

Fixed Income
Quiz 8 *October 22, 2018*

Problems. Show all work. Clearly indicate your answer to each question. For the purposes of this quiz you may assume that all 6-month periods are exactly one-half of a year.

1. Suppose that today is Tuesday, May 14, 2019. The yield curve is flat at 6% continuously-compounded.
 - (a) **(10 points)** What is the continuously-compounded yield to maturity of the November 15, 2021 4.5% note? Explain how you know this without doing any computations.
 - (b) **(25 points)** What is the duration of the November 15, 2021 4.5% note?
 - (c) **(10 points)** Suppose you own \$15 million par value of the November 15, 2021 4.5% note. What is the DV01 of this position?
 - (d) **(15 points)** What portfolio that is invested in one STRIPS would have the same duration and DV01 as the \$15 million par position in the November 15, 2021 4.5% note? (Provide the term of the STRIPS and the par value of the position.)
 - (e) **(15 points)** Suppose that there is a parallel shift down in the yield curve of 100 basis points. What are the effects of this on the coupon bond position and your STRIPS position from the previous questions—in both percentage and dollar terms?
2. **(15 points)** Suppose that the yield curve is flat at 5% compounded-continuously. Consider a zero net investment portfolio consisting of a \$5 million long position in a 10-year STRIPS and a \$5 million short position in a 10-year floating-rate note (issued today) with quarterly reset, indexed to quarterly LIBOR, with a quarterly tenor. What is the DV01 of this portfolio? What does this DV01 mean (how would you explain it to a client)?
3. **(10 points)** Joe's Hedge Fund is a fixed income portfolio that is worth \$1.4 billion on March 8, 2020. On March 9, 2020, interest rates rise by 110 basis points and Joe's Hedge Fund loses \$0.2 billion (i.e., \$200 million). What is the duration of Joe's Hedge Fund?