

# Estimation of continuous-time models with an application to equity volatility dynamics<sup>☆</sup>

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## Abstract

The treatment of this article renders closed-form density approximation feasible for univariate continuous-time models. Implementation methodology depends directly on the parametric-form of the drift and the diffusion of the primitive process and not on its transformation to a unit-variance process. Offering methodological convenience, the approximation method relies on numerically evaluating one-dimensional integrals and circumvents existing dependence on intractable multidimensional integrals. Density-based inferences can now be drawn for a broader set of models of equity volatility. Our empirical results provide insights on crucial outstanding issues related to the rank-ordering of continuous-time stochastic volatility models, the absence or presence of nonlinearities in the drift function, and the desirability of pursuing more flexible diffusion function specifications.

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