AEW RESEARCH

LOGISTICS: THE LOGICAL NEXT STEP

Q3 2017

FOCUSED ON THE FUTURE OF REAL ESTATE

- Logistics was the most attractive sector in our last quarterly report, triggering this closer look at the broader European markets with a special focus on a new big data application and the post-Brexit UK market.
- Our four-criteria market analysis of the 30 most liquid logistics markets ranks secondary western European regions, such as Eindhoven, Lille and Portsmouth ahead of other western European and high growth CEE markets.
- Take-up is expected to remain strong, despite breaking historical records, as fundamental drivers are structural:
  - E-commerce penetration as a % of retail spending will increase as the economic recovery spreads across Europe
  - The shift to outsourced and streamlined supply chain processes across Europe is expected to continue
  - Affluent and densely populated regions will show the biggest positive impact on logistics space demand from growth in retail and e-commerce spending
- New development has picked up, with vacancy at historical lows in many markets, but our outlook remains favourable:
  - Development is targeting the lowest vacancy markets in general, showing good discipline
  - The share of speculative supply remains modest and land-rich developers are mostly focused on build-to-suit
- Despite good fundamentals, rental growth will be limited to high demand and low supply markets. Furthermore, net effective rents are not easy to assess with concessions remaining significant in some markets.
- Before levelling off later, some more yield compression is expected in the next year, despite being at their historical lows already. The much improved liquidity in logistics should reduce investors' risk premium relative to other sectors.
- Our big data experiment uses ESA satellite images and GeoPhy's smart algorithms to identify the exact size and location of individual logistics facilities in their sub-markets across a large number of regional markets across Europe. We plan to use this to supplement the data already available in our due diligence and decision making going forward.
- UK logistics also shows good fundamentals, with strong take-up led by Amazon and new supply stepping back up. Post-Brexit, the share of speculative development has declined and the rental growth forecast remains positive. In a tight investment market for existing stock, some investors will be attracted by the excess yields on development funding.

MARKET SCORING OF 30 MOST LIQUID EUROPEAN LOGISTICS MARKETS

- In our previous quarterly, we scored the 100 most liquid office, retail and logistics markets across four different key criteria:

- Economics: City-level drivers
- Liquidity: Last 5 years volume & Transparency Index
- Risk: Standard deviation, max. drawdown & Sharpe ratio
- Return: Forecast prime returns for next 5 years

On a risk-return basis, the 30 most liquid logistics markets (in yellow) scored well within our 100 all property types market universe. If we take a closer look at the logistics markets' overall scores, we note that:

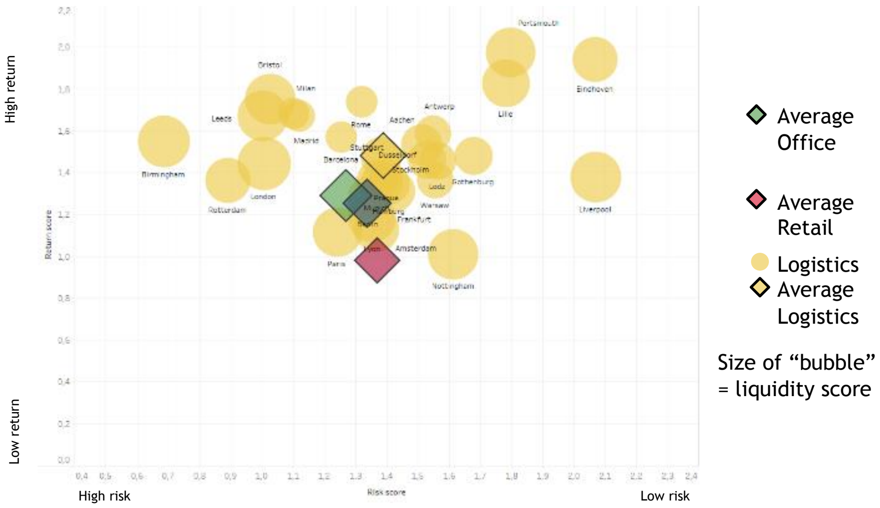
- Eindhoven comes top of the logistics market scoring, driven by the second strongest risk score across the entire 100 market universe.

- Portsmouth comes second on the back of a strong return score, followed by Warsaw which has the second strongest economic score across the full 100 market universe.

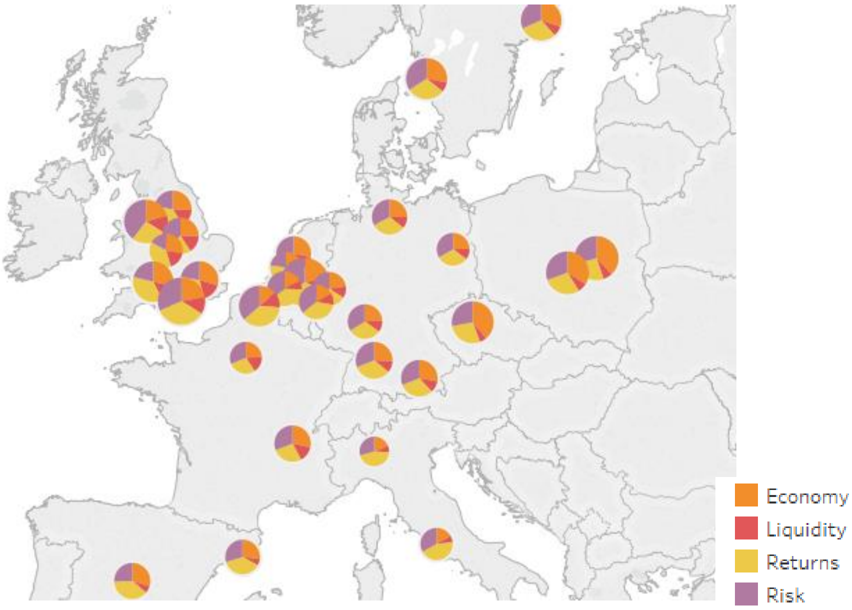
- Although logistics activity remains strong around Rotterdam, Paris and Milan, these markets show low overall logistics scores. In the case of Milan, the low overall score is attributed to economics and liquidity sub-scores. Rotterdam and Paris scores are affected by risk and returns sub-scores.

Logistics across the European property universe

Logistics offers above average return and risk



Logistics scoring across four key criteria

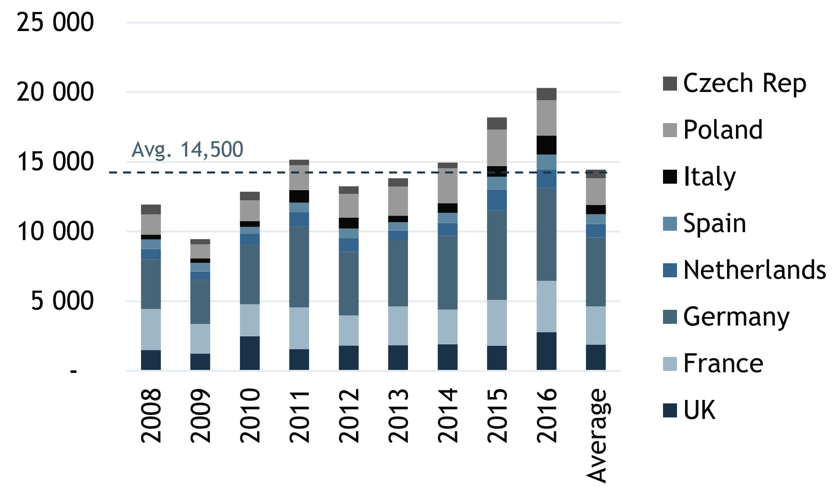


Sources: AEW, CBRE, RCA & RES

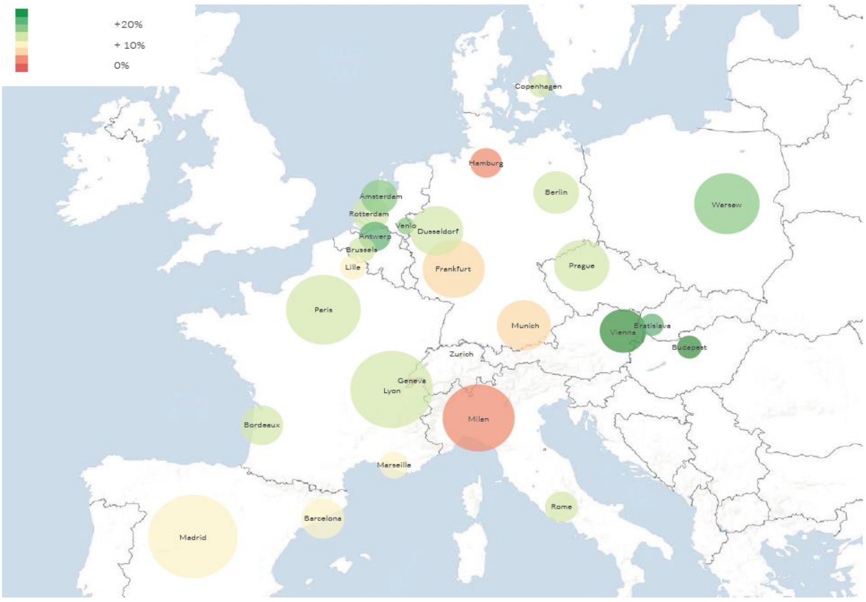
LOGISTICS DEMAND

- Strong and sustainable logistics take-up for 2016 was well ahead of the long term average
- Demand for XXL units is boosting the market
- Retail and e-commerce contribute to market growth in most countries
- We estimate regional stock in the below map for 27 different markets using a new methodology, explained later in the report. Combined, the German markets are the largest in Europe, followed by France, Spain and Benelux.
- Established Western markets show balanced ratio of take up vs stock (FR, GER, UK)
- With one of the most mature logistics market in Europe (linked to port activity), the Netherlands stands out with a relatively low take up / stock ratio
- In Spain, take up was significantly impacted by the GFC, as in Italy, where tenant turnover was limited
- Poland is a relatively recent and fast growing market. Benefitting from the trade exchanges with Germany, its logistics stock is rapidly catching up with western European markets

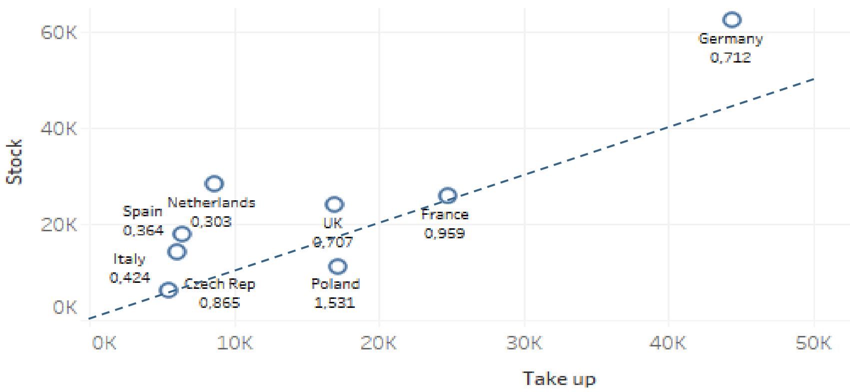
European take up evolution (‘000 sqm)



Existing industrial stock in selected markets and newly built in last 2 years change



Take up (total from 2008 to 2016) vs stock RATIO (‘000 sqm)

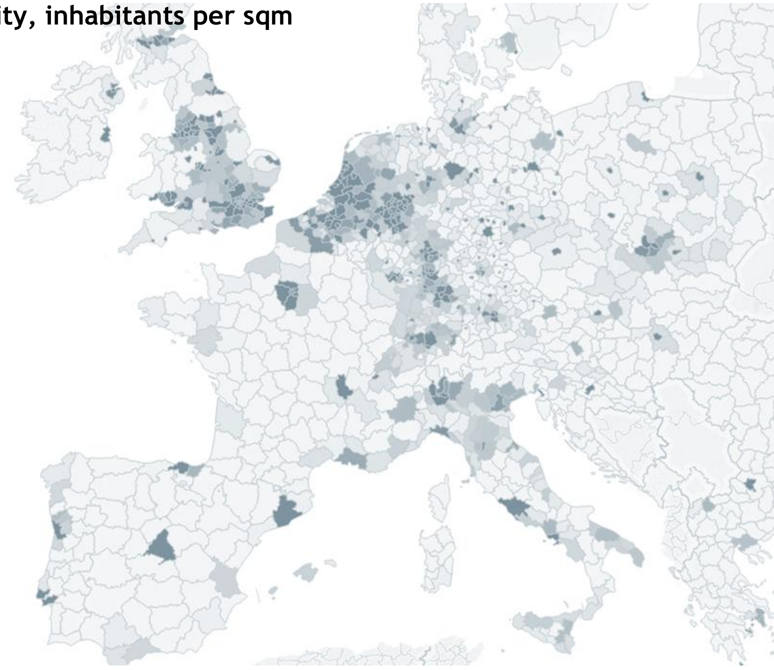


Sources: AEW,GeoPhy, & Oxford Economics

TARGETING LARGE POPULATION AREAS TO CATCH THE RETAIL LED DEMAND

- Retail and e-commerce remain main driver of logistics growth
- Large consumption areas boost retailer activity
- Strong catchment areas in Benelux, Western Germany and Northern France
- Pockets of large and dense population in Southern Europe
- Purchasing power growing in CEE
- Better access to logistics qualified labour pool in dense population areas
- Employment base drives demand upwards

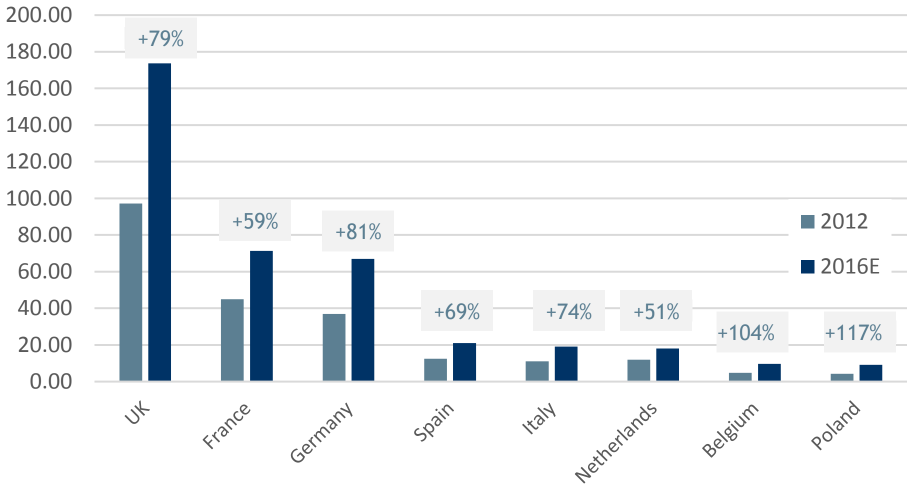
Density, inhabitants per sqm



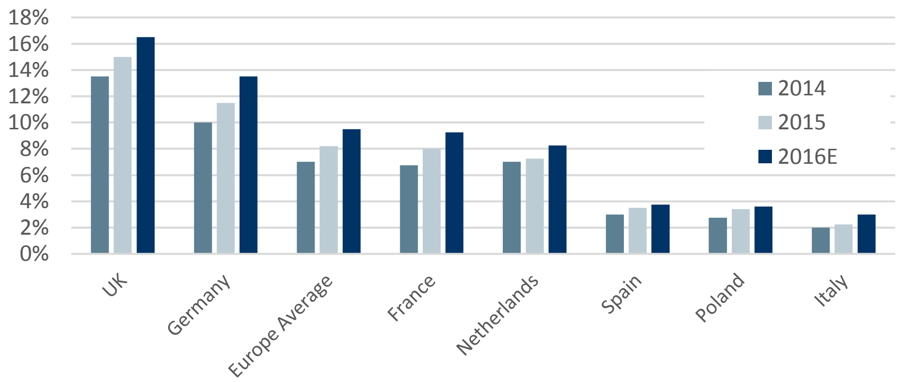
E-COMMERCE, THE GLOBAL GAME ENHANCER

- E-commerce trend maturing across Europe and penetrating Spain, Italy and Central Europe
- Customer expectations concerning delivery lead-times driving supply-chains to decentralize
- Supply chains are adding new markets to their distribution networks while at the same time, redefining the function of existing facilities in traditionally prime locations
- Online retail is a highly logistics real estate intensive activity, requiring three times more space than traditional retail (product range availability, higher inventory levels, higher handling and shipping requirements and higher reverse logistics)
- Both cost of transport and labour are important to location strategy
- Last mile logistics will increasingly drive demand for space

E-Commerce Sales (volumes in €bn, % change from 2012 -2016)



Online Share of Retail Trade 2014-2016E



Sources: AEW, Eurostat, E-Commerce Europe, Centre for Retail Research 2016

BIG DATA APPLICATION IN LOGISTICS MARKET ANALYSIS

- As modern logistics facilities are located near major roadways and mostly outside the city limits of the major urban areas, it has not been possible in the past to have an accurate and complete granular estimate of the existing stock of logistics facilities in most continental European countries.

- AEW has worked together with data science firm, GeoPhy to find a solution to this problem by using the most recent ESA sentinel 2 satellite images.

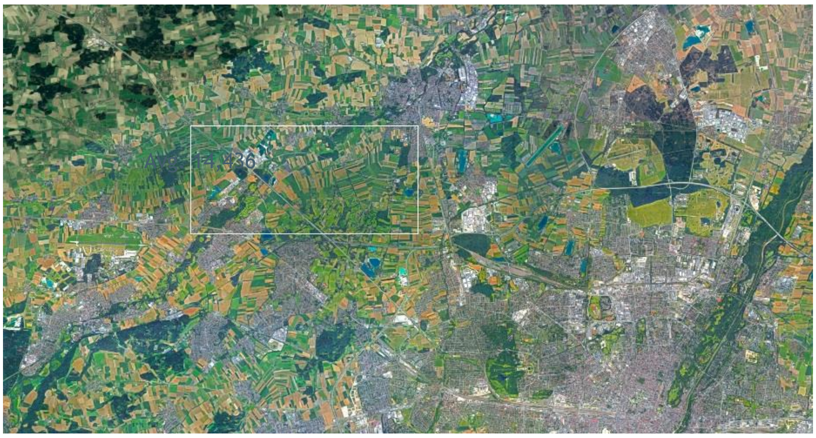
- Our collaboration resulted in three distinct analytical steps across all continental European markets. We illustrate our process with the example images for the Munich region on these two facing pages. Our process can be described as follows:

  1. All built objects were identified from the base satellite image using an algorithmic geometric edge detection model. In addition, satellite colour band selection allowed for elimination of surface areas with vegetation and water.

  2. To filter out non-logistics buildings, a size algorithm was applied. This reduced the building count by identifying and measuring unique non-contiguous buildings, getting rid of everything under a threshold of 5,000sqm.

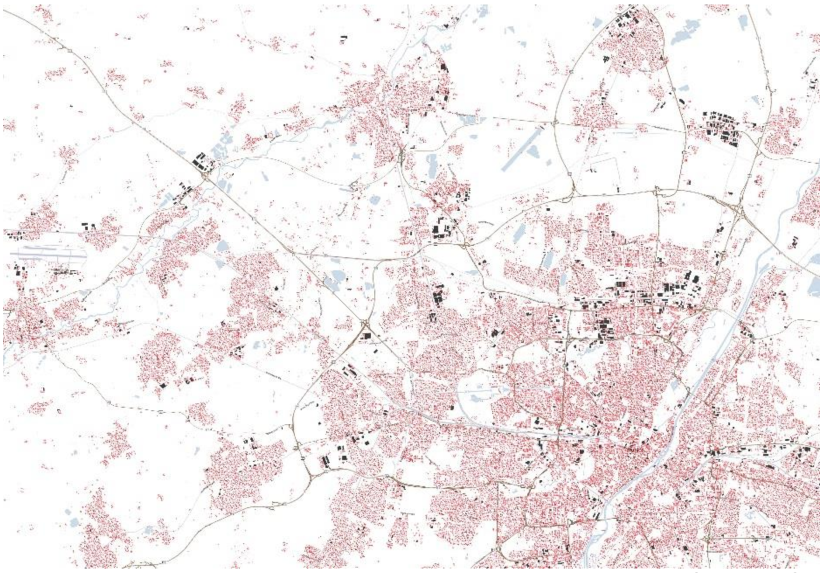
  3. After the initial results from steps 1 and 2 showed some unexpected results showing very high estimates of stock for certain markets, we applied a final filter by assessing all remaining unique buildings for geometric clarity, eliminating any complex and curve building shapes.

Satellite image of Munich region (Aug-17)



All buildings located in Munich region

Logistics buildings in Munch region



Source : Geophy

BUILDING STOCK ANALYSIS USING PHOTOGRAMMETRIC ALGORITHMS

- As a final test we also sense checked the overall local market estimates with those of major brokers. Our process allows us to have a single, independent and granular source of data identifying the exact size and location of individual logistics facilities in their sub-market across a large number of markets. We plan to use this and other innovative new data gathering methods to supplement the data already available in our due diligence and decision making going forward.

Satellite image of Feldgeding sub-market in Northwest Munich

All buildings located in Feldgeding sub-market

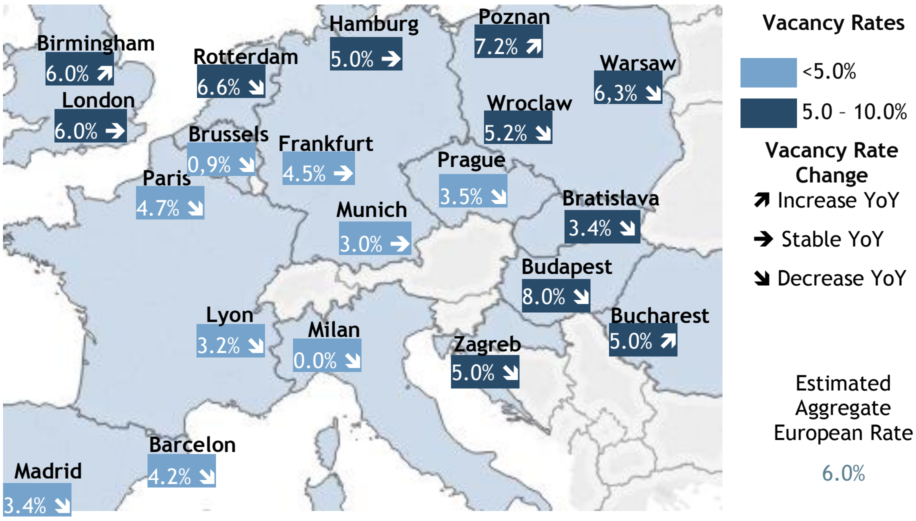
Logistics buildings in Feldgeding sub-market

Source : Geophy

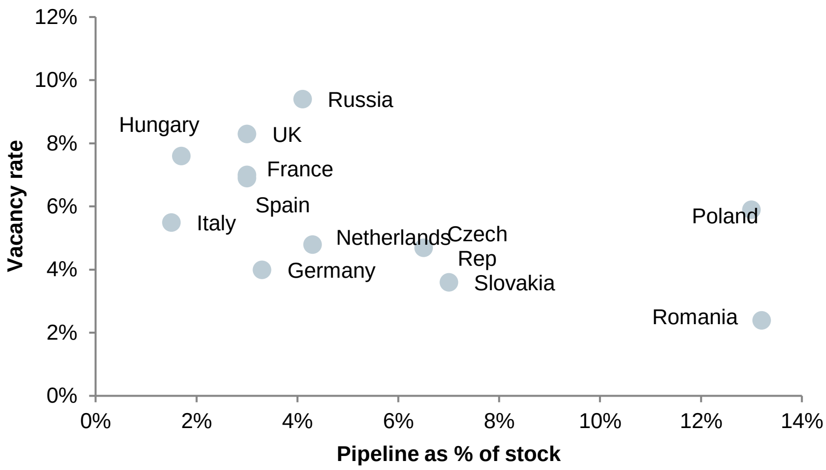
SUPPLY: LOW VACANCY, LIMITED SPECULATIVE DEVELOPMENT & INCREASING LAND SCARCITY

- Limited and decreasing vacancy across Europe
- Vacancy rates for grade A are below 5% across number of markets
- Markets with substantial development pipeline, such as low-vacancy Romania and Poland in CEE are catching up in terms of modern stock as demand is growing
- In general, the Europan markets are disciplined with their new development pipelines being higher in markets with low vacancy rates. Dutch and German markets are showing low vacancy rates with modest development pipelines.
- Speculative supply is very limited in core markets, opening opportunities in tight supply areas, notably Germany, France and Belgium. The Netherlands is an exception
- However, developers still holding substantial land reserves for semi-speculative developments and build-to-suit schemes
- Hence, rental growth is expected to be limited first to markets where demand exceeds development capacity

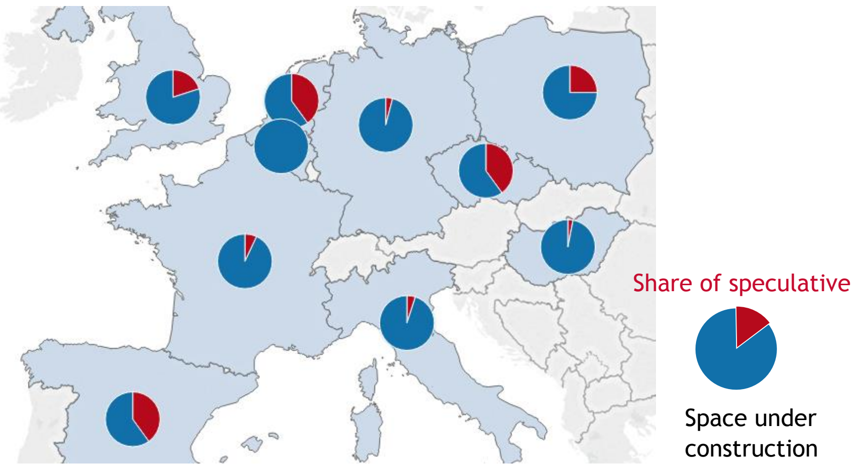
Vacancy Rates across European logistics markets



Pipeline of new development vs vacancy rate



European space under construction

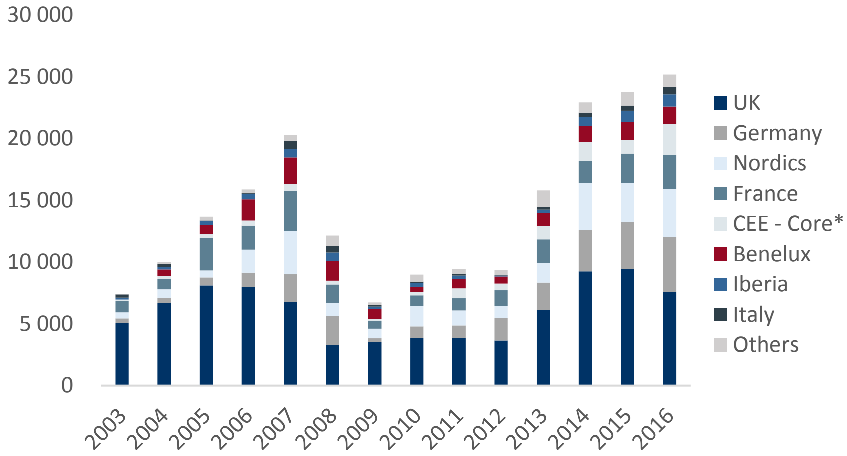


Sources: AEW, JLL, CBRE

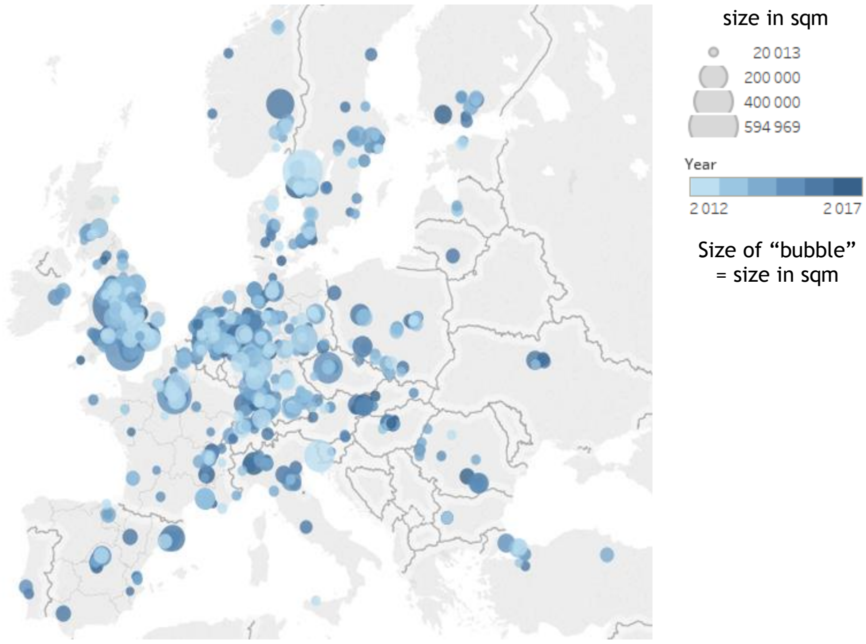
LOGISTICS INVESTMENT VOLUMES SETTING NEW RECORDS

- Investment appetite for logistics assets is strong and growing, as evidenced by the new record levels of actual investment transactions. This is driven in particular by large multi-national portfolio trading
- As a result of strong investor demand, yields have been coming down to historically low levels. But, relative to other property types, logistics continues to offer attractive risk-adjusted returns.
- Shift to modern, bigger, fewer warehouses and city logistics facilities opens opportunities
- The UK remains the largest investment market but activity is also strong in Germany and France
- Investors have started to cast larger nets to now include markets in the Czech Republic, Italy, Spain and Portugal.
- Investment volumes limited by inadequate availability of modern new-built products
- Speculative development picks up progressively, especially across established markets

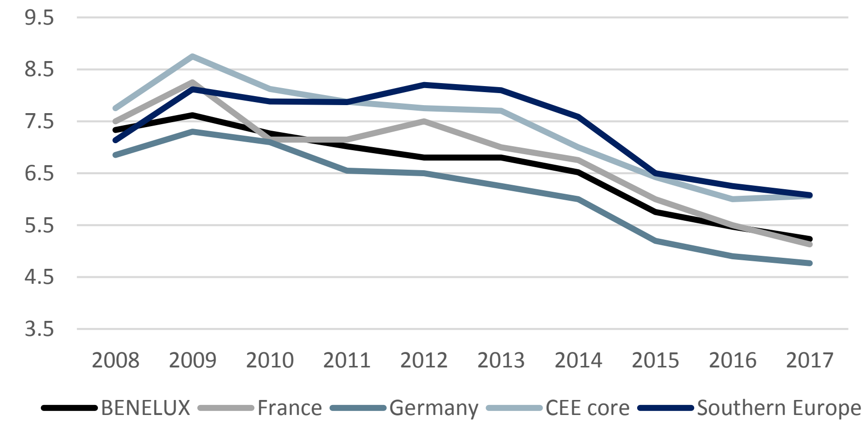
Logistics investment volumes by country (€mn)



Geographic logistics investment transaction distribution (2012-2017)



Prime net yields for logistics transactions per country (%)

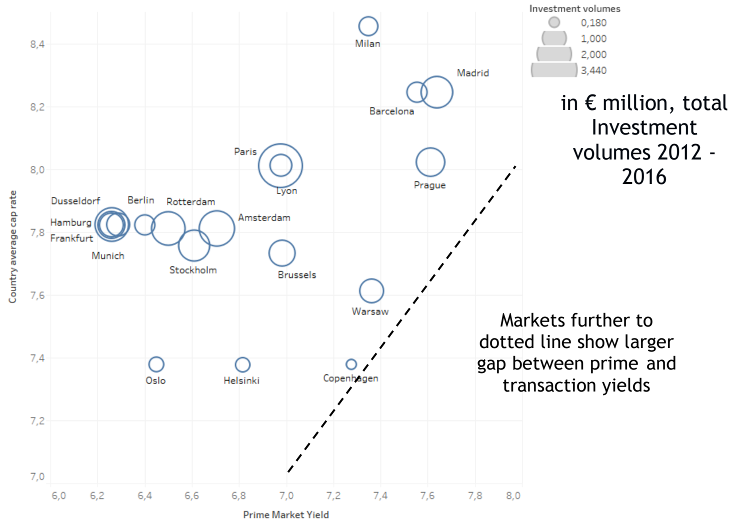


Sources: AEW, CBRE, RCA

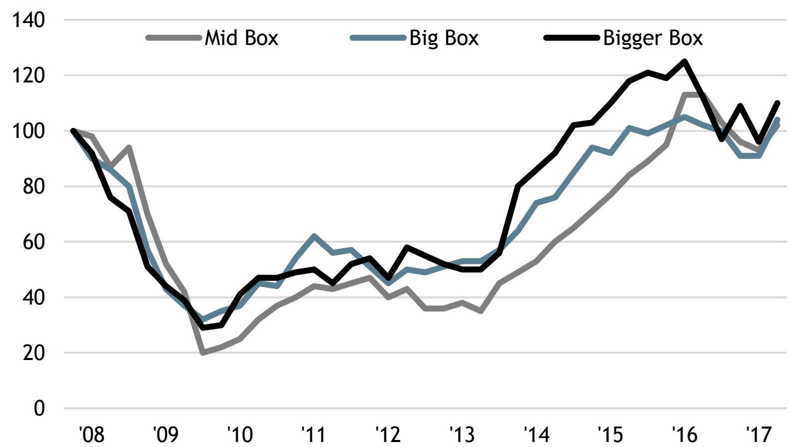
EXPECT SOME FURTHER YIELD COMPRESSION BEFORE REACHING THE TROUGH

- Overall, we expect still some more yield compression across most logistics markets in the next 12-18 months
- The sector benefits from greater liquidity than before and this should lead to a reduced and sustainable risk premium for the logistics sector relative to office/retail sectors
- Prime property yields forecasted to level off going forward
- Yield gap between prime and secondary is larger in core markets, such as Germany, France and the Netherlands
- Core established markets offer a larger stock for market selection…
- … with a wider range of risk adjusted opportunities through asset management
- Finally, we highlight that logistics pricing remains wider than shopping centers, albeit at a lower level than before.

Comparison between prime net yields and average transaction yields 2008 -2016

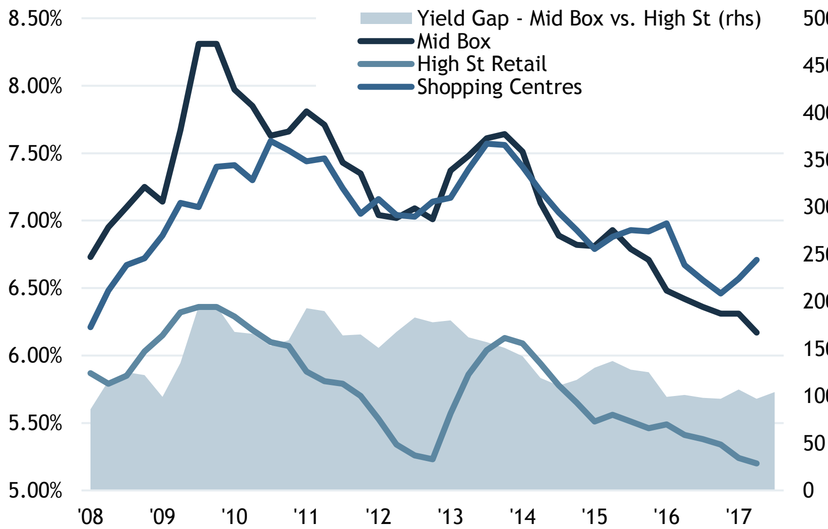


Logistics investment growth in Europe



Investment Volumes Indexed. Q4'07 = 100

Pricing moves ahead of shopping centres



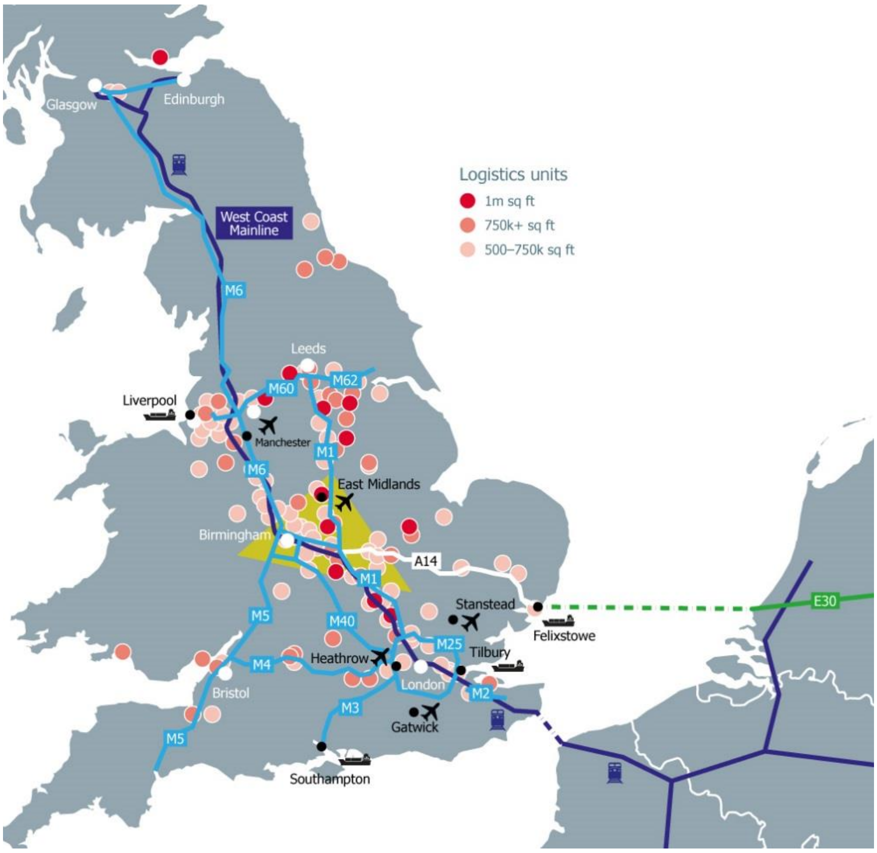
Europe average transaction yields by property subtype

Sources: AEW, CBRE, RCA

UK LOGISTICS MARKET UPDATE

- The UK logistics market is a mature market focusing mainly on servicing UK consumption, which is not expected to be directly impacted by Brexit in the short term
- The ‘Golden Triangle’, in the Midlands, along with the UK’s dominant cities are the most sought after locations
- Driven by strong transport connections and proximity to large employment pools
- Potential for further growth in the UK with increasing consumption driven by e-commerce
- Land availability restricted due to complicated planning process which restricts supply and drives rental growth

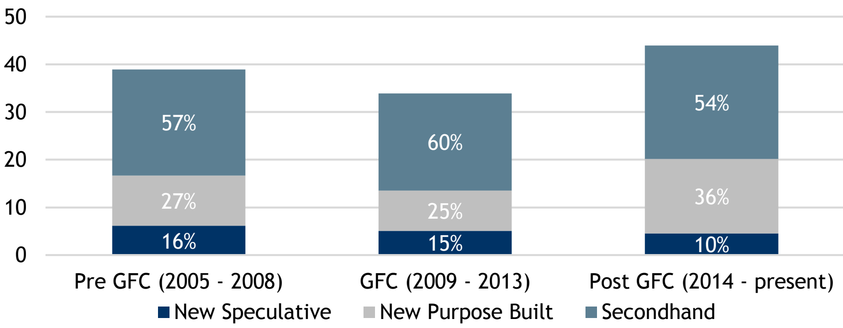
Overview



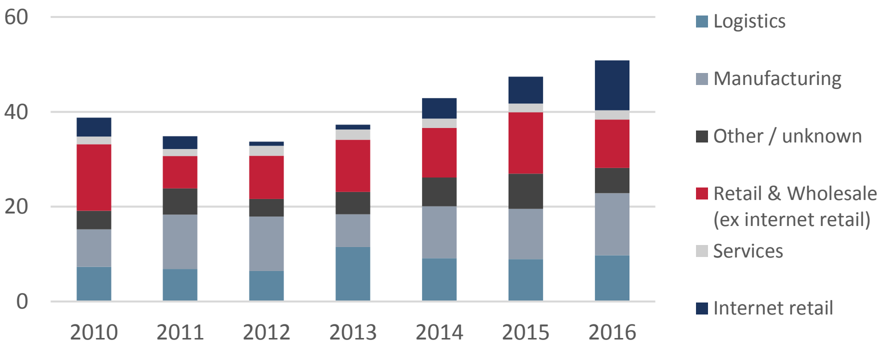
DEMAND HAS REMAINED STRONG

- Robust demand for logistics space remained throughout the GFC, as take up in 2014, 2015 and 2016 achieved record levels year on year
- Online retail is increasingly important both in terms of new players coming to the market and the subsequent effects in terms of the supply chain network
- Diverse demand profile by sector and tenant
- 9 of the ‘Top 10’ occupiers of new space (2010-2016) were UK focused and 8 were ‘Retail & Wholesale’ or ‘Internet Retailers’
- Therefore, sustainable demand going forward despite Brexit, with rental growth forecast to continue

Average occupier take up (mn sq ft) by type



Annual occupier take up (mn sq ft) by type

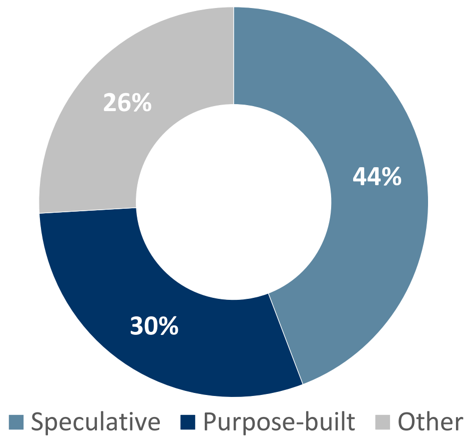


Source: AEW, CBRE & RES

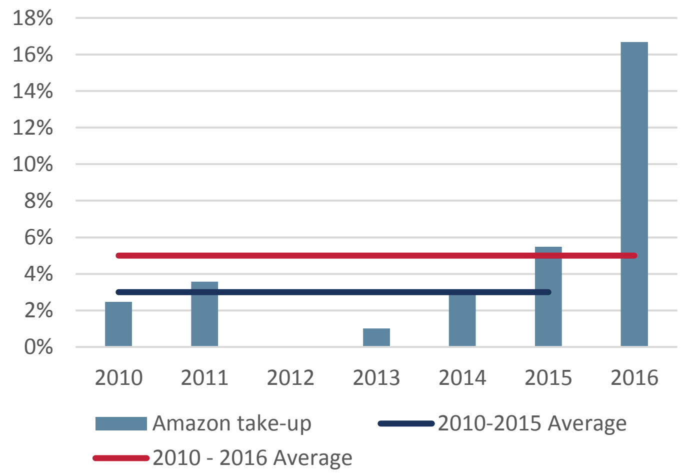
THE AMAZON FACTOR - SETTING THE BENCHMARK FOR OTHERS TO FOLLOW

- Take-up of logistics space by Amazon in 2016 was more than 3x the pervious year which equated to 16% of total take-up
- Amazon are clearly an important occupier in the UK logistics market
- Even if Amazon is not repeating this record level of take up in future years, due to the diversified nature of tenant demand, we believe that the demand foundation remains robust from year to year
- We are of the view that Amazon are setting the benchmark for all retailers in the UK and as such others will have to follow or be left behind.
- This will further broaden the support for growth in demand for logistics space in the future as other incumbent or emerging (food) retailers will invest to catch up with Amazon in the new omni-channel market place.

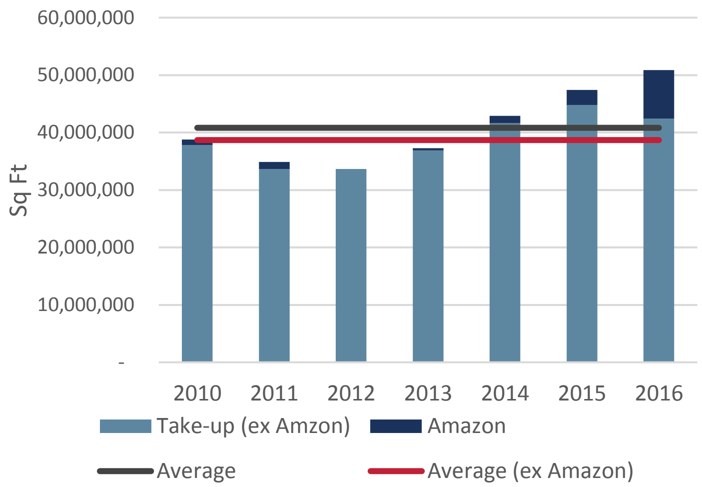
What type of space has Amazon taken (2010 -2016)



Amazon's take-up as A% of total take-up



Annual take-up of all logistics space

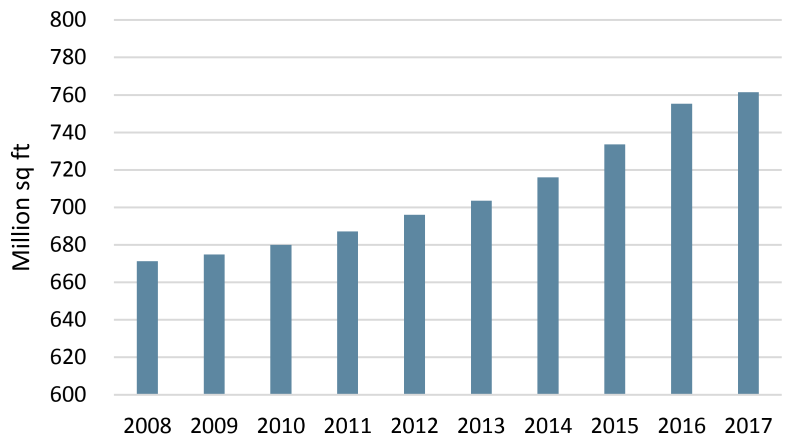


Source: Gerald Eve

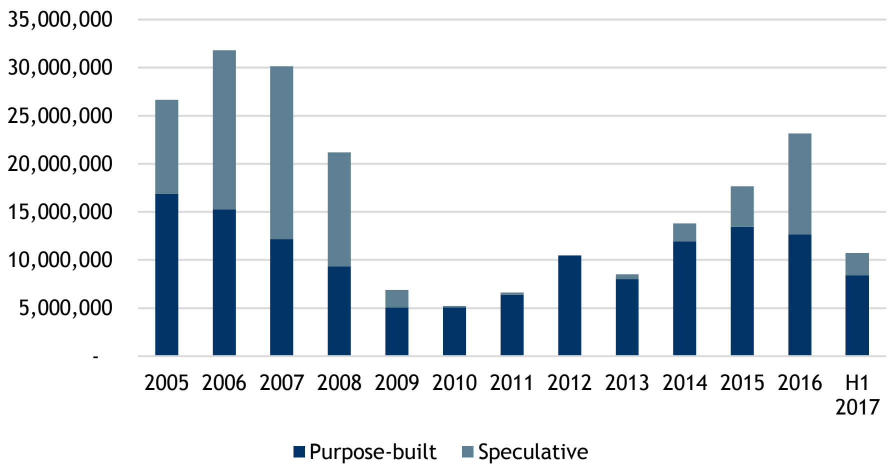
DEVELOPMENT IS PICKING UP, BUT SPECULATIVE SHARE IS DOWN

- Following the GFC the UK total logistics stock has been increasing by 1.3% per annum since 2008 to a total of 760 million sq ft.
- With almost no speculative development from 2010-2014 the supply of new available space has been limited.
- After the Brexit vote came through last summer, we have seen a decline in H1 2017 in the share of speculative development in total completions.

UK logistics stock (mn sq ft) 2008-2017



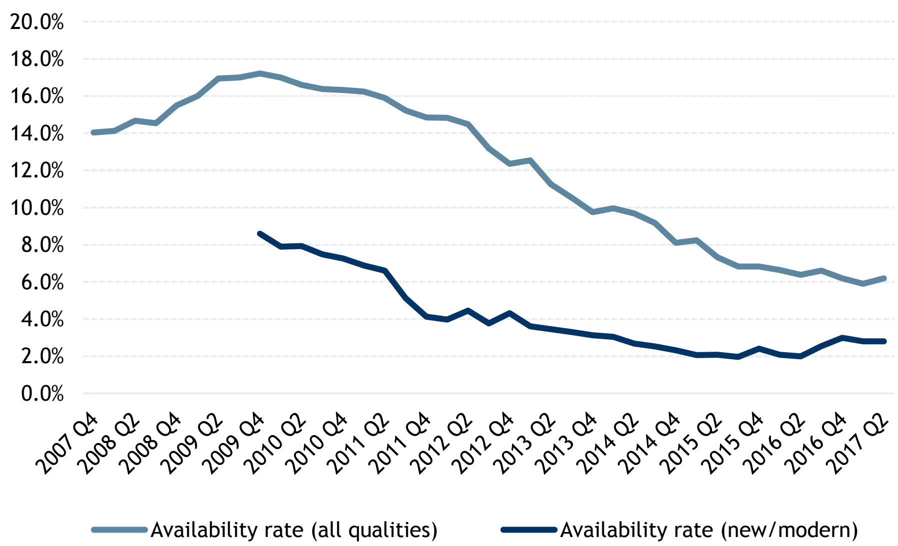
Total development completions (sq ft)



RECORD LOW LEVELS OF AVAILABILITY

- Modest completions combined with robust demand have resulted in record low levels of availability
- At Q2 2017 the availability of new/modern stock has fallen to 2.8% (c.11m sq ft)
- Availability for all logistics has fallen to just 6.2% (c.28m sq ft) which is equivalent to 7 months of take-up

Availability rate (% of existing stock) by quality of space

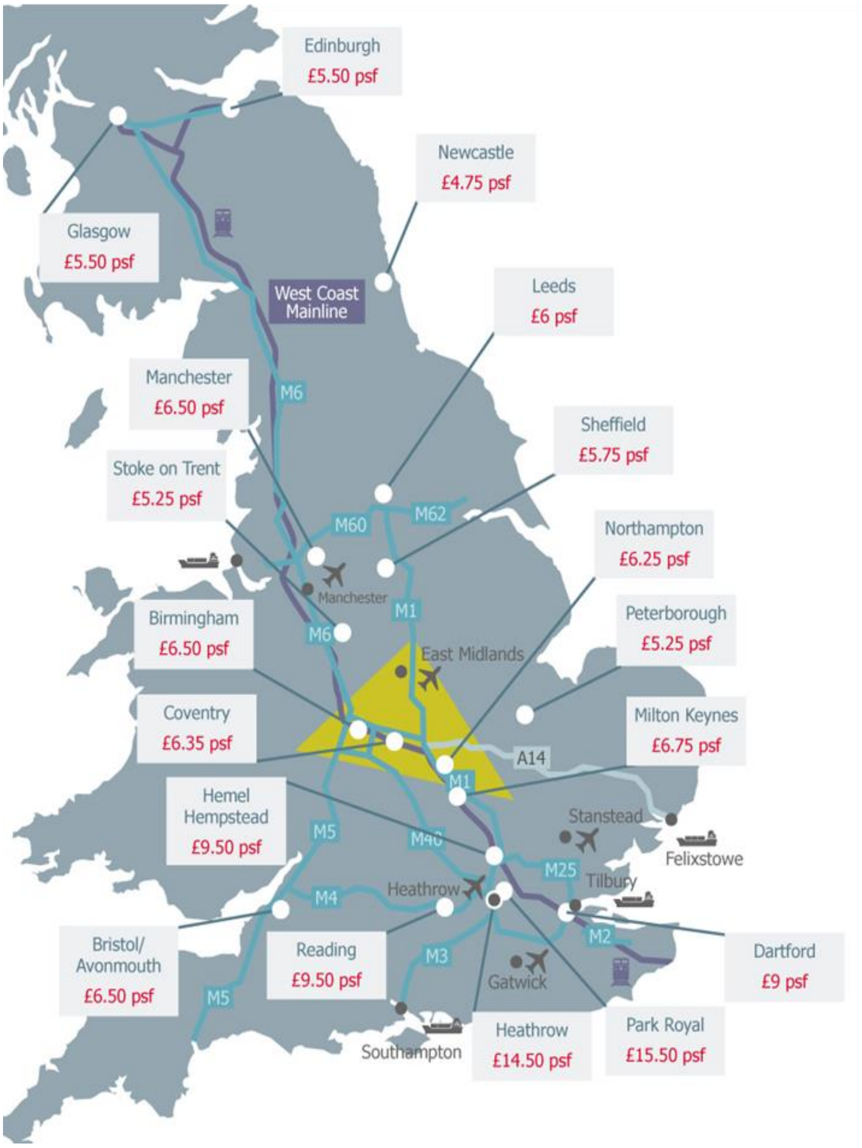


Source: AEW, CBRE & RES

PRIME RENTS TO CONTINUE UPWARDS TREND ACROSS THE UK, DESPITE BREXIT

- For many years the logistics/warehouse sector saw little or no rental growth
- Since 2013 all UK logistics markets have experienced rental growth
- In our view, rental growth is set to continue whilst supply remains constrained
- Highest prime rent in the UK is in Park Royal, Greater London - £15.50 psf
- Outside the South East the highest rents are achieved in the Golden Triangle - £6.75 psf
- Headline rents in Scotland are £5.50 psf in the main markets of Glasgow and Edinburgh

Key markets throughout the UK

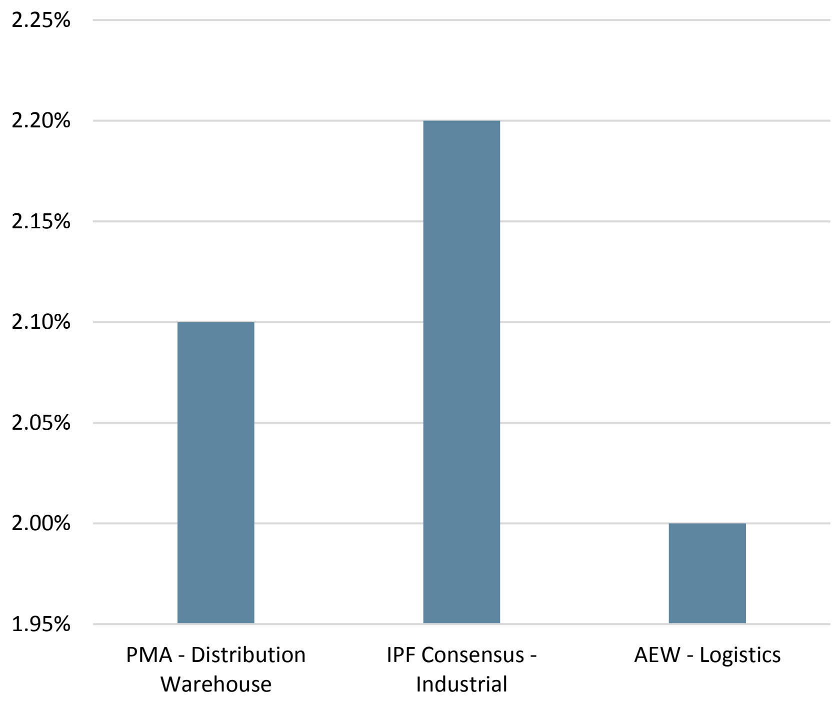


Source: Savills, Q2 2017

DEMAND FORECAST REMAINS CONSISTENTLY POSITIVE

- Logistics space demand is projected to remain robust going forward despite Brexit with rental growth forecast at 2.0-2.2% pa.
- The ongoing shift from in-store retail to online retail should continue to focus demand on new and modern facilities adapted to streamlined supply chain processes
- Supply of grade A buildings should remain constrained and support rental growth

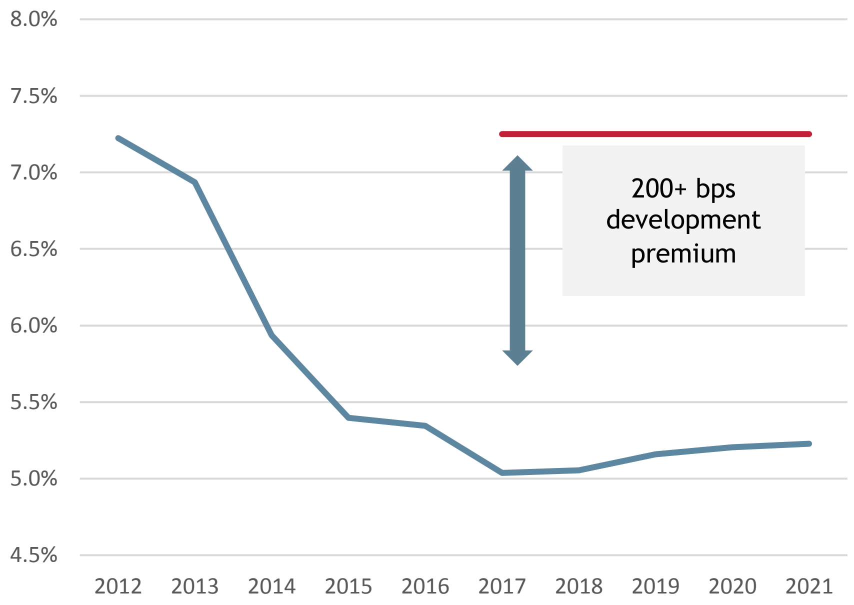
Rental value growth 2017-21 (%pa)



DEVELOPMENT BROADENS INVESTMENT OPPORTUNITIES

- Prime yields have stabilised around 5% and are expected to remain at this level until 2020
- With the yield on cost for speculative development currently at 7%-7.5%, this represents a 200+ basis point premium for development risk
- The average void period for property that has let is currently at an all time low of four months from practical completion, limiting downside risk of new development.

Initial yield - to date and forecast



Sources: AEW, CBRE, IPF & PMA

ABOUT AEW

AEW is one of the world's largest real estate asset managers, with €58.5bn of assets under management as at 30 June 2017. AEW has over 600 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 June 2017, AEW managed €26.0bn of real estate assets in Europe on behalf of a number of funds and separate accounts. AEW has close to 400 employees based in 10 offices across Europe and has a long track record of successfully implementing core, value-add and opportunistic investment strategies on behalf of its cl
ients. In the last six years, AEW has invested and divested a total volume of over €17.5bn of real estate across European markets.

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RESEARCH & STRATEGY CONTACTS

Hans Vrensen MRE, CFA
HEAD OF RESEARCH & STRATEGY
Tel +44 (0)20 7016 4753
hans.vrensen@eu.aew.com

Ken Baccam MSc
DIRECTOR
Tel +33 (0)1 78 40 92 66
ken.baccam@eu.aew.com

Virginie Wallut MBA
ASSOCIATE DIRECTOR
Tel +33 (0)1 78 40 95 07
virginie.wallut@eu.aew.com

Guillaume Oliveira MSc
ANALYST
Tel +33 (0)1 78 40 92 60
guillaume.oliveira-ext@eu.aew.com

INVESTOR RELATIONS CONTACT

Alex Griffiths
HEAD OF INVESTOR RELATIONS
Tel +44 (0)20 7016 4840
alex.griffiths@eu.aew.com

LONDON
AEW | 33 Jermyn Street | London, SW1Y 6DN | UK

PARIS
AEW | 22 rue du Docteur Lancereaux | 75008 Paris | FRANCE

DÜSSELDORF
AEW | Steinstraße. 1-3 | D-40212 Düsseldorf | GERMANY

AEW