

Decentralized clearing in financial networks

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Abstract

Consider a situation in which agents (banks, firms, organizations, individuals, etc.) have mutual financial claims on each other. A payment matrix in such a multilateral bankruptcy situation describes how much agents pay to each other, measured in the smallest monetary unit (cents, 5 cents, etc.). A clearing payment matrix satisfies limited liability and priority of creditors. Using Tarski's fixed point theorem we show that there exist a minimal and a maximal clearing payment matrix. We also describe a decentralized clearing procedure which is converging in finite steps to the minimal clearing payment matrix.