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Incentivizing Resilience in Financial Networks*

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Abstract

When banks extend loans to each other, they generate a negative externality in the form of systemic risk. They create a network of interbank exposures by which they expose other banks to potential insolvency cascades. In this paper, we show how a regulator can use information about the financial network to devise a transaction-specific tax based on a network centrality measure that captures systemic importance. Since different transactions have different impact on creating systemic risk, they are taxed differently. We call this tax a Systemic Risk Tax (SRT). We use an equilibrium concept inspired by the matching markets literature to show analytically that this SRT induces a unique equilibrium matching of lenders and borrowers that is systemic-risk efficient, i.e. it minimizes systemic risk given a certain transaction volume. On the other hand, we show that without this SRT multiple equilibrium matchings exist, which are generally inefficient. This allows the regulator to effectively stimulate a 'rewiring' of the equilibrium interbank network so as to make it more resilient to insolvency cascades, without sacrificing transaction volume. Moreover, we show that a standard financial transaction tax (e.g. a Tobin-like tax) has no impact on reshaping the equilibrium financial network because it taxes all transactions indiscriminately. A Tobin-like tax is indeed shown to have a limited effect on reducing systemic risk while it decreases transaction volume.

Keywords: Systemic Risk, Interbank Networks, Insolvency Cascades, Network Formation, Matching Markets, Transaction-Specific Tax, Market Design.
JEL Codes: C78, D47, D85, D62, D71, D53, G01, G18, G21, G32, G33, G38

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