



E-CREDA **European Commercial Real Estate Data Alliance**

Purpose and background of E-CREDA

We aim to improve access to and the understanding of available CRE data to facilitate higher quality applied research and interaction between investors, data providers and academic

Our objectives

Knowledge transfer

E-CREDA facilitates data vendors and partners to develop their data products and services by allowing investors and managers' subscriptions to be shared with academic partners for specific applied research projects of practical use to investors and managers.

Exchange of insights

E-CREDA increases the practical relevance of academic collaboration by improving data access to a broader range of legacy and emerging data sources to answer specific practical problems facing investors and managers.

Diffusion of findings

E-CREDA promotes innovation in applied research by investors and managers by allowing them to mobilise all the available data and scientific approach to use them in addressing specific market and strategic issues.

Our members

Data vendors

Investors

Academics

Our events, activities and publications

2025

- Annual conference: Data-driven real estate & the future of investment decisions in an uncertain world
- 40' research update: CaPex in real estate investment

2024

- Annual conference: Real estate investments in the era of AI, ESG, and climate change
- 40' research update: Institutional insights on modern real estate forecasting and investment decisions
- 40' research update: Price expectations gap in CRE
- ERES conference: AI & technological advances in future RE valuations
- 40' research update: Real Estate Tokenization

2023

- Annual conference: Research insight and market outlook
- 40' research update: CRE lending and CM funding
- 40' research update: Air pollution and real estate

2022

- Annual conference: a new collaborative path
- Research seminar: Real estate and multiverse

2021

- Annual conference
- Research seminar: Europe residential market analysis
- Research seminar: The new economic order for real estate
- Research seminar: European real estate debt

2020

- Inaugural conference

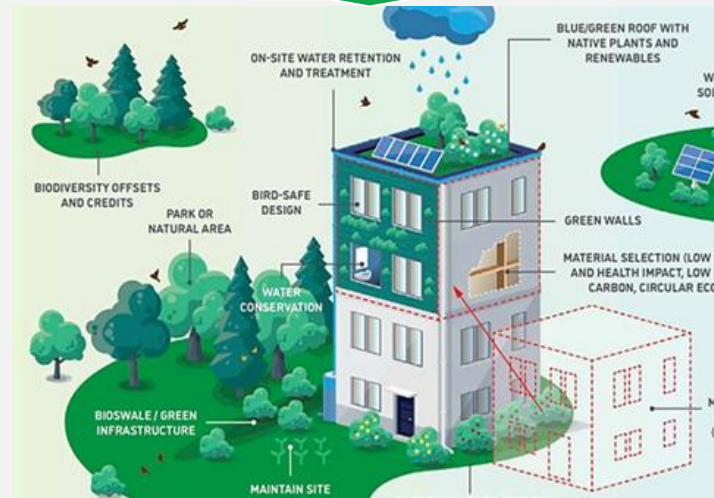
Annual conference 2024: Real estate investments in the era of AI, ESG, and climate change

AI

Generative AI is an unusual technology:

- unpredictable
- unexpected effects
- general use

ESG



Climate Change

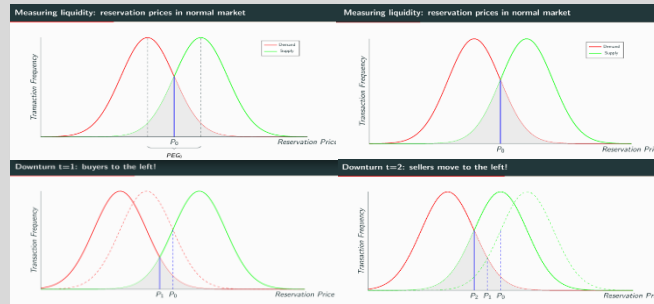
Including nine Hazards to Quantify Physical Climate Risk



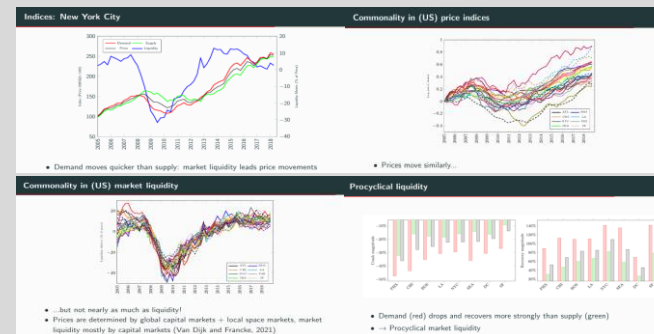
40' research update 2024: Price expectations gap in CRE

Quantifying the price expectations gap in CRE– illiquidity in European markets– Scientific background

Stylized theory



Empirical results



Conclusion

- We introduce a way to measure market liquidity in private commercial real estate markets
- Measure is applicable in a repeat sales framework and to local markets
- Three facts about market liquidity:
 1. Market liquidity is pro-cyclical (market indicator)
 2. Market liquidity moves quicker than prices(leading indicator)
 3. Market liquidity co-moves extremely strongly across markets(diversification)

40' research update 2024: Price expectations gap in CRE



The Price Expectations Gap in Action

12 September 2024

Tom Leahy, Executive Director, Real Assets Research

But how can we quantify the illiquidity in European offices?



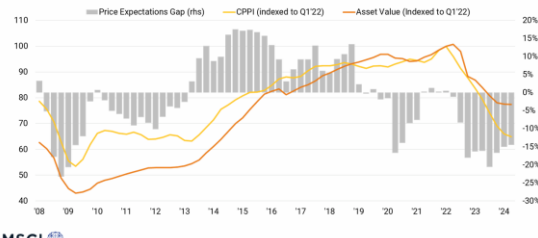
Does it reflect 'actual' market conditions in London?



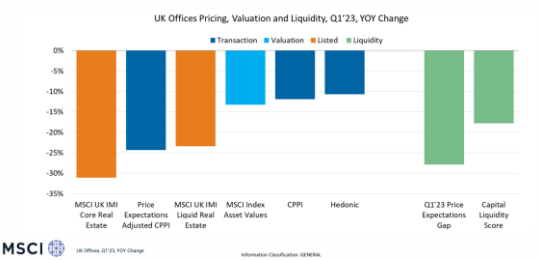
How does this compare to other global office markets?



UK offices – note the different outcome between Covid and current downturn



Adding the price expectations gap gives us multiple views on how a market is performing



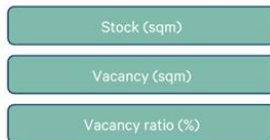
40' Research Update: Institutional insights to modern real estate forecasting and investments decisions

Market indicators that we forecast

For all markets we produce...



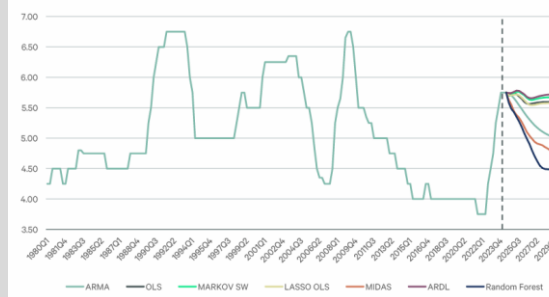
For many office/ industrial markets we produce...



Model v. adjusted YIELD forecasts, one-year forecast horizon, split by sector

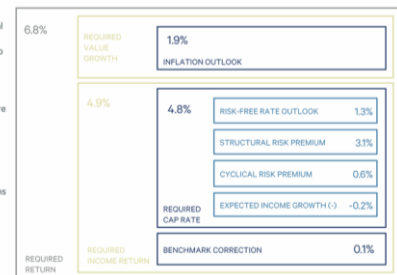


London City office yield out-of-sample forecasts by model, yield in %



Required returns sum inflation, bond yields and risk premiums

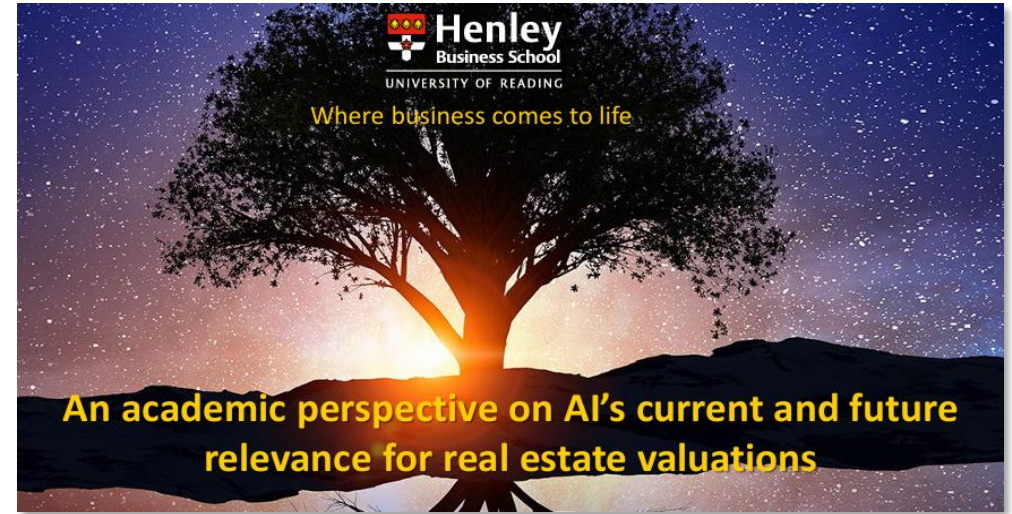
- The required return applies to markets (local currency, unlevered, no fees, core risk), so not to investment strategies
- The required return is risk-based but not a pure risk measure
- Within countries, a city ranking on required returns equals a city ranking on risk premiums (+growth)



ERES conference: AI & technological advances in future RE valuations



WE LOVE FORGING POWERFUL TOOLS
WITH DATA



Technologies as catalysts:
five theses on future property
valuation
Input ERES 2024 Gdansk
June 2024

E-CREDA 40th Research Update

CapEx: Opening the Black Box

Ruben Bos, CFA

Head of Real Estate Investment Strategy, Europe



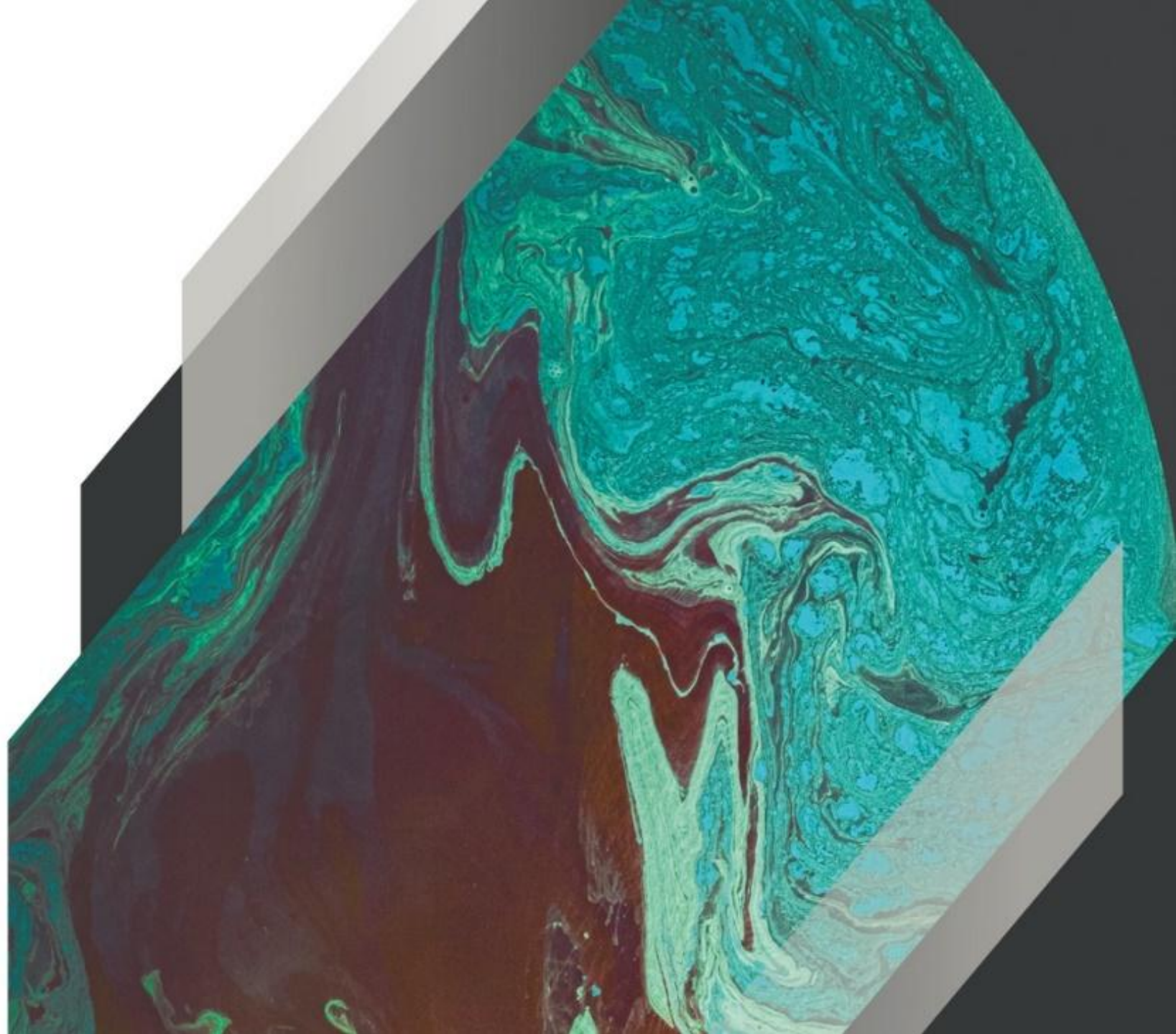
Investors for a new now

CapEx: Opening the Black Box

DWS Real Estate | Research & Strategy

Ruben Bos, CFA
Head of Real Estate Investment Strategy, Europe

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A photograph of a beach at sunset. The sky is a mix of orange, yellow, and grey. Numerous birds are flying in the sky, their silhouettes dark against the lighter background. In the foreground, a person is silhouetted against the beach, looking out towards the ocean. The overall mood is serene and natural.

What is CapEx?

What is CapEx?

The long-term CapEx burden of a property should not include added square footage but should include most other costs incurred to improve/restore a property's competitive position.

Recurring Maintenance

- Minor repairs
- Landscaping
- HVAC maintenance
- Decorating
- Minor Roof Repairs
- Common area upkeep



Part of operating expenses or reimbursed by tenant

Infrequently Recurring Maintenance CapEx:

- **New lease / end of lease capex**
- New landscaping
- New HVAC
- Fit-out
- Roof replacement
- Façade replacement



Typically paid by landlord

Redevelopment CapEx

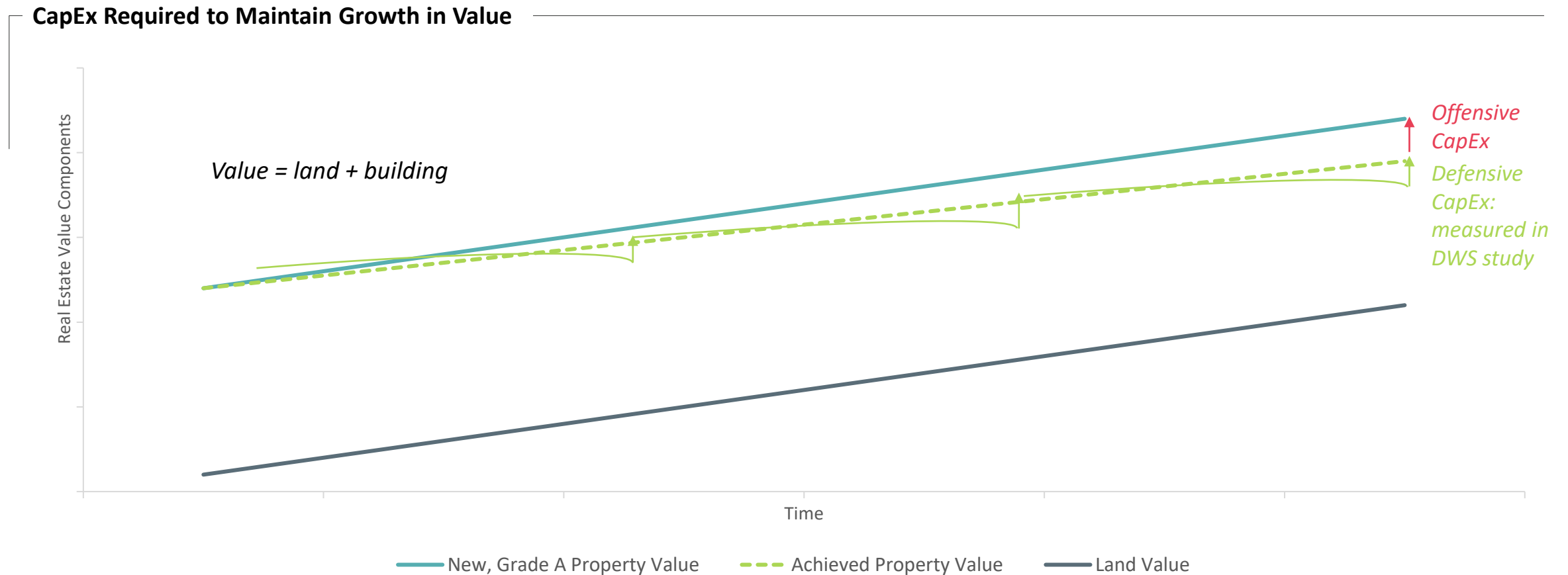
- Added square footage
- Full renovations



Not considered "maintenance CapEx"

CapEx Life Cycle

CapEx is the amount of money landlords invest to defend their buildings against such depreciation. Ultimately, land value is the long-term driver of value growth.



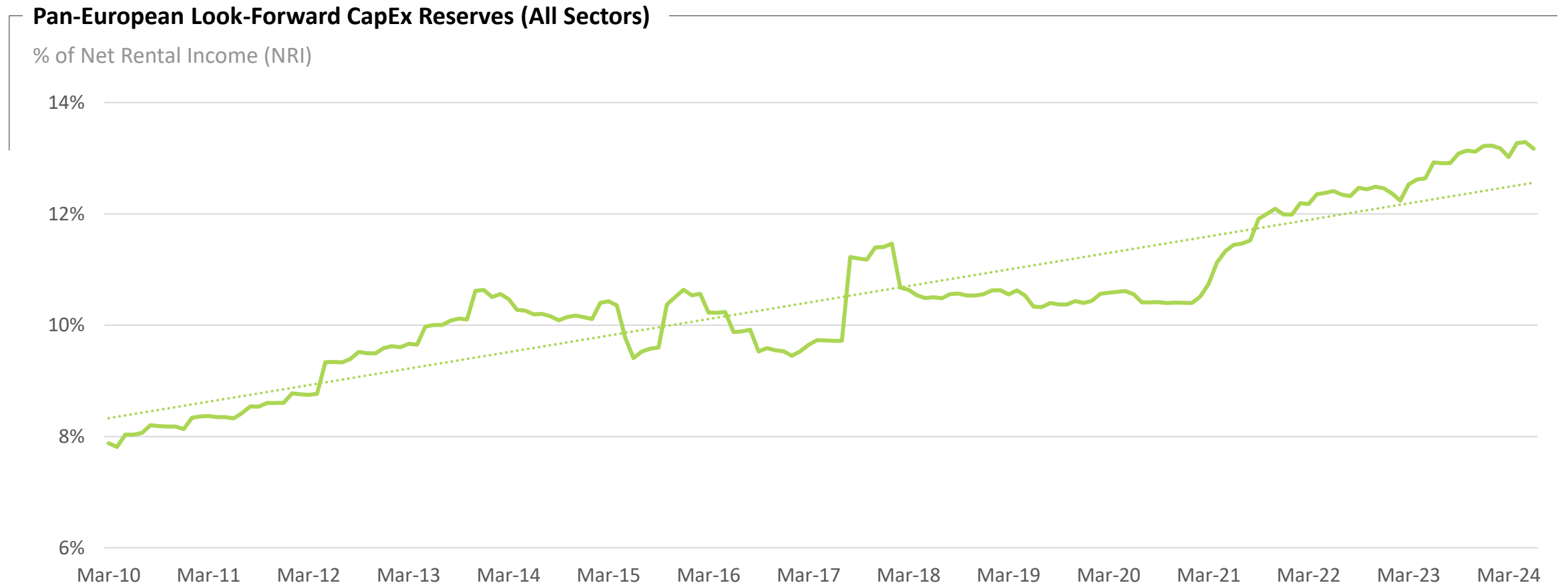
Forecasts are based on assumptions, estimates, views and hypothetical models or analyses, which might prove inaccurate or incorrect. Forecasts are not a reliable indicator of future performance. Past performance is not a reliable indicator of future returns.

Source: DWS, March 2025

CapEx Trending Higher



Environmental legislation and changing occupier requirements are pushing up CapEx requirements.



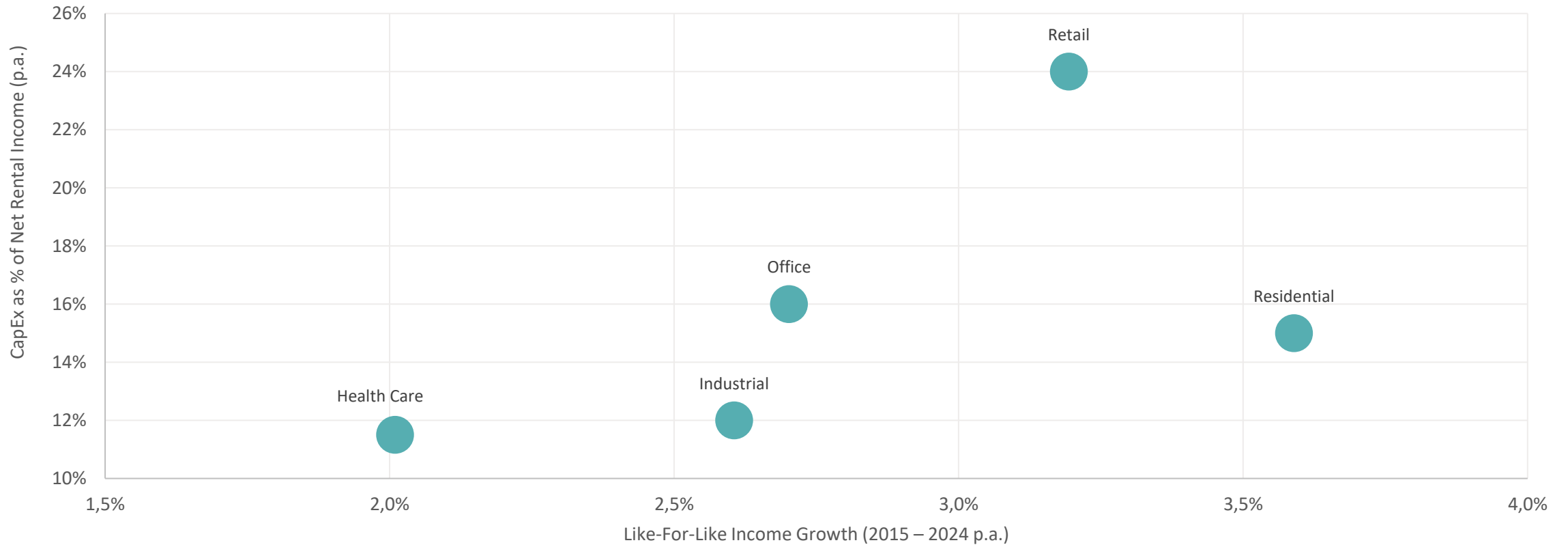
Note: Adjusted from CapEx as % of net rent to net rental income (NRI). Forecasts are based on assumptions, estimates, views and hypothetical models or analyses, which might prove inaccurate or incorrect. Past performance is not a reliable indicator of future returns.

Source: Green Street, June 2024.

CapEx is Driving Income Growth...

Higher CapEx is typically driving up in-place rents, and thus income growth. However, income growth may deviate from market rent (ERV) growth.

CapEx and Like-For-Like Income Growth (Selected Sectors, Europe)



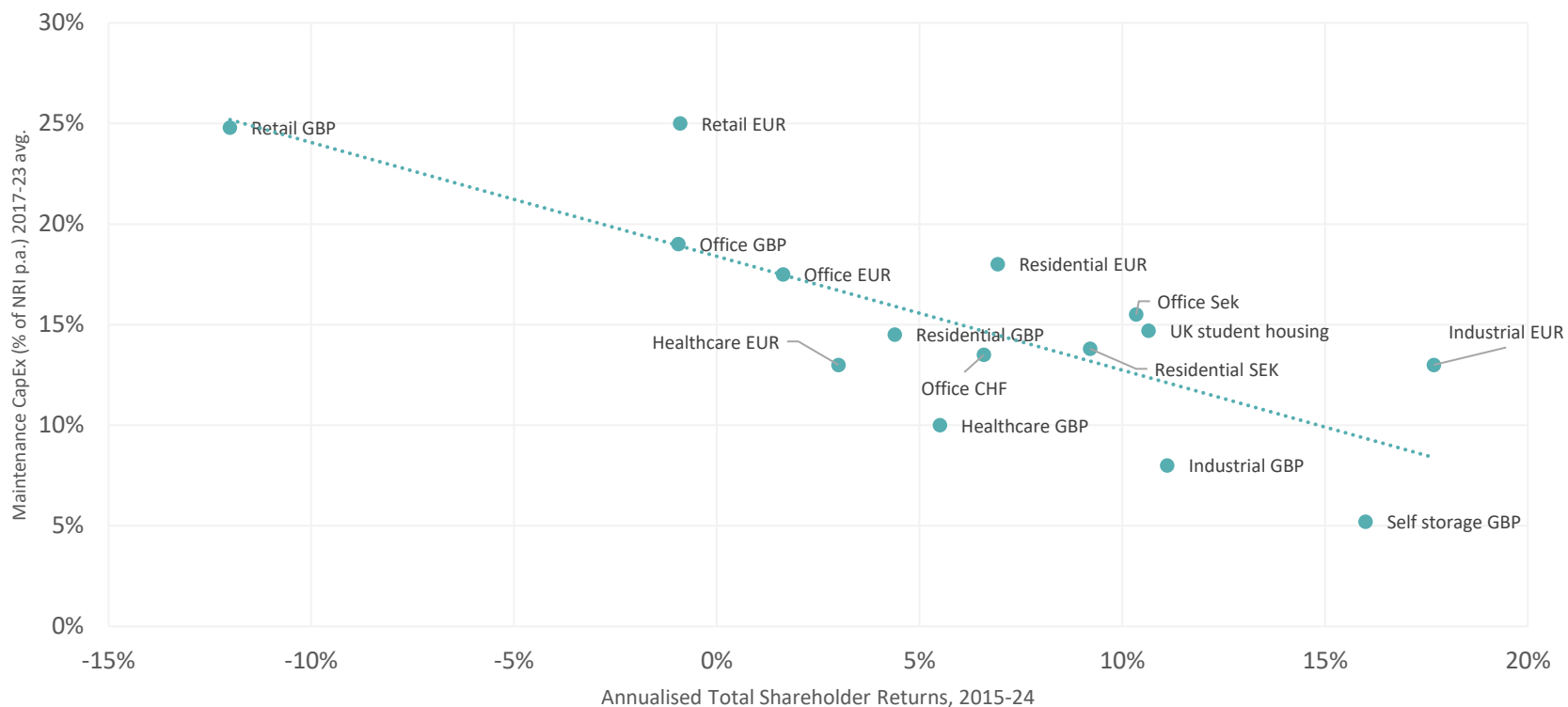
Note: Excluding self-storage, towers, net lease and lodging. Forecasts are based on assumptions, estimates, views and hypothetical models or analyses, which might prove inaccurate or incorrect. Past performance is not a reliable indicator of future returns.

Source: DWS, Green Street, August 2024

... But Not Total Shareholder Returns

European REIT Returns tend to be higher in sectors which require less CapEx, suggesting the market is failing to price in CapEx efficiently

CapEx and REIT Total Shareholder Returns, %



More CapEx

Retail

Office

Student Acc.

Industrial

Healthcare

Self storage

Less CapEx

Past performance is not a reliable indicator of future returns.

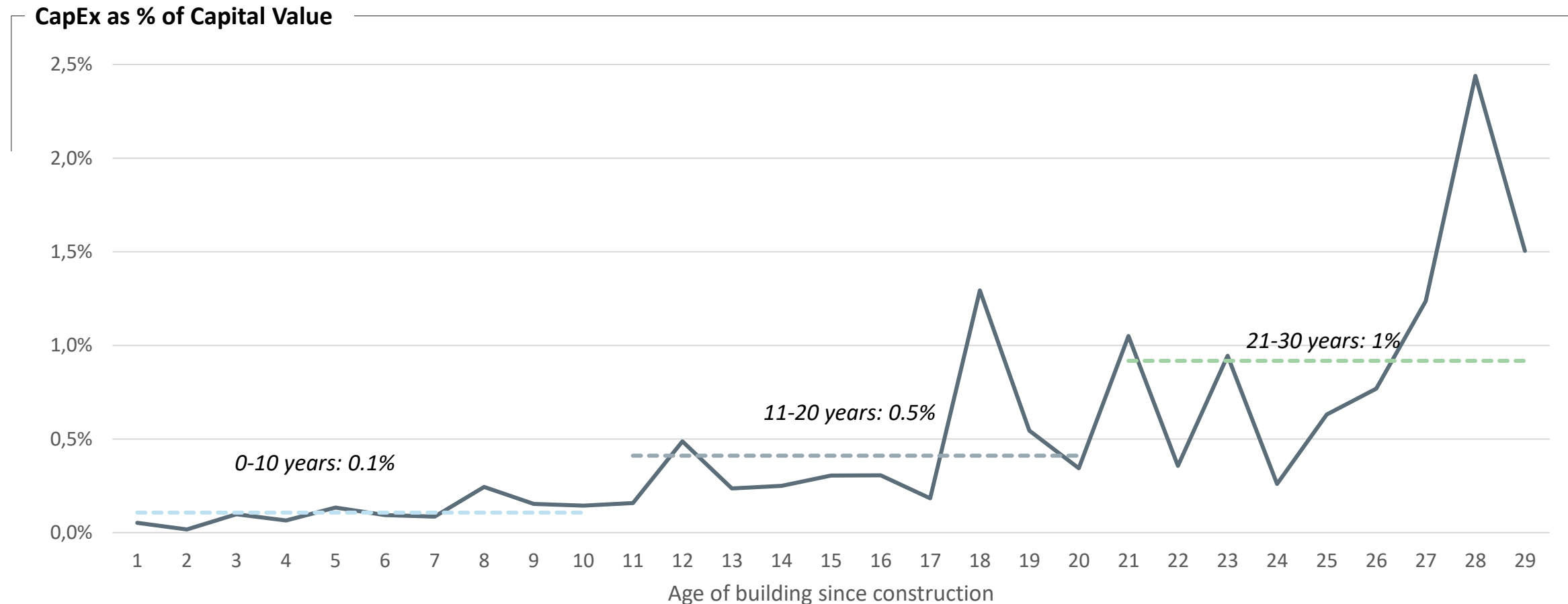
Source: Green Street, September 2024

The background of the slide is a photograph of a beach at sunset. The sky is a mix of orange, yellow, and grey, with numerous birds in flight. A person is silhouetted in the foreground on the left, looking out at the ocean. A large, semi-transparent teal arrow graphic points from the right side of the slide towards the center.

02 CapEx Compared

Results from DWS data

CapEx is lumpy and tends to rise as the building ages, particularly after the first 10-12 years post-construction



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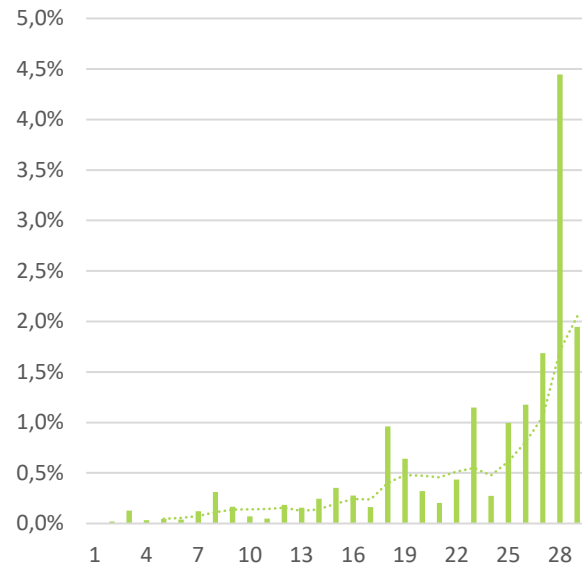
Source: DWS, July 2024

Results from DWS data

CapEx requirements vary by sector: Offices and logistics see more of a jump in CapEx after 20 years while retail requires more CapEx upfront.

Office

CapEx as % of Capital Value

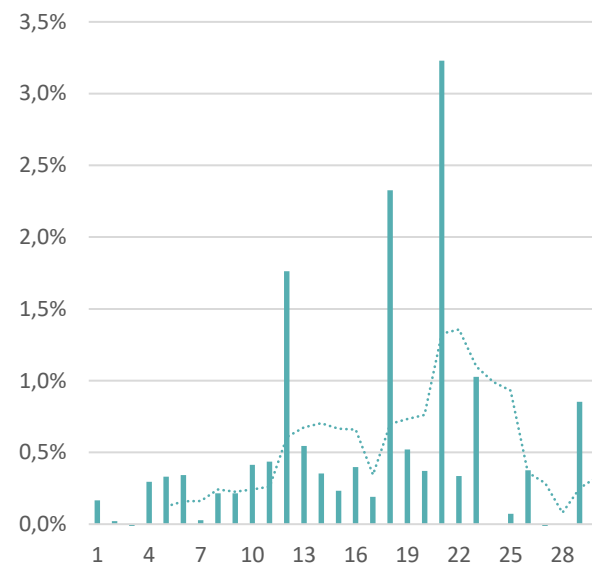


Age of building since construction

..... Moving 5-year avg.

Retail

CapEx as % of Capital Value

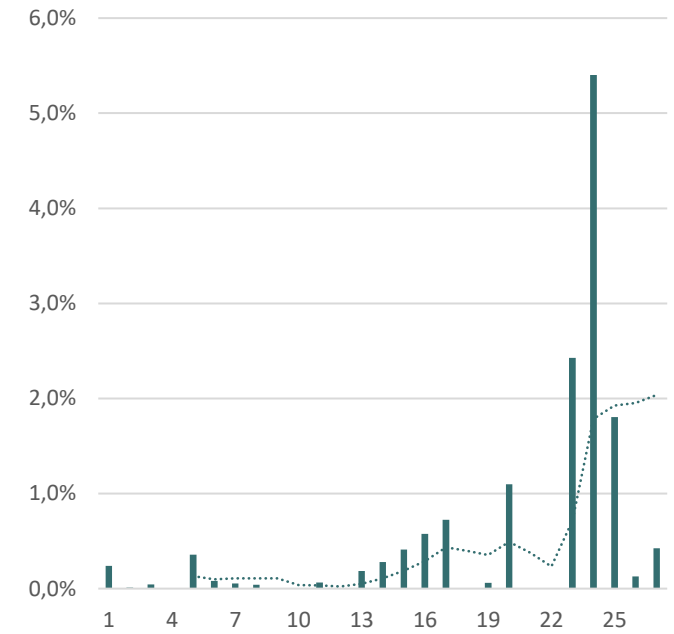


Age of building since construction

..... Moving 5-year avg.

Logistics

CapEx as % of Capital Value



Age of building since construction

..... Moving 5-year avg.

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Source: DWS, July 2024

Via San Prospero, Milan, Italy

- One major CapEx project in 2012-14
- **CapEx as % of GAV: 1.0%-1.4%**
- **CapEx as % of NRI: 16%-24%**
- **25% uplift in rents post-CapEx**



Park House, London, UK

- Two rounds of CapEx (2018 and 2020)
- **CapEx as % of GAV: 0.4%-0.7%**
- **CapEx as % of NRI: 7%-11%**
- **25% uplift in rents in 2018, 19% in 2020**



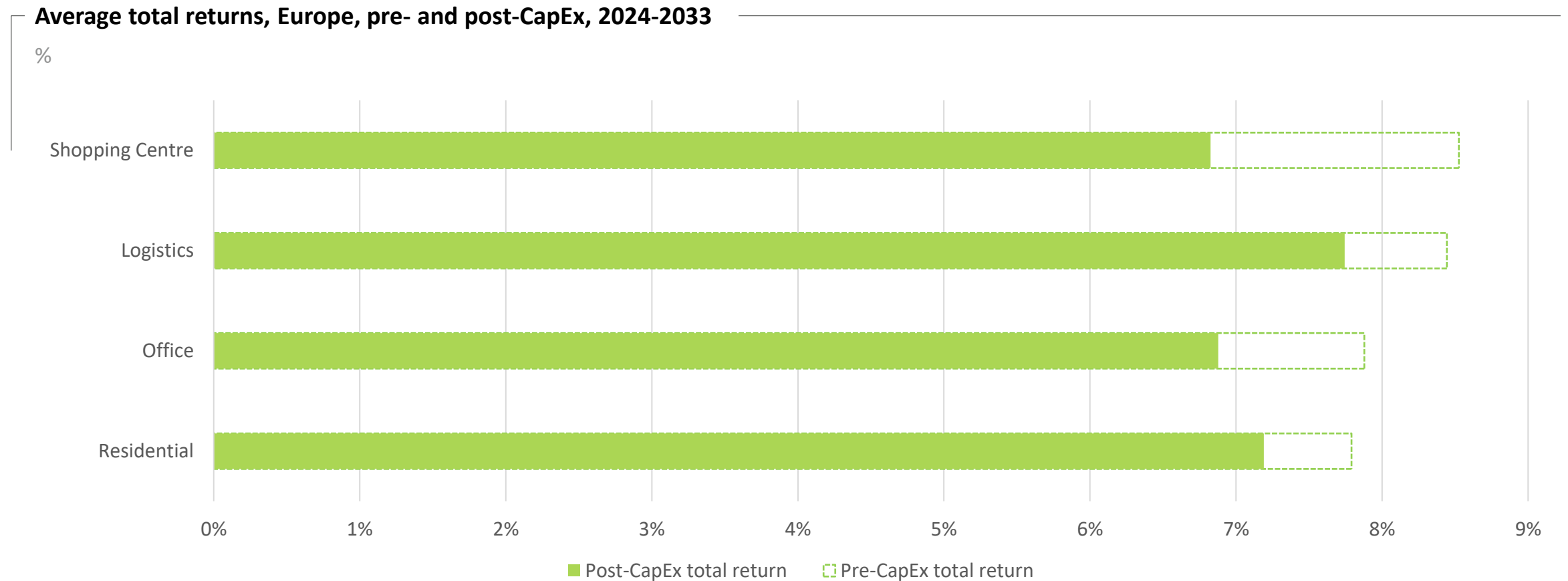
Nosso Shopping Centre, Vila Real, Portugal

- CapEx project in 2016/17
- **CapEx as % of GAV: 1.2%-1.7%**
- **CapEx as % of NRI: 12%-17%**
- **5% uplift in rents post-CapEx**



Forecast Implications

After CapEx, returns for some sectors are significantly worse. Failing to take CapEx into account could result in misallocation of capital.



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Source: DWS, June 2024

Headlines

CapEx tends to be very low in the first 9-10 years of a building's life. However, after this point, we can expect to spend more on CapEx and this should be factored into exit underwriting.

Analysis

CapEx is necessary to offset depreciation and drive income growth

Recent trends suggest it is increasing

So far, it is not well understood. Few bottom-up studies exist to quantify likely CapEx at an asset level, yet CapEx is important in determining long-term total returns

Underwriting and business plans

Our analysis points towards a jump in CapEx after the first dozen years

Retail and offices have highest CapEx

CapEx tends to increase steadily for retail assets, and offices and logistics often experience a step change at key intervals in the asset's lifespan

Research and Strategy

Capital allocation recommendations should be on a post-CapEx basis

Important information



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