

Resilience of German housing markets in a crisis context

An analysis of regional differences and influencing factors



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Dear Reader,



German housing rents have been on a strong upward trend for many years. This pattern has been fairly consistent in all major cities for the past 20 years, and there are strong indications that the basic trend will continue. However, risk considerations are becoming increasingly relevant. It is important to investigate how individual locations and their property markets react to weak growth and crises in the general economic environment.

The performance and development of a location are shaped by complex socioeconomic interactions, based on interconnected economies comprising manufacturing companies, private households and public institutions. The growth and stability of these networks are highly dependent on various economic factors.

Economic crises, defined as sustained disruption to the growth and momentum of national economies, rarely happen by chance, but are often the result of systemic weakness. These crises result in declining production and consumption, shrinking GDP and increasing uncertainty in the financial markets. Subdued economic growth directly affects employment and incomes, resulting in reduced demand, financing difficulties and potential insolvencies. Private households feel the effects in job losses and lower purchasing power. Property markets typically reflect the general economic situation, but may also lead, lag behind or show differing intensities in their reactions to economic shocks. Economic crises weaken demand for real estate, because falling incomes and rising unemployment reduce household purchasing power. At the same time, tighter credit conditions and rising risk costs for banks lower the willingness to invest, which has a negative impact on the property market.

However, the impact of such developments is not the same in all regions. Cities with a diversified economy and strong housing demand are often more resilient to economic shocks. This study will therefore investigate the resilience of German cities and consider how economic crises have differing impacts on local property markets depending on specific regional parameters. The analysis is based on the assumption that the effects of economic crises on property markets depend heavily on the specific features and resilience of the relevant regional markets.

This study will highlight the diverse structure of cities, from their economic landscapes to their demographic make-ups and local property market dynamics. These differences cause varying susceptibility and resilience to the effects of financial crises. The findings of this study are key to understanding why some cities are better able to withstand crisis than others, and offer valuable insights for proactive risk and investment management in real estate portfolios.

Regards,

Ihr Lahcen Knapp Founder and Chairman, Empira Group

1. Economic crisis and the property market

German housing rents have been on a strong upward trend for many years. This has been fairly consistent for over 20 years in all major locations, and Germany's national rental price index is also climbing steadily (Figure 1). There are strong indications that the basic trend will continue. In particular, high demand – especially as a result of migration – and the supply shortage triggered by high construction costs and financing bottlenecks, which will be almost impossible to overcome in the medium term, suggest that rents will continue to rise in the longer term.

Growth in rental prices

Location	5 years	10 years	20 years	
Berlin	+40.7%	+75.9%	+156.8%	
Hamburg	+17.6%	+28.5%	+89.8%	
Munich	+15.8%	+57.1%	+91.3%	
Cologne	+17.7%	+36.6%	+66.3%	
Frankfurt	+14.2%	+38.8%	+77.0%	
Stuttgart	+11.0%	+59.3%	+81.1%	
Düsseldorf	+16.3%	+25.0%	+80.7%	
Germany	+8.2%	+15.7%	+29.4%	



Rental prices for top seven cities and German rental price index

Figure 1: Development of housing rents in Germany and the top seven locations from 2000 to 2023; source: own presentation and calculations based on RIWIS and German Federal Statistical Office

However, risk considerations are becoming increasingly relevant. It is important to investigate how individual locations and their property markets react to weak growth and crises in the general economic environment. It remains interesting to consider whether the resilience of a location has typical dependencies, such as the type of cyclical effects, size of the location or the regional economic structure.

Economic crises have a significant influence on property markets, because they are directly connected to the economy as a whole through a number of economic mechanisms. The causes and effects of these influences vary depending on the type of crisis and the prevailing economic conditions. In this context, we can identify several key points that describe the typical ways in which property markets react to economic shocks.

 Changes in demand: An economic crisis typically leads to a decline in the disposable income of households, due to unemployment or general uncertainty, which in turn curbs demand for real estate. Fewer people are in a position or willing to invest in real estate or purchase new apartments or houses, which puts pressure on prices and can lead to a decrease in property values.

- Access to and cost of finance: Periods of crisis often lead to tighter credit conditions. Banks and other financial institutions exercise greater caution in issuing traditional property loans and other forms of credit, which limits access to finance for buyers and developers. In addition, margins and therefore interest rates may rise, which increases the cost of taking out a loan and further curbs demand for property.
- 3. Investor and consumer behavior: The trust and confidence of investors and consumers play a key role in the property sector. Economic crises can erode trust in the economy, and particularly in the property market, which results in a retreat from investment and from rental agreements. This can cause a sharp drop in prices, particularly in markets with a high proportion of speculative investments.
- 4. Construction and development activities: Economic crises can lead to a decline in construction and development activities, because companies and developers face financial difficulties and demand for new properties falls. This can have a longterm impact on the supply of properties and the recovery of the market after the crisis.

Economic crises have farreaching effects on the property markets, from reduced demand and lower prices to a decline in construction activities. The specific effects depend on many different factors, including the severity and duration of the crisis, the market conditions prior to the crisis, and the regional economic structure. Due to the close ties between the property sector and the economy as a whole, it is essential for investors, developers, politicians and all other stakeholders in the property sector to develop strategies that enable them to respond in the best possible way in crisis situations. The findings from the analysis of crisis reactions provide important indicators for planning and can help strengthen the resilience of the property markets.

2. Regional differences in the resilience of the economy

Economic crises do not have the same impact on property markets in all locations. Regional differences in economic structure, demographic trends and the state of the property market before the crisis can mean that some locations are more affected than others. For example, cities with a diversified economy and strong demand for housing may be more resilient to the negative effects of a crisis than those with a onesided economic structure. The different levels of resilience will be examined below.

The ability to overcome a general economic downturn and recover from its effects ("resilience") is an important area of investigation in economic research and economic geography. It is interesting to note differences in the duration and intensity of crisis effects. Developments at country level are a good place to start, and analysis of different cities and regions shows that resilience to economic shocks can vary considerably. These differences do not emerge spontaneously, but are directly related to specific structural characteristics of the relevant cities.

Indicators of resilience at country level

Macroeconomic indicators that reflect a broad range of economic activities are generally used to assess the resilience of national economies. This study focuses on gross domestic product (GDP), which is the key indicator of a country's economic performance. In particular, we consider the annual rate of change in GDP in order to map economic development since the year 2000. We also analyze other economic indicators such as employment rates, imports/exports, tax income, inflation and interest rates, to obtain a more detailed picture of economic resilience (Figure 2).

There were several significant reductions in GDP over the period in consideration, which correlate with global and national economic crises. These reductions reflect direct economic shocks and their impact on national economic output. For example, the 2008/2009 financial crisis and COVID-19 pandemic each led to a significant drop in GDP, highlighting the vulnerability of the national economy to external shocks. The financial crisis, which began at the end of 2007 and lasted until 2009 in most locations, was triggered by the collapse of the US property market, after a speculative bubble in property prices burst. Subprime loans in particular, which were issued to borrowers with low credit scores, were packaged into complex financial instruments and sold globally. Large numbers of borrowers were unable to keep up with their mortgage payments, which resulted in considerable losses for banks and other financial institutions. Many banks faced collapse, triggering a severe crisis of confidence in the financial sector. The resulting credit crunch had farreaching effects on the real economy: companies and consumers found it increasingly difficult to obtain financing, which led to a sharp decline in investments, a rise in unemployment and a downturn in global economic output. In response, governments and central banks launched unprecedented rescue measures for financial institutions. introduced economic packages to stimulate the economy and eased monetary policy, to stabilize the economy and prevent an even steeper downturn. In particular, key interest rates were cut sharply.

The second crisis at the start of the 2020s was triggered by abrupt changes to many previously favorable conditions. The global Covid pandemic forced many industries to suspend or severely restrict their operations. In addition, many global supply chains were disrupted, particularly as a result of restrictive containment policies in China: the reduced supply of many commodities and intermediate products led to rising prices and inflation. The ongoing war in Ukraine triggered further price increases for fossil fuels, with resulting high inflation rates in many western industrial countries, including Germany, in 2022 and 2023. In response, many central banks raised their key interest rates significantly, which increased borrowing costs and hindered the urgently needed economic recovery after the pandemic-induced recession. Although the inflation rate has reduced significantly, Germany once again finds itself in a recession just three years after Covid - growth forecasts remain weak for 2024.

However, there have also been longer periods of economic prosperity. Having overcome the effects of the financial crisis in 2008, Germany experienced a decade of strong economic growth. The 2010s were characterized by stability and an absence of far-reaching military conflicts, which stabilized both supply chains and international trade. Globalization, and particularly the integration of China into the global economy and the rapid growth of numerous national economies, ensured the order books of German companies were full and compensated for weaker European demand. At the same time, Western central banks' low interest rate policy gave both companies and private households access to cheaper credit. This was used for both investment and private consumption - including housing purchases and contributed to strong increases in value for various asset classes and investments, including equities, real estate and cryptocurrencies.



Development of economic indicators in Germany since 2000

Figure 2: Development of economic indicators in Germany since 2000; source: own presentation and calculation based on Destatis and ECB

In summary, an analysis of GDP development from 2000 to 2023 gives the following key figures:

- 1. GDP rose by 1.18% per year on average.
- There were sharp falls in GDP during periods of crisis: -5.7% in 2009 during the global financial crisis and -3.8% in 2020 during the Covid pandemic. GDP decreased by -0.3% in 2023, which shows that the current slump has not yet passed (any negative developments in 2024 would need to be added to this).
- Volatility of GDP growth, measured as standard deviation, was 2.24%.

In relation to the high volatility of economic development at national level, it would be interesting to investigate whether individual cities and regions record more stable development. If so, traditional portfolio risk diversification could offer balancing effects. At this macroeconomic level, the approach is based on the assumption that property markets typically reflect the economic conditions, and that these can act as a proxy for the resilience of local property markets.

Indicators of resilience at city level – economic power

Extensive analysis is required in order to assess the resilience of a location. However, this study only considers a limited number of higherlevel parameters from a relative perspective. We will focus on the economic slumps of 2009 and 2020, which were previously discussed at national level. As key indicators, we use economic output, recorded here as gross domestic product (GDP) in Figure 3 and Figure 4, and employment conditions, represented by the unemployment rate in Figure 5. Although some initial conclusions about future crisis resilience can be drawn from previous reactions, these estimates require more extensive, detailed structural analysis.

To make an adequate assessment of crisis resilience, both the starting level and the general momentum of a location must be taken into account. A crisisinduced decline in economic output by -3.8%, which was the average for Germany as a whole during the Covid crisis, takes on a different slant depending on whether it follows a growth phase of +20% or a period of stagnating economic power. This also applies to absolute declines in employment figures and percapita income in the context of the relevant starting level. In general, the German A locations tend to have higher levels of economic output, measured as GDP per capita, compared with smaller cities. Due to a concentration of economically important and innovative companies, economic centers such as Frankfurt am Main, Stuttgart, Munich, Düsseldorf and Hamburg have an advantageous economic infrastructure and strong global connections.

In contrast, the levelstrength matrix (Figure 3) shows that Duisburg and Bochum are at a belowaverage level and have low economic momentum. This is attributable to ongoing structural change in large areas of Nordrhein-Westfalen as a result of the decline in the mining industry. Berlin is an exception: despite a relatively low economic level, the country's capital comes out top among the cities in the study, with GDP growth of 50.7% over 10 years. This can be explained by base effects due to a previously even lower level. Although Berlin attracts many IT and media startups and cultural institutions, it has not yet reached the economic output of established industrial and service centers in other A locations. Even the B locations of Leipzig and Dresden are recording significant development, with growth rates of 42.8% and 42.5% respectively, although they also started at a belowaverage level.

As a whole, Germany has economic characteristics that are roughly similar to a B city, comparable to the average economic power and growth of Bielefeld.



Figure 3: Comparison of economic level and economic growth based on GDP, selected locations, source: own presentations and calculations based on Destatis

The specific reactions of the cities to economic crises can be assessed on the basis of their starting level and previous growth rates. In 2009, locations such as Stuttgart, Düsseldorf, Bremen, Duisburg and Münster recorded significant economic slumps with declines of over 6% in GDP. In contrast, the economic power of centers such as Berlin, Cologne, Leipzig, Dortmund, Essen, Nuremberg, Wuppertal and Bielefeld hardly declined at all. The pandemic-induced recession in 2020 hit Cologne, Stuttgart and Duisburg particularly hard, with each shrinking by over 4%, while the impact on Berlin, Düsseldorf, Leipzig, Dortmund, Essen, Dresden, Bochum and Münster was significantly lower, at under 1.5%. Bielefeld even gained in economic power.

Stuttgart and Duisburg were particularly badly affected by both crises, which could be explained by the high proportion of manufacturing industries: for example, supply chains were disrupted and sales markets were lost during these two phases. In contrast, the impact in Berlin was far smaller, possibly due to a high proportion of public-sector employment and continuous growth and catch-up processes. The same applies, albeit with some limitations, to Leipzig, which was also not badly affected by the two crises. The Ruhr cities of Dortmund and Essen proved very robust in both 2009 and 2020, perhaps because structural change was already more advanced in these locations and so the local traditional, strongly cyclical industries had less influence on overall economic performance. The breakdown shows that the economic resilience of cities is closely related to their structural make-up and resulting ability to react to external shocks. Resilience in the face of economic crises results, at least in part, from cities' economic diversity and innovative capabilities, as well as their ability to adapt to global challenges and local conditions. These findings are of key importance for urban planning and economic strategies that aim to strengthen the resilience of urban economic stability over the long term.



Comparison of economic decline in crisis years

Figure 4: Comparison of economic decline in crisis years, Germany and major cities, 2009 and 2020; source: own presentation and calculation based on Destatis

Indicators of resilience at city level - labor market

In phases of economic upturn, such as during the 2010s and in the 1950s and 1960s - the age of the German Wirtschaftswunder (economic miracle) - a decline in the unemployment rate is usually observed, which can be explained by an increase in employment (when the population is not growing disproportionately at the same time). Economic crises, such as those of 2009 and 2020, often lead to an interruption of this trend, and to a dramatic reversal where the unemployment rate rises due to companies downsizing or job losses as a result of insolvencies. With certain exceptions, the crisis years in 2009 and 2020 saw an overwhelming reversal of the previous decline in unemployment. While the unemployment rate generally fell during upswings, this decline lost momentum and was then reversed during the crisis vears.

Figure 5 illustrates the change in the unemployment rate during economic crises in Germany and its major cities for 2009 and 2020. A worsening of the unemployment rate, for example an increase from 4% to 5%, is shown as a negative value (negative effect) in the chart, whereas any improvement in the employment market during the crisis, such as a reduction in the unemployment rate from 6% to 5%, is shown as a positive value.

The type of crisis appears to play a significant role: despite a statistically smaller decline in economic output during the Covid pandemic in 2020, the reversal of the trend was more pronounced than in 2009. This is partially due to the complete standstill in certain industries such as the catering and hotel sectors, whereas the 2009 economic crisis was primarily characterized by a reduction in purchasing power and therefore demand. It is notable that the unemployment rate rose by over 1 percentage point as a result of the financial crisis in cities with a high proportion of manufacturing industries, such as Stuttgart and Bielefeld. In contrast, cities such as Leipzig, Dortmund, Cologne, Frankfurt am Main and Bonn saw a slight decrease in unemployment during the same period. Swings in 2020 were more pronounced, with the most significant increases in Berlin and Wuppertal (1.9 percentage points in each case), Frankfurt am Main (1.7 percentage points) and Hamburg (1.5 percentage points). Overall, it can be said that the impact of economic crises on the labor markets of cities can vary considerably. Cities with strong industrial sectors such as Stuttgart, Bremen and Duisburg tend to react more strongly to economic slumps than cities that are mainly focused on services and administration, such as Berlin.



Figure 5: Decline in the unemployment rate during crises, Germany and major cities, 2009 vs. 2020; source: own presentation and calculation based on Destatis

Attribution of resilience to specific location characteristics

Economic crises do not affect all industries and locations in exactly the same way. The banking industry bore the brunt at the start of the financial crisis in 2009, and other service sectors and manufacturing industries were also hit at a later stage. The specific timings, intensities and countermeasures taken varied significantly. In the manufacturing sector, for example in the area of car manufacture, more shorttime working was introduced, while political measures such as the "scrapping premium" financial purchase incentive were implemented. Conversely, the Covid crisis of 2020 hit consumer industries such as retail, tourism, the hotel sector and catering particularly hard due to the pandemic-related restrictions. Indirect effects resulting from lower consumption and supply chain issues affected the manufacturing industries. Government financial assistance predominantly took a scattergun approach, such as the temporary reduction in sales tax, or were focused on specific cases (compensation payments).

The resilience of economic structures is therefore industry and location-dependent, to a large extent. In traditional economic crises, which are characterized by financing problems and reduced demand, the manufacturing sector is often particularly badly affected. Locations with a high proportion of manufacturing industries are therefore more directly and intensively impacted by economic crises. On the other hand, public sector employment is largely unaffected by economic fluctuations, since there is a base level of employment at city institutions and authorities in all locations. The observed levels of resilience and their causes can be investigated further by analyzing socioeconomic features and the regional value chain. This is presented in the table below, which summarizes the relative resilience of different German locations during the 2009 and 2020 crises, with the addition of specific location features such as industry structure, proportion of manufacturing industries, public services, student population, and a role as a state capital and home to large government authorities.

Location	Relative resilience	Relative Specific features						
	2009 and 2020 crises	Inhabi- tants	Industries	Proportion of manu- facturing industries	Proportion of public services	Proportion of students	State capital	Large authorities
Berlin	stable	3,755,251	Car manufacture, e-commerce	12.6%	27.9%	5.3%	Yes	Numerous federal government ministries and authorities
Hamburg	average	1,892,122	Aerospace engineering	15.3%	21.2%	6.3%	Yes	No
Munich	stable	1,512,491	Automotive and mechanical engineering	14.8%	20.3%	9.2%	Yes	Federal Fiscal Court
Cologne	average	1,084,831	Car manufacture and industry	13.1%	23.1%	9.6%	No	No
Frankfurt	average	773,068	IT and telecommunicati- ons, banks and insurance companies	9.8%	14.9%	9.2%	No	Bundesbank, European Central Bank
Stuttgart	volatile	632,865	Car manufacture and engi- neering	23.2%	22.4%	8.5%	Yes	No
Düsseldorf	average	629,047	Chemical industry, vehicle manufacturing and metal production	11.5%	21.7%	9.3%	Yes	No
Leipzig	stable	616,093	Industry, construction	14.6%	26.1%	6.4%	No	Federal Administ- rative Court
Bremen	volatile	596,396	Car manufacture and retail	21.7%	23.4%	6.1%	Yes	No
Dortmund	stable	593,317	Car manufacture and retail	16.7%	28.5%	9.0%	No	No
Essen	stable	584,580	Energy and steel industry	14.8%	27.3%	5.7%	No	No
Dresden	stable	563,311	Mechanical and plant engi- neering	17.4%	31.2%	6.7%	Yes	No
Hanover	average	545,045	Logistics and automotive industry	17.1%	28.9%	9.2%	Yes	No
Nurem- berg	average	523,026	Transport and logistics	18.8%	19.9%	5.2%	No	No
Duisburg	volatile	502,211	Steel industry and logistics	25.2%	25.9%	3.4%	No	No
Bochum	stable	365,742	Mechanical engineering	16.7%	34.5%	15.8%	No	No
Wuppertal	average	358,876	Mechanical engineering and pharmaceutical industry	24.0%	29.9%	6.6%	No	No
Bielefeld	average	338,332	Construction and chemicals industry	19.9%	31.6%	11.4%	No	No

Figure 6: Relative resilience and specific features of different locations, source: own presentation and calculation based on Destatis regional database, ThomasDaily

Reactions to economic crises vary significantly between different industries and locations, depending on the local economic structure. Among the largest German cities, Stuttgart, Bremen, Duisburg and Wuppertal have manufacturing sectors that make up over 20% of the economy, and are mainly home to companies operating in the car manufacture, mechanical engineering and steel production sectors. These industries are particularly susceptible to global economic crises, because they depend heavily on exports and are therefore directly affected by international market fluctuations. In contrast, cities such as Berlin, Munich, Cologne, Frankfurt am Main, Düsseldorf, Leipzig and Essen, whose manufacturing sectors make up less than 15% of the economy, are potentially less directly affected by declines in exports, although there is a possibility of indirect and delayed reactions.

In addition to a general population of municipal and state employees, some cities have particularly high employment in the public sector. For example, in Berlin, Leipzig, Dortmund, Essen, Dresden, Hanover, Duisburg, Bochum, Wuppertal and Bielefeld, over 25% of all employees work in the public sector. This helps to create stability in the regional economies, because public sector jobs are less cyclical. Berlin in particular also benefits from the presence of numerous federal ministries and authorities.

University cities with a large student population, such as Munich, Cologne, Frankfurt am Main, Stuttgart, Düsseldorf, Dortmund and Hanover, are also resilient thanks to continuous demand for housing and services. Bochum and Bielefeld, which have student populations of over 10%, particularly stand out in this respect.

The 2009 financial crisis hit locations with strong industrial sectors particularly hard; this includes Stuttgart and Duisburg and other cities in the Ruhr region, whose economic structures made them susceptible to the crisis. The Covid crisis, on the other hand, had a more severe impact on locations that are important for tourism, such as Cologne and Hamburg.

Cities with large public sectors, including Berlin, Dresden and Hanover, were generally less affected by the crises, because local incomes and jobs are less directly linked to private economic output. These locations are often state capitals or important administrative centers. Overall, the following clusters can be identified with regards to resilience and location characteristics:

- 1. Administrative, service and university locations with above-average crisis resilience, such as Berlin, Nuremberg, Dresden and Hanover.
- Cities with a high proportion of income from transfer payments, which ensures relative income stability, for example Duisburg and Offenbach am Main.
- 3. Locations that are focused on specific industries and react differently to crises, such as Frankfurt am Main.
- Locations with strong industrial sectors that are more dependent on economic fluctuations, including Cologne, Stuttgart, Bremen and Dortmund.
- Cities with complex structures that comprise different economic sectors, such as Munich and Hamburg.

Occasionally location profiles may overlap, for example in cities that have strong service sectors, are home to government authorities, and have a profile that is both industrial and logistical, such as Hamburg. The cluster allocation therefore only shows a general trend, and is not a conclusive assessment of a location's specific resilience.

3. Regional differences in the resilience of housing markets

The resilience of a property market describes its ability to absorb economic shocks, changes or crises and recover from them quickly. This characteristic implies that, despite adverse external influences such as economic crises, natural disasters and political uncertainty, rental and property prices do not fall significantly, or at least do not remain low over the long term. Instead, they tend to return to their previous level relatively quickly or even continue to rise.

Markets with a high level of resilience are typically characterized by strong demand and limited supply, which helps to stabilize prices. Factors that boost resilience include a robust and diversified local economy and advantageous financing conditions. Recently, increased demand due to immigration has led to housing shortages and price rises, particularly in large urban regions. In addition, general inflation is affecting nominal prices, which is reflected in the rents and purchase prices listed in market reports. These nominal values have increased over the past few years – and in fact over the past decade – with hardly any notable interruptions from "negative years", including the two crisis years. To compare the resilience of the different markets, we will now analyze factors that impact on higher or lower growth rates: significant differences can be observed here.

Indicators of rent resilience

This trial analysis of rent growth rates before and during the crisis (average of the three preceding years vs. the crisis year) shows significant differences in the resilience of German housing markets during the 2009 financial crisis and 2020 COVID-19 crisis. The investigation focuses on the rate of increase, i.e. the changes in the relevant growth rates. In 2009, during the financial crisis, cities like Berlin, Stuttgart and Düsseldorf recorded reduced growth rates, which can be attributed to lower resilience. However, cities such as Hamburg and Munich recorded positive developments, which can be explained both by higher resilience and by specific local factors or a catch-up effect from previously low growth rates. A similar picture emerges for the 2020 COVID-19 crisis. Cities like Berlin and Frankfurt am Main recorded increasing growth rates, while cities like Stuttgart, Leipzig and Bremen experienced more pronounced negative trends. Notably, Wuppertal recorded a strong rise in growth rates even during the 2020 crisis; this could be explained by special effects or parameters that have not been taken into account.

A comparison of the effects of both crises on the German housing markets shows a nuanced picture of resilience in different cities. Cities such as Stuttgart, Düsseldorf, Leipzig, Bremen, Dortmund, Hanover, Nuremberg, Duisburg and Bochum experienced declines in their rental growth rates during both crises, pointing to lower resilience. In contrast, cities like Essen and Dresden remained relatively stable, with only slight fluctuations in growth rates during both crisis periods. The varying resilience of housing markets can be attributed to a number of factors, including the economic strength of the city, relationship between supply and demand, employment structure and diversification of the local economy, as well as urban planning measures and political decisions.

A comparison with the consumer price index for net rents shows that values for Germany as a whole remained relatively stable during both crises, with only minimal negative changes. This suggests that, despite the strong fluctuations in local markets, the overall market retained a certain level of general resilience.



Figure 7: Change in growth rates of rental prices in the crisis year compared with average for the previous three years; source: own presentations and calculations based on Destatis and RIWIS

Indicators of purchase price resilience

It is also possible to assess the resilience of housing markets by considering the change in purchase price growth rates during significant economic shock scenarios, such as the 2009 financial crisis and 2020 COVID-19 crisis. During the 2009 financial crisis, the positive values for the house price index (HPI) and the German Real Estate Index (GREIX) – the latter based on transaction data from expert committees – pointed to the inherent resilience of the German property market, presumably supported by low interest rates.

A differentiated analysis of city housing markets reveals a heterogeneous picture: while some cities like Stuttgart, Düsseldorf, Dresden and Duisburg recorded significant declines in price growth, Berlin, Hamburg and Bremen experienced strong growth. Bielefeld showed notable resilience, with a rise of over 5 percentage points in the growth rate.

In 2020, during the COVID-19 crisis, a decline in the GREIX growth rate was observed. Growth in cities like Berlin and Munich weakened noticeably, which suggests susceptibility to the specific crisis situation.

Hamburg, on the other hand, stood out for its impressive increased growth. Nuremberg, Duisburg and Bochum once again recorded negative trends. In an otherwise negative environment, Wuppertal and Essen saw steeper price increases, which could be due to local special effects or divergent market momentum.

These observations illustrate the very different levels of resilience shown by major German cities during the two economic crises. Cities like Hamburg proved incredibly robust in both situations, whereas others like Stuttgart and Duisburg reacted negatively to both crises. These disparate reactions underline the complex nature of the property market, which is affected by numerous factors including local economic conditions, demographics trends and urban strategies.

Analyses along these lines – which of course need to be supplemented with more granular data and longer series – provide a general assessment of how different markets react to economic conditions. This provides a valuable starting point for portfolio-related planning and investor decisions.



Change in purchase price growth rates (crisis year vs. average of 3 previous years)

Figure 8: Change in growth rates of purchase prices in the crisis year compared with average for the previous three years; source: own presentations and calculations based on Destatis, RIWIS and GREIX

Attribution of resilience to demand factors

Prices on the housing market are based on supply and demand, provided there are no regulatory interventions in price fixing (particularly upper limits) and no impediments to adjustments (particularly a lack of transparency or acquisition expenses). In the housing economy, consumers are almost exclusively private households, including individuals (one-person households).

Even if the population size remains constant, quantitative demand (in the financial sense) can be viewed as cyclical to a certain extent. Qualitative demand usually changes depending on the relevant income situation and purchasing power. We are currently seeing increased demand, particularly as a result of immigration. In terms of internal migration, employment situation and income opportunities often play a key role. Individuals seeking attractive jobs in major cities often move to the relevant city, which increases demand for housing. On the other hand, economically weak areas often suffer from economic exodus, which can cause an oversupply of housing. In parallel, there is a redistribution of purchasing power, or a rental payment budget, towards the sought-after city. If this is not allocated to existing vacancies, rents for each available unit are forced up as a result of competition between consumers. Immigration from abroad has also remained at a consistently high level since the 2010s. Germany has recorded over a million new arrivals from abroad each year since 2012, with over two million in 2015 and 2022 respectively. These new arrivals create additional demand pressure on the housing markets. The mechanisms are generally the same as for internal migration: the rental payment budget is initially usually represented through social transfers. Despite a defined distribution key, new arrivals are in practice concentrated in the major cities, creating further demand in addition to internal migration.

The resulting net migration figures for 2012 to 2021 (Figure 9) show that Berlin had by far the strongest net immigration over 10 years (immigration minus emigration). The additional 359,000 people triggered strong demand for additional housing. Of course, Berlin is also by far the largest city in Germany, but population growth was still 8.4%, making it the second highest figure among major German cities even in relative terms.

Leipzig recorded the strongest percentage increase: net immigration has been around 15% of the total population over the past 10 years. Although the city is only the eighth largest in Germany in terms of population size, immigration was ranked third in Germany with 95,000 net new arrivals. Hamburg, Frankfurt am Main, Essen, Dresden, Wuppertal, Bonn and Münster also recorded high net immigration, with rates of over 5%.



Migration balances of the Top-20 cities

Figure 9: Accumulated net migration of the 20 largest German cities from 2013 to 2022, in absolute terms and relative to the number of inhabitants; source: own presentation and calculation based on Destatis

Demographic and property market developments are normally closely connected. If a city is experiencing a boom – whether for economic or socioeconomic reasons – it is generally not possible to increase housing supply to the extent that meets demand. As a result, rental and purchase prices in these locations usually rise disproportionately. Some locations have become significantly more attractive since the turn of the millennium, including Berlin, Leipzig, Frankfurt and Hamburg (shown on the far righthand side of the chart in Figure 10 showing the cities' relative rankings). The qualitative and quantitative differences between German A and B locations are interesting. A locations usually have stronger population growth than B locations. The weakest cities in terms of population growth are, without exception, B locations, and it is notable that six out of the seven locations in the lower cluster are located in the Ruhr region or in North Rhine-Westphalia. If we link population growth to the findings of the resilience indicators for rents and purchase prices during the two previously discussed crises, we can observe a general stabilizing effect. In Figure 10, scaling is based on the ranking of the parameter values within the group of cities. Cities experiencing strong growth, such as Hamburg and Frankfurt, lose less momentum during crises, or at least perform better than other locations. However, sole causality between relative growth and relative resilience cannot be assumed, as the clear spread around the diagonal shows. Only Duisburg and Düsseldorf have a similar ranking for both dimensions.



Real estate industry resilience vs. demand indicators

Figure 10: Comparison of relative strength of demand (population growth over 10 years, according to ranking comparison) and relative indicators of resilience in the real estate industry (change in growth rate for rental/purchase prices, according to ranking comparison, averages); source: own presentations and calculations based on Destatis and RIWIS

Attribution of resilience to supply factors

The stability of the German housing market is significantly affected by supply-side factors, and in particular privately financed residential construction. This depends substantially on the profitability of the investments, which must have an adequate risk/return profile compared with lower-risk investments such as government bonds. Builders only make investments on the assumption that the expected returns will compensate for the additional risks and increased expenditure on research, planning and controlling.

The capacity and state of the construction industry are critical variables: growth phases are associated with high capacity and recessions with reduced capacity, which is reflected in corresponding construction activities. The ifo Business Climate Index, an indicator of sentiment in the construction industry, fell to -35.4 points in February 2024, suggesting a deterioration in the economic climate to a level well below that recorded during the 2008/2009 financial crisis.

Administrative efficiency and the scope of regulatory provisions are also key for residential construction. Restrictive approval processes and requirements, such as those in the areas of energy efficiency, heritage protection, accessibility and fire safety, can have an adverse effect on the profitability of construction projects. In addition, government regulations such as rent ceilings can reduce potential revenues. Monetary policy controls, particularly through interest rate hikes in 2022 and 2023, led to a rise in construction financing costs and a significant reduction in new lending, which was reflected in a lower volume of investment in housing portfolios. For example, the financing costs for private households rose from around 1% to around 4%. Since this level of interest was no longer affordable for many households, monthly new lending for private residential construction fell from a level of EUR 20 to 30 billion to around EUR 10 to 15 billion. This had a negative impact on new construction activity, causing a decline in the volume of investment in housing portfolios from around EUR 20 billion a year before the pandemic to around EUR 5 billion in 2023.

Given the unfavorable conditions, it is hardly surprising that new housing construction is now at a very low level in Germany. The political goal of building 400,000 new homes a year is not even close to being achieved. Just 295,300 homes were built in 2022, and the figure for 2023 will be around 270,000 housing units (figures not yet released). Further declines in the number of new homes completed are expected over the next few years: the forecasts are for 225,000 in 2024, 195,000 in 2025 and 175,000 in 2026. Particularly in sought-after locations with large populations, there is an insufficient volume of new construction and excess demand is increasing further as a result.

Public authorities may intervene with subsidy programs and direct construction activities, in order to compensate for certain market failures. However, this can also cause distortions as government and private stakeholders compete for limited resources. Market mechanisms are undermined, which often leads to inefficiencies and additional economic costs. Industry associations and researchers are calling for existing restrictions in the construction sector to be eased, whether in construction zoning, building permits or building standards. From a market perspective, these always represent interventions in prices, volumes and quality, which hinder or prevent a market-appropriate response from suppliers. In political terms, there are understandable reasons for each regulation. Given the now high volume of regulations, standards and even subsidies, the potential effect of further subsidy programs is likely to be low or not sufficiently relevant in fiscal terms.



Credit volume and building interest rates

Figure 11: Loan volume for residential construction and interest on construction loans with 10-year fixed lending rates to private households; source: own presentation and calculation based on Deutsche Bundesbank

Regardless of the general situation in the country as a whole, construction activity is strongly heterogeneous across the different locations. An average of 3.5 homes per 1,000 inhabitants were completed in Germany in 2022. A breakdown of new construction activity at city level reveals significant differences between major German cities in terms of completions per 1,000 inha-

bitants. In 2022, Munich recorded 7,528 completions for 1,512,491 inhabitants, which corresponds to a rate of 5.0 completions per 1,000 inhabitants: aboveaverage construction activity. Meanwhile, Cologne recorded just 2,337 completions for a population of 1,084,831 and a rate of 2.2: a significantly lower level of new construction. Münster is a striking front runner, with 1,861 completions for a population of 320,946. This equates to a high rate of 5.8 completions per 1,000 inhabitants, which was the strongest level recorded. In contrast, Stuttgart recorded just 1,014 completions for a population of 632,865, which gives a rate of 1.6 per 1,000 inhabitants. This shows the imbalance in new construction activity within Germany.

Divergences are also apparent within the Ruhr region's urban landscapes. For example, Dortmund recorded 2,121 completed homes for a population of 593,317, corresponding to a rate of 3.6, while in Essen (584,580 inhabitants) just 741 homes were completed, giving a lower rate of 1.3.

Similar trends can be seen over a longer period – shown here as an average for the past 10 years. With an ave-

rage of 14,066 completions per year and a population of 3,755,251, Berlin has a rate of 3.7 completions per 1,000 inhabitants, which underlines the city's long-term need for housing. Hamburg has relatively robust construction activity, with a rate of 4.6 and 8,636 annual completions for a population of 1,892,122. These figures illustrate that some cities have seen a relative upturn in new construction activity despite the generally declining trend in Germany.

The findings derived from the completion rates clearly show that city-specific factors, such as local demand, available infrastructure, building permit processes and the local economic situation have a major impact on new construction activity. The heterogeneous development patterns mean that housing strategy must be tailored to each individual city, in order to overcome the different challenges and meet the city's potential.



Figure 12: Average annual completed housing units per 1,000 inhabitants in the Top-20 German cities over the past 10 years; source: own presentation and calculation based on Destatis

Attribution of resilience to market equilibrium

In Germany, one of the most densely populated countries in Europe, the housing shortage in major cities such as Berlin, Hamburg and Munich has become a political issue. However, the relevance can also be clearly seen from housing market statistics. The reasons for this shortage are varied and complex, but the demand side, particularly in relation to the relevant immigration figures, plays a key role. Conversely, supply parameters such as decommissioning and demolitions are not particularly significant in the housing sector. Discussions about temporary conversions tend to affect individual segments and not the overall market.

Since the 2010s, rising demand for housing as a result of internal and international migration has resulted in a dramatic fall in the ratio of available housing units to households. The rather sluggish supply has not been able to keep pace with skyrocketing demand. This trend not only presents a challenge for the housing market, but also has a negative impact on quality of life. Measuring the shortage as a ratio of housing units to households clearly highlights the worsening situation (Figure 13). In a stable housing market in equilibrium, the supply of housing units, that is, the ratio of homes to households, should be just over 100%, so that each household can occupy a home and there is an additional reserve for moves and renovations.

Leipzig saw the steepest decline (around 12 percentage points) in supply over 10 years. The city is not in a critical situation solely due to this rate of change, because there was previously a housing surplus that was then reduced. However, with a supply level of 101%, this housing market can now be considered strained: according to this indicator the situation is similar to that of Frankfurt am Main.

The situation is more critical in Berlin, Hamburg and Stuttgart, where the supply level is below 100%. Especially in Berlin, which has seen a reduction of four percentage points and a simultaneously growing population, the housing supply can barely keep up with rapidly rising demand. Values below 100% are striking in themselves, but can be explained by the specific counting of households in shared apartments or houses, residential accommodation and collective housing. According to this indicator, the statistics look less fraught for the markets in Munich, Cologne and Düsseldorf. However, bottlenecks are of course still possible in certain segments (size categories, city districts, quality levels).

Housing markets with a low supply level are often surprisingly resilient in the face of price drops, largely due to constantly high demand. In major cities where demand outstrips supply, continuous new arrivals and demographic developments create a stable demand base that shores up property prices. Natural and planning-related obstacles to new construction also restrict the available supply, which helps stabilize prices.

Investors see these kinds of markets as a secure investment, which generates additional demand in the transaction market and further boosts prices. Regulatory measures introduced by administrative bodies, whether they are restrictive or subsidizing, can also help to lower price volatility. However, bureaucracy costs and restrictions on specific investments can result in loss of returns (not considered in this study). Overall, balanced and, to a certain extent, low-supply housing markets appear to be particularly resilient. This situation can currently be assumed for all major German cities.



Supply level with residential units 2012 vs. 2022

Figure 13: Ratio of housing units to households in 2012 and 2022 in the eight largest German cities; source: own presentation and calculation based on Destatis

4. Influence of the relative price level on the resilience of housing markets

The housing shortage typically results in a rise in rental and purchase prices. However, these market strengths can also lead to price levels that are too high or very hard to sustain. Possible scenarios from this point tend to lean more towards stagnation or regression, which suggests reduced resilience. The price level can therefore be seen as a final corrective to previous findings as regards resilience.

However, when analyzing these price trends over time, it is important to take into account that incomes tend to increase as a result of inflationary trends. This means that price-adjusted comparisons that take into account inflation or other price indices are necessary for a valid analysis.

Another meaningful way of assessing market resilience and stability is to look at prices in the context of standardized economic variables such as income, construction costs and economic output. In the housing market in particular, rents are highly dependent on the disposable income of potential tenants. The chain of causation of incomes, rental prices and property values, together with other parameters, also indirectly affects purchase prices.

Relative valuation – the ratio of rents and purchase prices to income – highlights trends with regard to a relative increase or decrease in the cost of housing, although only average values are considered for now. Specific sociological or technical analyses, for example looking at the distribution of family incomes or the breakdown of types of dwellings, are not included here, but will be examined in a subsequent, more detailed report.

If housing market prices are examined in relation to average income, both nominal and relative price increases are clear. Purchase prices have risen considerably faster in relation to incomes, particularly in the top eight major German cities. In 2023, buyers had to spend more annual salaries on average than 10 years ago to purchase a fictitious 60-square-meter owner-occupied dwelling; Berlin recorded the highest value, with 17.4 average annual incomes, followed by Frankfurt am Main with 17.3 and Munich with 16.9. Price increases were especially dramatic in Stuttgart (+5.8), Frankfurt am Main (+5.7) and Berlin (+5.3), which highlights the growing discrepancy between the rise in incomes and the rise in property prices. The ratio of rents to income in major German cities varies considerably, as illustrated by the different gradients in the graph. The disparity is particularly pronounced in Berlin: we can calculate that just 17.3% of an individual's annual disposable income was needed to rent a 60-square-meter newly built apartment in 2013, compared with 55.8% 10 years later. Parallel growth in rents and incomes can also be observed in Stuttgart (+8.4 percentage points) and other cities like Cologne and Hamburg, whereas incomes rose more steeply than rents in Düsseldorf, resulting in a reduced expenditure ratio.

Assuming that dwelling sizes and occupancies remain the same, Düsseldorf is the most affordable of the top eight German cities, followed by Leipzig and Cologne. The danger of rent loss appears relatively low in these cities, suggesting a certain amount of resilience in the market.

On the other hand, a high relative price level could call into question a generally positive resilience assessment and restrict the growth outlook in the medium term. Ongoing rises in income could counteract this effect and bring the indicators back to a normal level. In Berlin, which saw a significant increase in its population, the price increase could also have caused a reduction in percapita dwelling size, which would continue to ensure the actual affordability of housing. More detailed individual surveys or census data, which are currently not available, are required for a more precise analysis.



Figure 14: Required average annual income to purchase a 60 m² owner-occupied dwelling and share of annual disposable income to rent a 60 m² dwelling in a new building in the top eight German cities in 2013 and 2023; source: own presentation and calculation based on RIWIS and Destatis

5. Conclusion

This investigation clearly shows that the resilience of German cities to economic shocks varies and is affected by a complex interaction of different socioeconomic and structural factors. In particular, the structural makeup and diversity of the cities affects their ability to overcome and recover from crises. Cities like Cologne and Düsseldorf have high levels of resilience due to their stable economic structures and comparatively low price volatility in the property markets. These cities benefit from a balanced mix of service sectors and continuous level of demand, which sustains them in times of crisis.

The analysis also reveals that the resilience of property markets does not only describe their ability to withstand price fluctuations, but also how quickly they can recover from economic setbacks. Cities with strong, demand-driven market momentum and high relative GDP growth per capita, such as Berlin and Leipzig, also offer a stable outlook and comparatively low downside risk, which makes them attractive for investments.

This study provides an initial analysis and highlights the need for further research to gain deeper insights into the resilience of regional property markets. There is a need to identify further influencing factors that contribute to resilience and corresponding portfolio management strategies that take resilience into account.

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