MBAX 6260 Spring 2019 NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

David M. Gross, Ph.D.

## **Quiz 1 with Answers**

Answer the questions in the space below. Written answers and explanations require no more than a few words or sentences. Points are marked.

1. (11) Points) Consider Liquidity Risk.
2. Briefly define liquidity risk in the context of holding a bond.

The risk of a large price drop if the bond is sold quickly or the need to delay sale to avoid a large price drop.

1. All else equal, when issued, would a less liquid bond have a higher or lower coupon than a more liquid bond?

Higher, to compensate the holder for a price drop if sold.

1. According to the lectures, which bonds are the most liquid?

“On-the-run” treasuries.

1. (5 Points) Briefly define Inflation risk in the context of bonds.

Risk that inflation will be higher than expected and therefore real return will be lower than expected.

1. (11 Points) Answer the following questions about embedded conversion options in bonds.
2. To which party (the borrower or the lender) is a conversion option granted?

The lender (or bond holder) is granted the conversion option.

1. Why might the party granted the option exercise the conversion option?

A conversion option allows the lender (or bond holder) to forgo the loan principal and future coupons in exchange for a set number of shares of stock. The lender will do this if the value of the stock exceeds the amount owed on the bond.

1. All else equal, will the inclusion of a conversion option increase or decrease the yield on the bond? ***EXPLAIN.***

Decrease the yield. Since the lender is granted the option and the borrower faces “conversion risk,” the borrower will pay less for the loan.

1. (8 points) A bond is described as a floating rate bond.
2. What is it that “floats?”

The coupon rate. Note that the YTM also changes, but this is not unique to a “floating rate” bond.

1. Why might the price of a floating rate bond differ from par?

The spread added to the reference rate required by the market has changed.

1. (6 Points) Consider a coupon bond with five years remaining to maturity. In the time since the bond was issued five years ago, the price market participants are willing to pay for the bond has ***decreased***.

Rank from smallest to largest the **Coupon Rate**, **YTM**, the **Current Yield** for this bond.

Since the coupon rate and par do not change, a price decrease means bond holders earn more than the coupon rate. So both Current Yield and YTM have increased.

Since YTM includes both Current Yield and Cap Gain, it has greater than Current Yield.

At par: Coupon Rate = Current Yield = YTM

At a discount: **Coupon Rate** < **Current Yield < YTM**

1. (6 Points) Why can’t Duration be used to estimate the change bond’s price for a large change in yield?

Because the price-yield curve “curves.” In other words, the slope changes. In other words, the curve is convex.

1. (9 points) Consider the three bonds below. Without calculating the values, rank them in terms of Modified Duration relative to a 10 year, 8% coupon bond, priced to yield 8% (so YTM = 8%). Please circle your answers.
2. 5 year, 8% coupon priced to yield 8%: Greater Mod D or Smaller Mod D
3. 10 year, 3% coupon priced to yield 8%: Greater Mod D or Smaller Mod D
4. 10 year, 8% coupon priced to yield 3%: Greater Mod D or Smaller Mod D