

Title:

Efficient Valuation of American Floating Strike Lookback Options

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Abstract:

Through a change of numeraire, the valuation problem for floating strike lookback options can be reduced to one dependent on a single state variable. Under this new measure, we develop an efficient method to compute the values and early exercise boundaries of American floating strike lookback options. A key idea underlying the method is the reduction of option valuation to a *single* optimal stopping problem for reflecting Brownian motion, indexed by one parameter in the absence of dividends and by two parameters in the presence of a dividend rate. Numerical results obtained by this method show that, after a space-time transformation, the stopping boundaries are well approximated by certain linear splines with a few knots, leading to fast and accurate approximations for American floating strike lookback option values using a decomposition formula for the American values.