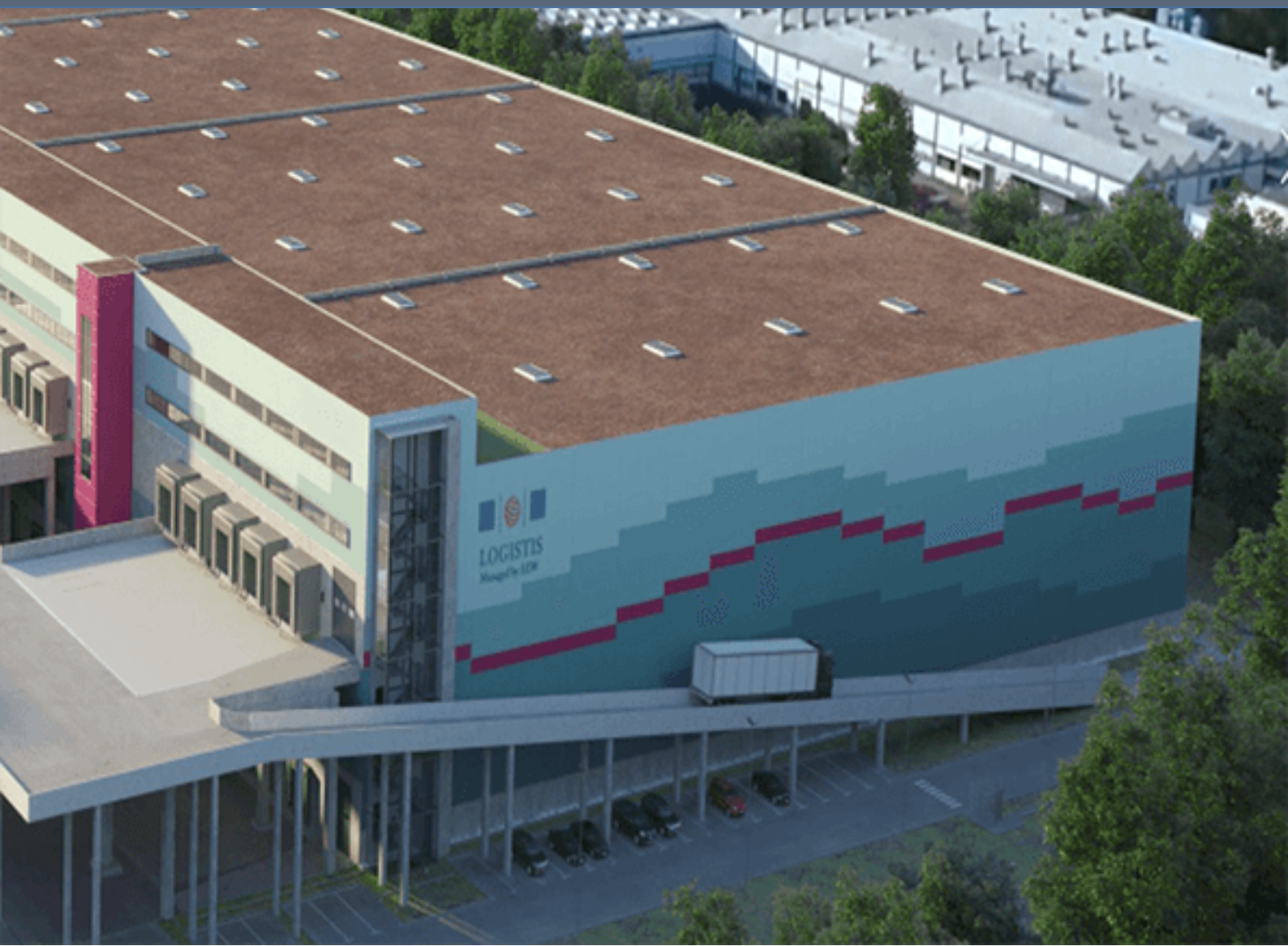
AEW

2019 EUROPEAN ANNUAL OUTLOOK

WHEN THE GOING GETS TOUGH



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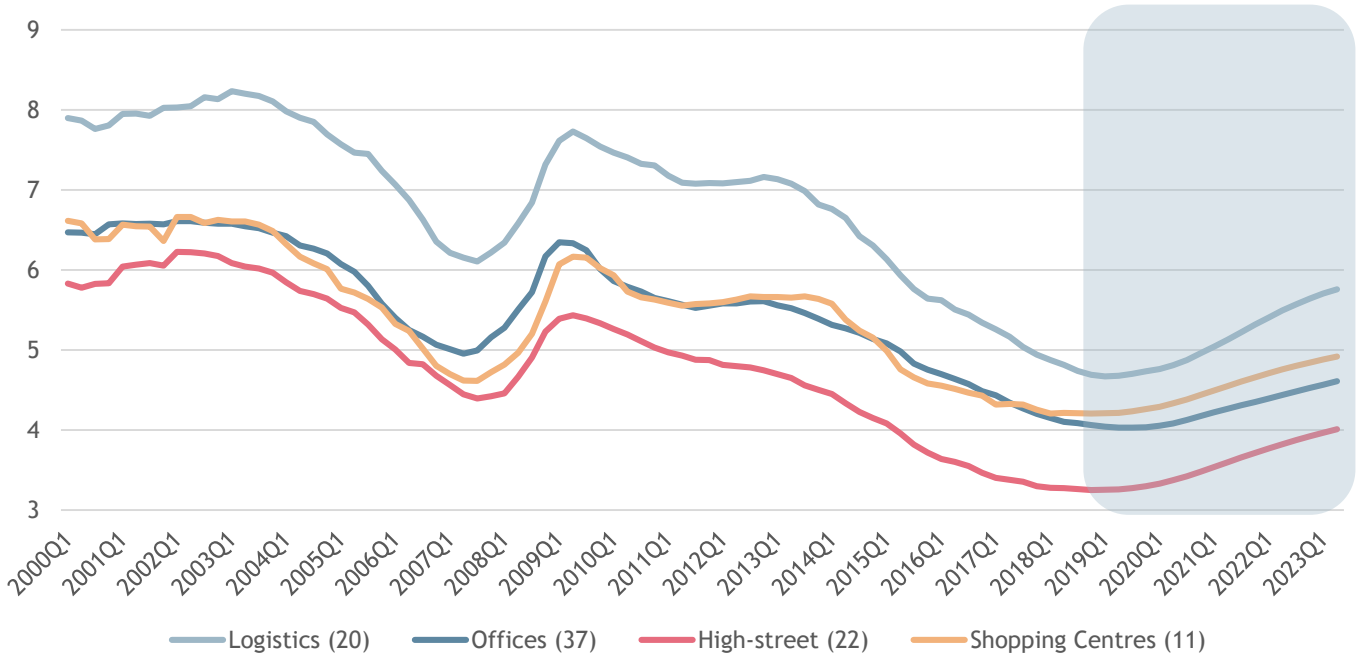
WHAT WILL BE THE EFFECT OF THE EXPECTED PROPERTY YIELD WIDENING?

In absolute terms, European real estate has appeared expensive for the last year, as indicated by record low yields across all four property types. But, with government bond yields at record lows, there is still a significant excess return investors are making to take risk in real estate. Also, despite increasing trade frictions and political uncertainty, the economic recovery is expected to continue, albeit at a modestly slower rate. This is expected to trigger further rate hikes from the Fed and other central banks pushing out government bond yields in the next five years to levels more in line with historical averages. Based on this background, we launch our risk-adjusted return approach to answer the challenging question posed by many: What will be the effect of the expected property yield widening?

HISTORICAL (2000Q1-2018Q2) AND FORECASTED (TO 2023Q2) PRIME YIELDS PER PROPERTY TYPE (QTLY)

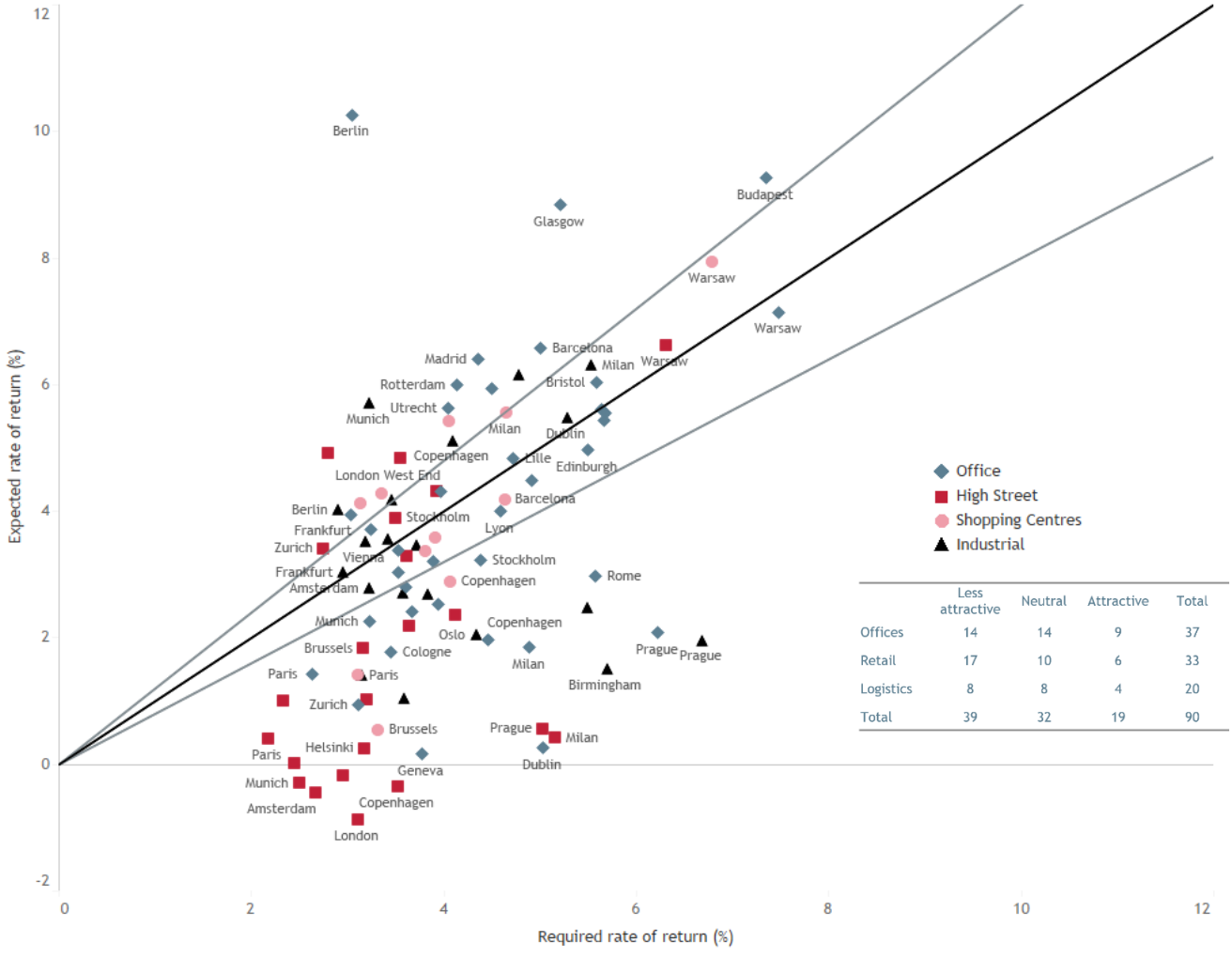


Sources: CBRE, Natixis & AEW

EXECUTIVE SUMMARY: MORE THAN HALF OF MARKETS NEUTRAL OR ATTRACTIVE

- After a period of ever tightening property yields, bond yield normalisation is expected to push out prime property yields confirming the current late cycle stage of the European real estate markets.
- Elevated overall debt levels leave major western economies vulnerable to these widely anticipated interest rate increases, even though the macro-economic recovery has gathered force and continues for now.
- Our new risk-adjusted returns approach identifies opportunities across 90 European real estate markets by comparing the expected to the required rate of return for each market. Our back testing shows that this approach has given appropriate signals in previous market cycles.
- Given the solid momentum in most occupier markets and projected prime market rent growth, our approach identifies 51 of the 90 covered markets as neutral or attractive, despite the anticipated yield widening.
- Attractive individual asset acquisitions remain available even in less attractive markets as stock picking remains a key driver of portfolio or fund level performance.
- Finally, we expect less dramatic downside in the coming years as real estate-specific debt levels remain modest and new supply of space relatively limited compared to previous cycles.

RISK-ADJUSTED RETURNS FOR ALL PROPERTY TYPES



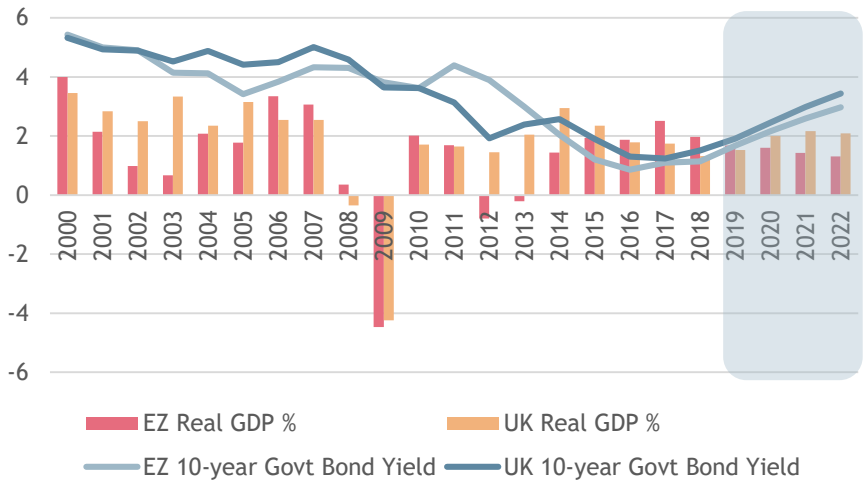
	Less attractive	Neutral	Attractive	Total
Offices	14	14	9	37
Retail	17	10	6	33
Logistics	8	8	4	20
Total	39	32	19	90

Source: CBRE, RCA, MSCI, Oxford Economics, Natixis & AEW

SECTION 1: ECONOMIC BACKDROP

GOVERNMENT BOND YIELDS EXPECTED TO INCREASE OVER THE NEXT 5 YEARS

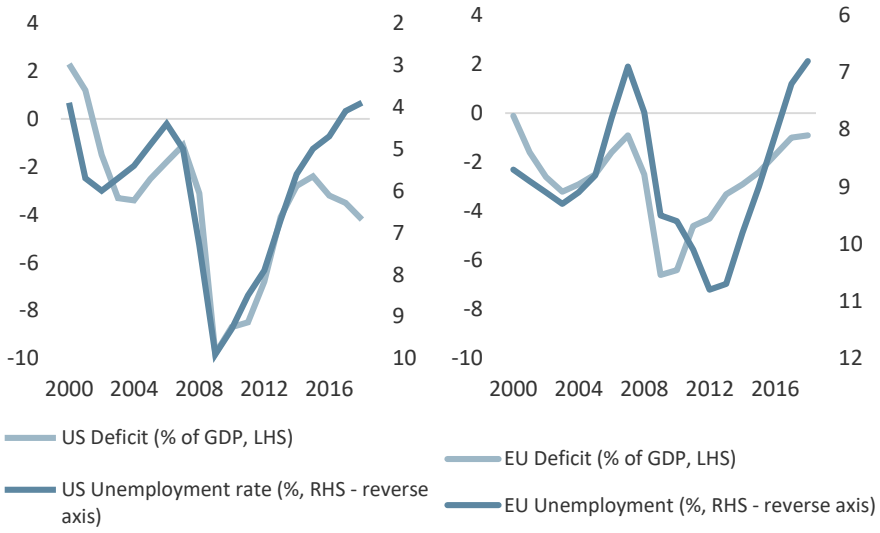
- Despite increasing trade frictions and political uncertainty, the global economic recovery is expected to continue.
- There is a slowdown in GDP growth projected for the next five years in the Eurozone, while the UK (assuming a successful Brexit treaty negotiation) is expected to see a pick-up in growth.
- In turn, this continued macro-economic recovery is pushing central banks to increase their base rates and reverse their quantitative easing policies.



Sources: Oxford Economics & AEW

EUROPE'S REDUCING GOVERNMENT DEFICITS SHOULD LEAVE ROOM FOR FISCAL STIMULUS WHEN NEEDED

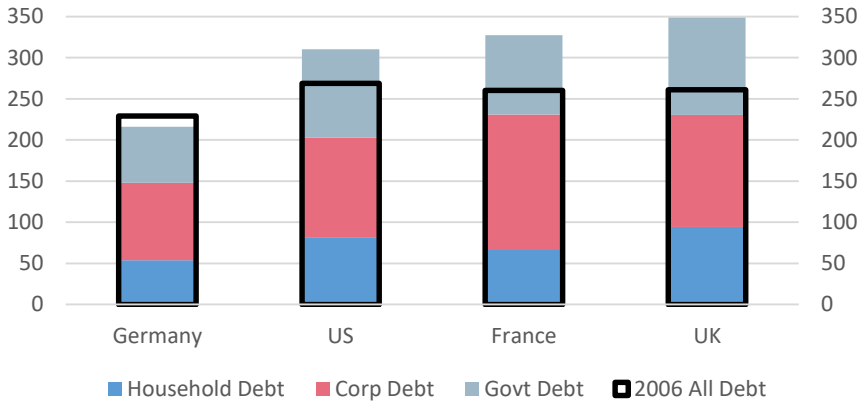
- Declining unemployment levels confirm the strong growth momentum in both the EU and US.
- But, despite its near full employment, the US government deficit was already increasing before the recent tax cuts, while in Europe it has been consistently reducing.
- Their pro-cyclically reduced deficits should give European governments more room for expansionary fiscal policy in the case of a future recession or slow down.



Sources: OECD, FED, EUROSTAT & AEW

INCREASED OVERALL DEBT LEVELS LEAVE MAJOR ECONOMIES VULNERABLE TO RATE RISES (DEBT AS % OF GDP)

- With Germany being the notable exception, government as well as corporate and household debt has increased in France, UK and US since 2006.
- This is expected to leave these major economies more vulnerable to widely expected interest rate increases.
- Ultimately, that could limit the extended period of economic recovery and reduce central banks' ability to manage inflation by raising rates.

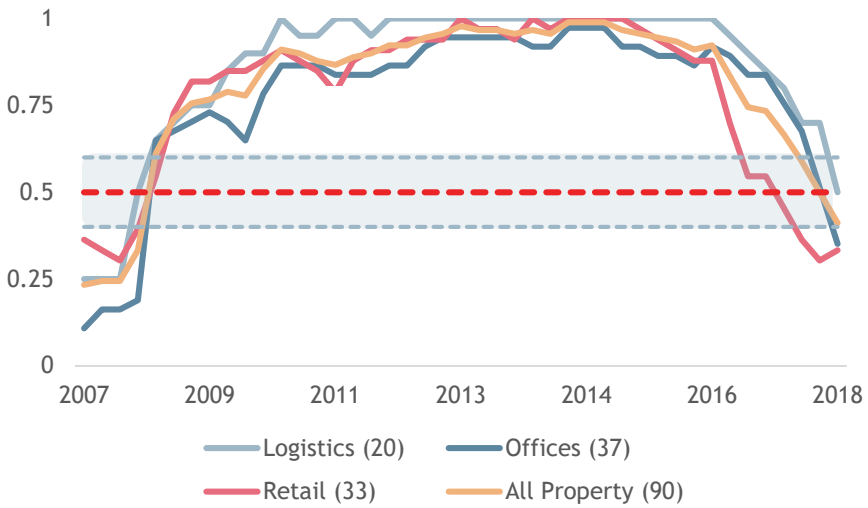


Sources: Oxford Economics, IMF & AEW

SECTION 2: RISK-ADJUSTED RETURNS

RISK-ADJUSTED RETURN INDEX CONFIRMS LATE CYCLE CHALLENGE

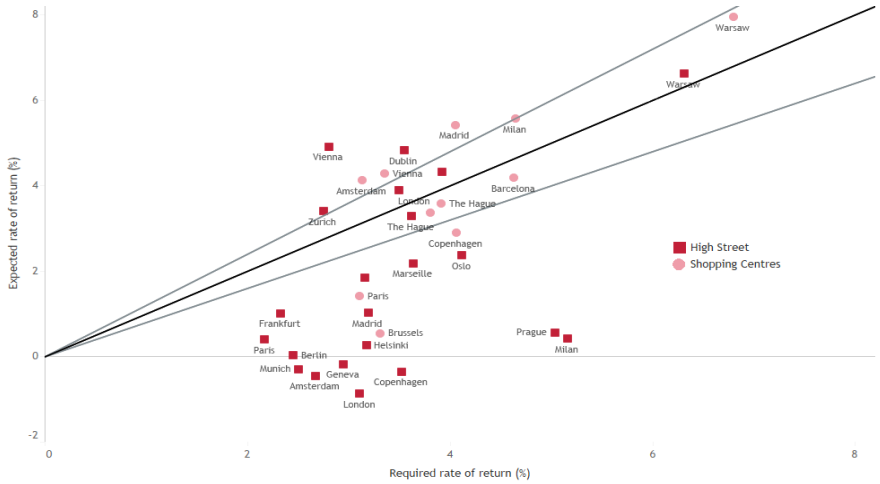
- Our risk-adjusted return index summarises the results across the 90 markets segments covered over time.
- Back-testing shows clearly that our approach has come up with the right signal in the past. Leading up to the GFC, the index shows the most attractive markets in 2007.
- The current results confirm - what most market participants already accept - that we are in the late part of the cycle.



Source: CBRE, RCA, MSCI, Oxford Economics, Natixis & AEW

RETAIL IS MOST CHALLENGED SECTOR ACROSS THE BOARD

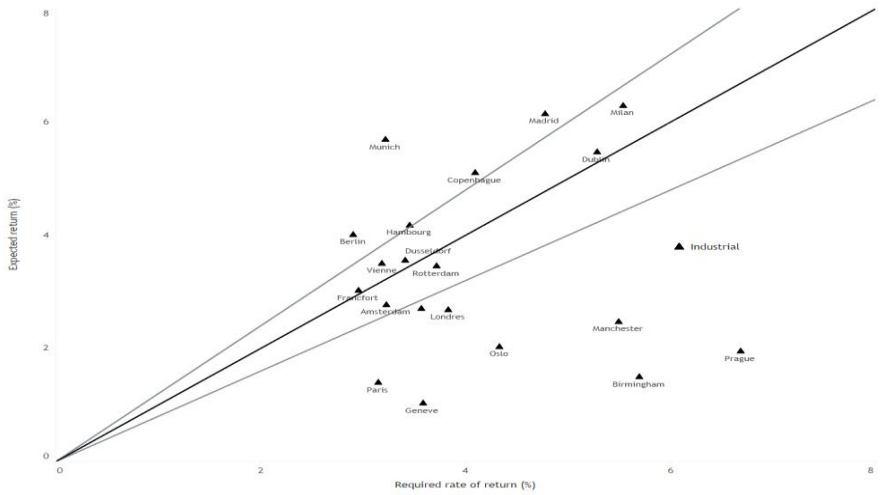
- Results for all 33 retail markets are displayed as a scatter graph along the required (horizontal) and expected (vertical) rates of return axes.
- The few retail markets where the expected rate of return is higher than the required include markets such as, Madrid shopping centres (SC) as well as Vienna, Zurich and Dublin high street (HS) retail.
- On the other hand, markets with a higher required rate of return are more prevalent in retail than any other sector and include for example London, Amsterdam and Copenhagen high street retail.



Sources: CBRE, RCA, MSCI, Oxford Economics, Natixis & AEW

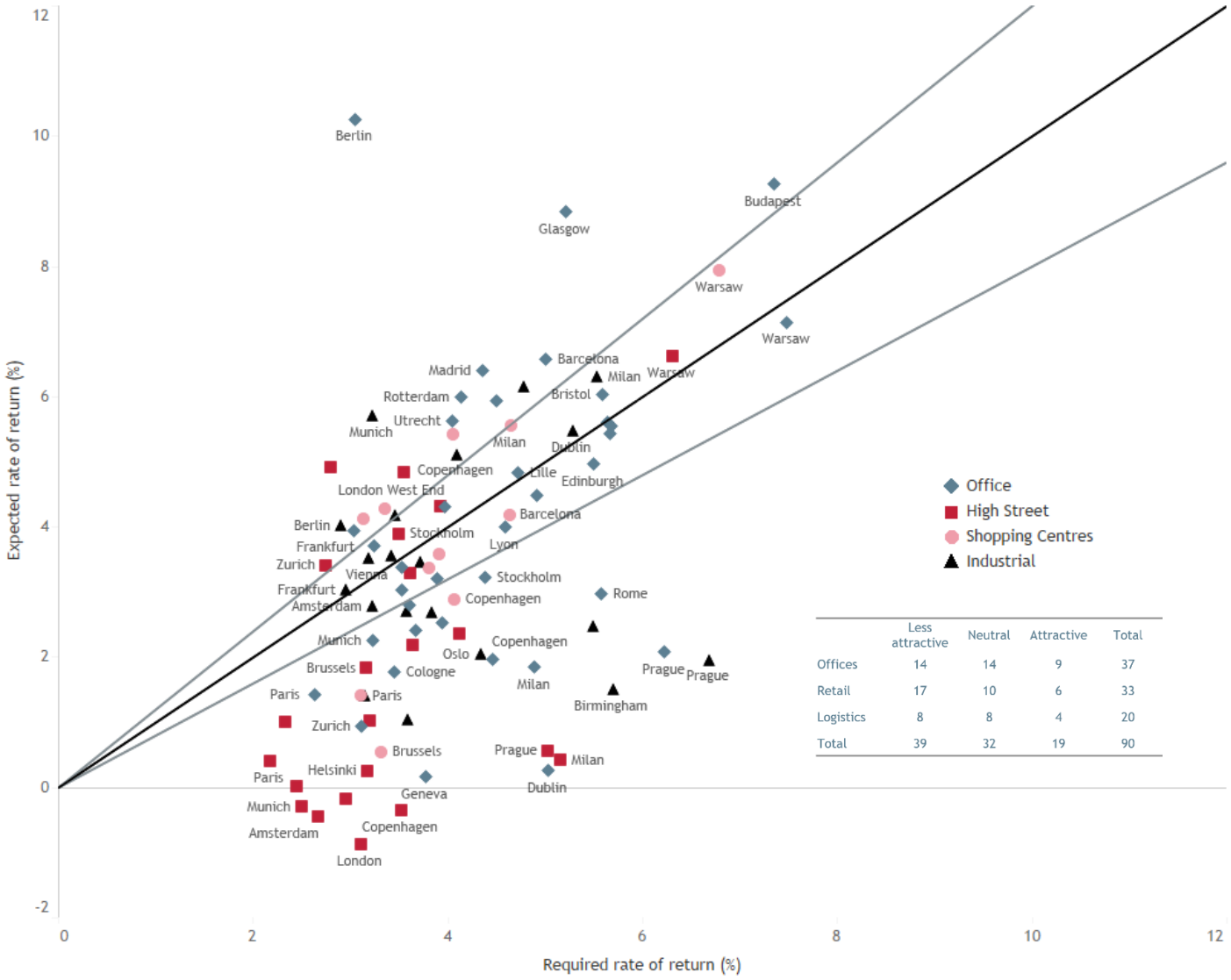
LOGISTICS MARKETS ARE MORE ATTRACTIVELY PRICED

- Across our 20 logistics markets, we classify eight markets as less attractive, i.e., where the expected return is less than the required rate of return.
- Our approach pinpoints only four attractive markets, where the expected return is higher than the required return. They are Munich, Berlin, Copenhagen and Madrid.
- Another eight markets show expected and required rates of return within a 20% band (neutral), including Frankfurt, Amsterdam, Dublin and Milan.



Sources: CBRE, RCA, MSCI, Oxford Economics, Natixis & AEW

DESPITE LATE CYCLE, 51 OF 90 MARKETS COVERED ARE RATED ATTRACTIVE OR NEUTRAL



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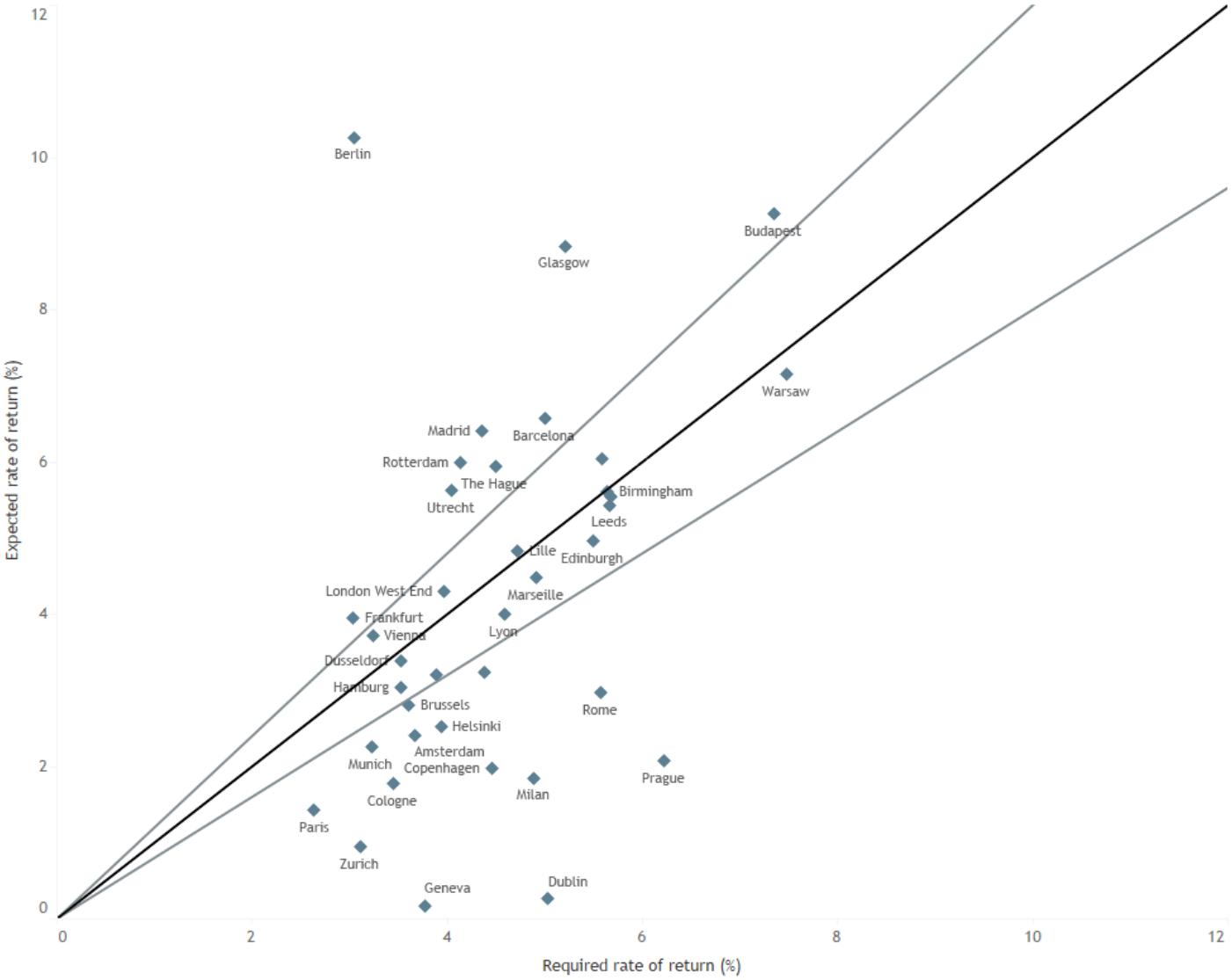
Source: CBRE, RCA, MSCI, Oxford Economics, Natixis & AEW

- Results for all 90 markets are displayed as a scatter graph along the required (horizontal) and expected (vertical) rates of return axes.
- Based on our analysis, we classify our markets in three categories: (1) less attractive markets where the expected return is not sufficient to meet the required rate of return (2) neutral markets, with the expected and required rate of return within a 20% band as indicated by the grey lines; and (3) attractive markets where the expected return exceeds the required rate of return.
- As already highlighted, retail is the most challenging segment with 17 of 33 markets classified as less attractive. This is consistent with the consensus views in the market and mostly driven by the low yields in the high-street retail sector.
- The logistics sector performs better on average with 12 of 20 markets classified as neutral or attractive, reflecting some of the prevailing optimism and the future rental growth expected in this sector.
- This leaves offices as the most attractively classified sector across our universe, with 23 of 37 markets scoring as neutral or attractive.

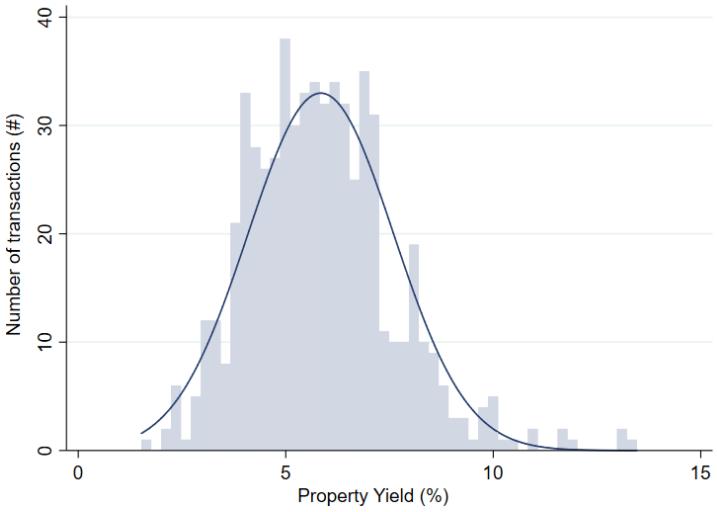
OFFICE RESULTS CONFIRM POSTIVE SCORES FOR DELAYED RECOVERY MARKETS



Source: CBRE, RCA, MSCI, Oxford Economics, Natixis & AEW

- Results for our 37 office markets show attractive classifications for markets with more delayed recovery, like Glasgow, Madrid and Rotterdam.
- Like in the other property sectors, there are many less attractive markets where the required rate of return is higher than the expected, including Dublin, Geneva and Paris.
- In the case of Paris our score reflects that on average investors are unable to achieve the required rate of return. But, there is a wide range of actual deal returns available around the prime market average. If we place this range around the Paris average, we can see that individual deals are available in the market to beat the required rate of return.
- The chart on the right illustrates clearly that investors can benefit from stock picking and find attractive deals, even in less attractive markets.

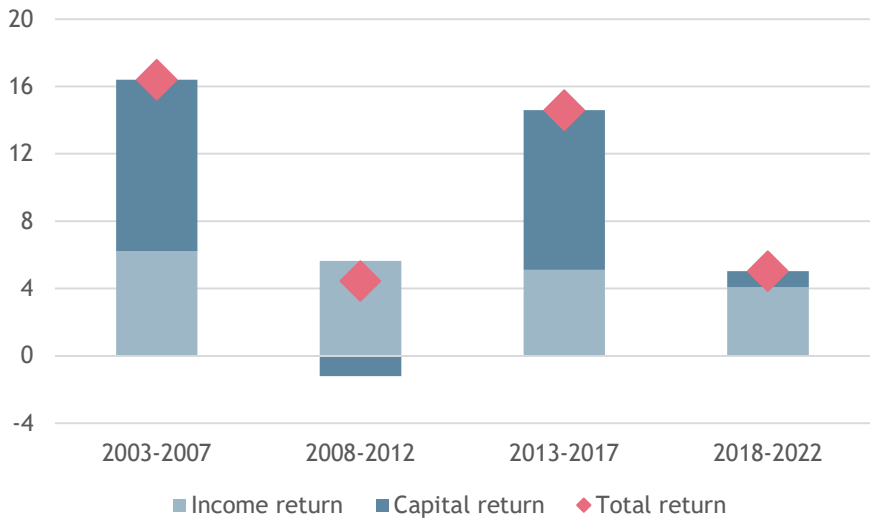
INITIAL TRANSACTION YIELDS ACROSS ALL 90 MARKETS OVER THE LAST 12 MONTHS



Source: RCA & AEW

EXPECTED RETURNS DRIVEN BY INCOME AS YIELD WIDENING LIMITS CAPITAL GROWTH

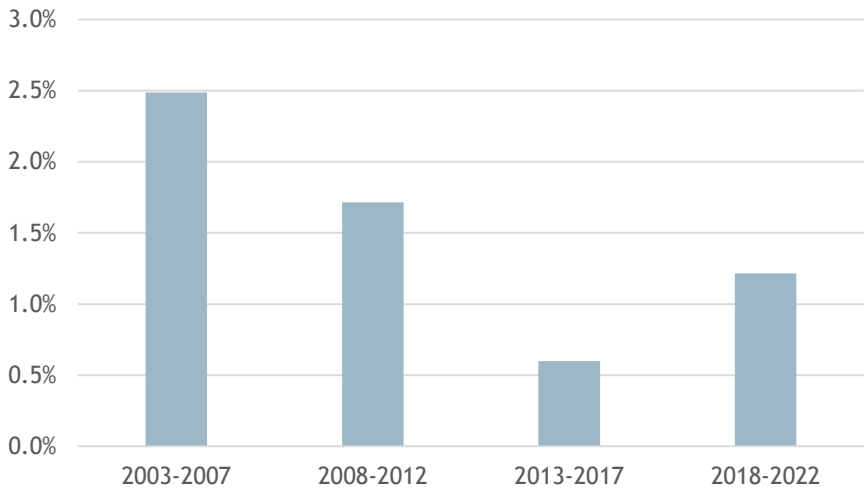
- Expected returns across all 90 markets covered are mostly driven by income. From the chart it is clear that the capital return element of total return varies widely over the long term.
- In fact, over the next five years, we forecast only little capital appreciation across our coverage universe.
- The differences between the individual markets are significant and are shown and explained further in section 4.



Source: CBRE, Natixis & AEW

LIMITED SUPPLY OF NEW SPACE SUPPORTS MARKET RENTAL GROWTH

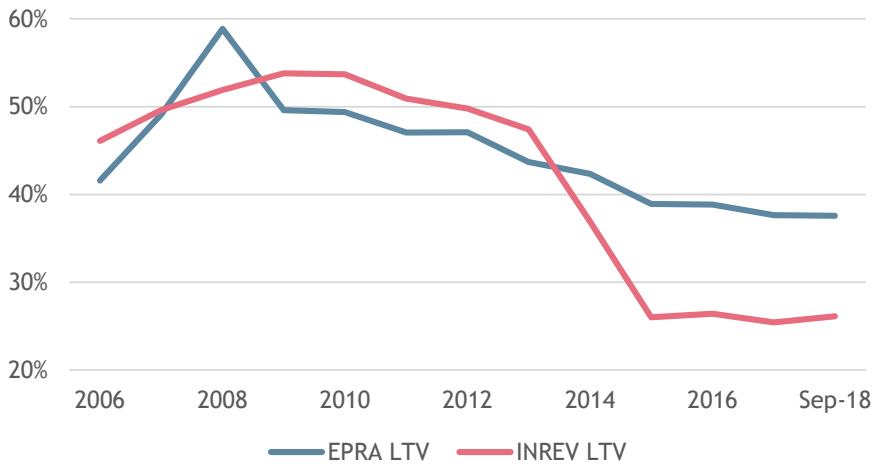
- New supply of space has proven to be the spoiler of rental growth in previous cycles. But, based on current office market data, we see more limited amount of new supply than in previous cycles.
- Data on logistics and retail are more difficult to obtain, but we suspect similar discipline in the market.
- The limited new development pipeline is partly due to banks not financing speculative new development to the same extent as in the past (this is due to new regulatory and commercial constraints).



Source: CBRE & AEW

POSSIBLE FUTURE DOWNSIDE LIMITED BY MODEST DEBT LEVELS

- Another mitigating factor to protect the cycle from significant downside this time around, is that real estate debt has been coming down.
- Debt levels of European funds and REITs have come down from their highs in 2007 and have been stable since 2015. This is in contrast to the increasing corporate, government and consumer debt.
- Future increases in interest rates combined with possible declines in values are much less likely to trigger the same onslaught of defaults and failed re-financings now as in 2007.

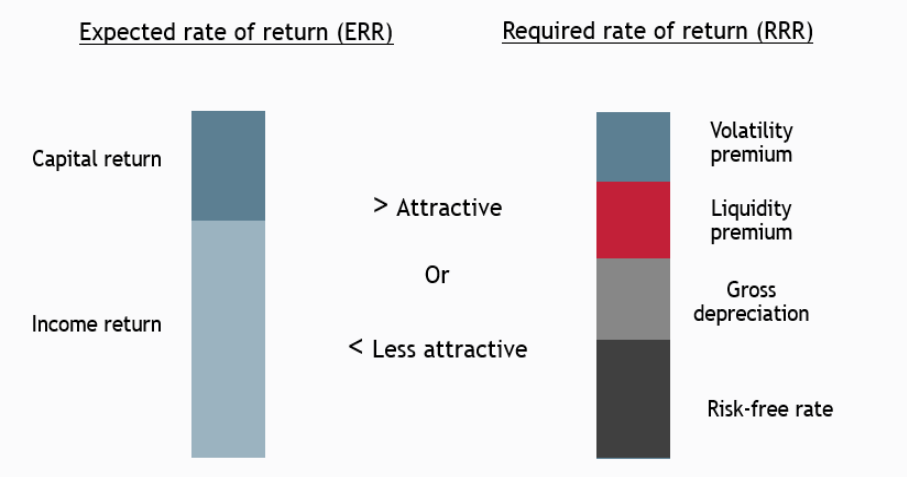


Sources: EPRA, INREV & AEW

SECTION 3: METHODOLOGY

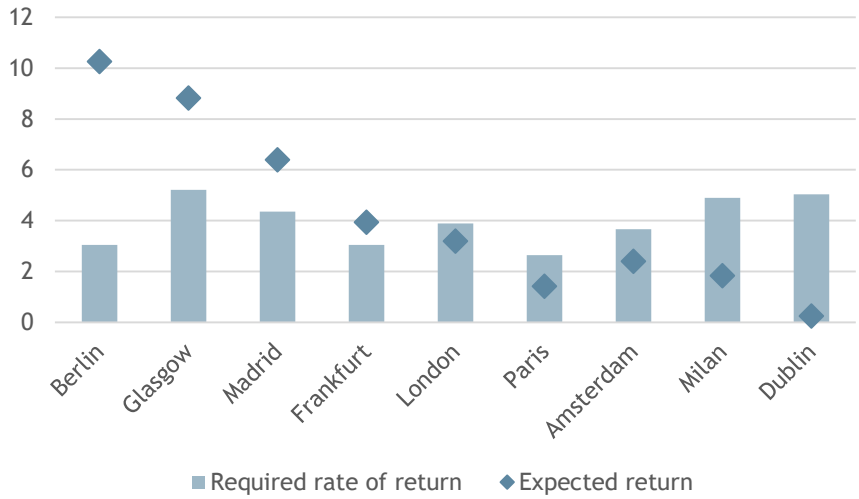
THE RISK-ADJUSTED RETURN METHODOLOGY EXPLAINED

- Our risk-adjusted return approach is based on a simple comparison between the required rate of return and the expected rates of return over the next five years for each market.
- If the expected rate of return is higher than the required rate of return then we classify this market is attractive.
- This means that, if the expected rate of return is lower than the required rate of return than we classify it as less attractive.
- Finally, we have the neutral category for markets where expected and required returns are broadly in line.



EXPECTED OFFICE RETURNS MOST FAVORABLE IN BERLIN AND GLASGOW

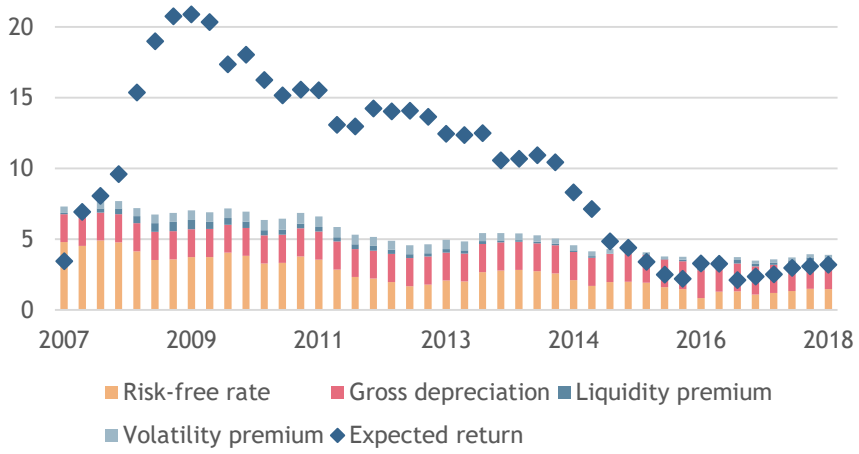
- To illustrate our approach, we show a comparison for nine European office markets. For each market, both elements of expected and required rate of return play a role.
- It shows favorable (Berlin and Glasgow) and less favorable (Dublin and Milan) markets. The comparison can be explained by each of its components. Berlin's high expected returns are driven by rental growth, while future yield widening offsets more modest rental growth in Dublin over the next five years.



Source: CBRE, RCA, MSCI, Oxford Economics, Natixis & AEW

LONDON REQUIRED RETURN UP, WITH EXPECTED RETURNS HELD BACK BY YIELD WIDENING

- Our example chart for London City offices shows that our view is not static and will change over time.
- Unsurprisingly, this is true for the required rate of return, as bond markets re-price on a daily basis. In fact, the risk-free rate (or bond yield) has been the big downward driver over the last ten years, while partly reversing this trend in the last six quarters. Gross depreciation does not change over time. But, liquidity and volatility premium have reduced over time as expected.
- In our example, actual historical and projected returns are more volatile than required returns.

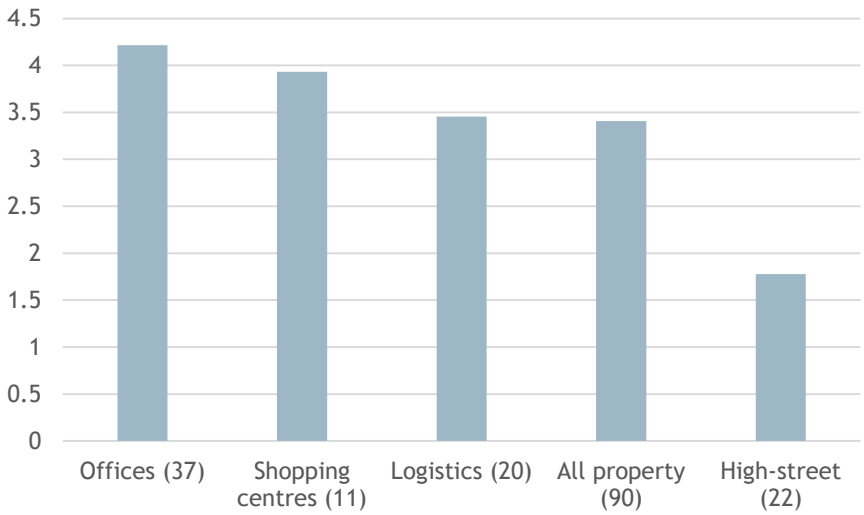


Source: CBRE, RCA, MSCI, Oxford Economics, Natixis & AEW

SECTION 4: EXPECTED RATE OF RETURN

HIGHEST EXPECTED RATE OF RETURN FORECAST FOR OFFICES

- Average prime all property returns over the next five years are forecast at 3.4% per annum, based on our current income and capital value projections.
- Offices show an above average total return of 4.2% over the period, while prime high street has projected returns of 1.8% per annum.
- On the next page we will discuss the sector-level returns in more detail to highlight the drivers for these differences.



Source: CBRE, Natixis & AEW

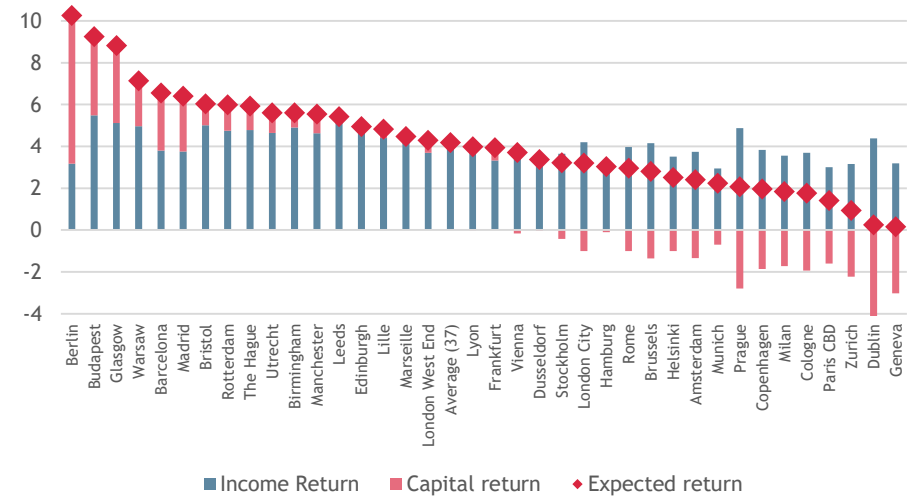
METHODOLOGY & ASSUMPTIONS FOR FORECASTED RETURN ESTIMATES

The AEW in-house property market forecast is the base for our expected returns and can be summarised as follows:

- The basis for our forecasts are prime property market data per city property type segment, as they offer a significant quarterly historically consistent data series of headline market rents and yields.
- Based on this data, total returns for each segment are calculated based on the initial yield, market rental growth and change in capital value. The latter takes into account both the rental income growth and shift in the initial yield after an assumed five-year holding period.
- Market rent forecasts are based on projected demand for space in each city segment as driven by GDP growth and other economic variables. New supply for each property sector is also taken into account.
- In addition, inflation and government bond yield forecasts are taken into account to produce a consistent series of forecasts.
- Our unique and customised market forecasts provide a five-year projection, which are updated each quarter, are based on the most recent macro-economic and capital market forecasts and the most up-to-date property market information.
- Our current forecast universe covers 44 office, 28 shopping centre, 28 high street retail and 27 industrial/logistics market segments, which we hope to expand going forward. Please note that our 90 segment universe only includes market segments with sufficient data for our long term historical back testing.

OFFICE RETURNS MOSTLY FAVOUR LATE RECOVERY MARKETS

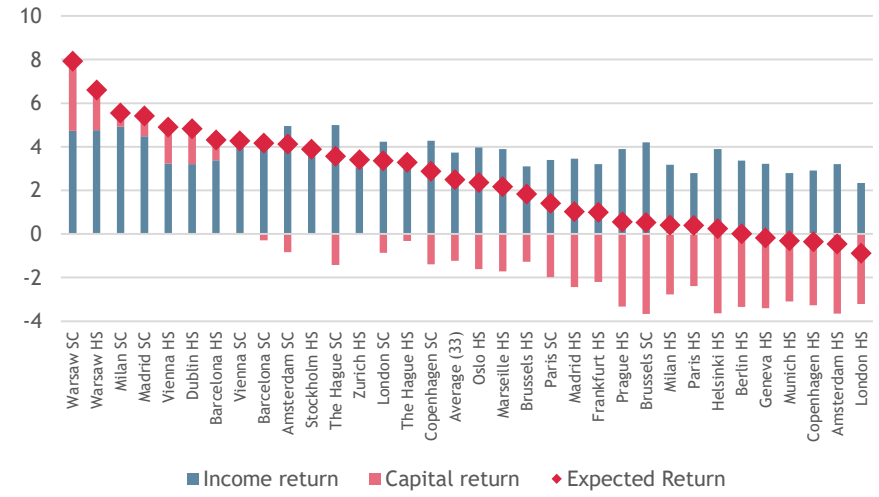
- Across our 37 covered office markets we estimate only 0.1% per annum average capital value return with the 4.1% per annum income return dominating the expected return.
- Late recovery markets such as Glasgow and Barcelona are expected to outperform rental growth offsets yield widening.
- Separately, Berlin's strength is predominantly driven strong rental growth on the back of for example tech take-up.
- None of our covered office market shows a negative total return, although some come very close to zero, like Geneva and Dublin.



Source: CBRE, Natixis & AEW

RETAIL RETURNS MOST CHALLENGED BY YIELD WIDENING

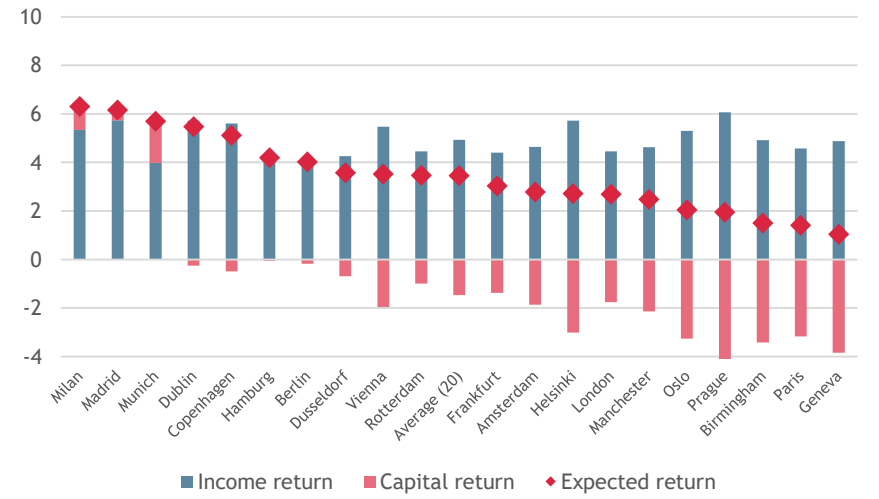
- Retail markets suffer from a significant impact from yield widening, as 25 of 33 markets show capital values declines, with the average at -1.2% per annum.
- As prime high street retail in particular have low yields to begin with, any yield widening is bound to have a relatively bigger impact.
- In fact, this result is in line with most investors' view that retail is the most challenged sector.



Source: CBRE, Natixis & AEW

EXPECTED RENTAL GROWTH ALLOWS LOGISTICS TO OFFSET YIELD WIDENING

- Logistics also suffers from yield widening as 17 of 20 markets show capital values declines, with the average at -1.8% pa (higher than in retail).
- But, with logistics having high yields and better income growth, any yield widening is bound to have a relatively smaller impact.
- This means that for logistics none of the 20 markets is forecasted to have a negative total return over the next five years.

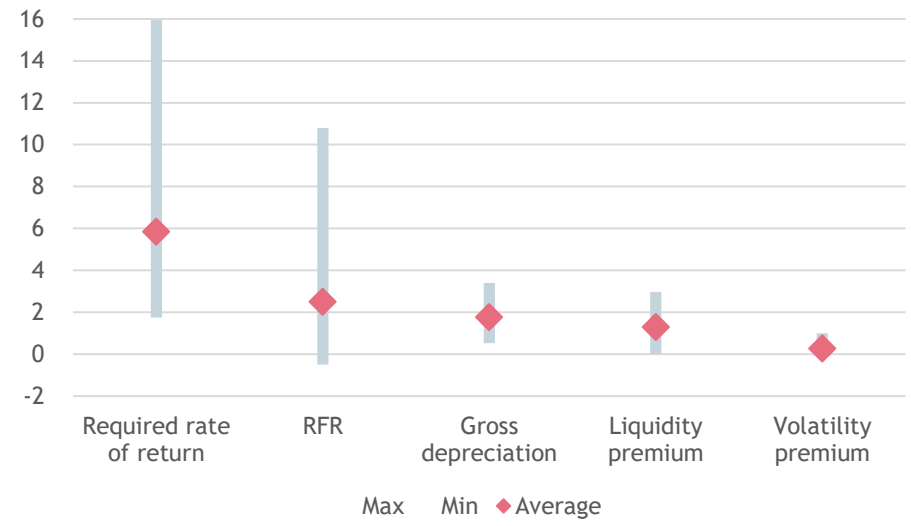


Source: CBRE, Natixis & AEW

SECTION 5: REQUIRED RATES OF RETURN

REQUIRED RATE OF RETURNS QUANTIFIES INVESTORS' HURDLE RATE OF RETURN

- In our risk-adjusted return approach, the required rate of return (RRR) represents our quantification of the minimum return investors require to be compensated for risk in each market.
- The average RRR is 6% over the entire period since Q42007.
- With a low of around 2% and a high of 16%, the RRR varies widely, both over time and across our covered markets.
- The high end of our historical RRR range were achieved in the direct aftermath of the GFC and before QE policies were put in place, when risk-free rates were elevated.
- Gross depreciation and liquidity premium have not been above 3.4% over the 2007Q4-2018Q2 period.



Source: CBRE, RCA, MSCI, Oxford Economics, Natixis & AEW

METHODOLOGY & ASSUMPTIONS FOR REQUIRED RATE OF RETURN ESTIMATES

The required rate of return (RRR) is estimated based on the risk-free rate plus three risk-premia compensating investors for three distinct risks: (1) depreciation, (2) liquidity and (3) volatility. We also back-tested our approach to check appropriate historical signals. The assumptions and construction of the components of our RRR are summarised as follow:

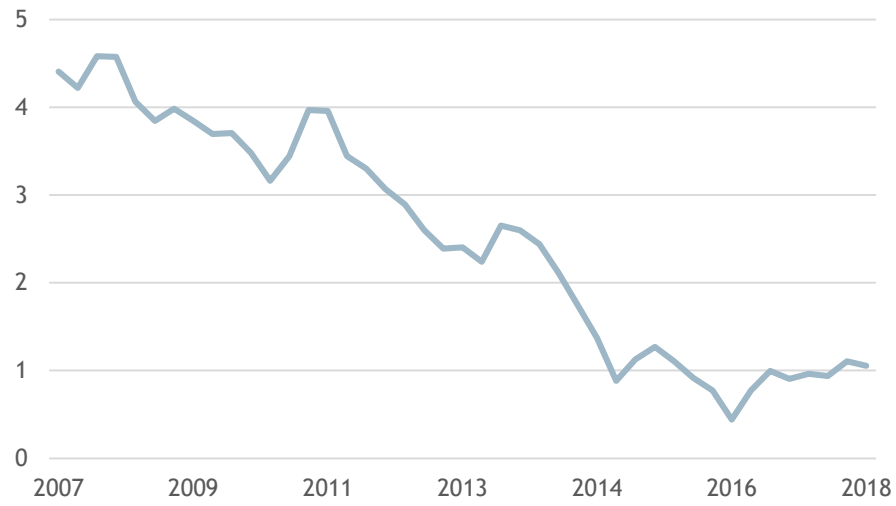
- The risk-free rate is assumed as each country's 10-year government bond yield (period average) in nominal terms.
- Depreciation rates are displayed as gross depreciation rates, taking into account both net depreciation and capital expenditures. Our net depreciation component is based on the latest scientific applications on the topic as published in a 2016 paper by MIT*.
- Following this approach, we apply the proposed biased corrected model to the European universe of the RCA database and estimate models for the all property and office, high-street retail, shopping centre and industrial/logistics segments separately. We do this to adjust our all property city level models to allow property type variation in an environment of thin data.
- Next, we take capital expenditure figures from MSCI, which reflect the actual long-term historical averages spent in a given market segment. This is then added to the aforementioned net depreciation and gives gross Depreciation. Please note that gross depreciation is constant over time for a specific market, as the building stock does not vary significantly each year.
- The liquidity premium can be quantified into different ways: time on the market, liquidation bias and market liquidity. Due to data limitations, we focus solely on the market liquidity aspect in a three step approach:
  - First, we calculate all property type 12-month moving average volumes for specific regions.
  - Secondly, we distribute these volumes from high to low in a linear framework with boundaries from zero to 300, which allows us to differentiate between cities and over time.
  - In the third and final step, we use estimates from a recent University of Reading** study to apply city level sector variation.
- The final risk-premium for volatility assumes that investors need to be compensated for market volatility. To estimate this premium, we calculate a 5-year moving standard deviation and apply this in a linear distribution framework. This allows us to assign each individual market's volatility premium between zero and a 100 bps over time and regions;

* Geltner, D. & S. Bokhari (2016) 'Characteristics of Depreciation in Commercial and Multi-family Property: An Investment Perspective'

** Marcato,G. (2014) 'Liquidity Pricing of Illiquid Assets'

GOVERNMENT BOND YIELD DECLINED SINCE GFC AMID QUANTITATIVE EASING

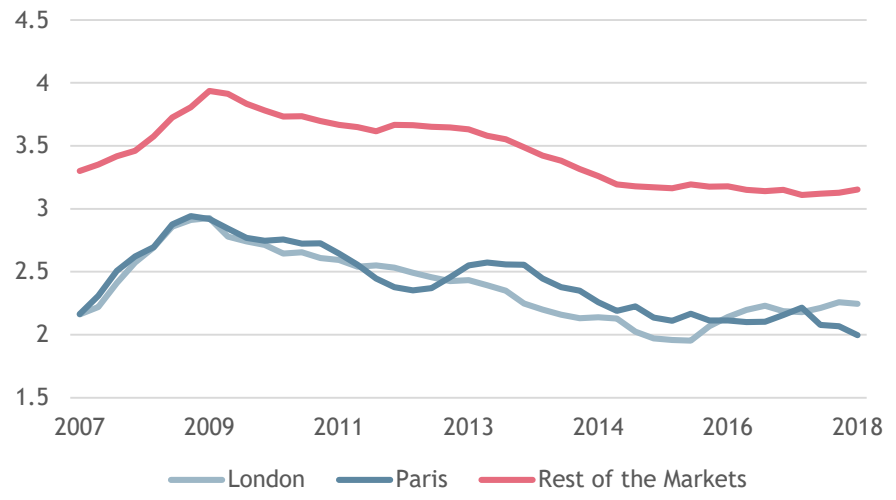
- As the first component in our RRR, the risk-free rate (RFR) is represented by each country's 10-year government bond rate.
- After the GFC, on the back of unprecedented monetary policies of quantitative easing (QE) by central banks, the average RFR across our universe has trended down significantly to reach a low of just below 0.5% in Q3 2016.
- As the economic recovery has continued and QE policies are expected to be reversed in the future, our universe RFR has edged up to over 1.0% in Q2 2018.



Source: Oxford Economics & AEW

LONDON AND PARIS ALL PROPERTY RISK-PREMIA AMONG THE LOWEST IN EUROPE

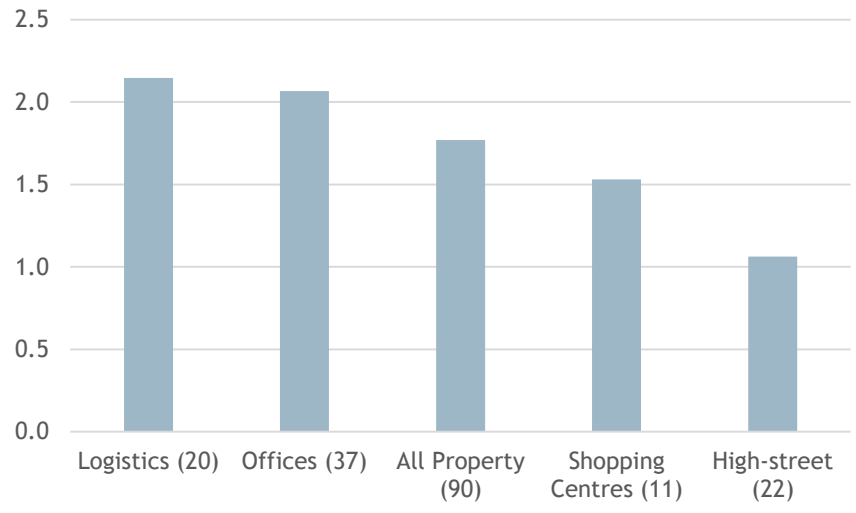
- The combined risk-premium has also stabilised across our universe at around 3% since 2014. This is separate from the stabilisation of the RFR, as described above.
- Investors have posted solid returns in the last five years and transaction volumes have returned to historically high levels across markets. However, the London risk-premium is edging up slightly.
- Therefore it is not surprising that the combined risk-premium are at lower levels for London and Paris than the other markets in our universe.



Source: CBRE, RCA, MSCI & AEW

GROSS DEPRECIATION RATES HIGHEST FOR THE LOGISTICS SECTOR FOLLOWED BY OFFICES

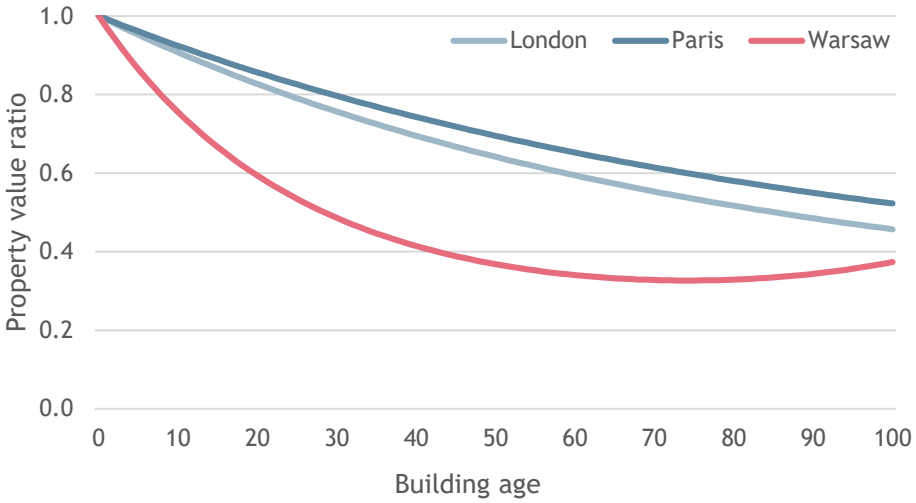
- Gross depreciation is driven by the net depreciation rate as a function of the building age together with the historical capital expenditure for a given market.
- Industrial property is estimated to have a gross depreciation of 2% per annum, which stands at double the level of high street retail.
- This makes intuitive sense, as rents in prime high street retail are less driven by the building, but rather by the location of the shop in the city center. The reverse is the case for logistics warehouses, as there are many suitable locations and occupier requirements have changed over time.



Source: RCA, MSCI & AEW

NET DEPRECIATION LOWER IN GATEWAY CITIES VERSUS NON-GATEWAY CITIES

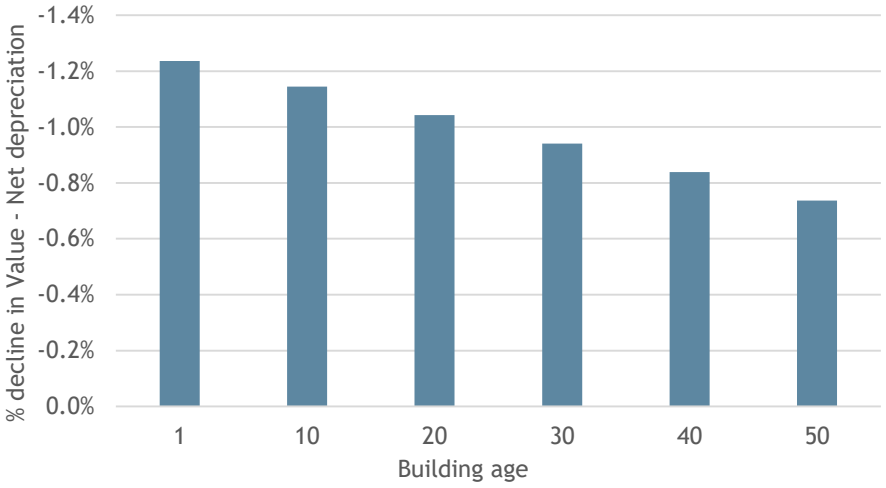
- Net depreciation is driven by a property's eroding ability to attract market rents as its aging brings both physical and functional obsolescence.
- The indexed net depreciation on the buildings age highlights the impact of land values in more established gateway markets, like London and Paris.
- As land value makes up a higher proportion of transaction prices, net depreciation is much slower and lower with 30-35% of depreciation over 50 years in markets such as London and Paris.



Source: RCA & AEW

NET DEPRECIATION FOLLOWS THE J-CURVE AS NEW BUILDINGS TEND TO DEPRECIATE FASTER

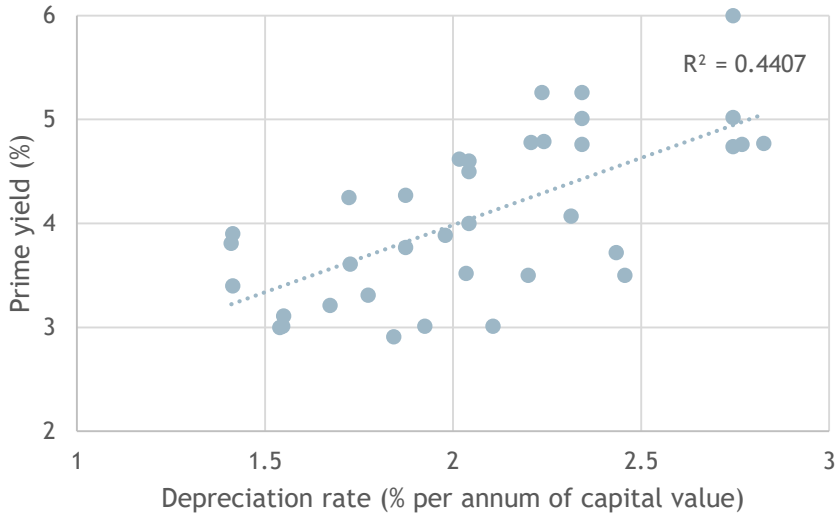
- Our data also implies that new buildings have higher net depreciation rates per annum, than older buildings.
- This stands to the reason that the value of the component of land increases as the building value depreciates over time.
- It is worth noting that our results for Europe are consistent with the US results in the original MIT paper in that newer buildings depreciate faster.



Source: RCA & AEW

GROSS DEPRECIATION RATES TEND TO BE LOWER IN LOW YIELDING OFFICE MARKETS

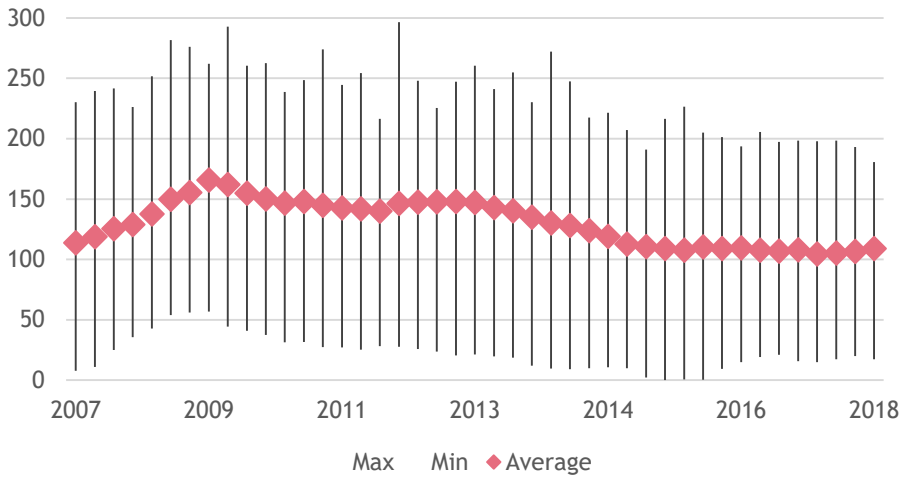
- Further confirmation of our results comes from the chart showing the prime yield and depreciation for all 37 office markets.
- The general correlation shows that lower yielding markets have lower depreciation rates.
- This means that investors are able to accept lower yields when depreciation is also lower, which seems reasonable and confirms our method.



Source: RCA, MSCI & AEW

LIQUIDITY PREMIUM SLIGHTLY UP ON AVERAGE AFTER MOVING DOWN AFTER THE GFC

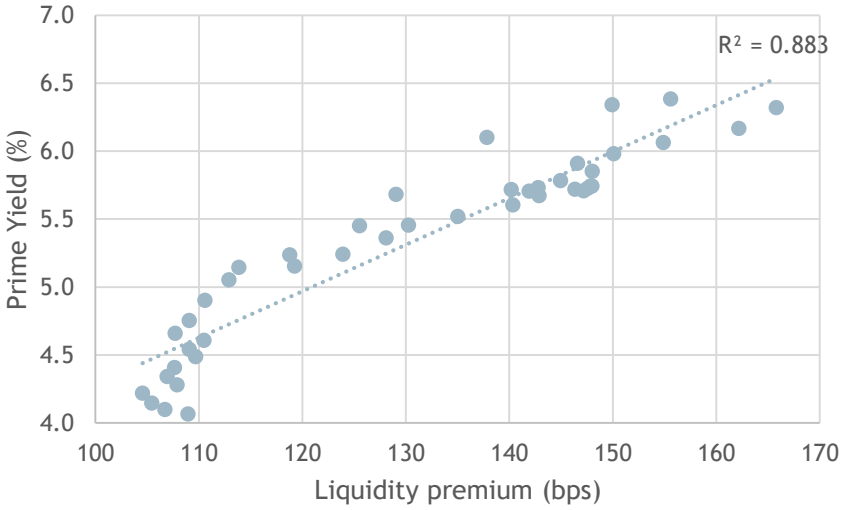
- Liquidity premia across our coverage universe increased significantly to an average of 166 in Q3 2009 in the aftermath of the GFC, as shown in the chart.
- But, in fact, the min-max range was widest in Q1 2011 confirming the significant degree of delay in recovery between markets.
- More recently, the data implies a slight increase in the average liquidity premium, after a period of relative stability and a narrowing min-max range.



Source: RCA & AEW

LIQUIDITY PREMIUM IS LOWER AT TIME OF LOW YIELDS

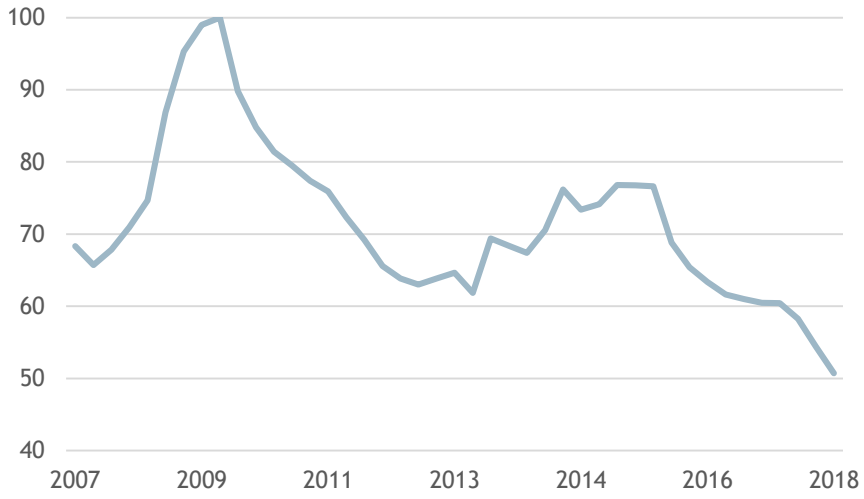
- The historical average liquidity premium for each of the historical 43 quarters in our dataset shows a high correlation with the average prime yield.
- Given that low prime yields reflect higher liquidity and therefore investor appetite this is perfectly logical.
- However, it is useful that the data confirms our methodology in this way.



Source: RCA & AEW

MAXIMUM VOLATILITY PREMIUM CONTINUES TO DECLINE AFTER 2012-15 PAUSE

- The maximum volatility premium, measured as a 5-year moving total return standard deviation, across our coverage universe shows a somewhat similar pattern as the liquidity premium, as it reaches its maximum level of 100 in Q4 2009.
- After an initial decline in 2012 to below pre-GFC levels, the data implies a reversal which ends in Q4 2015.
- This means that the maximum volatility premium is now at a level well below its pre-GFC level. Perhaps not sustainable in the long term.



Source: CBRE & AEW

ABOUT AEW

AEW is one of the world's largest real estate asset managers, with €63.5bn of assets under management as at 30 September 2018. AEW has over 680 employees, with its main offices located in Boston, London, Paris and Hong Kong and offers a wide range of real estate investment products including comingled funds, separate accounts and securities mandates across the full spectrum of investment strategies. AEW represents the real estate asset management platform of Natixis Global Asset Management, one of the largest asset managers in the world.

As at 30 September 2018, AEW managed almost €30bn of real estate assets in Europe on behalf of a number of funds and separate accounts. AEW has close to 400 employees based in 9 offices across Europe and has a long track record of successfully implementing core, value-add and opportunistic investment strategies on behalf of its clients. In the last six years, AEW has invested and divested a total volume of over €19.4bn of real estate across European markets.

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