



1

TABLE OF CONTENTS

- 02 Preface
- 03 Summary
- 07 Multi-Family housing as an investment
- 10 Demographics lead to shift in housing demand
- 14 New build crisis and halt to renovation
- 17 Overcoming the building crisis and housing shortage
- 20 Trend in 19 real estate locations
- 26 Housing market outlook
- 28 Brief profiles of 19 locations
- 28 Augsburg
- 29 Berlin
- 30 Bremen
- 31 Cologne
- 32 Darmstadt
- 33 Dresden
- 34 Düsseldorf
- 35 Essen
- 36 Frankfurt
- 37 Hamburg
- 38 Hannover
- 39 Karlsruhe
- 40 Leipzig
- 41 Mainz
- 42 Mannheim
- 43 Munich
- 44 Münster
- 45 Nuremberg
- 46 Stuttgart
- 47 Tabellar overview
- 49 Imprint
- 53 DZ HYP locations

PREFACE

Dear readers,

Times remain challenging for real estate markets. But they also present opportunities, especially for the residential asset class. Investments in rented apartments are considered to be comparatively low-risk, given the combination of insufficient suitable supply and growing demand. Enough reason for us to dedicate a specific market report to the residential segment. In this report, we begin by examining current developments in the housing market as well as underlying factors such as demography and the current situation regarding new construction. The report then goes on to examine the individual markets in the seven largest German cities and in twelve important regional centres.

While investors benefit from solid – albeit high-priced – investment opportunities, the situation for those seeking housing remains tense. Following a sharp increase in construction and financing costs, new construction has been lacking momentum for several years and remains significantly below political goals. This is exacerbated by an inventory that fails to meet demand, leading to dynamically rising rents for new contracts and first occupancies. Further rent increases of around five per cent on average are to be expected at the locations covered by the report for the current year and for 2025. Hence, there is hardly any scope for real relief on the housing market over the medium term. Such a development would require a combination of increased new construction and more efficient use of the existing inventory.

As one of the leading real estate banks in Germany, we regularly analyse the markets we actively cover. This report on the residential asset class complements our existing publications "The German Real Estate Market" and "Regional Real Estate Markets", which we issue in the spring and autumn of each year, respectively. We also analyse the commercial real estate markets in individual German federal states – In November, we will publish a report covering the German federal states of Hesse, Rhineland-Palatinate and Saarland. Reports on developments in Bavaria, Berlin and the eastern German states are planned for 2025.

For more information on our market research, please visit our website at https://www.dzhyp.de/en/about-us/market-research/.

Yours sincerely,

DZ HYP

October 2024

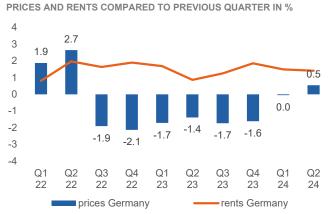
SUMMARY

The sharp hike in interest rates has impacted very negatively on property market valuations, causing the previously high level of interest in real estate to dwindle. However, while the prospects for commercial property remain gloomy, the outlook for residential property is considerably brighter. This view is also confirmed by our market report, which analyses conditions in the housing market as a whole and, in a narrower focus, in 19 cities.

Residential property is a promising, but also relatively expensive asset class

- Immigration and more single-person households are driving up demand for housing. Because new build activity has been much too low, reserves in the existing housing stock are often depleted. Vacancy rates are less than 1 per cent in some areas. The disparity between supply and demand is driving rents up rapidly, and is steering investor interest towards residential property.
- Conditions in the housing markets are likely to intensify further in the coming years. High building and financing costs are hampering new construction and will probably lead to a sharp fall in the number of completions. Residential rentals will therefore remain a safe bet in future.
- However, participation comes at a price. Although the prices of multi-occupancy homes have fallen as a result of the valuation correction, they are not cheap. In both absolute and relative terms, prices are clearly higher today than in 2012, when interest rates were at a similar level.
- Interest in real estate investment is supported by the prospect of falling interest rates and the end of the valuation correction. However, the medium to long-term interest rates relevant here will probably only fall moderately. Visibly higher property values, acting as yield drivers, are therefore unlikely to materialise. This means that the improvement in rental cash flow as a component of the overall return on real estate will become all the more important.

MULTI-OCCUPANCY HOMES: THANKS TO RISING RENTS, VALUATION CORRECTION IS COMPARATIVELY MODERATE



Source: vdp Source: DZ BANK

OVERVIEW OF LOCATIONS COVERED IN THE MARKET REPORT

city federal state regional property centres		city federal state top locations	
Augsburg	Bavaria	Berlin	Berlin
Bremen	Bremen	Cologne	North Rhine Westf.
Darmstadt	Hesse	Düsseldorf	North Rhine Westf.
Essen	North Rhine Westf.	Frankfurt	Hesse
Hannover	Lower Saxony	Hamburg	Hamburg
Karlsruhe	Baden-Württemb.	Munich	Bavaria
Leipzig	Saxony	Stuttgart	Baden-Württemb.
Dresden	Saxony		
Mainz	Rheinland Palat.		
Mannheim	Baden-Württemb.		
Münster	North Rhine Westf.		
Nuremberg	Bayern		

Opportunities for investors - turnaround will impact housing market first

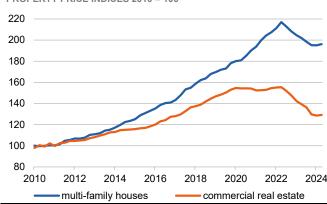
One of the many new eras which have begun in recent years has impacted the property market. At times when bond yields are falling and have been in negative territory for several years, commercial property and multi-family homes have been sought-after investment alternatives; returns, while also falling, have at least been very positive. Rising rents, and an even faster upward trend in valuations have also acted as yield drivers. However, the hike in interest rates and gloomier rental prospects as a result of e-commerce, home working and weak economic growth, have made investors reluctant to invest in the property market. While from 2018 to 2022, on average EUR 22bn per quarter was invested in real estate, in the first two quarters of 2024 the figure was only EUR 7bn. However, the fact that the two-year valuation correction came to an end in mid-2024 is positive.

Interest rate hike, economic slowdown and lower space demand herald new era for property market

However, given the fairly gloomy outlook, there is no sign of a rapid recovery, at least in commercial real estate. Bond yields and interest rates are not falling as quickly as hoped, but rental prospects are being adversely affected by negative sentiment for companies and consumers. Conversely, the situation looks much better in the housing market. In contrast to weak demand for commercial space, demand for housing is growing and is usually coming up against a severe housing shortage; due to high building and financing costs, this issue is also unlikely to be mitigated to any great extent in the coming years. The prospects for residential rentals are correspondingly good.

Housing market a safe bet: residential rental prospects are good

DESPITE A SHARPER INCREASE, RESIDENTIAL VALUATION CORRECTION LESS MARKED THAN FOR COMMERCIAL PROPERTY PROPERTY PRICE INDICES 2010 = 100



Source: vdp

RENTED FLATS IN SHORT SUPPLY: RENTS RISING ALMOST EVERYWHERE, NOT ONLY IN MAJOR CITIES DESIDENTIAL DENTS IN 9 COMPARED TO REPUBLICATION.



Source: vdp

The property market correction for the housing segment has not only therefore been comparatively mild, it has also ended sooner. This market report assesses the future prospects for this segment from the investor's point of view, and examines the trend in the housing market and underlying influential factors such as demographics and new building. In the subsequent macro view we also review the housing markets of the 19 locations familiar from the "regional property centres" market report. These consist of 12 important regional centres throughout Germany and the 7 largest German cities, the top locations.

Housing market report highlights key factors of influence and reviews 19 locations

Market trend housing - tensions continue to escalate

As the tensions in the housing market have grown, they have also received more frequent media coverage. The focus is on high, and rapidly rising rents, and increasing difficulties in finding a rental apartment at all. This issue has undoubtedly become a sad reality, as demonstrated for example by Hamburg. SAGA – a large municipal housing association in the Hanseatic city – reported a vacancy rate of only 0.2 per cent in its 140,000 apartments in 2023. Of more than 7,000 apartments which become vacant each year, 4,000 are allocated to vulnerable people, while 100,000 people compete to rent the other 3,000; this represents a theoretical waiting time of 33 years to move into one of the comparatively low-priced SAGA apartments. Hamburg is not an extreme example here since the situation is no better in many other cities.

Main problem in housing market is supply shortage

However, the finding of high and rising rents is only partially true. 53 percent of the 43 million apartments in Germany are rented, but mostly at moderate rents. This is reflected in the 2022 Census figures published in the summer which show that 85 per cent of households paid a cold rent of less than EUR 10 per sqm. The average rent was EUR 7.28 per sqm. However, anyone who signs a rental contract for an existing or new build apartment, will easily pay double this amount, and in Munich even three times the average rent.

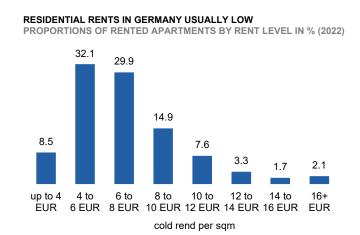
Existing tenants usually pay moderate rents, but new contract rents are higher

Because rents for existing properties increase much more slowly over time than new contract rents, the divergence between existing and market rents has become ever wider. There is correspondingly little incentive for tenants to move, and virtually no apartments are therefore becoming available. Tenants also stay in their apartments, even when they no longer meet their requirements, for example after children have moved out. On average, SAGA tenants only move after about 20 years. Since 2020, the already low fluctuation rate of 5.5 per cent has fallen further to 4.8 per cent by 2023. Low-cost living space is increasingly being "hoarded", and the diverging trends in existing and market rents are aggravating the tensions in the housing market further. Conditions in the housing market are therefore less difficult for existing, longstanding tenants, than for people looking for apartments.

Divergence between existing and new contract rents causes "freeze" in housing market

The steep rise in rents is being driven by the limited supply of available apartments, while housing demand is growing in many cities. This is attributable to the marked increase in the number of households, due on the one hand to immigration, which has intensified further since the war in Ukraine began in 2022. On the other hand,

Demographic trend fuels demand for small apartments



10 9 8 7 6 5 4

2015

rent for re-letting

2019

2023

rent for first use

2011

WIDE DIVERGENCE BETWEEN EXISTING AND MARKET RENTS

Source: GdW, bulwiengesa

GdW members

2007

2003

COLD RENT IN EUR PER ME

15

Source: Destatis/2022 Census

the number of households is increasing as a result of the growing number of people living alone. This means that demand for housing continues to rise even when a city's population is stagnating.

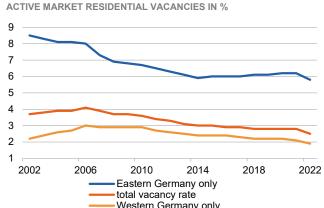
However, there are also regional differences in the housing market. As a result of internal migration, housing demand has fallen in regions experiencing net emigration and has risen in regions which are attracting migration. Vacancy rates therefore differ widely. They are high in the east German federal states in particular, but are very low in southern Germany and particularly in the city states of Berlin and Hamburg.

Virtually no more unoccupied apartments in southern Germany and the city states

The housing supply is coming under even more pressure in strained housing markets because some apartments are no longer available for ordinary tenancy. One contributory factor is holiday rentals in many cities, for example via Airbnb. An increasing number of furnished apartments are also being let for temporary periods. This generates higher rents, partly because rental regulations such as the "rent brake" introduced in 2015 to curb rent growth can be circumvented. However, another contributory factor to the diminishing supply of ordinary rented apartments is that they are increasingly being allocated "informally" and not via rental platforms.

Repurposing as holiday apartments and furnished homes removes ordinary apartments from the market

HOUSING VACANCY RATES FALLING, BUT WIDE REGIONAL **DIFFERENCES**

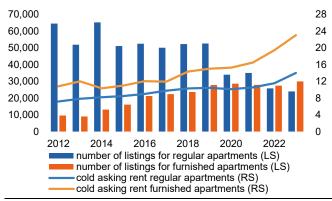


Source: CBRE/empirica

LS: NO. OF APARTMENTS, RS: COLD RENT IN EUR PER M2

FLATS INCREASINGLY ON OFFER

SUPPLY OF REGULAR RENTAL APARTMENTS FALLING, FURNISHED



Source: IBB Housing Market Report, Berlin State Parliament

Conditions will probably become even more difficult for house hunters in the years ahead. After the revival in housebuilding in many cities in previous years, the number of completions is likely to weaken visibly in future. Data compiled by bulwiengesa on the project development market in 2021 and 2022 showed new construction starts of around 2 million sqm per quarter. However, in 2024 the corresponding number has been only a guarter of this level, which will then be reflected in a smaller number of completions after a time lag. The activities of project developers are being hampered by financing difficulties and insolvencies.

Construction crisis makes it harder to find a flat

If significantly fewer apartments are completed, house hunters essentially only have access to the scarce supply of existing housing in strained housing markets. However, furnished rentals and a declining fluctuation rate are restricting the supply even further. The upward trend in new contract rents for existing apartments is therefore likely to continue.

Strong rent growth likely to persist

MULTI-FAMILY HOUSING AS AN INVESTMENT

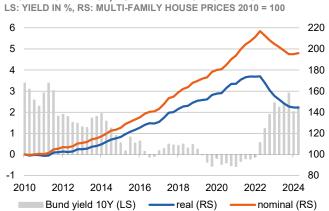
Given the housing shortage in many cities and growing housing needs, investing in rented apartments is a fairly safe bet. The vacancy risk is minimal, rents are likely to increase sharply, and vulnerability to economic crises is relatively low. Even during the pandemic, there was virtually no increase in rent arrears. The sharp rise in purchase prices up to 2022 reflects the high level of investor interest in multi-family homes. However, after the steep hike in interest rates, investment in residential property also collapsed. The main factor here was uncertainty about the extent of the price correction and the future trend in interest rates.

Rising rents and a low vacancy risk are plus points for investment in multi-family homes

However, this uncertainty largely dissipated in the first half of 2024. Interest rates and bond yields passed their zenith as inflation fell again. The ECB started to reduce interest rates in June with a first cut, after ten successive increases. The valuation correction for multi-family houses also seems to have come to an end in the first quarter of 2024. According to the vdp price index, valuations have fallen by a nominal 10 per cent from their 2022 peak. Prices already increased again slightly in the second quarter. Rental prospects have improved further due to the likelihood of a marked decline in the number of new apartments completed. The continuing housing shortage is likely to keep rent growth at a high level.

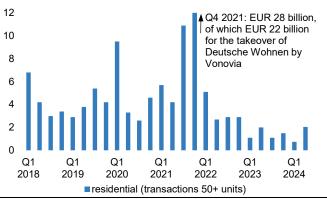
End of price correction and interest rate rises likely to boost housing investment

SIMILAR INTEREST RATES, BUT MUCH HIGHER VALUATIONS: DESPITE CORRECTION. MULTI-FAMILY HOMES ARE NOT CHEAP



TREND REVERSED? TRANSACTION VOLUME FOR RESIDENTIAL INVESTMENT GREW IN SECOND QUARTER OF 2024

TRANSACTION VOLUME HOUSING PER QUARTER, IN EUR BN



Source: Feri, Refinitiv, vdp Source: CBRE

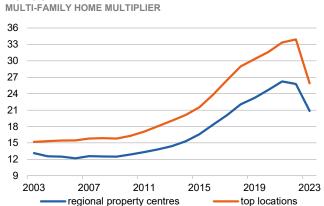
Although the high valuations of multi-family homes have fallen as a result of the property market correction, they have not become cheap. Because valuations doubled from 2012 to 2022, purchase prices remain at a high level. The same applies if we look at real prices, which have fallen much more sharply than on a nominal basis due to high inflation. Below the line, current valuations – with similarly high interest rates – are nominally around 80 per cent higher, and in real terms around 40 per cent higher than in 2012.

Valuations of multi-family homes lower, but not cheap

Rents have also risen sharply in recent years. However, despite a visible decline, the price-to-rent ratio is also well above the levels seen at the beginning of the last decade. In the regional centres covered in this market report, the average multiplier of purchase prices and net annual rent reached its highest level so far in 2021 at 26

Price-to-rent ratio much more unfavourable today than at the beginning of the last decade

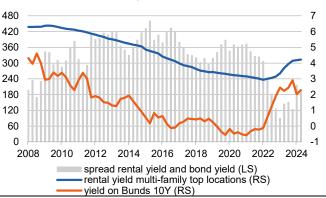
PURCHASE PRICE-TO-RENT RATIO FELL IN 2023 AFTER PREVIOUSLY RISING SHARPLY



Source: bulwiengesa

RENTAL YIELD HAS INCREASED MUCH MORE WEAKLY IN TOP LOCATIONS THAN THE CAPITAL MARKET YIELD

LS: SPREAD IN BASIS POINTS, RS: YIELDS IN %



Source: bulwiengesa, Refinitiv, DZ BANK

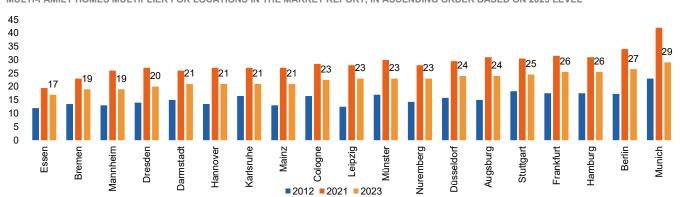
Rental yield calculated from inverse of multi-family home multiplier

years. Levels in the top locations peaked a year later at 34 years. The figures fell significantly in 2023, to 21 years of annualised rent for the regional centres, and 26 years for the top locations. In 2012, when interest rates were at a similarly high level, the respective figures were 14 and 18 years.

Accordingly, it was possible to achieve higher rental yields both in absolute terms and also compared to the capital market. Although the rental yield has increased – with regard to the top locations – from just under 3 to more than 4 per cent, on the other hand bond yields have increased more significantly. From 2009 to 2021, rental yields for multi-family homes were consistently 300 or more basis points above tenyear Bund yields. The divergence, which has narrowed considerably since 2022, has widened again, but at currently around 200 basis points, is considerably lower than in the past.

Rental yield has increased considerably, but gap compared to bonds has narrowed

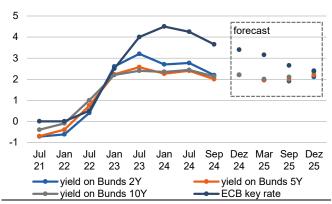




Source: bulwiengesa

INTEREST RATE FORECAST: DECLINE IN MIDDLE AND LONGER MATURITY SECTOR SHOULD BE FAIRLY MODERATE

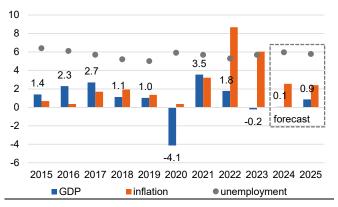
INTEREST RATES AND YIELDS IN %



Source: Refinitiv, DZ BANK Per: September 2024

FORECASTS FOR ECONOMY, INFLATION AND LABOUR MARKET: RELATIVELY LOW UNEMPLOYMENT DESPITE SLUGGISH ECONOMY

GDP/INFLATION IN % VS. PREV. YR., UNEMPLOYMENT RATE IN %



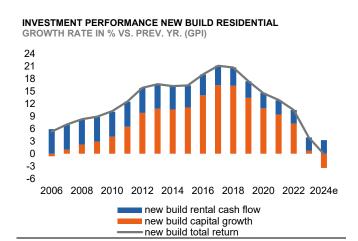
Source: Eurostat, DZ BANK Per: September 2024

As a result of falling inflation, in mid-2024 the ECB started to cut the key interest rate which had risen to 4.5 per cent. Based on our forecast, the rate will have fallen to around 3 per cent by next summer. However, yields and returns in the medium to long-term maturities are likely to fall much more slowly. In the course of its expansionary monetary policy, the ECB extended its bond portfolio to several trillion Euros by purchasing bonds. In so doing, it supplied the market with substantial liquidity, thus exerting downward pressure on yields. By gradually reducing its bond holdings, the ECB will withdraw liquidity from the market again, which will brake the downward trend in bond yields.

Interest rates falling, but only a slow decline for medium and long maturities

The combination of relatively high valuations for multi-family homes and the slow decline in interest rates – for maturities of several years – will limit the scope for value growth. The same applies to the currently smaller gap between the rental yield and the ten-year Bund yield. However, the divergence may well increase again, leading to slower value growth. The high value growth generated from real estate in previous years is unlikely to continue.

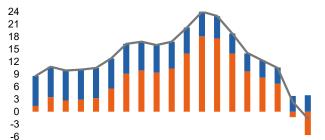
Moderate potential for value growth of multi-family homes



Source: bulwiengesa

The GPI (German Property Index) calculates yields for real estate investment.





2006 2008 2010 2012 2014 2016 2018 2020 2022 2024e existing buildings rental cash flow

existing buildings capital growth existing buildings total return

Source: bulwiengesa

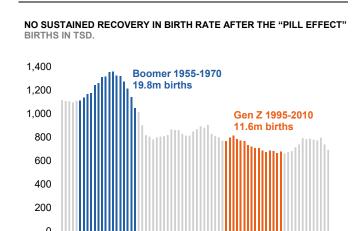
The trend in the rental yield is thus becoming more important, since it could account for the lion's share of the total yield in future years. Investors should therefore focus more strongly on optimising the rental cash flow. Thanks to favourable rental prospects, it should be possible to realise growth in rental income. However, it will not be possible to achieve "unlimited" rent increases. Factors which militate against this are the regulation of the housing market, a muted income flow as a result of weak economic growth and the negative impact of costs allocated for energy-efficient renovation. In addition to increasing rents, investments in rented housing also benefit from greater depreciation opportunities (Afa depreciation allowances, special depreciation for new build rental housing) and support such as the KfW programme for climate-friendly new buildings in the low-price segment.

Residential property investment benefits from rising rents and improved depreciation options

DEMOGRAPHICS LEAD TO SHIFT IN HOUSING DEMAND

A new UN population forecast published this summer shows that the world population will grow from currently 8.2 billion to a maximum of 10.3 billion in the 2080s. The main growth will be in Africa, where the population will increase from 1.5 billion today to almost 4 billion. The picture looks very different in western Europe, and in China, Japan and South Korea where populations have already peaked. While the main problem in Africa is a lack of jobs, Europeans, Chinese, Japanese and Koreans face the challenge of a contracting population with a simultaneous growing proportion of older people. The situation is particularly acute in Germany. Despite expensive measures such as child benefit, and the expansion of child care, the birth rate has not increased on a sustained basis. In 2023, after rising slightly temporarily, the figure fell back below 700,000 births again for the first time in ten years.

World population will grow until the 2080s, while Germany could soon contract



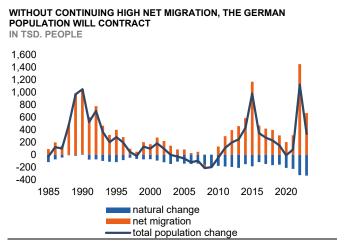
Source: Destatis

1990

1980

1960

1970



Source: Destatis

2020

2010

The consequences are serious: ageing populations hamper economic growth potential and are a burden on social security systems. They also have a major impact on the property market. A smaller working population also means less overall demand for office space. The context is more complex in relation to demand for housing. One crucial demand variable is the number of households, which is influenced by both demographics and also the steady decline in the number of people per household. Housing demand may therefore even increase when the population contracts. Another factor is migration between expanding and contracting

2000

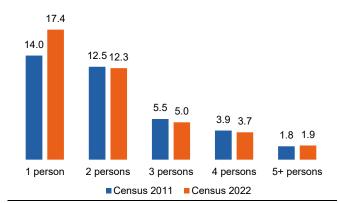
Housing market must adjust to more small households and the needs of older people

regions, which leads to a general rise in demand for housing as the populations of growth regions increase. Equally significant are the specific housing needs of elderly people with restricted mobility, who will make up an increasingly large proportion of the population.

These developments are already visible today. Data from the 2022 Census shows, not only that the number of residents based on the 2011 Census has had to be revised down by 1.4 million, but also that the number of households has grown faster than the population as a whole. While the population has increased by 3 per cent to 82.7 million (instead of 84.1 million), the number of households has grown by 7 per cent as a result of a steep rise in single-person homes. The figures for two, three and four-person households have fallen slightly, with modest growth evident only for larger households. The trend throughout Germany is also being overshadowed by large differences between the 16 federal states.

Number of households in Germany grows more than twice as fast as the population

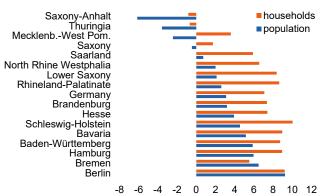
SINGLE-PERSON HOUSEHOLDS BECOMING MUCH MORE IMPORTANT HOUSEHOLDS BASED ON NO. OF PEOPLE IN MILLION



Source: Destatis/Census

REGIONAL POPULATION DIFFERENCES

CHANGE IN 2022 CENSUS COMPARED TO 2011 CENSUS IN %



Source: Destatis/Census

Contrary to earlier demographic forecasts, the population of Germany has not fallen, but has in fact grown sharply in recent years. However, the Census based on data collected in May 2022 does not include the full extent of war-related immigration from Ukraine. The population of Germany is therefore likely to be closer to 83.5 million in 2024. The 2011 Census still showed a figure of 80.2 million. In the absence of any waves of immigration, the population is likely to initially maintain its current level, before starting to contract again gradually at a later stage. According to UN figures, the figure will fall below 80 million people in the mid-2040s. The age structure will alter significantly as baby boomers become senior citizens.

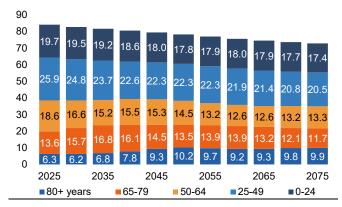
Without waves of immigration, the German population will decline slowly in future

Within 15 years, the 65+ age group will grow from 20 million to 24 million. In 2050, the population of Germany will include 10 million people aged 80 and above, compared to only 6 million today. While the proportion of the population aged 65 and above will increase within a few years from currently 24 per cent to 30 per cent, by 2035 the proportion of economically active people (aged 25 to 64) will have declined from currently 53 per cent to 47 per cent. Thereafter this figure will remain fairly stable.

Number of economically active people will fall by more than 5 million within ten years

POPULATION WILL CONTRACT OVERALL, WHILE THE NUMBER OF VERY ELDERLY PEOPLE WILL INCREASE OVER MANY YEARS

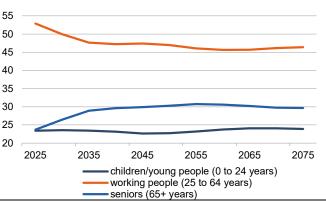
NO. OF PEOPLE BASED ON AGE GROUP IN MILLION



Source: UN World Population Prospects 2024

AFTER A MAJOR SHIFT, AGE GROUP PROPORTIONS WILL REMAIN FAIRLY STABLE

PROPORTION OF POPULATION OF VARIOUS AGE GROUPS IN %



Source: UN World Population Prospects 2024

Housing market lags demographic change

The demographic shift which will take place within a few years poses a huge challenge for the housing market, because it will not be possible to adjust the housing stock at the same pace. This is creating a growing mismatch between supply and demand, which could cause the tensions in the housing market to escalate. The 2.5 million increase in the population between 2011 and 2022 does not even indicate a noticeable increase in tension. This is because the housing stock also expanded by roughly the same amount during this period, although – with two people per household – a good 1.3 million apartments would actually have been sufficient to meet demand.

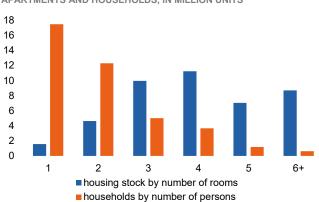
In purely mathematical terms, housing market conditions should have eased rather than become strained

There is no general housing shortage in Germany, which has around 4 billion sqm of living space – per capita almost 50 sqm – and 43 million housing units. However, there is a widening gap between the structure of the housing stock and the population. For example, only 1.3 million new multi-storey apartments have been built to meet demand from an additional 3 million small households from 2011 to 2022, whereas 1 million single-family homes were built for larger households, the number of which contracted overall. Only 6 million one and two-bedroom apartments

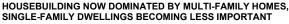
Sufficient housing available, but supply increasingly lags demand

SUPPLY OF SMALL APARTMENTS MUCH TOO LOW TO MEET DEMAND FROM SMALL HOUSEHOLDS

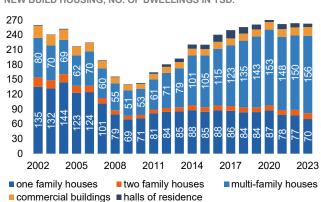
APARTMENTS AND HOUSEHOLDS, IN MILLION UNITS



Source: Destatis/Census



NEW BUILD HOUSING, NO. OF DWELLINGS IN TSD.

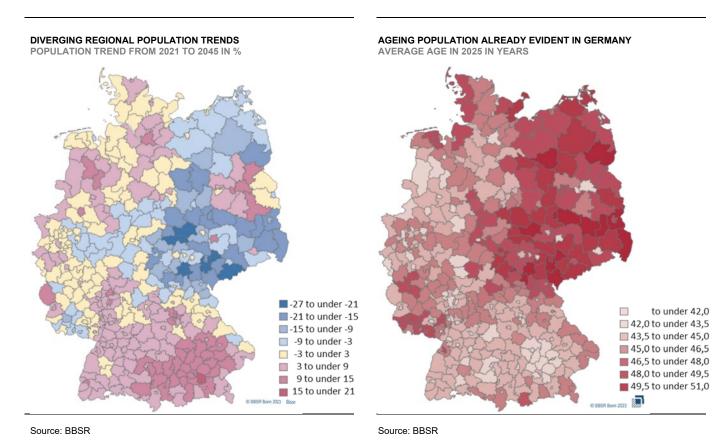


Source: Destatis

are therefore available today to accommodate nearly 30 million one and two-person households. The ratio is exactly the reverse for large apartments and houses for large households. One reason why family apartments are in short supply in cities is that tenants tend to stay in large apartments, rather than downsizing, after their children have moved out.

The generally moderate volume of new construction in recent years has been insufficient to meet growing demand for urban housing. A clear structural shift has taken place in residential construction in recent years. The growing number of apartments completed since 2011 has been almost solely attributable to the construction of multi-family homes. Conversely, the construction of single-family homes has failed to recover. Within 20 years, the number of new build single-family homes has halved, while the number of new multi-storey apartments has roughly doubled. Widespread home working since 2020 has also failed to bring about a renaissance of the single-family home.

Within 20 years, no. of houses built has halved, while no. of apartments has doubled



However, how many new build apartments are in fact needed based on the demographic trend? And where should they be built? These questions can be easily answered based on the wide divergence between various forecasts which estimate new build demand at around 250,000 to 400,000 apartments per year. These divergences are mainly a result of various assumptions in forecast calculations, for example relating to migration. New build demand is usually estimated to be higher in the near future, but will be more moderate in the longer term given the likelihood of a shrinking population.

Wide range of new build forecasts based on various assumptions

NEW BUILD CRISIS AND HALT TO RENOVATION

Together with around 40,000 apartments created in the building stock, annual completions have reached around 300,000 units recently. As evident from the tensions in the housing market, this has not been sufficient. New construction has also fallen far short of the German government's ambitious target of 400,000 apartments per year. The shortfall is set to increase further from this year. High new build standards and stricter energy-efficiency targets, complicated building law with long approval periods, regulations relating to parking spaces, and increased social housing quotas have made new construction increasingly expensive. Low interest rates have been the only reason why new construction has continued to function. However, general conditions have deteriorated significantly, and by 2026 the number of completions could fall below 200,000 apartments.

When interest rates were low, housebuilding was still functioning

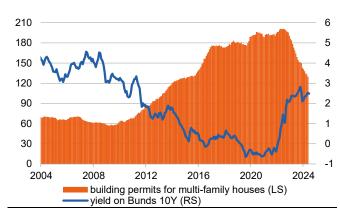
Increased building and financing costs stifle housebuilding

Building and financing costs have increased considerably as a result of the war in Ukraine. The hike of around 40 per cent in production costs for residential buildings since 2020 and significantly higher interest rates have made the construction of multi-family homes uneconomic. In large cities, where the total cost of a new build has increased on average to more than EUR 5,000 per sqm, attractive yields cannot be achieved despite already very high initial rents. Construction projects are therefore being put on ice or cancelled. A whole series of project developers have become insolvent under the burden of land bought expensively, higher interest rates and a lack of sales revenue. The difficulties of developing new residential projects are clearly visible, for example in the form of the steep decline in the number of building approvals and the slump of nearly 60 per cent in sales figures for building land in 2023 compared to 2021.

Housebuilding no longer financially viable based on current rents

NEW CONSTRUCTION BOOSTED BY FALLING INTEREST RATES BUT STIFLED BY MUCH HIGHER RATES

LS: IN TSD DWEÖÖOMGS (NEW BUILD ONLY), RS: IN %



Source: Destatis

EXPENSIVE WITHIN A FEW YEARS COSTS OF NEW RESIDENTIAL CONSTRUCTION IN LARGE CITIES IN EUR PER M² 6,000 5,000 4,000 4,000 1,0

outsoide

facilities etc.

NEW HOME CONSTRUCTION HAS ALSO BECOME RAPIDLY MORE

■ indrease in price until Q4/2023 ■ costs per sqm in EUR Q1/2020 Source: Working Group for Modern Construction (ARGE)

building

building plot

But new construction is also slowing down at housing associations despite rising rental income and often very low vacancy rates. Other contributory factors, apart from increased construction costs, are much higher financing costs for the existing housing stock and high renovation costs for buildings which are often decades old. The adjusted projections of the housing associations in the GdW (the Federal Association of German Housing and Real Estate Companies) show a decline of 40% in 2025 compared to the average completion numbers in previous years.

Building costs, interest rates, climate: Housing companies apply the brakes to construction

incidental

building

costs

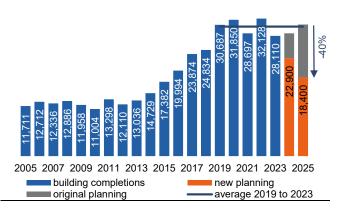
total

construction

costs

HOUSING COMPANIES IN THE GDW SLASH BUILDING PROJECTIONS

PROJECTED COMPLETIONS OF NEW BUILD APARTMENTS



Source: GdW

DAMPENER FOR FUTURE HOUSEBUILDING: SHARP FALL IN SALES TRANSACTIONS FOR BUILDING LAND

NO. OF TRANSACTIONS FOR BUILDING LAND

100,000
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000

Source: Macrobond/Destatis

2000

2003

2006

10,000

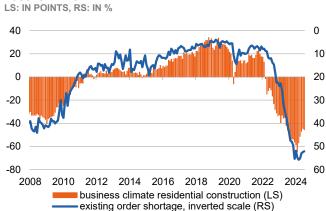
Construction sector now suffering from a lack of orders

Construction companies are also feeling the impact of the downturn in housebuilding. After many good years, more than half of the construction companies surveyed by the ifo Institute for its monthly business climate index report a lack of orders. Readings in the "housebuilding" business climate index are accordingly deep in negative territory, and have so far improved only marginally from their lowest point. Previously high capacity utilisation in the construction industry has also suffered a major setback. The gradual increase over many years in the number of people employed in the sector has already contracted slightly. If construction workers migrate into other areas of manual work because of continuing sparse order books, the subsequent recovery in new construction will be all the more difficult.

Subdued sentiment: previously full order books at construction companies now looking thin

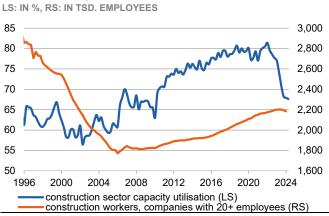
2009 2012 2015

POOR SENTIMENT AND LACK OF ORDERS PREDOMINATE FOR MANY HOUSBUILDERS



Source: ifo Institute

SHARP FALL IN CAPACITY UTILISATION ACCOMPANIED BY A SLIGHT DECLINE IN EMPLOYMENT

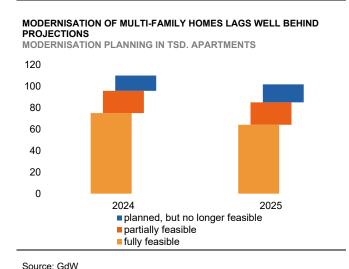


Source: Destatis, ifo Institute

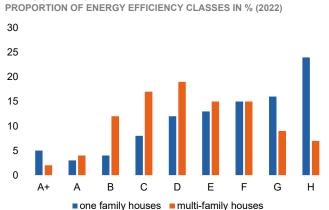
Energy-efficient building refurbishment proceeding slowly

Higher interest rates and construction costs are also hampering the modernisation of housing association building stock, which is often decades old. Although there is undoubtedly an awareness of the need to reduce the high greenhouse gas emissions of residential buildings, investment must also be financially and economically feasible for companies. Although multi-occupancy homes generally

Modernisation projects also hit by increased building and financing costs







Source: BMWI/IREBS

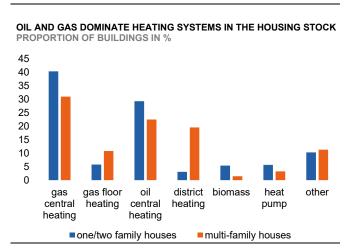
perform better in terms of energy efficiency than single and double-occupancy homes, more than 60 per cent of the approximately 3.3 million multi-family houses in Germany carry energy efficiency ratings of D to H.

Almost two thirds of multi-family homes also use oil and gas for heating. Biomass heating systems, for example using wood pellets, and heat pumps, play a negligible role. Conversely, district heating schemes account for a very substantial proportion of around 20 per cent. Some multi-family homes which still use oil and gas could potentially be connected up to district heating schemes in future if municipal district heating networks are expanded, although to date these have been a comparatively expensive form of heating.

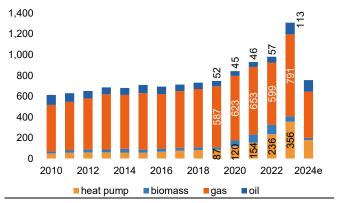
Multi-family homes benefit from expansion of municipal district heating schemes

The pressure to carry out energy-efficient renovation has eased for now as a result of the watered-down versions of the Building Energy Act (GEG) and the EU building directive which have been adopted. Despite the obvious consequences of climate change, such as extreme heat and heavy rainfall, a certain amount of climate fatigue also seems to have set in. This is reflected in the steep decline in the number of heat pumps sold, which is having a negative impact on producers who have only recently

Reversal of heating transition? Instead of heat pumps, oil and gas heating systems are booming







Source: BDH

Source: BDEW

expanded their production capacity. The "heating transition" - the aim of which was to install 500,000 heat pumps - will fall far short of its target, with a mere 90,000 heat pumps sold in the first half of 2024. Conversely, oil and gas heating systems are currently experiencing a renaissance.

However, fossil fuel energy sources may become more expensive in future. Landlords will also have to pay up to 95 per cent of the CO_2 levy for poor energy efficiency. The target of achieving climate neutrality by 2045 is also unlikely to be met given the currently low refurbishment rates for residential buildings, and the installation of new gas heating systems. The building sector could exceed the projected course of reducing greenhouse gas emissions on a sustained basis, and the pressure for energy-efficient refurbishment is therefore likely to intensify after a delay. However, the demands imposed by the EU taxonomy as well as financial institutions, investors and tenants are in any case already playing a part here.

Calm before the refurbishment storm? Pressure on property owners likely to intensify further

One positive factor for landlords is that the costs of remedial action as defined in § 559 BGB (German Civil Code) can be passed on to tenants – although indexlinked rental contracts are excluded. Up to 8 per cent of the modernisation costs can be passed on permanently in rents. A maximum increase of EUR 3 per sqm (EUR 2 for cold rents of up to EUR 7 per sqm) is permitted within six years. The Building Energy Act (GEG) passed in 2023 makes provision for a separate levy of up to 10 per cent (maximum EUR 0.50 per sqm) for the installation of climate-friendly heating systems, assuming that subsidies are utilised. For tenants, the corresponding reduction in heating costs should at least partly offset the increase in the cold rent. Tenants of large housing associations may benefit if, for example, these companies achieve economies of scale from the serial refurbishment of their properties.

Investment in climate protection will probably drive rents up sharply

In the case of low cold rents in particular, the ratio of rent to the refurbishment costs which are passed on may be unfavourable, especially since slightly larger amounts will have to be invested in old buildings which generate low rents. This could impose too heavy a financial burden on low-income tenants in cheap apartments. It is also a political "hot potato" because rents will not become more affordable, and may even increase further. From 2025, tenants may also be burdened by the property tax reform which comes into effect from 2025.

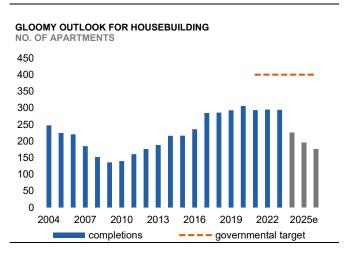
Political hot potato: Housing to become more affordable, but climate change driving up rents

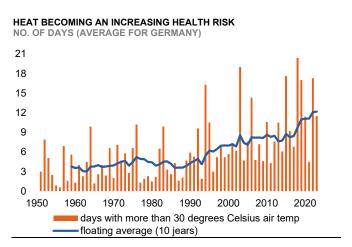
OVERCOMING THE BUILDING CRISIS AND HOUSING SHORTAGE

The quickest way to revive new construction would be to provide a hefty subsidy to close the gap between building costs and the amount financed from rents. It would even be partially self-financing, as a reduction in annual residential construction of 100,000 or more apartments per year would be accompanied by considerable losses in taxes and social security contributions. Construction costs of around EUR 4,000 per sqm would represent a decline of EUR 32bn in revenue in the construction sector, based on an average home size of 80 sqm. Other factors are kitchen fittings and furniture. However, building subsidies in billions look unlikely given the government's budget restraints. A more modest support measure in the form of a 5 per cent degressive depreciation has been agreed over six years for investments in rented apartments.

No plans for extensive financial support to stimulate new building

On the other hand, it was decided that investments in rental apartments would be better depreciated (5% declining balance depreciation over six years). Around EUR 1 billion is also to be provided via KfW to support "climate-friendly new construction in the low-price segment" (KNN). Major financial assistance from the federal government – around 18 billion euros in the period from 2022 to 2027 – will focus on social housing construction. However, funding is required here anyway in order to compensate for the lower rental income in this segment due to rents for social housing being significantly below market level.





Source: ifo / Euroconstruct

Source: Federal Environment Agency / German Meteorological Service

Low new build standards will reduce construction costs

Instead of high subsidies for expensive new construction, building standards which have been ramped up over many decades and complex approval processes are to be simplified. Serial and modular construction will also be actively encouraged. Construction costs will be steadily reduced to facilitate economical new building again. One key element here is the amendment to the German building code by the Federal Ministry of Construction. According to this, a the addition of storeys and extensions to existing buildings without changes to the development plan and, to a certain extent, the redensification of residential areas are to be made possible. The announced "construction turbo" (Section 246e BauGB) is also included in the draft amendment. (as of September 2024).

New era for construction: Building costs to become cheaper rather than more expensive

However, the federal government's initiative is being hampered by its limited influence on new construction. This is mainly the responsibility of the federal states which impose state building regulations. New building regulations have already been in force in Lower Saxony since July 2024. These regulate simplified measures for conversions and change of use, waiving the obligation to provide parking spaces, and broadening the scope of construction measures which do not require a permit. Berlin also plans to use the Faster Construction Act (SBG), which is due to come into force by December 2024, to accelerate construction.

Federal states exert particular influence on building law

Great hopes are pinned on "building type E" – E for easy – where construction costs can be up to 10 percent lower. Here, specifications are to focus on essential aspects such as statics, fire protection or energy efficiency, while comfort aspects such as sound insulation can be deviated from the "recognized rules of technology" that have been relevant in building law to date, even without extensive clarification. Deviations from DIN standards relating to comfort aspects do not constitute a defect and subsequent claims for damages. However, these regulations (as of September 2024)

"Building Type E" will facilitate cheaper new construction

are only to be reserved for "expert" companies, while they are not applicable to "non-expert" companies or consumers. This could limit the scope of application for the construction of rental apartments.

Based on the saying "buy cheap, buy twice", a high quality product is the better choice. It remains to be seen whether this will also apply to Building Type E. Type E houses are not cheap, but are at best not quite as expensive as conventional buildings. This raises the question of whether tenants of new apartments will accept lower comfort standards, despite still having to pay a relatively high price for their apartment. The long-term value and rent trend for the new type of building is also questionable. Ultimately, it is a novelty in Germany for new build homes to meet lower standards than existing buildings. The same applies to lower energy efficiency standards for new and renovated buildings. In this respect too, it is at least questionable whether allowing lower standards will be worthwhile in the long term.

Will undercutting high standards pay off in the long term despite initially lower costs?

More cost-effective construction due to lower standards and cost benefits from serial construction are likely to have a positive impact on new construction. However, too high expectations should not be placed on the completion figures. Firstly, implement-tation will take time and secondly, construction costs are not the only obstacle. One factor is higher financing costs which are likely to remain elevated for some time despite interest rate cuts by the ECB. The demographics-driven skills shortage is another obstacle. Building projects will also continue to meet with resistance in cities in future. This could have a greater impact on planned expansion and further development, because space will become even tighter in city quarters. Climate and environmental factors are also becoming more important. Heavy rainfall and extreme heat which represent health risks will pose a challenge for cities.

Higher interest rates, labour shortage and climate factors make housebuilding more difficult

Climate risks require more green space than grey concrete in cities

New construction cannot remove tension in housing market

The tension in the housing market cannot be resolved solely by building more homes. More new building within the scope of what is possible will at best alleviate the problems over time. Better use will have to be made of the existing housing stock in order to ease conditions in urban housing markets. Relocation within inner-city areas can lead to a closer correlation between housing demand and the existing housing stock. Given the growing divergence in rents between new and existing rental contracts, it will nevertheless become increasingly difficult to persuade single tenants of large apartments to move into smaller premises.

To ease tension in the housing markets, better use must also be made of the existing housing stock

Tensions in urban housing markets could also be eased by encouraging relocation to residential areas with a significant number of vacant properties. The advantages would be even greater because of the widening gap between rents in regional areas and the rapid rent growth in large cities. Factors which militate against relocation — for example to rural areas — are a longer commute to the workplace, poor transport links and inadequate infrastructure. However, there is also potential here for cities with vacancy problems to offer an attractive alternative for city dwellers who are disillusioned with the housing market.

Potential for cities with vacancy problems

TREND IN 19 REAL ESTATE LOCATIONS

Migration has led to population growth in many cities in recent years. However, the pace has diverged widely, as reflected also in the 19 locations reviewed in this market report. While the populations of Essen, Hannover and Cologne have remained stable, there has been rapid growth in Darmstadt and Frankfurt, and particularly in Leipzig. These conclusions are based on Census data from 2011 and 2022 which accurately depicts trends in population and the housing stock. However, one disadvantage is that the cut-off date of May 2022 means that the figures do not reflect the full extent of migration caused by the war in Ukraine which started in February that year. In May 2022, 14.8 million inhabitants were recorded in the 19 cities. By mid-2024 the figure is likely to have increased to a good 15 million.

Census data provides an accurate insight into the actual demographic trend

POST-2011 CENSUS POPULATION PROJECTIONS HAVE OFTEN CLEARLY OVERSTATED THE NUMBER OF RESIDENTS DIVERGENCE IN POPULATION SIZE COMPARED TO PROJECTION IN % 2 0 -1 -2 -3 -4 -5 -6 Leipzig Munich Hamburg Dresden Augsburg Karlsruhe **Mannheim** Darmstadt Frankfur)üsseldor

Source: 2022 Census (Destatis)

Essen Cologne Hamburg Munich Mainz Frankfurt Darsage In Households Resident Sand Households From 2011 to 2022 in % Stuttgart Frankfurt Mannheim Dresden Berlin Munich Manich Mainz Frankfurt Darmstadt Frankfurt Darmstadt Leipzig

Source: 2011/2022 Census (Destatis), bulwiengesa

population

Forward projections of post-2011 Census population figures clearly overstate the numbers in most cities. It has been necessary to revise down population statistics by more than 130,000 for Berlin, by more than 60,000 for Hamburg and Cologne, and by between 20,000 and 30,000 for Frankfurt, Hannover, Munich and Stuttgart. The percentage divergences between individual cities are huge. The population figure for Cologne has been scaled down by 6 per cent, by 5 per cent for Hannover and Münster, and by a good 4 per cent for Berlin, Frankfurt, Hamburg and Stuttgart. Conversely, the 2022 Census showed a slight increase in Bremen and Berlin. These divergences are making analysis of the housing markets more difficult – Cologne's population grew by 1 per cent and not, as assumed, by 7 per cent. However, since the Census is only carried out roughly every ten years, these error-prone population projections remain the only data source.

Housing demand increases as number of households grows

However, the population trend is ultimately less significant in terms of demand in the housing market than the change in the number of private households. The only figure available here is from the 2022 Census, and we have therefore used the trend in the number of households based on data from bulwiengesa. The number of single-person households is growing faster than the population. The divergence in the number of households in the various cities is smaller than the differences in population numbers. On average, the population grew by 7 per cent between 2011 and 2022, while the number of households has increased much faster, by 11 per cent. The number of households – up by 930,000 – has grown almost as sharply as the population which has increased by slightly more than 1 million.

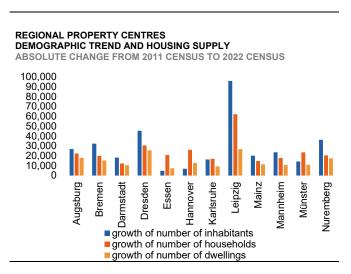
Error in population projections shows wide divergence

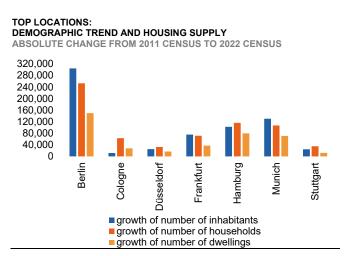
households

No. of households growing faster than population...

The tensions in the housing markets become very clear if we compare the absolute increase in the number of households with the growth in the housing stock as a result of new building: there are 930,000 more households, but only an additional 570,000 housing units. The charts below show the growth in the number of residents, households and apartments. The number of households in all cities has grown faster than the housing stock. Even in cities where the population is stagnating, such as Essen or Cologne, housing demand is growing as a result of the larger number of households.

... and housing stock





Source: 2011/2022 Census (Destatis), bulwiengesa

Source: 2011/2022 Census (Destatis), bulwiengesa

Shortage of small apartments in cities

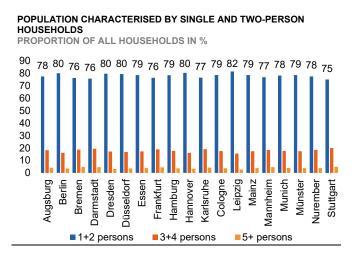
stock.

The marked growth in the number of one-person households is leading to an overall shortage of apartments, but also to a widening gap between housing demand and housing supply. This is shown in the chart below based on the size of households and apartments. In the cities, single and two-person households jointly account for a proportion of around 75 to 80 per cent of total households. Conversely, the housing market is characterised by medium-sized three and four-room apartments, which usually make up more than half of the housing stock. On the other hand, one or two-room apartments represent a proportion of 14 to 33 per cent. Large apartments with five or more rooms account for an average proportion of 20 per cent. However, households of more than five people represent only 4 per cent.

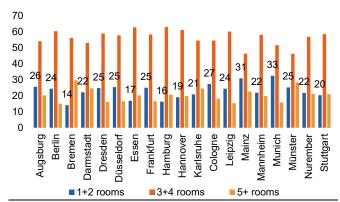
As the population ages, demand for smaller apartments will presumably increase further. A supply shortage in this segment may prevent older people from moving out of apartments which are now too large for their needs, resulting in a supply bottleneck. It then becomes more difficult for families to find a suitable apartment, although there are in fact a sufficient number of large apartments in the housing

Many small households, but only a few small apartments

Demand for small apartments likely to increase



SMALL APARTMENTS IN SHORT SUPPLY, MOST ARE MEDIUM-SIZED PROPORTION OF ALL APARTMENTS IN %



Source: 2022 Census (Destatis) Source: 2022 Census (Destatis)

Housebuilding visibly picked up from 2010 onwards

Growing demand for housing in cities has led to a marked revival of new construction in recent years. While building approvals have regained their high levels of the 1990s – around 90,000 apartments, on a cumulative basis over all 19 cities – the number of completions has been much lower than at that time, at 65,000. Completions have not increased further since 2017, despite the higher number of approved apartments. The number of building approvals has declined again since 2020. In 2023 it fell to 57,000 as a result of increased building and financing costs. The figure looks set to weaken again significantly in 2024.

No. of completions stagnates since 2017

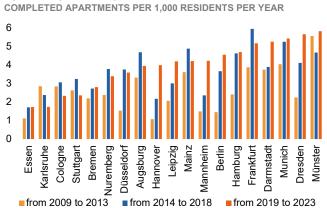
If new build volumes are broken down for the individual cities, a heterogeneous pattern emerges. In some cases, for example Essen, new construction has barely gained momentum. Conversely, in Berlin and Dresden, construction activity has grown strongly from a previously low level. In Frankfurt, Munich and Münster, completion figures have already been relatively high for some time. On average, in the last five years, 4 apartments have been completed each year per 1,000 residents. However, in Essen and Karlsruhe, the figure has been less than two apartments, whereas construction levels were significantly higher in Dresden and Münster with nearly six apartments. If virtually no new apartments are built over a longer period, this will have a particularly negative impact on the supply of contemporary living space.

Despite high housing demand, construction levels are not strong everywhere

Source: bulwiengesa

HOUSEBUILDING HAS RECOVERED. BUT IS WEAKENING SIGNIFICANTLY (CUMULATIVE DATA FOR ALL 19 CITIES) APPROVED AND COMPLETED APARTMENTS 110.000 100,000 90,000 80.000 70,000 60,000 50,000 40,000 30,000 20,000 10.000 O 2008 1993 2003 2013 2018 2023 1998 completions building permits

HOUSEBUILDING HAS PICKED UP IN MANY CITIES BUT NEW BUILD LEVELS VARY WIDELY



Source: bulwiengesa

sorted by construction activity 2019 to 2023

Rents for existing apartments relatively moderate despite housing shortage

As a consequence of the growth in housing demand and inadequate levels of new building, the housing vacancy rate has declined everywhere. Most of the cities covered in our report no longer have significant vacancy rates. In 2022, the last year for which data is available, the active market vacancy rate – defined as apartments available in the short-term – in 12 of the 19 cities reviewed was below 1 per cent. In seven cities it did not even reach half of one per cent. The vacancy level could be even lower today, if that is possible. If virtually no vacant properties are available from the existing housing stock, they will only come onto the market via new building. As a result of the construction crisis, which is likely to lead to significantly weaker new build levels, this proportion of the housing supply will be correspondingly smaller.

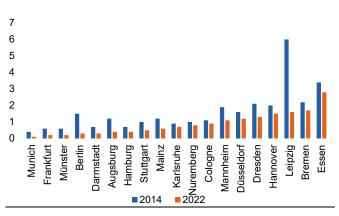
Market tension reflected in very low vacancy rates

HIGH NEW BUILD LEVELS ASSOCIATED WITH BETTER SUPPLY OF CONTEMPORARY APARTMENTS BASED ON YEAR OF CONSTRUCTION: PROPORTION OF HOUSING STOCK IN % 80 60 40 20 Leipzig Berlin Hamburg Essen Karlsruhe Nuremberg Stuttgart Augsburg Cologne Frankfurt **Mannheim** Bremen Düsseldorf Dresden **Darmstadt** Munich Hannover year of construction up to 1969 year of construction from 1970 to 1999 year of construction from 2000 onwards

Source: 2022 Census (Destatis)

FINDING AN APARTMENT BECOMES AN ORDEAL: LESS THAN 1% OF APARTMENTS AVAILABLE IN 12 OF 19 CITIES IN 2022

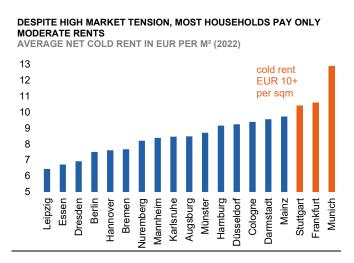
ACTIVE MARKET VACANT RESIDENTIAL PROPERTIES AS %



Source: CBRE / IZ Research

Despite the supply shortage in the housing market, many tenants in the cities reviewed pay moderate rents. Tenants with long-term rental contracts benefit from the slower pace at which their rents are adjusted. Average rents (2022) are lowest in rapidly growing Leipzig, with a figure just shy of EUR 6.50 per sqm. In the expensive Munich housing market, tenants paid on average twice this amount. Over all the

Despite strained housing markets, most tenants pay fairly moderate rents cities, around 70 per cent of existing rents were less than EUR 10 per sqm. However, in Munich this was the case for only a third of rented apartments. Conversely, in Dresden, Essen and Leipzig, more than 95 of rents were below the EUR 10 level.



ONLY A FEW TENANTS PAY RENTS OF MORE THAN EUR 10 PER M² APARTMENTS WITH NET RENT ≥ €10/M2, SHARE IN % 100 90 80 70 60 50 40 30 20 Bremen Munich Augsburg Mannheim **Nuremberg**

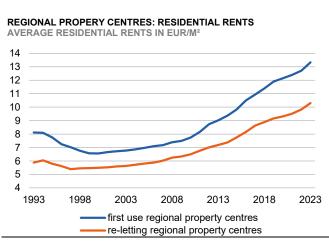
Source: 2022 Census (Destatis)

Source: 2022 Census (Destatis)

Supply shortage drives up rents in new contracts

For relets of existing apartments, and especially for initial rents, the figure exceeds EUR 10 per sqm almost everywhere. Rents for relets only remain slightly lower in three cities - Dresden, Essen and Leipzig. Average rents for relets were EUR 10.30 per sqm in 2023. Dresden is the cheapest city at EUR 8.60. The most expensive regional centre is Mainz at EUR 12.90. Munich is at the top of the range with EUR 19.50. Initial rents per sqm averaged a good EUR 4 higher at EUR 14.30. Dresden is also the cheapest here at EUR 11.80. Mainz is the most expensive city among the top locations here too at EUR 15.30. The most expensive initial rent overall is in Munich at EUR 22 per sqm.

Rents of less than EUR 10 /m2 are the exception in new rental contracts



TOP LOCATIONS: RESIDENTIAL RENTS AVERAGE RESIDENTIAL RENTS IN EUR/M2 20 18 16 14 12 10 8 6 1993 1998 2003 2008 2013 2018 2023 first use top locations re-letting top locations

Source: bulwiengesa Source: bulwiengesa

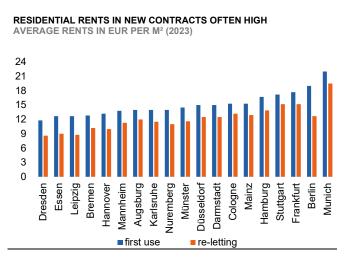
Rents for relets and initial rents are both well above average levels calculated for the market as a whole, some of which relate to decades-old rental agreements. The divergence between new and existing rents is also increasing steadily as growth in rents accelerates, making relocation an increasingly unattractive prospect. The upward movement in rents is therefore self-reinforcing. If virtually no apartments

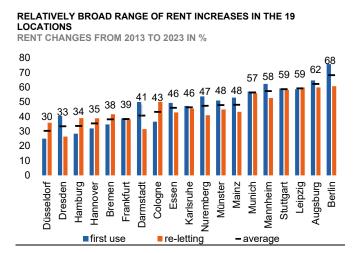
Growing divergence between new and existing rents causes market freeze

become available, even if tenants' needs alter, demand will be concentrated on the small number of apartments on offer, for which it will of course be possible to obtain high rents.

There is a wide divergence in both the rents which are being paid and the rate at which they are increasing. Within ten years, rents in new contracts have increased on average by around 50 per cent. The range extends from a 30 per cent rent rise in Düsseldorf to nearly 70 per cent in Berlin.

Ten-year rent increase was round 50 per cent in 2023





Source: bulwiengesa

Source: bulwiengesa

Numbers in graph relate to "average"

The rise in interest rates is exacerbating the tension on the housing market in two ways: firstly, due to the resulting decline in new construction and secondly, due to the demand for housing from buyers prevented from purchasing residential property. For many prospective buyers, the purchase prices of owner-occupied apartments, which have risen to a high level in the cities, are almost impossible to finance following the rise in interest rates. As a result, the overall demand for housing is shifting more towards the rental housing market.

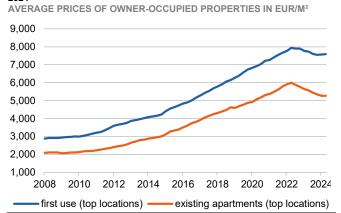
Given the housing shortage in the cities and the upward trend in rents, the price correction for owner-occupied properties remained within limits after the hike in interest rates. Prices had already stopped falling in the first half of 2024. Prices per sqm for existing housing fell by 12 per cent from their maximum levels, and those of new build homes by 5 per cent. Despite the decline, prices remain high. In mid-2024 they were around 150 per cent above their 2010 levels in the top locations.

Rental demand intensified by buyers unable to purchase their own flats

Price correction for owner-occupied properties ended in first half of 2024



PRICE CORRECTION FOR OWNER-OCCUPIED APARTMENTS ENDED IN 2024



Source: bulwiengesa resp. unweighted average

HOUSING MARKET OUTLOOK

Surveys among real estate investors confirm the focused interest in residential real estate investments. The rental of apartment buildings is particularly attractive due to the existing potential for rent increases. This is due in particular to the short supply of apartments, with demand for apartments expected to rise in many cities. However, the predominantly ageing housing stock also offers potential for rent increases. Higher rents can also be justified with modernizations and energy-efficient renovations. In addition, residential real estate has proven to be crisis-proof and comparatively low-risk in recent years, unlike commercial real estate.

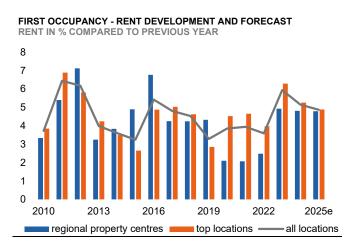
Investors focus on the good prospects for apartment rentals

However, the favorable rental prospects and the associated low risk come at a price. The valuations of multi-family homes have lost only a fraction of their high growth in value due to the correction caused by the rise in interest rates following the long real estate boom. A comparison with 2012 shows that multi-family homes today - at a comparably high interest rate level - are significantly more expensive both in absolute and relative terms on the basis of the purchase price/rent ratio. Yields on the capital market and thus the interest rates relevant to real estate are also likely to fall only slowly despite falling inflation. In addition, the gap between rental and bond yields is relatively small in a long-term comparison. All in all, further high increases in the value of multi-family homes are less unlikely.

Multi-family houses have become cheaper due to the market correction, but they are not cheap

It should be possible to achieve a noticeable increase in rental income from residential rentals. However, expectations should not be set too high, as in addition to rent regulation, the economic sustainability of private households could also stand in the way of significant rent increases. Economic growth, which is being held back by structural weaknesses and an ageing population, is limiting income growth, as is the rising number of pensioners. In addition, urban housing markets are increasingly dominated by single households, for whom the rental burden on income is already quite high. Due to the reduced fluctuation on the housing market, new leases, where rents can usually be increased more, are becoming rarer.

Scarce housing supply offers scope for rent increases, but these are limited by regulation, economic viability and low fluctuation



2010 2013 2016 regional property centres

Source: bulwiengesa, DZ BANK

8

7

6

5 4

3

RE LETTING - RENTAL DEVELOPMENT AND FORECAST

RENT IN % COMPARED TO PREVIOUS YEAR

Source: bulwiengesa, DZ BANK

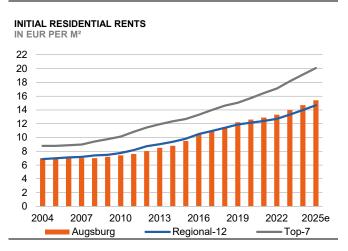
Residential letting has good prospects of building on its reputation as a solid and low-risk business model in the coming years. We expect rents to increase by 5% per year in the locations under review in the current and coming year. More pronounced rates of increase are being curbed by the often already high rent levels in many cities. Persistent economic weakness with an increasing burden on the labor market could slow the rise in rents, especially in the coming year, despite high demand for housing. The prospect of rent increases above the rate of inflation is being bought at the cost of relatively high real estate prices and limited prospects for capital appreciation. The initially moderate rental yields are likely to be "leveraged" by higher rental income over time. Improved depreciation opportunities are another "treat". On the other hand, the climate-friendly transformation of the building stock is a challenge. But firstly, this affects the entire real estate industry and secondly, in contrast to other market segments, "brown" properties can still be let well on the residential market due to a lack of supply.

Residential letting is and remains a solid business model, 5% rent growth possible in 2024 and 2025

top locations -

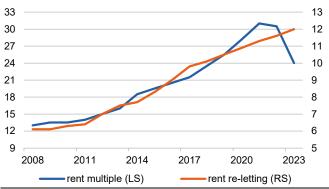
BRIEF PROFILES OF 19 LOCATIONS

Augsburg



LS: PURCHASE PRICE IN ANNUAL NET RENTS, RS: IN EUR PER M2 33 30

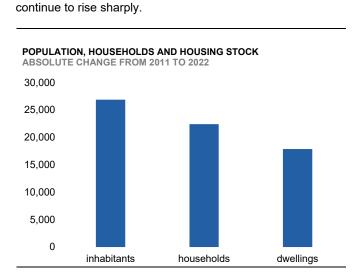
MULTI-OCCUPANCY INVESTMENT PROPERTIES



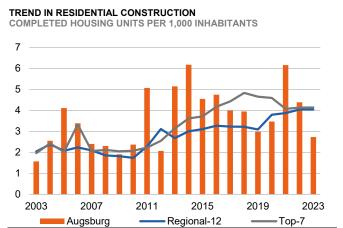
Source: bulwiengesa

Source: bulwiengesa

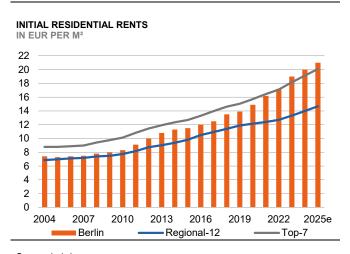
Augsburg is the third largest city in Bavaria with a population of 300,000. After stagnating for a long time, its population began to grow strongly from 2010. From 2011 to 2022 it expanded by ten per cent. Contributory factors are its proximity to Munich, together with a much less expensive housing market. Commuters can access the state capital 60 kilometres away via the A8 Autobahn or the Intercity Express (ICE). As workers spend fewer days in the office and more time working from home, the cost advantage of living in Augsburg becomes even more important. Other factors are the migration of skilled workers for the regional economy and the accommodation needs of 27,000 students. Against this background, rents have increased by a substantial 60 per cent within ten years. In 2023, initial rents cost EUR 14 per sqm and EUR 12 for a relet. The rent gap of more than EUR 8 per sqm compared to Munich has persisted despite rent growth. With more than 4 completed homes per 1,000 inhabitants, construction levels have been above-average, but are insufficient to meet demand. According to census data, the number of households has grown faster than the housing stock. Extensive space reserves on former industrial and military sites are advantageous. New residential developments are planned for the Eberle site in Pfersee and the Osram/Ledvance site. However, an improved housing supply could also boost migration. Rents in Augsburg are likely to Regional economy, university and Munich commuters contribute to strong growth

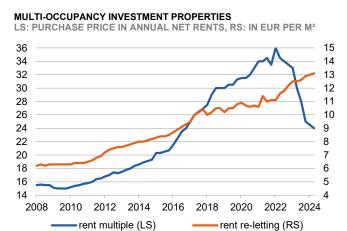


Source: Destatis (2011 Census / 2022 Census)



Berlin



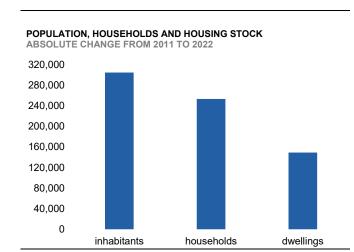


Source: bulwiengesa

Source: bulwiengesa

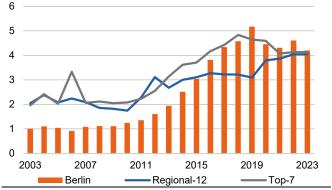
As the capital city of the third largest economy in the world, Berlin has an important real estate market. However, unlike other European cities - and despite a visibly positive trend - Berlin is not the economically strongest location in the country, with income levels which are well below-average for Germany. The sharp hike in purchase prices and rents in recent years, caused by a high level of investor interest and strong immigration, therefore place them beyond the means of many Berliners. This is probably one of the reasons why initiatives such as the rent cap and the socialisation of housing companies have been initiated in Berlin. The tensions look set to escalate as migration continues and given the likelihood of further rent increases. Between 2011 and 2022 the population grew by more than 9 per cent, or 305,000, to 3.6 million people. Because of insufficient new construction, 150,000 new build apartments have failed to meet the demand from 250,000 additional households. Although the Berlin authorities have capped rent rises for existing apartments, they have accelerated increases further for new build homes. This has created a wide gulf - per sqm and as of mid-2024 - between initial rents of EUR 19.50 and a figure of EUR 13.10 for relets. The supply of regular rented apartments has also declined, while short-term rentals are booming.

High immigration, rising rents and low incomes cause tensions in urban society

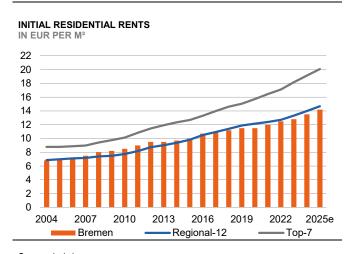


Source: Destatis (2011 Census / 2022 Census)



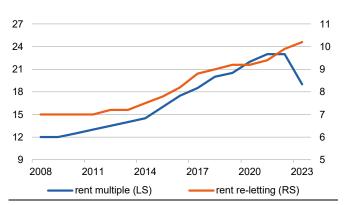


Bremen



MULTI-OCCUPANCY INVESTMENT PROPERTIES

LS: PURCHASE PRICE IN ANNUAL NET RENTS, RS: IN EUR PER M2

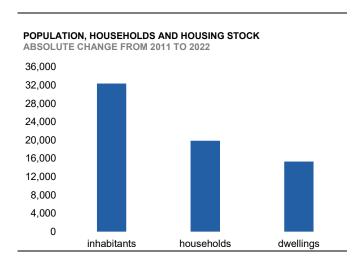


Source: bulwiengesa

Source: bulwiengesa

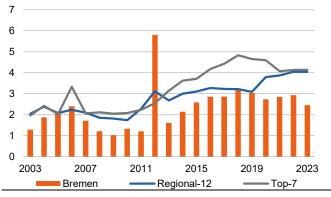
Bremen ranks 11th among the most densely populated German cities. After stagnating for a long time, its population started to grow steadily ten years ago. Between 2011 and 2022 the population grew by 6 per cent to 575,000. Economic weakness as a result of industrial structural change which braked migration, has still not been completely overcome. The unemployment rate is high at more than 10 per cent. Growing demand for housing has provided stimulus for weak housebuilding. The number of completions has clearly increased, but has remained generally belowaverage. One possible reason for the comparatively moderate rent growth is the relatively low income level. Between 2013 and 2023, average initial rents increased by 35 per cent to EUR 12.80 per sqm. Rents for relets have risen by around 40 per cent to EUR 10.20 per sqm. Sought-after residential locations are Schwachhausen, Horn-Lehe, Oberneuland and on the waterfront in the Überseestadt. New residential quarters such as the Garden City, the Tobacco Quarter and am Hulsberg will improve the housing supply. As is the case everywhere, higher construction and financing costs are likely to hamper project realisation. If migration continues, the tensions in the housing market are likely to escalate. Residential rents could increase further. As in other cities, a housing alliance initiated by the Senate is tasked with improving the supply of affordable housing.

Bremen offers a high quality of life leading to demographic growth and rising rents



Source: Destatis (2011 Census / 2022 Census)





14

13

12

11

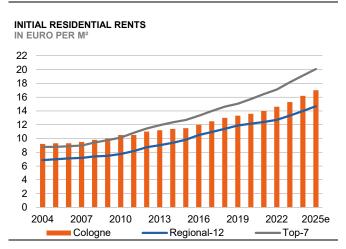
10

9

8

2024

Cologne



Source: bulwiengesa

2010

30

27

24

21

18

15

12

2008

MULTI-OCCUPANCY INVESTMENT PROPERTIES

2012 2014

rent multiple (LS)

LS: PURCHASE PRICE IN ANNUAL NET RENTS, RS: IN EURO PER M2

2016

2018

2020

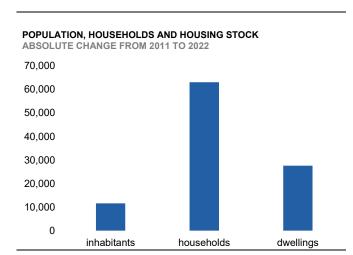
2022

rent re-letting (RS)

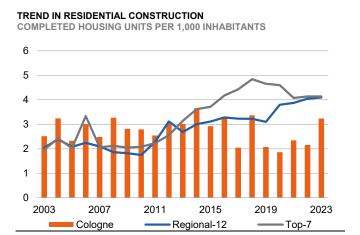
Source: bulwiengesa

Census figures published in June were disappointing for Cologne: The number of inhabitants was revised downwards by 64,000 to just over one million inhabitants from the extrapolation. This means that population growth from 2011 to 2022 was just one per cent. All the while, Cologne scores for a high quality of life, a rich cultural offer, lively job market and relatively cheap housing market. In spite of weak population growth, demand for housing has nevertheless increased on the back of a growing number of households. In contrast, new building at an annual rate of less than three completions per 1,000 inhabitants has not been sufficient and residential rents have therefore gone up noticeably. Initial rents rose by 37 per cent within a ten year period and rents for re-lets by 50 per cent. Rents stood at EUR 16.30 per m² for a newly built property in mid-2024, and at EUR 13.40 per m² for re-lets. In expensive locations, which are mainly in the city centre and the district on the left bank of the Rhine, the figure is around EUR 23 per m². Housing supply should improve in the next few years with the many development projects around the city in anticipation of a growing population. These include Parkstadt Süd, the Clouth site, Ehrenveedel and Deutzer Hafen. Bearing in mind high construction and financing costs, however, planned housing construction could be delayed. Rents are therefore likely to continue to rise.

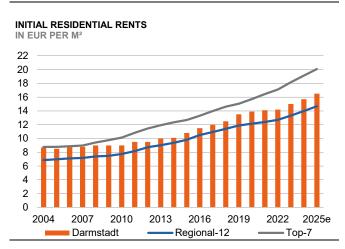
Attractive cathedral city planning new housing in many development projects



Source: Destatis (Census 2011 / Census 2022)

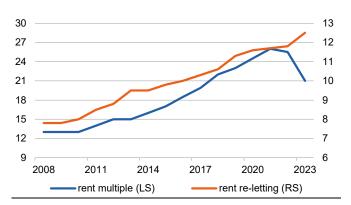


Darmstadt



MULTI-OCCUPANCY INVESTMENT PROPERTIES

LS: PURCHASE PRICE IN ANNUAL NET RENTS, RS: IN EUR PER M2

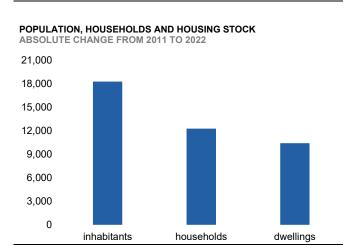


Source: bulwiengesa

Source: bulwiengesa

Darmstadt's demographic growth of nearly 13 per cent from 2011 to 2022 is the second highest in relative terms after Leipzig. Its population has grown to more than 160,000. Contributory factors are a high quality of life, a favourable location on the southern edge of the Rhine-Main area, demand for skilled workers for the regional economy, and the major importance of education and science with more than 40,000 students. High demand for housing due to migration has so far been counterbalanced by above-average levels of new construction. However, demand has not been met. The strained conditions in the housing market have resulted in very high rents. The average initial rent climbed by 50 per cent to EUR 15 per sqm between 2013 and 2023, bringing it in line with the top locations of Düsseldorf and Cologne. Rents for relets increased by a more moderate 32 per cent, but are also high at EUR 12.50 per sqm. One positive factor is that Darmstadt has access to large-scale converted space formerly used by the US Army. The development of the Lincoln residential quarter with housing for 5,000 people has been followed by the Ludwigshöhviertel which will accommodate another 3,000. A further 33 hectares on the site of the Starkenburg barracks will also be converted in the longer term. However, high construction and financing costs are also likely to hamper new build projects in Darmstadt, and the housing shortage could therefore drive rents up again sharply, despite their already high levels.

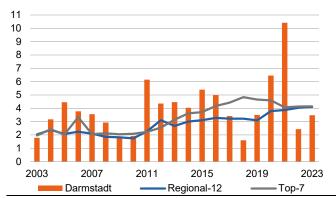
"City of Science" a sought-after, but also a very expensive residential location in the south of the Rhine-Main region



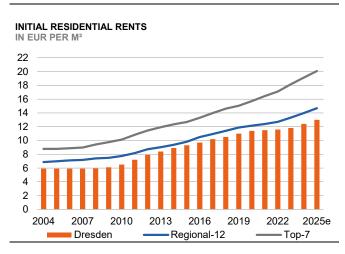
Source: Destatis (2011 Census / 2022 Census)

TREND IN RESIDENTIAL CONSTRUCTION

COMPLETED HOUSING UNITS PER 1,000 INHABITANTS

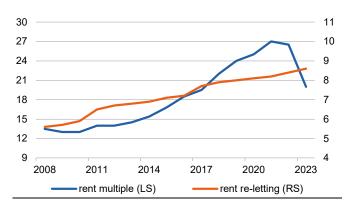


Dresden



MULTI-OCCUPANCY INVESTMENT PROPERTIES

LS: PURCHASE PRICE IN ANNUAL NET RENTS, RS: IN EUR PER M3

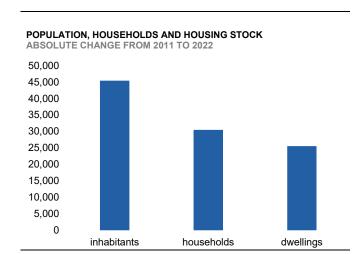


Source: bulwiengesa

Source: bulwiengesa

Dresden is one of the prominent examples of the "boom in the East", with its strong demographic growth, economic success, particularly in microelectronics, and moderate unemployment for a major city. The quality of life is also high in this attractive city. Between 2011 and 2022 the population grew by 9 per cent to nearly 560,000. The capital of Saxony is consequently the third largest city in eastern Germany. Residential rents have nevertheless increased comparatively moderately. Rents for relets grew by 27 per cent to EUR 8.60 per sqm between 2013 and 2023. Initial rents increased slightly more sharply by 40 per cent, to EUR 11.80 per sqm. Factors which are hampering rent growth include vacant properties in the existing housing stock, relatively low income levels, strong housebuilding and the rent brake which came into effect here in July 2022. However, the pace of rent growth could accelerate in future. Dresden anticipates demand for 10,000 new build apartments to house the skilled workers needed for its new microchip factories. Available space reserves include the site of the former Leipzig railway station. However, increased construction and financing costs, in conjunction with moderate rent levels, are making project realisation more difficult. The pace of rent growth in Dresden is therefore likely to accelerate.

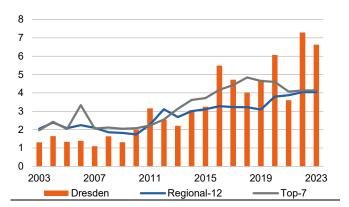
Despite high demographic growth and an economic upturn, rents are rising moderately



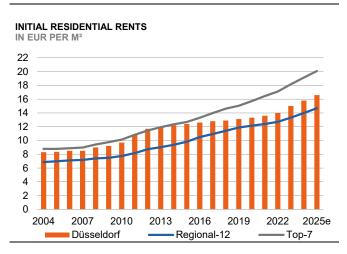
Source: Destatis (2011 Census / 2022 Census)

TREND IN RESIDENTIAL CONSTRUCTION

COMPLETED HOUSING UNITS PER 1,000 INHABITANTS



Düsseldorf



LS: PURCHASE PRICE IN ANNUAL NET RENTS, RS: IN EUR PER M2 14 30 13 27 12 24 11 21 10 18 9 15 8 12 2012 2014 2016 2018 2020 2008 2010 2022 2024 rent multiple (LS) rent re-letting (RS)

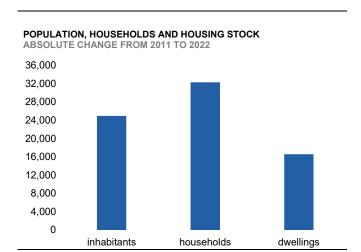
MULTI-OCCUPANCY INVESTMENT PROPERTIES

Source: bulwiengesa

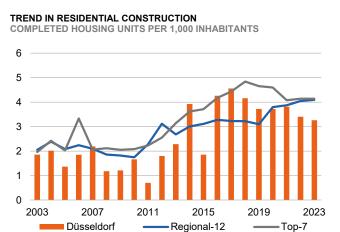
Source: bulwiengesa

The capital city of North Rhine-Westphalia is the second largest city in the federal state, with a population of around 610,000. Between 2011 and 2022 its population grew moderately by just over 4 per cent. Düsseldorf is an international business location, centrally located in the Rhine-Ruhr region. As a residential location, the city benefits from a high quality of life and good labour market supply. The fact that demographic growth is not higher is probably partly due to weaker housebuilding activity compared to other top locations. However, completion figures have increased sharply. As in most major cities, a housing shortage has driven rents up, but the pace has been comparatively weak. From 2013 to 2023 the average initial rent increased by 25 per cent. Rents for relets have however risen much more steeply by 36 per cent. In mid-2024, initial rents were EUR 15.30 per sqm, and EUR 13 for relets. Exclusive residential locations on the Rhine are much more expensive, with initial rents of more than EUR 22 per sqm. Overall, the Düsseldorf housing market is comparatively favourably priced among the top locations. The slowing of housebuilding as a result of the construction crisis could lead to an acceleration of rent growth from its previously more moderate pace.

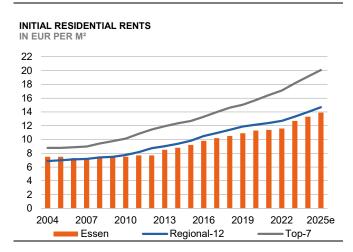
Top location with comparatively low rents and moderate demographic growth



Source: Destatis (2011 Census / 2022 Census)

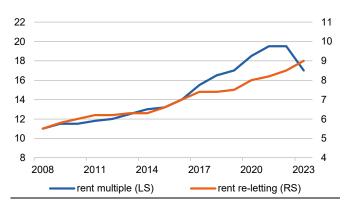


Essen



MULTI-OCCUPANCY INVESTMENT PROPERTIES

LS: PURCHASE PRICE IN ANNUAL NET RENTS, RS: IN EUR PER M2

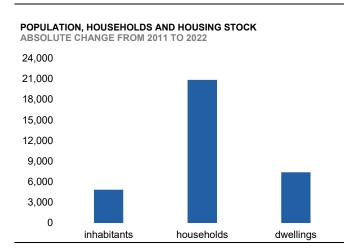


Source: bulwiengesa

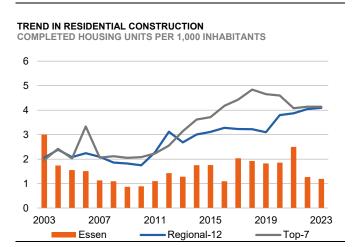
Source: bulwiengesa

Essen is an important business centre and the location for many company headquarters. However, the crisis in mining and steel construction caused the population to contract by around 150,000. A total of 35,000 students attending higher education institutions prevented an even steeper decline. However, the downward trend has come to a halt. From 2011 to 2022 the population increased slightly by 1 per cent to 570,000 people. Despite a successful structural shift, migration is slowing due to a continuing weak labour market with an unemployment rate of 11 per cent. Demand for housing is nevertheless growing as a result of the increasing number of private households, but is offset by weak new construction which has barely accelerated in recent years. Fewer than 2 apartments are being completed per 1,000 inhabitants. This is leading to a moderate vacancy rate of less than 3 per cent despite a marked decline in the population. There is a particular shortage of attractive new build homes. Although rents have increased sharply by more than 40 per cent within the last ten years, they remain at a comparatively moderate level. In 2023, initial rents cost EUR 12.70 per sqm, and EU 9 for relets. Rents look set to increase again due to low volumes of new construction. City centre locations and elegant districts in the south of the city such as Bredeney, Schuir and Kettwig are in particular demand. Problem areas are concentrated in the north of the city.

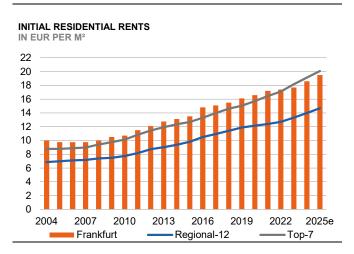
Despite a stagnating population, housing demand is growing



Source: Destatis (2011 Census / 2022 Census)



Frankfurt



MULTI-OCCUPANCY INVESTMENT PROPERTIES LS: PURCHASE PRICE IN ANNUAL NET RENTS, RS: IN EUR PER M2 16 33 15 30 14 27 13 24 12 21 11 18 10 9 15 12 8 2012 2014 2008 2010 2016 2018 2020 2022 2024

Source: bulwiengesa

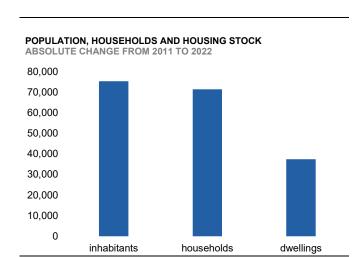
Source: bulwiengesa

rent multiple (LS)

The population of the international Financial Centre Frankfurt has grown very strongly in response to continuing high demand for skilled workers. The city was the only top location to experience double-digit demographic growth of more than 11 per cent between 2011 and 2022. The population has increased to around 745,000. Housebuilding in Frankfurt has almost consistently reached above-average levels in recent years. However, the number of private households has grown at nearly twice the rate at which the housing stock has expanded. This has resulted in continuing tensions in the housing market with high and sharply rising rents, which increased by a good 40 per cent from 2013 to 2023. In mid-2024 the average rent for a new build apartment was EUR 18.50 per sqm and EUR 15.70 for a relet. Only Berlin and Munich are more expensive. Whether the high level of residential construction of, on average, almost 6 completions per year per 1,000 inhabitants, can be sustained is doubtful since, according to information from the city authorities, the potential for further housebuilding contracted in 2023 to 12,600 apartments. The construction crisis has in any case led to fewer completions, and - with migration remaining high - the tensions in the housing market are likely to tend to escalate. Rents could therefore increase further from their already high levels.

Strong housebuilding fails to keep pace with marked demographic growth

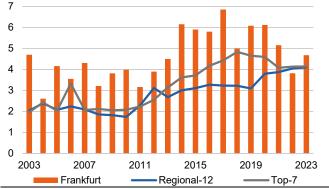
rent re-letting (RS)



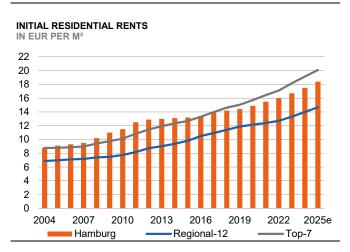
Source: Destatis (2011 Census / 2022 Census)

TREND IN RESIDENTIAL CONSTRUCTION

COMPLETED HOUSING UNITS PER 1,000 INHABITANTS
7



Hamburg



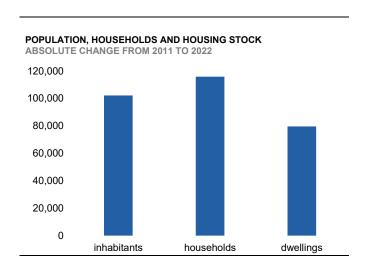
LS: PURCHASE PRICE IN ANNUAL NET RENTS, RS: IN EUR PER M2 15 33 14 30 13 27 12 11 24 21 10 9 18 15 8 12 7 2010 2012 2014 2016 2018 2020 2022 2024 2008 rent multiple (LS) rent re-letting (RS)

MULTI-OCCUPANCY INVESTMENT PROPERTIES

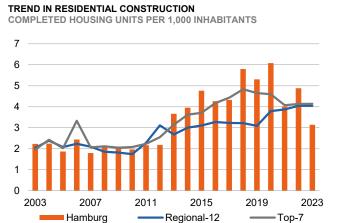
Source: bulwiengesa Source: bulwiengesa

More than 1.8 million people live in Germany's second largest city. However, demographic growth of 6 per cent between 2011 and 2022 is fairly moderate for the locations we have reviewed. Nevertheless, the absolute growth of more than 100,000 people is in line with the typical population of a major city. In response to growing demand for housing, the city set up the Alliance for Housing in 2011. The target of 10,000 approved apartments each year has not been consistently achieved, although construction volumes have been relatively high compared to other major cities, with nearly 5 completions per 1,000 inhabitants. However, similar to most cities, the number of private households has grown faster than the housing stock, and virtually no more accommodation is therefore available. The municipal housing association SAGA reported a vacancy rate of only 0.2 per cent in 2023. As a result, rent growth in Hamburg has been strong, but has at least been braked slightly probably due in part to the success of the Alliance for Housing. With an average initial rent of EUR 17.50 per sqm and EUR 14 per sqm for a relet in mid-2024, rents are lower than in Berlin, Frankfurt and Munich. The multiplier for multi-occupancy homes is also mid-range for the top locations, at 25 years of net rent. A high quality of life and demand for labour in the diversified economy are likely to be accompanied by further demographic growth and a resulting rent hike.

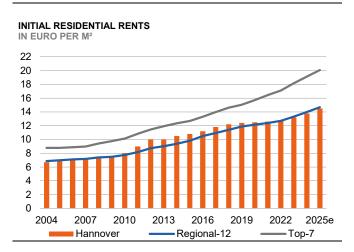
Population growth in Germany's second largest city is more moderate, and housing supply slightly better, due to higher levels of new construction



Source: Destatis (2011 Census / 2022 Census)

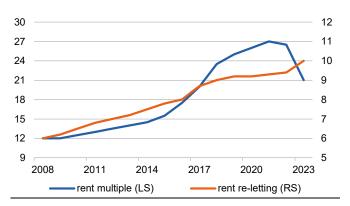


Hannover



MULTI-OCCUPANCY INVESTMENT PROPERTIES

LS: PURCHASE PRICE IN ANNUAL NET RENTS, RS: IN EURO PER M2



Source: bulwiengesa

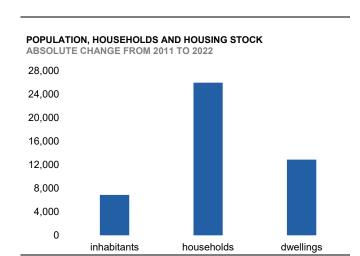
Source: bulwiengesa

a slightly slower pace.

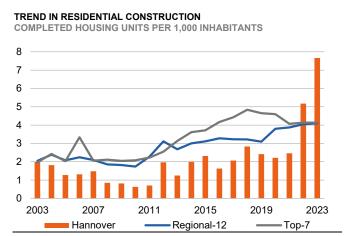
According to the latest census figures, the population in the capital of Lower-Saxony, Hannover, has hardly grown in the last few years with an increase of just 1.4 per cent in the period from 2011 to 2022, i.e. much less than had been expected based on an extrapolation of earlier growth. Hannover's housing stock has grown slightly faster than the number of households, so that the relatively moderate rise in rents hardly comes as any surprise. Rents for newly built apartments increased by 32 per cent in the period from 2013 to 2023 while rents for re-lets rose by a good 40 per cent. In 2023, initial rents for new builds cost EUR 13.20 per m² and rents for re-lets EUR 10 per m². As such, unlike in the case of office and retail real estate, Hannover does not have above-average residential rents. The fact that rents still rose a fair amount in spite of a stagnating population reflects not least the weak level of new building. However, the city's housing construction push has had an effect with completion figures shooting up in 2022 and above all in 2023. Flats are being built mostly on the former Continental factory site in the Limmer "water city" area with around 2,000 units and in Kronsrode where 3,500 housing units are expected to go up in Lower Saxony's largest new development site. The completion of these large-scale

house-building plans is likely to help ensure that rents in Hannover continue to rise at

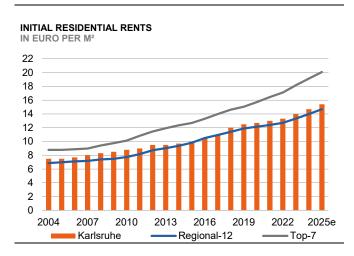
Major new build drive in spite of only slow population growth



Source: Destatis (Census 2011 / Census 2022)

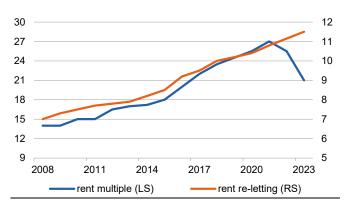


Karlsruhe



MULTI-OCCUPANCY INVESTMENT PROPERTIES

LS: PURCHASE PRICE IN ANNUAL NET RENTS, RS: IN EURO PER M2

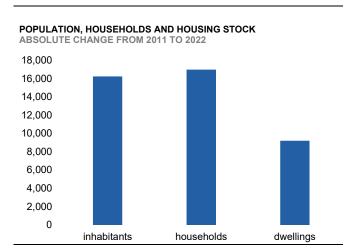


Source: bulwiengesa

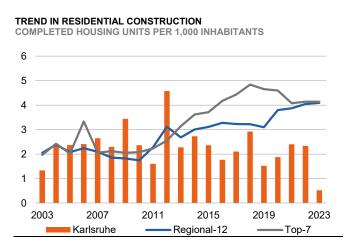
Source: bulwiengesa

Karlsruhe is the third largest city in Baden-Württemberg. Although important elsewhere in the German state, industry hardly plays a role here. Karlsruhe is a centre for administration, science and technology and services as well as home to major institutions such as the Federal Constitutional Court. The population grew by almost six per cent to 305,000 inhabitants from 2011 to 2022. A high quality of life in this city with its fan-shaped layout and solid labour market has made Karlsruhe into a sought-after place to live. A student population of over 38,000 enrolled at the various higher education institutions also has a major impact on housing demand. Rather weak new house building recently at just two completions per annum per 1,000 inhabitants has lagged behind the increase in the number of households. Excess demand has gone hand-in-hand with rising rents which have surged by almost 50 per cent in ten years. Initial rents for new builds stood at EUR 14 per \mbox{m}^2 in 2023 and at EUR 11.50 per m² for re-lets. Karlsruhe's housing market is likely to remain tight since housing construction could be slowed down even further by the current crisis in the construction sector. Rents are likely to continue to rise sharply. Supply should improve with 1,000 flats planned for the Greenville residential development.

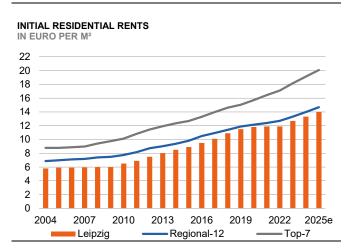
Housing market still tight in view of weak new building



Source: Destatis (Census 2011 / Census 2022)

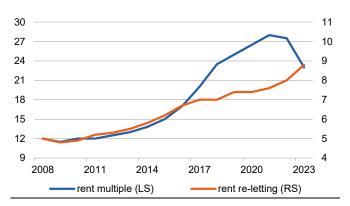


Leipzig



MULTI-OCCUPANCY INVESTMENT PROPERTIES

LS: PURCHASE PRICE IN ANNUAL NET RENTS, RS: IN EURO PER M2

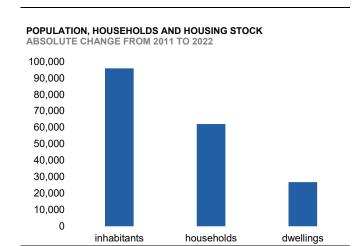


Source: bulwiengesa

Source: bulwiengesa

Leipzig has grown to around 600,000 inhabitants on the back of a huge influx of newcomers and now ranks in eighth place among Germany's largest cities. The population grew by 19 per cent from 2011 to 2022. An increase of 96,000 inhabitants is in line with growth in Hamburg, which is three times the size of Leipzig. The influx has been driven by a high quality of life in a city rich in historical buildings and by the economic upturn. In spite of a sharp fall in unemployment, however, incomes have remained low. Further strong demand for housing is coming up against a generally average level of new housing construction. For a time, it was possible to meet excess demand from earlier vacancies, but now that that source has been whittled down, the housing market is becoming increasingly tight, a fact reflected in a sharp rise of 60 per cent in rents within a period of ten years - albeit from a low level. In 2023, the initial rent for a new build stood at EUR 12.70 per m², and at EUR 8.80 per m² for re-lets. The Leipzig Association for Affordable Housing was created in 2020 in an effort to dampen the rise in rents. Bearing in mind the fact that vacancies have dwindled and the ongoing influx of newcomers to the city, the number of completions would have to rise – a prospect hampered by the crisis in housing construction. To that extent, we can expect rents in Leipzig to continue to rise sharply.

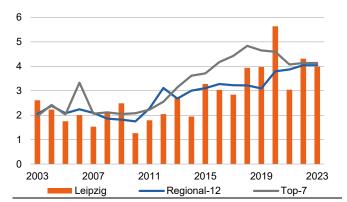
Housing market under pressure through huge influx to this attractive city



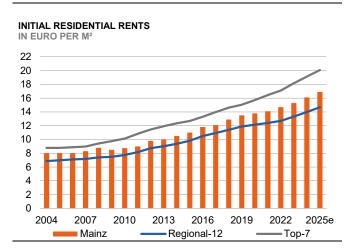
Source: Destatis (Census 2011 / Census 2022)



COMPLETED HOUSING UNITS PER 1,000 INHABITANTS

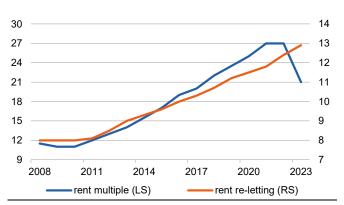


Mainz



MULTI-OCCUPANCY INVESTMENT PROPERTIES

LS: PURCHASE PRICE IN ANNUAL NET RENTS, RS: IN EURO PER M2

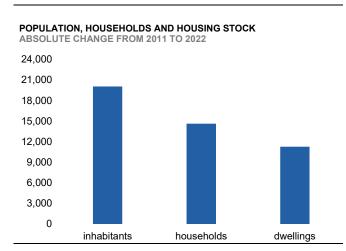


Source: bulwiengesa

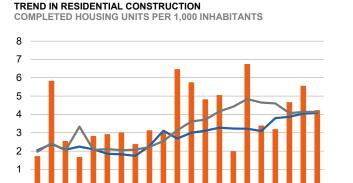
Source: bulwiengesa

The Rhineland-Palatinate capital Mainz benefits from an advantageous position on the Rhine in the western Rhine-Main region. Kay economic drivers are public administration, media along with science, technology and research. Thirty seven thousand students are enrolled at the city's various higher education institutions. Together with a high quality of life, this means that the city has become a soughtafter and expensive place to live. Purchase prices and rents are moving more or less in line with the level in Cologne. However, flats are still a good deal cheaper than 45 kilometres away in Frankfurt, which is now well within reach with the connection to the suburban railway network (S-Bahn). On balance, Mainz still showed strong growth of 10 per cent between 2011 and 2022 to around 220,000 inhabitants. In spite of an above-average pace of housing construction in the city, it has not been able to keep pace with the rapidly rising number of households. Initial rents in the housing market in 2023 cost EUR 15.30 per m² and EUR 13 per m² for re-lets. Initial rents for new builds rose by over 50 per cent within the space of ten years; rents for re-lets rose by over 40 per cent. Larger residential developments are going up in the Zollhafen area, on the Heiligkreuz site, the site of the former GFK barracks and Medienberg. However, the crisis in the construction sector is also slowing down new building in Mainz, thus compounding market tensions, which could go hand-in-hand with a further sharp rise in rents.

As expensive as Cologne, Mainz is a sought-after place to live on the western periphery of the Rhine-Main region



Source: Destatis (Census 2011 / Census 2022)



2015

Regional-12

2019

2023

Top-7

Source: bulwiengesa, German cities: New build figures

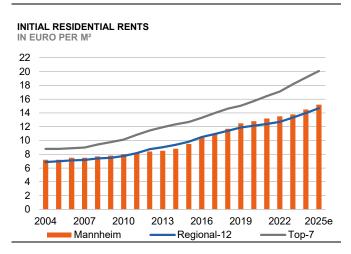
2011

2007

Mainz

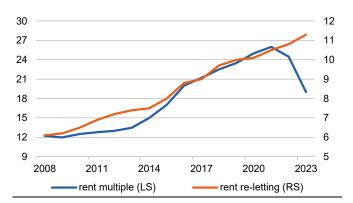
2003

Mannheim



MULTI-OCCUPANCY INVESTMENT PROPERTIES

LS: PURCHASE PRICE IN ANNUAL NET RENTS, RS: IN EURO PER M2

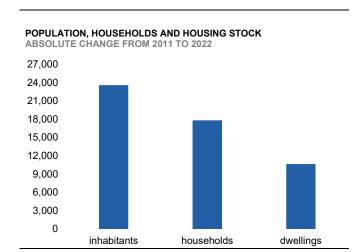


Source: bulwiengesa

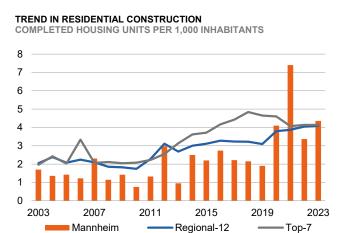
Source: bulwiengesa

Mannheim's transformation from an industrial to a services city is showing clear signs of success, including a much improved labour market and strong migration to the city. This has lead to an 8 per cent increase in the population to almost 315,000 inhabitants in the period from 2011 to 2022. Demand in the housing market is also being driven by 28,000 students enrolled at the various higher education institutions. Although unlike neighbouring Heidelberg, Mannheim fails to score points for beauty in the economically strong Rhine-Neckar region, it has a cheaper housing market. In addition, the city's development is benefiting from former military sites which are available for redevelopment and therefore mean substantial reserves of building land. The 2023 Federal Garden Show took place on such land and will improve recreational facilities for Mannheim in the long term. New housing is planned above all in the new Franklin district. After a long period of weak housing construction, it picked up significantly from 2020 onwards. Growing demand for housing has led to an increase of over 50 per cent in rents from 2013 to 2023 and of over 60 per cent for initial rents for new builds. In 2023, initial rents cost on average EUR 13.80 per m² and re-lets EUR 11.30 per m². Rents are likely to rise further, especially since the crisis in the construction sector could once again slow down house building. As a new incentive, a premium is to be paid to tenants to encourage them to downsize if they no longer require so much space.

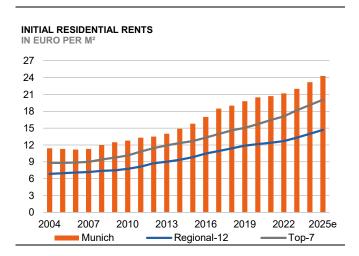
Mannheim's growing attraction as a place to live going hand-in-hand with sharply rising rents

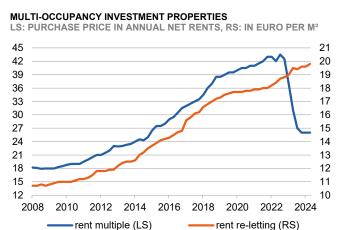


Source: Destatis (Census 2011 / Census 2022)



Munich



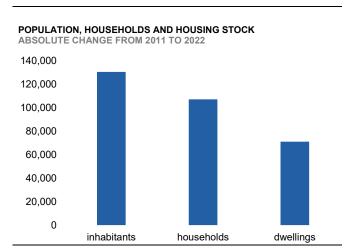


Source: bulwiengesa

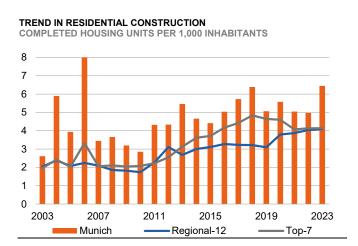
Source: bulwiengesa

The Bavarian capital is Germany's third largest city. A high quality of life and strong economy have led to strong population growth in spite of a hugely expensive housing market. The population grew by over 10 per cent or 130,000 to 1.5m inhabitants from 2011 to 2022 - which equates to a city the size of Würzburg. Munich is Germany's most expensive housing market based on both purchase prices and rents. This reflects not only huge demand for housing, but also a high level of incomes. Employees at the five DAX groups based in the city are well paid, but this is especially true of staff at US IT giants Amazon, Apple, Google and Microsoft, which have each built up a large presence in Munich. Rents for re-lets had almost reached the EUR 20 per m² mark by mid-2024. The cost of initial rents is EUR 3 more per m². In spite of the fact that rents had already reached a high level ten years ago, they have been able to increase further by an above-average 60 per cent plus. In spite of already fairly high housing density, the level of new building is still relatively strong, even though it still falls far short of demand. Rents are likely to continue to rise on the back of good economic prospects. There has been a noticeable correction in the case of multi-occupancy properties, leading to a disproportionate fall in the sales multiplier from a maximum of 42 times annual rent to 26 times most recently.

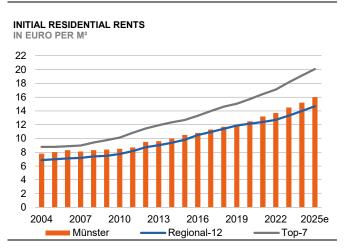
Strong growth potential for Germany's most expensive city for housing



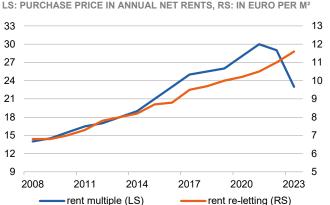
Source: Destatis (2011 Census / 2022 Census)



Münster



MULTI-OCCUPANCY INVESTMENT PROPERTIES

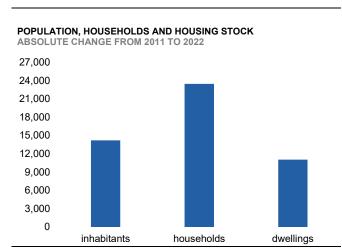


Source: bulwiengesa

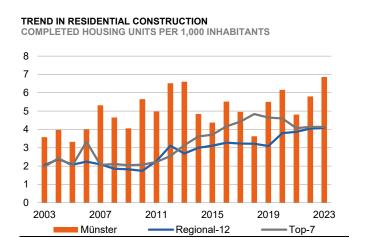
Source: bulwiengesa

Münster is growing, but not quite as much as had been anticipated. According to census figures published in June, population growth is having to be revised downwards by 15,000 to 304,000 inhabitants from the earlier extrapolation. Growth from 2011 to 2022 was nevertheless a respectable 5 per cent, but is no longer in the top league. A tight housing market could dampen growth. Rents have reached a high level, even without expensive prime locations in the neighbourhood. Points in favour of Münster are a high quality of life in this attractive city; a sound labour market and the importance of the city as a centre for science and technology. Münster has a student population of 60,000, compounding demand for housing. In addition, there has been a noticeable increase in the number of households, but even strong housing construction with over five completions per 1,000 inhabitants has been insufficient. This has led to an increase of around 50 per cent in rents within a tenyear period, even though they were already high. Initial rents for new builds in 2023 stood at EUR 14.50 per m² and at EUR 11.60 m² for re-lets. The Kreuz district is a much sought-after address and flats are even more expensive than in the Aasee which is right in the city centre. A fairly large number of new flats are expected to be built on sites formerly occupied by the York and Oxford barracks. However, the crisis in the construction sector could slow down the realisation of these plans. Conditions in the housing market are therefore likely to remain tight, and hence rents could continue to rise sharply.

Housing in short supply and expensive in spite of high level of new building activity

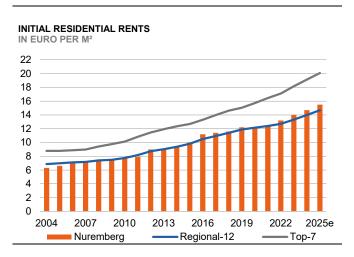


Source: Destatis (2011 Census / 2022 Census)



2023

Nuremberg



MULTI-OCCUPANCY INVESTMENT PROPERTIES LS: PURCHASE PRICE IN ANNUAL NET RENTS, RS: IN EURO PER M2 27 11 24 10 21 9 18 8 15 7 12 6 9 5

2014

Source: bulwiengesa

Source: bulwiengesa

2008

2011

rent multiple (LS)

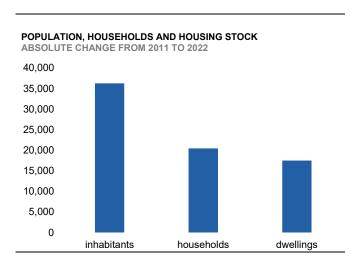
Nuremberg is the second largest city in Bavaria with over 520,000 inhabitants. There was strong population growth of 7.5 per cent from 2011 to 2022. The city, known for its Kaiserburg and Christmas market, has successfully managed the structural shift away from industry. Demographic growth has led to a tight residential market and strong rental growth. Initial rents for new builds cost EUR 14 per m² and EUR 11 for re-lets. Initial rents for new builds rose by over 50 per cent from 2013 to 2023; rents for re-lets rose by a slightly more moderate 40 per cent. One reason for the tight supply in the housing market is a faster increase in the number of households in relation to the housing stock. The pace of new housing construction has been average with around 3.5 completions per 1,000 inhabitants. In the future, however, the construction crisis could weaken new building. So far, apartments have been built primarily in development areas on the outskirts of the city, but also in some cases on former industrial sites (Quelle, the German alcohol monopoly site and Coca-Cola). For the time being, there is still space for well over 1,000 residential units in Lichtenreuth and Tiefen Feld. However, demand for living space is also set to increase in the future due to employees and students at the new Nuremberg Institute of Technology. Consequently, sharp rises in rents are likely in the short and longer term.

Land bank volumes drying up in the face of strong growth in the Franconian metropolis

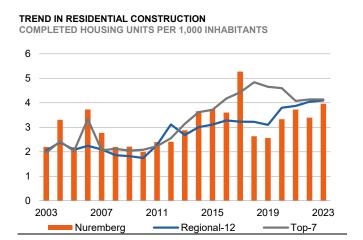
2020

rent re-letting (RS)

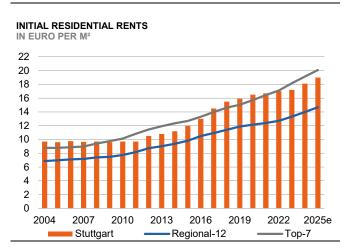
2017

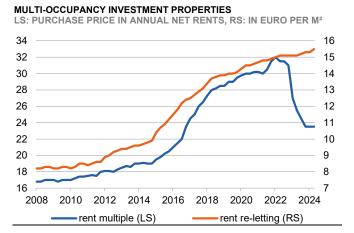


Source: Destatis (2011 Census / 2022 Census)



Stuttgart

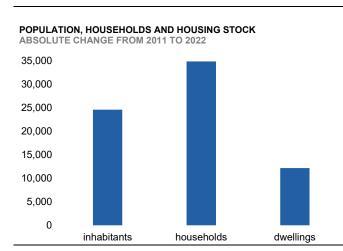




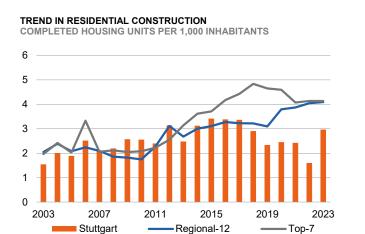
Source: bulwiengesa Source: bulwiengesa

Stuttgart stands out among the top locations: It is a major industrial centre and moreover, it has limited room for growth on account of its topography, situated as it is in a valley basin framed by hillsides. This is likely to be one of the reasons for the city's moderate population growth of just 4 per cent from 2011 to 2022. The city's population grew to 610,000 inhabitants. Housing construction is expected to get an injection from the completion of the underground main line station. However, the Stuttgart 21 project is likely to be delayed further until 2026. In addition, the realisation of the planned Rosenstein district which was scheduled to provide 6,000 new flats could be slowed down by the amended "General Railways Act" (Allgemeinen Eisenbahngesetz) which includes stricter requirements regarding the repurposing of railway land. Other residential sites also hang in the balance: There are plans for a reception centre for asylum seekers to be built on the site of the former IBM headquarters, and housing construction on the EnBW site has been shelved for the moment. The crisis in the construction sector is likely to undermine already weak housing construction, further compounding conditions in the housing market, as illustrated by the rise in rents which have surged by 60 per cent in the period from 2013 to 2023. Initial rents for new builds stood at EUR 17.50 per m² in mid-2024 and at EUR 15.50 m² for re-lets. However, the problems affecting the industrial and automotive sectors could have a dampening effect on Stuttgart's housing market and slow down further rent rises.

Tight housing market with generally limited construction



Source: Destatis (2011 Census / 2022 Census)



TABELLAR OVERVIEW

HOUSING MARKETS AT A GLANCE

	Population		Households		Dwelling	j stock	Completions		Unemploy- ment rate	
	2022	2011 to 2022	2022	2011 to 2022	2022	2011 to 2022	2012 to 2022	Per 1,000 inhabitants 2019 to 2023	August 2024	
	in thousands	in %	in thousands	in %	in thousands	in %	dwellings	dwellings	in %	
Augsburg	295	10	153	15	162	12	13,800	3.9	6.4	
Berlin	3.597	9	1.960	13	2.019	8	146,100	4.6	9.9	
Bremen	575	6	289	7	300	5	18,300	2.8	10.6	
Cologne	1.017	1	541	12	567	5	31,700	2.3	9.1	
Darmstadt	162	13	82	16	85	14	8,000	5.3	6.3	
Dresden	558	9	300	10	320	9	25,900	5.7	6.7	
Düsseldorf	611	4	335	10	350	5	23,100	3.6	8.1	
Essen	571	1	299	7	316	2	10,800	1.7	11	
Frankfurt	743	11	387	19	403	10	43,900	5.2	6.6	
Hamburg	1.809	6	955	12	985	9	89,800	4.7	8.2	
Hannover	513	1	285	9	302	4	14,150	4.0	8.1*	
Karlsruhe	305	6	155	11	161	6	8,200	1.7	5.1	
Leipzig	599	19	332	21	355	8	21,300	4.2	7.7	
Mainz	220	10	116	14	121	10	10,800	4.2	5.7	
Mannheim	314	8	162	12	173	7	10,000	4.2	7.7	
Munich	1.479	10	790	14	824	9	82,800	5.4	5.1	
Münster	304	5	160	15	166	7	18,200	5.8	5.2	
Nuremberg	523	7	272	8	284	7	19,000	3.4	6.9	
Stuttgart	610	4	301	11	314	4	19,100	2.4	6.4	

Source: Destatis/Census, bulwiengesa, Agentur für Arbeit

*) region Hannover

MARKET DEVELOPMENT MULTI-FAMILY HOUSING

	Average rent (Census)	Vacancy rate						Rent for re-letting			
	2022	2022	2013 to 2023	2023 yoy	2024e yoy	2025e yoy	2013 to 2023	2023 yoy	2024e yoy	2025e yoy	2023
	in EUR per sqm	in %	in %	in %	in %	in %	in %	in %	in %	in %	in %
Augsburg	8.48	0.4	65	5	5	5	60	3	5	5	4.2
Berlin	7.50	0.3	76	10	5	5	61	9	6	5	3.8
Bremen	7.67	1.7	35	2	5	5	42	3	5	5	5.3
Cologne	9.39	0.9	37	5	6	5	50	6	5	5	4.4
Darmstadt	9.56	0.3	50	6	5	5	32	6	5	5	4.8
Dresden	6.92	1.3	40	2	5	5	26	2	5	5	5.0
Düsseldorf	9.24	1.2	25	7	5	5	36	5	6	5	4.2
Essen	6.72	2.8	49	9	5	5	43	6	5	5	5.9
Frankfurt	10.58	0.2	39	2	5	5	38	3	5	5	3.9
Hamburg	9.16	0.4	28	4	5	5	39	7	4	5	3.9
Hannover	7.61	1.5	32	4	5	4	39	6	5	5	4.8
Karlsruhe	8.46	0.7	47	5	5	5	46	3	5	5	4.8
Leipzig	6.44	1.6	59	7	5	5	60	10	5	5	4.3
Mainz	9.73	0.6	53	4	5	5	43	4	5	5	4.8
Mannheim	8.39	1.1	62	2	5	5	53	5	5	5	5.3
Munich	12.89	0.1	57	4	5	5	56	5	4	4	3.4
Münster	8.71	0.2	51	6	5	5	45	5	5	5	4.3
Nuremberg	8.21	0.8	54	6	5	5	41	4	5	5	4.3
Stuttgart	10.39	0.5	59	1	5	5	58	1	5	4	4.1
Regional property centres	-	-	47.7	4.9	4.8	4.8	43.3	4.9	5.0	4.8	4.8
Top locations	-	-	52.2	6.3	5.3	4.9	50.8	6.1	4.8	4.7	3.9

Source: Destatis/Census, CBRE/IZ Research, bulwiengesa, DZ BANK

^{*)} reciprocal of the multi-family multiplier

I. Imprint

This study has been carried out by DZ BANK AG, Research and Economy Division, on behalf of and in cooperation with DZ HYP AG

Published by: DZ HYP AG

Hamburg Head Office Rosenstrasse 2, 20095 Hamburg Phone +49 40 3334-0

Münster Head Office Sentmaringer Weg 1, 48151 Münster Phone +49 251 4905-0

Homepage: www.dzhyp.de **E-Mail:** info@dzhyp.de

Represented by the Board of Managing Directors: Sabine Barthauer (CEO), Jörg Hermes, Stefan Schrader

Chairman of the Supervisory Board: Johannes Koch

Head office of the company:

Registered as public limited company in Hamburg, Commercial Register HRB 5604 and Münster, Commercial Register HRB 17424

Competent supervisory authorities:

DZ HYP AG is subject to the supervision of the Federal Financial Supervisory Authority (60439) and the European Central Bank (ECB).

VAT ident. no.: DE 811141281

Protection schemes:

DZ HYP AG is a member of the officially recognised BVR Institutssicherung GmbH and the additional voluntary Sicherungseinrichtung des Bundesverband der Deutschen Volksbanken und Raiffeisenbanken e.V. (Protection Scheme of the National Association of German Cooperative Banks): www.bvr-institutssicherung.de www.bvr.de/SE

Responsible for the contents:

Anke Wolff, Head of Communications, Marketing & Events

This document may only be reprinted, copied or used in any other way with the prior consent of DZ HYP ${\sf AG}$

II. Mandatory Disclosures for Other Research Information and further Remarks

1. Responsible Company

- 1.1 This Other Research Information has been prepared on behalf of and in cooperation with DZ HYP AG by DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main (DZ BANK) as an investment firm.
 - Other Research Information is independent client information which does not contain any investment recommendations for specific issuers or specific financial instruments. Such information makes no allowance for any individual investment criteria.
- 1.2 The mandatory disclosures for Research Publications (Financial Analyses and Other Research Information) as well as further remarks, especially regarding the Conflicts of Interest Policy of DZ BANK Research, used methods, procedures and statistics, can be read and downloaded free-of-charge under www.dzbank.com/disclosures.

2. Competent Supervisory Authorities

DZ BANK is supervised as a credit institution and as an investment firm by:

- European Central Bank www.ecb.europa.eu
 Sonnemannstrasse 20 in 60314 Frankfurt / Main and
- Federal Financial Supervisory Authority (BaFin) www.bafin.de
 Marie-Curie-Strasse 24 28 in 60349 Frankfurt / Main

3. Independent Analysts

- 3.1 The Research Publications (Financial Analyses and Other Research Information) of DZ BANK are independently prepared by its employed analysts or by competent analysts commissioned in a given case on the basis of the binding Conflicts of Interest Policy.
- 3.2 Each analyst involved in the preparation of the contents of this Other Research Publication confirms that
 - this Research Publication represents his independent specialist evaluation of the analysed object in compliance with the Conflicts of Interest Policy of DZ BANK and
 - his compensation depends neither in full nor in part, neither directly nor indirectly, on an opinion expressed in this Research Publication.

4. Updates and Validity Periods for Other Research Information

- 4.1 The frequency of updates of Other Investment Information depends in particular on the underlying macroeconomic conditions, current developments on the relevant markets, the current development of the analyzed companies, measures undertaken by the issuers, the behavior of trading participants, the competent supervisory authorities and the competent central banks as well as a wide range of other parameters. The periods of time named below therefore merely provide a non-binding indication of when an updated investment recommendation may be expected.
- **4.2** No obligation exists to update an Other Investment Information. If an Other Research Information is updated, this update replaces the previous Other Research Information with immediate effect.
 - If no update is made, investment recommendations end / lapse on expiry of six months. This period begins on the day the Other Investment Information was published
- 4.3 In a given case, updates of Other Research Information may also be temporarily suspended without prior announcement on account of compliance with supervisory regulations.
- 4.4 If no updates are to be made in the future because the analysis of an object / certain angle is to be discontinued, notification of this shall be made in the final publication or, if no final publication is made, the reasons for discontinuing the analysis shall be given in a separate notification.

5. Avoiding and Managing Conflicts of Interest

- 5.1 DZ BANK Research has a binding Conflicts of Interest Policy which ensures that the relevant conflicts of interest of DZ BANK, the DZ BANK Group, the analysts and employees of the Research and Economics Division and persons closely associated with them are avoided, or if such interests are effectively unavoidable are appropriately identified, managed, disclosed and monitored. Materiel aspects of this policy, which can be read and downloaded free-of-charge under www.dzbank.com/disclosures are summarized as follows.
- 5.2 DZ BANK organizes its Research and Economics Division as a confidentiality area and protects it against all other organizational units of DZ BANK and the DZ BANK Group by means of Chinese walls. The departments and teams of the Division that produce Financial Analyses are also protected by Chinese walls and by spatial separation, a closed doors and clean desk policy. Beyond the limits of these confidentiality areas, communication may only take place in both directions according to the need-to-know principle.
- 5.3 Other theoretically feasible, information-based personal conflicts of interest among employees of the Research and Economics Division and persons closely associated with them are avoided in particular by the measures explained in sub-paragraph 5.2 and the other measures described in the policy.
- 5.4 The remuneration of employees of the Research and Economics Division depends neither in whole nor in the variable part directly or materially on the earnings from investment banking, trade in financial instruments, other securities related services and / or trade in commodities, merchandise, currencies and / or on indices of DZ BANK or the companies of the DZ BANK Group.
- 5.5 DZ BANK and companies of the DZ BANK Group issue financial instruments for trading, hedging and other investment purposes which, as underlying instruments, may refer to financial instruments, commodities, merchandise, currencies, benchmarks, indices and / or other financial ratios also covered by DZ BANK Research. Respective conflicts of interest are primarily avoided in the Research and Economics Division by means of the aforementioned organizational measures.

6. Recipients and Sources of Information

6.1 Recipients

Other Research Information of DZ BANK is directed at eligible counterparties as well as professional clients. They are therefore not suitable for dissemination to retail clients unless (i) an Other research Information has been explicitly labelled by DZ BANK as suitable for retail clients or (ii) is disseminated by an investment firm properly authorized in the European Economic Area (EEA) or Swiss to retail clients, who evidently have the necessary knowledge and sufficient experience in order to understand and evaluate the relevant risks of the relevant Other Research Information.

Other Research Information is authorized for dissemination by DZ BANK to the aforementioned recipients in in Member States of the European Economic Area and Switzerland.

It is neither allowed to provide Other Research Information to customers in the United States of America (USA) nor to conclude corresponding transactions with them.

The dissemination of Other Research Information in the Republic of Singapore is in any case restricted to DZ BANK AG Singapore Branch.

6.2 Main Sources of Information

For the preparation of its Research Publications, DZ BANK uses only information sources which it considers itself to be reliable. However, it is not feasible to make own checks of all the facts and other information taken from these sources in every case. If in a specific case, however, DZ BANK has doubts over the reliability of a source or the correctness of facts and other information, it shall make specific reference to this in the Research Publication.

The main sources of information for Research Publications are:

Information and data services (e.g. Reuters, Bloomberg, VWD, FactSet, Markit), licensed rating agencies (e.g. Standard & Poors, Moody's, Fitch, DBRS), specialist publications of the sectors, the business press, the competent supervisory authorities, information of the issuers (e.g. annual reports, securities prospectuses, ad-hoc disclosures, press and analyst conferences and other publications) as well as its own specialist, micro and macro-economic research, examinations and evaluations.

III. Disclaimer

1. This document is directed at eligible counterparties and professional clients. Therefore, it is not suitable for retail clients unless (a) it has been explicitly labelled as appropriate for retail clients or (b) is properly disseminated by an investment firm authorized in the European Economic Area (EEA) or Switzerland to retail clients, who evidently have the necessary knowledge and sufficient experience in order to understand and evaluate the relevant risks of the relevant evaluation and / or recommendations.

It was prepared by DZ BANK AG Deutsche Zentral-Genossenschaftsbank, Frankfurt am Main, Germany (,DZ BANK') and has been approved by DZ BANK only for dissemination to the aforementioned recipients in Member States of the EEA and Switzerland.

If this document is expressly marked as 'Financial Analysis' in sub-section 1.1 of the Mandatory Disclosures, its distribution to recipients is subject to the section International Restrictions of Use and these additional rules:

This document may only be brought into the Republic of Singapore by DZ BANK via the DZ BANK Singapore Branch, but not by other persons, and may only be disseminated there to ,accredited investors' and / or ,expert investors' 'and used by them.

This document may only be brought into the United States of America (USA) by DZ BANK and via Auerbach Grayson, but not by other persons, and may only be disseminated there to ,major U.S. institutional investors' and used by them, if it solely comprises equity research. DZ BANK is neither allowed to bring documents on debt instruments into the USA nor to conclude transactions in debt instruments.

If this document is expressly marked as 'Other Research Information' in sub-section 1.1 of the Mandatory Disclosures, its dissemination to recipients is subject to these additional rules:

It is neither allowed to provide Other Research Information to customers in the United States of America (USA) nor to conclude corresponding transactions with them

The dissemination of Other Research Information in the Republic of Singapore is in any case restricted to DZ BANK AG Singapore Branch.

In all before named countries, this document may only be distributed in accordance with the respective applicable laws and rules, and persons obtaining possession of this document should inform themselves about and observe such laws and rules.

- 2. This document is being handed over solely for information purposes and may not be reproduced, redistributed to other persons or be otherwise published in whole or in part. All copyrights and user rights to this document, also with regard to electronic and online media, remain with DZ BANK. Whilst DZ BANK may provide hyperlinks to web sites of companies mentioned in this document, the inclusion of a link does not imply that DZ BANK endorses, recommends or guarantees any data on the linked page or accessible therefrom. DZ BANK accepts no responsibility whatsoever for any such links or data, nor for the consequences of its use.
- 3. This document is not to be construed as and does not constitute an offer, or an invitation to make an offer, to buy securities, other financial instruments or other investment objects.
 - Estimates, especially forecasts, fair value and / or price expectations made for the investment objects analyzed in this document may prove incorrect. This may occur especially as a result of unpredictable risk factors.
 - Such risk factors are in particular, but not exclusively: market volatility, sector volatility, measures undertaken by the issuer or owner, the general state of the economy, the non-realisability of earnings and / or sales targets, the non-availability of complete and / or precise information and / or later occurrence of another event that could lastingly affect the underlying assumptions or other forecasts on which DZ BANK relies.
 - The estimates made should always be considered and evaluated in connection with all previously published relevant documents and developments relating to the investment object and to the relevant sectors and, in particular, capital and financial markets.
 - DZ BANK is under no obligation to update this document. Investors must inform themselves about the current development of business as well as of any changes in the business development of the companies.
 - During the validity period of an investment recommendation, DZ BANK is entitled to publish a further or other analysis based on other, factually-warranted or even missing criteria on the investment object.
- 4. DZ BANK has obtained the information on which this document is based from sources believed to be essentially reliable, but has not verified all of such information. Consequently, DZ BANK does not make or provide any representations or warranties regarding the preciseness, completeness or accuracy of the information or the opinions contained in this document.
 - Neither DZ BANK nor its affiliated companies accept any liability for disadvantages or losses incurred as a result of the distribution and / or use of this document and / or which are connected with the use of this document.
- 5. DZ BANK and its affiliated companies are entitled to maintain investment banking and business relationships with the company or companies that are the subject of the analysis contained in this document. Within the limits of applicable supervisory law, DZ BANK's research analysts also provide information regarding securities-related services and ancillary securities-related services.
 - Investors should assume that (a) DZ BANK and its affiliated companies are or will be entitled to engage in investment banking operations, security operations or other business transactions from or with the companies that are the subject of the analysis contained in this document, and that (b) analysts involved in the preparation of this document can generally be indirectly involved in the conclusion of such business transactions to the extent permitted by supervisory law.
 - DZ BANK and its affiliated companies and their employees may have positions in securities of the analyzed companies or investment objects or effect transactions with these securities or investment objects.

- 6. The information and recommendations of DZ BANK contained in this document do not constitute any individual investment advice and, depending on the specific investment targets, the investment horizon or the individual financial situation, may therefore be unsuitable or only partially suitable for certain investors. In preparing this document DZ BANK has not and does not act in the capacity of an investment advisor to, or asset manager for, any person
 - The recommendations and opinions contained in this document constitute the best judgment of DZ BANK's research analysts at the date and time of preparation of this document and are subject to change without notice as a result of future events or developments. This document constitutes an independent appraisal of the relevant issuer or investment objects by DZ BANK; all evaluations, opinions or explanations contained herein are those of the author of this document and do not necessarily correspond with those of the issuer or third parties.
 - Any decision to effect an investment in securities, other financial instruments, commodities, merchandise or other investment objects should not be made on the basis of this document, but on the basis of independent investment analyses and methods as well as other analyses, including but not limited to information memoranda, sales or other prospectuses. This document can be no replacement for individual investment advice.
- 7. By using this document, in any form or manner whatsoever, or referring to it in your considerations and / or decisions, you accept the restrictions, specifications and regulations contained in this document as being exclusively and legally binding for you.

Additional Information of Markit Indices Limited

Neither Markit, its affiliates or any third party data provider makes any warranty, express or implied, as to the accuracy, completeness or timeliness of the data contained herewith nor as to the results to be obtained by recipients of the data. Neither Markit, its affiliates nor any data provider shall in any way be liable to any recipient of the data for any inaccuracies, errors or omissions in the Markit data, regardless of cause, or for any damages (whether direct or indirect) resulting therefrom.

Markit has no obligation to update, modify or amend the data or to otherwise notify a recipient thereof in the event that any matter stated herein changes or subsequently becomes inaccurate.

Without limiting the foregoing, Markit, its affiliates, or any third party data provider shall have no liability whatsoever to you, whether in contract (including under an indemnity), in tort (including negligence), under a warranty, under statute or otherwise, in respect of any loss or damage suffered by you as a result of or in connection with any opinions, recommendations, forecasts, judgments, or any other conclusions, or any course of action determined, by you or any third party, whether or not based on the content, information or materials contained herein.

Copyright © 2016, Markit Indices Limited.

DZ HYP LOCATIONS

Hamburg Head Office

Rosenstrasse 2 20095 Hamburg, Germany PO Box 10 14 46 20009 Hamburg, Germany +49 40 3334-0 info@dzhyp.de

Berlin Office

Pariser Platz 3 10117 Berlin, Germany

Dusseldorf Office

Ludwig-Erhard-Allee 20 40227 Dusseldorf, Germany

Frankfurt Office

CITY-HAUS I, Platz der Republik 6 60325 Frankfurt/Main, Germany

Münster Head Office

Sentmaringer Weg 1 48151 Münster, Germany Mailing address: 48136 Münster, Germany +49 251 4905-0 info@dzhyp.de

Hanover Office

Berliner Allee 5 30175 Hanover, Germany

Kassel Office

Mauerstrasse 11 34117 Kassel, Germany

Leipzig Office

Richard-Wagner-Strasse 9 04109 Leipzig, Germany

Munich Office

Türkenstrasse 16 80333 Munich, Germany

Nuremberg Office

Am Tullnaupark 4 90402 Nuremberg, Germany

Stuttgart Office

Heilbronner Strasse 41 70191 Stuttgart, Germany



An overview of DZ HYP's market reports to date is available here.

DZ HYP AG

20095 Hamburg Germany

Rosenstrasse 2 Sentmaringer Weg 1 48151 Münster Germany

Phone +49 40 3334-0 Phone +49 251 4905-0

dzhyp.de