

Stochastic Calculus

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Exercises Chapter 3

Exercise 1 Consider Exercise 5 of Chapter 2.

What is the value of a one-year European put option with a strike price of \$100?

Verify that the European call and European put prices satisfy put-call parity.

Exercise 2 A stock price is currently \$50.

Over each of the next two three-month periods it is expected to go up by 6% or down by 5%.

The risk-free interest rate is 5% per annum with continuous compounding.

What is the value of a six-month European call option with a strike price of \$51?

Exercise 3 Consider the previous Exercise, what is the value of a six-month European put option with a strike price of \$51?

Verify that the European call and European put prices satisfy put-call parity.

If the put option were American, would it ever be optimal to exercise it early at any of the nodes on the tree?