

Introduction to Finance
Quiz 2 *November 5, 2019*

Problems. Show all work!

1. Suppose that today is August 15, 2020, and I collect the following STRIPS prices from Bloomberg:

Maturity Date	STRIPS Price
November 15, 2020	99.01
February 15, 2021	97.98
May 15, 2021	96.85
August 15, 2021	95.75
November 15, 2021	94.65
February 15, 2022	93.52
May 15, 2022	92.46
August 15, 2022	91.33
November 15, 2022	90.25
February 15, 2023	89.15
May 15, 2023	88.03
August 15, 2023	86.97
November 15, 2023	85.88
February 15, 2024	84.75
May 15, 2024	83.70
August 15, 2024	82.75

- (a) **(16 points)** What are the 1-year, 2-year, 3-year, and 4-year continuously-compounded spot rates on August 15, 2020? Plot these 4 on a yield curve (be sure to label the axes).

(b) Consider the August 15, 2021, 8% US Treasury bond.

i. **(16 points)** What is the value of this bond on August 15, 2020? (*Hint: Make a timeline.*)

ii. **(10 points)** Without doing any additional computations, what can you say about this bond's yield to maturity? Explain.

iii. **(12 points)** Make a *timeline* that shows all of the cash flows you would pay and receive if you were to buy \$30,000 par value of this bond on August 15, 2020, and hold the bond until it matures.

- iv. Suppose you decide to sell your \$30,000 par value of the August 15, 2021, 8% US Treasury bond on February 15 2021. You see the following STRIPS prices on February 15, 2021:

Maturity Date	STRIPS Price
May 15, 2021	99.35
August 15, 2021	98.80
November 15, 2021	98.05
February 15, 2022	97.56
May 15, 2022	97.00
August 15, 2022	96.40

- A. **(12 points)** At what price will you sell your bond?
- B. **(18 points)** What is your holding period return on a continuously-compounded basis from this purchase and subsequent sale?
- C. **(16 points)** What is the yield to maturity (expressed on a semi-annually compounded basis) of the August 15, 2021, 8% US Treasury bond on February 15 2021?