The German housing market in 2018

Price and rent outlook for Berlin, Düsseldorf, Frankfurt, Hamburg, Munich and Stuttgart

January 26, 2018

Author
Jochen Möbert
+49 69 910-31727
jochen.moebert@db.com

Editor
Stefan Schneider

Deutsche Bank AG
Deutsche Bank Research
Frankfurt am Main
Germany
E-Mail: marketing.dbr@db.com
Fax: +49 69 910-31877

www.dbresearch.com

DB Research Management
Stefan Schneider

Original in German: January 15, 2018

Metropolitan areas in Germany are booming. The current real-estate cycle started in 2009 and has led to significant price increases for residential property in many cities. Prices for apartments have as much as doubled in some cities. Strong population and employment growth and declining unemployment rates are driving demand, and supply elasticity is low. New construction is slow to pick up, and vacancy rates are declining. As a result, rent growth is accelerating. Regulatory measures are unlikely to provide sufficient relief. House prices and rents look set to rise markedly in 2018.

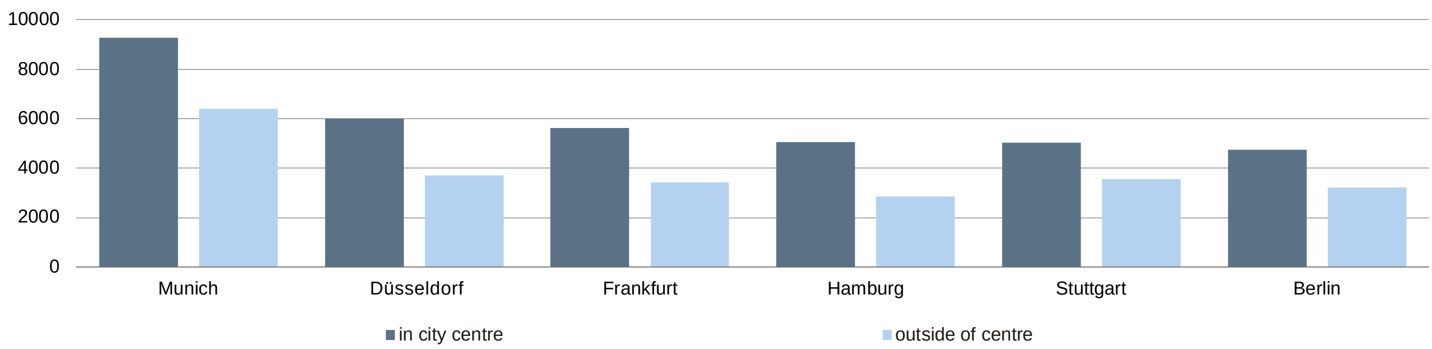
Data from a number of cities confirm that demand is high and supply insufficient. In Munich, the vacancy rate is near zero. In Berlin, employment increased by c. 4% in 2017. Frankfurt was already 40,000 residential units short in 2015 – which suggests that 2017's 15% yoy apartment price increase was not just Brexit-related. Stuttgart's location in a basin restricts construction activity, contributing to the doubling of apartment prices during the current cycle.

Prices in Hamburg and Düsseldorf have risen strongly as well, even though demand growth has been slower in these two cities than in other metropolitan areas. The local markets might therefore be more sensitive to interest-rate changes than their peers. Still, as our baseline scenario foresees only marginal interest rate increases during 2018, Hamburg and Düsseldorf should experience price and rent uptrends, too.

Overvaluations are rising, and the risk of a price bubble in the German housing market is increasing. The price uptrend is likely to continue for several years, at least in most major cities in Germany.

Apartment prices in and outside of the centre 1

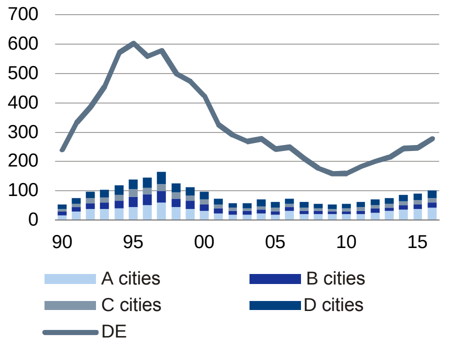
EUR per square meter



Source: Numbeo

Completions in 1990-2016 | 2

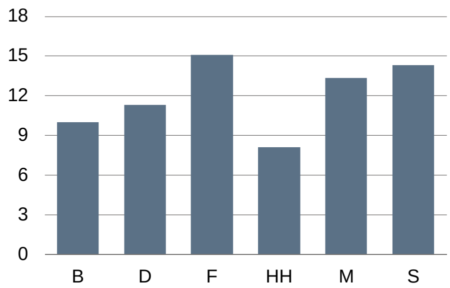
Number of residential units, '000



Sources: riwis, Federal Statistical Office, Deutsche Bank Research

Prices for existing condominiums, 2017 | 3

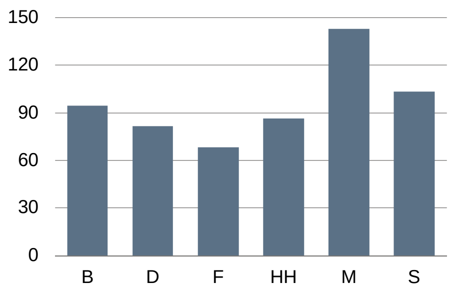
% yoy



Sources: riwis, Deutsche Bank Research

Prices for existing condominiums, 2009- | 4

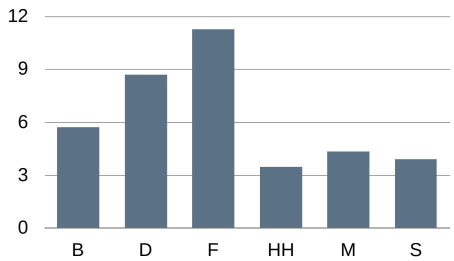
%



Sources: riwis, Deutsche Bank Research

Prices for single-family homes, 2017 | 5

% yoy



Sources: riwis, Deutsche Bank Research

Outlook for Berlin, Düsseldorf, Frankfurt, Hamburg, Munich and Stuttgart

— During the current real-estate cycle, i.e., from 2009 to 2017, house prices have risen 80% in large metropolitan areas (A cities) and c. 60% in B and C cities. In 2017, the number of newly completed residential units looks likely to have risen to more than 300,000 for the first time in the current cycle; in 2018, it might climb to 335,000. However, assuming that there is demand for at least 350,000 new apartments, the gap between supply and demand should continue to widen in both years. As demand remains high, upward price pressure will continue. This suggests that prices and rents will rise further in all major cities. Overvaluations are rising, and the risk of a price bubble on the German housing market is increasing. The price uptrend is likely to continue for several years to come, at least in most major cities in Germany.

— In Munich, apartment prices more than doubled between 2009 and 2017. During the same time, the population rose from 1.36 million to 1.53 million. There is a shortage of several tens of thousands of residential units. The vacancy rate is near zero, and current and planned future building activities will not suffice. The supply shortages should drive house prices and rents upwards in the coming years.

— In Berlin, house and apartment prices were up c. 10% yoy in 2017. Unemployment rates have dropped to record lows, and employment growth is strong. New construction activity is sluggish. The gap between permits and completions remains large. The price and rent increase looks set to continue at the same pace in 2018.

— Frankfurt's population is growing by c. 8,000 per year. The excellent labour market situation stimulates demand, and supply is scarce. There is a shortfall of c. 50,000 residential units. This means that the price and rent increase in 2017 was not exclusively due to Brexit speculation. The market will likely remain tight for years to come.

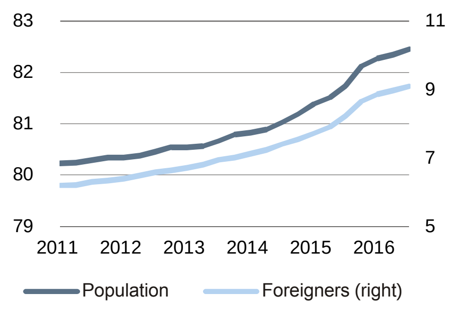
— In Hamburg, prices for existing apartments have risen more than 70% since 2009. Compared to other metropolitan areas, rent growth is below the average. It is dampened by comparatively strong construction activity and a stable population. This suggests that the low interest rate level is probably the main reason behind the uptrend in apartment and house prices. Hamburg's property market might therefore be more sensitive to interest rate changes than that of other metropolitan areas. Since our baseline scenario for 2018 foresees only small increases in mortgage rates, house and apartment prices in Hamburg will probably continue to rise strongly this year.

— The market in Düsseldorf might be as rate-sensitive as its Hamburg counterpart. Since 2009, the population has grown "only" 5%. And other demand drivers were less dynamic than in other German cities, too. Price and rent growth have tended to be (below the) average. Nevertheless, prices and rents look set to rise again in 2018.

— Stuttgart's population is slow to grow. Since 2009, it has risen only about 6%. The city's location in a basin restricts construction activity in the long term. Still, its excellent economic structure and dynamic labour market are driving prices upwards. Prices for existing apartments have risen more than 100% since 2009 and 14% in 2017 alone. Rents for re-let apartments have risen 63% since 2009 and c. 12% in 2017. As the labour market boom is likely to continue, demand and, consequently, prices and rents will probably rise further in the coming years.

Population 6

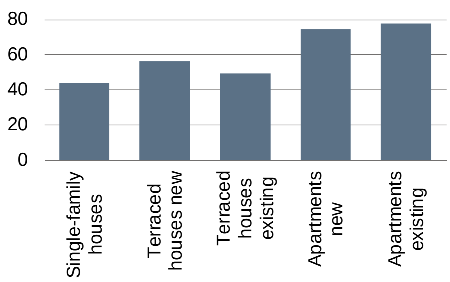
Both y axes: million people



Source: Federal Statistical Office

2009-2017 House and apartment prices 7

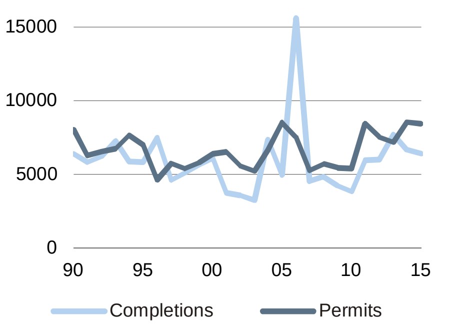
%



Sources: riwis, Deutsche Bank Research

Munich: Housing market 8

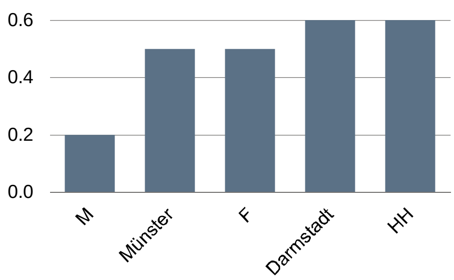
No. of dwellings



Sources: riwis, Federal Statistical Office, Deutsche Bank Research

2015 Empirica vacancy rate index City ranking: lowest rates 9

In % of the aggregate number of residential units



Source: CBRE-Empirica

Price pressure on the German housing market to continue

House and apartment prices in Germany have risen since the beginning of 2009, which means that 2018 is the tenth year in the current real-estate cycle. Even though the cycle has already reached an impressive length, it is still characterised by housing shortages and relatively inelastic supply. There is a shortfall of c. 1 million residential units in Germany as a whole. Markets in metropolitan areas (A cities) are particularly tight; there, prices have risen c. 80% between 2009 and 2017. Prices in B/C and D cities have increased c. 60% and 50%, respectively. The number of newly completed residential units is finally rising as well. It looks set to reach 305,000 for the first time ever in 2017, up from almost 280,000 in 2016 (the final figure will be released in June 2018). We expect it to increase further to 335,000 in 2018. However, assuming that at least 350,000 new residential units would be necessary (this is the government estimate; other research arrives at 400,000 or more), the gap between supply and demand should continue to widen.

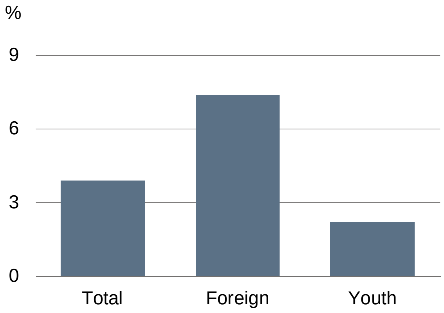
The tight market situation has pushed house prices up even more strongly in 2017 than in the preceding years. According to bulwiengesa (which covers 126 cities), house prices rose c. 6 ½% and apartment prices more than 10% on average. As in the preceding years, the strongest price increases were registered in metropolitan areas and large cities. However, many smaller cities also experienced significant prices rises, and in none of the 126 cities did prices decline. The price boom has an impact on rents, too. In 2017, rents for newly completed and existing homes rose 6% and more than 7%, respectively. These are the strongest increases since 1993. Moreover, rent growth has accelerated since 2009. The “rent brake” has turned out to be an obstacle to investment and tends to harm tenants rather than protect them.

We expect price and rent growth to remain strong in 2018. The supply shortage on the housing market and the excellent labour market will likely remain the dominant price drivers. However, the high price level might squeeze out potential buyers and thus dampen demand in 2018. In addition, higher capital market rates might lead to a slight increase in mortgage rates, which could reduce demand somewhat. We expect 5-10 year mortgage interest rates to rise to 2% by the end of 2018 (from 1.7% currently). As price growth looks set to remain strong and supply shortages will be a feature of the German market for many years to come, the risk of a bubble has increased markedly. German metropolitan areas will stay in the focus. This study analyses six major residential markets: Berlin, Düsseldorf, Frankfurt, Hamburg, Munich and Stuttgart.

Construction activity in Munich to remain insufficient during the coming decade

According to official figures, 36,000 new residential units were completed in Munich between 2011 and 2015. At the beginning of 2018, the city’s internet site did not yet contain a residential market report for 2016/17. According to bulwiengesa, 7,400 new apartments were completed in 2016, i.e. not many more than in the preceding years. And construction activity is unlikely to have accelerated much in 2017 either. The city administration intended to build 7,000 residential units each year until 2016 and has raised this target to 8,500 for the period from 2017 to 2021. This means that a total of almost 52,000 residential units were completed between 2011 and 2017. This is equivalent to residential space for slightly more than 100,000 people. However, Munich’s population increased from 1.36 million (per the 2011 census) to 1.55 million in 2016 before declining slightly in 2017. According to official statistics, 1.53 million people lived in Munich in September 2017 (latest available figure). Some people may have moved because rents rose too strongly. However, it is likely that the decline is simply due to a well-known statistical effect stemming from the registration of foreigners. The total number of foreigners has declined, and they are often not fully captured by the official statistics because they tend to move comparatively often. Based on these official figures, Munich's population has grown by c. 180,000 inhabitants since 2011. This means that, based on only the number of people who have recently moved to Munich, there is a shortage of almost 40,000 residential units.

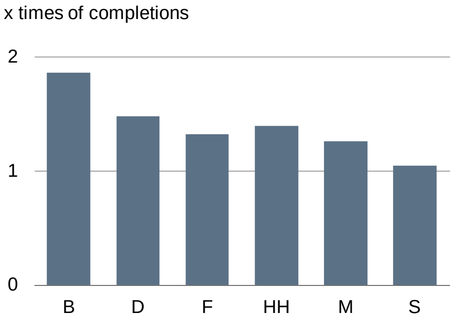
2017 Munich: Unemployment rates 10



Sources: Federal Labour Office, Deutsche Bank Research

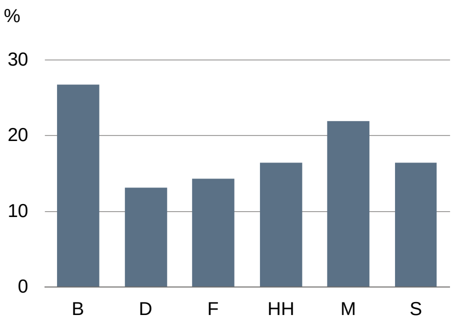
Munich's very dynamic labour market is fuelling demand for housing as well. Total employment growth amounted to more than 3% in 2017, and during the cycle as a whole, employment increased by a total of 22%, i.e. quite strongly in comparison to other cities. In addition, unemployment is quite low, at 4.3% overall; the rate among foreigners amounts to 8.0%[1] and youth unemployment comes in at 2.7%). Moreover, a relatively high share of all employees in Munich has obtained a university degree. According to the Federal Employment Agency, university graduates made up 32% of all regular employees who are subject to social security contributions. This is the highest share of all German metropolitan areas and the second-highest in Germany as a whole. Based on the existing housing shortages registered, Empirica calculated a vacancy rate of 0.2% for the end of 2015. By now, the rate looks set to be zero and price pressures are likely to have increased further. Office vacancies are another indicator of the shortage of available space in Munich. Since 2013, the office vacancy rate has successively declined from 7.2% to less than 2%. In other metropolitan areas (A cities), the rate is c. 5%.

2009-16: Overhang of building permits 11



Sources: riwis, Deutsche Bank Research

2009-2017: Employment growth 12



Sources: Federal Employment Agency, Deutsche Bank Research

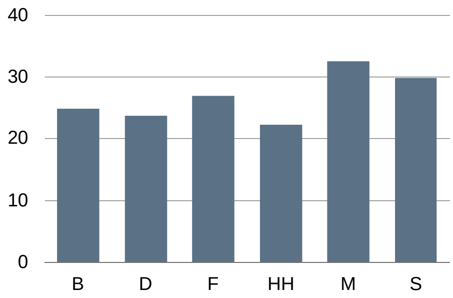
From an international vantage point, Munich is Germany's most expensive city, even though valuations are understandable. According to Numbeo[2], house prices per sqm outside the city centre amount to EUR 6,370 in Munich, which makes the city the seventh most expensive in Europe. Geneva, Zurich, Basel, London, Paris and Lausanne are ahead of it. At the end of 2016, Munich ranked 14th, at EUR 5,340. The euro appreciation is one reason Munich has moved up on the list. bulwiengesa confirms the significant uptrend in prices. In 2017, prices for terraced houses and for apartments were up c. 8% yoy and c. 12% yoy, respectively. Current construction activity does not suggest that the uptrend in rents and prices will come to an end anytime soon. Price pressure looks set to remain strong in the medium to long term. According to the city administration's current planning forecast (as released in May 2015), the population is likely to rise by 150,000 people to more than 1.7 million by 2030. This translates into 75,000 new residential units. Seeing that there is already a shortage of 40,000, more than 100,000 new residential units would need to be built by 2030. However, with only 8,500 residential units planned to be completed each year, residential space will likely remain in short supply until 2030. If the forecast materialises, Munich will be more obliged than any other German city to rethink its current development policy. At the moment, the administration is not focused on promoting construction, but on developing stricter regulations. In mid-December, a new ordinance entered into force prohibiting any wrongful use of residential space and enabling the city administration to levy fines of up to EUR 500,000. In this context, residential space is considered to be "wrongfully used" not only if it is used for commercial purposes or as a holiday home, but also if it is vacant for more than three months. However, these measures are likely to be insufficient in view of the sheer size of the problem. Construction activity in

[1] Unemployment figures for foreigners from 2016. Data for 2017 are not available, as the figures were distorted by the refugee influx.

[2] See Numbeo Doo (www. numbeo.com).

2017: Share of employees with a university degree 13

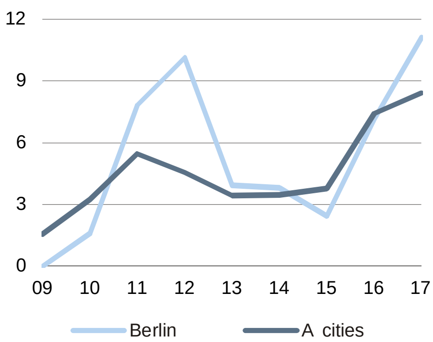
% of all regular employees



Source: Federal Employment Agency, Deutsche Bank Research

2009-2017 Berlin vs. A cities: Reletting 14

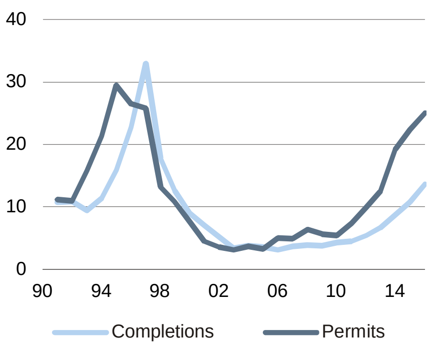
% yoy



Sources: riwis, Deutsche Bank Research

1990-2016 Berlin: Residential market 15

No. of dwellings in k



Sources: riwis, Federal Statistical Office, Deutsche Bank Research

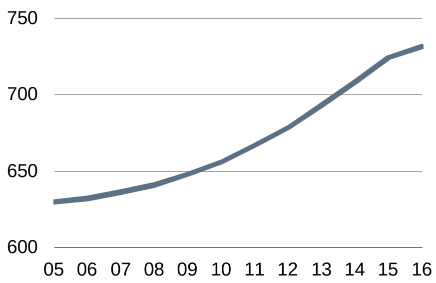
Munich is simply too sluggish in comparison to population growth, which is why Munich looks set to become even more expensive. According to Numbeo, sqm prices outside the city centre already amount to more than EUR 7,000 in London and several Swiss cities.

Berlin: Sluggish new supply suggests a long cycle

Prices for existing terraced houses and single family homes in Berlin were up almost 10% yoy in 2017 according to riwis. Despite this jump, which considerably exceeded the uptrend in most other major metropolitan areas, house prices in Berlin are still relatively low. It is still true that one single-family home in Munich costs as much as three houses in Berlin and that terraced houses and apartments are almost twice as expensive in Munich as in Berlin. According to Numbeo, sqm prices outside the city centre came in at EUR 3,200 at the end of 2017 and rose c. 10% yoy. In Berlin, too, the price uptrend is due to a major shortfall of residential units. The small number of construction plots is often mentioned as one of the main reasons for the lack of homes. According to the most recent residential market barometer for Berlin, the shortage is most visible in the medium and, in particular, the lower price segment. Moreover, the market is expected remain tight until the end of the decade. Official completion plans are unlikely to provide relief either. In 2016 (latest available figures), only 13,700 residential units were completed, i.e. 0.7% of the total number of existing homes. According to official statistics, the gap between construction permits and completions remained high, as in the last few years. While 25,100 building permits were issued, only 13,700 units were completed. The gap between permits and completions is larger than in any other major German city; the ratio is 1.83 in Berlin, compared to 1.78 in Düsseldorf, 1.4 in Hamburg, 1.3 in Frankfurt and Munich and 1.2 in Cologne and Stuttgart. Between 2011 and 2015 (latest available figures), Berlin's population increased by 200,000 and the number of households by c. 125,000. Robust demand is not least due to favourable labour market trends. Employment growth came in at c. 4% in 2016 and continued at the same pace in 2017. This is quite impressive; aggregate employment growth since 2009 amounts to almost 30%. As a result, unemployment has been declining for years, to 8.4% in December 2017 – a rate last seen in 1984. Economic growth in Berlin looks set to remain strong, which means that the city will probably attract more than 250,000 new citizens by 2030. For years to come, a steady rise in demand for housing will meet with inelastic supply. As the ownership rate is particularly low in Berlin (15.6% according to the census of 2011, compared to more than 20% in other metropolitan areas and 45.9% in Germany as a whole), many tenants may want to acquire their own homes. Strong rent growth will reinforce incentives during the cycle. In 2017, rent growth accelerated again, to 11% yoy (2016: 7%; 2015: 2½%). Numerous factors point to a super cycle in Berlin, which might last far beyond 2020. In the course of this development, Berlin might become one of the most expensive metropolitan areas or at least cities in Germany (it is currently ranked 15th in terms of existing home prices). This forecast is supported by dynamic price growth in the past three years. Existing home prices in Berlin were up c. 36%, compared to 30% in other metropolitan areas.

Frankfurt: Population 16

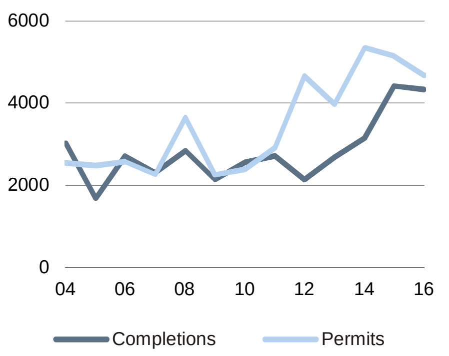
in '000



Sources: City of Frankfurt, Deutsche Bank Research

Frankfurt: Permits and Completions 17

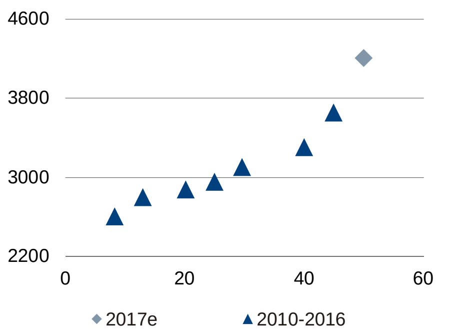
No. of dwellings per year



Sources: riwis, Deutsche Bank Research

Condominium prices and housing 18

y axis: prices for existing condominiums, EUR/sqm
x axis: housing shortage, '000



Sources: residential market reports, riwis, Deutsche Bank Research

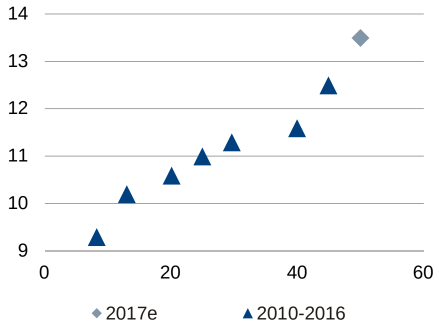
Home prices in Frankfurt rose 15% in 2017

By mid-2017, 736,200 people lived in Frankfurt, i.e. 64,300 (~9%) more than in 2009. The population looks set to grow further in the coming years. The city administration currently expects the number of inhabitants to rise to more than 750,000 by the end of 2018. By the end of 2027, more than 800,000 people are likely to live in Frankfurt. As the population has grown and economic activity has accelerated, the number of employees has risen as well, by c. 15% since 2009. Compared to other German metropolitan areas, the rate of unemployment is low (overall: 5.6%; among foreigners: 10.5%[3]; youth employment: 5.6%; the averages for all metropolitan areas are 6.3%, 13.8% and 5.0%, respectively). In particular, unemployment among foreigners is relatively low and below the nationwide average of 13.7% (as of October 2017). Migrants in Frankfurt appear to be highly educated – which may explain the relatively high and rising share of university graduates among employees in Frankfurt. In 2017, c. 27% of all regular employees in jobs which are subject to social security contributions were graduates. Strong population and employment growth has stimulated housing demand. Low interest rates, healthy income growth and relatively low prices per sqm at the beginning of the current cycle have propped up demand as well. The number of building permits granted per year has therefore risen from 2,400 residential units in 2009 to 5,600 in 2016. However, according to bulwiengesa, the number of completions has increased much more slowly and amounted to only just above 4,000 residential units in the last few years. At the same time, conversions of public buildings and commercial space have helped to create several thousands of residential units in the last few years. New city quarters have been built or planned, for example a new quarter for up to 30,000 people in the north-west of the city at the border of the Taunus. While these efforts have helped to keep the gap between supply and demand unchanged, they have not narrowed it. There are numerous reasons for the low supply price elasticity in Frankfurt. Above all, there is a shortage of construction plots. The city already stretches to its borders. Moreover, large-scale construction projects take time and are the subject of controversial discussions, just as in other cities. Limited construction activity has led to a significant shortage of residential units, defined as the number of households in relation to the number of available residential units. According to the city's latest official figures, the deficit amounted to c. 40,000 residential units in 2015, i.e. more than 10,000 more than in 2014. In 2016 and 2017, the gap probably widened, to c. 50,000 residential units. And it will take far into the coming decade to reduce the demand overhang. In line with this market situation, prices for existing apartments and terraced houses rose 68% and 60%, respectively, between 2009 and 2017. Until the Brexit summer of 2016, the uptrend in prices was relatively subdued. However, this is no longer the case. In 2017, prices for existing and new apartments were up 15% and almost 17% yoy, respectively. Rents for re-let apartments also rose strongly, by 8%. These jumps might to some extent be due to the expectation that numerous jobs will be shifted from London to Frankfurt. However, there is considerable uncertainty about how many jobs will be moved in the end (there has been speculation about more than 10,000 additional jobs). As a result, landlords and sellers have more pricing power in a market where demand is high. We believe that the estimate of more than 10,000 new jobs is overly optimistic for two reasons. First, ex-Prime Minister Tony Blair recently called upon his Labour Party to try to work against Brexit and towards a referendum about the result of the negotiations with the EU. The "Brexit effect" might therefore be much smaller than assumed today, not least because several British politicians are urging the

[3] Unemployment figures for foreigners from 2016. Due to distortions resulting from the influx of refugees, the Employment Agency does not provide city-level figures for 2017.

Rents and housing shortage 19

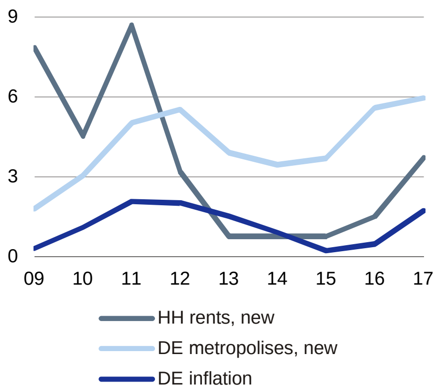
y axis: rents, re-let apartments, EUR/sqm
x axis: housing shortage, '000



Sources: residential market reports, riwis, Deutsche Bank Research

Hamburg: Rents vs. benchmarks 20

% yoy



Sources: Riwis, Federal Statistical Office, Deutsche Bank Research

UK to remain within the EU single market despite Brexit. Second, a Financial Times article written in December 2017 suggests that the banks will shift fewer than 4,600 jobs from London to Frankfurt due to Brexit.[4] Based on this range of scenarios and data, we believe that our Brexit analysis of 2016 (in which we assume in our baseline scenario that 5,000 additional employees move to Frankfurt) is still realistic.[5]

Hamburg: Rents are rising more slowly than in other metropolises

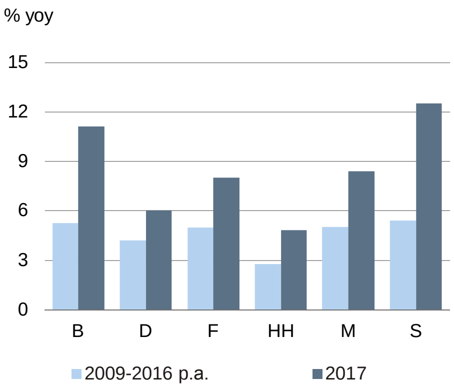
Prices for existing residential units in Hamburg are the third-highest in Germany, after Munich and Frankfurt, but rose only c. 8% yoy in 2017. Prices for existing terraced houses were up 6% and those for single family homes 3¼%. Once again, price trends in Hamburg were subdued in comparison to those in other German metropolitan areas (averages: apartments: 11¾%; terraced houses: 6½%; single family homes: 4¼%) Slower price increases in the past two years have kept the aggregate price increase in Hamburg below the average across the cycle (Hamburg: +74%; all A cities: 80%). Numbeo confirms this subdued uptrend. Square metre prices for apartments outside the city centre came in at EUR 2,400 at the end of 2014 and rose only 20%, to EUR 2,850, by the beginning of 2018. In the city centre, sqm prices are almost double that figure, probably not least due to elevated prices in the HafenCity quarter. This means that the price range is broader in Hamburg than in other German metropolitan areas. The slow uptrend in rents confirms this picture. In 2017, rents for re-let and newly let apartments were up 4.8% (average for all metropolitan areas: 8.4%) and 3.7% (average: 5.3%), respectively. The same applies to the cycle as a whole from 2009 to 2017, with rents for re-let apartments and new apartments rising 27% (average for all metropolitan areas: 47%) and 26% (average: 41%), respectively. The introduction of a "rent brake" in 2015 is not a sufficient explanation for this phenomenon. Rather, it is probably due to the fact that Hamburg has the lowest population growth rate of all metropolitan areas. Between 2009 and 2015, population rose only an aggregate 0.7% (latest available figure for 2015: 1.79 million). This explains the comparatively low demand for new homes. Moreover, the number of building permits rose substantially and almost reached its all-time high of the 1990s in the last few years. The number of completions increased at almost the same clip, and the uptrend in rents slowed palpably. As the demand overhang declined, the vacancy rate dropped only marginally, from an already low 0.7% in 2010 – 2014 to 0.6% in 2015. These developments are unusual for a German metropolitan area. Hamburg plans to build more than 10,000 new residential units each year, i.e. more than 1% of the total number of existing residential units (c. 940,000). While this target appears ambitious in view of the fact that the population is virtually stagnating, it seems to be the only way to keep rent and price growth at an acceptable level in the current cycle. New construction is the only way to prevent massive overvaluations and the risk of a house price bubble. The long-term success of Hamburg's policy will depend on whether the administration can prevent oversupply and the resultant, significant price declines. Compared to other metropolitan areas, Hamburg is thus faced with a luxury problem.

---

[4] Banks set to move fewer than 4,600 City jobs over Brexit. Financial Times. 12/12/2017

[5] Möbert, Jochen. Crumbs or pie – How much will Frankfurt's property market benefit from BREXIT? Germany Monitor, Deutsche Bank Research. 2016.

Rent price growth for existing residential 22



Sources: riwis, Deutsche Bank Research

Rent growth looks set to remain relatively subdued, as in the past few years. At the moment, rents for re-let apartments are below EUR 11/sqm in Hamburg, putting the city on rank 9 among the 126 cities observed by bulwiengesa (down from rank 7 in 2016). If rent growth remains subdued in the long run, rents in numerous smaller cities, such as Ingolstadt, Tübingen, Darmstadt or Wiesbaden, might exceed those paid in Hamburg in the coming years. The city expects population growth to remain slow and forecasts a small increase in the number of inhabitants by 52,000, to 1.84 million, by 2030. This, too, indicates that rent and price growth should remain low. Overall, Hamburg seems to have a good chance of continuing its successful residential policy. This suggests that apartment and house prices in Hamburg are driven mainly by the low interest rate environment. The city's market might therefore be relatively sensitive to an upcoming rate normalisation, whereas, in view of the large housing shortfalls, other metropolitan areas might experience only a slight decline in both demand for housing and the gap between housing supply and demand. For the first time in the current real-estate cycle, interest rate increases might become a substantial risk for Hamburg's residential market in 2018, as the ECB is set to terminate its bond purchases in the foreseeable future and economic activity in Europe is strong or even very strong (see below).

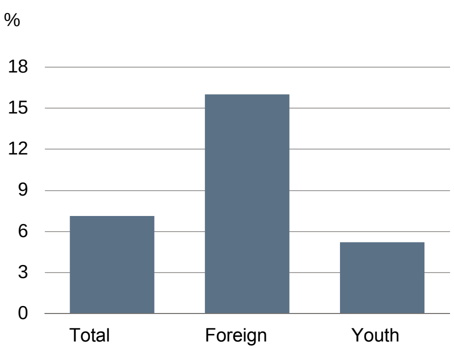
Building permits 23

Sources: riwis, Deutsche Bank Research

Vacancy rate in Düsseldorf is declining, but still above 1%

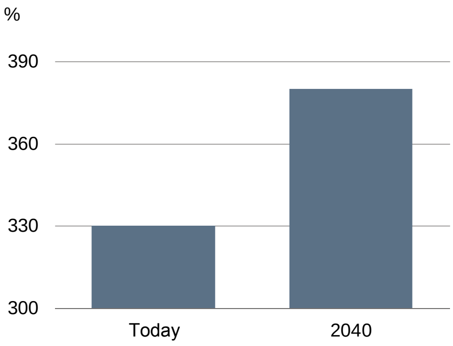
Düsseldorf has seen its population rise only 6%, or 36,500, since 2009. The number of households did not increase much either. Other demand drivers, such as employment growth, lagged behind the average of other metropolitan areas, too; employment was up 13% in Düsseldorf between 2009 and 2017, compared to an average of 20% for all metropolitan areas. At 7.1%, the unemployment rate is almost one percentage point above the average for all metropolitan areas. Düsseldorf is also doing worse in terms of youth unemployment (5.2%) and unemployment among foreigners (16%; compared to averages of 5.0% and 13.8%, respectively). As the environment, while favourable, is obviously less dynamic, the vacancy rate is somewhat higher than in other metropolitan areas, at 1.4% (JLL, as of June 2017). However, it is clearly lower than in former years, when it was sometimes above 3%. As this relatively high and declining vacancy rate suggests, construction activity used to be quite sluggish, but appears to have accelerated in the last few years. In 2016 (latest available figures), the ratio between building permits and existing residential units rose to 1.4%, up from considerably below 1%. The ratio between completions and existing homes rose to 0.8%, the highest level since 1996. Both the decline in vacancies and the pick-up in construction activity are reflected in house prices and rent levels, which have increased in line with or below the average of other metropolitan areas. Apartment prices in Düsseldorf were up 81% between 2009 and 2017 (average for all metropolitan areas: 94%), and rents for re-let apartments c. 41% (average: 47%). According to calculations by NRW.Bank, the number of households looks set to rise by 50,000, from currently 330,000 to c. 380,000 by 2040. Even though this is likely to lead to somewhat higher demand, the vacancy rates should ensure that housing shortfalls and price pressures will be less pronounced than in other metropolitan areas, at least in the coming years. Higher vacancies and rising construction activity suggest that the house and apartment market in Düsseldorf might be as interest-rate sensitive as its Hamburg counterpart. Nevertheless, prices and rents look set to increase for now due to the favourable overall economic development.

Unemployment rate in Düsseldorf, 2017 24



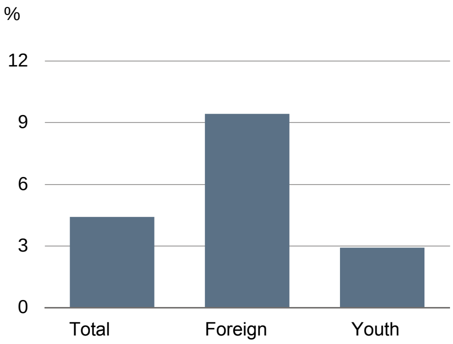
Sources: Federal Employment Agency, Deutsche Bank Research

Unemployment rates in Düsseldorf, 2017 25



Sources: North Rhine-Westphalia, Deutsche Bank

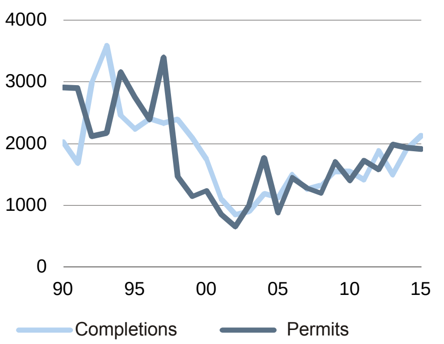
Unemployment rates in Stuttgart, 2017 26



Sources: Federal Employment Agency, Deutsche Bank Research

Stuttgart: Housing market 27

Number of residential units

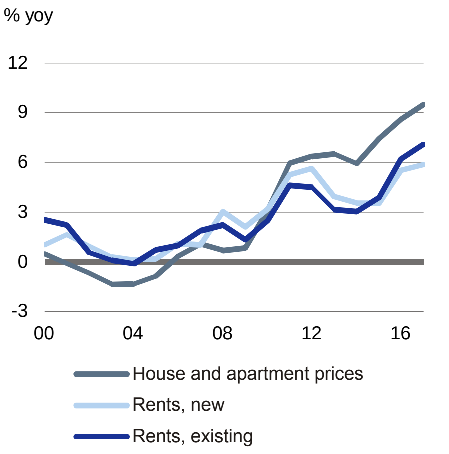


Sources: riwis, Federal Statistical Office, Deutsche Bank Research

Stuttgart: Price drivers to remain in place in the long run

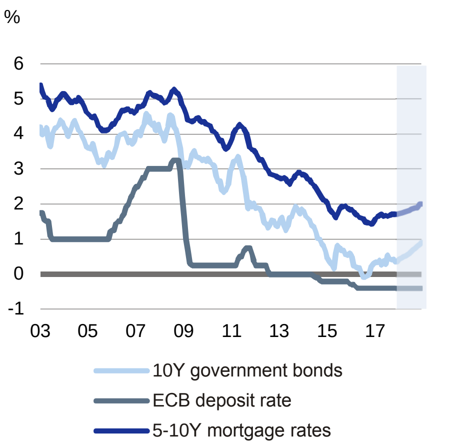
Population growth in Stuttgart was almost the same as in Düsseldorf during the current cycle. Since 2009, Stuttgart's population has increased only 6%, or 35,500 people. Due to its location in a basin, the city does not have much room for expansion. In addition, there are numerous dynamic cities in the vicinity, such as Mannheim, Heidelberg, Karlsruhe, Konstanz, Freiburg, Ulm and others. Just like the federal state of Baden-Württemberg as a whole, these cities rely heavily on the car industry and on mechanical engineering. The local companies are highly international and export-oriented and benefit from globalisation. Moreover, this environment has a favourable effect on research activity. Many of these cities are home to excellent universities. The economic structure is one reason why Stuttgart's labour market has done very well across the whole cycle. Unemployment has dropped to 4.4%, youth unemployment to 2.9% and unemployment among foreigners to 9.4%. All figures are much below the average for the other metropolitan areas. In contrast, employment growth was slightly below the average, at 16%. At the same time, a large number of employees in Stuttgart are graduates. According to the Federal Employment Agency, graduates made up c. 30% of all regular employees who are subject to social security contributions. Munich is the only metropolitan area where this share is higher, at 32%. Frankfurt ranks third, at 27%, and in other metropolitan areas the share is below 25%. In addition, the share of university graduates among all employees is rising in Stuttgart, which means that the city is probably enjoying above-average employment growth in terms of quality. Despite the favourable labour-market development, construction activity has been subdued due to the city's location in a basin. Neither the number of annual permits nor the number of annual completions amounted to more than 1% of existing residential units during the cycle. Supply looks set to remain limited in the long run, too. While the construction of an underground railway station ("Stuttgart 21") will free up more than 100 hectares in the city centre for new projects, these plots will not be available until the middle of the next decade at the earliest. Moreover, the completion date of the station has been postponed repeatedly. In November 2017, it was set for the year 2024. And even after that year, the official forecasts are for marginal population growth at best. The restricted supply and strong economic activity have driven house prices up. Prices for existing apartments have risen more than 100% since 2009 and 14% in 2017 alone. Prices for terraced houses and single family homes have increased c. 50% across the cycle. And the price increases have fed through to rents as well. Rents for re-let and new apartments have risen 63% and 50%, respectively. In 2017, they were up c. 12%. As the labour market boom in Stuttgart is likely to continue, demand will probably rise as well, and prices and rents should increase considerably in the coming years.

German residential property: Prices and rents 28



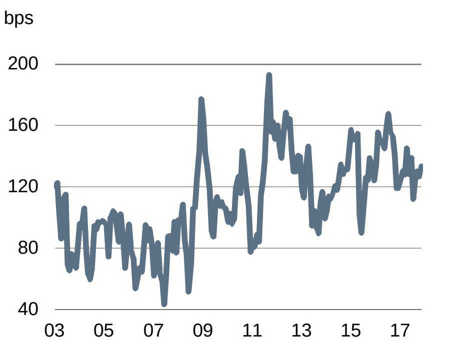
Sources: riwis, Deutsche Bank Research

Mortgage rates and government bond yields vs ECB deposit rate 29



Sources: ECB, Deutsche Bank Research

Spread: 5-10Y mortgage rates 30



Sources: ECB, Deutsche Bank Research

Booming metropolitan areas despite higher interest rates

We expect that, during the coming years, house prices will continue to rise in all metropolitan areas covered by this report. The uptrend will likely not come to an end until

1. supply is massively increased and vacancies rise. Such an outcome seems to be several years away. Despite the expected pick-up in construction activity, the supply deficit looks set to widen even more in 2018.
2. demand for housing declines, for example because labour migration to Germany slows and/or macroeconomic imbalances in the euro area decline palpably. However, the Bundesbank expects c. 300,000 immigrants in each of the years 2018 and 2019.
3. prices have reached a level at which people prefer to rent their home rather than to buy it. In 2017, house and apartment prices once again rose considerably more strongly than rents. However, rents for re-let apartments were up 6.9% yoy, the highest figure in 23 years. The pick-up in rent growth does not suggest that people will begin to prefer renting to buying at any time in the near future.
4. interest rates rise palpably. The ECB will probably terminate its bond purchases by September 2018. This means that the main buyer, which has played a key role in driving up bond prices since 2015, will drop out of the market. If the bond purchases are not extended because economic activity is robust, bond prices will probably decline considerably and yields rise. This might be a substantial risk for the German residential property market. While the ECB will obviously address this risk by approaching its exit cautiously, some uncertainty remains, not least because there is no historical precedent.

Conclusion: The first three conditions that might point to an end of the cycle are not in place in any of the metropolitan areas we have analysed. In many cities, they might materialise by the end of the decade at the earliest. The fourth condition might be fulfilled to some extent, as mortgage rates look set to rise towards 2% by end-2018 (see our baseline scenario outlined above). However, the interest-rate increase is unlikely to do more than just dampen the general price uptrend in most cities.

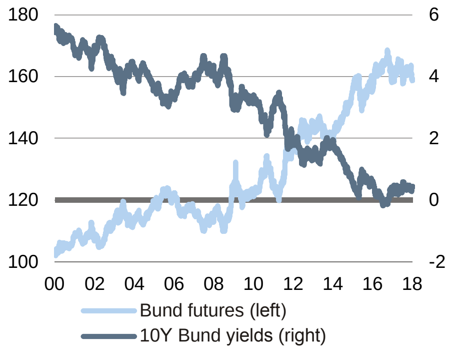
First, any negative effects on demand may be offset in part by strong economic activity or even completely ignored if the local market is particularly tight. Second, German interest rates should remain low in a historical comparison in 2018, despite potential rate increases. Back in 2016, the Council of Economic Experts already thought that, under the Taylor Rule, the money market interest rate should be 250 basis points higher than it actually was. And today, this theoretical interest rate level is even higher due to the very favourable economic environment. A slight increase in interest rates would narrow this gap only marginally. Third, purchases might be brought forward so that demand rises. During a rate-hike cycle, it is sensible to make planned investments sooner rather than later. Overall, our conclusion is similar to that drawn for 2017. We continue to expect strong apartment and house price growth and rent increases in the metropolitan areas in 2018.

The end of ECB bond purchases nears

However, we complement our outlook by a risk outlook this year. For the first time in the current cycle, which started in 2009, higher interest rates are a serious but difficult-to-quantify risk. The ECB announced at the end of 2017 that it would buy bonds worth “only” EUR 30 bn each month from January (down from EUR 60 bn). By summer at the latest, the ECB should begin to

Bund futures vs yields 31

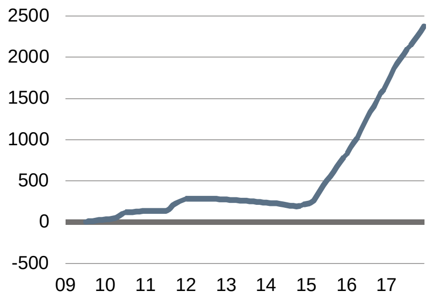
Left-hand y axis: index
Right-hand y axis: %



Source: Bloomberg Finance LP

Volume of securities held by the ECB for monetary policy purposes 32

EUR bn



Sources: ECB, Deutsche Bank Research

communicate its timetable for bond purchases after September. If the economy continues to boom by then and if inflation and inflation expectations approach the target of 2%, the end of the ECB bond purchases might be near. And if the main buyer of government bonds drops out of the market, yields may rise. Still, we believe that German mortgage rates are unlikely to rise by more than 100 bp. The ECB is quite interested in engineering a smooth exit from its ultra-loose monetary policy and would likely intervene again in case of an excessive rate increase.

Rate shock might have contradictory effects on housing demand

These considerations suggest that mortgage rates will rise by 100 bp at most. This would probably have an ambivalent effect on housing demand. On the one hand, such a “rate shock” might cause potential buyers to bring their purchases forward, which might lead to a significant decline in housing demand later on, particularly towards the end of the year. On the other hand, the ECB has driven bond prices to record highs. The termination of bond purchases might lead to a structural break, and overall market yields might be low or even negative for many years to come. A look at the past helps in understanding this phenomenon. Since the beginning of the 1980s, negative bond market yields have been a rare occurrence, and many bond markets would enter uncharted waters if annual yields were negative several years in a row. A significant rate increase might therefore cause capital outflows from bonds, even though bond demand depends to a large extent on regulatory requirements. This should stimulate demand for real assets and, in turn, real estate.

Risk outlook: Even in case of a rate shock, prices and rents should continue to rise in 2018

The contradictory effects on housing demand imply that the effect on housing prices will be relatively small. With housing in very short supply in many metropolitan areas, the housing shortage will likely be the predominant factor even in a “rate shock” scenario. Thus, we continue to expect strong price and rent growth in 2018 even if interest rates rise. This applies even to Düsseldorf and Hamburg, where the markets might be more interest-rate sensitive than in other German metropolitan areas. The effects of a “rate shock” on German metropolitan residential property markets should be limited. This means that any effects on economic growth and the macroprudential environment should also be marginal in 2018. Later on, higher interest rates and the potential impact on the German apartment and housing market might become an important issue for the real estate sector. In all probability, interest-rate risks will rise during the current real estate cycle. However, interest-rate movements depend to a large extent on overall growth and price trends and the future monetary policy path and are therefore clearly uncertain.

Jochen Möbert (+49 69 910-31727, jochen.moebert@db.com)