CEU Department of Network and Data Science | CENTRAL EUROPEAN UNIVERSITY

ESTIMATING CREDIT SUPPLY SHOCK PROPAGATION ON FIRM-LEVEL SUPPLIER NETWORK DATA

A TALK BY

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ABSTRACT | This research project examines (i) whether firm-level credit supply shocks propagate in the production network (ii) and how various firm and market characteristics influence the sensitivity to this contagious process. We have access to confidential datasets containing granular loan contract information from the Central Credit Registry of Hungary to identify shocks, and transaction-level supplier connection data coming from VAT reports collected by the National Tax and Customs Administration. A comprehensive analysis of the supplier net- work reveals insights about the community structure, temporal stability and homophily of the observed system. These information were used in the formulation of a spatial econometric model to investigate the impact of credit supply shock spillovers on firms' output, profitability and default probability. Early results indicate significant effects even up to three connections away from the origin of the shock, however, the severity of the impact can be modulated by firms' dependence on bank financing, available shock absorbing buffers and the ability to switch between banks. Our modeling framework makes it possible to separate upstream, downstream and horizontal shock propagation channels as well, and we find that – contrary to the majority of the literature – upstream propagation also has notable importance. The results obtained in this work will be also used for the calibration of key parameters in the next phase of the research project which is a microsimulation model of interacting economic networks.

BIO | András is a Ph.D. candidate at the Department of Network and Data Science with a particular interest in economic networks. He is also affiliated with the Central Bank of Hungary, where he works as an applied researcher focusing on financial stability. In his PhD thesis, András is conducting research on modeling contagious mechanisms of complex economic systems and designing regulations to prevent instabilities in the economy.