

UNIVERSITY OF TEXAS AT AUSTIN

Quiz # 7

Black-Scholes pricing.

Problem 7.1. The current price of a continuous-dividend paying stock is observed to be \$50 per share while its volatility is given to be 0.34. The dividend yield is projected to be 0.02.

The continuously compounded, risk-free interest rate is 0.05.

Consider a European call option with the strike price equal to \$40 and the exercise date in three months. Using the Black-Scholes pricing formula, find the value $V_C(0)$ of this option at time=0.

- (a) \$9.08
- (b) \$9.80
- (c) \$10.55
- (d) \$14.10
- (e) None of the above.

Problem 7.2. (5 points) Consider a continuous-dividend-paying stock whose current price equals \$100 per share. The stock's dividend yield equals 0.01 while its volatility equals 0.25.

The continuously compounded risk-free interest rate is given to be 0.05.

Using the Black-Scholes model, calculate the price of a \$98-strike, three-month European put option on the above stock.

- (a) \$3.37
- (b) \$3.80
- (c) \$4.55
- (d) \$5.10
- (e) None of the above.

Problem 7.3. (5 points) The current price of a continuous-dividend-paying stock is given to be \$92. The stock's volatility is 0.35 and its dividend yield is 0.02.

The continuously compounded risk-free interest rate is 0.05.

Consider a \$90-strike European call option on the above stock with exercise date in a quarter-year.

What is the Black-Scholes price of this call option?

- (a) 5.05
- (b) 7.66
- (c) 7.71
- (d) 7.89
- (e) None of the above.