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Year 14 for *The Journal of Derivatives*, or more precisely the writing of the Editor's Letter that will kick off year 14 for *The Journal of Derivatives*, begins in a state of high uncertainty, the most immediate cause of which will be resolved in about an hour: It is August 8 and the Federal Reserve Open Market Committee is about to announce whether they are going to bump interest rates up again, for the 18th month in a row, to really show inflation that they mean business, or they have decided to take a month off from tightening because the economy appears finally to be paying attention to the 425 basis points they have already added to the Fed funds rate in the last year and a half. Whatever the decision, the financial markets will probably respond with sharp moves one way or the other. This makes for an odd situation in the context of our standard models of financial dynamics: The market plainly anticipates a jump, not just a pure diffusion, but the timing of the jump is well-known in advance. Only the direction and size of the jump are unknown. While waiting in suspense, let us take a look at the papers in this issue.

The lead article tackles a problem that has been of great interest to academics, businessmen, accountants, regulators, and recently, even the "man in the street:" How should corporate grants of employee stock options (ESOs) be valued? After years of debate, the latest accounting standards now call for ESOs to be valued at "fair value" and deducted from earnings at the time of grant. But computing fair values is a complicated problem. In addition to the inherent difficulty in pricing any long term option, given the unpredictability of future volatility and other key parameters, ESO values are also affected by vesting rules, liquidity issues caused by nontradability, "suboptimal" early exercise and other factors that are hard to evaluate. Bajaj, et al., shed considerable light on this thorny topic. They present a valuation approach that takes account of the empirical probability of early exercise for an ESO, and then estimate those probabilities as a function of option moneyness and time to expiration, on a large and unique dataset that covers the history of ESO exercise for two major firms.

The next three articles all relate to derivatives on fixed income instruments. The first, by Tahani, develops a model for credit spreads

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that allows mean reversion and time-varying volatility in a GARCH framework, but nevertheless leads to closed-form valuation equations. Empirical analysis shows that the model fits the behavior of credit spreads for Aaa and Baa rated bonds quite well. Next, Brigo and Morini attack the problem of calibrating a model for swaptions within the framework of the LIBOR Market Model (LMM). The LMM gives easy and exact calibration for caps, but not for swaptions. An earlier technique for swaptions, the Cascade Calibration Algorithm, is theoretically capable of exact calibration, but numerical problems limit its applicability in practice. This article extends the algorithm and largely removes the problems of the earlier approach.

The third article on interest rates presents an approach to valuing cap and floor contracts that are subject to barriers, such as a down and out cap. The underlying interest rate process is allowed to depend on multiple Gaussian factors in a Heath-Jarrow-Morton framework, yet through a variety of standard tricks and a clever approximation, Nunes obtains an (approximate) valuation equation in closed-form. The result is accurate and blindingly fast, compared to alternatives like Monte Carlo simulation. In the final article, Muck looks at OTC exotic derivatives based on the DAX index, that are available to retail investors through the Internet.

The wait is over! The Fed pauses! And...on the announcement, the Dow jumped up 25 points, then instantly fell more than 80 points, then bounced back up, and is now unchanged on the day, approximately one half hour after the announcement. From this market response we learn...that there is a lot less uncertainty being an academic and a journal editor than there is in trying to predict what the market will do, even when jump time is nonstochastic.

Stephen Figlewski
Editor

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