

# *PwC Real Estate Investor Survey Germany*

*A survey on current real estate submarket differences to provide more transparency for investors.*

**Volume 6, H1 2017  
September 2017**

**PwC Real Estate Investor Survey Germany Volume 6**

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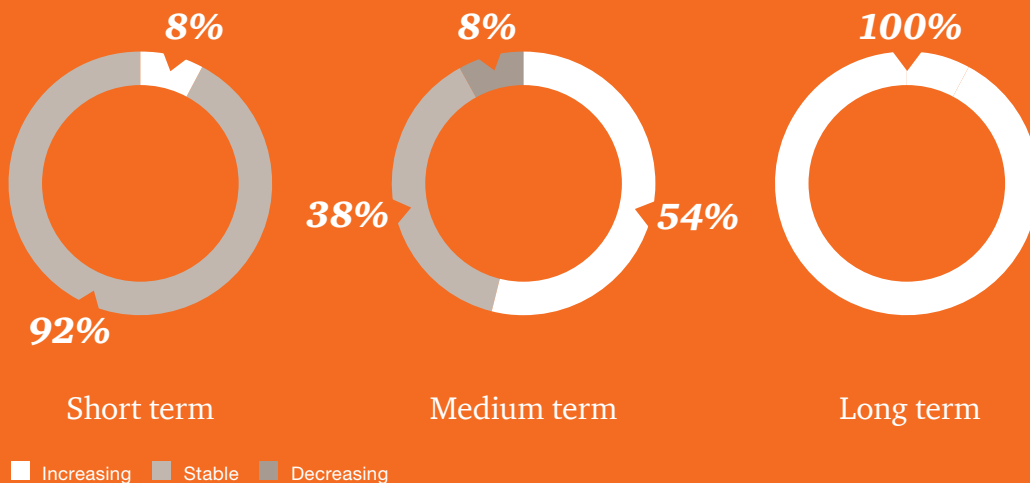
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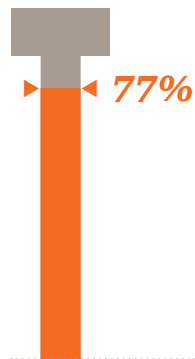
# 1 Introduction

Low interest rates are pushing further investment in real estate. However, a lack of product and high competition is continuing to put pressure on real estate yields. Given that interest rates are one of the strongest indicators for real estate yields, in this issue of *PwC Real Estate Investor Survey Germany*, we've tried to represent the market sentiment concerning interest rate development and its impact on real estate yields. Most of the respondents believe that **interest rates will remain low over the next 12 months** still showing a spread to government bonds of 300–400 bps. However, this situation is liable to change as **half of the respondents assume a trend toward increasing interest rates in the medium term.**

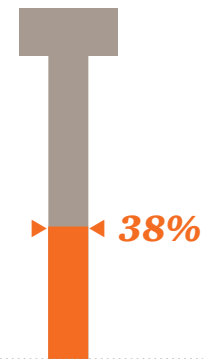
Fig. 1 Interest rate expectation



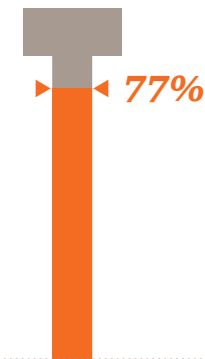
Will yields increase in line with interest rate development?



Will rental growth compensate increasing cap rates?



Does this differentiate between Top 7 and B-Cities?



■ Yes ■ No

Real estate yields will follow the upward course of interest rates – at least, this is what 80% of our respondents assume.

Even though rental growth is expected to remain static in most markets, investor returns are under pressure as increase of market rent will most probably not compensate entirely the increase in yields.

As usual we focus on the risk-return indicator all-risk-yields (ARYs), representing the relationship between stabilised NOI and net purchase price. Please see Chapter 7 for our approach and definitions.

In terms of yield development **in the office market**, we saw that **Frankfurt had the third strongest compression** (37 bps), over the last six month which we believe could be driven by the increased demand for office space following Brexit. Concerning **expected rental growth over the next five years**, **Berlin is in first place with its 3.6% p.a.** Regional Cities (B-Cities) also showed a strong yield compression even though their rental growth is much weaker compared with Top 7 Cities.

**The minimum ARY compression of high street retail in the Top 7 Cities was weaker compared to office.** These data support statements from our last survey where we saw an inverse trend: over H2 2016 the Top 7 Cities' high street retail did not increase in price significantly whereas B-City high street properties showed considerable yield compression. Investors remain reserved toward this asset class but a lack of other opportunities is driving them to acquire the product. **The focus remains on the Regional Cities where we saw the highest compression compared with other submarkets.**

In the logistics sector, we observed strong compression in Hamburg, Munich and Stuttgart. **The other logistic markets remained comparatively stable.**

We gathered our data by interviewing market participants. These included investment and research professionals for real estate investors, ranging from conservative asset managers to developers and private equity investors.

## 2 *Spotlight*

# More flexibility for office tenants – dream or trend?

In an effort to increase flexibility, companies have a growing desire to align their contractual liabilities with their business models. In doing so, companies are also focusing on their liabilities associated with leased space and the corresponding rental contracts. As a result, shared working spaces and tenants changing their space demands on a seasonal basis are becoming more and more common. In the course of our interviews, we tried to find out whether investors recognise a trend towards more flexible rental contracts, ie, shorter lease terms, more break options and turnover rent.

Investors confirm that they observe a desire for increased flexibility from tenants in general. But that comes with an obvious **dilemma** as landlords generally wish to secure long-term rental cash flows. Also, investors usually try to cover any tenant related fit-out costs over a secured lease term. Shorter lease terms or early break options automatically lead to higher rental payments.

One apparent solution for the conflicting desires of tenants and landlords is the concept of **co-working spaces, which meets both parties' needs**. The strong growth in the co-working market displays and confirms this trend. Interesting discussions during the interviews arose around the **creditworthiness of co-working operators**. While most co-working companies currently show a strong performance driven by the positive state of the economy in general, co-working concepts may be particularly vulnerable to economic downturns. **Tenants would** then use their flexibility to **vacate co-working first. On the other hand** co-working concepts could profit from economic downturns and the corresponding uncertainty as **tenants may hesitate to commit to long term** leases and may prefer to enter into short term commitments in the form of co-working concepts.

Another topic which arose during the discussions was the management of rapidly **growing tenants** (start-ups, for instance). These tenants are looking for rental contracts that can easily be adjusted to their increasing needs. Hence, leases may be concluded for mid-term periods only or include a number of break options. In order to facilitate growth and keep tenants within an asset, **expansion options** are a common instrument. Investors are dealing with these options by **synchronising expansions with other tenants' expiries**. The concept of a strategic “vacancy cushion” was rejected across the sample. Investors would always let out all available vacant space in order to maximise cash flow.

Overall we find that **investors are not seeing an extreme trend toward increased flexibility** of rental contracts. Given low market vacancy rates and a general perception of **a landlord market**, tenants don't have much negotiating power, in particular in top locations. Nevertheless, investors see signs of a **higher number of break options** granted, which partly come in exchange for an increased willingness among tenants to take care of fit-outs on their own.

# 3 Office

## 3.1 All-risk-yield

As of July 2017 yields for core office properties (minimum ARY) in Berlin and Munich reached a level of just 3.0%! Individual responses indicated a minimum ARY below 3.0% for the Top 7 markets. Over the last twelve months, the Berlin ARY dropped more than 80bps.

Frankfurt was third in yield compression in the first half of 2017 (-37bps). Even though the Frankfurt office market still shows the highest vacancy levels compared to other Top 7 markets, we believe that the yield compression reflects increased investor demand following Brexit.

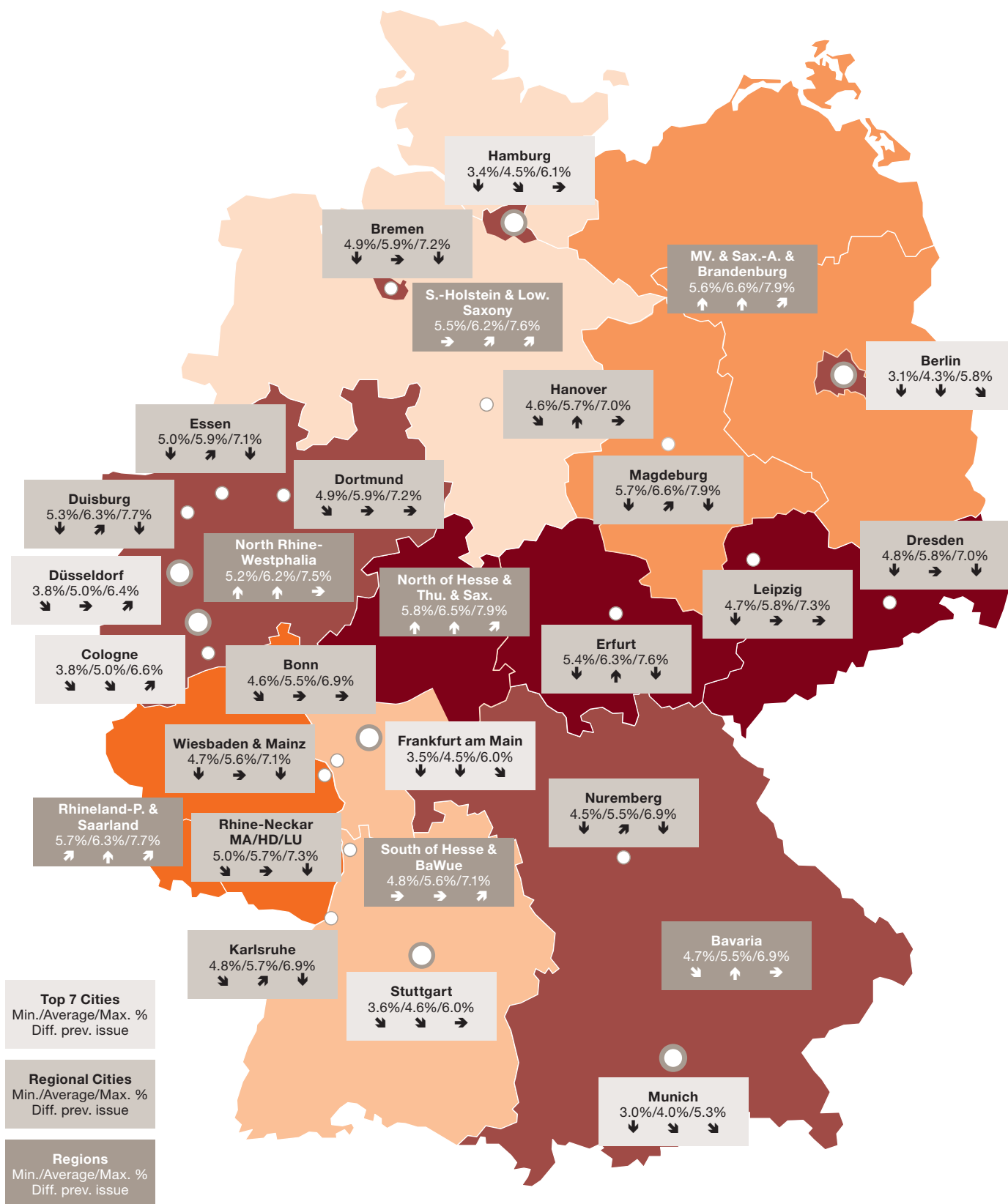
High risk properties (maximum ARY) showed less compression over the last half-year. Nevertheless average y-o-y compression for Top 7 comprise 41bps.

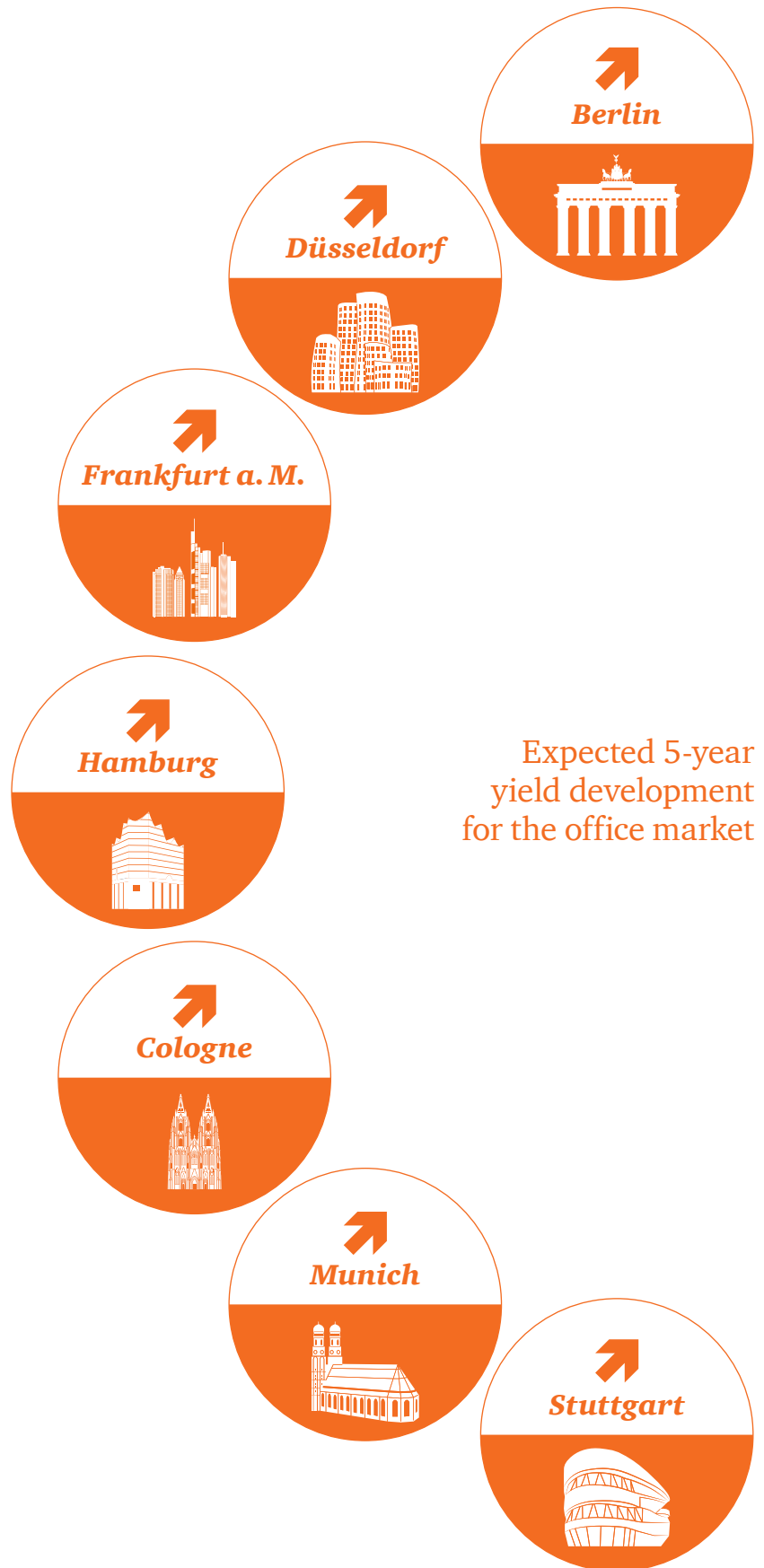
Cologne and Düsseldorf shared last place among the Top 7, which is reflected in their having the highest ARY for core office at 3.8%. Both markets still showed a yield compression of 41bps (Cologne) and 35bps (Düsseldorf) over the last twelve months.

Projected rental growth across all submarkets has reached the highest level for two years. With its 3.6% year-on-year rental growth, Berlin is aiming for a record. “Rents in Berlin are increasing from hour to hour” – this typifies the current mood regarding rent increase in the capital city. Despite their sound performance, the other Top 7 markets have had difficulties catching up. Munich (3.1%) is still behind the German capital, while the remaining five cities show annual rental growth expectations of between 1.4% and 2.1%.



Fig. 2 ARYs for offices in German submarkets by region

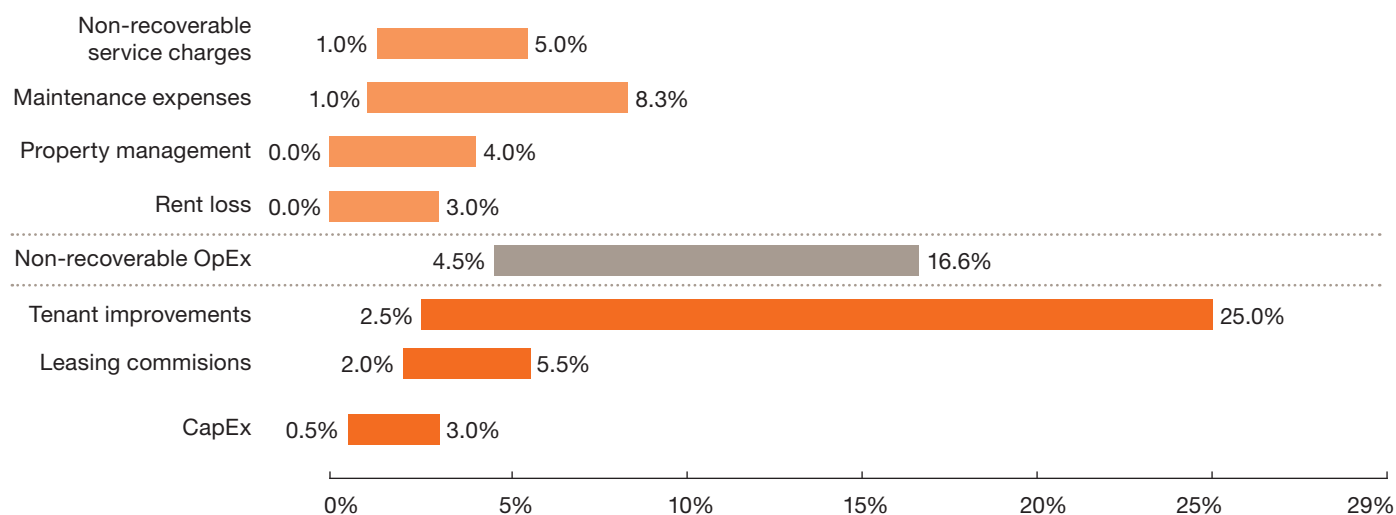




↓ < -1%   ↘ -1.0% to -0.25%   → -0.25% to 0.25%   ↗ 0.25% to 1.0%   ↑ > 1.0%

Our participants generally included non-recoverable service charges, maintenance expenses, property management and rent loss into the calculation of their net operating income (NOI). With some variance depending on the individual investor's business model, 80% of respondents consider tenant improvements, leasing commissions and CapEx to be one-off items, which are considered below NOI.

**Fig. 3 NOI calculation method for the office market**



## 3.2 Letting parameters for the office market

**Fig. 4 Letting parameters for the office market (Volume 6 H1 2017)**

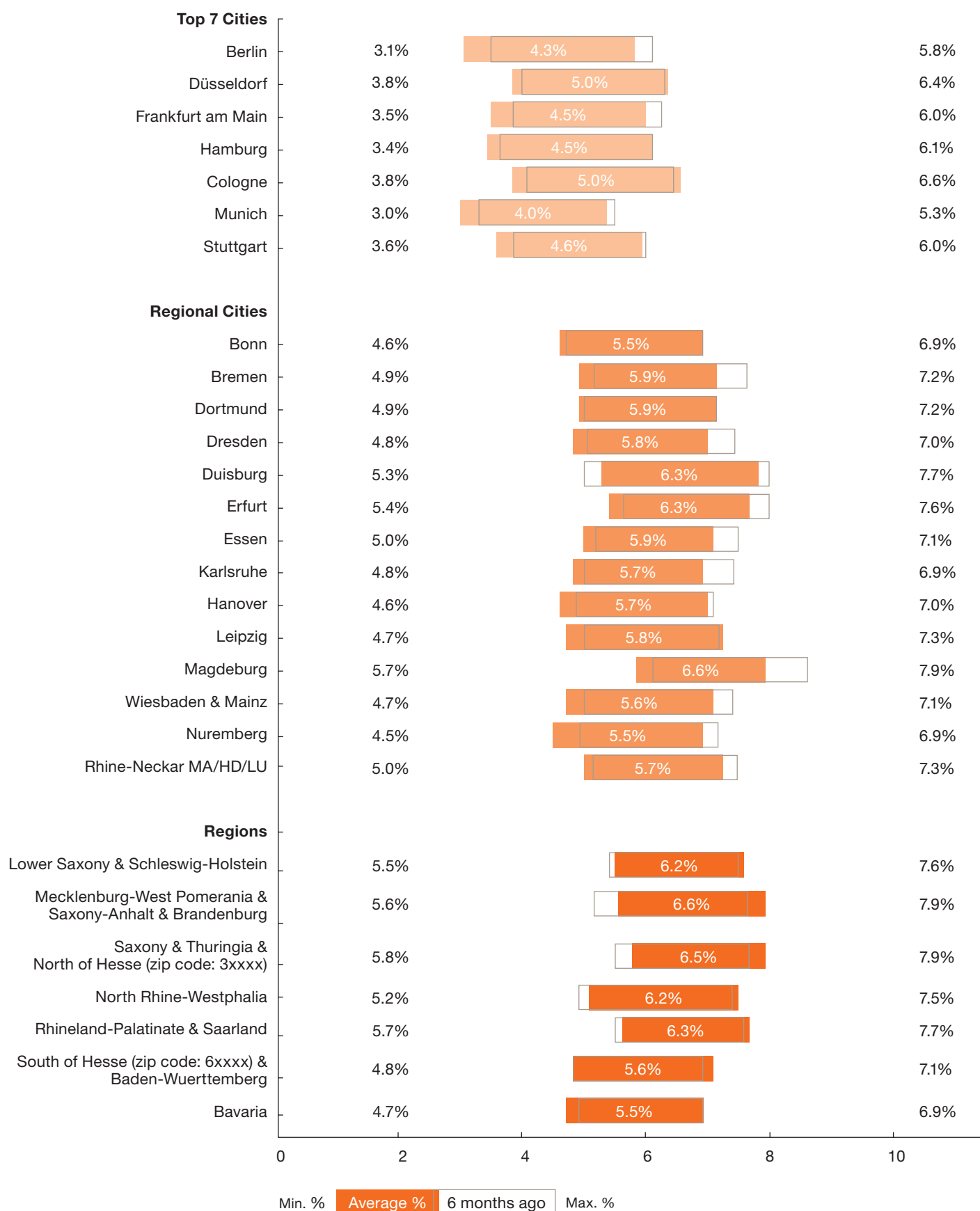
Top 7 Cities	Rent-free period (months)				Marketing period (months)				Extension propability	Annual market rent growth rate	
	Min.	Med.	Max.	vs. 6m ago	Min.	Med.	Max.	vs. 6m ago			
Berlin	1	3	6	↘	2	4	8	↘	71.0%	↗	3.6%
Düsseldorf	3	5	7	→	3	6	10	↘	69.0%	→	1.4%
Frankfurt am Main	2	5	8	→	4	7	13	↘	65.0%	→	2.1%
Hamburg	2	4	6	→	2	6	9	↘	70.0%	→	2.0%
Cologne	2	5	7	→	3	7	11	↘	69.0%	→	1.5%
Munich	1	3	5	↘	2	4	7	↘	71.0%	↘	3.1%
Stuttgart	1	3	6	↘	2	6	10	↘	69.0%	↘	1.8%

**Fig. 5 Compression of minimum yields for the office market**



As in the previous issue, the Top 7 and Regional Cities are experiencing major compression. This is particularly the case for Berlin and Frankfurt among the Top 7 Cities, and Nuremberg, Bremen, Mainz-Wiesbaden, Duisburg and Leipzig among the Regional Cities. Some of the Regions show no compression, with some even showing increasing yields.

Fig. 6 ARYs for offices in German submarkets by category



# 4 Retail

## High Street Retail

### 4.1 All-risk-yield

The last six months have brought a new wave of compression compared with H2 2016 (on average 21bps over the last six months for min ARY in Top 7 cities vs. 2bps over the previous six months). Investors repeatedly said that retail is a difficult type of use to invest in; however, a lack of other product and strong demand for investment in prime high street retail real estate have resulted in very competitive processes and prices levels reaching the upper echelons.

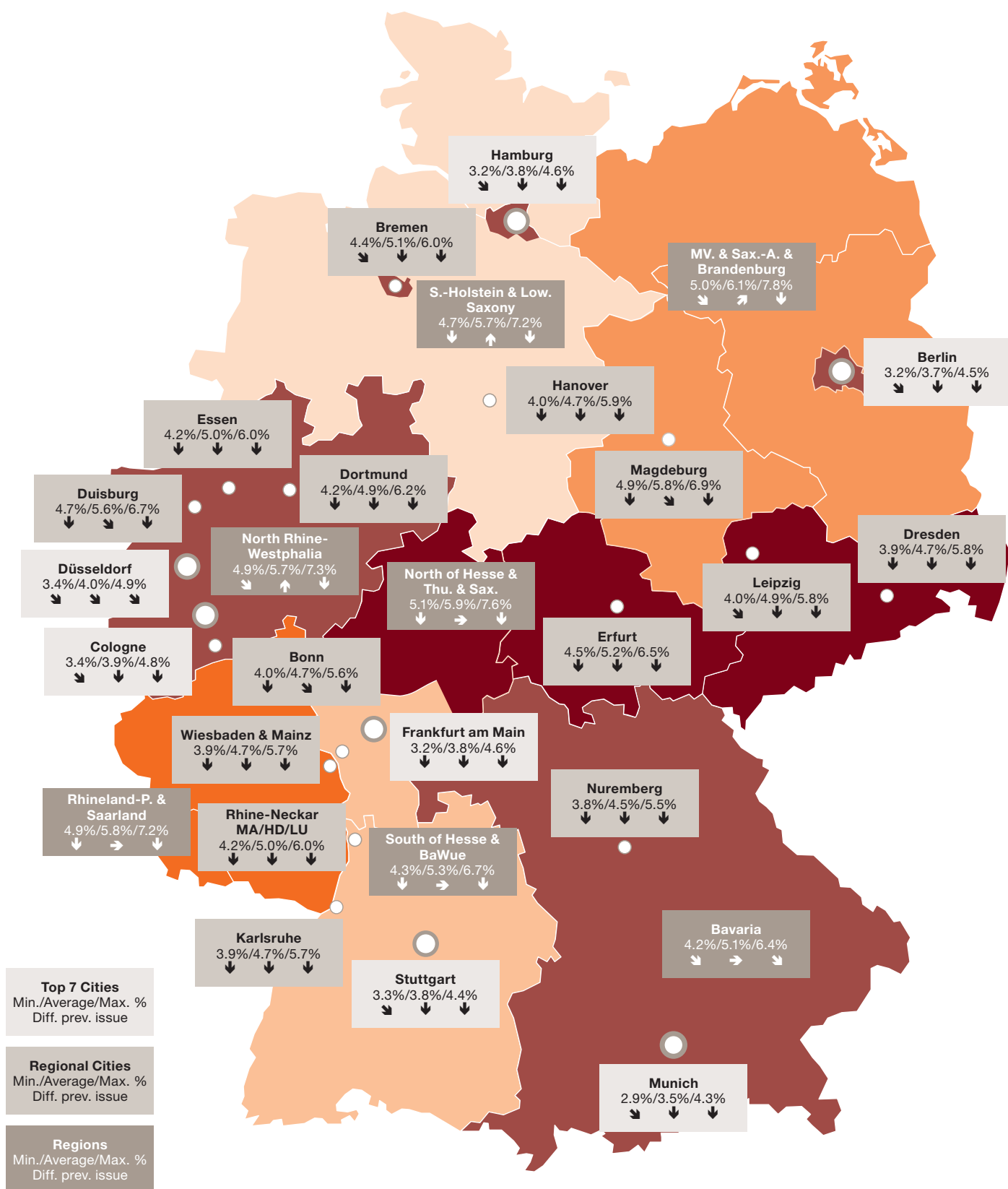
For the first time, the Munich minimum ARY fell below 3.0% with an average investor sentiment of 2.9%. However, compared with the other Top 7 Cities, Bavaria's capital, together with Düsseldorf, experienced the least compression over the last six months.

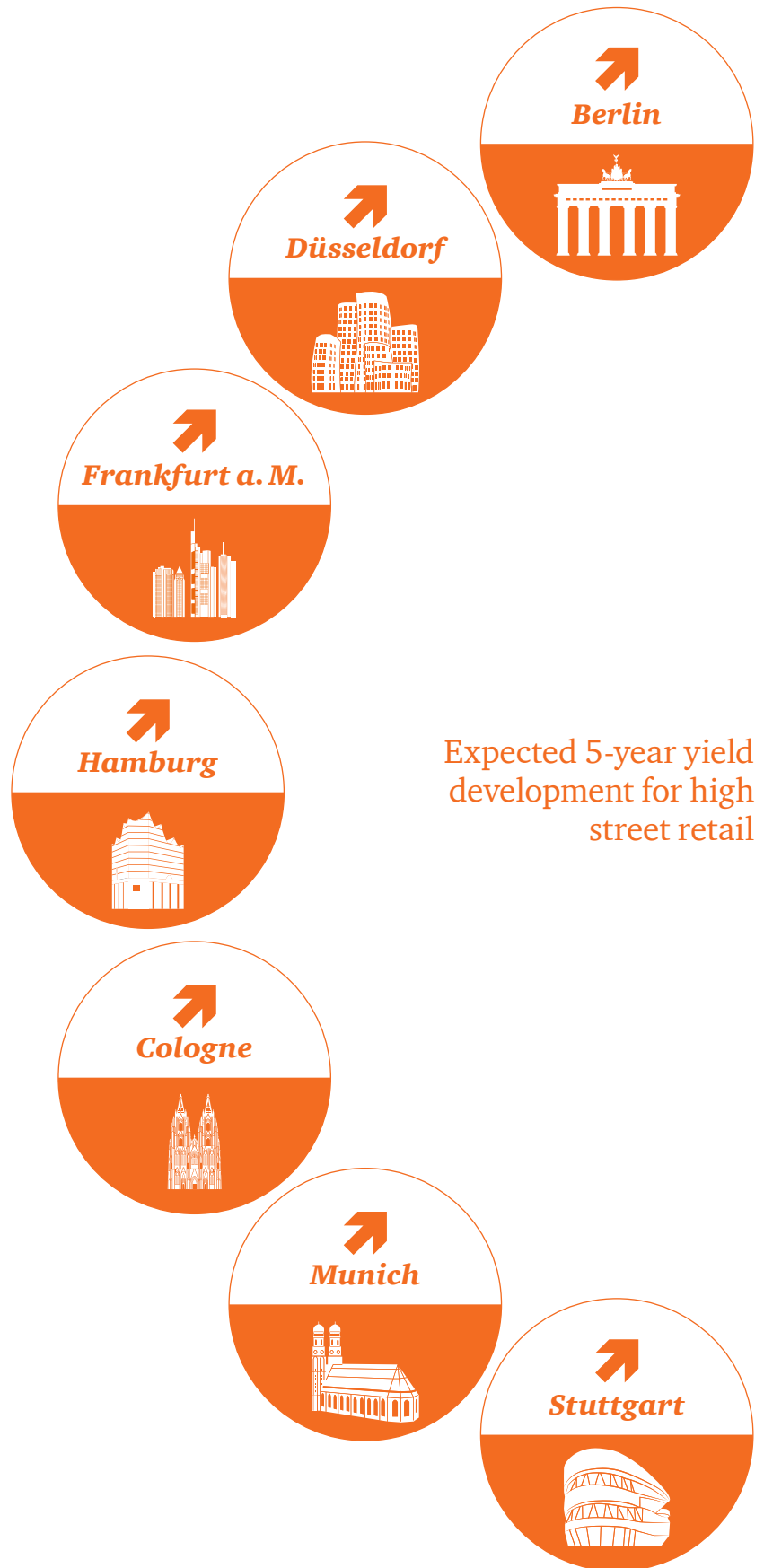
Rental growth above 1% was registered only in Berlin, Munich (1.4% each) and Stuttgart (1.1%). However the average rental growth prediction for the Top 7 Cities decreased to its current level of 1.1% from 1.7% at the beginning of 2017 and 2.2% one year ago.

Regional Cities also showed compression over the current period and almost 60bps over the last twelve months. The highest compression was recorded in Dresden, Karlsruhe, Hannover and Nuremberg.

Rental growth in Regional Cities has been partially negative, which reflects the general investor attitude towards retail. Thus, the average rental growth in Regional Cities is almost non-existent, with a result of 0.1% compared with 0.6% six months ago and 1.4% twelve months ago.

Fig. 7 ARYs for high street retail in German submarkets by geography





↓ < -1%   ↘ -1.0% to -0.25%   → -0.25% to 0.25%   ↗ 0.25% to 1.0%   ↑ > 1.0%

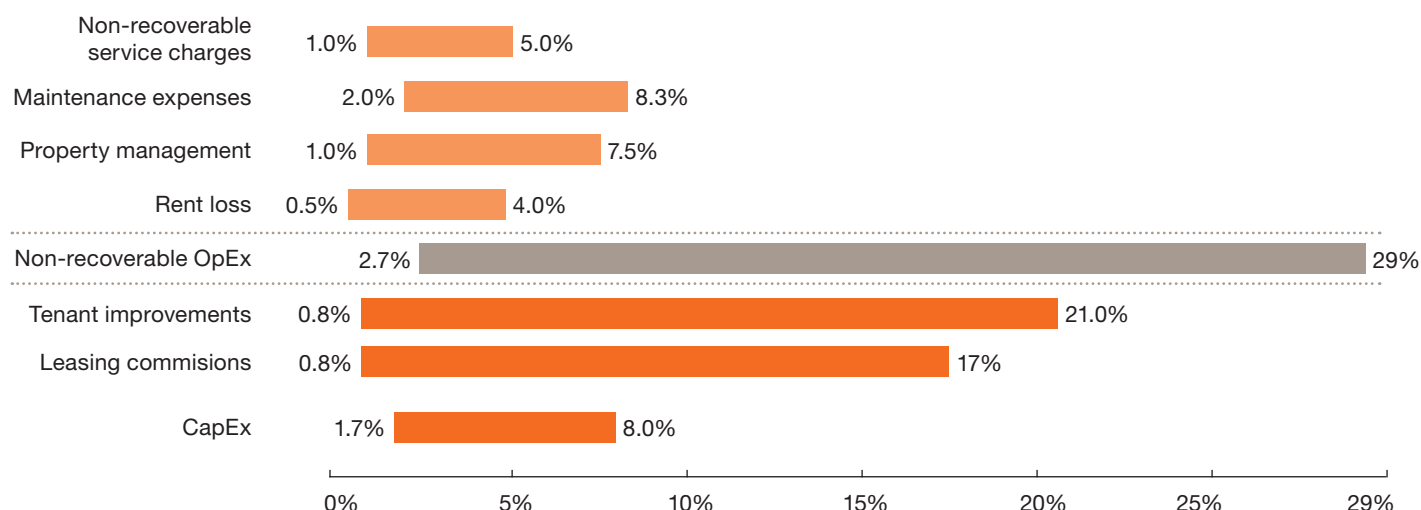


## 4.2 Net operating income

As with the results for office properties, only 20% of investors included tenant improvements and leasing commissions in the NOI calculation.

The value ranges for single NOI items, as well as for tenant improvements and leasing commissions, were in line with office properties.

**Fig. 8 NOI calculation method for the retail market**



## 4.3 Letting parameters for high street retail

**Fig. 9 Letting parameters for the retail market**

Top 7 Cities	Rent-free period (months)				Marketing period (months)				Extension probability	Annual market rent growth rate	
	Min.	Med.	Max.	vs. 6m ago	Min.	Med.	Max.	vs. 6m ago	vs. 6m ago		
Berlin	1	2	6	→	1	3	6	→	62.0%	↘	1.5%
Düsseldorf	1	3	6	→	2	5	7	→	63.0%	↘	1.0%
Frankfurt am Main	1	3	6	→	2	5	8	→	62.0%	↘	0.9%
Hamburg	1	3	6	→	2	4	6	→	63.0%	↘	0.9%
Cologne	1	3	6	→	2	5	7	→	60.0%	↘	0.8%
Munich	1	2	5	→	1	2	5	→	65.0%	↘	1.5%
Stuttgart	1	2	5	↘	1	3	6	→	65.0%	↘	1.1%

Unlike in the office market, Top 7 Cities show almost no compression of minimum ARY. Regional Cities and Regions experienced some additional compression.

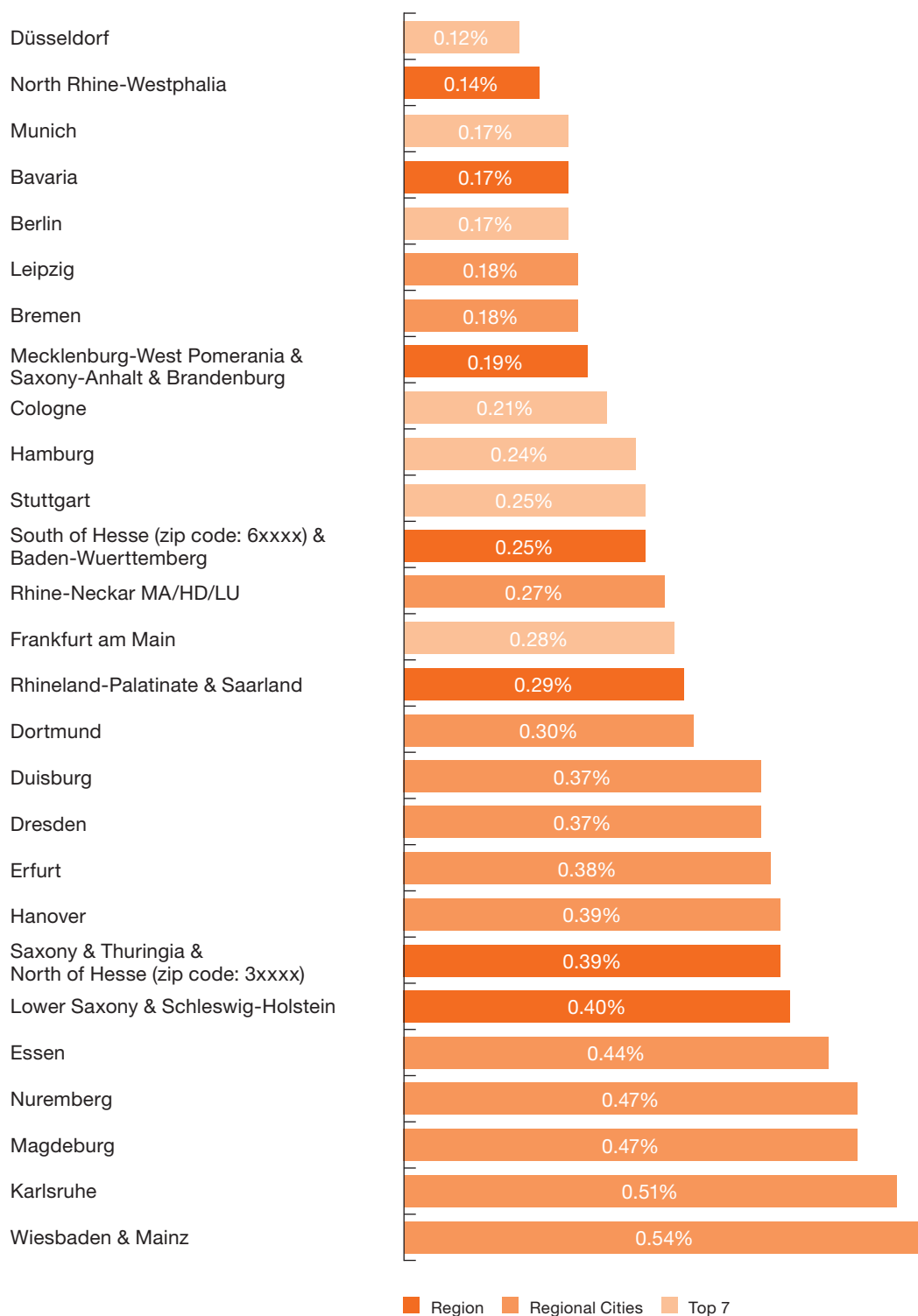
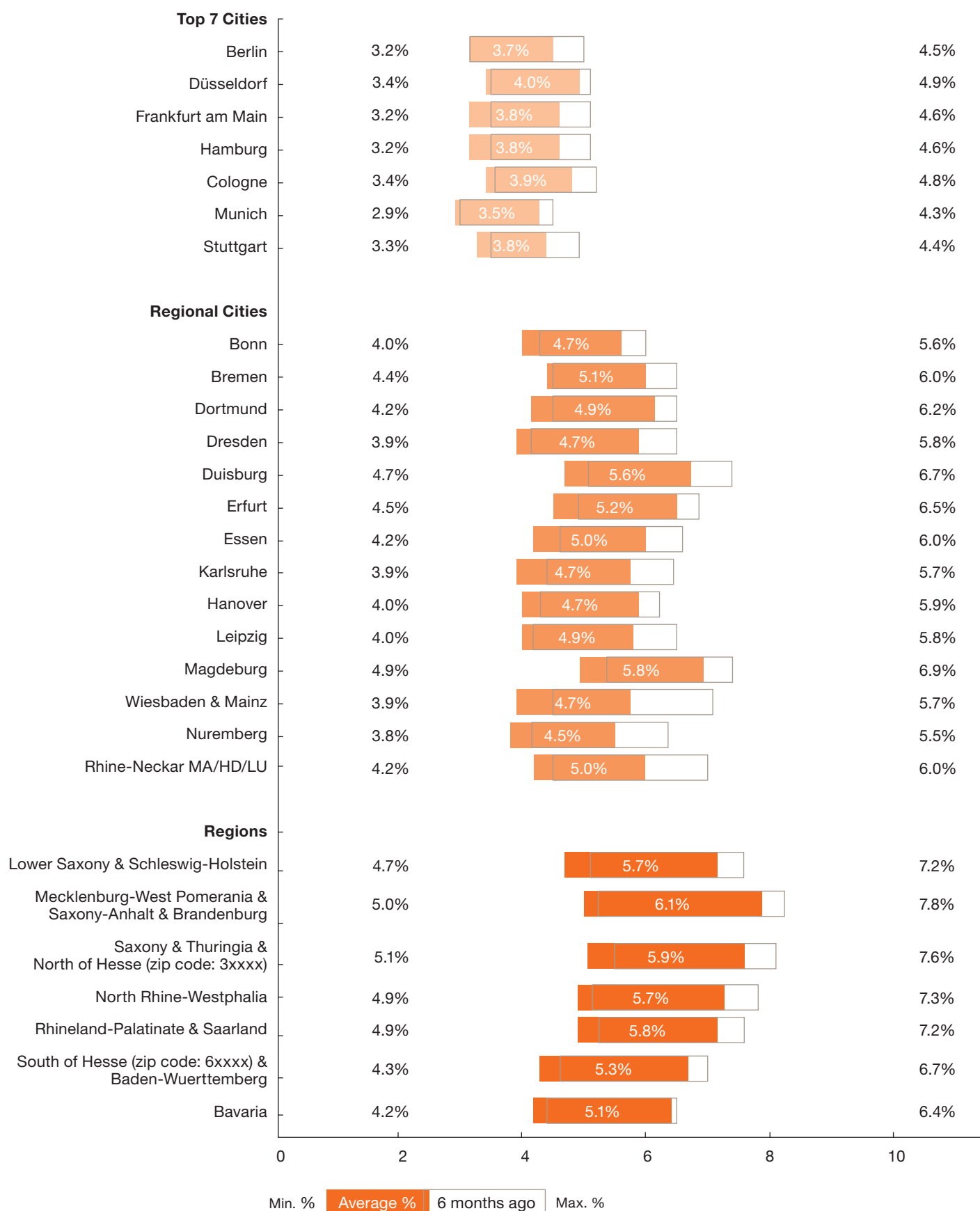
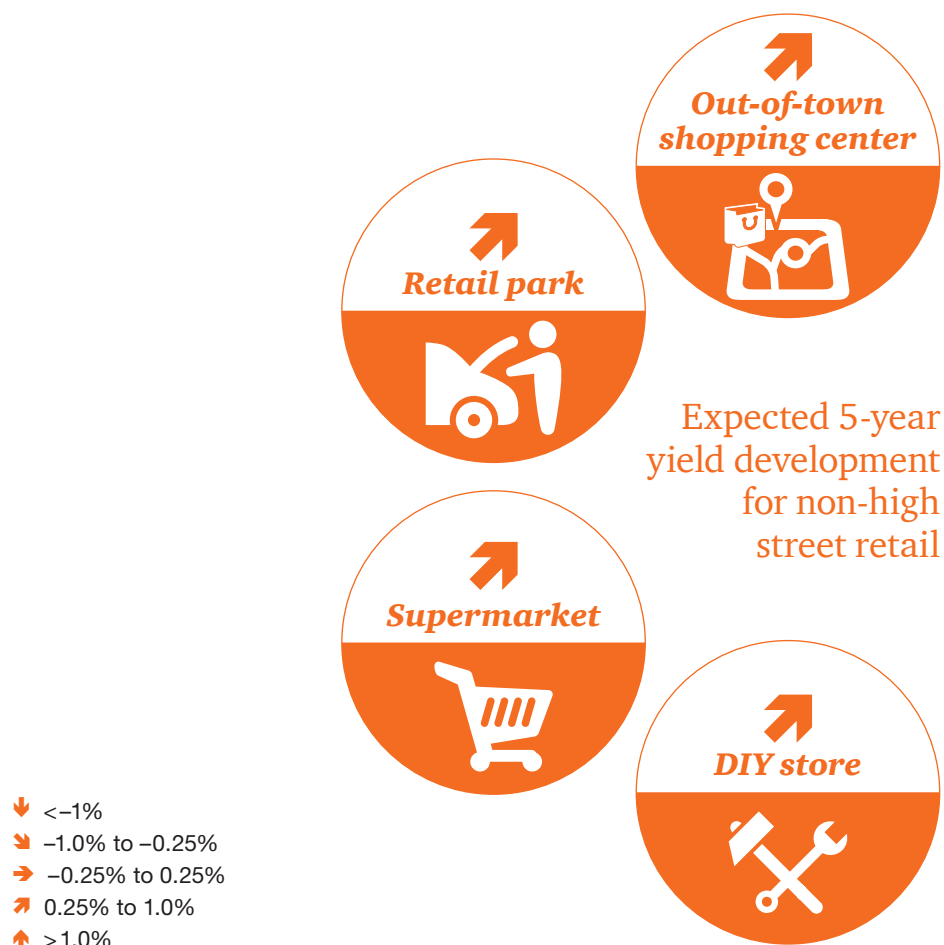
**Fig. 10 Compression of minimum yields in high street retail**

Fig. 11 ARYs for high street retail in German submarkets by category



# Non-High Street Retail

## 4.4 All-risk-yield and letting parameters: non-high street retail



## 4.5 All-risk-yield for retail – non-high street

Fig. 12 ARYs for retail (excluding high street) in German submarkets by category

	All-risk-yield			Rent-free period (months)				Marketing period (months)				Extension probability	Annual market rent growth rate	
	Min.	Med.	Max.	Min.	Med.	Max.	vs. 6m	Min.	Med.	Max.	vs. 6m	vs. 6m ago		
							ago				ago			
Out-of-town shopping center	4.3%	5.4%	7.0%	2	4	8	↘	2	6	11	→	58.3%	↗	0.5%
Retail park	4.7%	5.7%	7.8%	1	3	7	↘	1	5	8	↘	68.3%	↗	0.7%
Supermarket	5.2%	6.2%	8.9%	0	3	6	↓	1	5	9	→	75.0%	↗	0.7%
DIY store	5.7%	6.6%	9.0%	3	5	8	↘	1	6	9	→	70.0%	↗	0.2%

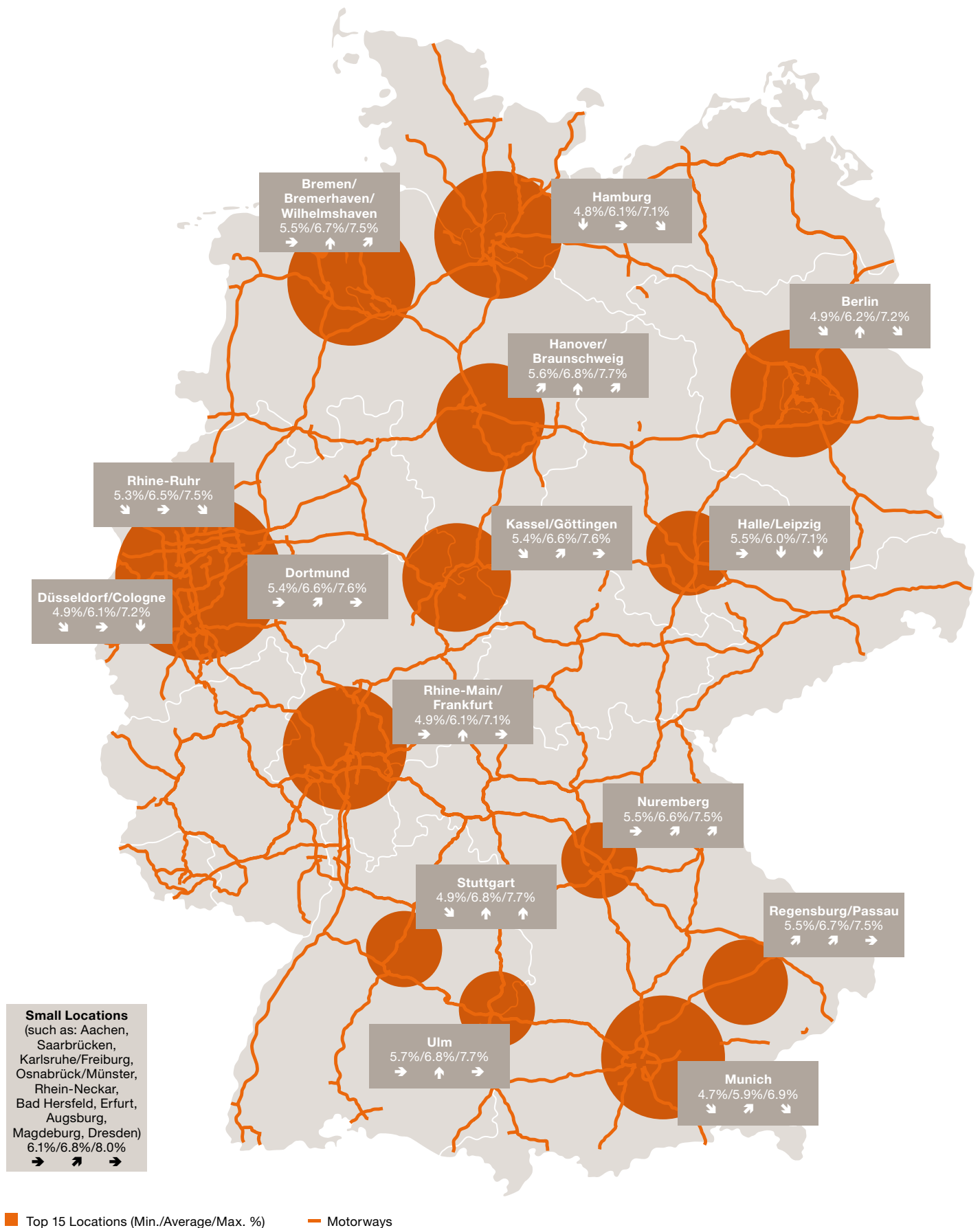
# 5 Logistics

Among the Top 15 markets, the six logistics hubs around the Top 7 cities (Cologne and Düsseldorf are considered as one) remain by far the most expensive ones. The Munich area provides the lowest ARY, a market in which assets are traded at 4.7%, closely followed by Hamburg (4.8%) and Stuttgart (4.9%). These three cities also show the most significant compression in ARY. The yield compression in Stuttgart is boosted by the scarcity of space due to natural area limitation.

The remaining nine hubs form a fairly homogeneous cluster with the average minimum ARY being 60bps above the Top 7 (5.5% vs. 4.9%). Maximum ARYs throughout the Top 15 markets show no particular pattern, which indicates that weaker properties are treated individually and more or less independently of the respective market.

## 5.1 ARYs in logistics

Fig. 13 ARYs for logistics properties in German submarkets by location



## 5.2 Letting parameters for the logistics market

For the Top 15 Locations, rent-free periods range from three to seven months. The marketing period is not expected to be shorter than four months and can be up to ten months. The average Top 15 market probability of rental prolongation is 68.0%.

Small Locations and the Rest of Germany show longer rent free periods of six to nine months and longer marketing periods of six to twelve months. The extension probability does not differ from the Top 15 Locations.

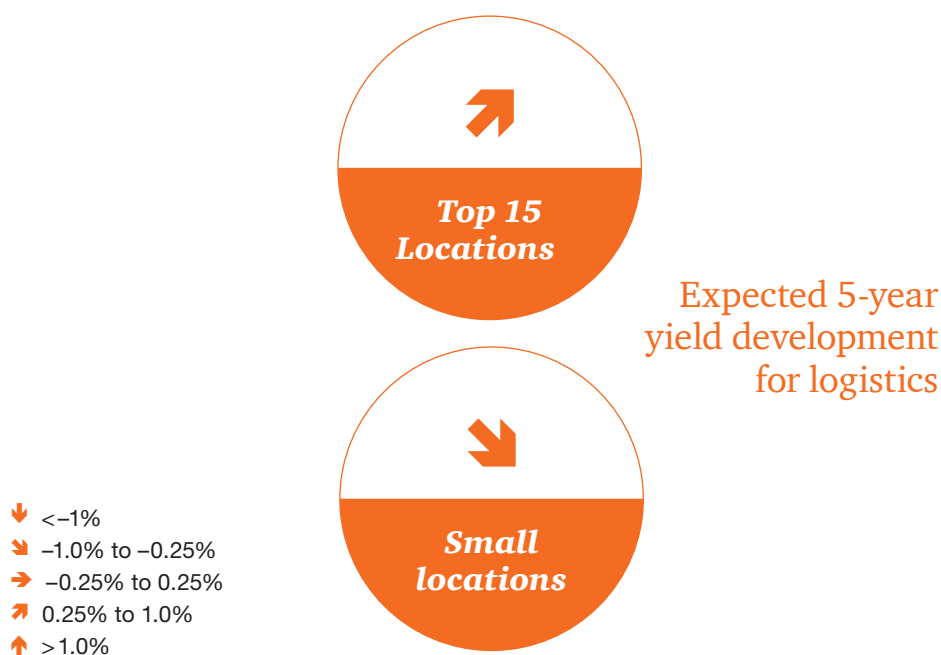


Fig. 14 Letting parameters for the logistics market (Volume 6 H1 2017)

	Rent-free period (months)			Marketing period (months)			Extension probability	Annual market rent growth rate
	Min.	Med.	Max.	Min.	Med.	Max.		
Top 15 Locations	3	4	7	4	9	7	68.6%	2.9%
Small Locations	6	-	9	6	-	12	67.5%	0.2%



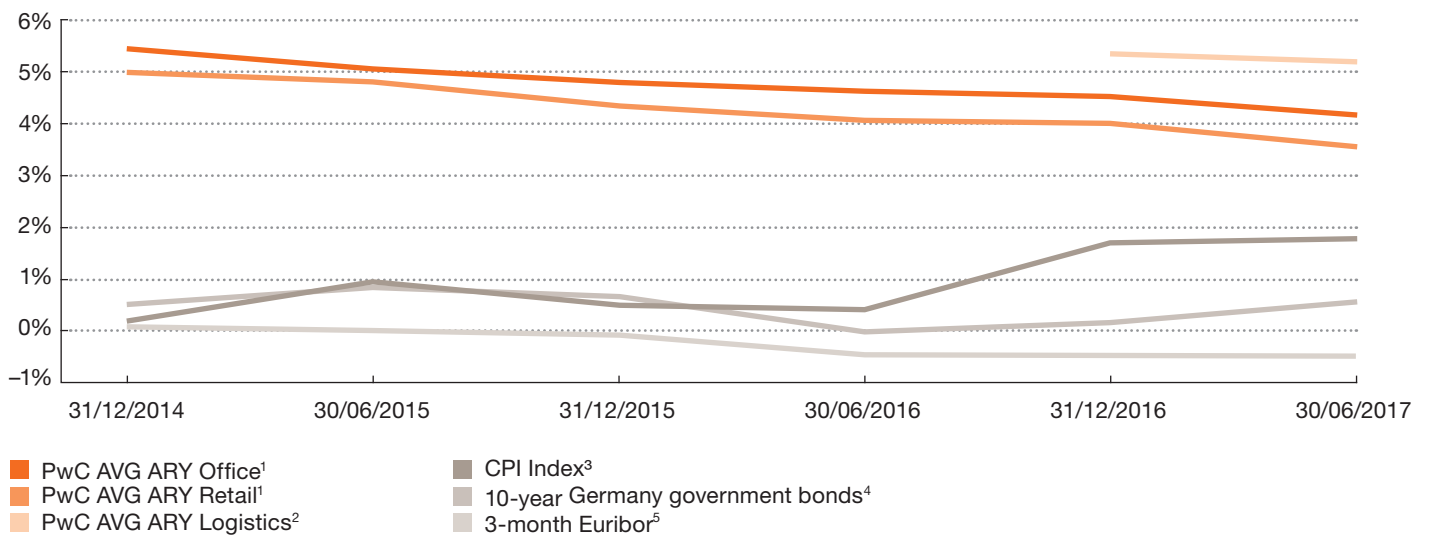
Fig. 15 ARYs for logistics properties in German submarkets by category



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# ***6 Overview of the results***

**Fig. 16 Yield comparison**



<sup>1</sup> AVG ARY includes only min. ARY for Top 7 Cities and Regional Cities

<sup>2</sup> AVG ARY includes only min. ARY for Top 15 Locations

<sup>3</sup> Statistisches Bundesamt

<sup>4</sup> Bloomberg

<sup>5</sup> ECB: Historical close, average of observations through period

## 6.1 All-risk-yield for office

**Fig. 17 Results overview for office** (Volume 6 H1 2017)

	Current			Annual market rent growth rate	6 months ago			12 months ago		
	Min.	Med.	Max.		Min.	Med.	Max.	Min.	Med.	Max.
<b>Top 7 Cities</b>										
Berlin	3.1%	4.3%	5.8%	3.6%	3.5%	4.7%	6.1%	3.9%	4.9%	6.6%
Düsseldorf	3.8%	5.0%	6.4%	1.4%	4.0%	5.1%	6.3%	4.2%	5.0%	6.8%
Frankfurt am Main	3.5%	4.5%	6.0%	2.1%	3.8%	4.8%	6.2%	4.0%	5.0%	6.6%
Hamburg	3.4%	4.5%	6.1%	2.0%	3.6%	4.7%	6.1%	3.8%	4.9%	6.6%
Cologne	3.8%	5.0%	6.6%	1.5%	4.1%	5.2%	6.4%	4.2%	5.2%	6.7%
Munich	3.0%	4.0%	5.3%	3.1%	3.3%	4.2%	5.5%	3.5%	4.6%	6.2%
Stuttgart	3.6%	4.6%	6.0%	1.8%	3.8%	4.8%	6.0%	4.1%	5.0%	6.7%
<b>Regional Cities</b>										
Bonn	4.6%	5.5%	6.9%	1.4%	4.7%	5.5%	6.9%	0.0%	0.0%	0.0%
Bremen	4.9%	5.9%	7.2%	1.0%	5.2%	5.9%	7.7%	5.0%	6.4%	8.2%
Dortmund	4.9%	5.9%	7.2%	0.7%	5.0%	5.8%	7.2%	5.1%	6.3%	8.2%
Dresden	4.8%	5.8%	7.0%	1.5%	5.1%	5.7%	7.4%	5.2%	6.4%	8.2%
Duisburg	5.3%	6.3%	7.7%	0.3%	5.6%	6.2%	8.0%	5.7%	6.9%	8.2%
Erfurt	5.4%	6.3%	7.6%	1.0%	5.7%	5.9%	8.0%	5.7%	6.9%	8.0%
Essen	5.0%	5.9%	7.1%	1.0%	5.3%	5.8%	7.5%	5.2%	6.4%	7.9%
Karlsruhe	4.8%	5.7%	6.9%	1.5%	5.0%	5.4%	7.4%	4.9%	6.1%	7.9%
Hanover	4.6%	5.7%	7.0%	1.5%	4.8%	5.5%	7.1%	4.9%	6.0%	7.9%
Leipzig	4.7%	5.8%	7.3%	1.7%	5.0%	5.7%	7.3%	5.0%	6.2%	8.2%
Magdeburg	5.7%	6.6%	7.9%	0.6%	6.2%	6.4%	8.7%	5.8%	7.2%	8.3%
Wiesbaden & Mainz	4.7%	5.6%	7.1%	1.4%	5.0%	5.6%	7.4%	4.9%	6.1%	7.8%
Nuremberg	4.5%	5.5%	6.9%	1.8%	4.9%	5.3%	7.2%	5.0%	6.1%	7.8%
Rhine-Neckar MA/HD/LU	5.0%	5.7%	7.3%	1.3%	5.2%	5.8%	7.5%	5.0%	6.2%	7.7%
<b>Regions</b>										
Lower Saxony & Schleswig-Holstein	5.5%	6.2%	7.6%	1.0%	5.4%	6.0%	7.5%	5.7%	6.2%	8.1%
Mecklenburg-West Pomerania & Saxony-Anhalt & Brandenburg	5.6%	6.6%	7.9%	0.6%	5.2%	6.1%	7.7%	5.9%	6.3%	8.6%
Saxony & Thuringia & North of Hesse (zip code: 3xxxx)	5.8%	6.5%	7.9%	0.7%	5.5%	6.2%	7.7%	5.7%	6.5%	8.6%
North Rhine-Westphalia	5.2%	6.2%	7.5%	1.0%	4.9%	5.8%	7.4%	5.1%	6.2%	8.5%
Rhineland-Palatinate & Saarland	5.7%	6.3%	7.7%	0.8%	5.5%	5.9%	7.6%	5.9%	6.3%	8.3%
South of Hesse (zip code: 6xxxx) & Baden-Wuerttemberg	4.8%	5.6%	7.1%	1.4%	4.8%	5.5%	6.9%	5.1%	5.9%	7.9%
Bavaria	4.7%	5.5%	6.9%	1.4%	4.9%	5.1%	6.9%	5.3%	5.9%	8.1%

## 6.2 All-risk-yield for high street retail

**Fig. 18 Results overview for retail** (Volume 6 H1 2017)

	Current			Annual market rent growth rate	6 months ago			12 months ago		
	Min.	Med.	Max.		Min.	Med.	Max.	Min.	Med.	Max.
<b>Top 7 Cities</b>										
Berlin	3.2%	3.7%	4.5%	1.5%	3.3%	4.1%	5.0%	3.4%	4.5%	5.3%
Düsseldorf	3.4%	4.0%	4.9%	1.0%	3.5%	4.2%	5.1%	3.5%	4.5%	5.2%
Frankfurt am Main	3.2%	3.8%	4.6%	0.9%	3.5%	4.3%	5.1%	3.5%	4.6%	5.3%
Hamburg	3.2%	3.8%	4.6%	0.9%	3.5%	4.2%	5.1%	3.4%	4.5%	5.2%
Cologne	3.4%	3.9%	4.8%	0.8%	3.6%	4.3%	5.2%	3.6%	4.6%	5.4%
Munich	2.9%	3.5%	4.3%	1.5%	3.0%	3.8%	4.5%	3.0%	4.2%	4.8%
Stuttgart	3.3%	3.8%	4.4%	1.1%	3.5%	4.1%	4.9%	3.7%	4.6%	5.4%
<b>Regional Cities</b>										
Bonn	4.0%	4.7%	5.6%	(0.0%)	4.3%	4.9%	6.0%	0.0%	0.0%	0.0%
Bremen	4.4%	5.1%	6.0%	0.1%	4.5%	5.4%	6.5%	4.7%	5.6%	6.7%
Dortmund	4.2%	4.9%	6.2%	(0.1%)	4.5%	5.3%	6.5%	4.6%	5.5%	6.6%
Dresden	3.9%	4.7%	5.8%	0.5%	4.2%	5.1%	6.5%	4.7%	5.6%	6.7%
Duisburg	4.7%	5.6%	6.7%	(0.4%)	5.1%	5.8%	7.4%	5.2%	6.0%	7.7%
Erfurt	4.5%	5.2%	6.5%	0.0%	4.9%	5.6%	6.8%	4.9%	6.0%	7.1%
Essen	4.2%	5.0%	6.0%	0.1%	4.6%	5.5%	6.6%	4.8%	5.6%	6.8%
Karlsruhe	3.9%	4.7%	5.7%	0.8%	4.4%	5.1%	6.4%	4.6%	5.5%	6.4%
Hanover	4.0%	4.7%	5.9%	0.5%	4.3%	5.1%	6.3%	4.6%	5.5%	6.6%
Leipzig	4.0%	4.9%	5.8%	0.7%	4.2%	5.1%	6.5%	4.6%	5.4%	6.6%
Magdeburg	4.9%	5.8%	6.9%	(0.3%)	5.4%	6.0%	7.4%	5.5%	6.5%	8.0%
Wiesbaden & Mainz	3.9%	4.7%	5.7%	0.5%	4.5%	5.2%	6.6%	4.4%	5.5%	6.5%
Nuremberg	3.8%	4.5%	5.5%	0.8%	4.2%	5.0%	6.3%	4.4%	5.5%	6.4%
Rhine-Neckar MA/HD/LU	4.2%	5.0%	6.0%	0.4%	4.5%	5.4%	7.0%	4.7%	5.6%	6.9%
<b>Regions</b>										
Lower Saxony & Schleswig-Holstein	4.7%	5.7%	7.2%	(0.1%)	5.1%	5.4%	7.6%	5.0%	6.2%	7.3%
Mecklenburg-West Pomerania & Saxony-Anhalt & Brandenburg	5.0%	6.1%	7.8%	(0.3%)	5.2%	6.0%	8.3%	5.3%	6.8%	8.2%
Saxony & Thuringia & North of Hesse (zip code: 3xxxx)	5.1%	5.9%	7.6%	(0.3%)	5.5%	5.9%	8.1%	5.2%	6.8%	8.4%
North Rhine-Westphalia	4.9%	5.7%	7.3%	0.1%	5.1%	5.5%	7.8%	4.6%	6.0%	7.2%
Rhineland-Palatinate & Saarland	4.9%	5.8%	7.2%	(0.3%)	5.2%	5.7%	7.6%	5.2%	6.8%	7.6%
South of Hesse (zip code: 6xxxx) & Baden-Wuerttemberg	4.3%	5.3%	6.7%	0.6%	4.6%	5.3%	7.0%	4.8%	6.3%	7.1%
Bavaria	4.2%	5.1%	6.4%	0.6%	4.4%	5.1%	6.5%	4.5%	6.0%	6.7%

### 6.3 All-risk-yield for non-high street retail

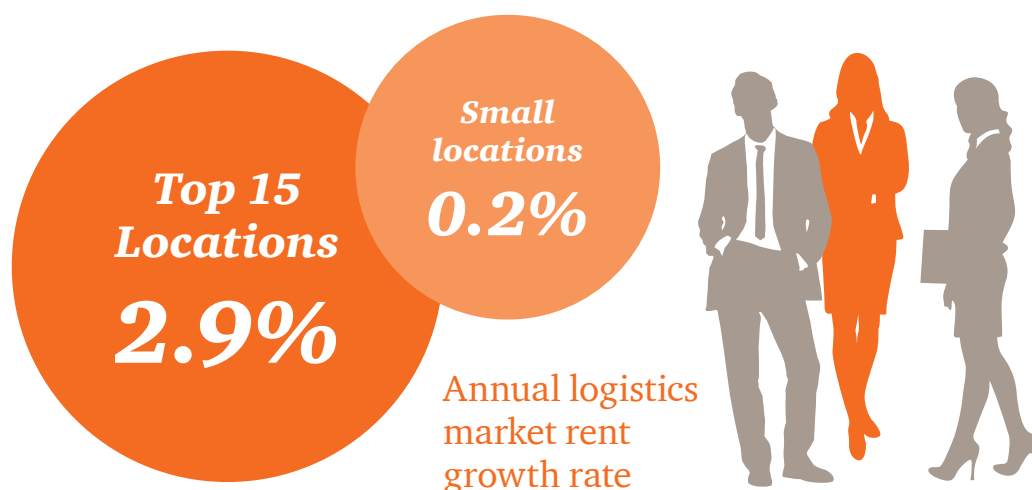
**Fig. 19 Results overview for non-high street retail (Volume 6 H1 2017)**

	Current				6 months ago			12 months ago		
	Min.	Med.	Max.	Annual market rent growth rate	Min.	Med.	Max.	Min.	Med.	Max.
Out-of-town shopping center	4.3%	5.4%	7.0%	0.5%	4.5%	5.5%	7.2%	4.6%	6.3%	8.0%
Retail park	4.7%	5.7%	7.8%	0.7%	4.8%	5.8%	8.0%	5.1%	6.8%	8.2%
Supermarket	5.2%	6.2%	8.9%	0.7%	5.3%	6.2%	9.1%	5.4%	6.8%	8.4%
DIY store	5.7%	6.6%	9.0%	0.2%	6.0%	7.1%	9.6%	6.2%	7.5%	9.0%

## 6.4 All-risk-yield for logistics

**Fig. 20 Results overview logistics** (Volume 6 H1 2017)

	Current			6 months ago		
	Min.	Med.	Max.	Min.	Med.	Max.
<b>Top 15 Locations</b>						
Berlin	4.9%	6.2%	7.2%	5.1%	5.9%	7.4%
Düsseldorf/Cologne	4.9%	6.1%	7.2%	5.1%	6.1%	7.5%
Rhine-Main/Frankfurt	4.9%	6.1%	7.1%	5.0%	5.7%	7.2%
Hamburg	4.8%	6.1%	7.1%	5.1%	6.0%	7.3%
Munich	4.7%	5.9%	6.9%	5.0%	5.7%	7.1%
Stuttgart	4.9%	6.0%	7.1%	5.1%	6.1%	7.3%
Bremen/North Sea ports	5.5%	6.7%	7.5%	5.5%	6.5%	7.3%
Dortmund	5.4%	6.6%	7.6%	5.5%	6.4%	7.6%
Halle/Leipzig	5.5%	6.8%	7.7%	5.5%	6.4%	7.7%
Hanover/Braunschweig	5.6%	6.8%	7.7%	5.5%	6.4%	7.6%
Kassel/Göttingen	5.4%	6.6%	7.6%	5.5%	6.5%	7.6%
Lower Bavaria	5.5%	6.7%	7.5%	5.3%	6.5%	7.5%
Nuremberg	5.5%	6.6%	7.5%	5.5%	6.4%	7.4%
Rhine-Ruhr	5.3%	6.5%	7.5%	5.5%	6.4%	7.7%
Ulm	5.7%	6.8%	7.7%	5.7%	6.5%	7.7%
<b>Small Locations</b>						
Small Locations	6.1%	6.8%	8.0%	6.1%	6.6%	8.0%



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# *7 Approach and Definitions*



In our survey, we concentrated on ARYs, as these reflect the relationship (capitalisation rate) between stabilised net operating income (NOI) and an expected purchase price. It thus takes into account the individual risk-return relationship and provides an insight into future market trends and developments in rent levels. The ARY is the capitalisation rate that is used in the direct capitalisation method. The ARYs presented in our results are a simple average of the single data points received for the respective submarkets.

To account for a broader market – comprising Core, Core+, and Value-Add properties – we have put ARYs into three categories: minimum, maximum and average. Using office properties in Frankfurt as one example, we have defined these categories as follows:

**Fig. 21 Classification of the range of ARYs for the office market**

	Location	WAULT	Vacancy	Age
<b>Office</b>				
Min.	CBD (eg, Frankfurt Financial District)	>5	~5%–10%	<5 years
Average	Immediate vicinity to CBD (eg, Frankfurt trade fair)	~5	~10%–15%	~5–20 years
Max.	Peripheral office locations (eg, Frankfurt-Niederrad)	<4	>15%–40%	<25 years

Regarding the retail sector, we separated in-town high street retail from location-independent retail. Out-of-town shopping centres, retail parks, single grocery stores and DIY stores represent typical subclasses of the location-independent retail market. Within location-independent retail, we view macro-location to be of less importance, given that individual competition, performance and accessibility are the factors driving the value of such retail properties. As a result, we have divided the definition of retail as follows:

**Fig. 22 Classification of the range of ARYs for high street retail**

	Location/retail class	WAULT	Vacancy	Age
<b>High street retail</b>				
Min.	City centre high street or 1a shopping centre (Frankfurt Goethestrasse)	>5	<5%	<5 years
Average	Lesser frequented sections of the high street	~5	~5%	~5–15 years
Max.	Close proximity to the high street, within 100m distance	<4	~20%	>15 years

**Fig. 23 Classification of the range of ARYs for location-independent retail**

	Competition	WAULT	Vacancy	Age
<b>Location-independent retail</b>				
Min.	Dominant situation	>5	<5%	<5 years
Average	In competition with equal competitors	~5	~5%	~5–15 years
Max.	Inferior to competitors	<4	~25%	>15 years

For logistics properties we have defined three categories (minimum, maximum and average) as follows:

**Fig. 24 Classification of the range of ARYs for the logistics market**

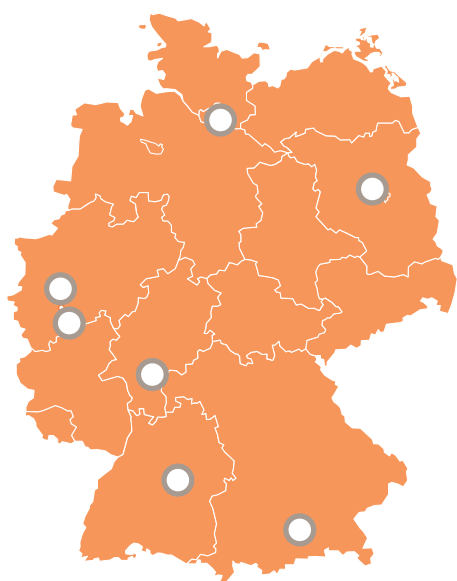
	Motorway access	Third party usability	WAULT	Age
<b>Logistics</b>				
Min.	<5 minutes	excellent	~10	<5 years
Average	~5-15 minutes	good	~5	~5-20 years
Max.	>15 minutes	limited	<4	>25 years

The maximum yield does not cover assets that cannot be valued with a direct capitalisation method – that is to say, where there is no sustainable cash flow or opportunistic development assets.

Based on Germany’s geographical structure, we have identified three categories of markets for office and retail properties: i) Top 7 Cities, ii) Regional Cities and iii) Regions. The Top 7 Cities reflect the ARYs of the seven most populated cities in Germany. Regional Cities represent a selection of 13 cities with a population ranging from 200,000 to 600,000. The Regions provide the yields in the respective areas, excluding all Top 7 Cities and Regional Cities.

**Fig. 25 Identified submarkets for office and retail**

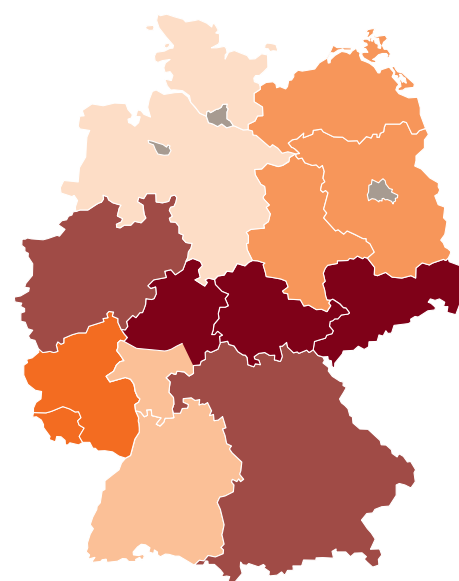
Top 7 Cities



14 Regional Cities



7 Regions



We have identified two additional markets for logistics properties which result from varying location requirements: i) Top 15 Locations and ii) Small Locations. The Top 15 Locations reflect the ARYs of the 15 most successful logistics locations in Germany in respect of the investment volume of the last five years and prime yields of the last two years. Small Locations represent the remaining established logistics regions in Germany.

In addition to ARYs, we have been covering market-specific letting assumptions since the third issue of the *PwC Real Estate Investor Survey Germany*. In the course of our research, we asked for typical **Market Rent Growth Rates, Rent-Free Periods, Reletting Periods and Prolongation Probabilities** for the market in question.

The rental growth rate is defined as the expected average annual rental growth rate over the next five years. Respondents provided a range and median for Rent-Free Periods and Reletting Periods (both in months) that are typically observed in the respective markets. The given underlying lease length is set at 7.5 years.

It is worth noting that we do not use a textbook definition of NOI. Our survey takes investment strategies into account and thus varies significantly among participants. We tried to identify which parameters are included in the NOI and which are accounted for below NOI. The results for the office and retail NOI calculation methods are provided in the respective sections.

We do not aim to obtain a uniform average ARY and so we have not adjusted single ARYs for a respective NOI calculation method. The resulting average office, retail or logistics ARYs are to be read as an average of single data points.

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