Upgrading corporate equipment as an asian real option

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Abstract

A method for handling the problem of financial mission statement has been suggested to evaluate effects of projected upgrading equipment of a manufacturing company. For this end, such project is analyzed as an Asian real option with constant business volatility. The problem is solved using the Black-Scholes model, a refined and modified binomial model and a modified trinomial model. It has been demonstrated that the most accurate valuation of the option and the entire project in general is provided by the trinomial model. Also this paper establishes a degree of influence between an inflation rate and a risk-free investment rate on the precision of estimated value of an Asian real option. It has been shown with an example that in the event of advancing by the inflation rate beyond profitability of risk-free investments, which is typical for Russia, an option valuation in a trinomial lattice will be lower than that in a binomial lattice. The result serves a useful purpose for analysts considering the fact that a trinomial model is a more accurate discrete model than a binomial model.

Keywords

Asian Option, Binomial Model, Constant Volatility, Real Option Valuation, Trinomial Model, Upgrading Equipment