

BAYLOR UNIVERSITY
HANKAMER SCHOOL OF BUSINESS
DEPARTMENT OF FINANCE, INSURANCE & REAL ESTATE

Options, Futures and Other Derivatives
Dr. Garven
Problem Set 3

Name: _____

Problem 1.

The T&Q index spot price is \$1,100 per share, the riskless rate of interest is 5%, and the continuous dividend yield on the index is 2%.

- A. What is the arbitrage-free 6-month forward price for a share of the T&Q index?
- B. Suppose the 6-month T&Q index forward contract is trading at \$1,120 per share. Outline a trading strategy involving a combination of the forward contract, the index, and a riskless bond which produces riskless profit with zero net investment. How much profit will this trading strategy produce?
- C. Now suppose the 6-month T&Q index forward contract is trading at \$1,110 per share. Outline a trading strategy involving a combination of the forward contract, the index, and a riskless bond which produces riskless profit with zero net investment. How much profit will this trading strategy produce?

Problem 2.

Suppose the current price for a riskless discount bond that pays \$50 in one year is \$49, and the current price for a (non-dividend paying) stock is \$50. One year from today, only two outcomes exist for the economy, good or bad. In the good state, the stock will be worth \$100, whereas in the bad state, the stock will be worth \$25.

- A. Determine the replicating portfolio for a European call option with an exercise price of \$40.
- B. What is the “arbitrage-free” price for this call option?
- C. Determine the replicating portfolio for a European put option with an exercise price of \$40.
- D. What is the “arbitrage-free” price of a put option on the stock with an exercise price of \$40?