

Introduction to Finance
Quiz 1 *October 23, 2018*

Problems. Show all work!

1. Consider a Treasury bill that matures in 6 months – exactly one-half of a year. The price of this bill is 97.80.

(a) (**7 points**) What is the 6-month discount factor, and what does this mean?

(b) (**7 points**) What is the semi-annually compounded yield on this security?

(c) (**7 points**) What is the continuously-compounded yield on this security?

(d) (**7 points**) What is the monthly-compounded yield on this security?

(e) **(20 points)** Suppose you buy \$10,000 par value of this security at this price. Three months later, the security's yield has not changed, and you sell the bill. What are your cash flows on the dates that you buy and sell the bill? What is the continuously-compounded yield on holding the bill for three months?

2. **(7 points)** Suppose that you deposit \$2,000 into a 5-year bank Certificate of Deposit that earns 5% compounded monthly. What will the value of this CD be when it matures in 5 years?

3. **(7 points)** Suppose that you deposit \$12,000 into a 3-year bank Certificate of Deposit that earns 3.5% compounded continuously. What will the value of this CD be when it matures in 3 years?

4. **(12 points)** Your sister just had a baby and wants to save for her college in 18 years. You determine that the continuously-compounded yield on an 18-year zero-coupon government STRIPS (just like a bill with a longer term) is 4%. If your sister wants to have \$40,000 in 18 years, how much of this 18-year security should she buy today?
5. **(12 points)** How long will it take a Certificate of Deposit to triple in value if it earns 5% interest compounded monthly?
6. What is the effective annual yield of:
- (a) **(7 points)** 9% compounded daily?
- (b) **(7 points)** 7% compounded continuously?