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Volatility is bad. Well, it's bad unless you're an options trader, in which case volatility might be good if you are long options. It's still bad if you have a short position in options. On the other hand, if the volatility is properly anticipated, it shouldn't be so bad, because you have (of course) adjusted for it ahead of time. So it's actually the *unanticipated* part of volatility that's bad. Or good, if you're long options. In the end, maybe the one thing we all can agree on is that having an effective way to model volatility and to minimize the unanticipated part of it is good.

All of this leaves us feeling that award of the 2003 Nobel Prize in Economics to Robert Engle for his work on the ARCH model was *really good*. Rob is not only a friend and colleague at NYU, but also an Associate Editor of this Journal who has published several articles in the *JOD* over the years. Congratulations to the Nobel committee for its wise choice.

In this issue of the *JOD*, all five articles involve new models for valuing or hedging derivative instruments, ranging from the very general to the very specific. The original Black-Scholes model restricted the stock price process to be a lognormal diffusion with constant volatility. In recent years, standard derivatives methodology has been extended to a broad range of more realistic price processes of the affine jump diffusion (AJD) class, featuring both diffusive behavior and discrete jumps. An AJD process can be a function of multiple factors and exhibit both stochastic volatility and stochastic jump parameters.

In the lead article, Chourdakis presents an important new technology that further expands the range of easily accommodated price processes by approximating the process with a continuous-time Markov chain. The characteristic function for the approximating model is easily constructed in closed form, leading to closed-form option formulas. Chourdakis also shows that, as the Markov chain is made progressively denser, the approximate option values converge to their exact values under the exact distribution.

The next article tackles one of the harder real-world derivative valuation problems: pricing options on electricity. Given the physical characteristics of electricity generation and consumption, standard contracts in this market can be rather complex. An example is the swing option, which sets both maximum and minimum amounts for electricity to be purchased by the option holder, but allows options on the quantities within the range that are pur-

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chased and on the timing of deliveries. Keppo describes the problem, and presents a methodology for valuing and hedging a swing option.

An article by AitSahlia, Imhof, and Lai is concerned with pricing American barrier options. The standard trick for pricing a European path-dependent knock-in option uses the easily determined value for the corresponding knock-out option and "in-out parity," but this fails when the contracts are American. The authors show how to handle the problem by valuing the early exercise feature in the American contract separately.

Next, Pietersz and Pelsser point out that there is more than one way to compute the vega for a swaption, and that a standard recalibration approach may produce substantial distortion. They present an alternative procedure for perturbing the local volatilities that distributes the uncertainty more evenly over the volatility term structure and improves the calculation considerably.

The final article, by Houweling, Mentink, and Vorst, considers pricing of step-up bonds whose coupons increase if the bond rating drops. Step-up bonds are quite common among euro-denominated telecom bonds. Empirical evidence suggests that investors in some of these bonds may not fully understand their optionality.

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