

FINM2002 Derivatives/FINM6041 Applied Derivatives

Tutorial 6 Question

Question 1

A stock price has an expected return of 16% and a volatility of 35%. The current price is \$38

- (1) What is the probability that a European put option on the stock with an exercise price of \$40 and a maturity date in six months will be exercised?
- (2) What is the probability that a European call option on the stock with the same exercise price and maturity will be exercised?

Question 2

Consider a European option pair written on a non-dividend paying stock, matured in 3 months. The current stock price is \$52. The strike price is \$50. The risk free rate is 12% p.a., continuously compounded. The volatility of stock price is 30% p.a.

- (1) Please use Black-Scholes model to compute the prices of call and put option in this option pair.
- (2) Verify whether Put-call parity holds in this case.

Question 3

Consider a 7-month European option pair on a stock. The current stock price is \$4.5. The strike price is \$4.8. The risk-free rate is 8% p.a., and volatility of stock price is 30% p.a. The stock is expected to pay a dividend of \$0.40 in 3 months. Please use Black-Scholes model to compute the prices of call and put option in this option pair.