

1077-VG-947 **Kevin Coltin*** (kcoltin@asu.edu). *Markov and Itô Representations of Option Price Models*. Preliminary report.

I evaluate existing models for pricing financial options quantitatively according to criteria such as computational efficiency, robustness to departures from normality, and ability to model assets with stochastic volatility and a stochastic interest rate. I present new variations on existing models that attempt to improve on some of their deficiencies, and then evaluate them according to the same criteria. In particular, I approach the problem of modeling assets by treating asset prices as a Markov chain defined by a circulant transition matrix, and attempt to make the models able to accurately account for harmonic behavior in prices. (Received September 14, 2011)