

## FINAL EXAM

### EC26101: MONEY, BANKING AND FINANCIAL MARKETS

MAY 12, 2004

**This exam has 50 questions on 13 pages. Before you begin, please check to make sure that your copy has all 50 questions and all 13 pages.**

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

**Please answer all questions on the answer sheet provided.**

1. When lenders lend in financial markets, they do so by:

- A) Issuing securities.
- B) Buying securities.

2. A long-term debt instrument is best defined as one with:

- A) Maturity of more than one month.
- B) Maturity of more than one year.
- C) Maturity of more than five years.
- D) Maturity of more than ten years.
- E) Maturity of thirty years or more.

3. Suppose you own 100 shares of stock in Ford Motor Company, but decide to sell them to another investor. Then the resulting transaction is said to take place in a

- A) Broker's market.
- B) Dealer's market.
- C) Primary market.
- D) Secondary market.

4. Securities dealers play a key role in financial markets by:

- A) Matching up buyers and sellers of existing securities.
- B) Holding inventories of securities and standing ready to buy from and sell to other market participants.
- C) Helping firms to sell newly-issued securities.
- D) Guaranteeing that firms will pay interest and principal on their debt.

5. Which of the following securities markets is organized as an over-the-counter market?

- A) The New York Stock Exchange.
- B) The NASDAQ market for stocks.
- C) The US Government bond market.
- D) Both (B) and (C) above.
- E) None of the above.

6. Large certificates of deposit are “negotiable,” meaning that:

- A) They make regular interest payments until maturity.
- B) They return the original purchase price at maturity.
- C) The buyer is free to negotiate over price.
- D) They trade on a secondary market.
- E) None of the above.

7. Commercial paper:

- A) Is issued mainly by commercial banks.
- B) Can be either short or long-term debt.
- C) Is most typically issued in very short maturities, such as one or two months.
- D) Ought to be considered a capital market instrument.
- E) None of the above.

8. Which of the following is true?

- A) Adverse selection refers to the problem that arises *after* a loan is made, because the borrower may use his or her borrower funds irresponsibly.
- B) Banks help solve the problem of adverse section by expertly monitoring the activities of borrowers.
- C) Both (A) and (B) above.
- D) None of the above.

9. Finance companies:

- A) Acquire their funds by selling commercial paper, bonds, and equity shares.
- B) Use their funds to make consumer loans.
- C) Both (A) and (B) above.
- D) None of the above.

10. In terms of the dollar value of assets held:

- A) Savings and loan associations are the largest type of financial intermediary.
- B) Life insurance companies are the largest type of financial intermediary.
- C) Pension funds are the largest type of financial intermediary.
- D) Money market mutual funds are the largest type of financial intermediary.
- E) None of the above.

11. Which of the following is true?

- A) A loan that provides the borrower with an amount of funds (principal) that is to be repaid with interest by making fixed regular payments until maturity is called a fixed-payment loan.
- B) Automobile loans and residential mortgage loans typically take the form of fixed-payment loans.
- C) Fixed payment loans are sometimes also referred to as “fully amortized” loans.
- D) Both (A) and (B) above.
- E) All three, (A), (B), and (C), above.

12. A coupon bond with \$1000 face value, \$100 annual coupon payment, and 10 years to maturity sells for \$950 today. For this bond, the coupon rate is given by

- A)  $\frac{\$100}{\$1000} = 0.10 = 10\%$
- B)  $\frac{\$1000 - \$950}{\$1000} = \frac{\$50}{\$1000} = 0.05 = 5\%$
- C)  $\frac{\$1000 - \$950}{\$1000} + \frac{\$100}{\$1000} = \frac{\$50 + \$100}{\$1000} = \frac{\$150}{\$1000} = 0.15 = 15\%$
- D)  $\frac{\$100}{\$950} = 0.1053 = 10.53\%$
- E) None of the above.

13. If the simple interest rate is  $i$ , then the present value of \$1 received  $n$  years from now is

- A)  $\$1 \times i^n$ .
- B)  $\$1 \times (1+i)^n$ .
- C)  $\frac{\$1}{(1+i)^n}$ .
- D)  $\frac{\$1}{(1+n)^i}$ .
- E) None of the above.

14. Consider a coupon bond with face value  $F$ , annual coupon payment  $C$ , and one year to maturity that sells for price  $P$  today. For this bond, the yield to maturity  $i$  must satisfy:

- A)  $P = \frac{C}{1+i}$ .
- B)  $P = \frac{C}{1+i} + \frac{F}{1+i}$ .
- C)  $F = \frac{C}{1+i}$ .
- D)  $F = \frac{C}{1+i} + \frac{P}{1+i}$ .
- E) None of the above.

15. 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.

16. Consider a coupon bond with face value  $F$ , annual coupon payment  $C$ , and 2 years to maturity that sells for price  $P$  today. For this bond, the current yield  $i_c$  must satisfy:

- A)  $i_c = \frac{C}{F}$ .
- B)  $i_c = \frac{C}{P}$ .
- C)  $i_c = \frac{P}{F}$ .
- D)  $i_c = \frac{F}{P}$ .
- E) None of the above.

17. For a coupon bond that is selling for a price that is above face value:

- A) The current yield is always above the yield to maturity.
- B) The current yield is always below the yield to maturity.
- C) The current yield may either be above or below the yield to maturity, depending on the bond's maturity.
- D) None of the above.

18. Consider a discount bond with face value  $F$  that sells for price  $P$  today. For this bond, the yield on a discount basis  $i_{db}$  must satisfy:

A)  $i_{db} = \frac{F - P}{F}$ .

B)  $i_{db} = \frac{F - P}{P}$ .

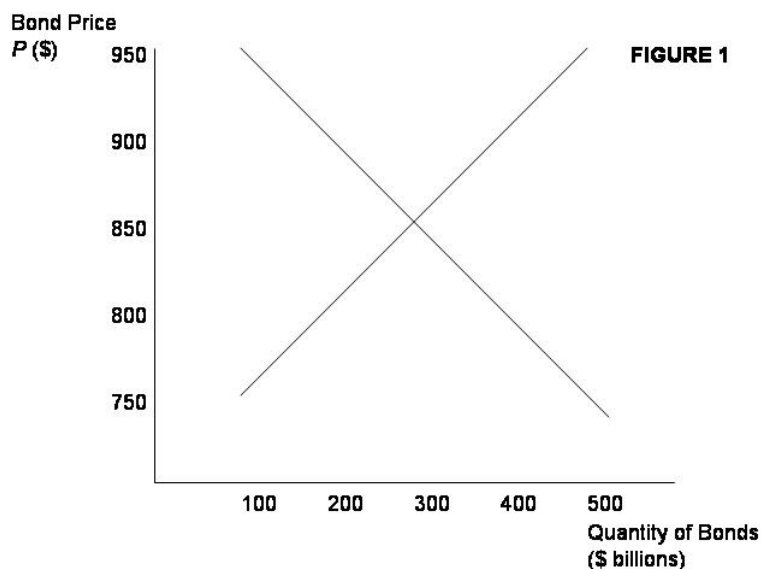
C)  $i_{db} = \frac{F - P}{F} \times \frac{360 \text{ days}}{\text{days to maturity}}$ .

D)  $i_{db} = \frac{\$1000 - \$900}{\$900} \times \frac{\text{days to maturity}}{360 \text{ days}}$ .

E) None of the above.

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Questions 19 – 21 refer to Figure 1, below:



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.

19. In figure 1, the downward-sloping line represents the:

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

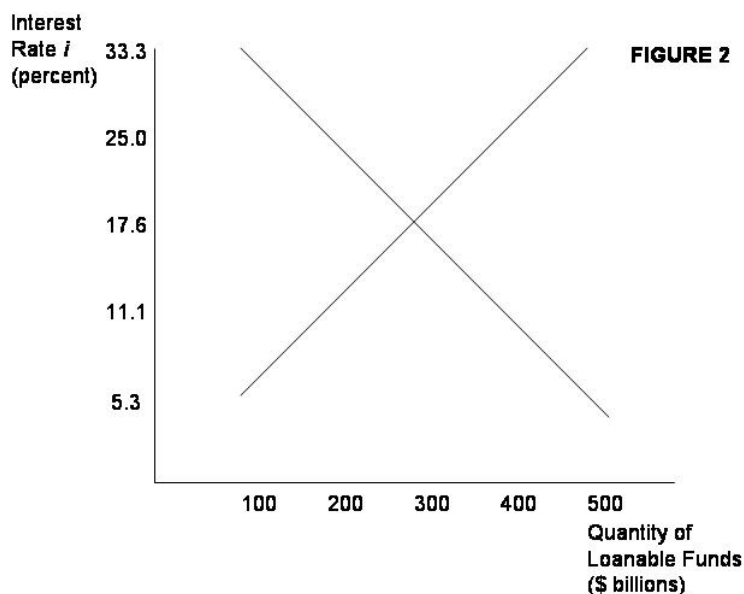
20. In figure 1, when  $P = \$750$ :

- 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.

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

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

Questions 22 and 23 refer to figure 2, below:



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.

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

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

23. 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.

24. Which of the following factors work to shift the supply 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.
25. According to the loanable funds framework, when bonds become less risky relative to other assets (such as stocks), 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.
26. According to the loanable funds framework, when investors' wealth increases, 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.
27. Since 1919, the interest rate on corporate bonds has been above the interest rate on US government bonds. This fact can be explained by
- A) Default risk.
  - B) Liquidity considerations.
  - C) Income tax considerations.
  - D) Both (A) and (B) above.
  - E) All three, (A), (B), and (C), above.
  - F) None of the above.
28. Consider two corporate bonds with the same term to maturity: one is rated Aaa by Moody's and the other is rated Baa by Moody's. Based on considerations of default risk, which one should have the higher interest rate?
- A) The Aaa corporate bond.
  - B) The Baa corporate bond.



29. The expectations hypothesis assumes that:

- A) Investors regard bonds of different maturities as perfect substitutes.
- B) Investors regard bonds of different maturities as not substitutes at all.
- C) Investors regard bonds of different maturities as substitutes, but not perfect substitutes.

30. Segmented markets theory assumes that:

- A) Investors regard bonds of different maturities as perfect substitutes.
- B) Investors regard bonds of different maturities as not substitutes at all.
- C) Investors regard bonds of different maturities as substitutes, but not perfect substitutes.

31. The expectations hypothesis can explain:

- A) Why interest rates on bonds of different maturities tend to move together over time.
- B) Why the yield curve sometimes slopes up and sometimes slopes down.
- C) Why most of the time the yield curve slopes up.
- D) Both (A) and (B) above.
- E) Both (A) and (C) above.
- F) Both (B) and (C) above.

32. Segmented markets theory can explain:

- A) Why interest rates on bonds of different maturities tend to move together over time.
- B) Why the yield curve sometimes slopes up and sometimes slopes down.
- C) Why most of the time the yield curve slopes up.
- D) Both (A) and (B) above.
- E) Both (A) and (C) above.
- F) Both (B) and (C) above.

33. Segmented markets theory implies that:

- A) The interest rate on a long-term bond equals the average of the short-term interest rates that are expected to prevail over the lifetime of that long-term bond.
- B) The interest rate on a long-term bond equals the average of the short-term interest rates that are expected to prevail over the lifetime of that long-term bond, plus an additional liquidity or term premium.
- C) The interest rate on a long-term bond is determined in the market for long-term bonds, with no effects from changes in interest rates on short-term bonds.

34. Preferred habitat theory implies that:

- A) The interest rate on a long-term bond equals the average of the short-term interest rates that are expected to prevail over the lifetime of that long-term bond.
- B) The interest rate on a long-term bond equals the average of the short-term interest rates that are expected to prevail over the lifetime of that long-term bond, plus an additional liquidity or term premium.
- C) The interest rate on a long-term bond is determined in the market for long-term bonds, with no effects from changes in interest rates on short-term bonds.

35. Consider the following two investment strategies. Strategy 1: buy a share of stock today (at time  $t$ ) that pays a stream of dividends  $D_{t+1}, D_{t+2}, D_{t+3}, \dots$  in future years  $t+1, t+2, t+3, \dots$  out into the possibly infinite future. Strategy 2: buy a portfolio of discount bonds today (at time  $t$ ) that includes a one-year discount bond with face value  $D_{t+1}$ , a two-year discount bond with face value  $D_{t+2}$ , a three-year discount bond with face value  $D_{t+3}$ , and so on out into the possibly infinite future. Let  $P_t$  denote today's price of the share of stock. In addition, let  $Q_{1t}$  denote today's price of the one-year discount bond, let  $Q_{2t}$  denote today's price of the two-year discount bond, let  $Q_{3t}$  denote today's price of the three-year discount bond, and so on out into the possibly infinite future. Finally, let  $i_{1t}$  denote the yield to maturity on the one-year bond, let  $i_{2t}$  denote the yield to maturity on the two-year bond, let  $i_{3t}$  denote the yield to maturity on the three-year bond, and so on out into the possibly infinite future. Then, if the stock and the bonds are equally risky, their prices must be related according to:

- A)  $P_t = Q_{1t} + Q_{2t} + Q_{3t} + \dots$
- B)  $P_t = i_{1t} + i_{2t} + i_{3t} + \dots$
- C)  $P_t = D_{t+1} + D_{t+2} + D_{t+3} + \dots$
- D)  $P_t = \frac{Q_{1t}}{1 + i_{1t}} + \frac{Q_{2t}}{(1 + i_{2t})^2} + \frac{Q_{3t}}{(1 + i_{3t})^3} + \dots$
- E) None of the above.

36. Using the same notation as in question 35 above, which of the following equations best summarizes the dividend valuation model?

- A)  $P_t = i_{1t} + i_{2t} + i_{3t} + \dots$
- B)  $P_t = D_{t+1} + D_{t+2} + D_{t+3} + \dots$
- C)  $P_t = \frac{Q_{1t}}{1 + i_{1t}} + \frac{Q_{2t}}{(1 + i_{2t})^2} + \frac{Q_{3t}}{(1 + i_{3t})^3} + \dots$
- D)  $P_t = \frac{D_{t+1}}{1 + i_{1t}} + \frac{D_{t+2}}{(1 + i_{2t})^2} + \frac{D_{t+3}}{(1 + i_{3t})^3} + \dots$
- E) None of the above.

37. The dividend valuation model implies that all else equal, a stock that is expected to pay smaller dividends in the future ought to have a:

- A) Higher price today.
- B) Lower price today.

38. In the Gordon growth model, the required return on equity refers to

- A) The value of today's dividend payment.
- B) The constant growth rate of future dividends.
- C) The constant interest rate used to discount future dividend payments back to the present.
- D) None of the above.

39. According to the Gordon growth model, a share of stock with future dividends that are expected to grow at a slower rate ought to have:

- A) A higher price today.
- B) A lower price today.

40. According to the Gordon growth model, when the required return on equity  $k$  is smaller, the stock should:

- A) Sell for a higher price today.
- B) Sell for a lower price today.

41. Let  $P_t$  denote the price of the stock today (at time  $t$ ), let  $D_t$  denote the dividend paid by the stock this past year, let  $g$  denote the assumed constant growth rate of future dividends, and let  $k$  denote the assumed constant required return on equity. Then which of the following equations summarizes the Gordon growth model?

A)  $P_t = \left( \frac{1+g}{k-g} \right) D_t.$

B)  $D_t = \left( \frac{1+g}{k-g} \right) P_t.$

C)  $P_t = \left( \frac{1+g}{k+g} \right) D_t.$

D)  $P_t = \left( \frac{1+g}{1+k} \right) D_t.$

- E) None of the above.

42. The Gordon growth model assumes that:

- A) The future dividends paid by a stock will grow at a constant rate.
- B) The interest rates used to discount the future dividends are constant.
- C) The growth rate of dividends must be smaller than the required return on equity.
- D) Both (A) and (B) above.
- E) All three, (A), (B), and (C), above.

43. A bank's checkable deposits that do not pay interest are called its:

- A) Demand deposits.
- B) NOW (Negotiable Order of Withdrawal) accounts.
- C) MMDA's (Money Market Deposit Accounts).
- D) Savings accounts.
- E) Both (A) and (B) above.
- F) All three, (A), (B), and (C), above.
- G) All four, (A), (B), (C), and (D), above.

44. A bank's nontransactions deposits include its:

- A) Savings accounts.
- B) Small (under \$100,000) time deposits (CD's).
- C) Large (over \$100,000) time deposits (CD's).
- D) MMDA's (Money Market Deposit Accounts).
- E) Both (A) and (B) above.
- F) All three, (A), (B), and (C), above.
- G) All four, (A), (B), (C), and (D), above.

45. By law, banks must hold 10% of their demand deposits and NOW accounts as required reserves. Thus, we can say that 10% is the:

- A) Required reserve ratio.
- B) Discount ratio.
- C) Federal funds ratio.
- D) Capital adequacy requirement.
- E) None of the above.

46. In a correspondent banking relationship, a small bank holds deposits at a larger bank. The deposit then becomes:

- A) An asset for the small bank and an asset for the larger bank.
- B) An asset for the small bank and a liability for the larger bank.
- C) A liability for the small bank and an asset for the larger bank.
- D) A liability for the small bank and a liability for the larger bank.

47. Banks earn profits when:

- A) The interest rate on their assets exceeds the interest rate on their liabilities.
- B) The interest rate on their liabilities exceeds the interest rate on their assets.

48. By law, banks are prohibited from holding:

- A) Corporate stocks.
- B) Corporate bonds.
- C) Municipal bonds.
- D) Both (A) and (B) above.
- E) All three, (A), (B), and (C), above.

49. Whenever a bank loses an additional \$100 in deposits it:

- A) Loses an additional \$100 in reserves.
- B) Gains an additional \$100 in reserves.

50. Consider an example in which Fleet Bank initially holds no excess reserves and experiences a deposit outflow. To cope with this deposit outflow, Fleet's options include:

- A) Borrowing funds from another bank.
- B) Selling securities.
- C) Reducing its loans.
- D) Both (A) and (B) above.
- E) All three, (A), (B), and (C), above.