To Fully Net or Not to Net:
Adverse Effects of Partial Multilateral Netting[*]

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Abstract

We study a financial network where forced liquidations of an illiquid asset have a negative impact on its price, thus reinforcing network contagion. We prove uniqueness of the clearing asset price and liability payments under no, partial, and full multilateral netting of interbank liabilities. We show that partial versus full multilateral netting increases bank shortfall, and reduces clearing asset price and aggregate bank surplus. We also show that partial multilateral netting can be worse than no netting at all.

Keywords: Over the Counter Markets, Financial Network, Partial Multilateral Netting.

JEL classification: C44, C54, C62, G01, G18, G32.

1 Introduction

We study a financial network in which banks can be thought of as dealers in an over the counter (OTC) market and their costumers. Banks hold interbank liabilities, cash, and shares of an illiquid asset. The settlement of interbank liabilities may force banks to liquidate some shares of the illiquid asset. This has a negative impact on the price of the illiquid asset. Marking to market of banks' balance sheets reinforces network contagion: lower asset prices may force other banks to default on their interbank liability payments. This results in an entanglement of price mediated contagion and network mediated contagion.

We model the price impact by a given inverse demand function, similarly as in [11]. In equilibrium, this leads to a clearing price and liability payments, given as solution of a fixed point equation. Existence of the fixed point follows by Tarski's fixed-point theorem, as shown

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