

# No Germany-wide housing bubble but overvaluation in regional markets and segments

By Konstantin Kholodilin and Claus Michelsen

Although the housing prices in the 127 largest German cities have surged strongly in recent years, there is still no sign of a Germany-wide housing bubble. In comparison with 2009, the price of condominiums has risen by around 55 percent. Single-family houses cost between 38 and 45 percent more in 2016 than seven years prior, and building lot prices have risen by around 63 percent. The study at hand shows that concerns about a national housing bubble are largely unfounded. There may, however, be bubbles on the local level—primarily in the relatively small segment of new multi-story apartment buildings but also with regard to the valuation of undeveloped residential land. Given the situation, it seems appropriate that financial regulators have opened up more policy options in order to intervene when the market trend proves unsustainable. But because the measures were diluted in the federal legislative process, the need for policy-related action remains.

The strong upsurge in the price of residential real estate in Germany shows no sign of stopping. Since 2010, the price of condominiums in large cities has risen by around 55 percent—an unparalleled development in recent German history. The prices of single- and terraced homes and of undeveloped residential land have also risen sharply (see Figure 1). The European Central Bank's low interest-rate policy is a key driver. On the one hand, it relaxes the conditions for financing real estate investment—right now interest rates on residential construction loans are at an historic low. On the other hand, it reduces the yield of alternative investments. And the trend of moving to Germany's cities that started at the beginning of the 2000s is ongoing. In many cities, construction activity is not able to satisfy the increase in demand.<sup>1</sup> This is reflected in sharply rising housing rents, whose momentum has not been significantly reduced by regulatory intervention, such as the rental price brake.<sup>2</sup>

Thus, there is abundant evidence that the development of housing prices is justified by the fundamental factors. From the mid-1990s until 2010, real estate prices in Germany stagnated, and as measured by the general inflation rate the price of living space actually fell. At least in part, today's price increases are catch-up effects. The expectation that in the future the population will fall even more dramatically in rural areas and rise in urban regions could also be an explanatory factor in the current price trend.<sup>3</sup>

**1** See Philipp Deschermeier, et al., "Zuwanderung, Wohnungsnachfrage und Baubedarfe. Aktualisierte Ergebnisse des IW Wohnungsbedarfsmodells," *IW Report* 18/2016 (PDF, Cologne Institute for Economic Research, Cologne, 2016). (available online; retrieved June 7, 2017. This applies to all other online sources cited in this report unless otherwise noted).

**2** See Konstantin Kholodilin, Andreas Mense, and Claus Michelsen, "Die Mietpreisbremse wirkt bisher nicht," *DIW Wochenbericht* no. 22 (2016): 491–499. (available online).

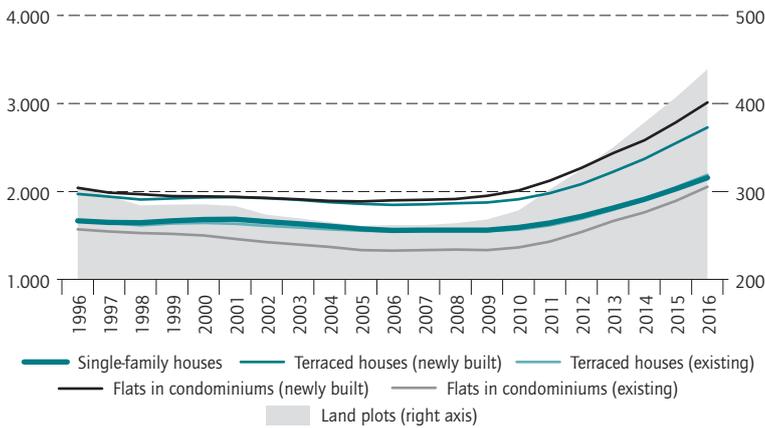
**3** For example, rough estimates indicate that prices in rural regions will dramatically fall while they show significant potential to rise in urban centers. See Markus Grabka and Christian Westermeier, "Real estate price polarization projected to increase until 2030 in Germany," *DIW Economic Bulletin* no. 25–26 (2016).

Figure 1

**Real estate prices and rents in Germany**

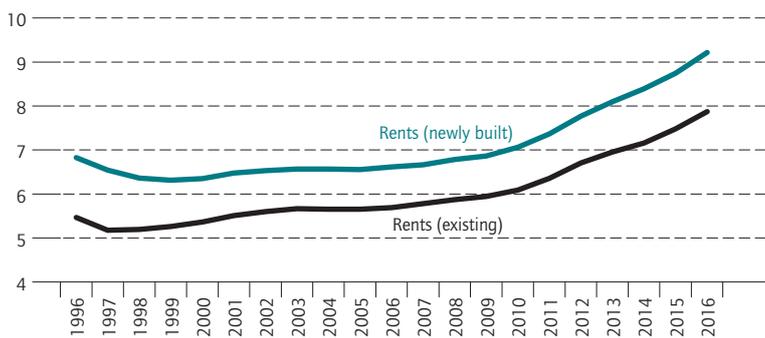
**Prices by market segments in all 127 cities**

Euros per square meter of living or ground space in current prices



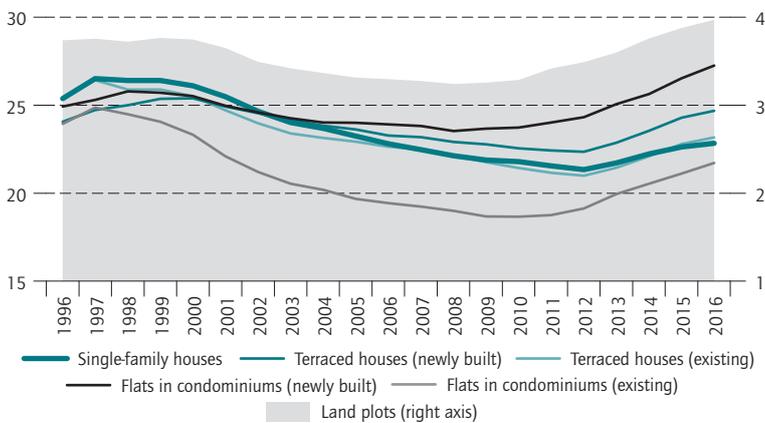
**Rents by market segments in all 127 cities**

Euros per square meter of living space in current prices



**Price-to-rent ratios by market segments in all 127 cities**

Purchasing price per square meter/Annual rent per square meter



Source: Bulwiengesa; own calculations.

In spite of this, there is some concern that a speculation-driven housing bubble could arise in Germany.<sup>4</sup> As the USA, Spain, and Ireland have experienced, housing bubbles engender risks for the stability of the economic and financial system. Germany's central bank, whose analyses indicate massive overvaluation of residential real estate in many regions of the country, sends out warnings at regular intervals. The International Monetary Fund has also been demanding that Germany develop instruments to enable effective intervention by banking authorities in cases of aggregate risk due to housing bubbles. The German Bundestag adopted a law to this effect in March 2017, but the set of instruments was significantly diluted in the federal legislative process.<sup>5</sup>

It is difficult to identify cases of price overvaluation with accuracy. Descriptive analyses alone can lead to an incorrect impression. Examining national price indices is an ineffective means of early detection of housing bubbles.<sup>6</sup> Since 2014, DIW Berlin has analyzed price trends in Germany's 127 largest cities and used an elaborate statistical procedure to determine the existence of price bubbles.<sup>7</sup>

The approach used by DIW Berlin is the only one based on regional price indices. It has the advantage of detecting speculative overvaluations in real time. Other procedures that attempt to explain price trends using fundamental factors can be applied on the regional level only with a significant delay due to the data availability. The present study updates the results of previous studies and supplements them with observations from additional market segments. The latter are based on a data set from Bulwiengesa AG containing housing

<sup>4</sup> International Monetary Fund, Article IV consultation, Staff Report for the 2016 Article IV Consultation. 2016.

<sup>5</sup> Isabel Schnabel, "Schutz vor Immobilienblasen: Genug der Zugeständnisse!" Guest article, *Handelsblatt*, March 20. 2017.

<sup>6</sup> The number of studies concerning the possible speculative housing price bubble formation in Germany is still limited. The results of existing studies are controversial and do not provide a conclusive picture. Xi Chen and Michael Funke examined aggregated series a few years ago and concluded that there is no housing bubble in Germany; see Xi Chen and Michael Funke, "Renewed Momentum in the German Housing Market: Boom or Bubble?" *CESifo Working Paper* no. 4287 (2013). Two other researchers applied the same methodology to the seven largest cities in Germany; see Philipp an de Meulen and Martin Micheli, "Droht eine Immobilienpreisblase in Deutschland?" *Wirtschaftsdienst* 93(8) (2013): 539-544. They found that speculative motives contributed to the real estate price increases to a very limited extent. In Florian Kajuth, Thomas A. Knetsch, and Nicolas Pinkwart, "Assessing house prices in Germany: evidence from an estimated stock-flow model using regional data," *Deutsche Bundesbank Discussion Paper* no. 46/2013 (2013), the authors concluded that some prices were significantly higher than the fundamentally justified level by up to 25 percent.

<sup>7</sup> See Konstantin Kholodilin and Claus Michelsen, "Weiter steigende Immobilienpreise, aber keine flächendeckenden Spekulationsblasen," *DIW Wochenbericht* no. 49 (2015): 1164-1173. (available online)

Since 2010, the housing prices and rents increased substantially.

rents and selling prices (see Box 1). Using the statistical tests that identify explosive price developments, it is possible to detect bubbles in regional real estate markets (see Box 2).<sup>8</sup>

### High volume of loans for real estate

Price series are not the only variable where aberrations relevant to the economy as a whole (bubbles) can show up. Housing affordability as measured by the relationship between housing prices and disposable income is another indicator. In the long run, housing prices should develop in harmony with disposable income. Although real estate prices have recently risen much faster than income, the relationship between selling prices and income has historically been and continues to be harmonious in Germany. A comparison with other countries indicates that fluctuations are not unusual (see Figure 2).

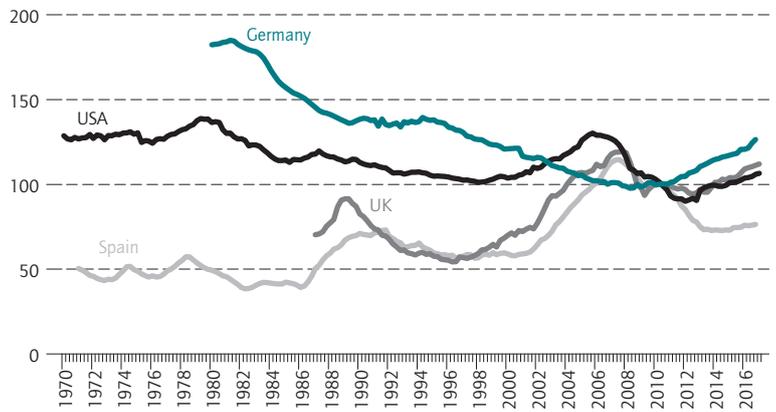
Another frequently mentioned indication of speculative bubbles is a jump in the volume of new housing loans. This does not apply to Germany at present: loan volume surged upward in Germany in 2015 but has recently stabilized at a constant level (see Figure 3). This is typically explained by the European Banking Authority’s *Guidelines on Sound Remuneration Policies and Disclosures*, that reportedly led to limitation of lending for specific types of households. However, the recent *Bank Lending Survey* of commercial banks did not indicate any long-term tightening of lending standards. The ratio of new housing loans to GDP is stable. The volume of loans with interest rates fixed for over five years continues to expand—partially due to an increase in loans with long-term fixed interest rates of over ten years (see Figure 4).

In view of these indicators, the overall risk of a speculative bubble occurring in the national German housing market appears low. Long-term fixed interest rates and the relatively stable volume of new loans support the assumption that most residential construction projects rest on a solid financial foundation. The excessive credit-driven investment activity in other countries such as the USA led to financial market distortions and when the property bubble burst, to the massive debt overload of many households. Currently, a scenario like this is unrealistic for Germany.

Figure 2

### Housing price-to-income ratio

Index: 2010 = 100



Source: OECD.

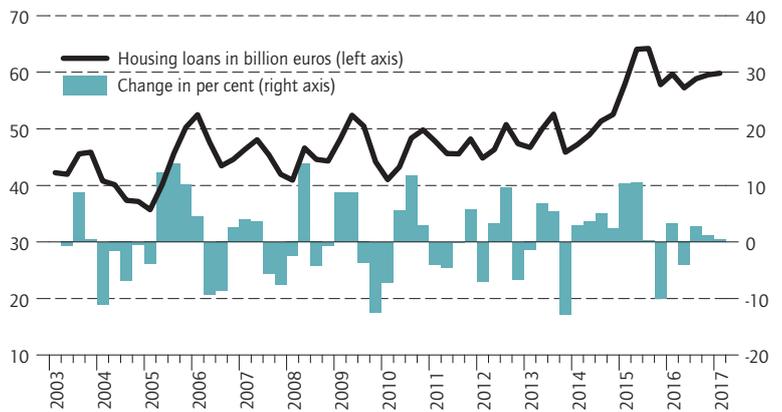
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During many years, the house prices had been growing much more slowly than the income

Figure 3

### Housing loans for private households

Billion euros; change in per cent



Source: Deutsche Bundesbank.

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The provision of housing loans to private households remains stable.

### Regional real estate market development is relevant

Studying individual indicators and the aggregated national market is only the first step in analyzing price developments in the market for residential real estate. Housing markets are first and foremost regional markets. Accordingly, speculative overvaluations arise in individ-

<sup>8</sup> For detailed explanations see Konstantin Kholodilin, Claus Michelsen, and Dirk Ulbricht, "Speculative Price Bubbles in Urban Housing Markets in Germany," *DIW Discussion Papers* 1417 (2014) (available online) and Ulrich Homm and Jörg Breitung, "Testing for speculative bubbles in stock markets: a comparison 605 of alternative methods," *Journal of Financial Econometrics* 10(1) (2012): 198-231.

Box 1

**Regional real estate prices**

The data on price trends for real estate in Germany are meager in comparison to other countries. On the local level in particular, there are hardly any sources that allow for analysis over longer periods of time. German time series are typically very short, cover only a few locations, or only contain asking prices.

For the present study, we used rental and selling price data from Bulwiengesa AG, a consulting company that has generated data and indices on individual real estate market segments for over 30 years. The German central bank, for example, uses them to track trends in the real estate market. And the Organization for Economic Co-operation and Development (OECD) employs them as the basis for the Germany-wide housing price index embedded in its international database. The data encompass the average selling prices and rents for apartments in 127 large German cities between 1990 and 2016. It is a unique source of information with regard to geographical and temporal coverage of the market.<sup>1</sup>

In the present study, we included eight variables:

- average selling price for lots for multiple-family homes in the mid-price range
- average selling price for condominiums upon initial occupancy (new buildings)
- average selling price for condominiums upon resale (existing buildings)
- average selling price for townhouses upon initial occupancy (new buildings)

- average selling price for townhouses upon resale (existing buildings)
- average selling price for single-family homes (existing buildings)
- average rent for apartments upon initial occupancy (new buildings)
- average rent for apartments upon re-rental (existing buildings)

We also used the above variables to calculate the ratio of selling prices to annual rents for new and existing buildings. To calculate the price-to-rent ratio for lots, we used the annual rent for apartments in new buildings. And to find the ratio for single-family homes, we used the annual rent for apartments in existing buildings.

Bulwiengesa AG also classified the cities into four groups based on their importance, population, and liquidity in the urban real estate market. The classification system has become an industry standard. A-cities are the most important markets. There are seven of them: Berlin, Hamburg, Munich, Cologne, Düsseldorf, Frankfurt am Main, and Stuttgart. A-cities are internationally and/or nationally important and overall, feature excellent real estate market conditions. The annual turnover in these cities is over 2.5 percent of the national market. Fourteen cities are classified as B-cities. They are nationally and/or regionally important and have an annual turnover volume of over 1.5 percent of the market. The majority of the 22 C-cities are regional centers, but most cities (84) are classified as local centers: D-cities. Turnovers in these two city types are significantly lower than in the A- and B-cities. In the present study, we used this classification to look at individual cities in addition to conducting a differentiated analysis of the activity in the real estate market.

<sup>1</sup> For a detailed description of the data, see Bulwiengesa, "Immobilienmarktdaten für Deutschland und ausgewählte Staaten in Europa." (available online in English).

ual cities before spreading to the national market.<sup>9</sup> This is why the present study employs a differentiated approach that distinguishes between new construction and hous-

ing stock prices, looks at building plot prices separately, and takes cities, groups of cities, and the overall market into account (see Box 1). No other study used such a differentiated perspective before.

<sup>9</sup> See Allen C. Goodman and Thomas G. Thibodeau, "Where are the speculative bubbles in US housing markets?" *Journal of Housing Economics* 17(2) (2008): 117-137; Min Hwang and John M. Quigley, "Economic Fundamentals in Local Housing Markets: Evidence From U.S. Metropolitan Regions," *Journal of Regional Science* 46(3) (2006): 425-453 and Jesse M. Abraham and Patric H. Hendershott, "Bubbles in metropolitan housing market," *Journal of Housing Research* 7(2) (1996): 191-207.

The approach we used was to test statistically whether or not real estate prices are growing explosively (for methodological details see Box 2). In the long run, the housing prices depend on the evolution of the rental yields and, therefore, on the overall income dynamics, the explo-

Box 2

**Identifying spikes**

Our analysis of property prices rests on two assumptions: prices are exclusively determined by the present value of future income, and market participants are fully informed and rational. Because these prices directly reflect all known information, they follow the random walk pattern. Applied to the real estate market, this means that housing prices are coupled to rent trends in the long run. If prices are not a perfect map of rental yield, additional factors such as real estate speculation obviously play a role. Speculation leads to expected future increases in real estate prices co-determining price trends alongside the expected trend of real demand. If this estimate becomes the consensus among market participants, the purchase of overvalued real estate is a rational individual choice leading to a speculation bubble and prices that increasingly decouple from demand.

There are a number of approaches to empirically detect speculative bubbles in the real estate market.<sup>1</sup> Part of the relevant literature is explicitly based on the theoretical considerations described above. The Homm and Breitung test was developed to identify explosive behavior of price.<sup>2</sup> If housing prices are discounted flows of expected rental revenues, it is extremely unlikely that they will grow at an exponential rate. Following this approach, it is possible to test whether or not a time series is following a random walk (null hypothesis) or exploding. The first option reflects the hypothesis of rational expectations and therefore, the fundamental long-run components of the prices.

The test assumes that the time series under examination is an autoregressive process AR(1):

$$y_t = \rho_t y_{t-1} + u_t$$

in which coefficient  $\rho_t$  varies over time and  $\rho_t$  is a typical error term.

Under the null hypothesis,  $y_t$  follows a random walk in all periods:

$$H_0: \rho_t = 1 \text{ for } t = 1, 2, \dots, T$$

Under the alternative hypothesis, the process starts as a random walk but at a certain point in time  $t^*$  transforms into an explosive process (spikes).

$$\rho_t = \begin{cases} 1, & \text{if } t = 1, 2, \dots, t^*, \\ \rho^* > 1 & \text{if } t = t^* + 1, \dots, T \end{cases}$$

To test the hypotheses, we used a Chow-type unit-root structural break test. We looked for the point in time  $t^*$  at which the process became explosive. With this approach, we were able to test whether speculative price trends are present on the city level and for groups of cities.

We followed two additional test strategies. First, we analyzed whether there were explosive trends for rents, prices, and the price-to-rent ratio on the individual city level. The second strategy consisted of extracting the most important common price trend and testing it for explosive behavior instead of examining each individual city separately. The common trend represents a weighted average of the price time series in the individual cities, whose weights were determined by performing a principal component analysis. There are two arguments in favor of this approach. First, price trends in individual cities are heterogeneous and the fluctuations compensate for each other when the overall trend is calculated. Second, an overall trend can be calculated for any set of cities, enabling an examination of the extent to which a property bubble already exists in a given market. We calculated the principal components for four city classes and Germany as a whole.

<sup>1</sup> See Man Cho, "House price dynamics: A survey of theoretical and empirical issues," *Journal of Housing Research* 7 (1996): 145-172.

<sup>2</sup> See Ulrich Homm and Jörg Breitung, "Testing for speculative bubbles in stock markets: A comparison of alternative methods," *Journal of Financial Econometrics* 10(1) (2012): 198-231.

sive housing price increases point out to a decoupling of the actual prices from those determined by the real demand for housing.

However, demand can fluctuate sharply, for example, as a consequence of intensified immigration. Real estate supply is rigid in the short run, so rents rise sharply. To account for developments like these, the analysis included both real estate prices and rents. If the patterns of rental and selling prices are similar, real estate valu-

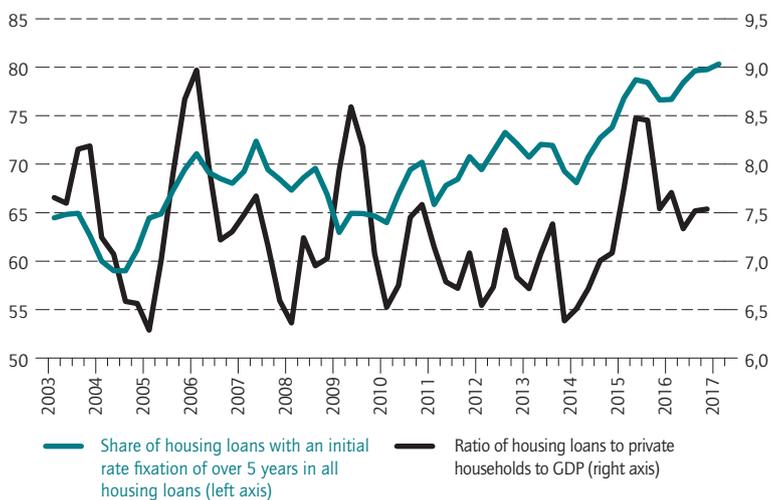
ation is in line with the market. If only prices are explosive, a bubble is likely to be building up. If only rents are explosive, potential investment opportunities are available at the location in question. We also tested price-to-rent ratio for explosiveness, being a standard overvaluation measure.

To account for the spatial dimension of the real estate market, we used a multi-step approach to assessing price development. In the first step, we explored a set of Ger-

Figure 4

**Ratio of housing loans to private households to GDP**

Per cent



Source: Deutsche Bundesbank.

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The financing of private housing resides on solid basis.

many-wide price series from 1996 through 2016. Next, we analyzed price developments in locations classified as A, B, C, or D. This classification was developed by Bulwiengesa AG and is based on the figures on population and turnover of the real estate transactions. “A-cities” are internationally important locations, whereas “D-cities” are centers of local importance. Finally, we tracked price development in the individual cities to identify local bubbles. In the process, we differentiated between the existing and newly built stock of condominium dwellings and single-family houses as well value of residential lots.

**Price increases in all segments remain strong**

In Germany’s major cities, the price of residential real estate and undeveloped residential land continues to surge upward. In comparison to base year 2009, the price of undeveloped residential land in the 127 largest cities in Germany was around 63 percent higher and condominiums around 54 percent more expensive in both the existing stock and new building segments. For terraced houses—both new and existing—buyers must now pay 40 percent more than seven years prior. During the same period, single-family homes became around 38 percent more expensive (see Figure 1). In comparison, rents for new apartments rose by around 34 percent and for exist-

ing ones by around 32 percent—an expression of the rising demand for living space in large cities.<sup>10</sup>

The strongest driver is the market trend in A-cities. In these locations the price for undeveloped residential land has more than doubled since 2009; the price of new condominiums has risen by around 68 percent and existing ones by 78 percent; and price increases for homes were well over 50 percent. Rents, on the contrary, have only risen by one-third for the existing and by 38 percent for the newly built dwellings.

The weakest price increases were in D-cities. Residential lots in these locations rose by 40 percent; the price for condominiums of both types rose by around 50 percent; and single-family homes and terraced houses became 35–40 percent more expensive. The trends in B- and C-cities were within the range defined by the price trends in A- and D-cities (see Figure 5 and Table 1).

**Bubbles likely in isolated market segments**

The statistical tests showed that prices in almost all market segments display a temporary explosive behavior, but in almost all cases this trend is accompanied by corresponding rent increases. This indicates that the valuation is justified by the fundamental factors. However, the price-to-rent ratio in A-cities appears to indicate bubble formation for condominiums—in both the new building and existing building segments—and for residential lots. Prices in these two segments have risen significantly higher than rents, such that the ratio of the two variables shows an unusual pattern in these cases (see Table 2).

The trends in B- and C-cities are sound at present. Only existing apartments and the prices of existing terraced houses suggest possible overvaluation in D-cities, where skyrocketing selling prices out of line with the development of rents can be observed. However, judging by the price-to-rent ratio, this is not cause for alarm.

Throughout Germany, bubbles may be building up in the markets for new condominiums and single-family homes as prices further decouple from rents. The segment of newly built dwellings in apartment buildings

<sup>10</sup> Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR), “Renaissance der Großstädte—eine Zwischenbilanz,” BBSR-Berichte KOMPAKT 9/2011 (2011). Also see Kurt Geppert and Martin Gornig, “Die Renaissance der großen Städte—und die Chancen Berlins,” *DIW Wochenbericht* no. 26 (2003): 411–418 (available online); Kurt Geppert and Martin Gornig, “Mehr Jobs, mehr Menschen: Die Anziehungskraft der großen Städte wächst,” *DIW Wochenbericht* no. 19 (2010): 2–10 (available online) and Konstantin Kholodilin, “Wanderungen in die Metropolen Deutschlands,” *Der Landkreis* 1/2 (2017): 44–47.

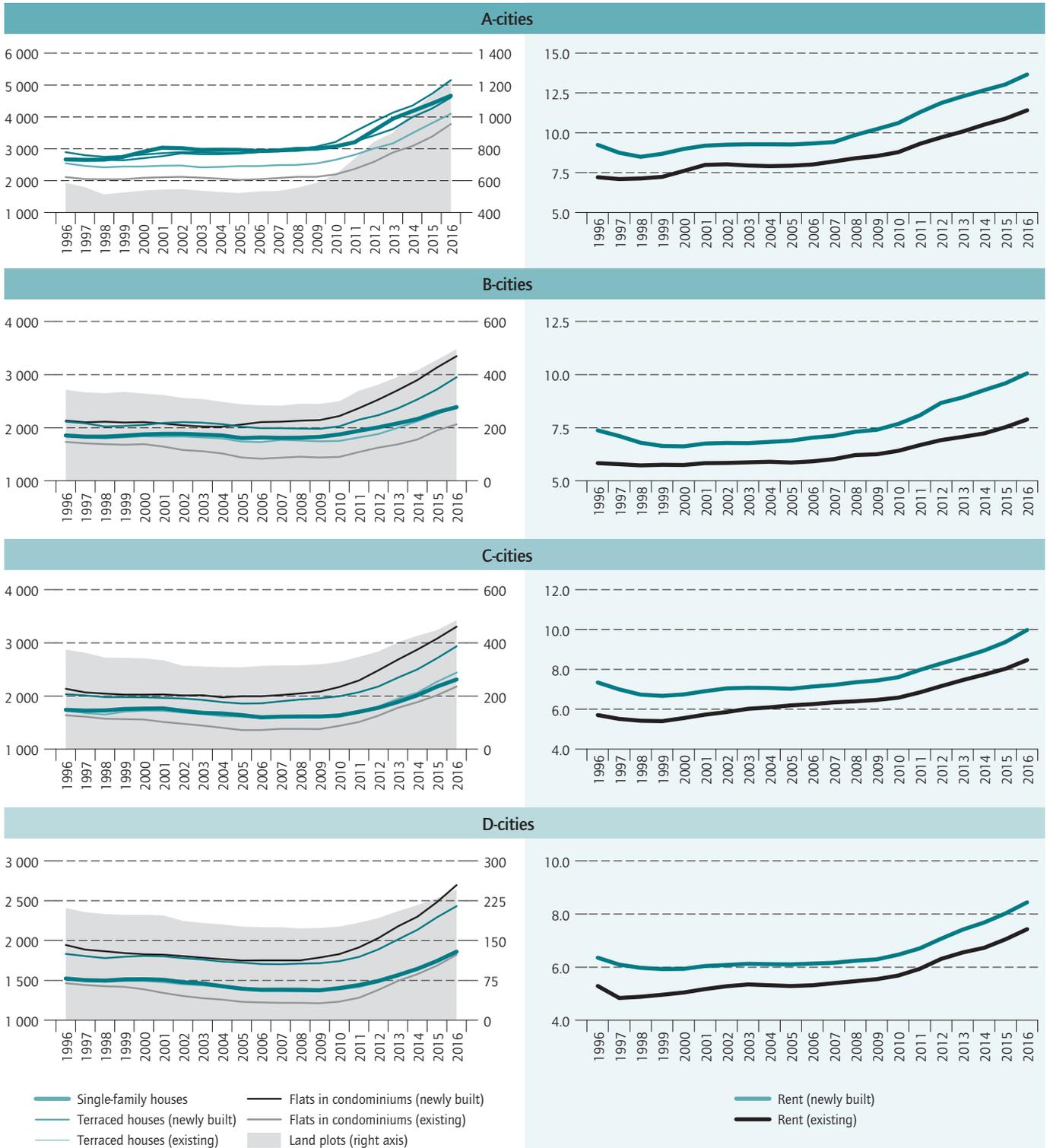
Figure 5

**Prices by market segments in all 127 cities**

Euros per square meter of living or ground space in current prices

**Rents by market segments in all 127 cities**

Euros per square meter of living or ground space in current prices



Source: Bulwiengesa; own calculations.

Especially in A-cities, the prices and rents substantially increased.

Table 1

**Evolution of housing prices and rents by types of cities, 2009–2016**

Change with respect to 2009, per cent

	Germany	A-cities	B-cities	C-cities	D-cities
Land plots	64	110	71	52	42
Single-family houses	38	55	31	43	35
Terraced houses (newly built)	45	54	49	50	42
Terraced houses (existing)	41	62	38	51	35
Flats in condominiums (newly built)	54	68	56	59	51
Flats in condominiums (existing)	54	78	44	58	50
Rents (newly built)	34	33	36	34	34
Rents (existing)	32	33	26	31	34

Source: Bulwiengesa; own calculations.

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represents only a small share of the overall market: new apartments built since 2010 make up around 1.4 percent of the housing stock in Germany. Single-family homes, on the contrary, are a significantly higher proportion, but not in the large cities included in our study where apartment buildings dominate.

Observations of individual local markets showed price trends in many cities that were not accompanied by parallel trends for rents. When using the price-to-rent ratio measure, the speculative bubbles in at least one market segment are detected in 20 of the 127 large cities in Germany (see Map 1 and Table 3). The values of new condominiums and undeveloped residential land in particular form a critical pattern. A-cities are affected rather frequently, but the trend in other city categories is less striking.

Table 2

**Assessment of the market dynamics by segments and types of cities**

	Price-to-rent ratios	Prices and rents tested separately
<b>A-cities</b>		
Flats in condominiums (existing)	possible speculative bubble	no signs of speculative bubble
Flats in condominiums (newly built)	possible speculative bubble	no signs of speculative bubble
Single-family houses	no signs of speculative bubble	no signs of speculative bubble
Land plots	possible speculative bubble	no signs of speculative bubble
Terraced houses (existing)	no signs of speculative bubble	no signs of speculative bubble
Terraced houses (newly built)	no signs of speculative bubble	no signs of speculative bubble
<b>B-cities</b>		
Flats in condominiums (existing)	no signs of speculative bubble	no signs of speculative bubble
Flats in condominiums (newly built)	no signs of speculative bubble	no signs of speculative bubble
Single-family houses	no signs of speculative bubble	no signs of speculative bubble
Land plots	no signs of speculative bubble	no signs of speculative bubble
Terraced houses (existing)	no signs of speculative bubble	no signs of speculative bubble
Terraced houses (newly built)	no signs of speculative bubble	no signs of speculative bubble
<b>C-cities</b>		
Flats in condominiums (existing)	no signs of speculative bubble	no signs of speculative bubble
Flats in condominiums (newly built)	no signs of speculative bubble	no signs of speculative bubble
Single-family houses	no signs of speculative bubble	no signs of speculative bubble
Land plots	no signs of speculative bubble	no signs of speculative bubble
Terraced houses (existing)	no signs of speculative bubble	no signs of speculative bubble
Terraced houses (newly built)	no signs of speculative bubble	no signs of speculative bubble
<b>D-cities</b>		
Flats in condominiums (existing)	no signs of speculative bubble	possible speculative bubble
Flats in condominiums (newly built)	no signs of speculative bubble	no signs of speculative bubble
Single-family houses	no signs of speculative bubble	no signs of speculative bubble
Land plots	no signs of speculative bubble	no signs of speculative bubble
Terraced houses (existing)	no signs of speculative bubble	possible speculative bubble
Terraced houses (newly built)	no signs of speculative bubble	no signs of speculative bubble
<b>Deutschland</b>		
Flats in condominiums (existing)	no signs of speculative bubble	no signs of speculative bubble
Flats in condominiums (newly built)	possible speculative bubble	no signs of speculative bubble
Single-family houses	possible speculative bubble	no signs of speculative bubble
Land plots	no signs of speculative bubble	no signs of speculative bubble
Terraced houses (existing)	no signs of speculative bubble	no signs of speculative bubble
Terraced houses (newly built)	no signs of speculative bubble	no signs of speculative bubble

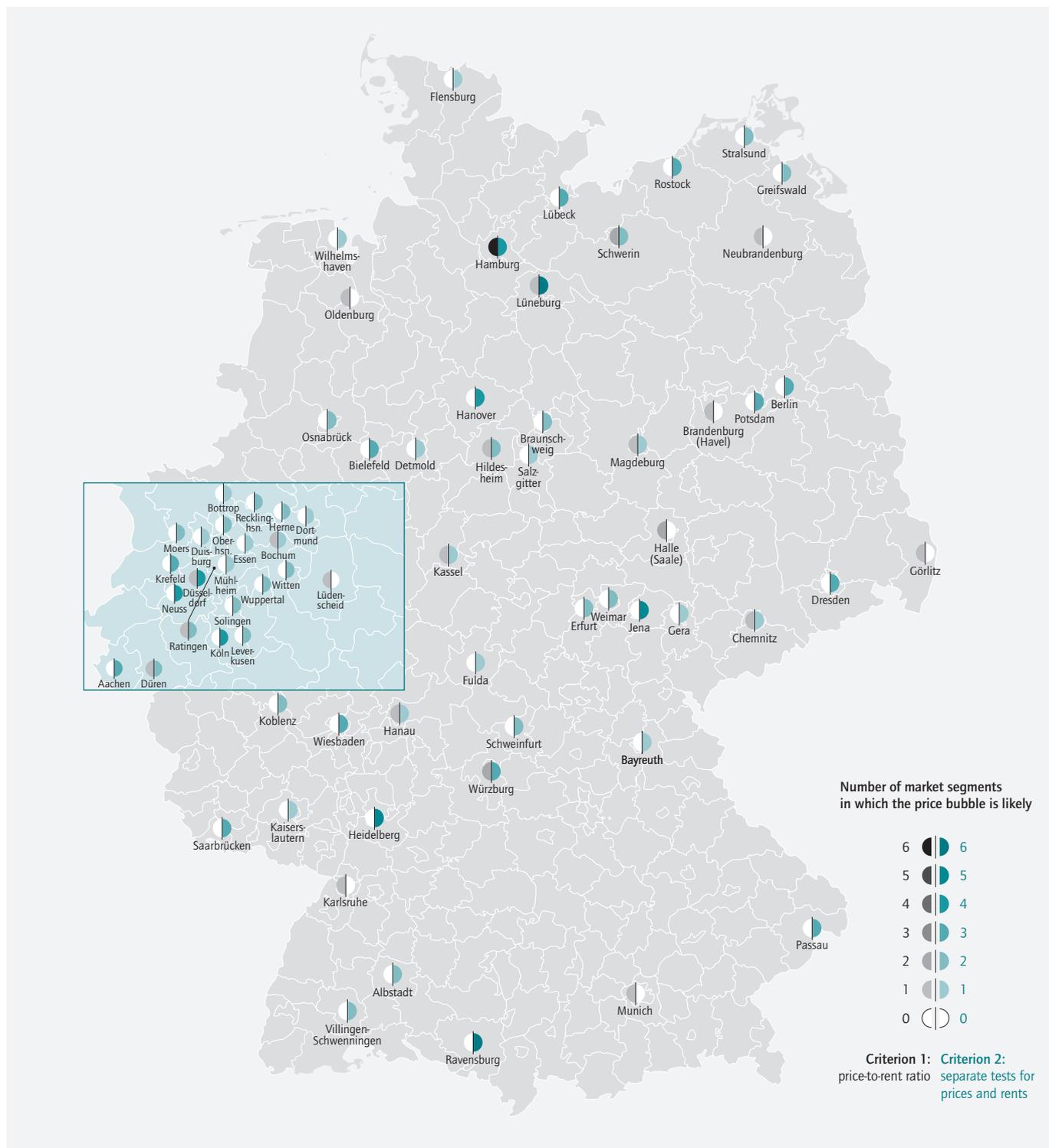
Source: Bulwiengesa; own calculations.

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Map

**Results of speculative bubble test for individual cities**

The number of market segments in which the price bubble is likely



Source: Bulwiengesa; own calculations.

Table 3

**Test results for individual cities**

Type of city (total number of cities)	Speculative bubble present in at least one segment (price-to-rent ratios)	Speculative bubble present in at least one segment (prices and rents tested separately)
A-city (7)	3	4
B-city (14)	2	7
C-city (22)	1	13
D-city (84)	14	41
Overall (127)	20	65

Source: Bulwiengesa; own calculations.

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Including the separate tests using prices and rents separately demonstrated that in half of the cities examined, a speculative bubble is likely in at least one market segment (see Map 2). There as well, the value trend of new condominiums (47 cities) and undeveloped residential lots (28 cities) primarily indicates that selling prices have decoupled from rents. The proportion of cities with alarming price trends in the new building segment has significantly increased since the last study. Based on price information up to 2014, only 28 cities with possible aberrations were identified. The proportion of A-cities was relatively large at that time. But as measured by the separate tests of price and rent trends, the likelihood of a bubble in at least one market segment of all other city types is high.

**Conclusions**

In recent years, real estate prices in Germany’s large cities have risen significantly. However, the results of the present analysis show that to a great extent, this is in line with the development of rents. Some cities also experienced catch-up effects as a result of the real estate market’s long-lasting sluggishness—especially in international comparison. In retrospect, trends that seemed critical before now appear to have been justified. The overall

results show that the speculative investor behavior in the USA, for example, which triggered a severe global economic and financial crisis, is not evident in Germany at this time. Real estate transactions are being made on solid financial bases, the volume of loans is stable, and the statistical tests introduced in the present study show no sign of aggregate bubble build up. However, this does not mean that prices will remain stable at their present level. On the one hand, they have the potential to continue rising as a result of the housing shortage and sluggish construction activity in large cities. On the other hand, a more austere monetary policy could lead to a significant drop in demand for housing and an ensuing price correction. This would not be due to a bubble bursting, however. Instead, it would be the result of a fundamental change in the general conditions.

A close-up view of regional market segments shows that the likelihood of a bubble in A-cities (large cities of international importance) has increased because selling prices are rising more rapidly in these locations than rents. However, many smaller cities are now exhibiting a lower likelihood of forming property bubbles than before. This is primarily because rents in smaller cities have virtually caught up—which could also be the result of the previous upsurge in prices. To ensure investment profitability in markets where real estate prices are surging upward, there is pressure to charge higher rents and set prices at the limit of what households are willing to pay.

But policy makers should not lapse into passivity as a result of the findings of the present study. Recently, the measures suggested by the International Monetary Fund and other institutions were adopted that allow intervening in lending and financing of real estate if worse-case scenarios arise. However, the regulatory measures were diluted and defused in the federal legislative process. The great challenge is to detect worrisome trends on the aggregate level. There are no clear criteria for doing so yet. Systematic monitoring that is suggested in this study would improve the early bubble detection and facilitate targeted application of the new instruments.

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