

Path Dependent British Options

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Abstract. We examine the British payoff mechanism (introduced in Peskir and Samee, 2008) in the context of path dependent options. In particular, we focus on the ‘British Asian’ and the ‘British Russian’ option. Such options provide their holder with an endogenous protection against unfavourable stock price movements. The price of such options can be characterised as the unique solution to a parabolic free-boundary problem, whose properties and solution we investigate. Finally, we provide a preliminary financial analysis of both options and conclude that in many circumstances these options can be considered an attractive alternative to existing path dependent options.

Keywords British option; path dependency; Asian option; Russian option; optimal stopping; the Shiryaev process; parabolic free-boundary problem; nonlinear integral equation.