

Assignment 03: The Single-Period Binomial Option Pricing Model

Finance 5350: Computational Finance

Problems

10.1

Let $S = \$100$, $K = \$105$, $r = 8\%$, $T = 0.5$, and $\delta = 0$ (i.e. no dividends). Let $u = 1.3$ and $d = 0.8$, and $n = 1$.

- **a.** What are the premium, Δ , and B for a European call?
- **b.** What are the premium, Δ , and B for a European put?

10.2

Let $S = \$100$, $K = \$95$, $r = 8\%$, $T = 0.5$, and $\delta = 0$ (i.e. no dividends). Let $u = 1.3$, $d = 0.8$, and $n = 1$.

- **a.** Verify that the price of a European call is \$16.196.
- **b.** Suppose you observe a call price of \$17. What is the arbitrage?
- **c.** Suppose you observe a call price of \$15.50. What is the arbitrage?

10.3

Let $S = \$100$, $K = \$95$, $r = 8\%$, $T = 0.5$, and $\delta = 0$ (i.e. no dividends). Let $u = 1.3$, $d = 0.8$, and $n = 1$.

- **a.** Verify that the price of a European put is \$7.471.
- **b.** Suppose you observe a put price of \$8. What is the arbitrage?
- **c.** Suppose you observe a put price of \$6. What is the arbitrage?