

Can the green transition be risky for Slovak banks?*



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Climate change and measures to avert global warming affect financial stability as well. In the pilot climate stress testing project, we estimate the indirect consequences of the transition to a carbon-neutral economy on the Slovak banking sector. We focus on the credit risk of households and non-financial corporations. We estimate that banks' credit losses should remain systemically negligible in the case of a smooth and rapid substitution of emission-intensive industries in favor of their ecological alternatives. On the contrary, the uneven path to a carbon-neutral economy increases credit losses, which in certain circumstances exceed losses under adverse stress testing scenarios.

*This policy brief is based on the paper: Kalman et al., (2023), [What's the Cost of "Saving the Planet" for Banks? Assessing the indirect impact of climate transition risks on Slovak bank's loan portfolios](#), NBS Working Paper (7/2023).

The Intersection of Climate Risk and Financial Stability

Climate change is an escalating global challenge, bringing complex risks beyond environmental concerns. The ramifications of climate-related physical risks, including the intensifying effects of rising temperatures and the increasing frequency of large-scale natural disasters, are now echoing through economies worldwide. Together, the transformative policies adopted to combat climate change introduce a new layer of uncertainty known as transformation risks. These risks can collectively inflict economic and financial losses on businesses, households, and governments on a global scale.

The adverse effects of climate-related risks can saturate the financial system through direct and indirect channels. The direct impact can be substantial when the financial sector maintains exposure to industries with high greenhouse gas emissions or those particularly susceptible to climate-related physical risks. However, the Slovak banking sector currently has minimal direct exposure to these risks (Národná banka Slovenska, 2021).

This policy brief embarks on a journey to recognize the dynamic interplay between climate and finance and to dissect the indirect repercussions of climate transition risks on the banking sector in Slovakia. Our in-depth analysis seeks to discern the intricacies of potential adverse macroeconomic developments triggered by the shift towards a carbon-neutral global landscape. Specifically, our examination is tailored to gauge the influence of this transition on the credit quality of households' and non-financial corporations' (NFCs) loans granted by Slovak banks. This attempt underscores the urgency of understanding and addressing climate transition risks to safeguard financial stability and foster resilience within the Slovak banking sector.

Designing Climate Risk Scenarios within Stress Testing Framework

A thorough approach to climate risk scenario design is imperative for a forward-looking analysis. Conventional stress testing scenarios do not incorporate climate-related risks; hence, we use the scenarios developed by the Network for Greening the Financial System (NGFS). These NGFS scenarios are constructed upon various assumptions encompassing climate policies, average temperature trends, and carbon emissions trajectories, culminating in distinct levels of physical and transition risks (NGFS, 2021). Our analysis focuses on two specific NGFS scenarios, namely "Net Zero 2050" and "Divergent Net Zero", where the prevalence of transition risks surpasses physical risks. We utilize the "NGFS Baseline Scenario" as a benchmark against which to compare the results of climate stress tests. This baseline scenario represents the most likely macroeconomic projections and serves as a standard economic forecast that does not incorporate climate-related risks. These scenarios are integrated into the stress test framework established by the National Bank of Slovakia (NBS). Further details of the framework are described in Klacso (2014, 2023).

Evaluating Credit Losses in Climate Transition Scenarios

Under the NGFS scenarios used in this exercise, rising unemployment is the prevailing factor impacting the credit quality of loans granted to households. In the "Net Zero 2050" scenario, the unemployment rate increase is negligible due to the assumed smooth transition of the global economy. Therefore, credit losses incurred by banks due to non-repaid loans extended to households are found to be insignificant. Losses arising from unmet commitments remain, at their maximum, within the realm of 0.1% of the aggregate volume of all retail loans that have been extended (compared to the losses under the baseline scenario).

A gradual shift in the unemployment rate from 0.6% to 0.8% in the "Divergent Net Zero" scenario leads to credit losses between 0.2% and 0.3% of the total retail loans issued (compared to the baseline scenario). However, the estimated losses in this scenario are still significantly lower than the standard stress testing results.

When assessing non-financial corporations, we factor their revenue interdependence with the overall economic growth (GDP), which is the main macroeconomic factor under the scenarios used affecting their credit quality. NGFS scenarios assume a shock in the form of increased carbon tax negatively affecting demand for "brown" products. Therefore, we operate under the assumption that an adverse economic shock disproportionately impacts sectors associated with heightened Scope 1 and 2 emissions in the production chain.

Again, the "Net Zero 2050" scenario expects a smooth transition, yielding a negligible impact on economic growth. Hence, corporate loan losses stay under 0.1% of the aggregate volume of corporate loans compared to the baseline scenario. The "Divergent Net Zero" scenario embodies a shift toward a carbon-neutral economy, reducing demand for products from sectors with elevated Scope 1 and 2 emissions. Consequently, compared to the baseline scenario, a decrease in GDP ranging from 4% to 6% corresponds to a surge in credit losses of 0.2% to 0.3% of all loans provided to companies. In this case, losses are also significantly lower compared to the results of standard stress testing.

Sensitivity Analysis

While both scenarios project relatively subdued global inflation, our sensitivity analysis contemplates the repercussions of plausible energy price escalations in Slovakia on credit risk. This is based on the assumption that while the scenarios have a global scope, there can be significant deviations from these trends locally in case some countries lag with the economic transition. We test energy price hikes set at 50% and 100% of the NGFS gas price scenarios. Even though these estimated losses surpass the baseline projection, they persistently reside far below the losses foreseen in unfavorable standard stress testing scenarios.

These favorable results concerning households and businesses may be attributed to the broader risks considered in standard stress tests, banks' relatively modest credit exposure to sectors with substantial emissions in Slovakia, and the relatively restrained shocks incorporated within analyzed NGFS scenarios. In addition, our calculations factor in losses stemming from transformation risks, specifically losses arising from the transition toward a carbon-neutral economy. These losses should already be part of the primary stress testing scenario, as a smooth economic transition is desirable to prevent the negative consequences of global warming.

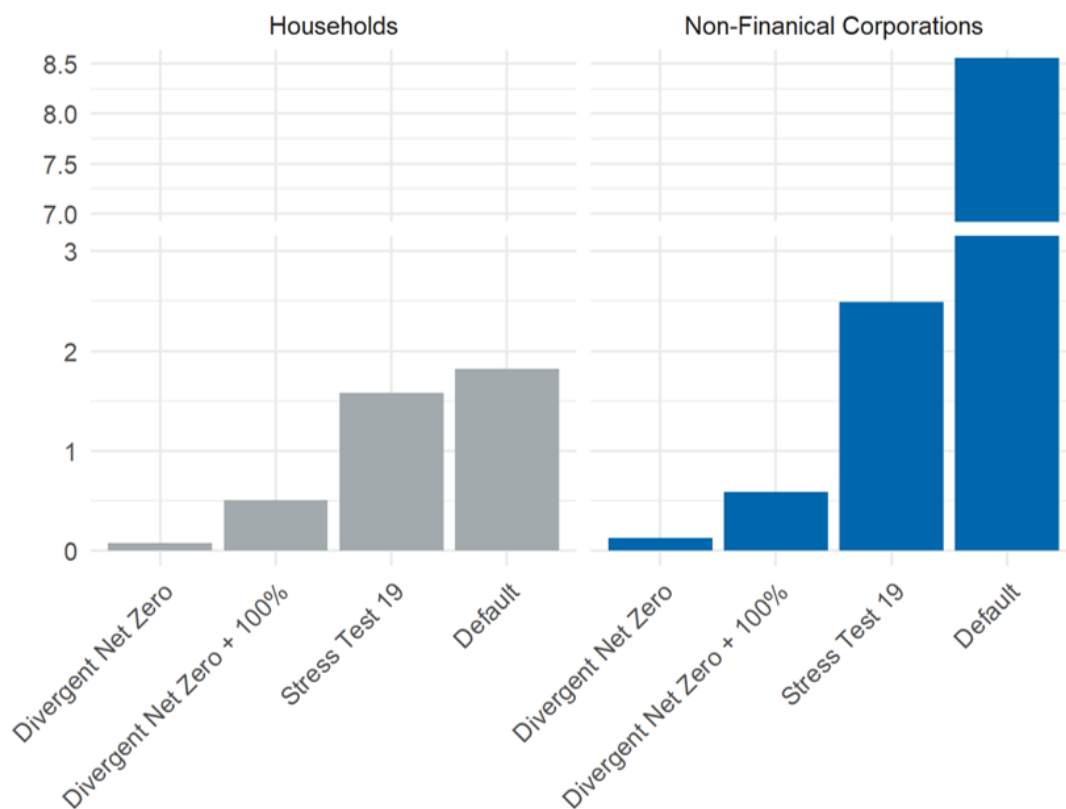
The conclusive segment of our sensitivity analysis addresses the risk that businesses entrenched in emissions-intensive activities may need to adapt to decarbonization within their respective regions adroitly. Should regional inflexibility persist, it can yield substantial credit losses, particularly in business failures within the more emissions-intensive sectors. For the analysis, we selected twelve industries with the highest Scope 1 and 2 emissions to include special construction activities as well. These sectors account for a significant portion of loans granted to non-financial corporations, amounting to 26.7%. Furthermore, 21.1% of the labor force in Slovakia is employed in these sectors. It is acknowledged that the assumption of a comprehensive failure of all firms within emissions-intensive industries and the consequent loss of jobs for all employees within these sectors is stringent.

The stringency of this assumption can be balanced by the high risk of transferring losses to other sectors. This contagion cannot be directly embedded in the analysis due to the lack of suitable data. Therefore, the results are interpreted as losses from the failure of loans equivalent to loans provided to the most emission-intensive sectors or losses due to increased unemployment corresponding to the number of workers in the most emission-intensive sectors. In such an instance, the losses would outpace those derived from standard stress testing, emerging as a more substantial concern for households and NFCs.

Summary of the Results

In the event of a smooth and rapid shift from emission-intensive industries to their environmentally friendly alternatives, the credit losses incurred by banks are expected to remain negligible, not posing systemic risks to financial stability. Conversely, an uneven transition to a carbon-neutral economy is associated with increased credit losses. Under certain circumstances, these losses surpass the outcomes predicted by adverse stress testing scenarios, (Graph 1).

Graph 1: Credit losses under different scenarios (in %)



Source: NBS, Authors' own calculations.

Note: All results are relative to baseline, as a percentage of the outstanding amount of loans. Divergent Net Zero represents NGFS scenario, Divergent Net Zero +100% represents NGFS scenario plus energy price hike of 100% NGFS gas price scenario, Stress Test 19 represents results of adverse scenario of conventional NBS stress test as of end 2019, and Default represents failure of the twelve most emission-intensive sectors.

Towards a Resilient and Sustainable Financial Future

The findings underscore the importance of a well-managed and swift transition to a carbon-neutral economy to ensure financial stability. Mitigating climate change and minimizing its financial repercussions requires coordinated efforts from both the public and private sectors. Policymakers, regulators, and financial institutions must collaborate to facilitate a smooth and balanced shift towards sustainable, low-carbon alternatives to protect the financial system from potential vulnerabilities associated with climate change. ■

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