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What a difference a few months can make! Last winter, the stock market was calm; implied volatilities were at rock bottom, around 10% on the VIX index; credit spreads were unusually narrow; currency and commodity markets had begun to move but in a fairly controlled way; and the Cassandras warning of the dangers of subprime mortgage debt were being largely ignored. After all, these mortgages were securitized and tranced into CDO structures, so even very risky loans could be funded easily, and mostly with debt rated in the highest investment grades. We have now begun to see the iceberg whose tip was just barely visible then, looming much larger today, as defaults have risen sharply on the least creditworthy mortgages, and things are expected to get worse before they get better. But more importantly, the sudden perception that there is a lot more risk in CDO tranches and related derivatives than investors (as well as issuers) had expected has caused a sharp reduction in investors' willingness to buy them and also their ability to carry existing positions. So far, it is the resulting loss of liquidity to this whole sector that has led to much broader problems than the occurrence of actual defaults. Unfortunately for derivatives fans, it appears that the new securitized credit derivatives have contributed to our current problems in several ways, from facilitating much riskier mortgage loans at origination, to allowing unsound structures to be set up with dangerously risky collateral, to creating impediments to the workout process when there is no longer a single lender with whom a cash-strapped homeowner can renegotiate the terms on a mortgage he can't afford to pay.

Turning to this issue of the Journal of Derivatives, one of the big problems with estimating models for credit risk and calibrating them against observed market prices for credit-dependent securities is that default is a rare event (until now, at least) and the world does not provide much information about rare events. Moreover, for Collateralized Debt Obligations and a variety of other credit derivatives, what matters most is the pattern of occurrence when there are multiple correlated defaults, which is even rarer. Even Monte Carlo simulation can prove difficult for such cases, because it takes so many simulated paths to produce even a single credit event. Our lead article shows how to improve the performance of Monte

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Carlo simulation substantially by using a carefully designed importance sampling technique. Chiang, Yueh, and Hsieh illustrate their approach on k -th to default basket swaps, but it can be applied to a wide range of related problems.

Our second article looks at “market microstructure” in the U.S. equity options market.

Major options exchanges compete with one another for order flow, but differ considerably in the nature of their trading arrangements. There are large exchanges and smaller exchanges; some use a specialist system and others use open-outcry. The latest arrival among the five examined by Simaan and Wu is the fully electronic International Securities Exchange (ISE). Within just a few years, the ISE went from a startup to being the most active exchange for individual stock options. The article compares the performance of market-making under the different trading systems and shows why the ISE’s all-electronic trading platform has been so successful.

Next is a new wrinkle on volatility modeling. It has long been known that volatility forecasts may be improved by incorporating the daily highs and lows in addition to the closing stock prices in the estimation. Brunetti and Lildholdt present a GARCH-type model for the daily high-low range, that brings in this useful information while allowing the kind of rich dynamics that is a feature of the GARCH framework. The fourth article, by Wu and Chen, also extends the scope of current models, for cross-currency equity swaps, in this case. These instruments offer enormous versatility, but they can present some difficult valuation problems. The authors provide very general valuation formulas for a broad range of cases. In the final article, Poulsen discusses several not-well-known facts about the Black-Scholes model that are both interesting insights and potentially quite useful for users of the model.

It is an article of faith for the academic financial economist that markets are very efficient with regard to evaluating information. When the question arises as to how well the market evaluates risk, I often tell students that one of the main ways markets become informed about new kinds of risk is that some major players suddenly take a huge financial hit that no one saw coming. The silver lining in the current sub-prime mortgage crisis, if there is one, may be that next time, some of the riskiest securitized structures will have disappeared and we will have a lot better understanding of the sources and types of risks that still remain even after the risk inherent in the underlying loans has been sliced and diced in the tranching process. Once current losses have been absorbed, the market will be sadder, but wiser.

Stephen Figlewski
Editor