The ECB's clear warning to banks on climate risk

The warning from the European Central Bank couldn't be clearer: climate change will be a major source of systemic risk to banks if no action is taken. But it's clear that there are opportunities for banks that can help by helping companies finance their transition towards more sustainable business models

Climate change will increasingly impact banks' balance sheets if nothing is done. Pictured: flooding in Germany back in July

Climate stress testing will support a greening of bank balance sheets

Based upon its economy-wide climate stress test results, the ECB concluded this week that climate change will be a major source of systemic risk to banks if no action is taken, particularly for those highly exposed to economic sectors and/or geographical areas most at risk. But this presents opportunities for banks too. Those which help companies finance their transition towards more sustainable business models will enable them to increase the taxonomy compliance of their lending books. And that will, in turn, support the issuance of green bonds by banks, including those under the upcoming European green bond standard.

The ECB's climate stress testing framework will provide additional incentives for banks to green their balance sheets

The ECB's results of its climate stress tests provide valuable insight into the vulnerabilities banks face as far as climate risks and their exposure to non-financial companies are concerned. It's the first step in the central bank's roadmap towards a climate stress-testing framework. It will be followed by a separate supervisory climate stress test of individual banks in 2022, which should result in the introduction of a more regular climate stress-testing of banks in the following couple of years. The climate stress test of the euro-system balance sheet is scheduled for the first quarter of next year.

We believe the ECB's climate stress testing framework will form an increasingly important additional incentive for banks to green their balance sheets in the years to come. Furthermore, banks that are more exposed to climate risks are likely to face increasing pressure to prepare for those risks which will potentially involve them building up climate capital buffers.

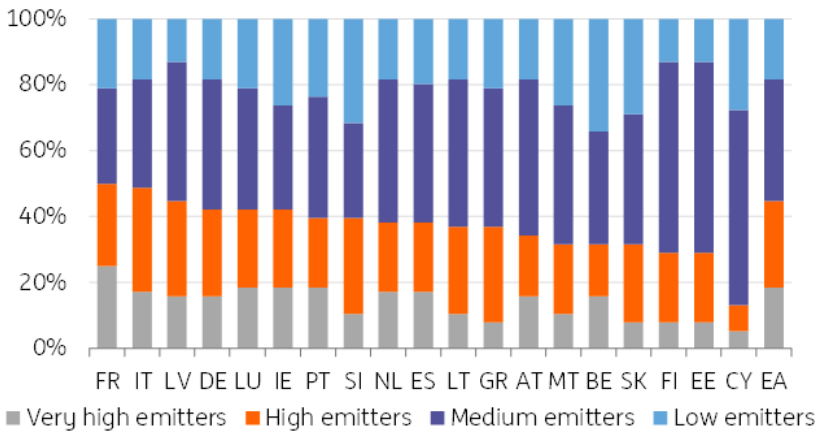
'Act early' is the clear message

There is a clear advantage to acting early as the longer to medium-term costs of doing nothing to combat climate change far outweigh the short-term costs of transition; that's clearly the most important conclusion the ECB draws from the stress test results. If not mitigated, the effects of climate change will mostly be concentrated in certain geographical areas and sectors. While the physical risks stemming from climate change will primarily be concentrated in certain countries, the transition risks will have a stronger impact on certain sectors. In fact, the ECB sees climate change as a major source of systemic risk, particularly for banks that are highly exposed to these economic sectors and/or geographical areas.

The ECB sees climate change as a major source of systemic risk to banks

The ECB's data analysis implies that where it comes to transition risks, sectors such as mining, electricity & gas, agriculture, manufacturing, water supply & waste are probably the most emission-intensive, whereas the biggest contributors to overall absolute emissions are manufacturing, electricity & gas, transport, and wholesale & retail activities. The latter sectors represent 40% of bank loan exposures. On a country-by-country basis, the ECB statistics show that bank loans in France and Italy, in particular, are more exposed to very high emitters or high emitters (around 50%), with German bank loans also above 40%, as you can see in the chart below. Cypriot banks have a relatively modest bank loan exposure to transition risk.

Share of bank loans exposed to transition risk



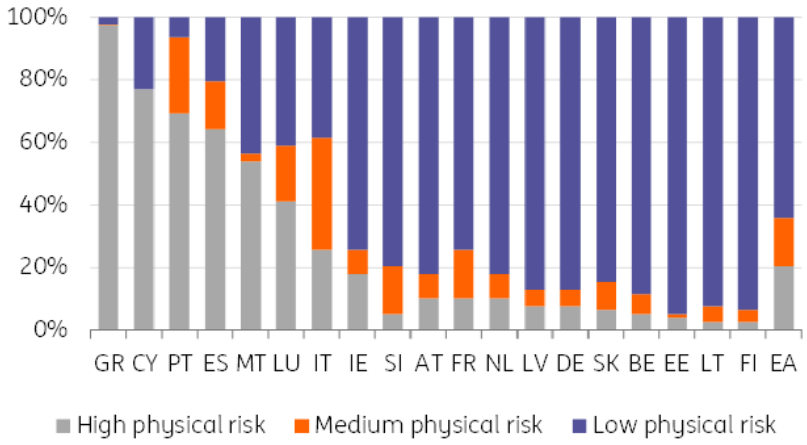
Source: ECB Occasional Paper Series No 281 (September 2021), ING

Wildfires and flooding are two major physical risks

It's important to note, however, that the ECB sees physical risks as the most important risk to banks if no action is taken. If those climate risks are not addressed, bank losses could continue to increase non-linearly over time due to the permanent nature of climate change. Banks with high physical risk could exhibit a very significant impact. The ECB identifies 22% of the euro area bank exposures as being affected by high physical risk, of which wildfire is the most important (~70%), followed by flooding (~27%).

The ECB anticipates southern European countries will suffer more from wildfires as a consequence of climate change, whereas countries in eastern and central Europe are more likely to suffer more from flooding. Greek, Cypriot, Portuguese and Spanish banks have, according to ECB calculations, a particularly high share of bank loan exposure to high physical risk if climate change is not mitigated, Finnish banks have the least.

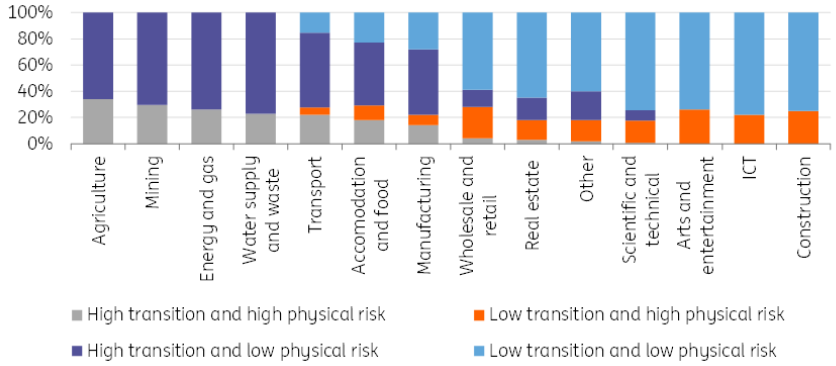
Share of bank loans exposed to physical risk



Source: ECB Occasional Paper Series No 281 (September 2021), ING

On a more generic basis, the ECB identifies firms in resource-intensive sectors, such as agriculture, mining, electricity & gas, and water supply & waste sectors, to have particularly high transition risk. Instead, high physical risks are spread more evenly across the different sectors. So we only see modest transitional and physical risks in sectors such as information & communications technology (ICT), arts & entertainment and in scientific and technical areas.

Share of firms subject to climate risk by sector



Source: ECB Occasional Paper on the economy wide climate stress test (September 2021), ING

The ECB categorises firms as vulnerable to high transition risk if their relative emissions fall into the 70th percentile of Scope 1, 2 and 3 relative emissions for the entire sample. Firms are vulnerable to high physical risk if their probability of suffering from a wildfire or a river or coastal flood in a given year is over 1%. The ECB calculations based on Four Twenty Seven and Urgentem data (2018).

Some sectors are more vulnerable than others

This supports the conclusion that banks with stronger exposure to the agriculture, mining, energy & gas, and water supply & waste sectors are more vulnerable to the transition and physical risks run by their corporate clients. But this doesn't mean that future bank responses will see them all move away from sectors with the most climate risks. That's because banks can play an important role in financing companies' transition to more sustainable business models.

> *Banks can play an important role in financing the transition towards more sustainable business models*

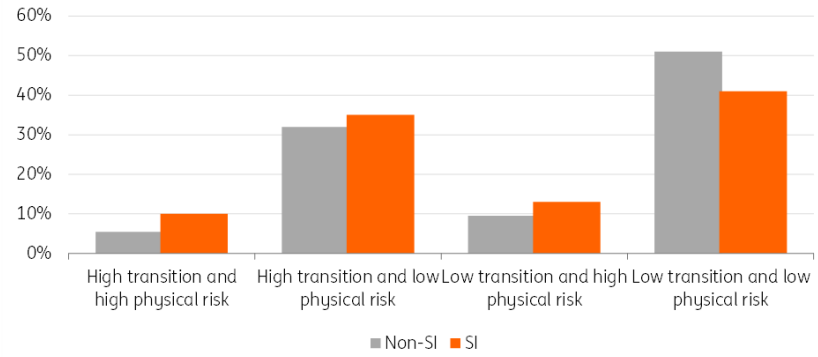
Exposure to climate risks give banks good opportunities to support companies, especially when you consider the adjustment process will be costly and, of course, it'll need funding. Banks could well be able to grow the size of their 'environmentally sustainable' lending book under taxonomy regulation. This, in turn, could be supportive of the issuance of green bonds by banks, including those meeting the requirements from the forthcoming European green bond regulations.

The ECB also concludes that large and significant institutions (SIs) are slightly more exposed to climate risk than less significant institutions (LSIs). The central bank estimates, for instance, that LSIs are roughly 50% exposed to low transition and low physical risk firms, whereas SIs have only around 40% exposure to these low climate risk firms. Vice versa, SIs have higher exposures to firms

that have high transition and/or high physical risks.

So, addressing climate risk appears even more important to significant institutions. Typically, the banking segment is well-positioned to withstand climate-related risks, but you can't rule out banks having to face increased pressure to increase their capital buffers further to mitigate against a worsening environment. And that could lead to them being even more vocal on the topic in years to come.

Share of bank loans exposed to climate risk per bank type



Source: ECB Occasional Paper on the economy wide climate stress test (September 2021), ING

*The ECB has categorised exposures as high transition risk if a firm's absolute emissions fall into the 70th percentile of Scope 1, 2 and 3 absolute emissions for the entire sample. Exposures are categorised as high physical risk if a firm's probability of suffering from a wildfire or a river or coastal flood in a given year is over 1%. Banks are classified as significant institutions (SIs) based on the definition set out in the SSM Regulation and SSM Framework Regulation. The ECB calculations based on Four Twenty Seven and Urgentem data (2018).

The ECB's assessment of bank credit risk

The ECB's climate stress test exercise assessed the risk of climate change on 4 million corporates and 1,600 consolidated banking groups across the Euro area. For banks, the impact from transition and physical risks is analysed both through the credit and market risk channels, although the former is clearly the more important. The ECB compares the impact on eurozone banks from the scenarios' hothouse world and delayed transition to an orderly transition scenario that is used as the baseline.

For assessing bank credit risk, the ECB uses projections on the probability of defaults (PDs) and loss given defaults (LGDs) on banks' corporate books over the next 30 years or so. This exercise does not include bank exposures to households.

The results suggest that banks would benefit until 2030 if the economy does not transition or transitions with a delay, as the average PD would be around 1.5% lower than under the orderly transition scenario. This effect is however more than offset in the medium to long term. By 2050 the median loan portfolio PD would have increased by 7% in a hothouse world as compared with the baseline.

Major banks would stand to suffer more than smaller ones under

a hothouse world scenario

Furthermore, this trend would continue beyond 2050 at least at the same pace if the irreversible nature of the physical risk is not mitigated. Instead, in the delayed-transition scenario, the relative higher PDs would peak at around 2% in 2035 as corporates finance their transition with debt, stabilising around 3% thereafter. The higher corporate leverage would reflect negatively on the quality of bank loan portfolios. Therefore, the impact on banks from any disorderly transition is more limited than the one from the hothouse world scenario in the longer term.

The results further suggest that major banks would stand to suffer more than smaller ones under a hothouse world scenario. This is due to their clients being more exposed to negative impacts from physical risks such as extreme weather events.

The benefits of an orderly transition

Almost all banks would benefit from an orderly transition. The majority of the banks would exhibit a lower PD by 2050 in the orderly transition scenario than in the hothouse world scenario. The ECB calculates that the average bank-level PD in the hothouse scenario would be 2.3% by 2050, as compared with the 2.1% envisaged for the orderly transition scenario. The effects are not similar in all countries, especially in the hothouse scenario, as the nature of physical risk in the medium to long term is non-linear and location-specific.

The probability of default could even rise by 30% for some banks

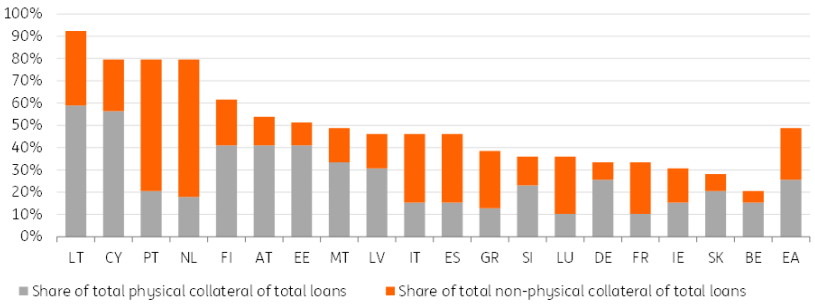
The impact hits certain banks considerably harder than others and the impact may be significant. Looking at the top 10% of banks by PD dispersion, the study finds that their average PDs would rise 30% by 2050, which is five times higher than for the whole sample in the case of the hothouse world scenario. These top exposed banks would also exhibit a long term increase in their PDs in the disorderly transition and orderly transition scenarios. These banks are larger and account for almost 20% of the total exposures. Instead, for the whole sample, the average PD will actually decline by 2050 in the event of an orderly transition, i.e. early and effective climate policies.

Loss given default (LGD) in the hothouse world scenario would be particularly impacted by physical damage for collateral. The stress tests assess the impact on loss given default and collateral values by taking into account a reduction in the value of the physical collateral due to damage caused by physical risk as well as the more macro level impact from the transition and physical risks. Banks would exhibit the largest increase in their LGD in the hothouse world scenario that would also see some bank portfolios disproportionally more affected than others.

For the ECB sample, around 50% of the loans are protected by (mainly physical) collateral, as we show in the chart below. The total collateral value is the highest in larger countries such as Germany, Italy, Spain, France and the Netherlands. Of these, the share of collateralised lending of the total is the highest in the Netherlands (80%), followed by Italy and Spain (around 45%), with Germany and France clearly lower at around 35%. As non-physical collateral plays a big role

especially in the Netherlands, looking at only physical collateral, the share is the highest for the larger countries in Germany, followed by the Netherlands.

Share of physical and non-physical collateral of loans by country



Source: ECB Occasional Paper Series No 281 (September 2021), ING

Calculating banks' potential losses

The highest expected losses are expected to be exhibited by banks located in countries with either low levels of collateralisation or high exposure to physical risk. The stress tests use the climate-stressed PDs and LGDs for the corporate loan portfolios to arrive at the expected loss estimates for individual banks. The expected losses are estimated to be minimal in the orderly transition scenario. In the hothouse world scenario, the estimated losses are indicated to increase 8% above those in the orderly one by 2050. In the disorderly transition scenario, the expected losses would be around 3-4% higher. Certain countries seem to be more prone to physical hazards showing both higher PDs and higher LGDs. These countries show higher expected losses.

> *The highest losses are expected for banks with low levels of collateralisation or high physical risk exposures*

The ECB has also developed an internal model to assess climate impact on €80bn of corporate bonds held by banks to account for shocks on credit spreads from transition and physical risks under the three climate scenarios. The fair value losses from the bond portfolios are almost always higher in the hothouse world scenario than in the orderly transition scenario. The market impact however is rather limited to banks as the total corporate bond possessions remain relatively small as compared to the total balance sheet size of the banks (€30tr).

Conclusion

Based on the stress test results, the ECB concludes that there is a clear advantage to acting early, as the short-term costs of transition are by far not as significant as the medium to long term costs of not combatting climate change. If not mitigated, the effects of climate change will mostly be concentrated in certain geographical areas and sectors. The ECB sees climate change as a major source of systemic risk, particularly for banks that are highly exposed to these economic sectors and/or geographical areas.

We believe that banks that are more exposed to climate risks are likely to face increasing pressure to prepare for those risks, which may well lead them to build up climate capital buffers. That said, helping companies finance their transition towards more sustainable business models will give banks opportunities to align their lending books with regulatory requirements and their own climate goals.

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