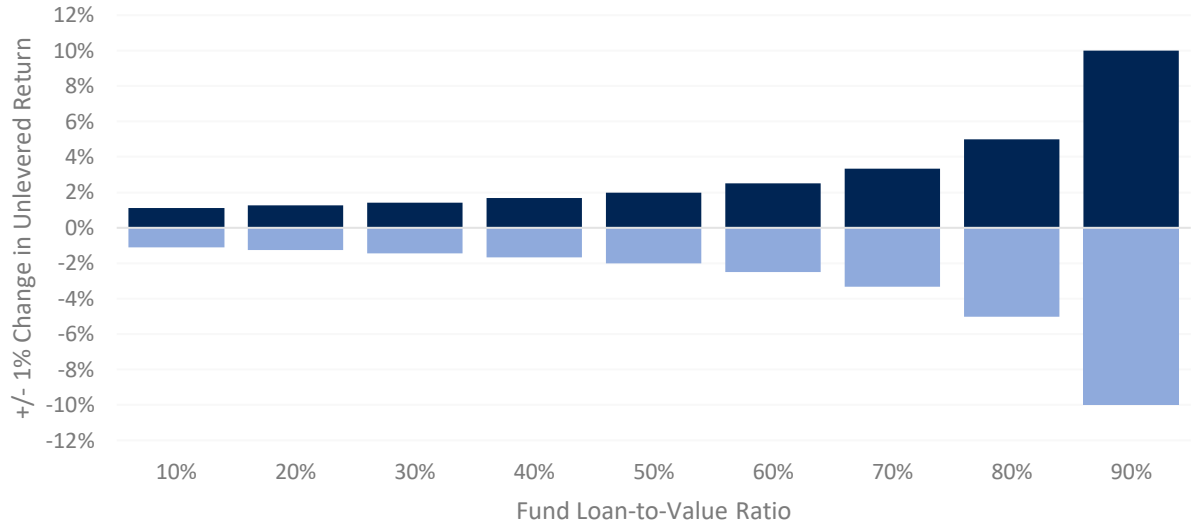
5.4 Leverage

Leverage (or 'gearing') is a defining feature of a real estate fund and has the potential to significantly amplify investment performance. It has accordingly been studied extensively in the real estate literature. Fuerst, Lim, and Matysiak (2014) use INREV data for the period 2001-2012 and find that leverage has an asymmetric effect whereby the magnitude of its impact on total returns is larger during down-markets than in up-markets.[23] These results are similar to those found by Alcock et al. (2013), Delfim and Hoesli (2016), and Fuerst et al. (2021).[24] In this latter study, INREV data for the period 2001-2019 indicates that

among funds with positive returns, an additional 1% of leverage is expected to increase fund returns by 0.08% on average, compared to a 0.30% decline in returns among funds with non-positive returns.

Put simply, historical performance indicates that leverage should be used judiciously. During market downturns, seemingly small adjustments in unlevered return—whether through reduced rental income, increased costs, or yield expansion—can have a material impact on levered returns at higher levels of gearing. This is clear from Chart 10 below, which provides a simplistic illustration of how different levels of leverage may impact total returns (i.e. levered returns) when unlevered returns change by 1%. Besides the asymmetric effect that losses inherently create versus gains, it is possible that the asymmetric effect in part results from much higher levels of leverage having been used in 2005-07 prior to the GFC. During this time, LTV ratios of 75-85% were typical for senior loans in mainstream sectors like residential, office, industrial. Yet by 2013 as a broad-based market recovery got underway, LTV ratios had fallen to 60-65% and continued to trend downward.[25]

Chart 10: Impact on Levered Return From a +/- 1% Change in Unlevered Return



Source: Heitman Calculations. Note: Formula used is Lev Return = Unlev Return + (LTV/(1-LTV))*(Unlev Return- Cost of Debt).

There are various mechanisms by which financing may adversely impact performance. One such instance is where rental income underperforms significantly enough so that debt servicing costs become highly dilutive to returns. Alternatively, debt servicing costs may rise enough to materially erode even healthy rental income, as occurred in 2022-23 when interest rates rose and many real estate investors had to refinance at much higher interest rates. Before failing to actually meet these regular debt costs, investors may breach interest coverage ratio (ICR) tests, whereby the ratio of NOI to interest costs falls below a certain level. Where investors are unable to resolve such issues at an operational level, equity injections may be required, thereby eroding return on investment.

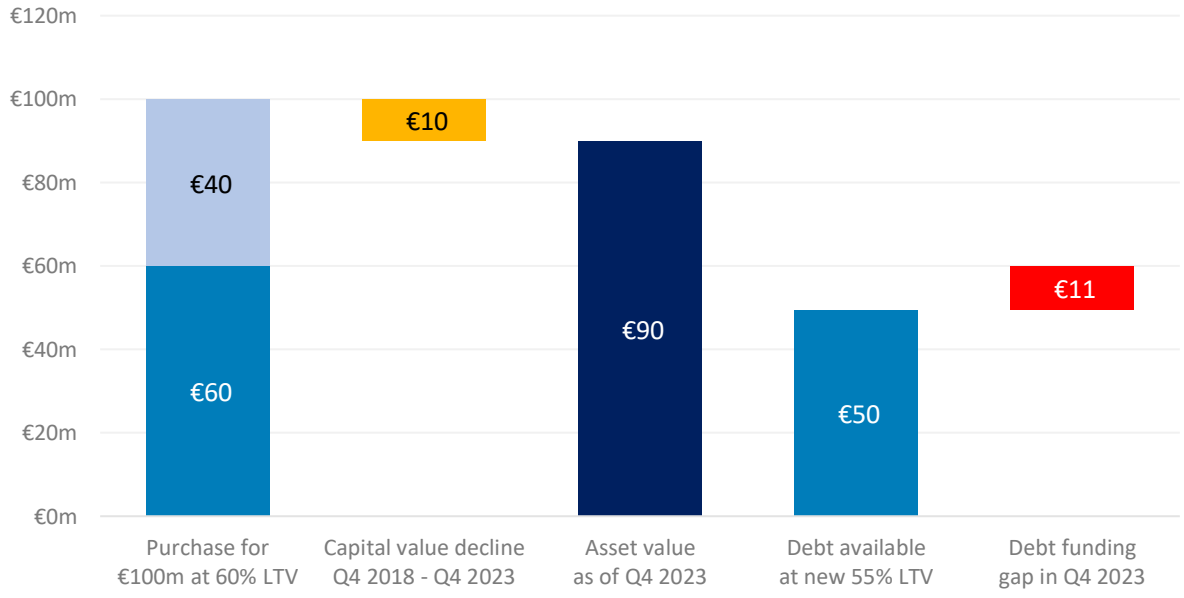
A similar risk occurs if investors are required by their lender to meet minimum LTV ratio requirements on a regular basis. Outstanding debt exceeding a certain percentage of property value may require investors

to inject fresh capital to pay down said debt. This may also occur in instances where investors need to refinance their properties, but where LTV ratios have declined (for example due to increased risk aversion by lenders) or capital values have fallen significantly enough to mean that newly provided debt is unable to fully pay down the previous loan amount. Chart 11 below shows how this may hypothetically occur. The red highlighted area is termed the 'debt funding gap', which must be resolved through additional capital or some other agreement with the lender (e.g., a loan extension) if the borrower wishes to avoid default.

Debt funding gaps can create market dislocation, which in turn may generate mispricing and attractive buying opportunities for incoming buyers, particularly where stress is confined mainly to the balance sheet and assets are operationally healthy. In some situations, lenders may lack the resources or desire to manage foreclosed properties, which can also create attractive entry points for property investors. These types of investment opportunity may partly help to explain the significant upside experienced by some funds during points of market stress in the economic cycle.

The below simulation would likely still result in debt being slightly accretive for returns over a 10-year time horizon, assuming a modest rise in interest costs upon refinancing and a moderate recovery in asset values during the five years post-refinancing. However, if both the asset value and LTV were to fall by twice as much (20% and 10% respectively)—which is entirely plausible for troubled assets—then debt would almost certainly be highly dilutive to returns even if asset values made a strong recovery in the post-refinancing period. The debt funding gap would simply be too large. Such is the risk posed by leverage, especially at higher levels. In contrast, refinancing events can be positive for returns in instances where asset values have risen strongly, or where a combination of higher LTVs and lower debt servicing costs can be achieved, such as by improving an asset substantially enough to reduce its risk profile as perceived by lenders. Two such examples are achieving practical completion of a development property or leasing up (i.e. 'stabilising') an asset that previously had low occupancy rates.

Chart 11: Simulated Debt Funding Gap Calculation for Prime French Multifamily Asset Bought in Q4 2018



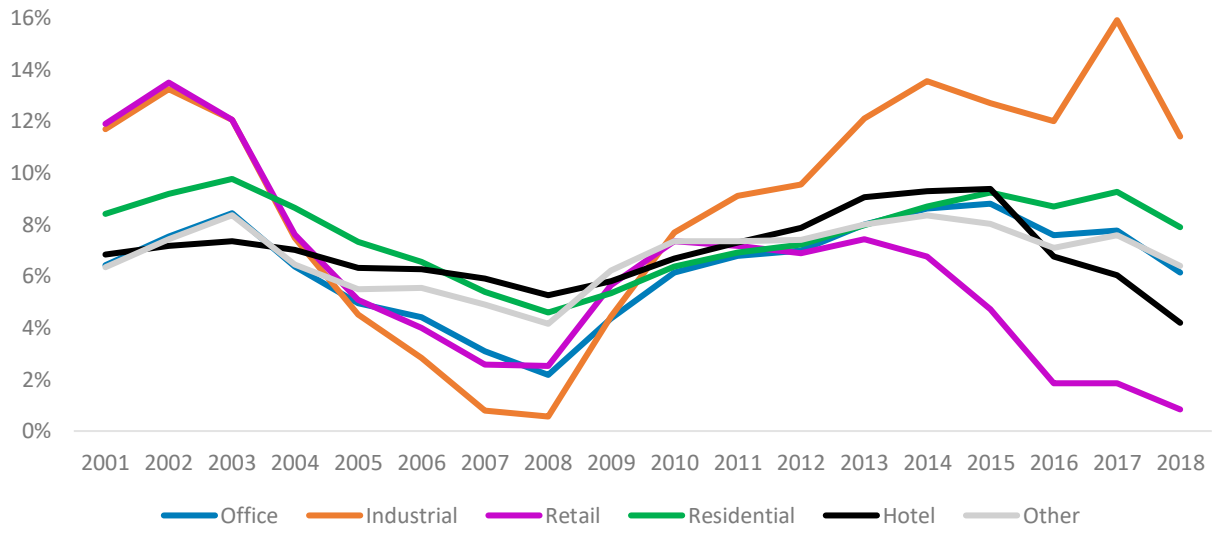
Source: CBRE, *The Debt Funding Gap for European Real Estate*, December 2023
Note: Some figures may appear inconsistent due to rounding

In these various ways we can see how the presence of debt can amplify upside and downside for investors. Indeed, Delfim and Hoesli (2016) find there is a quadratic relationship between leverage and fund performance, suggesting an optimal level of gearing. This was 29% for the period they studied, 2001-2014. However, they emphasise that this number varies depending on the point in the business cycle. Mechanically speaking, the optimal level of leverage is likely to be higher during periods of rising capital values such as during market recoveries.

5.5 Sector and Country Selection

Charts 1 and 8 highlighted the significant dispersion in fund performance both within the same vintage year and across time, even when controlling for strategy type (e.g., value-add or core). The dispersion suggests that the markets and sectors chosen by investment managers may play a significant role in influencing investment performance. Several studies have corroborated this assessment, such as Fuerst, Lim, and Matysiak (2013) and Delfim and Hoesli (2016), who use INREV data for the periods 2001-2012 and 2001-2014, respectively, and find both country and sector to be important drivers of return among non-listed real estate funds.[26] Country and sector have also been found to be important in studies of direct real estate performance, including in Lee (2001) and Favilukis, Kohn, Ludvigson, and Van Nieuwerburgh (2012).[27][28] Lee and Devaney (2004) use MSCI data for the UK for the period 1987-2002 and find that sector-specific factors tend to dominate regional-specific factors during most of the period, with sector effects typically dominating in more volatile periods in the real estate cycle.[29]

Chart 12: 5-Year Unlevered Total Return in Europe
If Investing at the Beginning of Each Year



Source: MSCI, *Database*, March 2024. Note: Countries are weighted according to GAV within each sector

Chart 12 above shows the five-year unlevered return that would be achieved by an investor investing in a property type at different points since 2001. We can observe significant variation during that time, highlighting the significance of sector selection through time, both in relation to (1) the sensitivity of different sectors to the economic cycle, and (2) the impact on different sectors from changing structural demand trends. Both factors are most clear from looking at the performance of industrial and retail. They were partly defined by their high cyclicality up until around 2010-11, with performance during the GFC being especially adversely impacted due to their reliance on trade and manufacturing (relevant for industrial) and discretionary household consumption (retail), which fell dramatically. Yet from around 2010-11, forward five-year returns began to be impacted by the consumer shift to online retail, which created significant divergence in performance between the two sectors. Structural demand shifts came to dominate over sensitivity to the economic cycle. The same risk applies in the office sector at the time of writing, with performance after the period shown potentially set to deteriorate disproportionately as the dataset comes to reflect the adverse demand shock following new working patterns brought on by the COVID-19 pandemic.

Chart 12 also highlights the relative stability of residential and the 'other' or 'alternative' sectors (which include property types such as healthcare, senior housing, and self-storage) during that period. This resilience may be attributable to demand being more 'needs-based' and supply being less elastic in these sectors. For example, in senior housing, around 78% of admissions are caused by critical life events that cause elderly people to require specialist care.[30] In self-storage, around two-thirds of demand is caused by life events such as divorce, downsizing, death, and relocating to a new home.[31] These types of event tend to be more driven by the life cycle, meaning that they have reduced linkages to the economic cycle. These factors may go some way to explaining the much lower correlation of the alternative property types with more cyclical property sectors, as shown on Table 4 below using long-term data available for the UK.

Table 4: UK Unlevered Return Correlations by Sector, 2001-2023

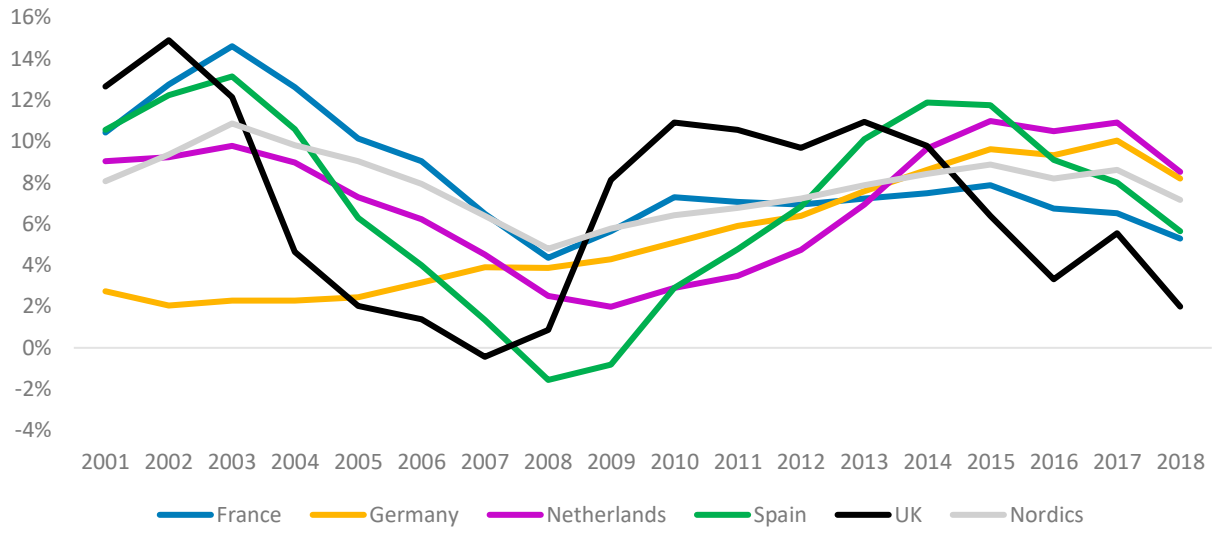
	All Property	Office	Industrial	Retail	Hotel	Leisure	Multi Family	Single Family	Student Housing	Primary Healthcare	Senior Housing
All Property											
Office	0.92										
Industrial	0.86	0.73									
Retail	0.92	0.78	0.65								
Hotel	0.92	0.94	0.71	0.84							
Leisure	0.92	0.88	0.67	0.92	0.89						
Multi Family	0.63	0.61	0.32	0.70	0.59	0.65					
Single Family	0.49	0.41	0.19	0.62	0.45	0.50	0.93				
Student Housing	0.49	0.65	0.33	0.38	0.63	0.53	0.25	0.19			
Primary Healthcare	0.49	0.36	0.43	0.51	0.41	0.49	0.25	0.16	0.01		
Senior Housing	0.33	0.12	0.25	0.46	0.24	0.32	0.13	0.26	(0.05)	0.43	

Source: MSCI, *Database*, March 2024

The consistent, relatively strong, and largely uncorrelated performance of the alternative property types suggests some allocation in investor portfolios may help to improve risk-adjusted returns. Factors such as market access, scale, and their operational nature have historically created barriers to entry for some

investors, although there are signs of this changing. For example, in 2021-23 alternatives made up 12% of investment volume in Europe, compared to 7% a decade earlier.[32] The greater role of alternative sectors in European portfolios should be accompanied by additional data and research so that their performance drivers can be explored further.

Chart 13: Five-Year Unlevered Total Return in All Sectors If Investing at the Beginning of Each Year



Source: MSCI, *Database*, March 2024. Note: Sectors are weighted according to GAV within each country

As shown on Chart 13, there is also significant variation in investment performance by country. The chart shows total returns for the 'All Property' aggregates provided by MSCI. High levels of variation are also observed when looking at specific sectors across countries, which highlights that country selection is also an important consideration for real estate investors.

Two countries in particular stand out from the chart. Firstly, Germany exhibits limited cyclicality. This is primarily due to weak performance in the early- to mid-2000s when the economy was adjusting to reunification and the euro. High unemployment and supply overhangs from a late 1990s construction boom also weighed on investment performance. Economic reforms and relative resilience during the GFC and Eurozone Crises then laid the foundations for outperformance in later years. It should be noted that the German approach to real estate valuation likely also plays a role, due in part to accounting practices and valuation frequencies that 'smooth out' some volatility. The UK exhibited most volatility during this period, partly in response to its greater sensitivity to shocks like the GFC and Brexit—which were particularly impactful in the office sector—but also due to valuations in that country tending to respond quicker to capital market conditions than in other parts of Europe. This latter factor also helps to explain forward returns beginning to decline more sharply in 2018, as factors such as the COVID-19 pandemic (2020) and rise in interest rates (2022) began to manifest in the dataset.

The variation in sector and country performance over time suggests that diversification may provide a means to mitigate volatility in returns and improve investment performance. Fuerst, Mansley and Wang

(2021) study this by looking at the performance of European specialist funds for the period 2001-2019 in the four major property sectors. Interestingly, they find that while 'specialist funds' (i.e., those highly concentrated in a sector, country, or both) do experience higher volatility during market downturns, they generally outperform diversified funds over time. This is even after controlling for relevant performance drivers such as strategy type, gearing, and fund vintage. The authors of the paper suggest that this may be due to 'local players' having informational advantages and networks that enable them to achieve superior returns relative to diversified funds. They find that sector specialisation is not associated with outperformance, which may indicate no significant informational advantages, or those advantages being offset by lack of diversification. The authors highlight that they did not look at alternative property types such as healthcare and self-storage, which tend to be more operational and thus may be more conducive to sector specialisation. Performance in alternative sectors being much less correlated to other property types, as compared to traditional property (as shown in the previous section) may suggest as much.

5.6 Manager Skill

We have shown that the dispersion of fund returns is partly attributable to fund characteristics such as leverage, size, country exposure, and sector exposure. Yet in many pitchbooks for real estate funds, investors are likely to find managers attributing their performance or at least alluding to an additional factor: skill. By nature, this is a difficult feature to quantify or compare between investment managers, although it is reasonable to assume this also plays a role in determining investment performance. This is especially true in a heterogenous asset class such as real estate, where market inefficiencies have been shown to create opportunities for mispricing and persistence in outperformance.

Manager skill can be interpretated in many ways and could be said to influence a whole range of factors relevant to fund performance, many of which are beyond the scope of this paper. To acknowledge and provide a framework for thinking about manager skill in the context of investment performance, we may nonetheless provide an approximate definition in saying that manager skill is the ability of an investment manager to (1) select the fund characteristics, properties, and business plans that are best-suited to achieve a desired risk-return outcome, and (2) to execute this strategy effectively and efficiently. Both factors partly depend on market conditions, which means manager skill also relies on an understanding of how market conditions interact with property performance, and the ability to adapt accordingly. We cover these two themes in the next section.

6. Market Factors

Investors need to contend with a range of market factors that may influence real estate performance. The academic literature has commonly focused on macroeconomic variables such as GDP growth, interest rates, and inflation. As discussed in Section 5.5, there are also other factors such as structural demand trends (e.g., e-commerce, remote working) that have the potential to significantly affect investment performance. These macro-level factors, along with micro-level trends such as new supply, will be covered in the following subsections.

6.1 Interest Rates

To analyse how interest rates interact with real estate returns, we copy Equation 2 from Section 4.4 below, which shows how risk-free interest rates relate to property yields. As discussed in Section 4.3, yield movement has historically been the main driver of capital growth in European real estate over the past 25 years. An understanding of risk-free rates is therefore critical in forming predictions for future investment performance.

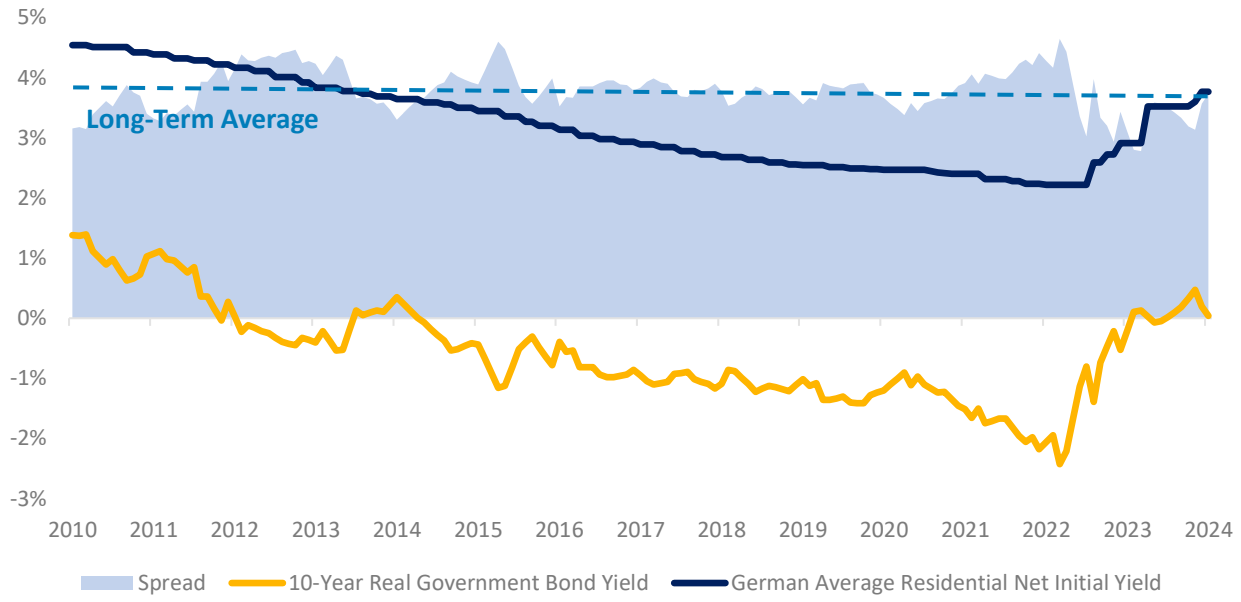
$$y = r + rp - g \tag{2}$$

$$yield = risk\ free\ rate + risk\ premium - growth\ expectations \tag{3}$$

Yields on government bonds (at five-year or 10-year maturities) are commonly used as a proxy for the risk-free rate of return. It is generally true that markets with higher government bond yields will have higher property yields, although various other factors also need to be considered. It is therefore too simplistic to assume that higher nominal bond yields will cause property yields to rise. A more consistent though still not perfect relationship can be found between *real* bond yields and property yields. Real bond yields can be defined as the nominal yield to maturity minus the market-embedded annualised inflation expectation for the same maturity structure.

One reason for using real yields is that they incorporate inflation expectations, which are commonly used in the real estate industry to underwrite future NOI growth. If nominal bond yields rise due to rising inflation expectations, the two forces may offset each other as investors underwrite both higher risk-free rates and growth expectations. This is especially true where inflation results from a stronger underlying economy. Yet if nominal bond yields rise more than inflation expectations, the impact on property yields may be adverse. In line with these expectations, Delfim and Hoesli (2016) find that real bond yields are inversely related to property total returns in their study of European funds using INREV data for the period 2001-14. These findings are similar to those made in studies of listed and direct real estate performance, such as Edelstein, Qian, and Tsang (2011), Favilukis, Kohn, Ludvigson, and Van Nieuwerburgh (2012), and Pavlov et al. (2015).[3334]

Chart 14: German Residential Average Net Initial Yield vs. German 10-Year Real Government Bonds



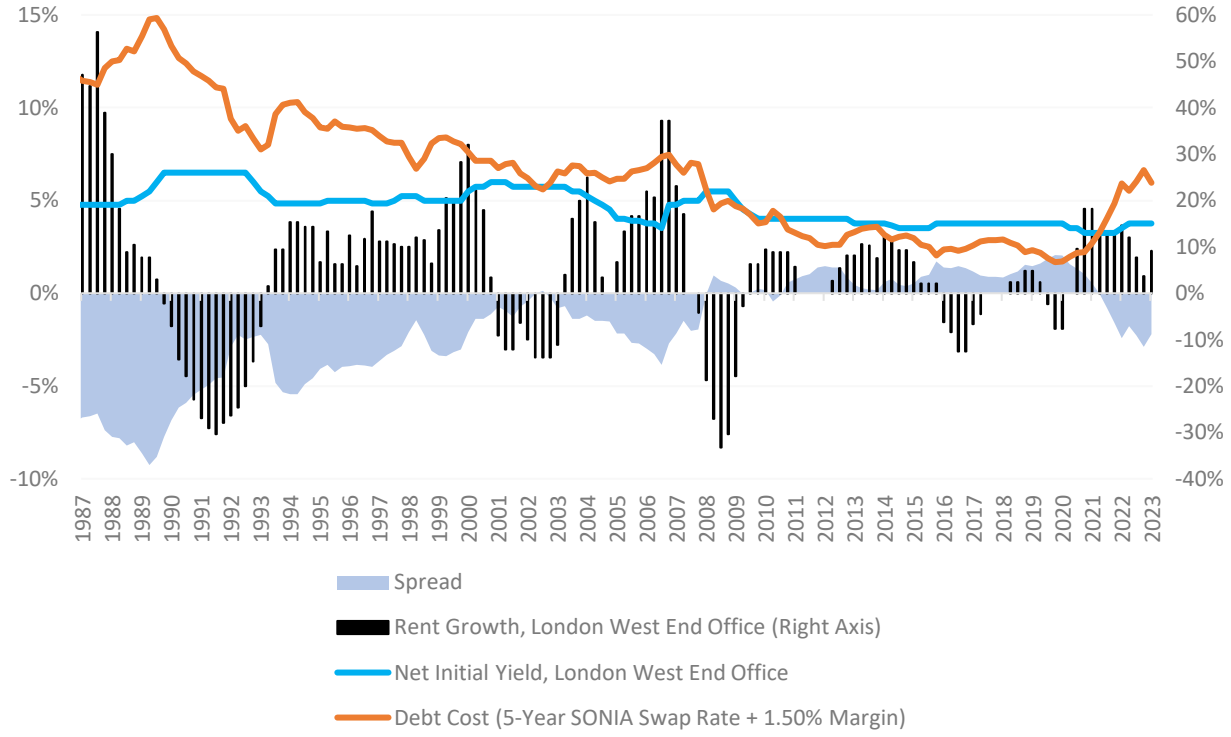
Source: Bloomberg, *Database*, March 2024; Green Street Advisors, *Database*, March 2024. Note: German average based on estimates for Berlin, Cologne, Dusseldorf, Frankfurt, Hamburg, and Munich. Green Street yields are based on closed transactions and negotiations for transactions that did not complete or are yet to complete.

Chart 14 above compares German residential net initial yields against 10-year real government bond yields. We observe a relatively consistent relationship over time, as shown by the spread highlighted in light blue. The decline in real bond yields places downward pressure on property yields, with this trend going into reverse in 2022 when real bond yields begin to rise sharply. As of March 2024, the spread was in line with the long-term average, suggesting that upward pressure from real bond yields may be lower than in earlier months. Although real bond yields and interest rates more generally are notoriously challenging to forecast, their significant influence on property yields should encourage investors to consider them when underwriting future yield movements.

Note: Real bond yields can be computed with relative ease in Germany and various other countries such as the UK, France, Italy, Spain, Sweden, US, Canada, Japan, and Australia, as those countries have inflation-indexed bond markets through which inflation expectations can be estimated.

Related to risk-free rates are debt costs, which also influence property yields. Debt servicing costs for floating-rate loans typically incorporate a reference rate (e.g., EURIBOR or EURIBOR swap rates)—which are correlated with risk-free rates—and a margin to reflect the risk of the investment. These will be combined, at least implicitly, for fixed-rate loans. Some other fees such as arrangement fees and commitment fees may also apply. The mechanism by which debt costs impact property yields is slightly different to risk-free rates. For context, debt is increasingly accretive the further debt costs are below unlevered returns. So if debt costs rise and the gap closes or even inverts, debt will be less accretive and many investors may no longer be able to achieve their required return targets. Investors may then require a pricing discount to bring their returns back up to target, thus resulting in property yields increasing.

Chart 15: London Office Yields vs. Debt Costs



Source: CBRE, *ERIX Database*, March 2024; Oxford Economics, *Database*, March 2024

The importance of comparing debt costs against unlevered returns, as opposed to property yields, underlines the need to consider growth expectations. This is similar to how when looking at risk-free rates, the *real* yield should be used as it incorporates a proxy for growth expectations. This is further demonstrated on Chart 15 above, which uses long-term data for the London office market to show how property yields have interacted with debt costs over time during different periods of market rent growth. Debt costs were higher than property yields throughout most of the period 1987-07, yet property yields were relatively stable most of the time as positive growth expectations meant underwritten unlevered returns typically exceeded debt costs. Yields typically only rose as rent growth began to decelerate sharply or turn negative in response to deteriorating economic conditions. Again, this underlines the significance of comparing *total* unlevered return (i.e. growth expectations in combination with property yields) with debt costs—instead of just income return (i.e. property yields)—when trying to properly assess the impact of financing costs on returns and thus market pricing.

Finally, interest rates have the potential to influence investment performance through their effect on economic growth. When interest rates rise, borrowing costs increase and there is a greater incentive to save, both of which reduce consumption by households and businesses. Reduced consumption can manifest in several ways relevant for property, such as less spending in shops (which is negative for the retail sector) and less corporate expansion (negative for office). Investors accordingly need to consider both the rent and yield (i.e. numerator and denominator) effects on property pricing from changing interest rates. As will be discussed in Section 6.3, different property sectors have varying levels of sensitivity to slower economic growth.

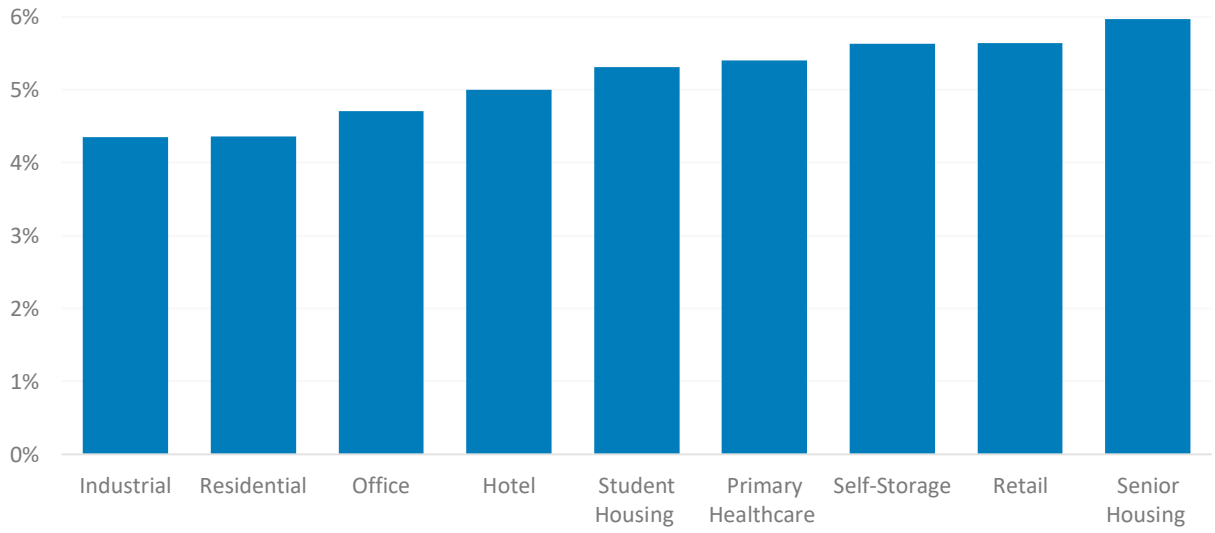
6.2 Risk Premia

It is important to emphasise that interest rates, even when adjusted for inflation or growth expectations, are not the only driver of real estate yields. The risk premium associated with real estate and other risk assets more generally, is an important component that must also be understood by investors in order to underwrite investment opportunities effectively.

There are various arguments for the existence of a risk premium in real estate. These typically relate to property market characteristics relative to investments in the bond or stock markets. These include higher transaction and management costs, lower liquidity and marketability, and poorer availability of information in the property market.[35] Put another way, the risk premium reflects weak property market efficiency. Even within the same market, different properties or property types may have different premia to reflect factors such as leasing risk, risk of tenant default, capex requirements, physical and transition climate risk, and financing costs. Investors may try to gauge the relative importance of these components by looking at features of the property such as location and build quality.

Operational real estate sectors such as senior housing and self-storage may have additional premia to reflect factors such as the financial strength of the operator or the depth of the operator market.[36] This is clear from Chart 16 below, which compares net initial yields between different property sectors in the UK. Defensive property types with relatively high long-term rent growth prospects such as residential, student housing, and self-storage still exhibit wide variation in property yields, which is likely to be partly attributable to differing levels of operational intensity, liquidity, financing costs, and market transparency.[37] Where these factors can be navigated, managed, and underwritten effectively, the yield premium may serve as a reliable source of additional total return.

Chart 16: Net Initial Yields by UK Property Sector, Q4 2023

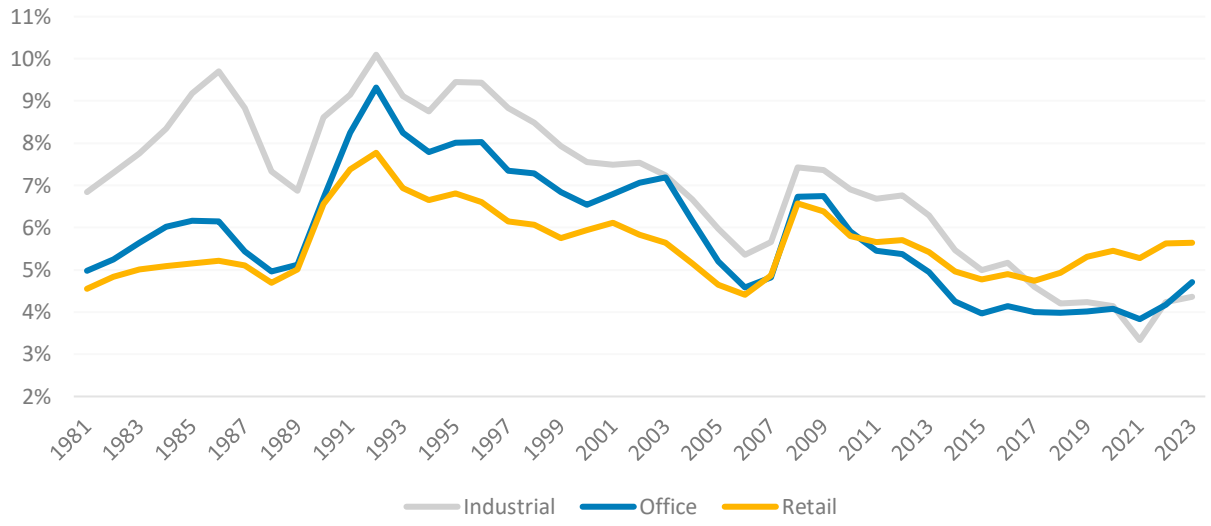


Source: MSCI, *Database*, March 2024; Green Street, *Database*, March 2024. Note: Student Housing and Self-Storage yields based on Green Street estimates for the portfolios of UNITE Students, Big Yellow, and Safestore.

Components of the risk premium may change over time, both in response to cyclical and structural forces. Two of the most pronounced changes in risk premia over recent years have been in the industrial/logistics and retail sectors, as the shift toward online spending has caused significant demand shocks in each. As shown on Chart 17 below using long-term UK data, industrial typically traded at a large yield premium to retail until around 2015 when the e-commerce began to widely impact the financial health of many key retail occupiers and their willingness to occupy physical retail space. Retail yields shifted out strongly while industrial yields compressed to record levels.[38] The movements are likely to reflect several factors, including changes in tenant default risk, void risk, and capex requirements. Changes in growth expectations are likely to have also played a role. For example, from around 2015, UK industrial rents began to consistently grow ahead of inflation as vacancy declined to record lows, with investors being increasingly willing to underwrite higher levels of future growth.

During the previous economic cycle, it was also observed that alternative property types like student housing and self-storage experienced yield tightening versus traditional property types, in part due to the greater acceptance of alternatives by the investor and lender communities.[39] Where investors can correctly anticipate such structural changes in market yield levels or identify assets with the potential to trade at lower yields through physical or operational improvements, there may be significant upside potential to investment returns. However, it is important to remember the significance of factors beyond the control of investors, such as real interest rates, as established in Section 6.1.

Chart 17: Net Initial Yields by UK Property Sector



Source: MSCI, *Database*, March 2024

6.3 GDP

Several studies, including Favilukis, Kohn, Ludvigson, and Van Nieuwerburgh (2012), Fuerst, Lim and Matysiak (2013), and Delfim and Hoesli (2016) have found a positive relationship between GDP growth and real estate performance. This is in line with our *a priori* expectations, given that real estate is a type

of economic capital that—with land, labour, and entrepreneurship—constitute the four basic factors of production. All other things being equal, a higher level of economic output will require a higher level of capital investment, which should be positive for real estate.

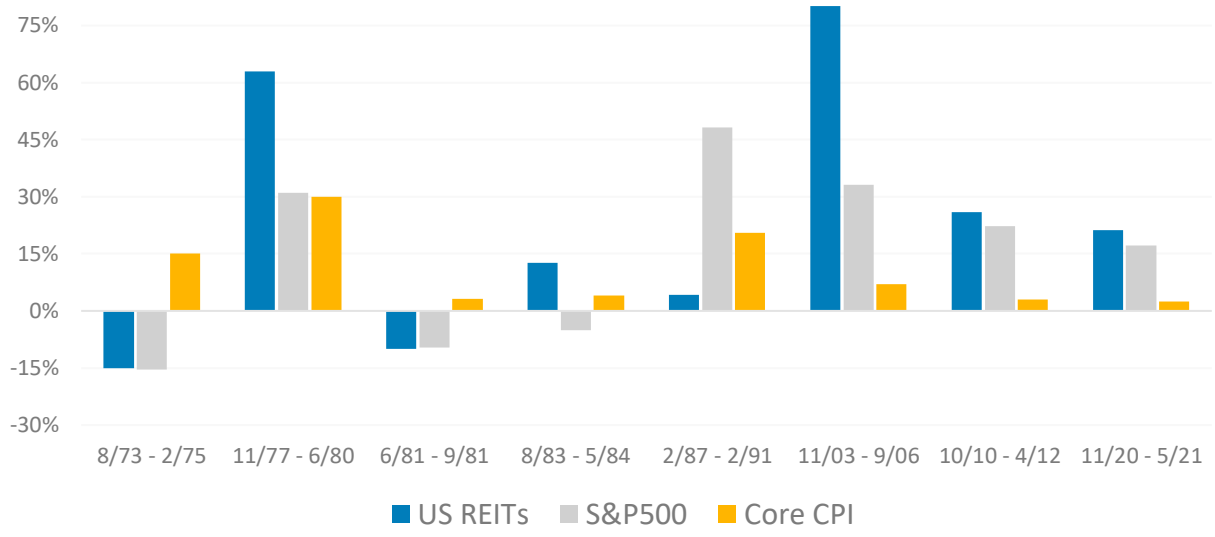
In practice, stronger GDP growth translates to higher property returns through several mechanisms, including (1) stronger NOI growth as demand for space increases and landlords have more pricing power, (2) higher growth expectations as investor sentiment around rental growth and yield movement improves, and (3) lower risk premia, as the financial health of occupiers improves and default risk declines. Other factors, such as the cost and availability of financing, may also respond to changes in economic growth. As discussed in Section 5.5, changes in GDP growth are likely to be more impactful in cyclical property sectors that are reliant on discretionary spending decisions by households and businesses. The retail, office, and hotel sectors are key examples. Some sectors, such as student housing, have historically been more countercyclical as a stronger economy tends to attract more young people into the labour force upon leaving secondary education. Conversely, when the labour market weakens, an increasing share of young people typically enter university as they are less able to find employment and/or want to improve their employability.

6.4 Inflation

A commonly cited reason for investing in real estate is the ability of the asset class to provide a hedge against inflation. The inflation hedge theory has been studied extensively in the real estate literature—predominantly by focusing on the sectors of office, retail, industrial, and residential—and has reached mixed conclusions. When defining a 'hedge' as moving at the same time as inflation, several studies looking at the UK and US markets find a weak or moderate 'hedge' in real estate returns. These include Barber, Robertson, and Scott (1997) and Hoesli, Lizieri, and MacGregor (2008).[4041] Other studies find no hedge or a stronger hedge in equities, including Adrangi, Chatrath and Rafflee (2004) and Blake, Goodwin, McIntosh, and Simmons (2011).[4243] As these latter authors state, a surprising feature of the literature is the lack of consensus even when looking at the same countries and employing similar methodologies. That being said, we will still consider the rationale for the inflation hedge theory and factors relevant to it.

There are various arguments for a positive link between inflation and real estate returns, including (1) that real estate values rise in response to higher replacement costs, such as materials, labour, and land, and (2) landlords being able to raise rents more aggressively during high inflation periods. These theories have been tested by looking at the performance of real estate relative to other asset classes during past periods of high inflation. Such an analysis typically requires going back to the 1970s and 1980s, which due to limited availability of Continental European datasets means much analysis has focused on the UK and US markets. Chart 18 below compares cumulative returns to US real estate stocks and the overall S&P500 during periods of accelerating core CPI inflation. In line with the real estate literature, there is an inconsistent relationship over time; REITs meaningfully lag stocks in one period and fail to outpace inflation in three. The analysis suggests that the type of inflation and specific sector considered may be important.

Chart 18: Cumulative Total Return During Periods of Rising US Core CPI Inflation



Source: NCRIEF; Bloomberg; Green Street Advisors, An Inflation Refuge, April 2021

Whether inflation is associated with higher returns appears to depend on whether inflation is generated by stronger economic growth.[44] This 'demand pull' inflation results from greater competition for resources and is typically associated with rising rents, lower vacancy, and rising growth expectations. Landlords have greater pricing power and so are better able to pass along inflation via rental growth. Contrastingly, 'cost push' inflation—which may be accompanied by stagnation in severe scenarios—can be negative for returns as costs increase but elevated vacancy prevents landlords from pushing through commensurate rent increases.[45]

Market- and sector-specific factors also need to be considered. For example, Blake, Goodwin, McIntosh, and Simmons (2011) use MSCI data for the UK for the period 1947-2009 and find that the office and industrial sectors provide a better hedge than retail. In their 2021 paper 'Heard on the Beach – An Inflation Refuge', researchers at Green Street Advisors suggest that, in theory, properties with short leases should provide a better inflation hedge than properties with fixed, long-term leases.[46] They also propose that the inflation hedge should be stronger in sectors with growing demand, as the link between replacement costs and rental rates is more direct. However, they acknowledge the lack of long-term data to test these hypotheses across a wide range of property types.

6.5 Market Selection

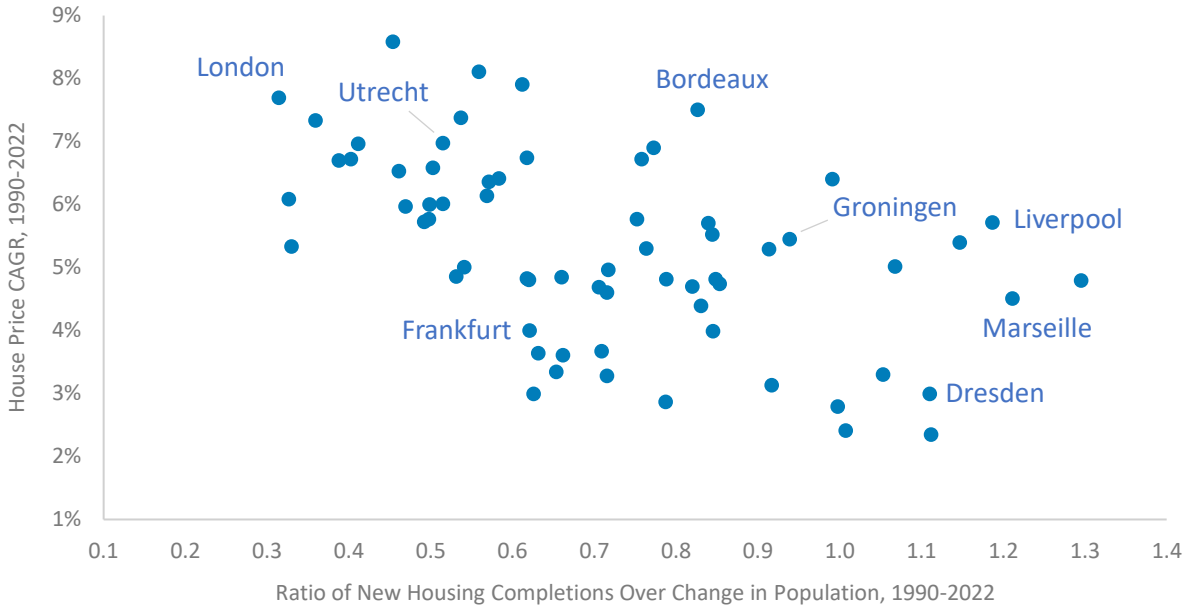
At this stage we have considered some key fund-level and macro-level factors influencing investment performance. Yet a defining characteristic of real estate is its heterogeneity; each property is different due its location, quality, and design. Properties are often made more unique by the nature of their functional

purpose, occupiers, management, and sustainability credentials. While exploration of all these elements is beyond the scope of this study, some deserve additional comment in the pages that follow.

Selecting a market and submarket, such as a district within a particular city, is a critical part of the investment process. In-depth market analysis may occur proactively prior to identifying a specific investment opportunity in that location, or reactively after an opportunity is brought to the attention of an investor. Typically, investors will have a high-level view on in-favour and out-of-favour markets or the criteria by which to quickly determine such markets prior to engaging with a specific investment opportunity. For example, residential and office investors may have a minimum threshold for city population (either literally or in a looser, psychological sense) that serves to filter which markets they enter. In any event, investors need to have conviction that local supply and demand trends are supportive of business plan execution. Such trends are fluid and may respond to macro-level factors (e.g., increased adoption of e-commerce) or micro-level factors (e.g., changing local amenities). The importance of local market trends can best be illustrated through some examples.

Chart 19 below shows long-term house price growth and new housing supply (as a ratio of population growth) for 80 major European metro areas for the period 1990-2022. House prices are used as a proxy for multifamily capital values as they are typically closely correlated and house prices are available across a wider number of cities for a longer time period. While the long-term decline in mortgage rates since the 1980s helps to explain much of the growth in house prices during that time, it is less helpful in explaining the wide variation in price growth between countries and particular cities within countries. For example, house prices in Bordeaux experienced an average growth rate more than twice that of Marseille. Price growth in London was 1.5x higher than that in Liverpool throughout the period. The negative correlation of price growth and supply per capita helps to explain some of the variation, underlining the importance of monitoring supply pipelines and demographic changes. Yet other factors may also be important, such as wage growth, employment, and changing household sizes. Each property sector will have its own unique market fundamentals that are critical for long-term performance, with supply being a key consideration in all sectors.

Chart 19: Long-Term Housing Supply Ratio vs. Long-Term House Price CAGR



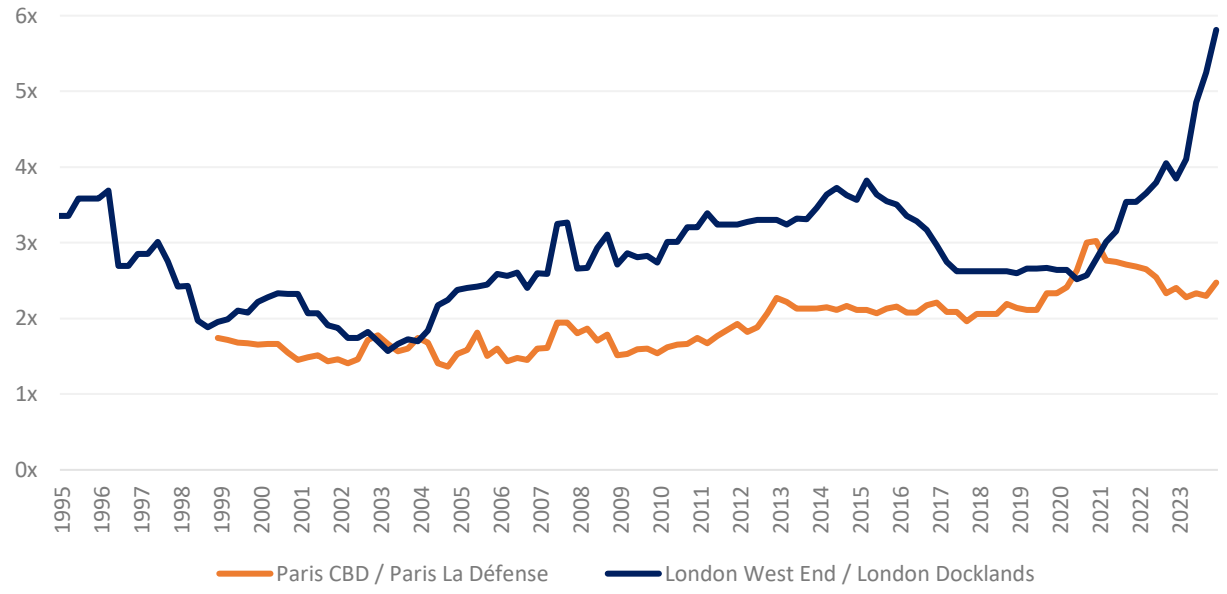
Source: Statistics Netherlands; INE Spain; Statistics Norway; Statistics Denmark; CSO Ireland; Bulwiengesa; GOV.UK; Statistics Sweden; INSEE; StatBEL; Oxford Economics

Market, submarket, and micro-market selection have become critically important in the European office sector following a shift in work patterns and office demand brought on by the COVID-19 pandemic. Savills estimated that at November 2023, European office utilisation—i.e. the proportion of available desks actually used during the working week—was 57%, down from c. 70% before the pandemic. These figures are likely to underplay the overall drop in office utilisation due to the data being based on better quality, more in-demand buildings, as Savills acknowledge.[47] The decline in overall office demand caused office to be the poorest performing property sector in most major European countries during 2022-23 in terms of total returns.[48] The sharp decline was driven by a combination of rising vacancy, lower or negative rent growth, higher opex and capex costs, and increasing incentives in the occupier market, which compounded challenges in the investment market as higher interest rates and greater investor aversion to the sector pushed up yields.[49]

The European office market was also marked by bifurcation in 2022-23. The pandemic amplified a shift in occupier preferences toward better-located, higher-quality, and more sustainable office space. The bifurcation by submarket is clear from Chart 20 below, which shows the ratio of prime office capital values between London West End and London Docklands, and Paris CBD versus Paris La Défense. Even when selecting prime office buildings across submarkets—approximately defined as the top 10% of office space in terms of headline rent levels—significant variation in performance was observed in 2020-23 as submarket began to play a greater role in occupier and investor preferences. Occupiers began to focus on more mixed-use office districts with strong transport connections and amenity offerings. Less office demand in weaker districts required landlords in those markets to lower rents, increase incentives, and

spend additional capex to improve the marketability of their assets. These factors served to erode cashflow and create greater uncertainty around future cashflows, putting downward pressure on capital values.

Chart 20: Prime Office Capital Values, Given As Ratios Between Submarkets



Source: CBRE, ERIX Database, March 2024

The significant changes in office occupational demand are still ongoing at the time of writing and are likely to continue to impact the sector for years to come as existing leases expire and occupiers reevaluate their spatial needs. The protracted, material adjustment in the retail sector—which is now approximately 10 years long in some European countries—may be instructive as we attempt to form expectations about future office demand. The variation in performance between submarkets and properties warrants a selective, nuanced approach by investors. The analysis shown above suggests this may pay dividends, especially when effectively screening for micro-market, design, and sustainability factors that may be overlooked or mispriced by other market participants.

6.6 Other Factors

There are a multitude of other market-related factors that may be considered important for investment performance, although we have sought to cover the main ones in previous sections. Two additional factors—regulations and taxes—deserve consideration despite them resulting more from the decisions of public policy makers, as opposed to the interaction of supply and demand in the occupational and investment markets.

The European real estate market has a diverse regulatory landscape, with wide variation in rules governing areas such as lease agreements and planning, sustainability and rent controls. The outperformance of country specialist and country-sector specialist funds, discussed in Section 5.5, may partly be attributable to local investors having better knowledge of such regulations in their own countries. An understanding of local regulations may enable investors to better optimise their business plans and adapt to changing regulatory regimes. Regulations may change the accessibility of a market and have the potential to materially impact the cost and income profiles of an investment opportunity. This has been especially true in the rented residential and senior housing sectors in Europe, where many countries have relatively high levels of regulation—such as in areas like lease structuring and rent setting—or have seen these regulations change over recent years. Two key examples are provided below:

- **Irish residential**
  - In 2022, the Irish government introduced a new cap on rental increases in most urban areas of the country. The rent for sitting and new tenants could only be increased by 2% or the rate of HICP inflation, whichever was lower, over a 12-month period. The rent cap came at a time of rapidly increasing operating and financing costs for landlords. The impact for investors included (1) erosion of NOI, (2) less liquidity and yield expansion, and (3) greater uncertainty around the profitability of future development opportunities.[50]
- **French senior housing**
  - In 2022, a large French care home operator was embroiled in a scandal involving allegations of mistreatment of residents and misuse of public funds. The regulator responded by announcing new rules on standards, disclosures, and monitoring for operators, and stated that all care home facilities would be inspected by the end of 2024. The impact for investors was mechanically similar to that in the Irish residential market: NOI was eroded, there was less liquidity and investor appetite for care homes, and there was greater uncertainty around future investment performance in the sector.[51]

While regulatory changes can be challenging for investors to anticipate, local knowledge of the market and diversification across regulatory jurisdictions may provide a means to mitigate downside risk. As will be discussed in Section 7, some regulatory changes can also create upside potential for investors.

An additional key consideration is tax, which typically forms the largest component of transaction costs borne by an investor. Taxes can include stamp duty or real estate transfer taxes (RETT), capital gains tax (CGT), and value-added tax (VAT), among others. Particularly for RETT across European jurisdictions, there is a high level of variation in terms of the tax basis, tax rates, and exemptions that apply. It is common for investors to use 'share deals'—whereby shares of ownership in a property are transferred instead of the asset being transferred itself—to minimise tax costs. Whereas some countries like those in Scandinavia typically have lower RETT rates for real estate investment activity, these tend to be higher and more burdensome in countries like Germany, France, Spain, and the Netherlands.[52] There may also be different tax treatment depending on whether real estate income is considered 'investment income' or 'trading income', which is particularly important for more operational sectors. Tax structuring and geographical selection may help investors to minimise tax costs, navigate adverse impacts from changing tax regimes, and thus maximise returns.

7. Emerging Trends

Whereas the influence of many fund-specific and market-specific factors on investment performance can be measured over long-term historical timeframes, the impacts of other factors are still emerging or are largely unknown. The novelty and uncertainty associated with such trends should encourage investors to pay special attention and continuously monitor potential impacts on property performances. This is required to guard against downside risks but to also identify new investment opportunities. These can be particularly rewarding where mispricing results from other market participants lacking the agility, skills, or resources to quantify the impacts of these trends.

A key trend in European real estate has been the shift toward sustainable investment. Investors, industry, governments, and tenants are responding to climate change and wider concerns about the environment. The real estate industry is particularly exposed to climate risk, both physically as a warmer planet increases the possibility of value destruction through weather events and population migration, and as economies transition toward net zero through decarbonisation (real estate is responsible for c. 40% of global CO_2 emissions).[53]

To identify and manage the physical risks associated with climate change, and protect future asset value, there has been increasing adoption of scientific climate risk modelling among institutional investors in Europe. Although such technology still has its limitations, it provides a means to screen assets for risks such as flooding and sea level rise, and better inform the underwriting and asset management processes. Some investors are also tracking migration patterns, insurance availability and loss data, and related policy premiums, to predict how future income, costs, and value may change in response to physical climate risks. The adoption of more sophisticated screening and valuation criteria by the real estate industry means climate risk may begin to influence investment performance much sooner and more broadly than severe weather events themselves.

Transition risk—the potential for costs associated with society evolving to a low carbon economy—is also becoming a more important consideration for investment performance. Energy and carbon intensive properties are coming under increasing scrutiny from governments, investors, and tenants. For example, in France, residential properties with an energy efficiency (EPC) rating below E will no longer be lettable by 2028, with this tightening to D by 2034.[54] These properties are at risk of becoming so-called 'stranded assets' – assets that experience premature devaluation due to climate change-related impacts, such as transition risks like new regulations. While the investor community is yet to take a common approach to pricing such risk, tools like the Carbon Risk Real Estate Monitor (CRREM) are becoming more widely adopted and are being used to assess capex needs and potential price discounts for carbon-intensive properties. Industry organisations such as the Urban Land Institute (ULI) and INREV have also developed frameworks for analysing and quantifying transition risk in real estate.[55] Table 5 below lists a number of transitions risks and how they may impact different variables in a discounted cash flow (DCF) model for pricing property.

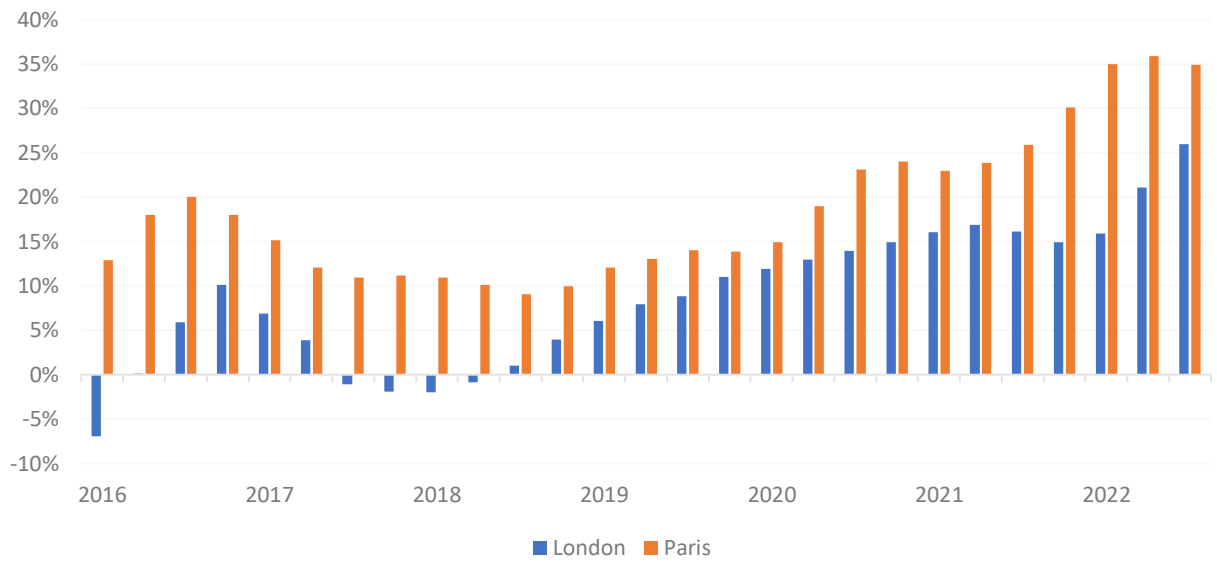
Table 5: Transition Risks

Name of Transition Risk	DCF primary impact(s)	DCF secondary impact(s)
Cost of decarbonisation	Capital expense, operating expense	Rental income, exit value
Energy costs	Operating expense	Rental income, exit value
Carbon price	Operating expense	Rental income, exit value
Depreciation	Operating expense	
Rental income change	Rental income	Exit value
Tenant voids (as a result of decarbonisation activities)	Rental income	Exit value
Embodied carbon	Operating expense	
Exit yield	Income	

Source: Urban Land Institute, C Change Transition Risk Assessment Guidelines, June 2023

As the investor community becomes more sophisticated in its approach to pricing transition risks, they may become an increasingly important determinant of investment performance. Such developments require investors to consider not only energy efficiency ratings, but also metrics such as energy and carbon intensity, and the cost of measures to improve these. Failure to assess and accurately underwrite transition risks may lead to unanticipated consequences such as lower exit prices as buyers discount properties to compensate for additional perceived risk. The chart below suggests that divergence in office property values is already underway in London and Paris, with green buildings outperforming.

Chart 21: Office Green Building Price Differential



Source: RCA, Database, Q1 2023; CBRE IM, Global Cyclical Opportunity, February 2024
Note: Based on RCA's hedonic pricing series. Percentage shown is the difference between buildings with and without environmental ratings from BREEAM or LEED

The issue of automation has similarly risen to prominence in recent years with the release of new generative artificial intelligence (AI) software. Such technologies have the potential to significantly affect the economy, labour market, and property markets. While the impacts of automation are still not fully clear and will depend on factors such as data quality, effective implementation, and industry and regulatory environments, they deserve additional consideration by real estate investors. For example, AI may enable investors to better identify mispriced assets, forecast future property performance, or increase returns by creating more efficient, higher value properties. These new technologies may also generate significant new demand in property sectors such as data centres, due to increased need for computing power, while creating headwinds in the office sector as some office-based employment is replaced.[56]

8. Conclusions

Throughout this paper we have sought to investigate the determinants of European real estate investment performance by gathering and analysing a wide range of datasets. We began by reviewing the pattern and dispersion of property returns since the late 1990s and then decomposing these to understand the role of different components (e.g., yield movement, rent growth) in influencing performance. We incorporated findings from the real estate literature and provided our own analyses to show how fund characteristics and market dynamics may affect these components at varying points in the economic cycle. Our key findings are as follows:

- Real estate, in the aggregate, is a cyclical asset class with returns being impacted by variations in macroeconomic variables such as GDP and interest rates. This suggests fund vintage is important.
- Real estate returns have displayed significant dispersion throughout history, with wide variation between the best and worst performing funds. This suggests that fund selection is important.
- The determinants of investment performance are inherently linked to the risk-return profile of the fund. For example, core funds rely less on leverage and more on income versus value-add funds.
- There is mixed evidence on whether value-add funds provide additional returns over core funds, to compensate real estate investors for the greater volatility in performance.
- Value-add funds experience greater dispersion in returns than core funds, suggesting greater scope for differentiation and outperformance where the best value-add funds are selected.
- Over the long term, income return has been a larger and more consistent driver of total return in European real estate, with capital growth playing a greater role during shorter timeframes.
- Changes in capital values have largely been driven by yield movement in previous cycles, with rent growth also playing a large role and capex playing a smaller though still meaningful role.
- Yield movement can be seen as the result of changes in (1) risk-free rates, (2) growth expectations, and (3) risk premia associated with factors like liquidity, credit risk, and climate change.

- Fund size is positively linked to investment performance, suggesting that larger funds may benefit from diversification and economies of scale relative to smaller funds.
- Leverage is generally found to be a significant determinant of investment performance. Studies indicate that there may be an optimal level of leverage and that leverage may have an asymmetric effect on total returns.
- Sector and country selection also play a significant role in influencing investment performance. Historical performance indicates that sensitivity to the economic cycle varies by property sector and can be dominated by favourable or adverse structural trends.
- Alternative property types are typically less correlated to other property sectors and may be supportive to overall portfolio risk-adjusted returns.
- Diversification across countries may also be beneficial, although there is evidence to suggest that selecting multiple country specialists may be more optimal for performance than selecting one pan-European investment vehicle.
- Real interest rates are found to be a key driver of property performance, through their impact on relative pricing between asset classes, debt costs, and economic growth.
- When forecasting property yields, it is better to compare property yields against real interest rates as opposed to nominal interest rates, as the former incorporate inflation expectations.
- Growth expectations also need to be considered when analysing the effect of changing debt costs on property returns and yields, as it is the unlevered return of an investment that determines how accretive debt is for an investment as opposed to just the yield of the investment.
- There are various arguments for the existence of a risk premium in real estate. While some relate to features of the asset class, such as higher transaction costs and lower liquidity relative to bond and equity markets, some relate to the specific sector in question.
- Some alternative property types and parts of the retail sector display large risk premia (as reflected in property yields) relative to more traditional property types. This may create an opportunity for outperformance where yield spreads are excessive relative to the additional risk of such sectors.
- GDP is significant and positively related to real estate performance, although this relationship may vary between property types due to differences in the underlying demand drivers of each sector.
- There is mixed evidence on the inflation hedge offered by real estate. Some studies indicate this may be due to inflation having different forms (e.g., 'demand pull' and 'cost push') that create varying and potentially opposite impacts on real estate returns.
- Even after controlling for fund characteristics, macroeconomic factors, and country selection, real estate performance can vary significantly between cities and submarkets in the short and long term. This requires real estate investors to carefully consider local supply and demand trends.
- There are various other market factors that require consideration, such as local regulations and tax regimes, which may be navigated through a flexible approach to country and sector selection, business plans used to drive returns, and transactions structuring (e.g., asset vs. share deals).
- Societal shifts toward e-commerce and remote working underline the importance of emerging structural trends in determining real estate performance. Investors need to adopt a

forward-looking and adaptive approach in relation to such trends. These include, among others, climate risk and automation, which may present significant upside and downside risk for investors.

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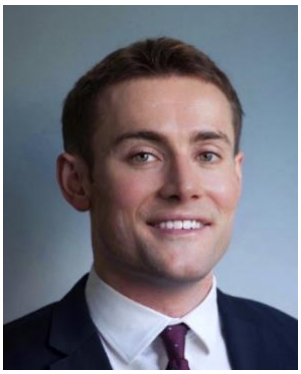

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