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## Joint Statistics Seminar

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*The Hong Kong University of Science and Technology*

# A Network Model of Counterparty Risk

*by*

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Chicago

**Date: June 21, 2010 (Monday)**

**Time: 4:00 p.m. - 5:00 p.m.**

**Venue: Room 3408 (Lift 17/18)**

### Abstract

Two network structures of contracts on a risky asset are explored in a two-period model. One structure represents a bilaterally-cleared OTC market, the other represents a centrally-cleared market. An exogenous bankruptcy occurs before period 1 inducing counterparties to trade with price impact. The two different market structures are shown to yield different price impact and volatility. Further, market-induced bankruptcy of a large (financial) firm is shown to yield two undesirable phenomena in bilateral markets: checkmate and hunting. Checkmate occurs when a counterparty cannot expect to prevent impending bankruptcy. Hunting occurs when counterparties push markets further than a central counterparty would, inducing further bankruptcies. These counterparties may even expect to profit from such follow-on bankruptcies. The results suggest that bilateral OTC markets have externalities (larger distress volatility) which can be priced relative to centrally-cleared markets. This might offer guidance on when and how much incentive to offer for markets to transition from bilateral OTC to central clearing. The results also suggest that limiting leverage ratios may reduce distress, that leverage limits may not vary linearly with capital, and that in times of distress coordination by market authorities has value.

❖ *All interested are welcome!* ❖

*For details, please contact ISOM Department.*