

Nontechnical summaries in English

OeNB climate risk stress test – modeling a carbon price shock for the Austrian banking sector

Martin Guth, Jannika Hesse, Csilla Königswieser, Gerald Krenn, Christian Lipp, Benjamin Neudorfer, Martin Schneider, Philipp Weiss

Climate change poses several risks to the value of financial assets and to financial stability. A carbon pricing mechanism is one of the main policy instruments in the transition to a more climate-friendly economy, and its potential benefits and risks have been intensively discussed by policymakers.

In this article, we assess the impact of carbon pricing on the Austrian banking system in a forward-looking framework. We evaluate three scenarios over a horizon of five years: the baseline scenario, which is consistent with the OeNB's current top-down solvency stress test and serves as a reference point, and two transition scenarios, which anticipate respectively an orderly and a disorderly increase of carbon emission costs for the economy and provide the empirical basis for our policy conclusions. Our stress test focuses on the transmission channels and the potential impact of transition risks on the banking system and should not be interpreted as a forecast of the development of the Austrian economy.

We expand the OeNB's top-down stress testing infrastructure with two additional models. First, we develop an enhanced multiregional input-output model to calculate cost and turnover changes for different economic sectors following the introduction of a carbon pricing scheme. Second, we expand the OeNB's corporate insolvency model to include shocks such as a carbon emissions-based shock. This allows us to assess the impact of carbon pricing on sectoral insolvency rates, which is then used as an approximation for stressed credit risk default probabilities. In addition, these stressed default rates are used to derive valuation losses for Austrian banks' bond portfolios. Both inputs feed into the OeNB's top-down stress testing framework ARNIE, making it possible to assess the impact on the Austrian banking system.

Our results imply that especially the disorderly transition scenario can have a sizeable impact on certain economic sectors, most importantly agriculture and transport, where default rates would rise sharply, affecting banks exposed to these sectors. The aggregate CET1 ratio for the Austrian banking system would decrease by 0.7 percentage points in the orderly and by 2.7 percentage points in the disorderly scenario. Given banks' initial capitalization levels, this seems manageable. An interactive presentation of the results is available on the OeNB's website.¹

We conclude that the introduction of a carbon pricing mechanism will certainly create additional costs for the Austrian banking system, but our results indicate that banks are well placed to withstand the indirect effects of measures to counter the climate crisis.

Identifying banks with significant negative effects on financial stability in systemic shock scenarios

Judith Eidenberger, Katharina Steiner

One of the OeNB's main financial stability-related tasks is assessing how bank defaults impact financial markets, regardless of whether such defaults have bank-specific (i.e. idiosyncratic) reasons or are caused by a system-wide shock. In this study, we introduce an approach to assessing the effect of system-wide shocks, thereby closing a methodological gap. Our multistep method is based on consistent and comprehensible shock scenarios that also take into account specific characteristics of the Austrian banking system, such as the large number of banks and the institutional protection schemes of the three big sectors. Furthermore, our approach makes it possible to assess each bank in a country with regard to its potential impact on financial stability in a shock scenario.

¹ <https://www.oenb.at/en/financial-market/banking-supervision/stress-tests.html>.

The method builds on the threshold approach developed for the idiosyncratic scenario, thereby ensuring consistency between idiosyncratic and systemic scenario analyses. The assessments of financial stability effects based on our approach may feed into macroprudential deliberations, crisis prevention (resolution planning) and crisis management, and they are also relevant with regard to deposit guarantee schemes.

Nonbank financial intermediation in Austria – an update

Alexandra Schober-Rhomberg, Alexander Trachta, Matthias Wicho

Nonbank finance, which complements traditional bank finance, helps increase competition in the financial system. Moreover, it helps diversify the sources of financing for the real economy, that is businesses and households. Its importance has risen since the global financial crisis. Capital markets can function as a buffer by stabilizing financing flows for firms when bank credit decreases. While increased risk-sharing across the financial system is beneficial, activities by nonbank financial institutions also carry systemic risks. These may result from investors' herding behavior and interconnectedness within the financial system or from maturity or liquidity transformation and the creation of leverage. Maturity transformation means borrowing money on shorter timeframes compared with the maturities involved in lending. Liquidity transformation refers to the financing of less liquid assets, e.g. loans, using liabilities which can be redeemed at any time. Leverage refers to the degree to which investors or businesses use borrowed money.

The relative importance of nonbank finance vis-à-vis traditional banking has increased markedly in the past decade, both worldwide and in the European Union. In Austria, however, the financial system is still dominated by bank financing. The most important nonbank financial institutions are open-end investment funds, insurance corporations and pension funds. Overall, nonbank financial activities in Austria are currently not seen as a concern from a financial stability perspective. Systemic risks from nonbank financial intermediation seem contained and all actors with substantial activities are subject to financial regulation and supervision. The Austrian financial system remains largely dependent on traditional banking and does not yet fully enjoy the benefits of diversified funding sources. Given their increasing relevance, nonbank financial activities – and the systemic risks – need to be monitored closely, both from a micro- and a macroprudential policy perspective.