EXECUTIVE SUMMARY

Large cross-border banking groups dominate the global banking landscape with operations in many countries. Differences in regulatory systems and imperfect supervisory cooperation across countries allow these banking groups to take on higher risks than if they were subject to only one very stringent regulator. They may shift risk into entities with the weakest regulatory oversight, and they may be able to hide risks. The cross-border nature of the operations of these banks is thus an important source of financial instability, as witnessed during the Global Financial Crisis, which saw the failure of several cross-border banks, which were at least partly attributed to inadequate supervisory oversight and limited cross-border supervisory cooperation.

In recent years, policymakers have stepped up their efforts to improve supervisory coordination across countries (most prominently the Banking Union in Europe). These agreements are predominantly between two or more countries but do not necessarily cover all the countries in which a group operates. This fact opens up the possibility of regulatory arbitrage. If the country of the parent bank starts to cooperate with the country of one subsidiary, this will limit risk-shifting between the parent bank and that subsidiary. The bank may react to this by allocating risks to other parts of its group, which might reduce the overall effectiveness of supervisory cooperation or even render it ineffective. Such a risk reallocation would explain why supervisory cooperation seems ineffective for very large cross-border banks: Beck, Silva-Buston, and Wagner (2022) have shown that whereas supervisory cooperation makes smaller cross-border banking groups safer, this is not the case for the larger ones, the ones that operate across many countries.

This paper uses novel hand-collected data on supranational cooperation agreements to examine risk-shifting effects of supranational supervision. We document that banking groups increase lending in a foreign subsidiary when cooperation agreements with other (foreign) subsidiaries increase. However, the effect depends on the characteristics of the subsidiary and the regulatory framework. Importantly, we also show that profitability decreases and leverage increases in response to third countries' cooperation, suggesting higher risk-taking in the subsidiary. We confirm our findings with syndicated loan-level data; we show that banking groups are more likely to allocate loans in subsidiaries not covered by cooperation.

Assessing the effect of cross-border supervisory cooperation on banks' risk-taking activities is made difficult by endogeneity biases, as cooperation agreements might be accorded in light of expected bank behaviour. Therefore, to mitigate this concern, we focus primarily on third country effects, i.e., how changes in supervisory cooperation between home and host countries of a banking group affect third-party host countries. Specifically, using data for 113 banking groups during 1995-2013, we investigate whether (and how) risk allocation into a specific (foreign) subsidiary changes when cooperation in the remaining banking group changes due to new cooperation agreements being formed. For this, we construct a group-host country-level cooperation index, which measures the extent to which the parent-subsidiary structure of the group (excluding the country of the subsidiary itself) is covered by supranational cooperation agreements. Our empirical setup allows us to control for a comprehensive set of effects, particularly any local push or pull factors. In our most stringent specification, we compare two subsidiaries operating in a country whose parent banks are incorporated in the same home country. Identification comes from the fact that these parent banks have a different geographic footprint in their (residual) subsidiary structure. Hence, they are differentially exposed when third countries sign cooperation agreements with the home country.

We find that lending in the subsidiary increases when group-level cooperation between parent bank and other host country supervisors increases. The effect is economically large as a one

standard deviation change in group cooperation increases subsidiary lending on average by 20% and is robust across a large set of specifications. We also find that the lending increase is funded by debt financing, and thus the subsidiary's liability side becomes riskier as well. We do not see any evidence for potentially offsetting effects, such as safer or more profitable lending. This indicates that, overall, subsidiaries become riskier. The results are consistent with risk-shifting within the banking group where following cooperation between the home country and the country of a foreign subsidiary risk is shifted into subsidiaries not covered by that cooperation agreement.

We complement our subsidiary-level analysis with an analysis of origination decisions of individual loans. Specifically, we examine for a given loan through which subsidiary a group originates the loan. Ivanov and Wang (2022) show supervisory examination of loans results in behavioral adjustments by banks. Similarly, we expect supervisory cooperation resulting in more careful bank monitoring by supervisors leads banks to shift syndicated loans to subsidiaries whose supervisors do not have cooperation agreements with the parent bank supervisor. In line with our bank-level results, we find that the probability of booking a specific syndicated loan to a particular subsidiary increases as cooperation between the home country and other host country supervisors increases, an effect that is even stronger for riskier loans and borrowers, providing additional evidence for risk-shifting.

Our analysis has several important implications for policy. First, supervisory cooperation -- even if fully effective among the countries signing the agreement -- may have limited overall effectiveness because banks may shift risk to third countries. Second, supervisory cooperation among a set of countries may entail negative externalities on other countries. This suggests that cooperation decisions, typically made independently among individual countries (or groups of countries), may be inefficient. In particular, two countries may benefit from signing an agreement -- but only by causing the risks to be shifted into another country (at the extreme, such bilateral cooperation could be viewed as a zero-sum game). Third, and as a direct corollary, there is a rationale for "cooperating on cooperation" to avoid inefficient cooperation outcomes. In particular, when two countries sign a cooperation agreement, they may also involve supervisors in other countries where banks from the two countries have operations.