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*Improved Continuity Correction for Discrete Barrier and Lookback Options*

Barrier and lookback options are the most popular path-dependent options traded in the derivatives market. Based on the higher order expansion of Brownian motion approximation to random walk given by Janssen and Van Leeuwaarden (2009), we extend the "continuity correction" in Broadie et al (1999) to develop a more accurate method for pricing discrete barrier options. We also extend the technique in Horfelt (2003) to the pricing of discrete lookback options and propose a highly accurate semi-analytical approximation to the covariance term to improve the continuity correction for discrete lookback options. A numerical study confirms the advantages of our method.