PRIMONIAL
REIM GERMANY

# GERMAN OFFICE REPORT

In search of next core –
the case for a smart approach of the
German office market

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# EXECUTIVE SUMMARY

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## Diversification due to polycentric structure

The German office market is polycentric in structure and therefore offers broad regional and sectoral diversification opportunities without investors having to accept compromises in terms of location and building quality.

## Secondary cities with lower volatility

With a transaction volume of over 80%, investor interest is clearly focused on Germany's top 7 cities. These are generally characterized by higher volatility in terms of yields, rental development and vacancy rates. As a portfolio addition, investments in attractive secondary cities can therefore provide a reduction in risk, particularly in recessionary phases.

## Positive outlook for the German office market

Despite a challenging macro environment and home office debates, demand for office space is expected to remain high. This will focus more on centrally located buildings with lower CO2 emissions and active asset management.

## ESG-Focus on existing buildings

With new construction rates of 0.5% for office buildings, the climate targets in the building sector can only be achieved for quantitative reasons alone through significant CO2 savings measures in the existing stock. In addition, optimizing existing buildings is significantly more sustainable than new buildings, as less embodied carbon is produced.

## ESG-Strategy – Smart Decarbonisation

For core/ core plus investors, the focus should be on cost-efficient measures that promise the highest CO2 savings per euro invested. Typical measures: Heating optimization, installation of smart metering systems, electrification of the heating system and installation of photovoltaic systems.

# MACROECONOMIC ENVIRONMENT

## KEY FIGURES

**CONSTRUCTION INTEREST RATE 2022 (10-Y-FIXED)**

+3.8%

**INFLATION 2022**

+7.9%

**Yield 10-y-government bond**

+2.5%

Source: Bundesbank, interhyp

### Inflation and construction interest rates

The macroeconomic environment could hardly be more challenging at present. The war in Ukraine has now been going on for a year and the inflation rate has also risen to around 8% in 2022, the highest level in over 40 years. Added to this are concerns about a recession. The banking industry has responded to the changed conditions with a significant increase in construction interest rates. Construction interest rates for residential loans with ten-year fixed interest rates are now almost 4%. Institutional office investors also currently have to reckon with high borrowing rates of between 3.5% and 4.5%.

The days when low interest rates on borrowed capital could be used to leverage low real estate yields are thus a thing of the past for the time being. Due to rapidly changing financing conditions and the associated difficulties in pricing, market players are currently remaining cautious.

### Risk premium melts

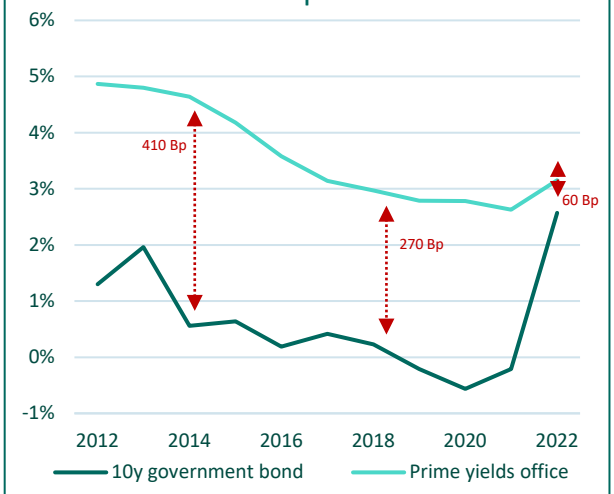
The so-called risk premium is of great importance for assessing the advantageousness of real estate investments. This is understood as the spread between (virtually) risk-free investments (top-rated government bonds) and the prime yields for real estate investments. This spread has narrowed significantly since the beginning of 2022 and is currently only around 60 basis points. In recent years, the risk premium for core office properties has remained at a relatively constant level of between 270 and 410 basis points despite significant yield compression.

Even though the macroeconomic environment is currently challenging for real estate investors, it can be assumed that office properties will experience stable high demand in the coming years - also against the backdrop of high inflation rates. However, total returns are initially expected to be driven more by higher rental cash flows and less by value growth. As soon as prices have fallen in line with the new interest rate environment, the transaction market will pick up again. Investors who were able to buy at the newly adjusted price level during this phase can again expect value growth in subsequent years.

## Inflation & construction interest rates


Source: Bundesbank, destatis; Basisjahr 2015

## Yield spread




Source: Bundesbank, Oxford Economics, Riwis

# CITY CLASSIFICATION IN GERMANY

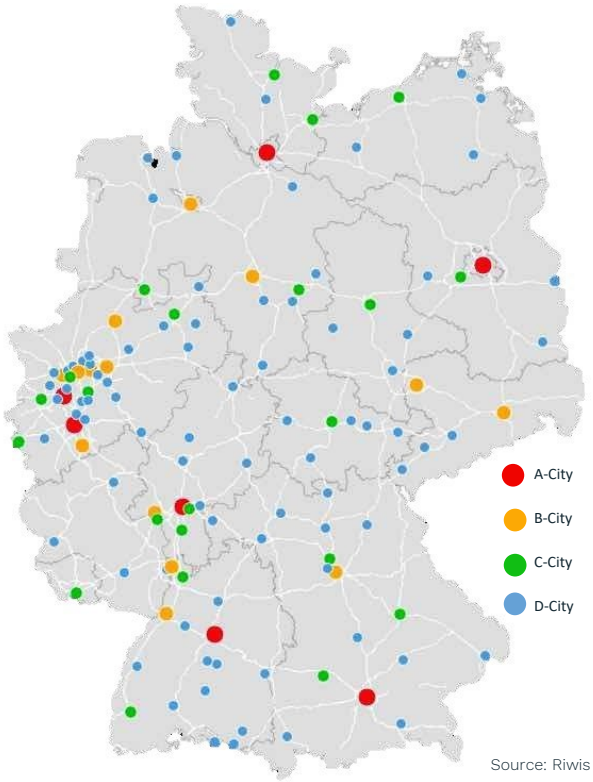
## Polycentric structure

Unlike many other European countries, Germany is known for its decentralized structure with many different regional economic centers, each with its own special features. This structure is also reflected in the real estate market in Germany.

## General city classification

The most common classification into A, B, C and D cities is based on the functional importance of cities for the international, national and regional real estate market. Originally, this categorization was developed for classifying office markets on the basis of functional spatial linkages and annual office space turnover and volume. For many years, however, the categorization has been used just as frequently for clustering office and residential markets. There are seven A-cities in Germany: Berlin, Düsseldorf, Frankfurt, Hamburg, Cologne, Munich and Stuttgart. The seven cities mentioned are the most important centers in Germany with national and, in some cases, international significance and are characterized by large, well-functioning markets in all segments. B-cities are characterized as major cities with national and regional importance. There are 14 B-cities: Bochum, Bonn, Bremen, Dortmund, Dresden, Duisburg, Essen, Hanover, Karlsruhe, Leipzig, Mannheim, Münster, Nuremberg. C-cities are major German cities with regional and limited national importance, but which have an important impact on the surrounding region. 22 cities are categorized as C-cities. The 82 D-cities are regionally oriented places with a central role for their immediate surroundings. In total, there are 125 relevant real estate (office) markets that can be classified as A, B, C or D locations.

Overview city categories




# OFFICE - A CYCLICAL ASSET CLASS?

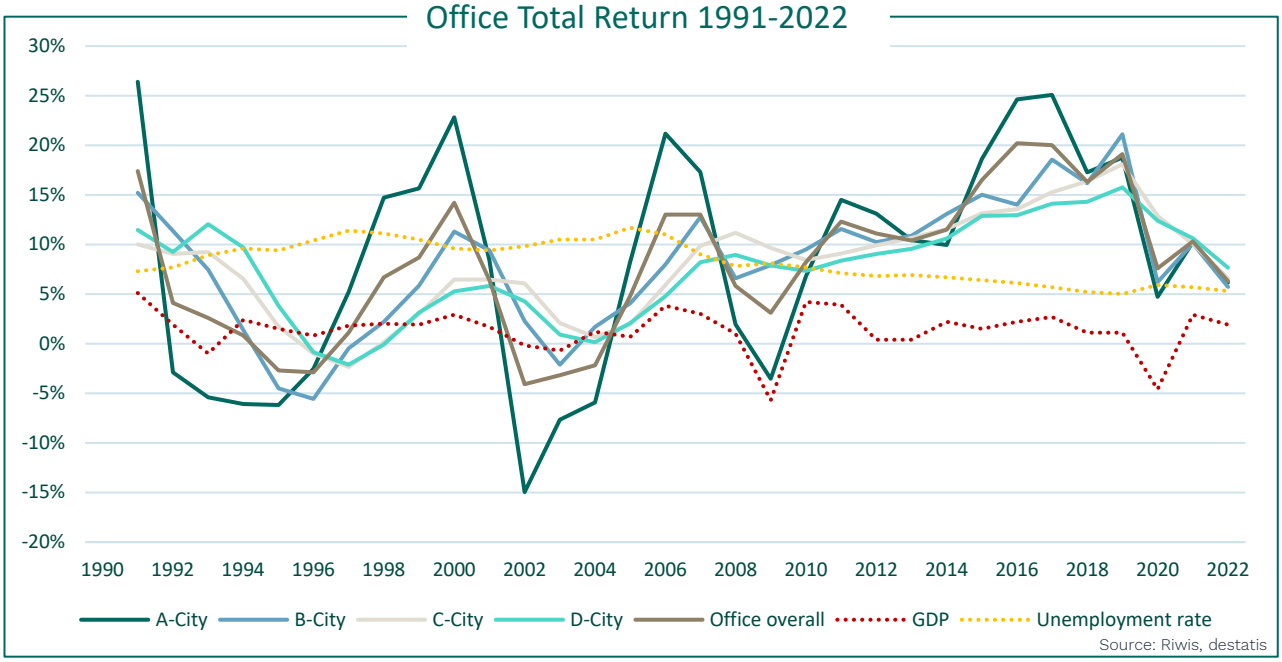
It is generally acknowledged that office markets are comparatively sensitive to economic cycles and that demand for office space is correspondingly strongly influenced by the overall economic situation and especially job creation. At the same time, as is the case for the real estate market as a whole, adjustments take place with a time lag and an economic downturn can rarely be read off directly from real estate fundamentals. Rather, these are "creeping" processes that often first make themselves felt in the form of reduced sales speeds both in leasing and in the transaction business. Even though 2022 closed with slightly positive economic growth and forecasts for the current year are cautiously optimistic, concerns about a recession have not disappeared. But what would a recession mean for the German office property market?

To find out, it is worth taking a look at the past. The longest period for which valid and methodically usable real estate market data are available in Germany is around 30 years. A comparison of the German Property Index data in terms of total return per year versus economic growth and the unemployment rate basically confirms a correlation between economic fundamentals and office market returns. Looking at the different performance per city category (ABCD), it can be seen that A-cities are characterized by significantly higher volatility. This is due to a higher proportion of speculative construction activity in boom phases. This often leads to oversupply at the end of the respective cycle and thus to sharply falling prices in crash or recession phases. On average, the smaller office markets are less susceptible to crises, although this says nothing about the vulnerability of individual cities and a precise analysis of the respective markets is required.

| Correlation analysis | GDP | Unemployment rate |
|---|---|---|
| A-city total return | 0.49 | -0.36 |
| B-city total return | 0.25 | -0.71 |
| C-city total return | -0.05 | -0.87 |
| D-city total return | -0.01 | -0.87 |
| Office market total return | 0.38 | -0.62 |

A simple correlation analysis with regard to the total return per city category and economic growth (GDP) as well as the unemployment rate provides some findings that are surprising at first glance. There is a positive correlation between economic growth and total return of the A-cities as well as the overall office market. Since the total office market performance is determined on the basis of the sum of the capital growth and cash flow return and the price level in the A-cities is significantly higher than in the other markets, the values for the total market are strongly oriented to the value of the A-cities. It is noticeable, however, that office market returns in A-cities correlate less strongly with the unemployment rate than in B-, C- and D-cities. It can be assumed that industry- and user-specific differences are decisive. For example, some smaller C and D cities are more dependent on individual larger (industrial) companies that have to cut jobs during recession phases.

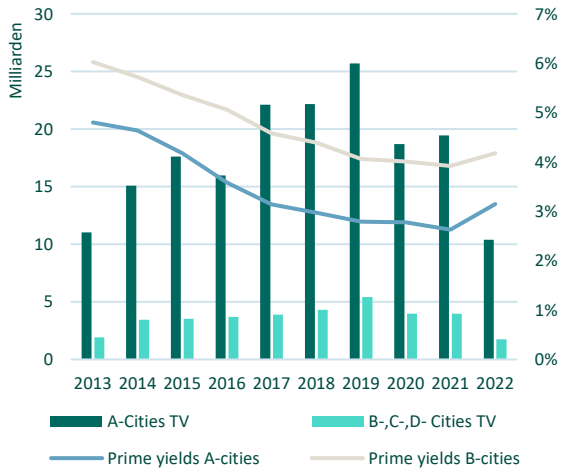
Overall, it should be noted that although office properties are to some extent cyclical, in many years they have been able to generate adequate returns irrespective of economic fluctuations. Locations outside the top 7 cities are less volatile and can make a positive contribution to risk diversification in a broadly invested office property portfolio.



# TOP-7 IN INVESTORS' FOCUS

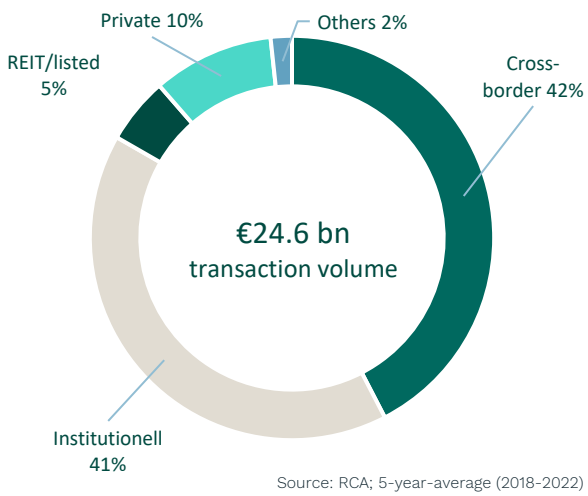
The polycentric structure of the German real estate market is also reflected in the key fundamental indicators. Office properties are considered the most important asset classes for institutional investors. This is evidenced by a look at the transaction volumes of recent years: office investments account for around 37% of the total transaction volume on a 10-year average. Even though residential investments have become increasingly important, office has always been able to defend its top position - with one exception in 2021 due to the takeover of Deutsche Wohnen by Vonovia. Looking at the distribution of transaction volumes by city category, it is clear that investor interest is very clearly concentrated in the top 7 cities in Germany. The long-term average since 2013 is 83% for A-cities and 17% for B-, C-, and D-cities. In Berlin, a 10-year average of around EUR 4 billion was invested per year. This corresponds to a share of around 18% of the total office transaction volume. The German capital thus occupies a prominent position in the German real estate investment market, although the share is significantly lower compared with more centrally organized European countries such as France or the UK.

## Transaction volume and yields




Source: RCA & Riwis

## Buyers composition office



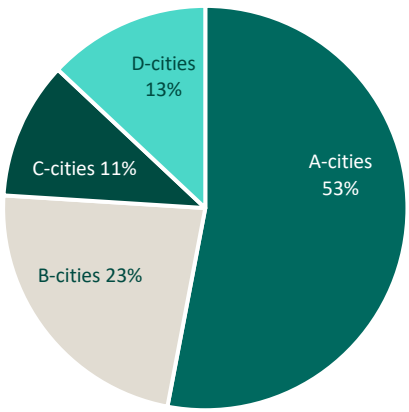

Source: RCA; 5-year-average (2018-2022)

Although transaction activity is concentrated in the A-cities, the smaller German office markets are also very important in terms of office take-up. For example, the share of office take-up in B, C and D cities is around 45%. Lot sizes outside the top seven are generally smaller and many investors, especially foreign investors, are reluctant to look at smaller cities, even though a large proportion of B and C cities have stable office take-up, high liquidity and lower volatility in terms of vacancy and rental development.

Both in the top 7 cities and in the secondary markets, a significant yield compression was observed by the end of 2021. At the end of 2021, prime yields in the A cities were around 2.6% and in the B cities 3.9%. As a result of the significant change in economic conditions and in particular the rise in interest rates, prime yields rose again significantly last year. In the A cities by around 50 basis points and in the B cities by around 30 basis points.

Over the past five years, an average of around EUR 24.6 billion has been invested annually in German office properties. Almost 50% of the capital invested came from abroad. This demonstrates Germany's good image as a safe investment haven. In general, office investment is strongly dominated by institutional players, who together account for 90% of the total investment volume.

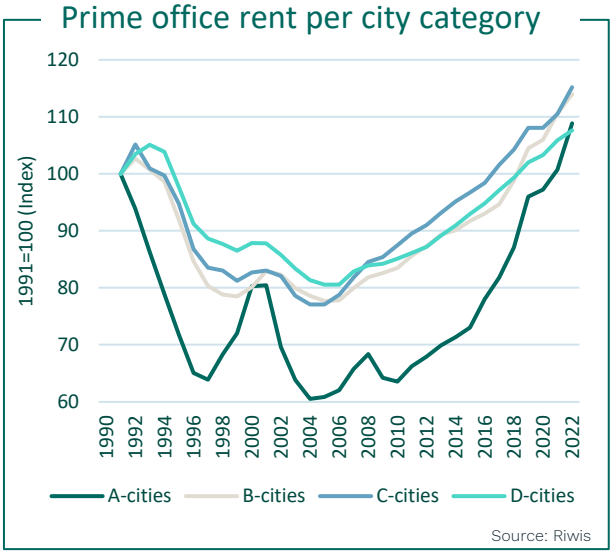
## Proportion office take-up

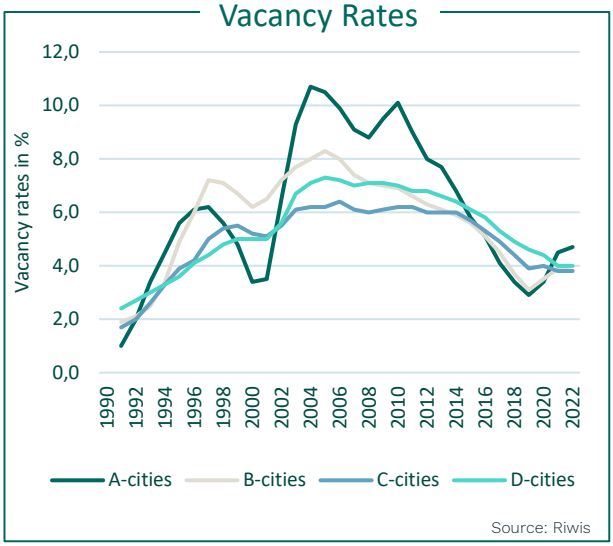



Source: Riwis; 5-year-average (2018-2022)

# LESS VOLATILITY IN SECONDARY CITIES

Top office rents have developed very positively over the past ten years. The A-cities in particular have seen significant rental growth of around 60% in the last decade. But even in the smaller cities, aggregate rent increases of between 20% (D cities) and 30% (B and C cities) have been achieved since 2012. Looking at the development over the past 30 years by city category, it is clear that prime rents in A-cities were subject to significantly greater fluctuations than those in smaller markets. The significantly higher volatility of rents in A-cities can also be observed to a comparable extent when looking at average rents - not shown here. Overall, the German top 7 cities are exposed to higher fluctuation margins in terms of rental development, although property-specific rental development can be positively influenced by active asset and tenant management, thus reducing the risk of revenue declines - even in recessionary phases.




Looking at the development of vacancy rates, a very positive trend can be seen in the last ten years up to the start of the Corona pandemic. From 2020 onwards, slightly rising vacancy rates can be observed, particularly in the A-cities. This is attributable to a high level of construction activity and increased reluctance on the part of companies to lease new office space. Particularly decentrally located space has been affected by rising vacancy rates over the past three years. In a long-term comparison, A-cities are characterized by a comparatively volatile vacancy trend. Secondary cities were affected by less pronounced fluctuations in vacancy rates. The share of speculative construction activity is generally much lower here. In addition, public administration plays an important role in office demand, especially in many state capitals. The public sector not only concludes longer-term leases, but is also a very cyclically independent sector.

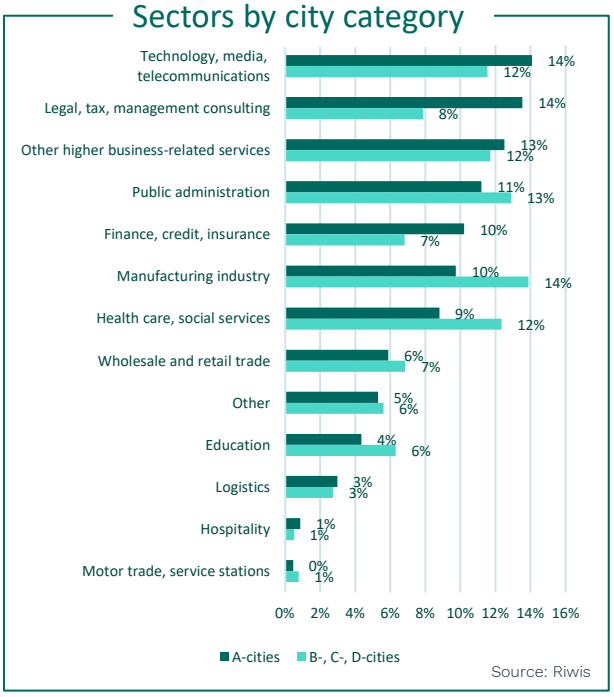
As an indicator of the past and future development of an office location, office employment development is a key performance indicator. Looking at the "top 5 cities" in terms of office employment since 2012, we find some unexpected cities in front positions. Apart from Berlin and Munich, smaller cities such as Gütersloh, Tübingen and Fürth are surprising. Smaller markets in particular often benefit greatly from individual company relocations or expansions, which have a positive impact on employment figures. At the lower end of the office employment trend, on the other hand, are five cities from structurally weak regions in eastern German states. Even though some large eastern German cities, such as Dresden (+9% office employees), Leipzig (+18%), Jena (+11%), have developed extremely dynamically, economically weak regions in eastern Germany have not been able to benefit from the boom of recent years.

| Top-5 -Cities office employment growth Δ 2012-2021 | | |
|---|---|---|
| 1 | Berlin | +26,5% |
| 2 | Gütersloh | +22,2% |
| 3 | Tübingen | +21,4% |
| 4 | Fürth | +19,0% |
| 5 | München | +18,9% |

Source: Riwis

# TENANT DIVERSIFICATION MADE IN GERMANY

From an investor's point of view, the issue of risk allocation always plays an important role. Institutional investors generally seek to spread their risk through diversification, both across different asset classes and within the same asset class. Investments in German office properties that are not concentrated in individual cities offer a very high degree of regional and sector diversification. Looking at the share of office employees by sector, a very heterogeneous picture emerges for A-cities as well as for B-, C- and D-cities. The largest sectors within the top 7 cities are technology, media and telecommunications and legal, tax and management consulting (14% each) followed by other higher business-related services (13%). In the smaller cities, a higher proportion of office workers are in manufacturing (14%) and public administration (13% compared to 11% in the A cities). Overall, the sector analysis shows the heterogeneity of the German office market both within the A-cities with different economic focuses and in comparison between A-cities and secondary cities. Unlike other European cities, office transaction activity is also not concentrated in the German capital. In addition to Berlin, six other cities offer high market liquidity and dynamics This special structure of the German office market enables investors to invest in a broadly diversified manner without having to make compromises in terms of location or building quality.



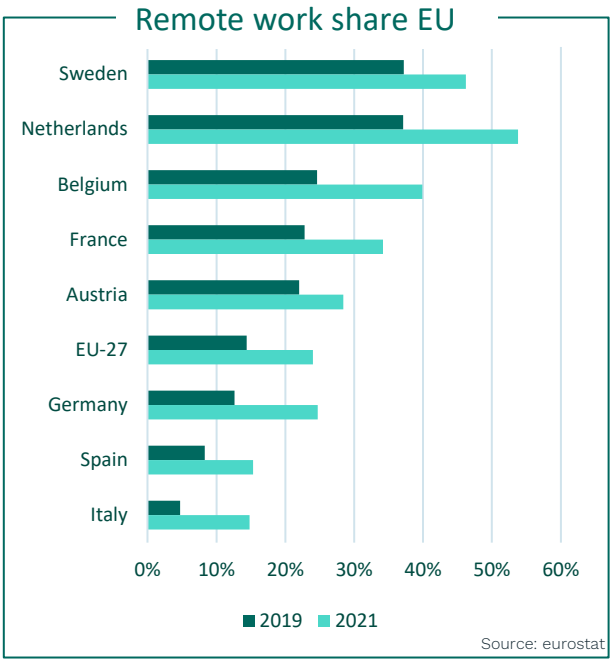

# REMOTE WORK – A EUROPEAN COMPARISON

## Remote work – here to stay

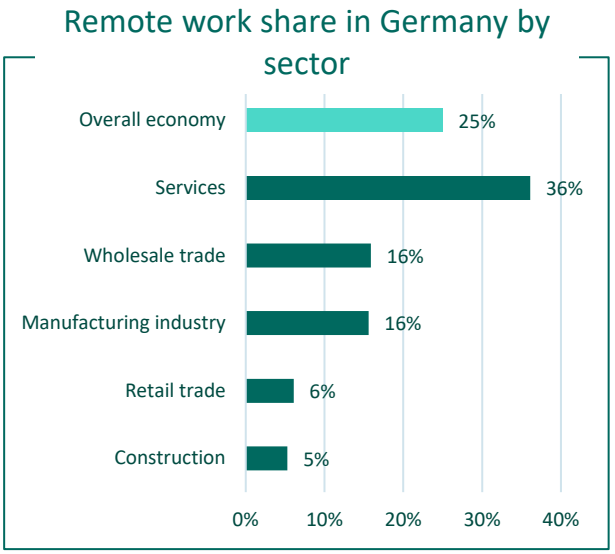
The home office has come to stay. Most market participants agree on this point. However, there is less agreement on the question of the extent to which work will be done from home in the future and how the demand for office space will develop as a result. First of all, it is worth taking a look at other European countries to better understand the intensity with which the topic of home office has been discussed in Germany in recent years. In the adjacent graph, it can be seen that home office did not play a major role in Germany in a European comparison before the Corona pandemic. Only a small proportion of employees (13%) occasionally or sometimes worked from home. In other countries, such as Sweden or the Netherlands, it was much more common to work remotely. It can therefore be concluded that the changing work habits in Germany triggered by the pandemic bring a higher disruptive potential in terms of the office market.

## The future is hybrid

Intuitively, one would like to contradict the above headline, as the pandemic years have taught us in many areas, whether at trade fairs, lectures or events, that hybrid concepts bring more difficulties than advantages. In terms of office work, however, the last three years have shown that the present of office work has indeed become hybrid. In the meantime, according to a survey by the Ifo Institute, around a quarter of employees work at least partly from home. Depending on the sector, the proportions vary greatly. The highest shares are in the service sector and the lowest home office shares in construction. A closer look at the service sector reveals even greater differences: for example, more than 70% of employees in management consultancies and information technology services work partly from home. Within the service sector, home office is least common, as expected, in catering (2.3%) and accommodation (2.4%).




Note: Proportion of employees who sometimes or frequently work from home in European comparison.




Source: ifo Konjunkturumfragen, November 2022

# REMOTE WORK – EVOLUTION, NOT DISRUPTION

## Impact on office space demand

Estimates of the medium-term impact of home office on office space demand have already been made in a number of scientific studies.* One of the key aspects here is path dependency. Once companies have decided to downsize, upsize or maintain the status quo, this decision is usually made for several years on the basis of the lease agreement. In principle, it can be assumed that the shift in demand towards flexible and also centrally located properties will continue. In particular, larger companies wishing to implement desk-sharing concepts will require appropriately designed space for this purpose. An across-the-board decline in demand for office space is not to be expected. Rather, a shift in demand could lead to a polarization of vacancy rates and rental trends. In other words, high demand, falling vacancy rates and rising rents in central locations and for space adapted to user needs, and the opposite effects for decentralized locations.

It must also be taken into account that, especially in the current economic situation, which is characterized by uncertainty, companies are less "willing" to relocate than they were a few years ago. Even if companies discover that they have currently rented too much space against the backdrop of higher home office shares, many companies will not necessarily want to change their location. Especially since the high demand for modern, centrally located office space has led to significant rent increases and thus a reduction in space does not necessarily mean lower rental costs. Therefore, when companies decide not to relocate, the desire to remodel existing office space will be paramount. Energy aspects of the premises will also play an important role for office tenants in order to reduce energy costs.

## High tenant requirements in the future

The topic of home offices will continue to dominate public discussions on the subject of offices. However, after more than three years of the pandemic, it can be stated that the great disruption on the German office real estate market has failed to materialize. It can therefore be considered extremely unlikely that we will see a collapse in demand due to remote working in the next few years. In economically challenging times with high inflation and the threat of recession, a temporary rise in unemployment cannot be ruled out either. Should the labor market turn around, employers could once again determine the terms and conditions to a greater extent in the future and thus also enforce the desired distribution of home office and office presence, for example. On the other hand, there is a persistent shortage of skilled workers, which will be exacerbated by demographic trends and will continue to make it difficult for some employers to find qualified personnel.

Regardless of the balance of power between employers and employees, it can be assumed that user requirements will increase in the future. This concerns both the demand for space concepts adapted to the user, but also issues of energy efficiency, which are of increasing importance in view of the high energy prices. (Asset) management that is geared to the specific needs of the tenant and at the same time provides smart solutions for saving energy will therefore be of great importance to real estate investors in the coming years.

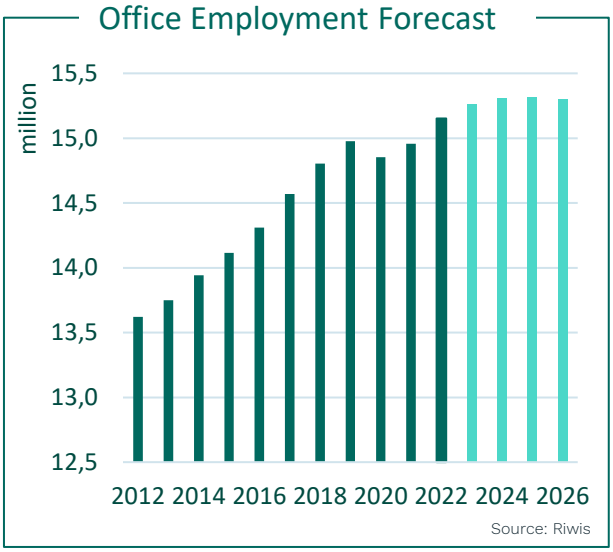
*Source: IREBS Standpunkt Nr. 109

# OUTLOOK

## Positive office employment forecast

The increasingly challenging economic environment will also have an impact on the office sector. High energy costs, increased interest rates and problems with global supply chains are putting a strain on Germany as a business location. Nevertheless, office employment is still expected to develop positively. According to bulwiengesa forecasts, office employment is expected to increase moderately by around 2.5% by 2026. There are also positive forecasts with regard to the development of prime rents for office space. For example, bulwiengesa expects prime rents in Germany's largest cities to increase by 4.4% by 2026.

Investors are currently showing great restraint. This is reflected in the lowest office transaction volumes since the financial crisis. At the same time, the office rental markets continue to be characterized by high stability. There have also been increases in average and prime rents in the A-cities. There is therefore currently no reason for a swan song for the office market. However, in view of higher borrowing rates and greater uncertainty, further price corrections are to be expected. In addition, it is safe to say that user requirements will increase - also against the backdrop of more flexible working models - and that active asset management geared to tenants' needs will become the key to success more than ever. The same applies to the key challenges of decarbonization in the building sector. Close cooperation between investor, building owner or asset manager, and tenant will play a key role in successfully implementing targeted and cost-effective CO2 reduction measures.




**OFFICE EMPLOYMENT FORECAST UNTIL 2026 (TOTAL)**

+2.5%

**OFFICE PRIME RENT FORECAST UNTIL 2026 (TOTAL)**

+4.4%

Source: Riwis

# ESG - WHY NEW BUILDINGS ARE NOT THE SOLUTION

## 63% of office buildings built before 1979

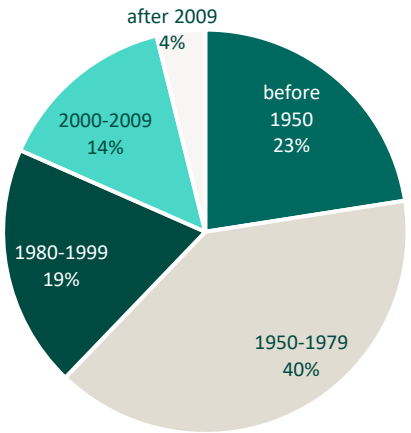
Unlike for residential buildings, there are no official figures on the total stock of non-residential buildings in Germany, so estimates are made with the help of representative samples, a geodata analysis and screening. According to this, there are currently around 388,000 office buildings in Germany with approximately 387 million square meters of office space (MFG). Based on this scientific methodology, it was also possible to make estimates of the building age classes of office buildings. The results clearly show that the majority of office space stock (around 63%) is in buildings constructed before 1979. In addition to pre-war buildings, of which it can be assumed that a certain proportion is particularly worthy of protection (listed buildings), a large proportion of the office space stock (40%) was built between 1950 and 1979. The proportion of newer buildings (built in 2010 and later) is around 4%. New construction activity has been around 0.5% over the past decade. It is not expected that new construction activity will increase noticeably in the coming years against the backdrop of significantly higher construction costs. The majority of current and future office users will therefore continue to be housed in existing office buildings. The major challenge for asset managers is therefore, on the one hand, to meet the higher user-specific space requirements and, at the same time, to noticeably reduce CO2 emissions in the building sector.

## High proportion of oil and gas heating systems

If we look at the energy performance indicators by building age class, we see clear differences in energy demand. Since the energy demand is essentially based on the actual energy status of the building and includes assumptions specific to the building type, it is not surprising that post-war buildings have the highest energy demand. There are fewer differences when comparing the energy consumption parameters. Here, individual consumption behavior plays a greater role. In addition, there may be inaccuracies in the recording, e.g., due to vacancies or unused space.

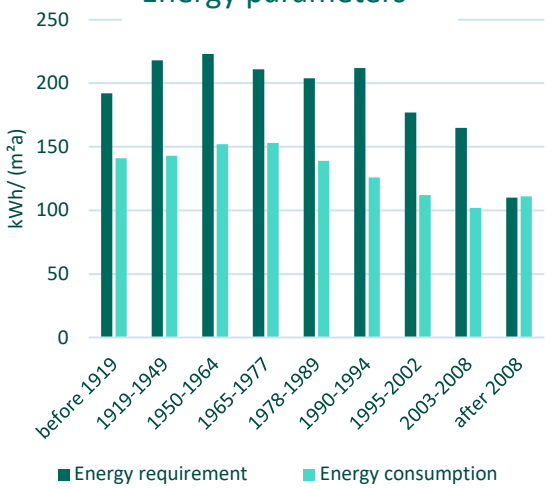
According to estimates by dena (German Energy Agency), the energy sources used in office buildings are predominantly heating oil/natural gas, at around 70 %. 15% of the buildings are supplied with district heating. Electricity has a share of around 5%. Ventilation and air conditioning account for around 30% of the total energy (excluding electricity) used in buildings. Even though this is a rough estimate, the values illustrate how large the share of office buildings with fossil heat supply is in Germany. Assuming that we will succeed in successively decarbonizing the electricity mix, the focus is on electrifying the heat supply in order to achieve the 1.5-degree climate targets.

Construction years office buildings




Source: dataNWG 2021

Energy parameters




Source: dena 2017

| Energy shares office buildings | | | | | |
|---|---|---|---|---|---|
| Space heating | | | | Ventilation without AC | AC |
| 70 % | | | | 20 % | 10 % |
| *Oil/Gas* | *District heating* | *Elec-tricty* | *Others* | | |
| *70 %* | *15 %* | *5 %* | *10 %* | | |

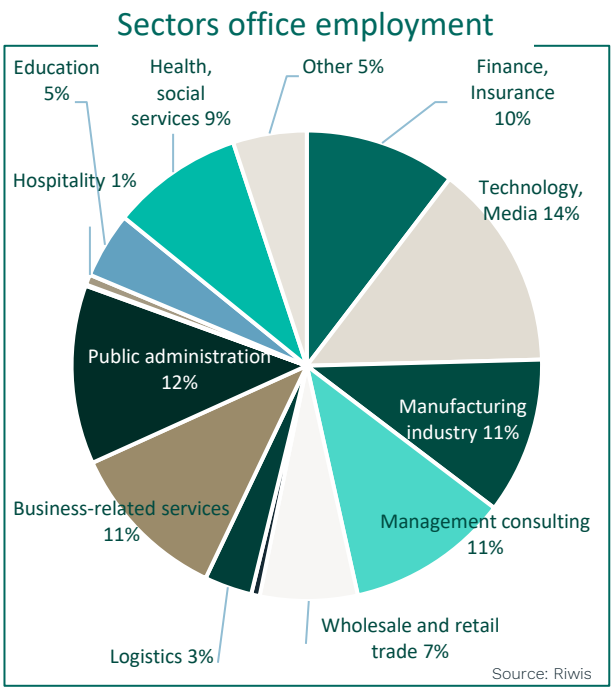
Source / note: dena 2017; Space heating without hot water

# CASE STUDY

## Focus on Top7 and emerging secondary cities

Primonial REIM bases its strategic investment decisions on data-driven research and years of experience as a successful European fund and asset manager.
The preceding analyses have shown that the German office market offers opportunities despite a challenging macroeconomic environment. Unlike in previous years, economic success for real estate investors is no longer "automatically" driven by an emerging overall market. Rather, a detailed analysis of the markets and a close look at the macro and micro situation of each individual property is necessary. In addition, active asset management is required, which takes into account the specific user needs and at the same time places a focus on key sustainability aspects (ESG).

Primonial REIM has designed an investment product for this purpose that addresses the greatest current challenges against the backdrop of the Paris climate goals and implements them in a "hands-on approach".
In terms of geographic allocation, the investment focus is on the top 7 cities. In addition, prospering secondary cities (see list) were identified, which are located in attractive metropolitan regions and have experienced positive office employment development and high market dynamics in recent years. Prime yields in the selected cities ranged from 3.1% to 4.8%, meaning that attractive distributions can be generated for the potential overall portfolio despite significant yield compression.




| City | Typ | Prime yield 2021 | Office employment Δ 2012-2021 | Vacancy rate |
|---|---|---|---|---|
| Berlin | A | 3.1% | +26% | 3.7% |
| Düsseldorf | A | 3.4% | +9% | 7.9% |
| Frankfurt/M | A | 3.2% | +6% | 8.0% |
| Hamburg | A | 3.1% | +11% | 3.8% |
| Köln | A | 3.3% | +13% | 2.9% |
| München | A | 3.1% | +9% | 4.3% |
| Stuttgart | A | 3.3% | +14% | 4.3% |
| Bonn | SC | 3.7% | +19% | 2.5% |
| Bremen | SC | 4.8% | +12% | 5.1% |
| Darmstadt | SC | 4.1% | +15% | 5.1% |
| Dortmund | SC | 4.3% | +12% | 4.9% |
| Dresden | SC | 3.7% | +8% | 2.9% |
| Erlangen | SC | 4.3% | +12% | 1.5% |
| Essen | SC | 4.3% | +9% | 7.2% |
| Hannover | SC | 4.1% | +16% | 3.6% |
| Heidelberg | SC | 3.7% | +18% | 4.9% |
| Karlsruhe | SC | 4.2% | +8% | 1.7% |
| Leipzig | SC | 3.8% | +8% | 3.9% |
| Mainz | SC | 3.8% | +19% | 2.7% |
| Mannheim | SC | 4.2% | +7% | 5.5% |
| Nürnberg | SC | 3.9% | +10% | 4.9% |
| Potsdam | SC | 3.7% | +14% | 3.4% |
| Wiesbaden | SC | 4.0% | +5% | 2.7% |
| **Weighted ø / Range** | | **3.1% - 4.8%** | **+15%** | 4.5% |

Source: Riwis; SC= Secondary City

If we look at the sectoral distribution of office employees in the above cities, we see very broad sectoral diversification. The dependency on individual sectors and regions is therefore extremely low, so that cluster risks are reduced in this way. In addition, the markets outside the top 7 cities have been less volatile in terms of yield and rent development over the past 30 years, so that adding properties in attractive secondary cities can help stabilize the portfolio, especially in recession phases.

# CASE STUDY – SMART DECARBONISATION

## ESG as a value driver

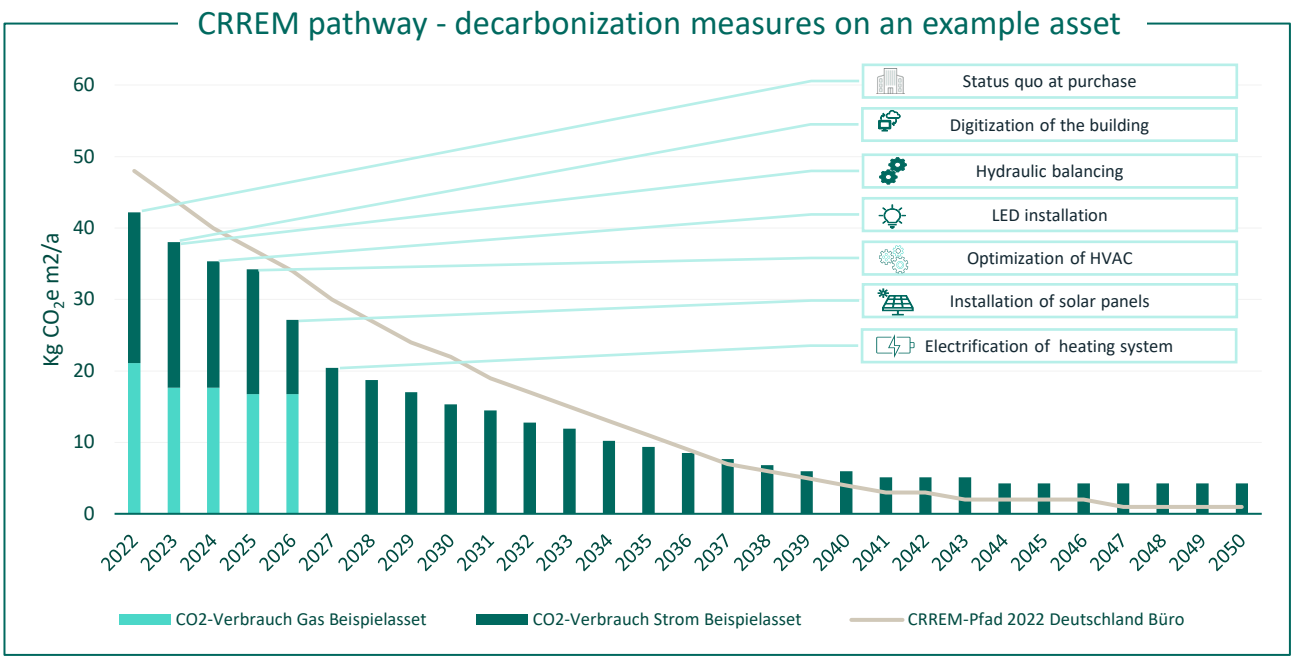
The consideration of ESG aspects in real estate valuation is still in its infancy. As long as no uniform valuation of climate-related transition risks has been established in the transaction business and many players continue to hardly price in ESG criteria in purchasing processes, these aspects can only be taken into account with difficulty by real estate valuers. Nevertheless, there is little doubt that energy aspects, in particular, will be a central factor determining the value of real estate in the future. The most important metric here is building-related energy consumption and CO2 emissions. The CO2 footprint has a double influence on the value of real estate: On the one hand, through direct charges (e. g. CO2 tax) for (excessive) emissions, which have to be borne by the user or owner. On the other hand, tenants in energy-efficient buildings save energy costs and are therefore willing to accept a higher office rent, which in turn leads to higher discounted cash flows and property valuations.

The share of new and trending energy efficient office buildings is 4% and the average new construction activity is around 0.5%. Accordingly, the vast majority of the office buildings we will use over the next 30 years already exist today. The major challenge will be to go beyond complex and cost-intensive refurbishments and find "smart", i. e. cost-efficient, decarbonization solutions which, in addition to energy savings, will above all lead to a significant reduction in CO2 emissions from existing buildings.

## Management below the CRREM path

In order to achieve the climate targets in the building sector, the CRREM (Carbon Risk Real Estate Monitor) initiative was launched a few years ago. The EU-funded scientific project aims to develop a benchmark that enables real estate actors to assess the stranding risk on the basis of energy and emissions data for each individual property as well as on a portfolio level. CRREM has now established itself across Europe as a recognized tool for measuring real estate performance in relation to compliance with the Paris climate targets.

The graph below uses an example building to model successive decarbonization through the implementation of various measures along the CRREM path. At the time of purchase, without implementing measures and without changing the electricity mix, the property would already be above the 1.5 °C pathway in 2024 and thus become a stranded asset. However, the installation of smart metering and control systems, optimization of the heating system, procurement of solar power via a dedicated PV system, and electrification of the heat supply via a heat pump will lead to a postponement of the "stranding year" by 10 years. Accordingly, after a normal holding period of ten years, a "standing asset" can be sold that is supplied with energy purely electrically and, under the premise of a complete decarbonization of the electricity mix in Germany, could even be considered almost CO2-neutral.



## DEFINITIONS

**10-year government bonds**: debt securities issued by a state for a period of ten years, generally acknowledged to be a risk-free investment.

**Investment volume/transaction volume:** total volume of premises acquired in the offices, residential, retail, business premises and warehouses segments by an investor.

**Take-up offices:** all leases or sales to the occupant (as opposed to sales to investors) for premises to be used as offices. It is expressed as square meters of usable space.

**Yield:** ratio between the net revenues from the building and the capital committed by the buyer (acquisition price + fees and transfer taxes). All yields quoted follow this definition unless otherwise stated.

**CRREM:** Carbon Risk Real Estate Monitoring. A tool developed on the basis of scientific methodology for measuring the performance of buildings and real estate portfolios in terms of CO2 emissions against the background of the Paris climate targets.

**STRANDING:** "Stranding" in the context of the CRREM pathway means that a building is above the relevant country- and asset class-specific decarbonization pathway. "Stranding" does not mean that a property becomes worthless. To prevent stranding, energy and CO2 savings measures must be implemented in good time.

**Über Primonial REIM**

**Primonial REIM** has a workforce of 400 employees in France, Germany, Luxembourg, Italy, the UK and Singapore. Its values of conviction and commitment as well as its expertise on a European scale are used to design and manage real estate funds for its national and international clients, whether they are individuals or institutions.
Primonial REIM currently has €34.8 billion of assets under management. Its conviction-based allocation breaks down into:

- 44% offices,
- 33% healthcare/education,
- 11% residential,
- 6% retail,
- 5% hotels
- 1% logistics.

Its pan-European platform manages 61 funds and has more than 80.000 investor clients, 54% of which are individual investors and 46% institutional. Its real estate portfolio consists of more than 1.400 properties (offices, health/education, retail, residential, hotels) located in 10 European countries.

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The Research & Strategy Department's role is to formalize Primonial REIM's real estate investment strategies, based on continuous monitoring of the French and European markets. Although collective real estate accounts for a growing share of institutional portfolios and household savings, it is at the crossroads of financial (hierarchy of rates), economic (tenants' business models), demographic (the metropolisation phenomenon) and societal (changes in usage) factors. This is why a cross-cutting analysis is needed, which is also long term and therefore in keeping with the horizon of most real estate investors.

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