EQUITIES

Valuation in Over-the-Counter Markets

August 27, 2007

Many assets, such as mortgage-backed securities, corporate bonds, government bonds, U.S. federal funds, emerging-market debt, bank loans, swaps and many other derivatives, private equity and real estate, are traded in over-the-counter (OTC) markets. Traders in these markets search for counterparties, incurring opportunity or other costs. When counterparties meet, their relationship is strategic; prices are set through a bargaining process that reflects each investor's alternatives to immediate trade.

We document the impact on asset prices of search-and-bargaining frictions in over-the-counter markets. Under certain conditions, illiquidity discounts are higher when counterparties are harder to find, when sellers have less bargaining power, when the fraction of qualified owners is smaller or when risk aversion, volatility or hedging demand is larger. Supply shocks cause prices to jump, and then "recover" over time, with a time signature that is exaggerated by search frictions: The price jump is larger and the recovery is slower in less-liquid markets.

We provide a theory of dynamic asset pricing that directly treats search and bargaining in OTC markets. We show how the explicitly calculated equilibrium allocations and prices depend on investors' search abilities, bargaining powers and risk aversion, and how the time signature of price reactions to supply or demand shocks depends on the speed with which counterparties interact. We also discuss a variety of financial applications and testable implications.

eliminate the risk of experiencing investment losses.

The information in this paper may contain projections or other forward-looking statements regarding future events, targets, forecasts or expectations regarding the strategies described herein, and is only current as of the date indicated. There is no assurance that such events or targets will be achieved, and may be significantly different from that shown here. The information in this document, including statements concerning financial market trends, is based on current market conditions, which will fluctuate and may be superseded by subsequent market events or for other reasons.