Introduction to Finance

Quiz 1 *October 29, 2019*

Problems. Show all work!

1. Consider a Treasury bill that matures in 3 months – exactly one-quarter of a year. The price of this bill is 98.90.

   (a) (**7 points**) What is the 3-month discount factor, and what does this mean?

   (b) (**7 points**) What is the quarterly 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?

2. (**20 points**) Consider a 1-year Treasury Bill that has a market price of 96. Suppose you buy \$50,000 par value of this security. Six months later, this Treasury bill's yield is 5% on a continuously-compounded basis, 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 six months?

3. (**8 points**) Suppose that you deposit \$11,000 into a 3-year bank Certificate of Deposit that earns 2% compounded quarterly. What will the value of this CD be when it matures in 3 years?

4. (**8 points**) Suppose that you deposit \$2,000 into a 2-year bank Certificate of Deposit that earns 2.5% compounded continuously. What will the value of this CD be when it matures in 2 years?

5. (**10 points**) Your sister just had a baby and wants to save for her college in 17 years. A 17-year STRIPS (zero-coupon Treasury bond) sells for 48.96. If your sister wants to have \$80,000 in 17 years, how much of this 17-year security should she buy today?

6. (**12 points**) How long will it take a Certificate of Deposit to double in value if it earns 5% interest compounded monthly?

7. What is the effective annual yield of:

   (a) (**7 points**) 4% compounded monthly?

   (b) (**7 points**) 6.5% compounded continuously?