TRADING

Margin-Based Asset Pricing and Deviations From the Law of One Price

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The role of funding constraints becomes particularly obvious in liquidity crises, with the one that started in 2007 being an excellent example. Banks unable to fund their operations closed down and funding problems spread to other investors, such as hedge funds, that relied on bank funding.

Therefore, traditional liquidity providers became forced sellers, interest-rate spreads increased dramatically, Treasury rates dropped sharply and central banks stretched their balance sheets to facilitate funding. These problems had significant asset-pricing effects, the most extreme example being the failure of the Law of One Price: Securities with (nearly) identical cash flows traded at different prices.

We attempt to explain these effects using a dynamic general-equilibrium model with realistic margin constraints. The model captures several features of past liquidity crises: A negative shock leads to losses for leveraged agents, including the financial sector; these agents face funding problems as they hit margin constraints; and the binding constraints lead to drops in Treasury rates and general-collateral interest rates, to spikes in interest-rate spreads, risk premia and the pricing of margins, and to bases (or price gaps) between securities with identical cash flows but different margins.

We illustrate the model through a calibration and show how the model-implied cost of capital requirements quantifies the banks' incentives to use off-balance-sheet vehicles. We also estimate the effect of the Fed's lending facilities, which may help in evaluating unconventional monetary policy tools used in liquidity crises.

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