

IE102 Fall 2018 Homework VI - Due: December 17, Monday 17:00

IMPORTANT: READ BEFORE YOU START WORKING ON THE HOMEWORK

Information on Homework VI

- Homework VI is 2%. Make sure that you review course material before you start. Cite sources used if any.
- Homework assignment will be conducted in groups of 2. We randomly form the groups. You can find your group member and his/her contact information at the course website. **If you cannot reach your group member by all means, indicate this on the cover page of your submission.**
- Grading Policy: The homework grades will not be only based on the correctness of the answers provided, but on the perceived degree of effort on the returned assignment. There exists no motive for the students to copy the answers from someone else, since even without obtaining the correct answers one can obtain full credit. The grading scale for each question is 2 points (full effort), 1 point (some effort), and 0 (no effort or no submission).
- Academic Dishonesty (taken from IE102 Course Information): **Academic misconduct is not tolerated, and violations will be treated in accordance with the university policy.** For assignments: Discussion of the course material and working in groups are effective ways of learning. However, this does not mean that you can copy the assignment from one of your friends. You can discuss with your friends, but you should be alone, without any written solution in front of you, when you actually prepare your assignment. It is extremely important to understand the value of this exercise in the process of learning. Any violation of the above understanding will result measures outlined in the student rules and regulations.
- Submission Information: An assignment submission box will be placed in front of office EA325 on the morning of the submission date and will be removed at the time of the deadline. You need to put your assignment in the designated box before the submission deadline. **Submission via e-mail is NOT accepted.**

Contact TA Okan Dükkancı if you have questions related to this HW:

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Question 1: Consider the following one-period binomial models for a stock and a bond with the price tree.



- What are the up factor, down factor and interest rate?
- Does the model satisfy the principle of no-arbitrage?
- Consider a call option written on the stock with strike price $K = 103$. Find a replicating strategy and the price of this option.
- Consider a forward contract with a predetermined price F . The contract has zero price today as a rule. What should F be?

Question 2: Consider the following one-period binomial models for a stock and a bond with the price tree.



- What are the up factor, down factor and interest rate?
- Does the model satisfy the principle of no-arbitrage?
- Consider a put option written on the stock with strike price $K = 89$. Find a replicating strategy and the price of this option.
- Consider a forward contract with a predetermined price F . The contract has zero price today as a rule. What should F be?