Applied Mathematical Finance ›

Volume 13, 2006 - Issue 2

Original Articles

Pricing Lookback Options with Knock-out Boundaries

Yoshifumi Muroi

Pages 155-190 | Received 27 Jul 2004, Published online: 02 Feb 2007

Cite this article https://doi.org/10.1080/13504860600563028

Abstract

In the last decade, many kinds of exotic options have been traded and introduced in the financial market. This paper describes a new kind of exotic option, lookback options with knock-out boundaries. These options are knock-out options whose pay-offs depend on the extrema of a given securities price over a certain period of time. Closed form expressions for the price of seven kinds of lookback options with knock-out boundaries are obtained in this article. The numerical studies have also been presented.

Keywords:

Exotic options | lookback options | knock-out boundaries

Acknowledgements

I am grateful for valuable comments and suggestions from professors Naoto Kunitomo and Masayuki Ikeda. I also thank the editor and the anonymous referee for fruitful discussions. This paper is based on Chapter 5 of my doctoral dissertation submitted to Graduate School of Economics, University of Tokyo and it does not necessarily reflect the opinion of the Bank of Japan or the Institute of Monetary and Economics Studies.

Notes

1. This was pointed out by Professor Masayuki Ikeda.

2. It is also possible to derive the integral formula (32) by taking the limit $\alpha \to 0$ in integral formula (9). This formula is then derived using l'Hopital's rule. This was pointed by Professor Masayuki Ikeda.