Evaluating market risk from leveraged derivative exposures

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AbstractMarket participants use leveraged derivatives to gain access to equity market exposure through broker banks. Leverage and interconnectedness via overlapping portfolios of dealer banks can amplify adverse market movements, potentially causing sizeable losses. I propose a model, based on granular data, to simulate losses from a banks’ trading book in case of an adverse market scenario. Following a move in asset prices, banks mark their positions and issue margin calls; some (leveraged) counterparties fail to pay their margins, forcing banks to liquidate their positions causing a pressure on asset prices due to market impact. The impact is amplified because of the leverage and when counterparties are exposed to multiple banks over the same underlying. I employ the model to assess current capital and margin rules in covering risks from broker’s exposure to highly leveraged clients.JEL CodeC60 : Mathematical and Quantitative Methods→Mathematical Methods, Programming Models, Mathematical and Simulation Modeling→GeneralG23 : Financial Economics→Financial Institutions and Services→Non-bank Financial Institutions, Financial Instruments, Institutional InvestorsG13 : Financial Economics→General Financial Markets→Contingent Pricing, Futures PricingG17 : Financial Economics→General Financial Markets→Financial Forecasting and Simulation