INDEX

vdp Property Price Index

Property prices continue to rise despite fragile economy

Compared with the corresponding quarter the previous year:

Property market as a whole: **+5.9 %**

Housing: **+5.8 %**
Owner-occupied housing: + 6.0 %
Multi-family houses: + 5.6 %

Housing top 7 markets: **+3.6 %**
Owner-occupied housing: +3.4 %
Multi-family houses: +3.7 %

Commercial: **+5.9 %**
Office properties: +8.8 %
Retail properties: +0.1 %

vdp The German **Pfandbrief Banks**

Property prices continue to rise despite fragile economy

Market as a whole

With an increase of 5.9 % compared with the third quarter of 2018, the vdp property price index rose further despite a still weak German economy. This weakness, which is mainly due to lower export demand from other European countries, has thus not yet affected demand for properties. Households continue to benefit from the high employment rate and positive income trend of the past few years. At the same time, the European Central Bank stuck to its expansionary monetary policy, leading to lower borrowing rates following two years of sideways movement. As a result, private and institutional investors continue to focus on property as an asset class.

Housing market

Prices on the housing market increased by 5.8 % overall year on year, meaning that the rise in prices of German residential properties continues to slow. This declining momentum is clearly evident on the market for multi-family houses, which recorded the lowest increase for nearly three years at 5.6 %. In particular, the planned or implemented draft legislation to limit rent rises appears gradually to be having an impact: new lease rentals climbed by 4.4 % year on year. Nevertheless, multi-family houses remain attractive to investors as the shortage of alternative investment opportunities and the prospect of continuing high demand should keep prices stable in the medium term.

Prices on the market for owner-occupied housing rose by 6.1 % year on year. Prices of single-family houses and condominiums increased at almost identical rates of 6.0 % and 6.1 %

respectively. Demand for residential property remains stable thanks to a still healthy labour market coupled with tax incentives and the further decline in borrowing rates.

Top 7 housing market

Price growth momentum for residential properties in the top 7 cities continues to level out. Prices rose by 3.6 % compared with the same quarter of the previous year. In other words, we continue to observe growth, but at an ever slower pace. This is reflected, among other things, in the fact that the increase compared to the prior-year quarter has now been lower for the eighth time in succession.

This weakening momentum is particularly apparent on the market for multi-family houses, where prices rose by 3.7 %. New lease rentals rose by only 2.7 % year on year, which represents a fairly significant slowdown in price growth. Regulatory uncertainty surrounding the political debate, especially the discussion over the rent cap, fuels the belief that the price growth of previous quarters will not continue unchecked.

Prices for owner-occupied housing increased by 3.4 % in the top 7 cities. While this also signals lower momentum, the difference compared to the rate of growth over the last two years is not as marked as on the market for multi-family houses. Condominium prices rose by 3.3 % year on year and prices of single-family houses by 3.6 %. The smallest price increase compared to the same quarter of the previous year was for condominiums in Munich (2.3 %) and the largest in Berlin (4.9 %). Compared with the increase in new lease rentals (Berlin: +2.6 % on the

same quarter of the previous year), this reflects the widening gap between owner-occupied property prices and rents in the major urban areas.
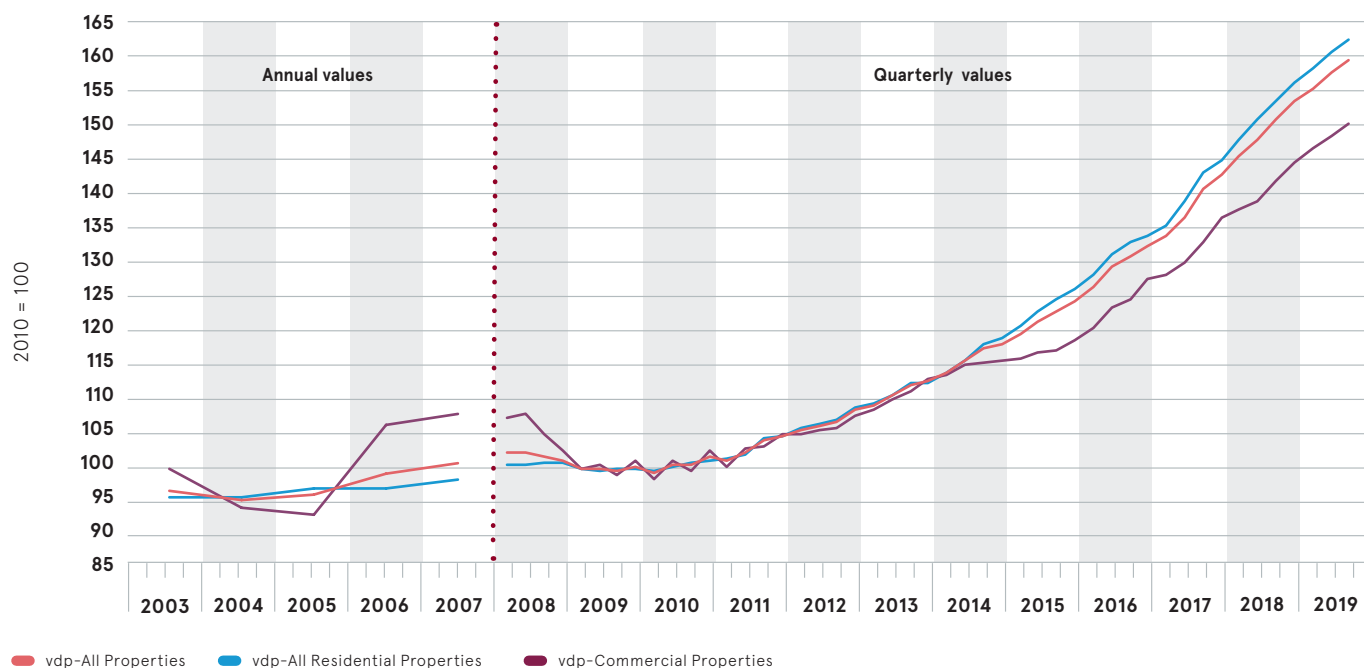
Commercial property market

Prices on the commercial property market rose by 5.9 % overall, thus increasing slightly faster than those for residential property during the period under review. The office property market, where prices were up by 8.8 % on the same quarter of the previous year, continues to play a dominant role.

This market is being driven by continuing high demand for space, which appears undampened by the weak economy. This demand is accompanied by a tight supply, which is also evidenced by low vacancy rates. These factors combined to increase new lease rentals for office space by 6.8 % year on year. At the same time, office properties remain the focus of investor interest, with the result that the cap rate index fell by 1.8 %. However, the market appears to be gradually bottoming out.

The trend of the retail property market lags well behind that of other markets. This is partly because the retail sector is facing structural challenges, particularly the steadily growing market share of online retailers. This makes it harder to market space in cities, even if parts can be absorbed by restaurants, pharmacies and supermarkets. The result has been a sideways movement in retail property prices, which have remained almost unchanged compared to the previous year with a marginal increase of 0.1 %. Rents were also relatively stable compared to the previous year, increasing by 0.3 %.

Real estate market as a whole

Office properties continue to dominate

vdp-All Properties vdp-All Residential Properties vdp-Commercial Properties

Year	All properties		All residential properties		All commercial properties	
	Index	y-o-y change in %	Index	y-o-y change in %	Index	y-o-y change in %
2008	101.4	1.1	100.2	2.0	105.2	−1.2
2009	99.5	−1.9	99.4	−0.8	99.7	−5.3
2010	100.0	0.5	100.0	0.6	100.0	0.4
2011	102.7	2.6	102.7	2.7	102.4	2.4
2012	106.4	3.7	106.7	3.8	105.5	3.0
2013	110.7	4.1	110.9	3.9	110.4	4.6
2014	115.9	4.7	116.4	5.0	114.6	3.8
2015	121.7	5.0	123.3	5.9	117.0	2.1
2016	129.5	6.4	131.4	6.5	123.7	5.8
2017	138.3	6.8	140.5	6.9	131.8	6.5
2018	149.4	8.0	152.2	8.3	140.7	6.8

Index: 2010 = 100

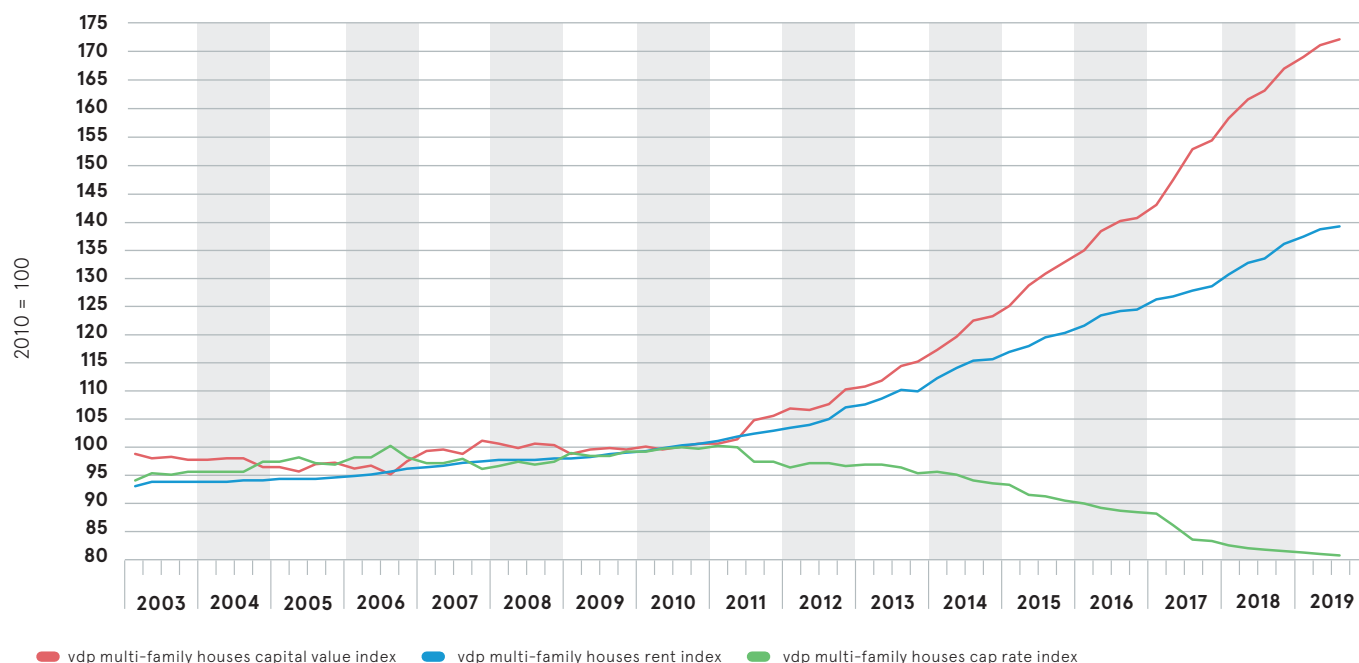| Quarter	All properties		All residential properties		All commercial properties	
	Index	y-o-y change in %	Index	y-o-y change in %r	Index	y-o-y change in %
Q4 2017	142.7	8.0	144.8	8.3	136.3	7.0
Q1 2018	145.3	8.8	147.8	9.2	137.5	7.4
Q2 2018	147.9	8.3	150.8	8.7	139.0	7.1
Q3 2018	150.8	7.3	153.7	7.4	142.0	6.8
Q4 2018	153.5	7.6	156.4	8.0	144.5	6.0
Q1 2019	155.4	7.0	158.2	7.0	146.7	6.7
Q2 2019	157.7	6.7	160.7	6.6	148.4	6.8
Q3 2019	159.7	5.9	162.6	5.8	150.4	5.9

Index: 2010 = 100

Owner-occupied housing

Demand remains stable
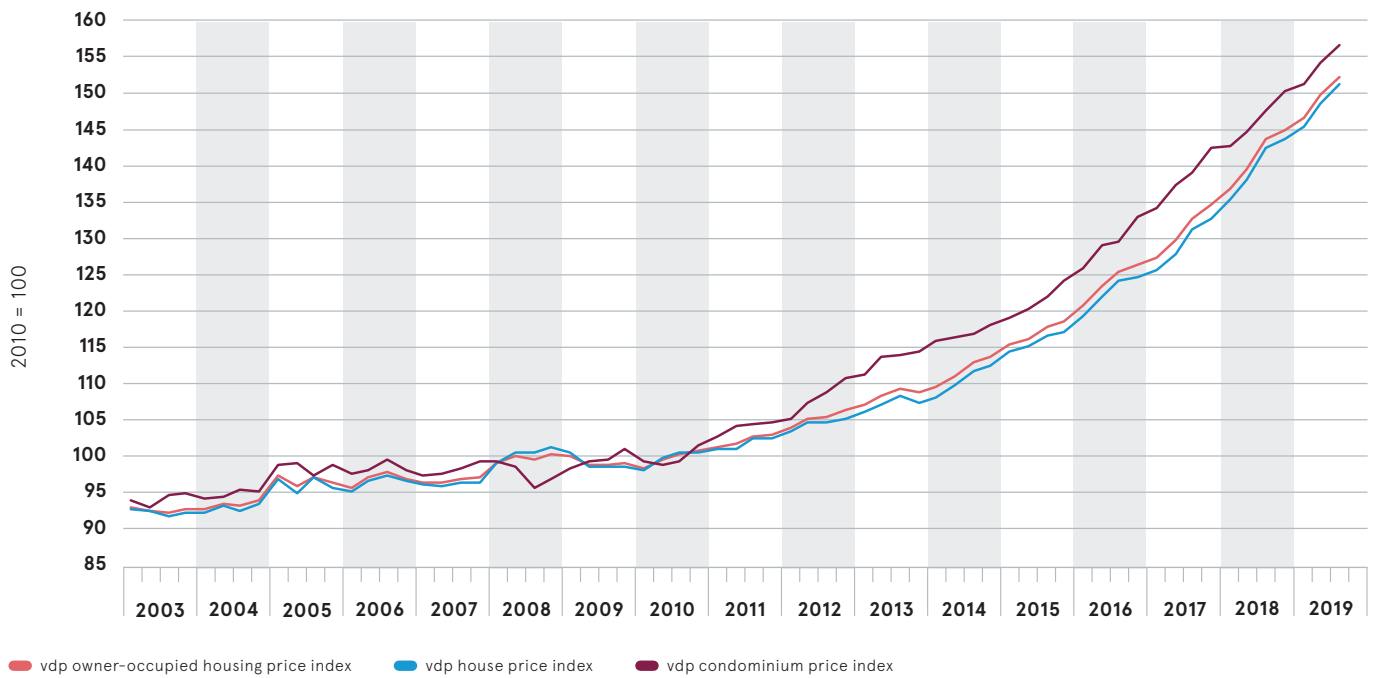
| | vdp owner-occupied housing price index | | vdp house price index | | vdp condominium price index | |

	Owner occupied housing		Single family houses		Condominiums	
Year	**Index**	**y-o-y change in %**	**Index**	**y-o-y change in %**	**Index**	**y-o-y change in %**
2008	100.0	3.3	100.6	4.3	97.9	−0.6
2009	99.4	−0.6	99.3	−1.3	99.8	2.0
2010	100.0	0.6	100.0	0.7	100.0	0.2
2011	102.4	2.4	101.9	1.9	104.3	4.3
2012	105.5	3.0	104.7	2.7	108.3	3.9
2013	108.7	3.1	107.5	2.6	113.6	4.9
2014	112.1	3.1	110.8	3.1	117.0	3.0
2015	117.2	4.6	116.0	4.7	121.7	4.0
2016	124.2	6.0	122.8	5.8	129.6	6.5
2017	131.4	5.8	129.6	5.5	138.5	6.8
2018	141.5	7.7	140.2	8.2	146.6	5.8

Index: 2010 = 100

	Owner occupied housing		Single family houses		Condominiums	
Quarter	**Index**	**y-o-y change in %**	**Index**	**y-o-y change in %**	**Index**	**y-o-y change in %**
Q4 2017	134.9	6.6	133.0	6.4	142.6	7.0
Q1 2018	137.1	7.4	135.7	7.8	142.9	6.3
Q2 2018	139.7	7.5	138.4	8.1	145.0	5.3
Q3 2018	143.8	8.1	142.8	8.7	147.8	6.1
Q4 2018	145.3	7.7	143.9	8.2	150.6	5.6
Q1 2019	146.9	7.2	145.8	7.4	151.5	6.0
Q2 2019	149.9	7.3	148.8	7.6	154.3	6.4
Q3 2019	152.5	6.0	151.4	6.0	156.9	6.1

Index: 2010 = 100

Multi-family houses

Rental price growth easing

● vdp multi-family houses capital value index   ● vdp multi-family houses rent index   ● vdp multi-family houses cap rate index

	Capital value		Residential rents		Cap rate	
Year	Index	y-o-y change in %	Index	y-o-y change in %	Index	y-o-y change in %
2008	100.4	0.7	97.7	0.8	97.4	0.1
2009	99.5	-0.9	98.5	0.8	99.1	1.7
2010	100.0	0.6	100.0	1.5	100.0	0.9
2011	103.0	3.0	102.1	2.1	99.1	-0.9
2012	107.9	4.8	104.8	2.7	97.1	-1.9
2013	113.1	4.8	109.3	4.2	96.6	-0.5
2014	120.8	6.8	114.5	4.8	94.8	-1.9
2015	129.5	7.3	118.9	3.9	91.8	-3.2
2016	138.7	7.1	123.7	4.0	89.1	-2.9
2017	149.7	7.9	127.7	3.2	85.3	-4.3
2018	163.2	9.0	133.6	4.6	81.9	-4.0

Index: 2010 = 100

	Capital value		Residential rents		Cap rate	
Quarter	Index	y-o-y change in %	Index	y-o-y change in %	Index	y-o-y change in %
Q4 2017	154.9	9.9	128.8	3.3	83.2	-6.0
Q1 2018	158.9	10.9	130.9	3.5	82.4	-6.6
Q2 2018	162.1	9.7	133.1	4.6	82.1	-4.7
Q3 2018	163.8	6.8	133.8	4.4	81.7	-2.3
Q4 2018	167.8	8.4	136.6	6.0	81.4	-2.2
Q1 2019	169.8	6.9	137.7	5.2	81.1	-1.6
Q2 2019	171.9	6.0	139.2	4.6	81.0	-1.3
Q3 2019	173.1	5.6	139.7	4.4	80.7	-1.2

Index: 2010 = 100

Owner-occupied housing – top 7 markets*

Momentum levelling off, demand still high

Legend:
- ■ Residential properties TOP-7
- ■ Owner-occupied dwellings TOP-7
- ■ Residential properties overall market
- ■ Owner-occupied dwellings overall market
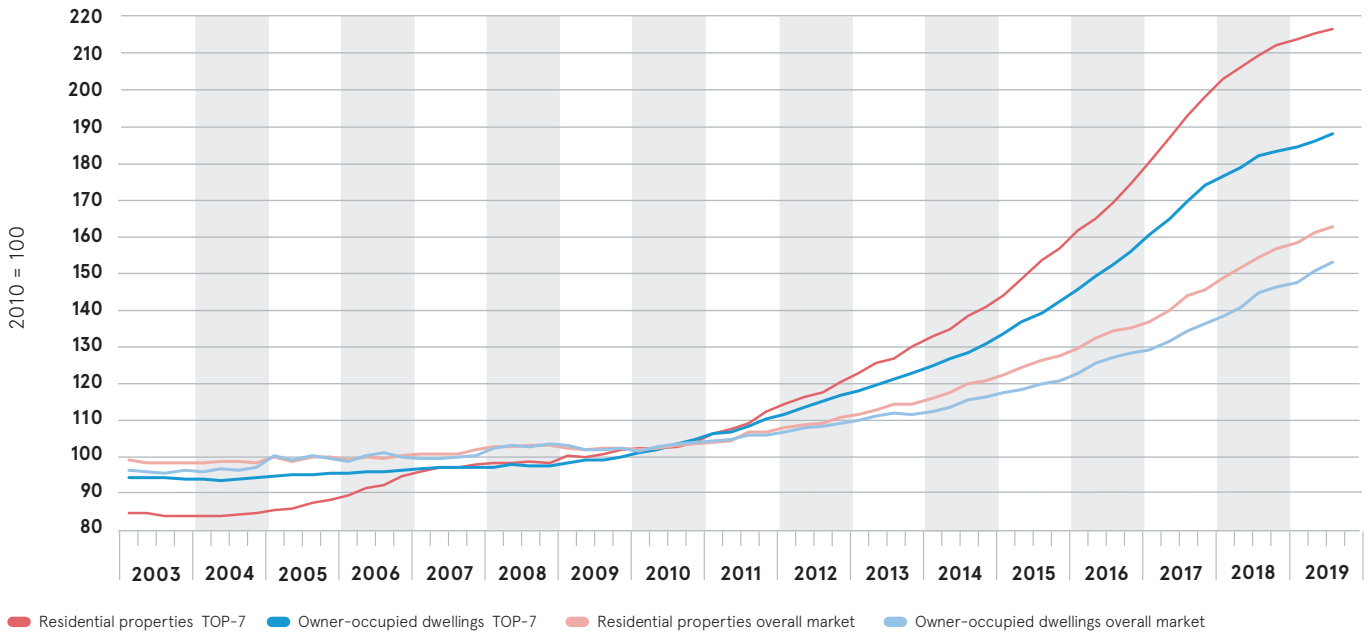
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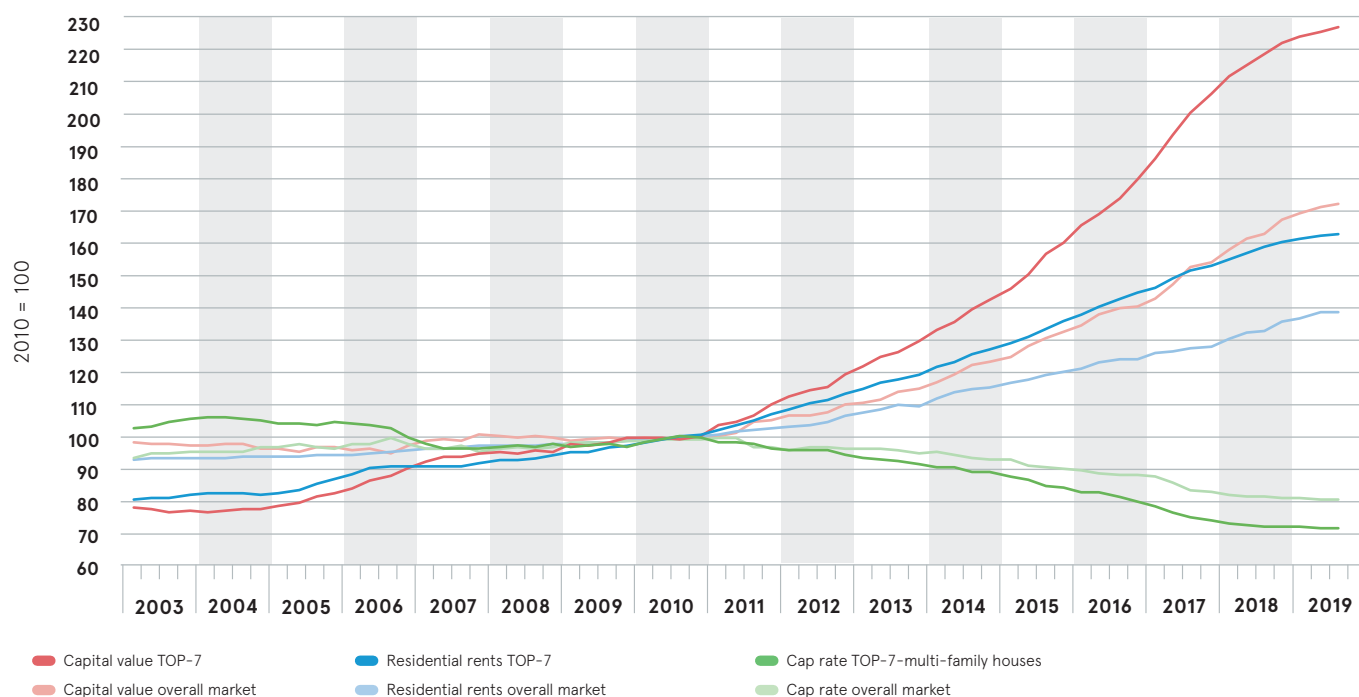
TOP-7

cities, go to
www.vdpresearch.de

Index: 2010 = 100

Year	Residential properties TOP-7		Owner occupied housing TOP-7	
	Index	y-o-y change in %	Index	y-o-y change in %
2008	95.4	1.6	94.5	0.7
2009	97.9	2.5	96.1	1.6
2010	100.0	2.2	100.0	4.1
2011	106.3	6.3	105.4	5.4
2012	114.9	8.1	112.0	6.3
2013	124.4	8.3	118.4	5.8
2014	135.3	8.7	125.9	6.3
2015	150.0	10.9	136.7	8.6
2016	167.6	11.7	150.0	9.7
2017	190.5	13.7	167.3	11.5
2018	209.3	9.9	180.7	8.0

Index: 2010 = 100

Quarter	Residential properties TOP-7		Owner occupied housing TOP-7	
	Index	y-o-y change in %	Index	y-o-y change in %
Q4 2017	199.6	14.1	174.4	12.3
Q1 2018	204.3	13.1	176.8	10.4
Q2 2018	207.8	10.7	179.5	9.0
Q3 2018	211.2	8.8	182.5	7.5
Q4 2018	214.0	7.2	184.1	5.5
Q1 2019	215.6	5.6	185.0	4.7
Q2 2019	217.4	4.6	186.9	4.1
Q3 2019	218.8	3.6	188.8	3.4

*Berlin, Cologne, Dusseldorf, Frankfurt am Main, Hamburg, Munich, Stuttgart

Multi-family houses – top 7 markets*
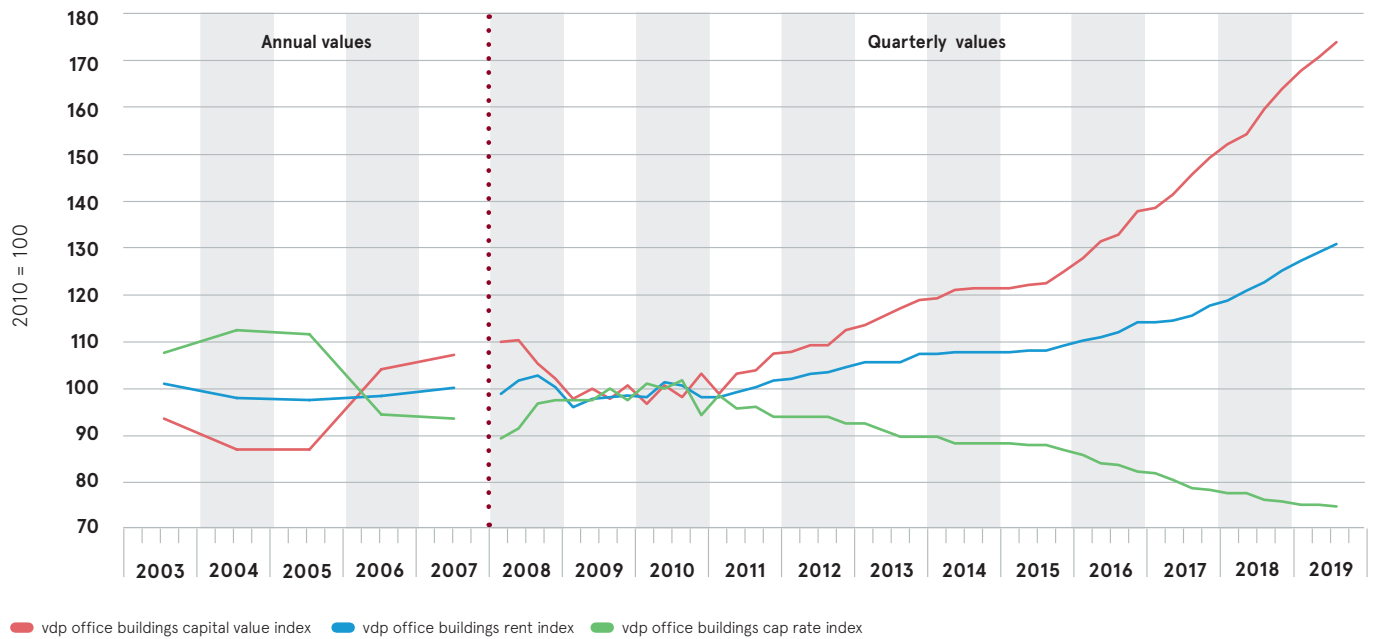
Rents rising much more slowly

- ● Capital value TOP-7
- ● Residential rents TOP-7
- ● Cap rate TOP-7-multi-family houses
- ● Capital value overall market
- ● Residential rents overall market
- ● Cap rate overall market

Year	Capital value TOP-7		Residential rents TOP-7		Cap rate TOP-7	
	Index	y-o-y change in %	Index	y-o-y change in %	Index	y-o-y change in %
2008	95.7	1.8	93.7	2.4	97.9	0.5
2009	98.4	2.8	96.4	2.9	98.0	0.1
2010	100.0	1.6	100.0	3.7	100.0	2.0
2011	106.6	6.6	104.9	4.9	98.4	-1.6
2012	115.8	8.6	111.4	6.2	96.2	-2.2
2013	126.2	9.0	117.6	5.6	93.2	-3.1
2014	138.0	9.4	125.0	6.2	90.5	-2.9
2015	153.8	11.4	132.8	6.3	86.4	-4.6
2016	172.6	12.3	142.0	6.9	82.3	-4.8
2017	197.1	14.2	150.7	6.1	76.5	-7.1
2018	217.6	10.4	158.4	5.1	72.8	-4.8

Index: 2010 = 100

Quarter	Capital value TOP-7		Residential rents TOP-7		Cap rate TOP-7	
	Index	y-o-y change in %	Index	y-o-y change in %	Index	y-o-y change in %
Q4 2017	206.9	14.6	153.9	5.8	74.4	-7.6
Q1 2018	212.3	13.7	155.6	5.8	73.3	-7.0
Q2 2018	216.0	11.2	157.5	5.2	72.9	-5.3
Q3 2018	219.5	9.1	159.5	4.8	72.6	-3.9
Q4 2018	222.7	7.6	161.2	4.7	72.4	-2.7
Q1 2019	224.5	5.8	162.3	4.3	72.3	-1.4
Q2 2019	226.3	4.7	163.2	3.6	72.1	-1.1
Q3 2019	227.6	3.7	163.8	2.7	72.0	-0.9

Index: 2010 = 100

*Berlin, Cologne, Dusseldorf, Frankfurt am Main, Hamburg, Munich, Stuttgart

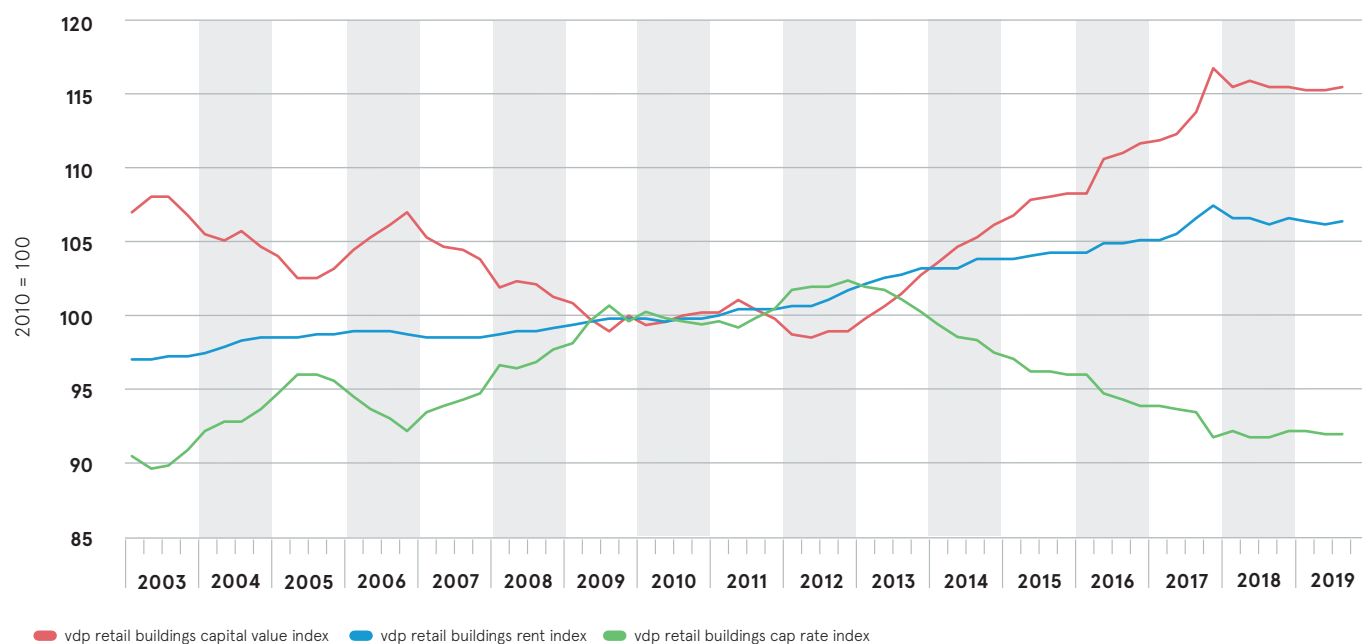# Office and administration buildings

Demand for space remains high

- vdp office buildings capital value index
- vdp office buildings rent index
- vdp office buildings cap rate index

Year	Capital value		Residential rents		Cap rate	
	Index	y-o-y change in %	Index	y-o-y change in %	Index	y-o-y change in %
2008	107.2	-0.7	101.3	0.6	94.5	1.3
2009	99.3	-7.3	98.1	-3.1	98.8	4.5
2010	100.0	0.7	100.0	1.9	100.0	1.2
2011	103.6	3.6	100.2	0.2	96.7	-3.3
2012	109.9	6.0	103.6	3.4	94.3	-2.5
2013	116.4	5.9	106.4	2.7	91.5	-3.0
2014	120.9	3.9	108.0	1.5	89.3	-2.3
2015	122.9	1.7	108.7	0.6	88.4	-1.1
2016	132.4	7.7	112.1	3.2	84.7	-4.2
2017	143.6	8.4	115.7	3.2	80.6	-4.9
2018	157.4	9.6	122.1	5.5	77.6	-3.7

Quarter	Capital value		Residential rents		Cap rate	
	Index	y-o-y change in %	Index	y-o-y change in %	Index	y-o-y change in %
Q4 2017	149.3	8.3	117.9	3.1	79.0	-4.8
Q1 2018	152.1	9.7	119.1	4.1	78.3	-5.1
Q2 2018	154.2	9.2	121.1	5.6	78.5	-3.3
Q3 2018	159.5	9.6	122.8	6.1	77.0	-3.1
Q4 2018	163.7	9.7	125.4	6.4	76.6	-3.0
Q1 2019	167.6	10.2	127.4	7.0	76.0	-2.9
Q2 2019	170.5	10.5	129.2	6.7	75.8	-3.4
Q3 2019	173.5	8.8	131.2	6.8	75.6	-1.8

Retail buildings

Prices move sideways

Legend: ● vdp retail buildings capital value index ● vdp retail buildings rent index ● vdp retail buildings cap rate index

	Capital value		Residential rents		Cap rate	
Year	Index	y-o-y change in %	Index	y-o-y change in %	Index	y-o-y change in %
2008	102.2	-2.5	99.1	0.4	97.1	2.9
2009	100.1	-2.0	99.9	0.7	99.7	2.7
2010	100.0	-0.1	100.0	0.1	100.0	0.3
2011	100.6	0.6	100.5	0.5	100.0	0.0
2012	99.0	-1.5	101.2	0.7	102.2	2.3
2013	101.3	2.3	102.8	1.6	101.4	-0.8
2014	105.2	3.8	103.7	0.9	98.6	-2.8
2015	108.0	2.7	104.3	0.5	96.6	-2.1
2016	110.6	2.5	105.0	0.7	94.9	-1.7
2017	113.9	2.9	106.4	1.3	93.4	-1.6
2018	115.8	1.7	106.7	0.3	92.1	-1.3

	Capital value		Residential rents		Cap rate	
Quarter	Index	y-o-y change in %	Index	y-o-y change in %	Index	y-o-y change in %
Q4 2017	117.0	4.5	107.6	2.1	92.0	-2.3
Q1 2018	115.8	3.4	106.8	1.4	92.3	-1.9
Q2 2018	116.1	3.1	106.8	1.0	92.0	-2.1
Q3 2018	115.6	1.4	106.3	-0.4	91.9	-1.8
Q4 2018	115.6	-1.2	106.7	-0.8	92.3	0.4
Q1 2019	115.5	-0.2	106.6	-0.2	92.3	0.0
Q2 2019	115.4	-0.6	106.4	-0.4	92.2	0.2
Q3 2019	115.7	0.1	106.6	0.3	92.1	0.2

Index: 2010 = 100

Methodology

Data basis

German financial institutions partic-
ipating in the transaction database
provide transaction details from their
real estate financing business for input
into the database. The database has
been maintained since 2004 and pro-
vides statistically evaluable informa-
tion on actual real estate transactions.
Data are captured by the participating
institutions in the form of apprais-
als of market and mortgage lending
values that are prepared in the course
of their mortgage lending activities.
Property valuations are determined
within each financial institution by
certified property valuers or specially
trained bank personnel. In addition to
purchase price and date of purchase,
the appraisal includes information
about the property's macro and micro
location, its age, layout and other
price-influencing variables. In the case
of certain types of property, informa-
tion is also collected with regard to
rental agreements and the date they
were concluded. Information used to
derive market and mortgage lend-
ing values is ascertained partly from
submitted documentation and partly
by valuers working in accordance with
codified procedures. Table 1 provides
an overview of the variables most fre-
quently applied in the specification of
individual indices for various market
segments.

Substantive definitions of individual
variables are coordinated with finan-
cial institutions via the contractual
relationship between them and the
vdp. In addition, property valuation in
Germany is subject to strict regula-
tions, which ensure that the valuation
processes of individual institutions
are harmonised to the greatest extent

Table 1: Variables from the vdp's transaction database

Variable	Scaling	Characteristics
Makrolage	Nominal	Landkreis oder kreisfreie Stadt in Deutschland
Micro location	Ordinal	Very good - good - average - moderate - poor - catastrophic
Living /usable space	Metric	Living or usable space m^2
Plot size	Metric	Plot size of property in m^2
Year built	Metric	Year property built
Layout	Ordinal	Very good - good - average - moderate - poor - catastrophic
Condition	Ordinal	Very good - good - average -moderate - poor - catastrophic
Saleability	Ordinal	Very good - good - average - moderate - poor - catastrophic
Sub-property type	Nominal	Division of market segment into sub-segments
Purchase price	Metric	Purchase price of property in Euros
Rent	Metric	Contractual rent of property in Euros per m^2

possible, especially as a result of the
Verordnung über die Grundsätze für
die Ermittlung der Verkehrswerte
von Grundstücken (Regulation on the
Principles for Determining the Market
Value of Property – abbreviated to
ImmoWertV) and the Beleihungswer-
termittlungsverordnung (Regulation
on the Determination of the Mortgage
Lending Value – abbreviated to Bel-
WertV). Because the purchase prices
and significant price-influencing char-
acteristics of individual properties are
determined in a uniform manner and
because they are input into a uniform
database structure, it is possible to
analyse the data with the help of com-
plex statistical procedures.

Calculation

As a result of the distinct heteroge-
neity of real estate properties and
in order to be able to measure pure
price changes, it is necessary to take
account of the varying quality of the

properties concerned when measuring
prices. Various procedures exist which
take explicit account of the differenc-
es in the quality of individual prop-
erties in order to be able to measure
pure price changes.

All vdp real estate indices are cal-
culated by making use of so-called
hedonic models. The hedonic model is
based on the idea that heterogeneous
commodities can be described by
reference to their characteristics. In
other words, a commodity can be rep-
resented as the sum of its character-
istics. With regard to real estate, this
means that this set of attributes might
include, for example, details of phys-
ical characteristics such as plot size,
living area, year built and details as to
the property's location. Each of these
named attributes has a specific influ-
ence on the price of the property, but
there is no market for the attributes
themselves; they cannot be sold sepa-
rately and therefore cannot be viewed

in isolation. It is possible, nonetheless, implicitly to determine the proportion of the overall price of the property which each individual attribute makes up by examining real estate supply and demand. Multivariate regression models are used for this purpose, helping to provide a statistical estimate of the marginal contribution of each attribute. It is assumed that the model incorporates all relevant attributes and that deviations occur simply by coincidence and are not indicative of any systematic structures.

Weighting

The overall index is the weighted arithmetical average of the various price indices for residential and commercial real estate. The weightings used correspond to the share of monetary turnover in the German real estate market constituted respectively by residential and commercial real estate. Based on details provided by valuer committees (Gutachterausschüsse), these averaged 75.6% and 24.4%, respectively, between 2007 and 2012.

The weights used correspond with the percentage share of households in Germany living in their own home. For the year 2011 this share stood at 50.7%. Accordingly, 49.3% lived in a rented dwelling. The weights were derived on the basis of the building and housing census conducted by the Federal Statistical Office in 2011. The price index for owner-occupied housing is calculated as a weighted arithmetic mean of the percentage of households living in their own single-family house or condominium. In 2011 these shares amounted to 79.7% for single-family houses and 20.3% for condominiums.

For the commercial property price index, the weightings attributable to the office property capital value index and the retail property capital value index

correspond to the proportion of loans in the accounts of Pfandbrief Banks that were granted to these two categories. The figures for office property and retail property amount to 60% and 40%, respectively.

Top 7 residential properties

The top 7 residential property indices are calculated analogously to the calculation for the vdp's nationwide property price indices. The indices are estimated separately for each of the cities on the basis of the transaction database. Then, the seven individual indices of the relevant market segment are aggregated according to the respective shares to form a top 7 index. For more information, please visit the website of vdpResearch.

Base year

Starting from this edition, the base year for the indices is 2010.

Publication

All vdp real estate price indices are published on a quarterly basis. Each year's first quarter index figures are published on 10 May of the same year (six weeks after the end of the quarter under review). Other publication dates are as follows:

- 10 August, 2nd quarter
- 10 November, 3rd quarter
- 10 February of the following year, 4th quarter (including figures for the year as a whole)

The index figures are released at 8:30 a.m. on the respective publication dates. Where the publication date falls on a Saturday, Sunday or public holiday, the index figures are published on the next working day at 8:30 a.m.

The accompanying press releases are published in German and English on

the websites of the Verband deutscher Pfandbriefbanken e.V. (vdp) www.pfandbrief.de and vdpResearch GmbH www.vdpresearch.de.

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