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# Evaluating Systemic Risk using Bank Default Probabilities in Financial Networks<sup>☆</sup>

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## Abstract

In this paper, we propose a novel methodology to measure systemic risk in networks composed of financial institutions. Our procedure combines the impact effects obtained from stress measures that rely on feedback centrality properties with the default probabilities of institutions. We also present new heuristics for designing feasible and relevant stress-testing scenarios that can subside regulators in financial system surveillance tasks. We develop a methodology to extract banking communities and show that these communities have a relevant effect on systemic risk. We find that these communities are mostly composed of non-large banks, suggesting that regulators should also broaden their surveillance efforts to these banking communities other than to the usual SIFIs and large banks. Finally, our results provide insights and guidelines for policymakers.

*Keywords:* systemic risk, financial stability, interbank market, stress test, macroprudential, network.

*JEL Classification:* G21, G23, C63, L14.

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