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Sveinn Ólafsson* (sveinno@purdue.edu). *Short-term asymptotic properties of option prices and implied volatility under financial models with jumps.*

We provide asymptotic expansions for option prices and implied volatility when time-to-maturity and log-moneyness become small, which for liquidity reasons is of particular importance in practice. We also consider the implied volatility skew (i.e. the strike derivative), which has received relatively little attention in the literature, but is actively monitored in practice by traders and analysts. As auxiliary results we obtain short-term expansions for the prices of digital call options and the delta of European call options. These results are markedly different from those obtained for vanilla options and shed further light on the relationship between important model parameters and the implied volatility smile near expiry. Simulation results indicate that the approximations give good fits for options with maturities up to one month, underpinning their relevance in e.g. FX markets where there are actively traded options with short maturities, and where the volatility skew plays a critical role in option pricing. (Received August 09, 2015)