IMPLICATIONS OF RISING ENERGY COSTS ON EUROPEAN HOUSING AFFORDABILITY

IN A NUTSHELL

- Rising energy prices are impacting housing affordability, putting residents under additional financial pressure. Cost for heating confirms its rank as second-most important cost position after basic rents.
- Energy costs had limited effects on rent levels in the past, but this is expected to change. This issue is intensified by the moderate energy efficiency of housing stock, which has only gradually improved in recent years.
- Total occupancy cost of energy-inefficient stock is increasingly in line with new built assets, putting higher base rents of new assets into perspective. Rents at the back end of the market could come under pressure, highlighting the significance of energy efficiency for institutional investors, from both a performance and ESG-perspective.

Increasing ancillary costs becoming a strain on affordability

Affordability constraints in European residential markets have become an increasing concern. Alongside rising rents, ancillary costs now account for a growing proportion of total occupancy costs, with energy costs increasing sharply in recent months. This is putting financial pressure on households, particularly those within the lower-income bracket. But rising ancillary costs not only concern residents. They are also an important consideration for institutional investors, from both a performance and an ESG perspective.

While European markets differ in terms of energy dependency and heating solutions, rising ancillary costs are currently a Europe-wide picture. This report will undertake analysis of the German residential market, but the conclusions can arguably be applied to a wider European context.

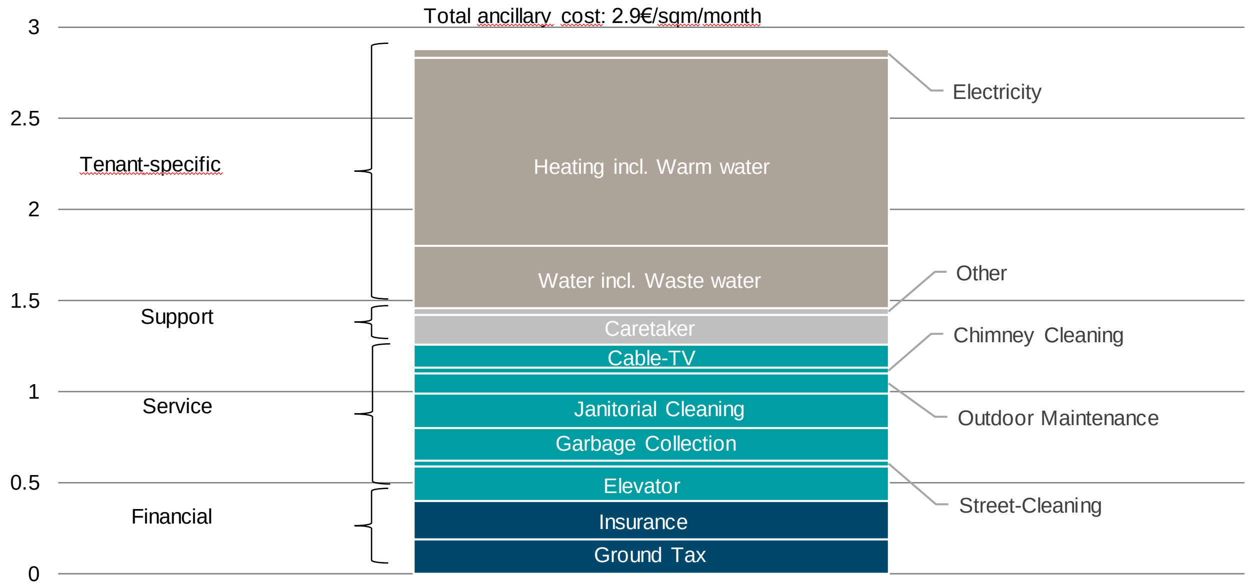
The latest available data shows total ancillary costs in Germany amounted to around 2.9€/sqm per month in 2018 (Figure 1), of which tenant-specific costs account for almost 50%.[1]. From this, energy costs for heating and warm water averaged more than 1€/sqm per month or 36% of total costs. The data is a nationwide average and undoubtedly costs vary depending on quality and age of housing stock. In addition, since this data refers to the year 2018, total costs will have certainly increased over recent years. Nonetheless it provides an indication of additional payments on top of base rents at the time of collection.

[1] Deutscher Mieterbund, Betriebskostenspiegel 2020

Assuming average rents in Germany's major markets[2] totalled 8.3€/sqm in 2018, ancillary costs were as high as 25%, with payments for heating accounting for c.9% of total occupancy cost.

For Germany's top-7 markets, this figure drops to around 7%, given higher rent levels of 12.5€/sqm, but similar energy bills. As such, for average existing stock in 2018, around 7-9% of total occupancy costs related to heating, making it the most significant cost burden after direct rental payments.

FIGURE 1: TOTAL ANCILLARY COST (2018)



Source: Deutscher Mieterbund, Betriebskostenspiegel, 2020

Dependency on fossil fuels remains high

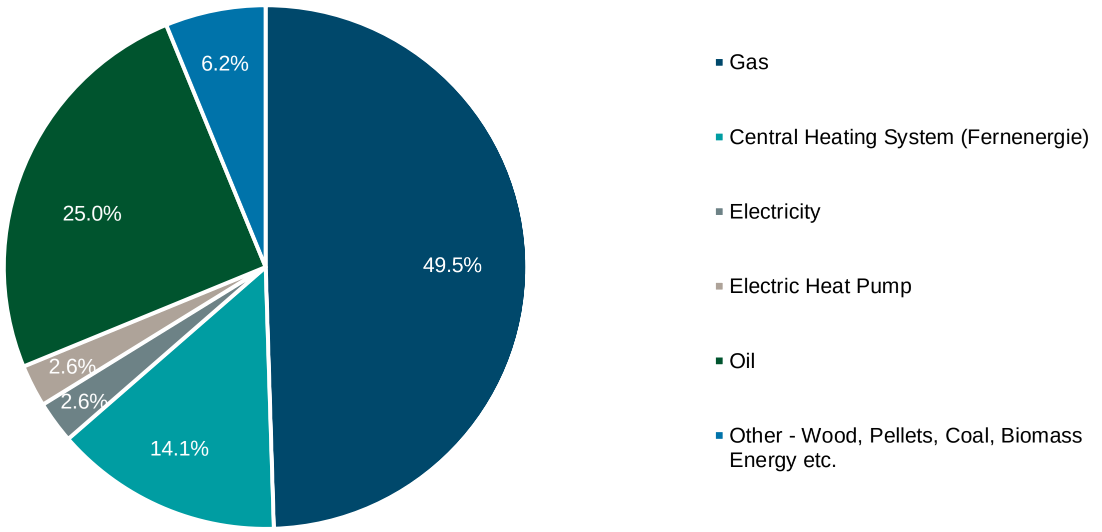
Natural gas accounts for around 25% of the German energy mix[3], but dependency for residents is much greater.

At present, energy efficient or sustainable heating solutions remain a niche product in Germany, providing just over 10% of the heating source for housing. Of this, electric heat pumps account for only 2.6% of the market, a figure that has seen little in the way of increase in recent years, whilst alternative sources like wood or biomass energy make up a further 6%.

By comparison, fossil fuels are a far more prevalent source of energy, with half of all dwellings using gas as the primary source for heating. Oil accounts for another 25% (Figure 2), with other central heating systems also partially rely on fossil fuels.[4]

[2] RIWIS, German top-127 cities
[3] Primary energy consumption, Bundesministerium für Wirtschaft und Klimaschutz, 01/ 2022
[4] Bdew, 2020

FIGURE 2: PRIMARY ENERGY SOURCE FOR HEATING



*Housing Stock: 42.6m residential units in Germany
Source: bdew, 2020

Energy prices jump to an all-time high

After a decade of relatively static pricing, energy prices came under upward pressure in 2021. With the conflict in Ukraine, energy pricing – above all, natural gas – spiked again in Q1 2022, pushing pricing to new highs. Natural gas prices reached a level in excess of 200€/MWh at the Dutch Title Transfer Facility in early March 2022, although this has since dropped back to around 100€/MWh in early May.[5] To put this in context, the average between 2016 and 2020 was below 20€/MWh (Figure 3).

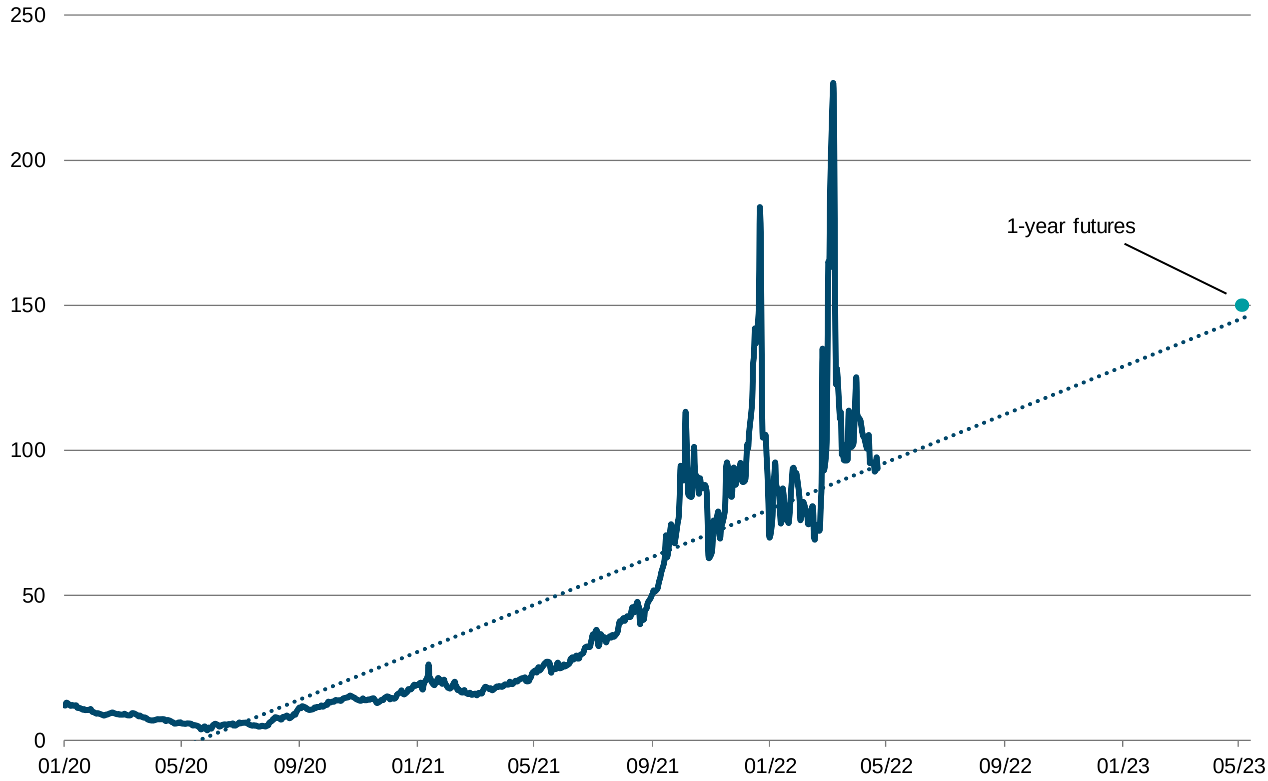
Pricing appears to have stabilised more recently and will most likely recede further over the summer months; however, gas prices are expected to once again rebound over the winter. In any case, uncertainty is elevated, and pricing could easily exceed current levels again, as gas futures indicate. With political efforts to make Germany – and Europe – less reliant on Russian sources, prices for natural gas are expected to remain above historic levels.[6]

Existing contracts with US providers should supply Europe with around 15bn m³ in the short-term, potentially increasing to 50bn m³. This will partly reduce dependency on Russian gas, which currently accounts for 30-40% of European consumption or 170bn m³ p.a.[7] However, alongside increased monetary costs associated with transport and liquefaction, the production of LNG also comes at higher ecological costs.

Compared to other energy sources, contracts for gas supply are often longer in duration, dampening short-term price effects. Nonetheless, increased pricing is already filtering through into calculations of local energy providers and eventually private households. To ease this financial burden, support measures have been introduced by the German government, ranging from potential tax deductions to direct one-off payments for those in need. Whilst these measures will likely ease the impact in the short-term, rising energy prices could certainly remain an issue over the longer run.

[5] Macrobond, May 2022. The Dutch TTF is widely considered a leading European benchmark for natural gas prices.
[6] DLA Piper 2019. LNG prices often pegged against Brent oil or US Henry Hub (115% + liquefaction fee).
[7] Aurora Energy Research, March 2022

FIGURE 3: EU NATURAL GAS PRICES, ICE DUTCH TTF DAILY (€/MWH)



Source: Macrobond, Tradingeconomics, as of 06/05/2022

Meanwhile: Carbon-tax is driving energy prices even higher

In addition to rising energy prices, proposed changes to carbon tax could also increase total costs. Implemented in 2021, carbon tax on fossil fuels in Germany is set to increase from 25€/t in 2021 to 55€/t in 2025, floating between 55-65€/t thereafter.[8] In regard to natural gas consumption for heating purposes, this means an increase of c.0.6ct/kWh in 2022, edging up to around 1.1ct/kWh in 2025[9], with the potential to increase further over the longer-term. As such, the average energy bill for residents in a standardised flat could increase by more than 100€ p.a. based purely on tax effects.

In early April 2022, however, the German government proposed a new model to split carbon tax payments between tenants and landlords. From January 2023, the law proposes that landlords of energy inefficient buildings could pay up to 90% of carbon tax, a share that reduces to 0% for best-in-class energy-efficient assets.[10] This measure should encourage landlords to invest into their holdings in order to maintain cash flows and ultimately asset values.

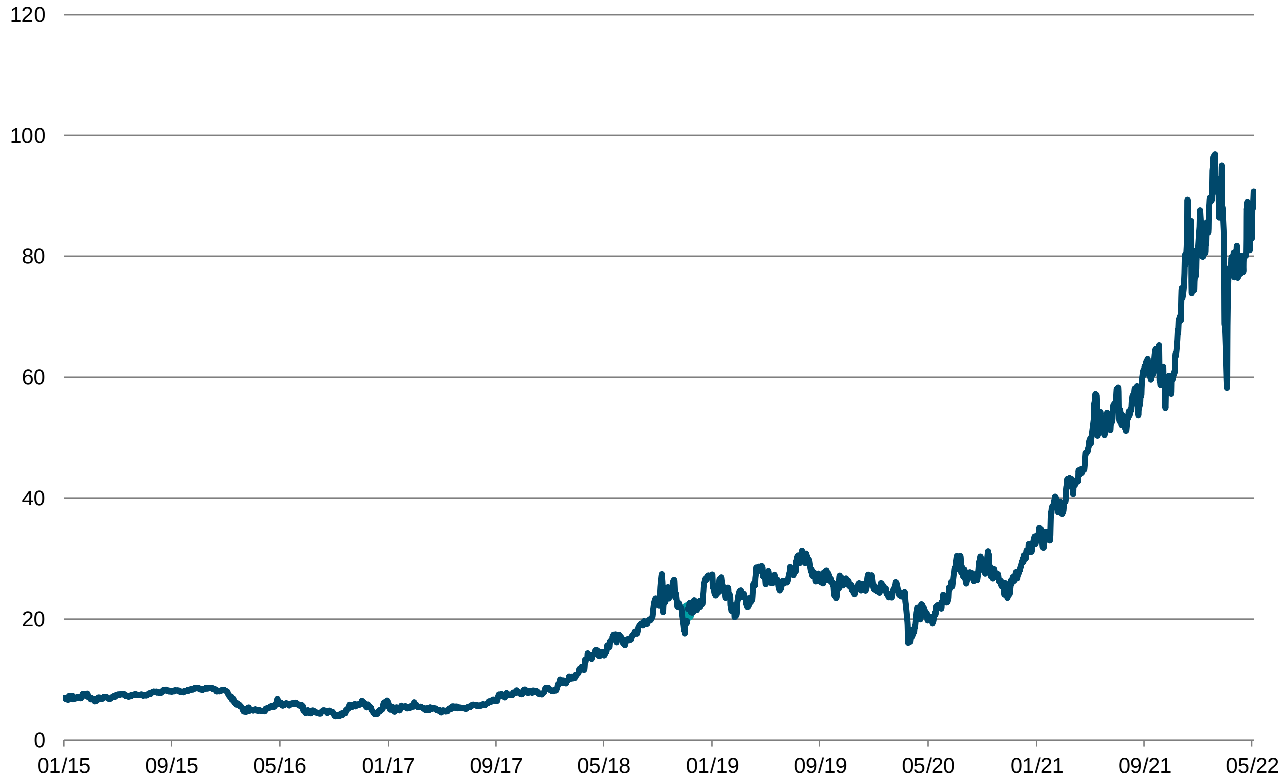
Carbon tax initiatives are mirrored by the benchmark EU carbon permit contract, which traded close to 100€/t in February 2022, an all-time high since inception in 2005 (Figure 4). Despite easing somewhat recently, pricing has generally been on an upward trajectory.

[8] Bundesregierung, Brennstoffemissionshandelsgesetz, 2019

[9] Verbraucherzentrale, 2022. Exact figures depend on energy efficiency of individual heating systems.

[10] BMWI, 03/04/2022

FIGURE 4: EMISSION-PRICING (EUR/T CO2)



Source: Macrobond, May 2022

German Housing Stock with potential for energy efficiency improvements

Energy efficiency categories for German housing stock were first implemented in the early 2000's[11], although the latest changes were pushed through in 2020 and discussions around future standards are ongoing[12]. Categories range from very efficient "A+" with energy consumption of less than 30kWh/sqm p.a. to a very inefficient class "H" representing energy consumption of more than 250kWh/sqm p.a. The latter typically comprises stock dating back to the 1970s or before, often with a significant CAPEX-backlog.

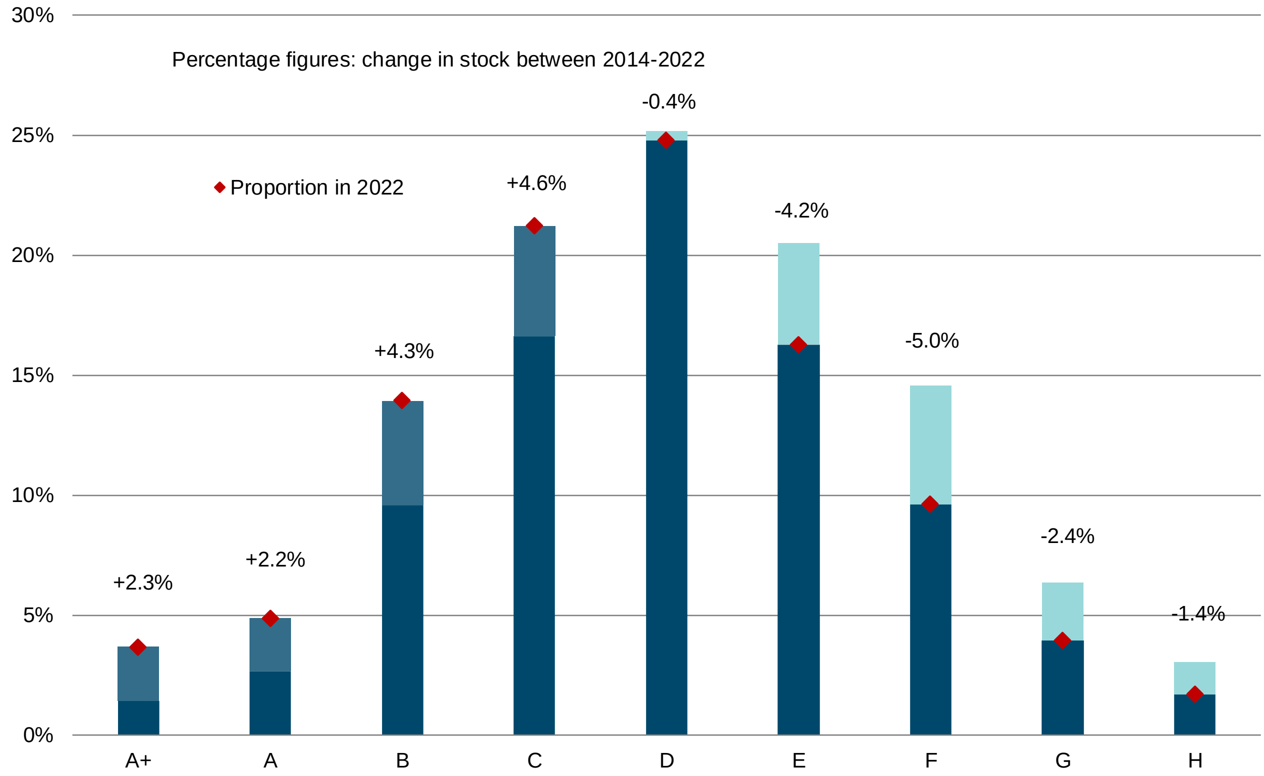
Analysing advertised housing stock in Germany, the number of very efficient residential buildings is still limited with Category "A+" and "A" buildings accounting for less than 10% of current stock. By comparison, more than 50% of total stock falls into category "D" or below.[13] Whilst the number of units that fall into the "D-H" categories has declined by around 13% over the last decade (Figure 5), it will be, undoubtedly, a lengthy process to increase energy efficiency across the board.

[11] Energieeinsparverordnung (EnEV 2002 – EnEV2014)

[12] Gebäudeenergiegesetz (GEG)

[13] Value AG, 2022. (advertised housing stock 2014-2022, n = 3,3m offerings)

FIGURE 5: ENERGY-EFFICIENCY CLASSES OF RENTAL ACCOMODATION



Source: Value AG, 2022 (advertised housing stock 2014-2022, n = 3,3m offerings)

Asking rents and energy efficiency only partially linked historically

With a share of close to 10% of total occupancy costs, energy costs for heating could have a significant impact on rental levels. In some ways, rental data does appear to support this. For example, in early 2022, asking rents for very energy-efficient stock were around 28% above market average, as has been the case in previous years. That being said, there is also evidence to suggest that energy costs have a limited impact on rent levels, especially in tight residential markets. With an average nationwide vacancy rate of around 2.8% in 2020, going as low as 0.2% in major cities like Munich or Frankfurt, housing choice is often limited.[14] It could be argued that in the past tenant demand in sought after locations and tight markets has outstripped concerns around energy efficiency.

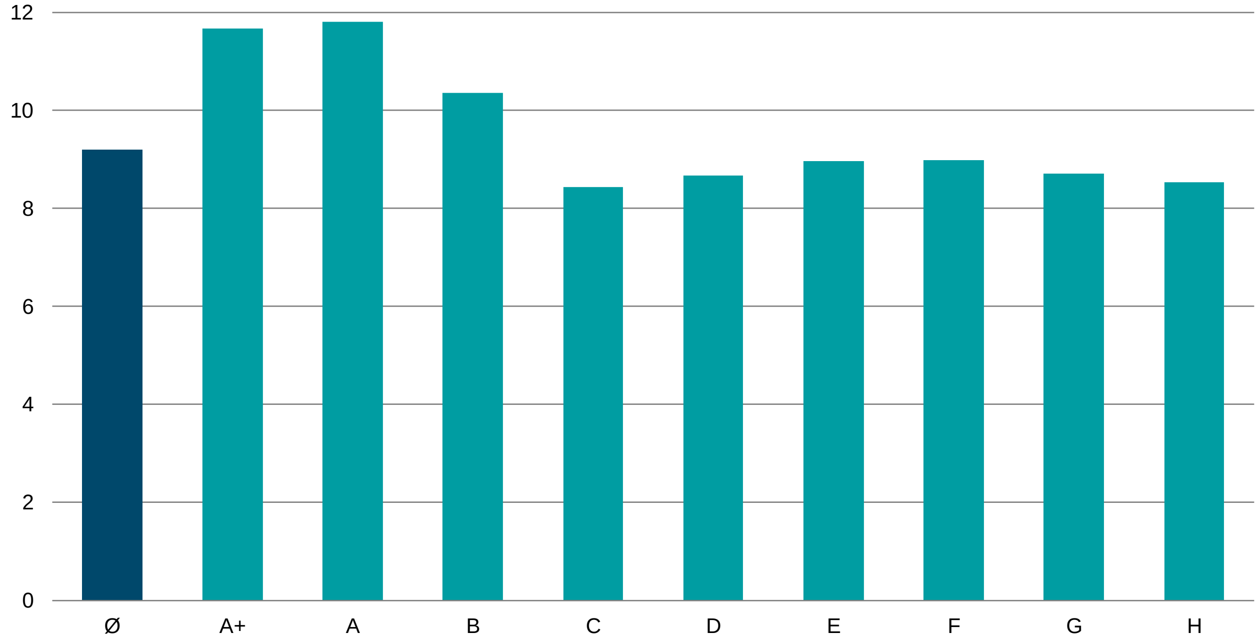
Moreover, building age plays a crucial role here. The nature of rent regulation in many German housing markets puts landlords of new built or exempt stock, which typically forms the majority within efficiency bands “A+ / A / B”, at an advantage, as rents are not bound by regulatory caps. Higher building quality and layout could be the primary reason for higher rents, as they coincide with building age and energy efficiency.

If energy efficiency was in fact a major driver of rent levels, you would expect a clearer distinction between the energy efficiency categories. However, there is little disparity in rent levels between categories “C” and “H” despite energy consumption being at least 2.5-times higher at the lower end of this spectrum (Figure 6).

With energy prices increasing, however, there is reason to believe that this could change.

[14] CBRE-empirica, 2021

FIGURE 6: RENT LEVEL IN GERMANY IN €/SQM BY ENERGY EFFICIENCY CATEGORY (2022)



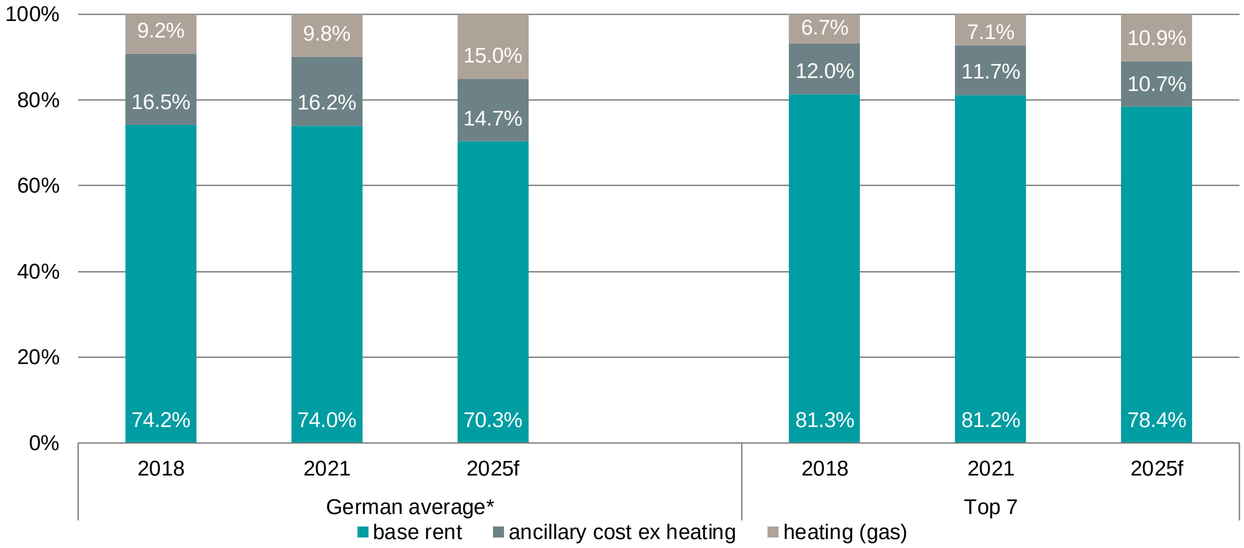
Source: Value AG, March 2022 (n=85,000)

Poor energy efficiency increases affordability constraints

Gas prices in Europe remain high and could reach levels close to 150€/MWh in May 2023 again.[15] Taking the example of 80€/MWh by 2025 – around half that level – the share of energy costs in total occupancy costs would increase from close to 10% in 2021 to around 15% in four years' time. Higher rental levels in top-7 markets make this increase slightly less pronounced, although an increase from around 7% to 11% over the same time period is possible (Figure 7).

[15] Trading Economics, May 2022 (Dutch TTF: 1 year future contracts)

FIGURE 7: COMPONENTS OF TOTAL RENT (AVERAGE EXISTING STOCK, GAS HEATING)



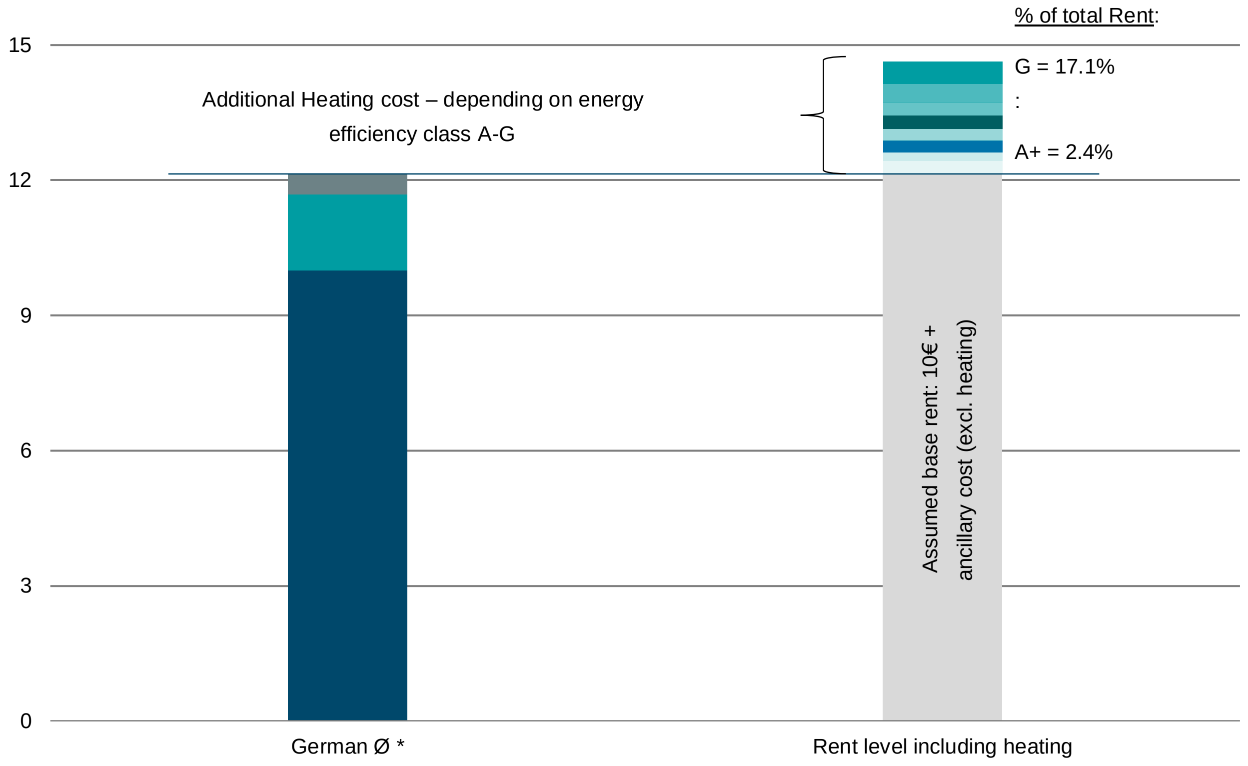
*Key 127 German markets
Source: RIWIS, BMWI, Oxford Economics, Mieterbund, Verivox, Value AG, 2020-2022

With these figures in mind, the total occupancy cost burden could make a difference. The starting point in the below calculation (Figure 8) is a realistic rent level of 10€/sqm for average existing stock in the year 2025, representing rent growth of c. 2.5% p.a. in the next four years over current levels. Together with CPI-indexed ancillary costs, excluding heating, occupancy cost levels are reaching around 12€/sqm/month. As stated above, the assumptions are as follows:

_ Rent for average standing stock in key 127 German markets in 2025: 10€/sqm
_ 2.5% rent growth p.a. over current rents (2021)
_ CPI-indexed ancillary costs of 2.3% p.a. between 2022-2025 (front loaded)

Depending on energy efficiency, the additional cost for gas heating ranges between 0.3€/sqm and 2.50€/sqm, propelling the total monthly rent level up to almost 15€/sqm. This means the additional heating costs range between 2.4% to more than 17% of total occupancy costs. Naturally, there is a margin for error in these standardised assumptions, nonetheless, energy efficiency is clearly making a difference in regard to total occupancy cost and rental affordability.

FIGURE 8: EXPECTED RENT LEVEL & ANCILLARY COST (€/SQM/MONTH, 2025)

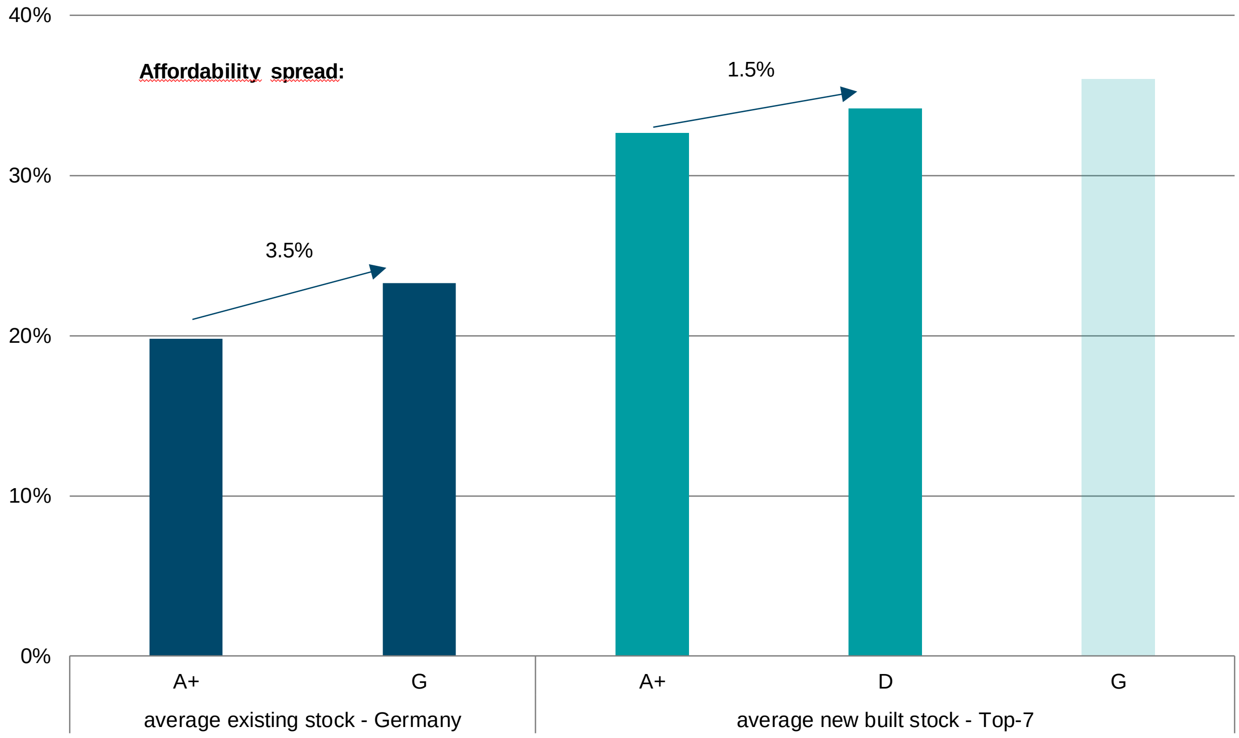


* Assumed average rent level, 127 German markets, standing stock in 2025
Source: RIWIS, Oxford Economics, Mieterbund, Verivox, 2020-2022

Applying these rent levels to household disposable incomes provides an affordability ratio, for which a target of around 30% is typically considered appropriate. Naturally, the exact level depends on individual household income and unit size, but the example below gives an indication for a standardised flat of 80sqm, fixed rent level across categories and the average income for a German household.

While monthly total occupancy costs differ by around 175€ per month, the affordability ratio for average existing stock ranges from less than 20% to more than 23% (Figure 9), accounting for a spread of c. 350bps between the best and worst energy efficiency categories. Since new built assets rarely drop below an energy efficiency level of “D”, the spread is naturally more confined at 150bps, or a monthly premium of 80€ on the back of higher energy bills.

FIGURE 9: AFFORDABILITY RATIO BETWEEN ENERGY EFFICIENCY CATEGORIES (2025, FIXED RENT LEVEL)

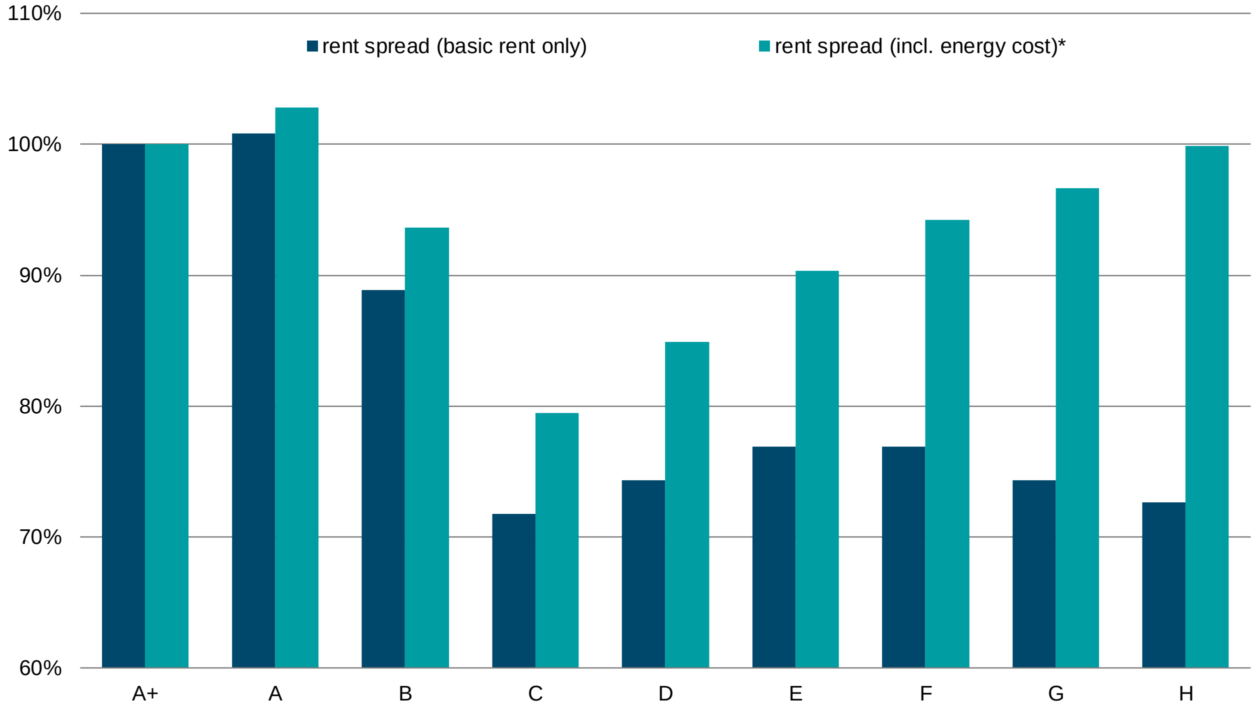


Source: RIWIS, Oxford Economics, Mieterbund, Verivox, 2020-2022

When solely comparing basic rent levels, the difference between categories is limited, typically ranging between 70-80% of the prime standard “A+”. While rents are generally more affordable below a more moderate efficiency level of “B”, they typically do not deviate any further, regardless of energy efficiency (Figure 10).

However, when heating costs are included, rent levels in lower energy efficiency bands are almost on par with very efficient units, erasing any affordability gain which could be expected for housing stock of poorer quality. This could mean that rents for less energy efficient housing stock will come under increased pressure going forward. At the same time, assets with average energy efficiency could be a sweet spot of the market and, where regulation permits, could see rising rents.

FIGURE 10: RENT SPREAD IN % OF "A+" VS. OTHER ENERGY EFFICIENCY CATEGORY (2022)



*gas prices as as March 2022 used in comparison to asking rents as of early 2022
Source: Value AG, March 2022 (n=85,000), Verivox, March 2022

Implications for institutional investors

German and European residential markets have seen strong rent increases in recent years and rising energy costs are now placing further pressure on affordability. Heating costs account for 7-9% of total occupation costs in Germany and with almost 50% of all households depending on gas as primary heating source, the German residential market is exposed to price changes. Natural gas is currently priced at around 4-5-times above the long-term average, with gas futures indicating levels could remain elevated over the coming years. This situation is exacerbated by the average energy efficiency of the German housing stock. While there will undoubtedly be market disparities, a similar picture could be assumed at the European level.

Historically, energy efficiency and rent levels in the German market were only partially linked. Especially in supply constrained markets and attractive residential areas, energy bills were often a minor concern for potential tenants. This situation could change in the years ahead.

Going forward, energy efficiency will likely feature more strongly in investment strategy considerations of institutional investors, particularly with regards to ESG targets. While energy efficiency is easy to measure and key in determining environmental achievements, social aspects are also increasing in importance and affordability considerations are likely to include total occupancy costs more strongly now. Price effects of energy efficiency are an additional consideration.

For institutional investors, prime new built stock seems a natural choice even more so now. Not only are higher rents put into context of total occupational costs, but negative effects of changing regulatory requirements are limited. Indeed, the German example of landlord responsibility for energy efficiency and partially CO_2-taxation could be extended across Europe.

While downside risks on pricing are limited in this regard, above average tenant churn in new built assets could also decrease in line with more favourable affordability levels. With that, investor focus on total occupancy costs could boost performance through increasing income stability and stronger capital value growth.

Refurbishments of older, less efficient stock could also become economically more viable. In order to avoid downside pressure on rent levels, higher taxation and potentially stricter environmental regulation, long-term investors should consider the extensive refurbishment of older, less efficient stock. Whilst rent regulations could be a limiting factor in some markets, extensive refurbishment projects often fall into different regulatory categories after completion.

“Average” stock, which sits in the middle of the energy efficiency ranking, could record a boost in tenant demand, as total occupancy costs are the lowest here. However, the perception as the “sweet spot” in the market might be premature, given limitations to rental growth as a result of regulatory constraints in some markets. From an economical perspective, an upgrade of this type of stock is challenging and over time valuation may deteriorate further as relative energy efficiency declines. Given these assets will likely become more expensive operationally, they should be considered as part of a disposal strategy.

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