

# Q4.2017 No sign of an end to rising prices

Compared with the corresponding quarter the previous year:

Overall market: +8,0 %

Housing market: + 8,3 %

Owner-occupied residential housing: +6,6%

Multi-family houses: + 9,9 %

TOP-7 Housing market: + 14,1 %

TOP-7 Owner-occupied residential housing: + 12,3 %

TOP-7 Multi-family houses: + 14,6 %

Commercial property market: + 7,0 %

Office properties: +8,3%Retail properties: +4,5%

From this issue: The base year of the indices is the yaer 2010

## **Overall market**

For seven years, now, property prices in Germany have been following an upward path. In the 4th quarter of 2017, the overall index rose by 8.0% compared with the corresponding quarter one year earlier. This was due to the persistently strong demand by domestic and international investors for residential and commercial properties located in Germany.

## **Housing market**

The German residential property market continued further on its upward trajectory, with prices rising by 8.3% compared with the corresponding quarter one year earlier. This growth was driven primarily by prices for multi-family houses, which were 9.9% higher than in the 4th quarter of 2016. Here, market activity continues to be shaped by the persistently strong demand for home packages and residential complexes. This leads to a further decline in cap rates, and the cap rate index fell by 6.0% in the same period as a result. At the same time, new lease rentals rose by 3.3% on average for Germany, indicating that the rental housing market was still tense despite brisk construction activity. The level of demand for owner-occupied housing was also high given the ongoing low-interest-rate environment, with prices 6.6% up on the corresponding quarter in 2016.

## Top 7 residential property market

Compared with the average for all of Germany, the top 7 markets appear to be the focal point for price growth, with prices for residential properties rising by no less than 14.1% in the 4th quarter of 2017. Prices for owner-occupied dwellings advanced by 12.3%, while multi-family houses saw prices surge by 14.6%. As before, these markets are characterized both on the user side and on the institutional investor side by ongoing excess demand, as construction activity continues to fall short of demand.

## **Commercial property market**

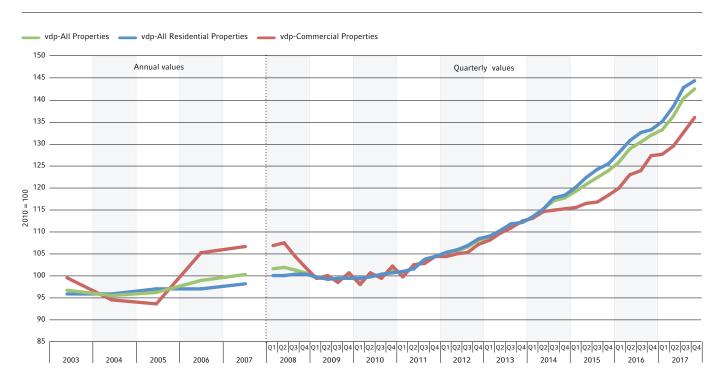
For commercial properties, too, prices continued to rise, the index here climbing by 7.0% compared with the corresponding quarter one year earlier. This increase was driven mainly by prices for office properties, which were 8.3% higher. Demand for office premises was still high, while the supply situation tightened further due to low construction activity. Office rents consequently went up by 3.1%. At the same time, office properties were once again the main focus of attention for domestic and international investors. This, in turn, caused yields to fall further: the corresponding index dropped by 4.8%.

An exceptionally dynamic 4th quarter 2017 on the retail investment market pushed the prices for retail premises up by 4.5% compared with the corresponding quarter one year earlier. This was due, on the one hand, to the 2.3% decline in cap rates and, on the other, to the growth in rents for retail properties by 2.1%.



## Real estate market as a whole:

# No sign of an end to rising prices



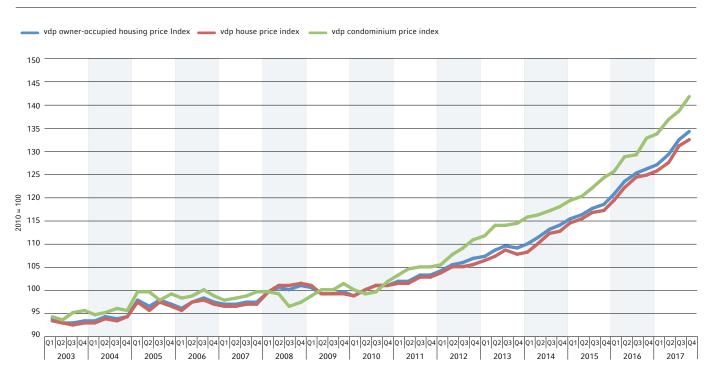
		Al	l properties	All re	esidential properties	All commercial properties	
	Year	Index	y-o-y change in %	Index	y-o-y change in %	Index	y-o-y change in %
	2007	100.4	1.6	98.2	1.5	106.5	1.5
	2008	101.4	1.1	100.2	2.0	105.2	-1.2
	2009	99.5	-1.9	99.4	-0.8	99.7	-5.3
100	2010	100.0	0.5	100.0	0.6	100.0	0.4
II .	2011	102.7	2.6	102.7	2.7	102.4	2.4
2010	2012	106.4	3.7	106.7	3.8	105.5	3.0
INDEX::	2013	110.7	4.1	110.9	3.9	110.4	4.6
Z	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

		Al	l properties	All re	sidential properties	All commercial properties	
	Quarter	Index	y-o-y change in %	Index	y-o-y change in %	Index	y-o-y change in %
	2016 Q1	126.1	5.7	128.0	6.3	120.1	3.7
	2016 Q2	129.1	6.6	131.0	6.9	123.1	5.6
	2016 Q3	130.8	6.6	132.8	6.8	124.3	6.2
: 100	2016 Q4	132.1	6.5	133.7	6.2	127.4	7.5
110 =	2017 Q1	133.6	5.9	135.4	5.8	128.0	6.5
X: 20	2017 Q2	136.5	5.8	138.7	5.9	129.7	5.4
INDEX: 2010	2017 Q3	140.6	7.5	143.1	7.7	132.9	7.0
_	2017 Q4	142.7	8.0	144.8	8.3	136.3	7.0



# Owner-occupied housing:

# Price growth maintains momentum



		Owner o	ccupied housing	Sir	gle family houses	Condominiums	
	Year	Index	y-o-y change in %	Index	y-o-y change in %	Index	y-o-y change in %
	2007	96.9	-0.2	96.5	-0.2	98.4	-0.2
	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
100	2010	100.0	0.6	100.0	0.7	100.0	0.2
II.	2011	102.4	2.4	101.9	1.9	104.3	4.3
2010	2012	105.5	3.0	104.7	2.7	108.3	3.9
IND EX:	2013	108.7	3.1	107.5	2.6	113.6	4.9
Z	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

		Owner	occupied housing	Sir	gle family houses	Condominiums	
	Quarter	Index	y-o-y change in %	Index	y-o-y change in %	Index	y-o-y change in %
	2016 Q1	120.9	4.6	119.6	4.4	126.2	5.7
	2016 Q2	123.6	6.2	122.2	5.9	129.3	7.3
	2016 Q3	125.5	6.4	124.5	6.5	129.7	6.0
100	2016 Q4	126.6	6.6	124.9	6.5	133.3	7.1
10 =	2017 Q1	127.6	5.5	125.9	5.3	134.4	6.5
× ×	2017 Q2	129.9	5.1	128.0	4.8	137.6	6.4
INDEX: 2010	2017 Q3	133.0	6.0	131.4	5.6	139.3	7.4
_	2017 Q4	134.9	6.6	133.0	6.4	142.6	7.0



# Multi-family houses: Persistently strong demand for residential complexes again sends prices higher.

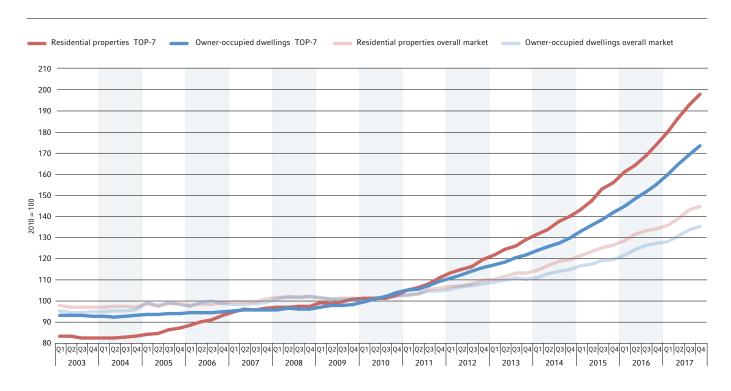


		С	apital value	F	desidential rents		Cap rate	
	Year	Index	y-o-y change in %	Index	y-o-y change in %	Index	y-o-y change in %	
	2007	99.6	3.4	96.9	1.6	97.3	-1.7	
	2008	100.4	0.7	97.7	0.8	97.4	0.1	
	2009	99.5	-0.9	98.5	0.8	99.1	1.7	
100	2010	100.0	0.6	100.0	1.5	100.0	0.9	
II .	2011	103.0	3.0	102.1	2.1	99.1	-0.9	
2010	2012	107.9	4.8	104.8	2.7	97.1	-1.9	
INDEX: 2010	2013	113.1	4.8	109.3	4.2	96.6	-0.5	
Z	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	

		Ca	apital value	F	Residential rents		Cap rate
	Quarter	Index	y-o-y change in %	Index	y-o-y change in %	Index	y-o-y change in %
	2016 Q1	135.3	8.0	121.8	4.0	90.1	-3.7
	2016 Q2	138.6	7.5	123.6	4.5	89.2	-2.8
	2016 Q3	140.4	7.1	124.5	4.0	88.7	-2.9
100	2016 Q4	140.9	5.8	124.7	3.5	88.5	-2.2
10 =	2017 Q1	143.3	6.0	126.5	3.8	88.3	-2.0
X: 20	2017 Q2	147.8	6.6	127.2	2.9	86.1	-3.5
INDEX: 2010	2017 Q3	153.4	9.3	128.2	2.9	83.6	-5.8
	2017 Q4	154.9	9.9	128.8	3.3	83.2	-6.0



# Owner-occupied housing TOP-7\*: Top 7 markets uncouple themselves further from overall market developments



All TOP-7 individual values you will find at www.vdpresearch.de

		Residenti	al properties TOP-7	Owner occ	upied housing TOP-7
	Year	Index	y-o-y change in %	Index	y-o-y change in %
	2007	94.0	5.9	93.9	1.2
	2008	95.4	1.6	94.5	0.7
	2009	97.9	2.5	96.1	1.6
100	2010	100.0	2.2	100.0	4.1
	2011	106.3	6.3	105.4	5.4
INDEX: 2010 =	2012	114.9	8.1	112.0	6.3
EX:	2013	124.4	8.3	118.4	5.8
Ξ	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

		Residenti	al properties TOP-7	Owner occ	upied housing TOP-7
	Quarter	Index	y-o-y change in %	Index	y-o-y change in %
	2016 Q1	161.3	12.7	144.7	9.4
	2016 Q2	164.6	11.7	148.4	9.7
	2016 Q3	169.5	10.7	151.7	10.0
= 100	2016 Q4	174.9	11.9	155.4	9.9
910 =	2017 Q1	180.7	12.0	160.1	10.7
INDEX: 2010	2017 Q2	187.7	14.0	164.8	11.0
N DE	2017 Q3	194.1	14.5	169.8	12.0
	2017 Q4	199.6	14.1	174.4	12.3



# Multi-family houses TOP-7\*:

# Investors focus on top 7 markets



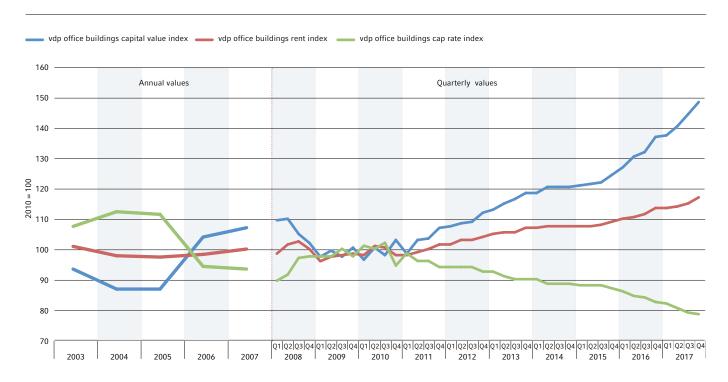
		Capita	l value TOP-7	Resid	ential rents TOP-7	Cap rate TOP-7	
	Year	Index	y-o-y change in %	Index	y-o-y change in %	Index	y-o-y change in %
	2007	94.0	7.4	91.5	1.1	97.4	-5.8
	2008	95.7	1.8	93.7	2.4	97.9	0.5
	2009	98.4	2.8	96.4	2.9	98.0	0.1
100	2010	100.0	1.6	100.0	3.7	100.0	2.0
II .	2011	106.6	6.6	104.9	4.9	98.4	-1.6
2010	2012	115.8	8.6	111.4	6.2	96.2	-2.2
INDEX:	2013	126.2	9.0	117.6	5.6	93.2	-3.1
Z	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

		Capital value TOP-7		Resid	ential rents TOP-7	Cap rate TOP-7	
	Quarter	Index	y-o-y change in %	Index	y-o-y change in %	Index	y-o-y change in %
	2016 Q1	166.2	13.6	138.6	7.1	83.4	-5.7
	2016 Q2	169.4	12.2	140.9	7.0	83.2	-4.6
	2016 Q3	174.7	10.9	143.3	6.8	82.0	-3.7
100	2016 Q4	180.5	12.4	145.4	6.7	80.5	-5.1
2010=	2017 Q1	186.6	12.3	147.1	6.1	78.8	-5.5
X: 20	2017 Q2	194.3	14.7	149.7	6.3	77.0	-7.4
INDEX:	2017 Q3	201.2	15.2	152.2	6.2	75.6	-7.8
	2017 Q4	206.9	14.6	153.9	5.8	74.4	-7.6



## Office and administration buildings:

Once again, office premises grow more expensive for users and investors



		C	apital value	F	Residential rents	Cap rate	
	Year	Index	y-o-y change in %	Index	y-o-y change in %	Index	y-o-y change in %
	2007	107.9	2.9	100.7	1.8	93.3	-1.0
	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
100	2010	100.0	0.7	100.0	1.9	100.0	1.2
II .	2011	103.6	3.6	100.2	0.2	96.7	-3.3
2010	2012	109.9	6.0	103.6	3.4	94.3	-2.5
INDEX: 2010	2013	116.4	5.9	106.4	2.7	91.5	-3.0
Z	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

		C	apital value	F	Residential rents		Cap rate
	Quarter	Index	y-o-y change in %	Index	y-o-y change in %	Index	y-o-y change in %
	2016 Q1	127.8	5.0	110.6	2.3	86.5	-2.6
	2016 Q2	131.3	7.4	111.4	2.8	84.8	-4.3
	2016 Q3	132.9	8.3	112.2	3.3	84.4	-4.7
100	2016 Q4	137.8	10.1	114.3	4.3	83.0	-5.3
10 =	2017 Q1	138.6	8.4	114.4	3.4	82.5	-4.6
X: 20	2017 Q2	141.2	7.5	114.7	3.0	81.2	-4.2
INDEX: 2010	2017 Q3	145.6	9.5	115.7	3.2	79.5	-5.8
	2017 Q4	149.3	8.3	117.9	3.1	79.0	-4.8



## **Retail buildings:**

# Dynamic transaction market fuels further increase in prices



		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 %
INDEX: 2010 = 100	2007	104.8	-1.1	98.8	-0.3	94.3	0.7
	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

		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 %
INDEX: 2010 = 100	2016 Q1	108.6	1.5	104.5	0.4	96.2	-1.1
	2016 Q2	110.8	2.6	105.2	0.9	94.9	-1.6
	2016 Q3	111.3	2.7	105.1	0.7	94.4	-2.0
	2016 Q4	111.9	3.1	105.4	0.8	94.1	-2.2
	2017 Q1	112.0	3.2	105.4	0.8	94.1	-2.3
	2017 Q2	112.5	1.5	105.7	0.6	94.0	-1.0
	2017 Q3	114.0	2.2	106.7	1.6	93.6	-0.9
	2017 Q4	117.0	4.5	107.6	2.1	92.0	-2.3



## Methodology

#### **Data basis**

German financial institutions participating 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 provides statistically evaluable information on actual real estate transactions. Data are captured by the participating institutions in the form of appraisals 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, information is also collected with regard to rental agreements and the date they were concluded. Information used to derive market and mortgage lending 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 frequently applied in the specification of individual indices for various market segments.

Table 1: Variables from the vdp's transaction database

Variable	Scaling	Characteristics	
Macro location	Nominal	District or town in Germany	
Micro location	Ordinal	Very good - good - average - moderate - poor - catastrophic	
Living /usable space	Metric	Living or usable space m <sup>2</sup>	
Plot size	Metric	Plot size of property in m <sup>2</sup>	
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 Euro	
Rent	Metric	Contractual rent of property in Euros per m <sup>2</sup>	

Substantive definitions of individual variables are coordinated with financial institutions via the contractual relationship between them and the vdp. In addition, property valuation in Germany is subject to strict regulations, which ensure that the valuation processes of individual institutions are harmonised to the greatest extent 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 Beleihungswertermittlungsverordnung (Regulation on the Determination of the Mortgage Lending Value - abbreviated to BelWertV). Because the purchase prices and significant price-influencing characteristics 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 complex statistical procedures.

#### Calculation

As a result of the distinct heterogeneity 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 differences in the quality of individual properties in order to be able to measure pure price changes.

All vdp real estate indices are calculated 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 represented as the sum of its characteristics. With regard to real estate, this means that this set of attributes might include, for example, details of physical 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 influence on the price of the property, but there is no market for the attributes themselves; they cannot be sold separately 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 2:00 p.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 2:00 p.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. They are also published via

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The member institutions of the **Association of German Pfandbrief Banks** (Verband deutscher Pfandbriefbanken, vdp) have been the market leaders in commercial real estate finance in Germany and hold sizeable market shares in residential real estate finance as well. As the representative of its member banks, the vdp performs this function vis-à-vis all executive bodies of politics on both the national and the European stage and a wider public.

The vdp's know-how is tailored towards the specific interests of the Pfandbrief issuers, namely, the Pfandbrief business and the underlying business fields property finance, public-sector lending, ship and aircraft finance. The vdp assists its member banks also in regulatory matters and represents them vis-à-vis national regulatory authorities. By means of group governance, member institutions exchange information and experiences in vdp committees, which are then summarized and developed into market standards. The vdp also assists its member banks in the efficient structuring of their specialized loan or issuance businesses.

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**vdpResearch GmbH,** a subsidiary of the Association of German Pfandbrief Banks (vdp), works intensively on compiling, analyzing and forecasting property prices in the context of real estate finance. Its remit includes measuring and forecasting trends in rents and prices in the residential and commercial property sectors at the regional and national level.

To measure the movements of rents and prices, vdpResearch makes use of a unique transaction database that is also used to provide property-related comparative prices, comparative rents and other valuation parameters. These parameters are central to specially developed software solutions for valuing standard and individual properties and are fully compliant with regulations governing market and property valuation.

Today, the products and services of vdpResearch are a key component for many credit institutions in the evaluation and assessment of property and market price risks. The nationwide property price indices that vdpResearch prepares for the Association of German Pfandbrief Banks are geared to an interested public and offer an overview of general price trends in Germany's real estate markets.

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