
UNIVERSITY OF TEXAS AT AUSTIN

Quiz #17

American-option prices.

Problem 17.1. (2 points)

It is never optimal to exercise an American call option on a non-dividend-paying stock early. *True or false?*

Problem 17.2. (2 points)

American-style options are at least as valuable as otherwise identical European-style options. *True or false?*

Problem 17.3. (2 pts) Let $V^A(0, T)$ denote the price at time 0 of an American option with expiration date T . Then, we always have

$$V^A(0, T) \leq V^A(0, 2T).$$

True or false?

Problem 17.4. (9 points) The current price of a non-dividend-paying stock is \$100 per share. A two-period binomial stock-price tree is used to model the movements of the stock price during the following year. The up and down factors are given to be $u = 1.2$ and $d = 0.9$.

The continuously compounded, risk-free interest rate equals 0.06.

Consider a \$110-strike, one-year American put on the above stock. Use the two-period binomial stock-price tree to calculate the current price of the American put.

- (a) \$20.03
- (b) \$15.41
- (c) \$13.38
- (d) \$11.43
- (e) None of the above.