

Capital Market Perception vs. Fundamentals

Vonovia View Why Capital Market Pessimism Around Listed German Resi Appears Overdone

May 2021

	Fear	Vonovia View
Interest rates and bund yields	Rising Interest Rates Will Impact Valuation	<ul style="list-style-type: none"> Supply/demand imbalance seems to be a much bigger driver for residential property values than interest rates. The structural imbalance in urban areas is likely to be even larger than widely anticipated.
	Rising Interest Rates Will Make Refinancing More Expensive and reduce earnings capacity	<ul style="list-style-type: none"> Refinancing continues to be an opportunity and not a risk. There is plenty headroom from rent growth to absorb rising interest rates.
	Real estate assets become unattractive when bund yields rise	<ul style="list-style-type: none"> There is a record-size gap between (still) very low bund yields and recently compressed asset yields.
Inflation	Rent growth will not be able to keep up with inflation	<ul style="list-style-type: none"> Regulated market rents have grown broadly in line with inflation over the last 20+ years. Vonovia's total organic rent growth has been well above historic inflation and is less dependent on regulated market rent growth and more on investments that help managing the megatrends.
Regulation	Berlin Rent Freeze could be a blueprint for others	<ul style="list-style-type: none"> The negative consequences of this political experiment are obvious and have received wide-spread media coverage. The appetite for similar regulation outside of Berlin was already muted at the beginning of the Berlin rent freeze discussion and has further diminished in light of the market consequences.
	There will be a national rent freeze after the election in September	<ul style="list-style-type: none"> There is little to no support outside of Berlin even in States where SPD and/or Greens are part of the state government.
	Regulation will be much stricter after the election	<ul style="list-style-type: none"> With ca. 65% of rental apartments in Germany owned by amateur landlords, any regulation will always need to work for the average, much less efficient owner. With ~30% of greenhouse gas emissions related to buildings and a rate of only 1% of energy-efficient modernizations no government can afford to discourage investments towards CO₂ reduction.

Fear: Rising Interest Rates Will Impact Valuation

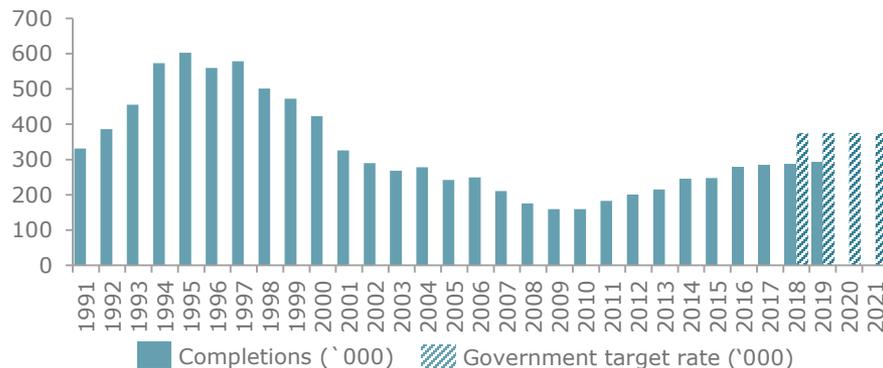
Vonovia View: Supply/Demand Imbalance is More Relevant



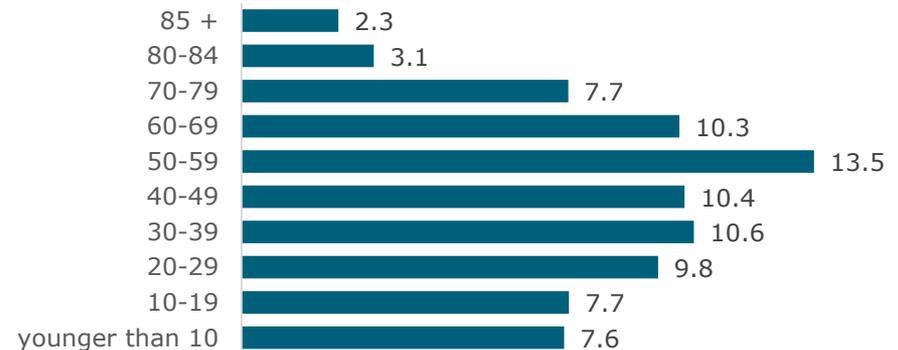
- The **structural supply/demand imbalance seems to be more relevant** for residential property values than interest rates or bund yields.
- The discount rate used in the valuation is not directly driven by interest rates but more a reflection of the market situation, location, type of property, special property features, and market transactions.
- **A meaningful improvement to the structural supply/demand imbalance is not in sight:**
 - building permits are hard to obtain
 - craftsmen capabilities remain a scarcity
 - residents do not want their neighborhood to change with new construction and new people (NIMBY).

- **Supply/demand imbalance is likely to be much greater than widely anticipated**
- One factor that has received little attention in housing and population forecasts is the retirement of the strongest age group 50-59 years.
- Over the next 10 years, many members from this age group will be retiring and the younger age groups are all significantly smaller.
- **If Germany is to maintain its current productivity, there remains a gap that can only be replaced through immigration.** Rough math suggests that this could lead to an incremental demand of an average ~200k² apartments per year; most of these units will likely be needed in urban areas where the supply/demand imbalance is already very pronounced.

Construction volume¹



Age group distribution in Germany³



¹ Sources: Federal Statistics Office, German government (1.5m completions during current legislative period). ² Back-of-an-envelope calculation: 50% of the 60-69 year old already in retirement; in 10 years this entire age group will be in retirement plus 50% of the current 50-59 age group; 100% of the current 10-19 age group will join the workforce. Estimate for illustrative purposes only. Simplified view ignores specific death rates, overall workforce reduction from automation, overall population development, extension of working age etc. Number of apartments based on 2 persons per household. ³ Source: Federal Bureau for Political Education (www.bpb.de)

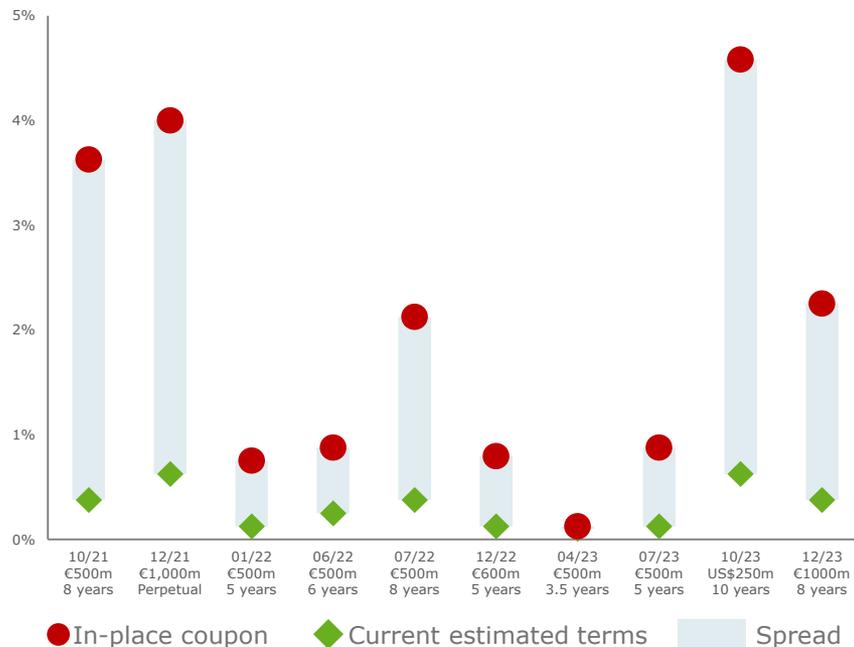
Fear: Rising Interest Rates Reduce Earnings Capacity

Vonovia View: Refinancing Is an Opportunity, Not A Risk

- Vonovia's most recent financing terms were:
 - €600m (green bond) for 0.625% for 10 years in March 2021 and
 - €500m for 1.000% for 20 years.
- Both were *longer* than our average maturity (8 years) and well *below* our average coupon (1.4%).
- **All maturities until the end of 2023 have (often much) higher coupons than our current estimated refinancing terms.**

- **There is large headroom from rent growth to absorb rising interest rates.**
- Back-of-an-envelope calculation shows interest rates can grow by ~140bps before they absorb the full rent growth, assuming conservative 3% organic rent growth.
- Positive earnings contributions from the other three segments are not yet considered in this scenario.
- The last time the German 10-year bund traded at 140 bps was in 2014.

Spread between in-place coupon and current estimated terms¹



Illustrative interest rate buffer calculation

€2,350m	Rental revenue (midpoint 2021 guidance)
3.0%	Conservative rent growth assumption
€71m	Additional rental revenue
76%	EBITDA Operations margin
€54m	Additional EBITDA Operations
€750m	Incremental debt for €1.3bn - €1.6bn investment program
1.0%	Interest rate for incremental debt
€8m	Additional interest payments for investment funding
€46m	Incremental FFO
€25.5bn	Debt volume
8 years	Average maturity
€3.2bn	Average refinancing volume p.a.
1.4%	Interest rate buffer

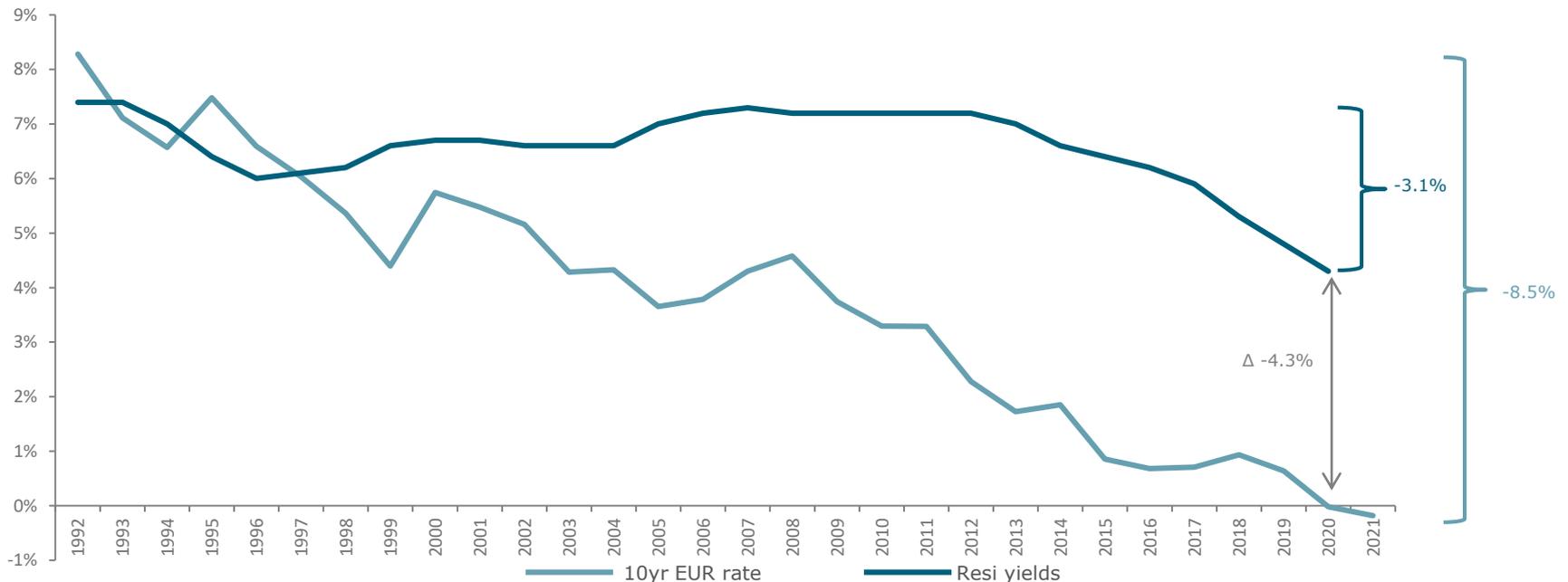
¹ Estimated terms as of mid May 2021.

Fear: Asset Yields Become Unattractive When Bund Yields Rise

Vonovia View: Record-high Gap between Asset and Bund Yields

- Gap between asset yields and bund yields is bigger than at almost any time during the last 30 years.
- If bund yields moved higher and even back into positive territory there would still be substantial room compared to asset yields.
- Last time the German 10-year bund yield materially increased, the spread reduced to its lowest level (c. 250bps) during the last 15 years, but property yields continued to compress. So a rising 10-year doesn't automatically equal increased residential yields.

German residential asset yields (%) vs. EUR interest rates (%)¹



¹ Yearly asset yields vs. rolling 200d average of 10y interest rates. Sources: Thomson Reuters, bulwiengesa (2020 resi yield is an estimate).

Fear: Rents Will Not Keep Up With Higher Inflation

Vonovia View: Vonovia Grows Rents Above Historic Inflation



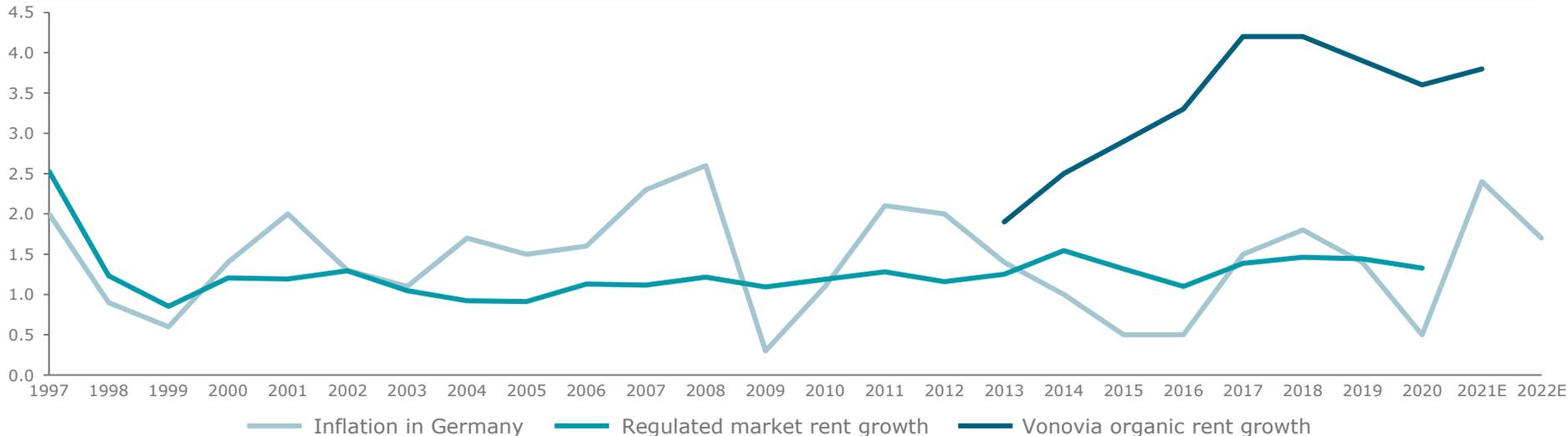
Average regulated market rent growth in line with average inflation

The political discussion is shifting towards potentially linking regulated market rent growth directly to inflation; the impact would probably not be very material because the Mietspiegel system has already implicitly allowed these rents to grow largely with inflation over time. For more than 20 years the average regulated rent growth has been very close to average inflation levels over that period.

Vonovia total organic rent growth is regulated market rent growth levered with investments

Vonovia's total organic rent growth has increasingly come from investments. This investment-driven rent growth is the result of (i) new construction, (ii) energy-efficient modernization, and (iii) senior-friendly apartment refurbishments. All these investments help managing the residential megatrends, and there is a general consensus that they are required and should be incentivized one way or another.

Vonovia's organic rent growth has been well above historic inflation rate



Sources: Federal Statistics Office for inflation and regulated market rent growth; 2021E inflation is the current estimate as of May 2021. Vonovia data as reported; 2020 rent growth adjusted to eliminate the one-off effect (50 bps) from reducing rents in Berlin as a result of the Berlin Rent Freeze, which has been ruled unconstitutional, null and void in the meantime. 2021E organic rent growth based on current guidance.

Fear: Berlin Rent Freeze Could be Blueprint for Others

Vonovia View: Berlin One-of-a-kind and Not A Blueprint

- The Berlin rent freeze has been ruled unconstitutional and null and void. The negative consequences of this political experiment are obvious and have received wide-spread media coverage.
- The appetite for similar regulation outside of Berlin was already muted at the beginning of the Berlin rent freeze discussion and has further diminished in light of the market consequences.

		Facts after more than 1 year of Berlin Rent Freeze
Predictions made prior to implementation	"The number of available rental apartments will decline"	➤ Number of rental apartments on offer down 41.5% . ¹
	"The number of new constructions will decline"	➤ Number of building permits issued down 9.2% in 2020, the fourth consecutive y-o-y decline; number of completions down 8.5%. ²
	"The rent freeze will make it more difficult to find an apartment"	➤ Number of applicants per vacant apartment in Berlin up from 128 to 214 . ³
	"Condo sales volumes will increase"	➤ Offer volume for condos up 23% . ⁴
	"Much investments will be put on hold"	<ul style="list-style-type: none"> ➤ €4.5bn not invested in new construction, modernization and climate protection because of the Berlin Rent Freeze.⁵ ➤ The volume of refurbishment subsidy requests has decreased by 26% y-o-y (as of August 2020). The inquiries for the Energy Efficiency Subsidy Program were down 50% y-o-y.⁶
	"The rent freeze leads to financial difficulties for craftsmen companies"	➤ The Berlin craftsmen association estimated that by the end of 2020 the order volume would decline by about €185m . ⁷

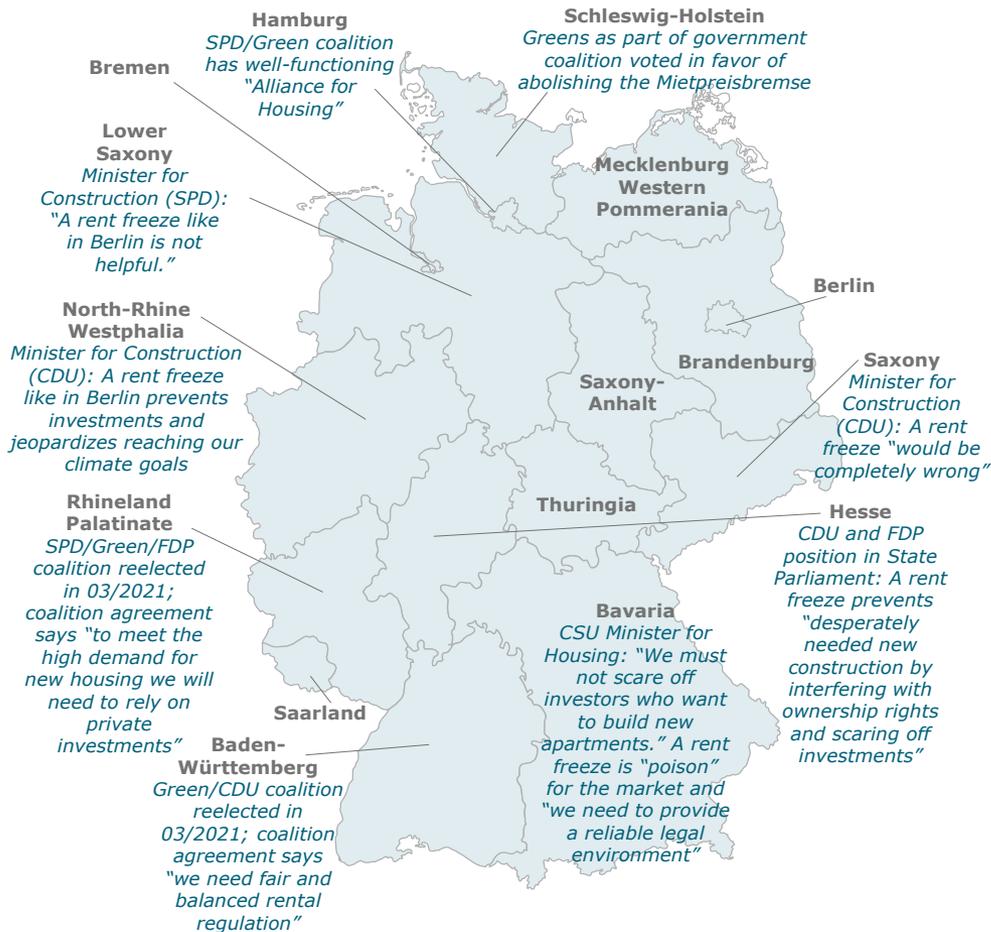
Sources: ¹ ImmoScout 24 (comparing Sep 2020 vs. Sep 2019). ² Statistical Office of Berlin/Brandenburg. ³ Wirtschaftswoche (comparing Jan 2021 vs. Jan 2020; based on apartments subject to rent freeze legislation). ⁴ ImmoScout 24 (condos built before 2014). ⁵ BBU Housing Association of Berlin/Brandenburg. ⁶ Investitionsbank Berlin. ⁷ WHdI Regional Craftsmen Association.

Fear: National Rent Freeze After the General Election

Vonovia View: Little to No Support Outside Berlin

- “Rent freeze” or “rent cap” discussions [outside of Berlin] center around the idea to tie rent growth directly to inflation and allow regulated market rents to grow no more than the average consumer price index. This would put into law what has been largely the reality for the last 20 years.

The 16 Federal States



Vonovia Portfolio (Dec. 31, 2020)

	Resi rent	Fair value	Lead party ¹	Coalition partner ¹
North-Rhine Westphalia	28.1%	23.6%		
Berlin	11.3%	15.5%		
Saxony	10.7%	10.1%		
Baden-Württemberg	10.1%	10.1%		
Hesse	8.5%	8.9%		
Schleswig-Holstein	8.4%	7.2%		
Lower Saxony	7.0%	6.3%		
Bavaria	6.0%	7.7%		
Hamburg	3.6%	4.4%		
Bremen	2.7%	2.6%		
Brandenburg	1.4%	1.5%		
Rhineland Palatinate	1.2%	1.1%		
Thuringia	0.7%	0.6%		
Saxony Anhalt	0.3%	0.2%		
Mecklenburg W.Pommerania	0.2%	0.1%		
Saarland	0.0%	0.0%		
Germany	100%	100%		

CDU/CSU	Greens	SPD	Liberals (FDP)	The Left	Freie Wähler
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Government coalitions as of mid May 2021. Source: <https://www.bundesrat.de/DE/bundesrat/verteilung/verteilung-node.html>

Fear: Regulation Will Become Much Stricter

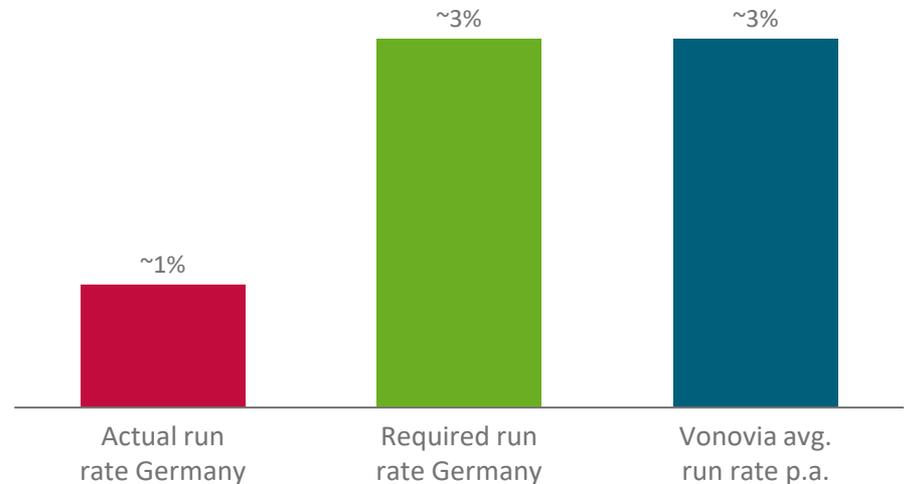
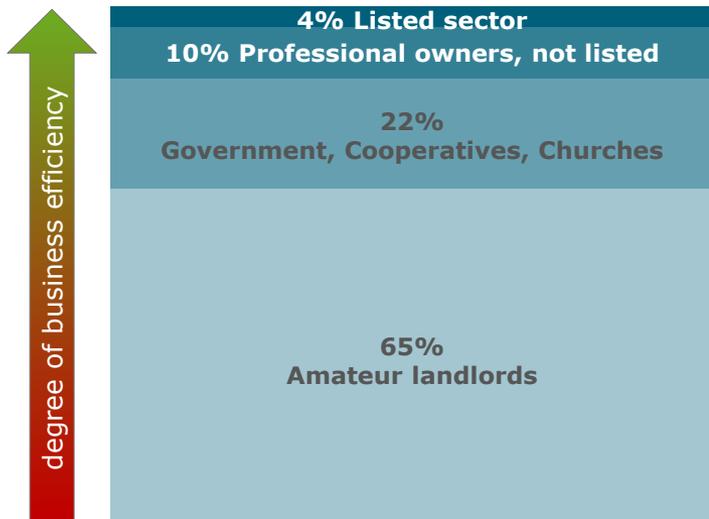
Vonovia View: Any New Regulation Expected to Remain Manageable

- Rental regulation has been a cornerstone of Germany's social market economy for many decades.
- Regardless of the outcome of the election and political debate around regulation, ca. 65% of rental apartments in Germany are owned by amateur landlords; any regulation will always need to work for the average, much less efficient owner. If it did not, it would wipe out large parts of the market.

- Germany is irrevocably committed to climate protection and CO₂ neutrality by 2045.
- With ~30% of greenhouse gas emissions related to buildings, and a rate of only 1% of energy-efficient modernizations, no government can afford to discourage investments towards CO₂ reduction.
- If the incentive is no longer given through rent increases it will have to come through subsidies.

Germany's 23m rental apartments mostly owned by non-professionals

Average run rate of energy-efficient modernizations in Germany is insufficient in light of 2045 climate goals



Sources: Federal Statistics Office, GdW (German Association of Professional Homeowners).

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