Running for the Exit: distressed selling and endogenous correlation in financial markets

Rama Cont & Lakshithe Wagalath

Columbia University, New York
&
Laboratoire de Probabilités et Modèles Aléatoires
CNRS – Université Pierre & Marie Curie

January 2011

Abstract

We propose a simple multiperiod model of price impact in a market with multiple assets, which illustrates how feedback effects due to distressed selling and short selling lead to endogenous correlations between asset classes. We show that distressed selling by investors exiting a fund and short selling of the fund's positions by traders may have non-negligible impact on the realized correlations between returns of assets held by the fund. These feedback effects may lead to positive realized correlations between fundamentally uncorrelated assets, as well as an increase in correlations across all asset classes and in the fund's volatility which is exacerbated in scenarios in which the fund undergoes large losses. By studying the diffusion limit of our discrete time model, we obtain analytical expressions for the realized covariance and show that the realized covariance may be decomposed as the sum of a fundamental covariance and a liquidity-dependent 'excess' covariance. Finally, we examine the impact of these feedback effects on the volatility of other funds. Our results provide insight into the nature of spikes in correlation associated with the failure or liquidation of large funds.