

Simulating an Ornstein-Uhlenbeck Process

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$$S_t \sim S_0 e^{-\lambda t} + \mu(1 - e^{-\lambda t}) + \sigma \sqrt{\frac{1 - e^{-2\lambda t}}{2\lambda}} N_{0,1}$$

This equation is used to generate scenarios that follow the Ornstein-Uhlenbeck process. This equation is exact.

Symbol list:

S_t	The value of the asset at time t
S_0	The present value of the asset
μ	Mean reversion level
λ	Mean reversion rate
$N_{0,1}$	Standard normal distributed random number