THIRD MIDTERM EXAM

EC26101: MONEY, BANKING AND FINANCIAL MARKETS

MARCH 24, 2004

This exam has 25 questions on eight pages. Before you begin, please check to make sure that your copy has all 25 questions and all eight pages.

All questions will receive equal weight in determining your exam score.

Please answer all questions on the answer sheet provided.

1. When the price of any bond—a coupon bond or a discount bond—rises, the interest rate—regardless of whether it is measured by the yield to maturity, the current yield, or the yield on a discount basis:

A) Always rises.
B) Always falls.
C) None of the above.

2. Consider a simple loan of $100 that gets repaid with $10 interest after one year. For this loan, the yield to maturity *i* must satisfy:

A) $\$10 = \frac{\$100}{1+i}$.
B) $\$110 = \frac{\$100}{1+i}$.
C) $\$100 = \frac{\$10}{1+i}$.
D) $\$100 = \frac{\$110}{1+i}$.
E) None of the above.

3. For a one-year simple loan, the yield to maturity:

A) Is always equal to the simple interest rate.
B) Is always greater than the simple interest rate.
C) Is always less than the simple interest rate.
D) None of the above.

4. Consider a fixed payment loan that provides the borrower with an amount of funds equal to *LV* (for loan value) today, which is to be repaid with interest by making fixed annual payments of amount *FP* (for fixed payment) each year for the next *n* years. For this loan, the yield to maturity must satisfy:

A) $LV = \frac{FP}{(1+i)^n}$.

B) $FP = \frac{LV}{(1+i)^n}$.

C) $LV = \frac{FP}{1+i} + \frac{FP}{(1+i)^2} + \frac{FP}{(1+i)^3} + ... + \frac{FP}{(1+i)^n}$.

D) $FP = \frac{LV}{1+i} + \frac{LV}{(1+i)^2} + \frac{LV}{(1+i)^3} + ... + \frac{LV}{(1+i)^n}$.

E) None of the above.

5. Consider a coupon bond with $1000 face value, $100 annual coupon payment, and one year to maturity that sells for the price of $900 today. For this bond, the yield to maturity *i* must satisfy:

A) $i = \frac{\$100}{\$1000}$.

B) $i = \frac{\$100}{\$900}$.

C) $\$900 = \frac{\$100}{1+i}$.

D) $\$900 = \frac{\$1000}{1+i}$.

E) None of the above.

6. When a coupon bond sells for a price that is above its face value, the yield to maturity:

A) Is always equal to the coupon rate.
B) Is always greater than the coupon rate.
C) Is always less than the coupon rate.
D) None of above.

7. For a coupon bond, when the bond price rises, the yield to maturity:

A) Always rises.
B) Always falls.
C) May either rise or fall, depending on whether the price is above or below face value.
D) None of the above.

8. Consider a discount bond with face value F and n years to maturity that sells for price P today. For this bond, the yield to maturity i must satisfy:

A) $P = \dfrac{F}{(1+i)^n}$.

B) $F = \dfrac{P}{(1+i)^n}$.

C) $P = \dfrac{F-P}{(1+i)^n}$.

D) $F = \dfrac{P-F}{(1+i)^n}$.

E) None of the above.

9. For a discount bond, when the bond price falls, the yield to maturity:

A) Always rises.
B) Always falls.
C) May either rise or fall, depending on the number of years to maturity.
D) None of the above.

10. Consider a coupon bond with \$1000 face value, \$100 annual coupon payment, and 3 years to maturity that sells for the price of \$900 today. For this bond, the current yield i_c must satisfy:

A) $\$900 = \dfrac{\$100}{1+i_c} + \dfrac{\$100}{(1+i_c)^2} + \dfrac{\$100}{(1+i_c)^3} + \dfrac{\$1000}{(1+i_c)^3}$.

B) $\$900 = \dfrac{\$100}{1+i_c} + \dfrac{\$100}{(1+i_c)^2} + \dfrac{\$100}{(1+i_c)^3}$.

C) $i_c = \dfrac{\$100}{\$1000}$.

D) $i_c = \dfrac{\$100}{\$900}$.

E) None of the above.

11. For a coupon bond, the current yield provides a better approximation to the yield to maturity when:

A) The bond's price is closer to face value.
B) The bond's maturity is shorter.
C) Both (A) and (B) above.
D) None of the above.

12. For a coupon bond, when the bond price rises, the current yield:

A) Always rises.
B) Always falls.
C) Always stays the same, since the current yield only approximates the yield to maturity and, in particular, ignores movements in the bond price.
D) None of the above.

13. Consider a discount bond with \$1000 face value and 90 days to maturity that sells for the price of \$900 today. For this bond, the yield on a discount basis i_{db} must satisfy:

A) $i_{db} = \dfrac{\$1000 - \$900}{\$1000}$.
B) $i_{db} = \dfrac{\$1000 - \$900}{\$900}$.
C) $i_{db} = \dfrac{\$1000 - \$900}{\$1000} \times \dfrac{360}{90}$.
D) $i_{db} = \dfrac{\$1000 - \$900}{\$900} \times \dfrac{90}{360}$.
E) None of the above.

14. For a discount bond, the yield on a discount basis:

A) Is always equal to the yield to maturity.
B) Is always greater than the yield to maturity.
C) Is always less than the yield to maturity.
D) May be greater than, equal to, or less than the yield to maturity, depending on whether the bond is selling for a price that is above or below face value.
E) None of the above.

15. For a discount bond, when the bond price rises, the yield on a discount basis:

A) Always rises.
B) Always falls.
C) May either rise or fall, depending on whether the bond is selling for a price that is above or below face value.
D) None of the above.

16. Suppose that today, an investor buys a coupon bond with $1000 face value, $100 annual coupon payment, and ten years to maturity for the price of $1000. Suppose also that over the next year, interest rates fall. Then after one year, if the investor sells the bond in the secondary market, he or she earns a total return that:

A) Is equal to the bond's coupon rate of 10%.
B) Is greater than the bond's coupon rate of 10%.
C) Is less than the bond's coupon rate of 10%.

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Questions 17 – 19 refer to figure 1, below:

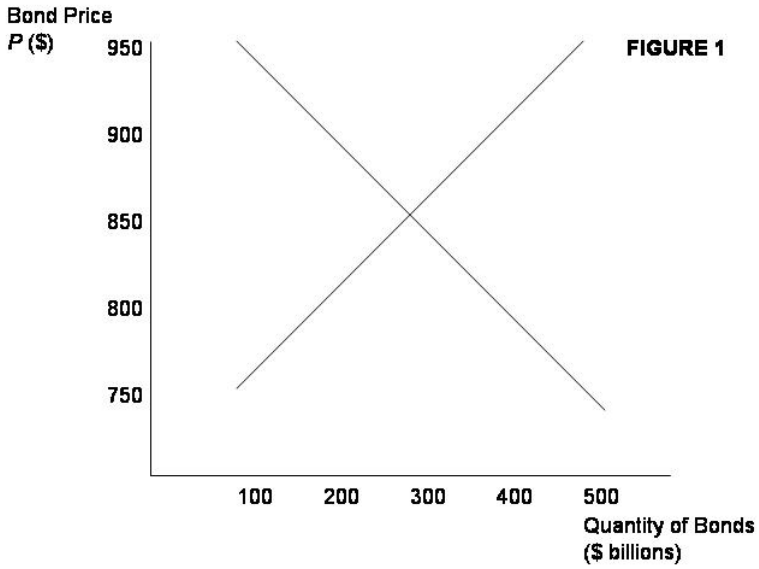

FIGURE 1

In this figure, the y-axis (vertical axis) keeps track of the price *P* of a one-year discount bond with $1000 face value. Note that the bond price rises as we move up the y-axis. The x-axis (horizontal axis) keeps track of the quantity of bonds demanded and supplied, with the quantity of bonds increasing as we move to the right along the x-axis.

17. In figure 1, the upward-sloping line represents the:

A) Demand curve for bonds.
B) Supply curve for bonds.

18. In figure 1, when *P* = $950:

A) The demand for bonds exceeds the supply of bonds, hence the bond price *P* must fall.
B) The demand for bonds exceeds the supply of bonds, hence the bond price *P* must rise.
C) The supply of bonds exceeds the demand for bonds, hence the bond price *P* must fall.
D) The supply of bonds exceeds the demand for bonds, hence the bond price *P* must rise.
E) None of the above.

19. In figure 1, the equilibrium price of bonds is:

A) $950.
B) $900.
C) $850.
D) $800.
E) $750.

Questions 20 and 21 refer to figure 2, below:

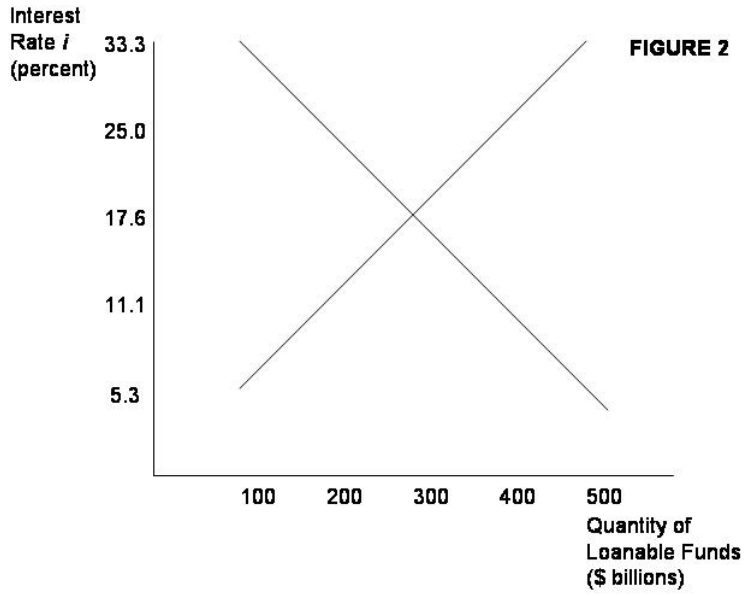

FIGURE 2

In this figure, the y-axis (vertical axis) keeps track of the yield to maturity *i* on a one-year discount bond with $1000 face value. Note that the interest rate rises as we move up the y-axis. The x-axis (horizontal axis) keeps track of the quantity of loanable funds demanded and supplied, with the quantity of loanable funds increasing as we move to the right along the x-axis.

20. In figure 2, the upward-sloping line represents the:

A) Demand curve for loanable funds.
B) Supply curve for loanable funds.

21. In figure 2, when $i = 33.3\%$:

A) The demand for loanable funds exceeds the supply of loanable funds, hence the interest rate *i* must fall.
B) The demand for loanable funds exceeds the supply of loanable funds, hence the interest rate *i* must rise.
C) The supply of loanable funds exceeds the demand for loanable funds, hence the interest rate *i* must fall.
D) The supply of loanable funds exceeds the demand for loanable funds, hence the interest rate *i* must rise.
E) None of the above.

22. According to the loanable funds framework, demanding a bond is equivalent to:

A) Demanding loanable funds.
B) Supplying loanable funds.
C) None of the above.

23. Which of the following factors work to shift the demand curve for loanable funds?

A) Changes in the liquidity of bonds.
B) Changes in the expected profitability of investment opportunities.
C) Changes in the relative riskiness of bonds.
D) Changes in wealth.
E) All three factors, (A), (B), and (C), listed above.
F) All three factors, (A), (C), and (D), listed above.

24. According to the loanable funds framework, when bonds become more liquid, the interest rate:

A) Rises.
B) Falls.
C) May either rise or fall, depending on the relative magnitude of the shifts in the supply of and demand for loanable funds.

25. According to the loanable funds framework, when investment opportunities become more profitable, the interest rate:

A) Rises.
B) Falls.
C) May either rise or fall, depending on the relative magnitude of the shifts in the supply of and demand for loanable funds.