
UNIVERSITY OF TEXAS AT AUSTINQuiz 7

Leveraging.

Provide your **complete solution** to the following problems. Final answers only, without appropriate justification, will receive zero points even if correct.

Problem 7.1. (5 points) Write down the definition of a *fully-leveraged portfolio*.

Problem 7.2. (10 points) **"Partially-leveraged" purchase.**

Consider a continuous-dividend-paying stock with the dividend yield δ whose market price at any time t is denoted by $S(t)$. You decide to purchase one share of this stock at time 0 and you partially finance your purchase by borrowing a portion φ of the initial stock price at the continuously-compounded, risk-free interest rate r to be repaid in full at time T .

- (i) (2 points) What is the initial cost of your portfolio?
- (ii) (3 points) What is the payoff of your portfolio?
- (iii) (3 points) What is the profit of your portfolio?
- (iv) (2 points) How does the profit curve of your portfolio compare to the profit curve of an outright purchase of the same asset? How about the fully-leveraged purchase of the same asset?