Climate-risk impacts on UK equity-release mortgages

Highest excess credit losses occur under NGFS orderly scenario

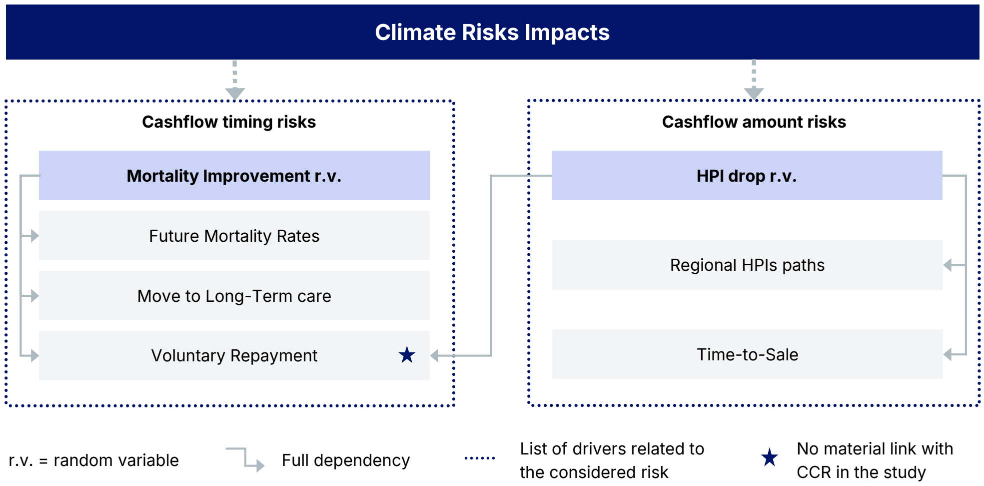
Securitisations with long tenors, such as equity-release mortgages (ERM), are particularly exposed to the credit-risk impacts of climate change. Modelling credit losses over our baseline assumptions on a sample ERM portfolio originated in England and Wales under the three NGFS scenarios shows that the highest excess losses – 6.4% – occur in the orderly scenario, compared to 4.9% in the disorderly scenario and 2.7% in the hot house scenario.

This is perhaps surprising at first glance, since the orderly scenario assumes that governments introduce ambitious policies early to mitigate climate risk. But this scenario produces the biggest excess losses because of the prevalence of transition risks in our analysis owing to the relatively short horizon of the sample portfolio (weighted average life of 11.3 years). Physical risks are most harmful under the disorderly and hot house scenarios, but these emerge over a longer timeframe.

We measured the impact on property prices of the transition to a low-carbon economy (transition risks) as well as direct losses linked to extreme weather events (physical risks). Climate-related physical risks can lead to lower property prices through a combination of direct losses linked to different extreme natural events. We also explored the effect of climate risk on mortality, as this is the primary driver of cash flow timing in most reverse mortgages, which are repaid using the proceeds of property sales upon the death of homeowners.

Climate change is likely to have a severe impact on mortality in the hot house scenario, although impacts generally only materialise beyond the risk horizon of a typical ERM portfolio. In fact, the main drivers of cash flow timing uncertainty are voluntary prepayments, which are unrelated to climate change.

Figure 1: ERM climate risk impacts



Source: Scope Ratings

Analysts

Rossella Ghidoni
+39 02 3054 4986
r.ghidoni@scoperatings.com

Olivier Toutain
+49 17 356 919 70
o.toutain@scoperatings.com

Arne Platteau
+49 69 667 738 966
arne.platteau@scoperatings.com

Dr. Sébastien Galais
+33 186 261 872
sebastien.galais@scoperatings.com

Team Leader

Benoit Vasseur
+49 69 667 738 940
b.vasseur@scoperatings.com

Media

Keith Mullin
k.mullin@scopegroup.com

Table of content

1. Introducing climate-change risk into our analytical framework

Reverse mortgages have a distinct risk profile that diverges sharply from conventional residential mortgages. Instead of having a regular amortisation schedule, interest usually rolls up and repayment is fully deferred until the borrower's death or move into long-term care, and the proceeds of the sale of the house are used to repay the loan. Another implied core difference is the uncertainty and irregular timing of cashflows. The amount of total expected cashflows and their timing are the key variables for the analysis of ERM securitisations.

1.1 Expected cash flow amounts

The expected cash flows of reverse mortgages depend heavily on property market dynamics. While sales proceeds are likely to cover outstanding debt under rising property prices, any price depreciation may lead to recovery shortfalls.

Recoveries are a function of property prices over the lifetime of mortgages; dilapidation costs (i.e. property depreciation and refurbishments needed before sale); sales costs (transaction fees and administrative expenses); and the occurrence of No Negative Equity Guarantees (NNEG) [1].

Our analysis accounts for climate risk through its potential direct impact of property values, either because of physical risks or transition costs. All these risks are partially mitigated by the granularity and diversified nature of ERM collateral portfolios.

1.1.1 Direct impact of climate-change risks on property values

Climate-related physical risks can lead to lower property prices through a combination of direct losses linked to different extreme natural events. Properties located near to sources of risk, such as rivers or coastlines, face greater exposure to physical hazards, which lowers their market value.

Transition risk can affect prices in several ways. Governments may introduce stricter building regulations requiring energy-efficiency measures, retrofits, or green certifications, leading to additional capital expenditure. As a result, older buildings may lose value either due to the high cost of upgrades, or higher usage costs compared to newer buildings. Newer buildings are generally much more energy efficient. Also, market preferences are shifting toward sustainable buildings, driving up their prices while reducing demand for carbon-intensive properties.

1.1.2 Indirect impact of climate change risk on property values

Climate change can indirectly affect house prices through climate gentrification[2], where areas most exposed to climate risks can experience a decline in property values as residents begin to move away, or higher insurance rates. Rising costs of total home ownership due to higher insurance expenses may make renting a more attractive option, leading to lower property prices.

There is also a psychological effect, which relates to how individuals perceive and react to risk. This encompasses uncertainty about the severity and frequency of climate-related events, which can influence the perceived utility of home ownership. This perception is also shaped by other factors, including macro and socio-economic factors.

[1] A No Negative Equity Guarantee (NNEG) ensures that the borrower or their beneficiaries are not liable to repay more than the proceeds from the sale of the secured property, even if the outstanding loan balance exceeds that amount. Additionally, the borrower may reserve a specified portion of the property's value –typically expressed as a percentage –to safeguard inheritances for heirs.

[2] The University of Michigan developed this notion in 2024, stating that: "Climate change is altering our weather patterns, leading to rising sea levels and more frequent and severe weather events. Such climate impact and related adaptation strategies, in turn, have resulted in the displacement of vulnerable residents and changes in community characteristics, a set of processes that researchers refer to as climate gentrification".

1.2 Cash flow timing

The timing of cash flows are primarily influenced by mortality, long-term care risk and voluntary repayments.

i) Mortality risk is the primary driver of repayment timing in ERM, as it typically determines when properties are vacated;

ii) A borrower moving into long-term care also impacts the timing of repayments but to a lesser extent than a borrower's death as these events are statistically less frequent;

iii) Full or partial voluntary repayments are the most uncertain and volatile timing cash flow driver but this is unaffected by climate risk. Voluntary repayments are mainly triggered by refinancing opportunities in periods of declining interest rates, but they may also be driven by factors such as borrowers' recourse to new cash sources (e.g. from pensions, investments, family), or by borrowers' incentives to reduce the effects of interest compounding, which erodes their home equity.

The impact of heatwaves on mortality and long-term care rates could be very severe over the long term, particularly under the hot house scenario. But impacts mainly fall outside of the risk horizon of our sample portfolio. Other factors may also impact mortality, including 'ecological effects' or 'chronic weather disruption events', but these fall out of the scope of our modelling.

1.2.1 Mortality transmission channels

Climate change can pose significant risk to health through a number of transmission channels.

Extreme weather disruption events encompass deaths related to heatwaves or to extreme natural events like floods, rise in sea levels or wildfires. With the exception of heatwaves, extreme natural events are localised, so the geographical distribution of the portfolio would limit the effects on mortality.

Ecological effects encompass deaths resulting from the spread of vector-borne diseases, caused in part by increased human exposure to disease-carrying organisms. Given the potential to escalate into a pandemic, this type of event could have population-wide impacts.

Chronic weather disruption events capture deaths due to climate-change-related effects, such as air or water pollution. Other potential risks would be food insecurity due to disrupted agriculture or health impacts and displacement of populations.

The risk of intensifying heatwaves looms large over Europe's major urban centres. To derive the impact of heatwaves on mortality, we conducted a regression analysis, based on Europe-wide datasets. The 2003 heatwave in France, which lasted 14 days and led to over 15,000 excess deaths, serves as a benchmark for assessing the severity of future events.

1.2.2 Climate change risk impact on long-term-care rates

Long-term-care events occur when borrowers move to care facilities. In our analytical framework, we compute long-term-care rates from mortality rates as an add-on defined according to borrowers' gender and age. Hence, climate risk affects long-term-care rate assumptions indirectly through mortality rates.

1.2.3 Voluntary repayment rates

Sensitivities around voluntary repayment rates typically have the most significant impact in terms of timing of cashflow on the notes issued in ERM securitisations. We do not consider climate risk to be a material factor influencing them.

Voluntary repayments are primarily driven by refinancing the ERM at more competitive rates or by property downsizing. Moving properties or climate gentrification in the context of climate change will not have large-scale effects in the context of a diversified ERM portfolio.

2. Quantifying climate-risk impacts on expected ERM cash flows

We quantify the impact of climate risk on expected cashflows using a sample portfolio of properties located in England and Wales (see Appendix 1). The sample portfolio is seasoned: most borrowers are aged 70 to 85; 30% of cash-flows are expected to be received before year 10 and 66% before year 20.

We introduce three scenarios for climate change[3] over a horizon that is limited by the period of forecast provided by the NGFS:

i) Orderly assumes governments introduce ambitious climate policies early and these gradually become more stringent.

ii) Disorderly explores higher transition risks when climate policy responses are un-coordinated or delayed.

iii) Hot house assumes climate policy efforts are insufficient to stop global warming, leading to irreversible changes in climate (e.g. sea level rise) and severe consequences from physical risks.

We compared base-case cashflows i.e. cashflows computed in a climate risk-free environment with cashflows obtained under the three scenarios. We then computed the periodic difference or losses and aggregated them over a 30-year time horizon.

Table 1: Aggregate cashflow loss under the different scenarios

	Orderly	Disorderly	Hot House
Over the 30-year horizon	6.4%	4.9%	2.7%

Source: Scope Ratings

The results may seem counter-intuitive compared to the existing literature[4] on the subject, but this is due to the limited time horizon under consideration, here 30 years, with most of the cashflows being received over the mid-term. With a more backloaded profile of cashflows, the hot house scenario would become the most detrimental.

2.1 Cashflows under climate change scenarios

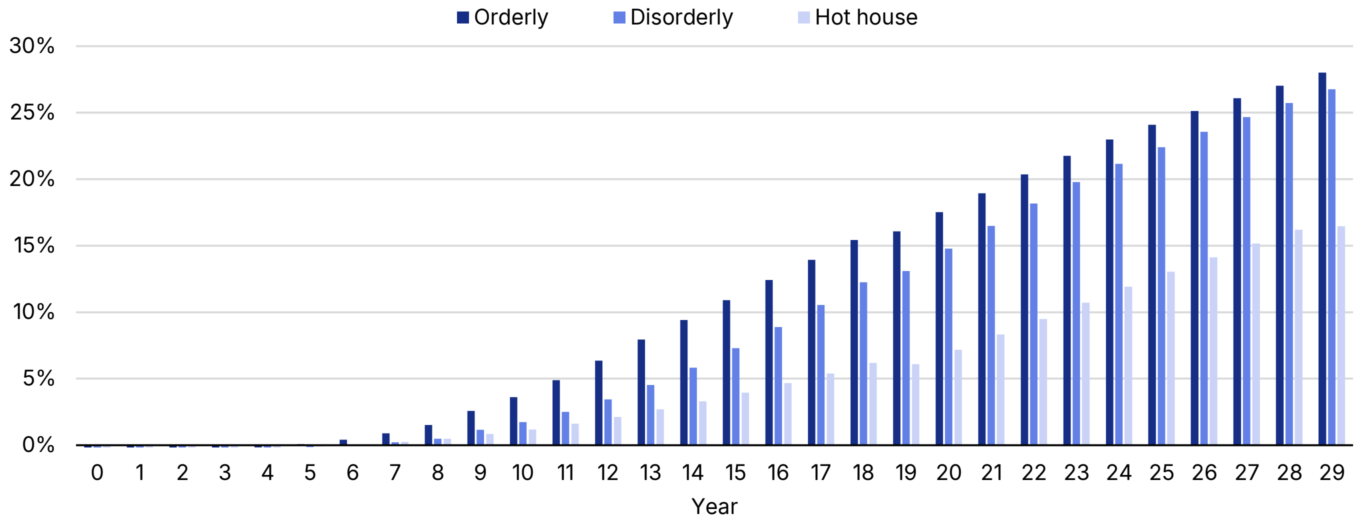
Figure 2 shows the impact of climate change on periodic cashflows. The effect of climate change is negligible over the first eight years. Of the three scenarios, orderly is most impacted, highlighting the impact of transition risk versus physical risk. Two effects explain such behaviour:

- Transition risk materialises before physical risk, as changes in regulations, consumer behaviour and other factors occur over the medium term whereas physical risk is meaningful over the long term.
- Cashflows are derived from a diversified portfolio of properties distributed across various geographic regions, which helps mitigate the impact of localised physical risks.

[3] The NGFS (Network of Central Banks and Supervisors for Greening the Financial System) has categorised climate change into three main scenarios: orderly, disorderly, and hot house. Each scenario explores a different set of assumptions as to how climate policy, emissions and temperatures evolve and are then characterised by their overall level of physical and transition risks.

[4] See as one example Section 3 of the Bank of England's "Financial Stability Report - November 2024", where, among other factors, it is specified that "in the most pessimistic climate scenarios, the 1% of properties most exposed to increases in flood risk could lose around 20% of their value".

Figure 2: Cashflow losses ratios versus our counterfactual scenario assuming no climate-change risk



Source: Scope Ratings

2.2 Mapping property price impacts under climate change scenarios

Below we represent our disaggregated analysis of the impact of physical and transitions risks on property prices across England and Wales, under the orderly, disorderly, and hot house scenarios. Our results, summarised in Table 2 below, are more conservative than the existing literature[5]. While physical risks impact property prices in a relatively uniform way, transition risks vary significantly across regions, as further explained below.

Hot house scenario shows the biggest impact in terms of physical risks.

Table 2: Summary of impacts on property prices

	Orderly	Disorderly	Hot House
Physical risk	-10%	-13%	-18%
Transition risk	-25%	-20%	-1.5%

Source: Scope Ratings

2.2.1 Mapping of physical risk on across regional house prices

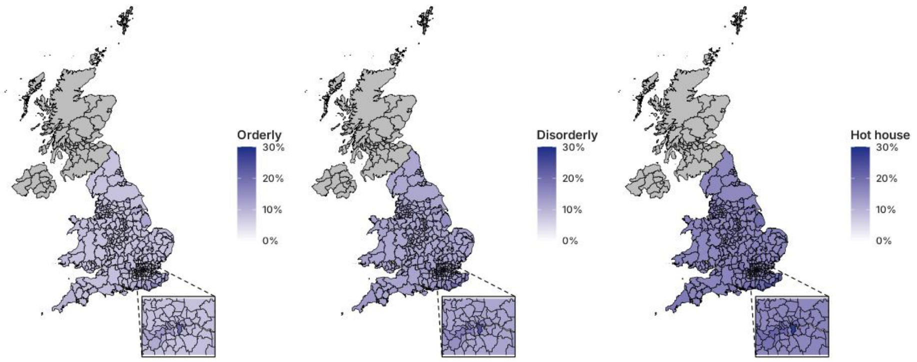
Physical risk impacts on HPI embed macroeconomic effects

Figure 3 shows the absolute house price index (HPI)[6] value differences between year 30 and year 0 per scenario and region, attributable to physical risks. The granularity and the widespread geographic distribution of the sample portfolio help to diversify away risks that are localised in specific areas. As an example, considering two single properties with similar characteristics other than their location, one on the coast and the other inland, the former will suffer from higher losses due to physical risks: 36% vs. 14% over a 30-year time horizon in the hot house scenario.

[5] "How Climate Change Is Influencing Property Demand and Valuation in the UK", 2025, mentions a 10%-25% impact on property prices in UK for flood zones. The "Technical Paper German residential real estate valuation under NGFS climate scenario" of Deutsche Bundesbank Eurosystem, September 2021 shows an impact of 11%-13% for the German housing market. While "Global GDP could fall 50% over 20 years without climate action - Actuaries report" published by Zemo Partnerships in 2025 shows the magnitude of the impact on global GDP.

[6] Refers to the static sample portfolio chosen the analyis and assumes no growth.

Figure 3: England and Wales mapping of HPI drops under physical risks



Source: Scope Ratings

2.2.2 Mapping of transition risk across regional house prices

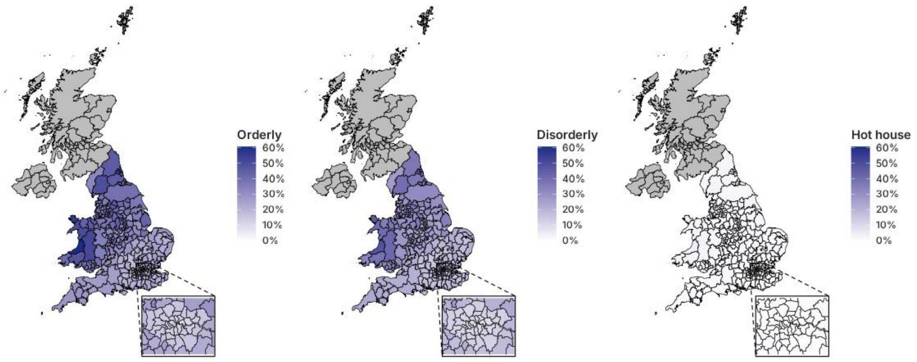
Transition risk impacts on HPI vary significantly based on the local authority.

The impact of transition risks varies strongly across regions because their respective exposure to the underlying transition risk drivers is heterogenous. Figure 4 shows the absolute HPI value difference between year 30 and year 0 per scenario and region, attributable to transition risks.

The distribution of transition-risk impacts across England and Wales can be explained by different factors. Taking, for example, the London area, where house prices are higher than in the rest of the country, the impact of higher energy costs relative to property prices would be lower.

The type of house is also a relevant factor. Apartments are generally more energy efficient than houses and are more concentrated in city areas, so impacts are lower in those areas. EPC (Energy Performance Certificate) grades are generally higher in the middle and southern areas of England than in other parts of the country, also lowering the impact of transition risks.

Figure 4: England and Wales mapping of HPI drops under transition risks



Source: Scope Ratings

3. Key conclusions

Limited impact due to the seasoning and granularity of the portfolio.

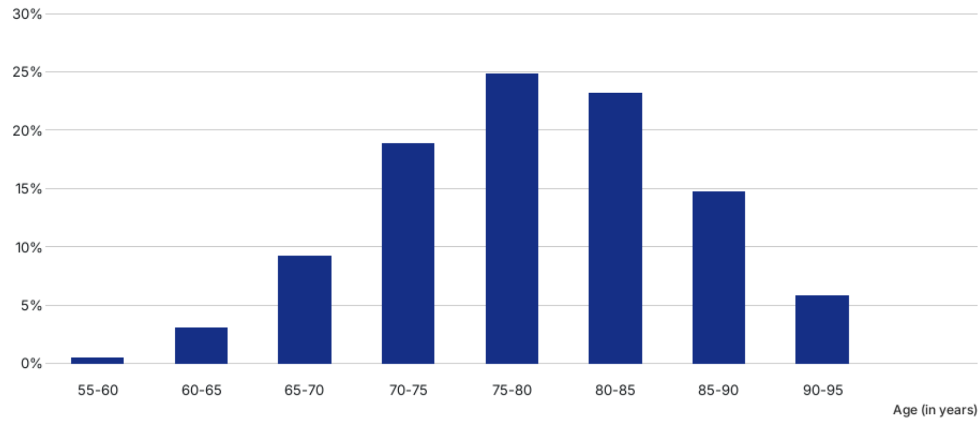
On a typical seasoned and granular ERM portfolio, climate-change risks are mainly driven by the impact of transition risks on property values. The impact of physical risks and potential impacts on mortality rates mostly fall out of the risk horizon of a typical ERM portfolio. This leads to our conclusion that the maximum loss on our sample portfolio would materialise in the orderly scenario.

Since the sample portfolio we used to conduct our analysis is seasoned (most borrowers are aged 70 to 85), its horizon is short compared to the full potential impact of climate change over a longer timeframe. A lower average age of borrowers could exacerbate the impact of climate change, with aggregate losses surpassing 10%. Moreover, the granularity of the sample portfolio mitigates the effect of climate-change risk, as it averages out and diversifies localised risks.

Appendix 1. Sample portfolio key features

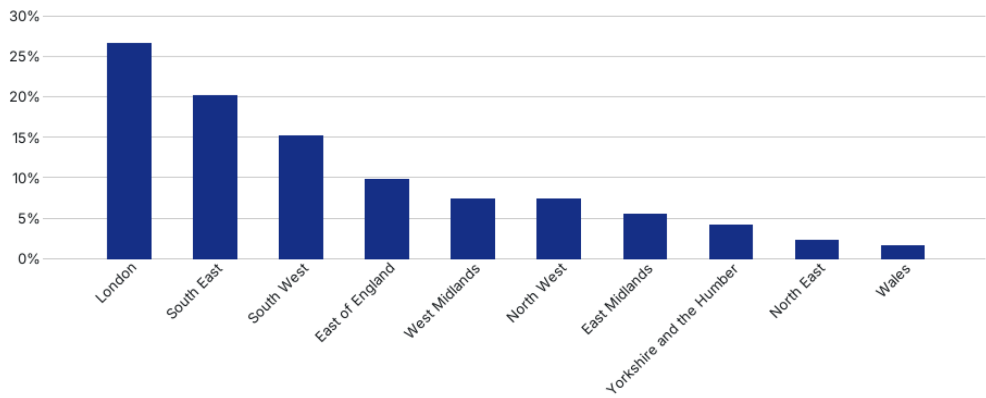
The portfolio we used to conduct our assessments exhibits standard characteristics relative to the books of large originators and was created through a sampling of England and Wales property transactions and EPC databases.

Figure 5: Age distribution of the sample portfolio (% of total borrowers)



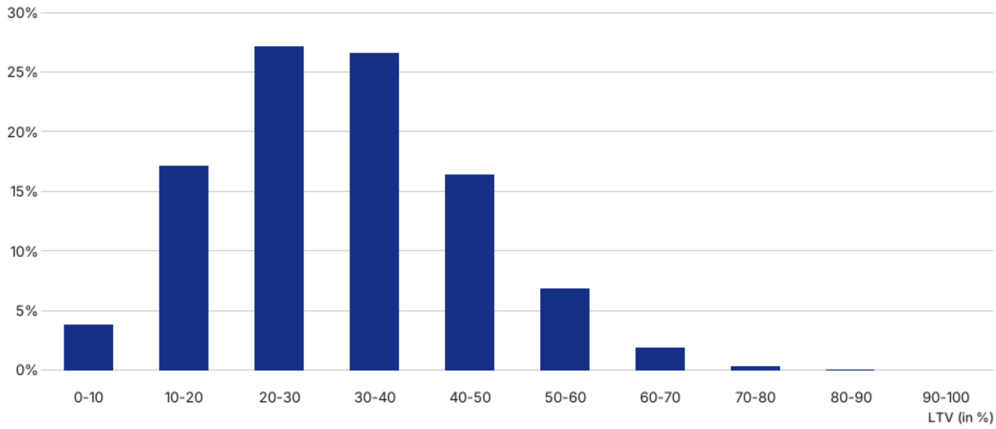
Source: Scope Ratings

Figure 6: Geographical distribution of the sample portfolio (% of total number of properties)



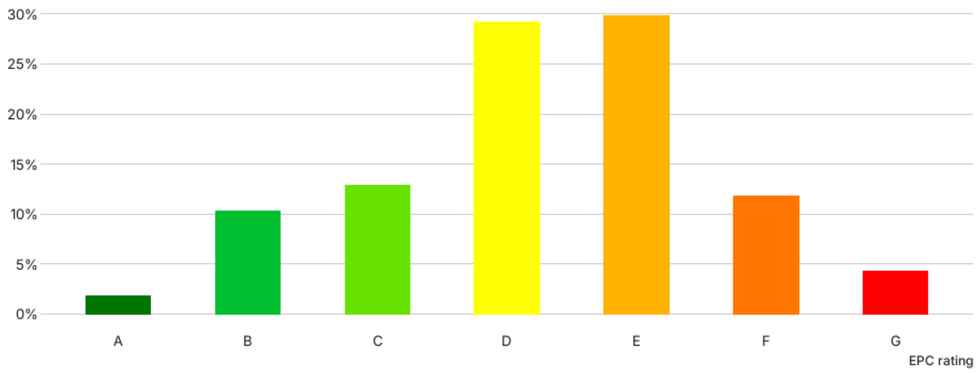
Source: Scope Ratings

Figure 7: LTV distribution of the sample portfolio (% of total number of properties)



Source: Scope Ratings

Figure 8: Energy Performance Certificate (EPC) distribution of the sample portfolio (% of total number of properties)



Source: Scope Ratings

Related research

Climate risk in covered bond ratings can have counterintuitive credit impacts, September 2025
Stress-testing European banks for climate-related losses, January 2025
EU climate risks, demographic change and debt sustainability, November 2023
Integrating climate-change risk into structured finance, June 2023
Integrating climate-change risk in structured finance: a stress test-based approach, September 2022

Scope Ratings GmbH

Lennéstraße 5, D-10785 Berlin
Phone: +49 30 27891-0
Fax: +49 30 27891-100
info@scoperatings.com

Scope Ratings UK Limited

52 Grosvenor Gardens
London SW1W 0AU
Phone: +44 20 7824 5180
info@scoperatings.com

in
Bloomberg: RESP SCOP
Scope contacts
scoperatings.com

Disclaimer