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Sommario/riassunto

Building upon the ideas introduced in their previous book, Derivatives in Financial Markets with Stochastic Volatility, the authors study the pricing and hedging of financial derivatives under stochastic volatility in equity, interest-rate, and credit markets. They present and analyze multiscale stochastic volatility models and asymptotic approximations. These can be used in equity markets, for instance, to link the prices of path-dependent exotic instruments to market implied volatilities. The methods are also used for interest rate and credit derivatives. Other applications considered include variance-reduction techniques, portfolio optimization, forward-looking estimation of CAPM 'beta', and the Heston model and generalizations of it. 'Off-the-shelf' formulas and calibration tools are provided to ease the transition for practitioners who adopt this new method. The attention to detail and explicit presentation make this also an excellent text for a graduate course in financial and applied mathematics.