

Midterm Exam II

Name _____

Id # _____

Instructions: There are two parts to this midterm. Part A consists of multiple choice questions. Please mark the answers to the multiple choice questions on the exam paper and fill in the relevant bubble on the Scantron sheet. Part A is worth 60%. Part B is worth 40% and consists of short answer questions. Please answer in the space provided. Please attempt both parts and turn the exam in at the end.

Part A: MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) Factors that increase the demand for bonds include

- A) a decrease in the inflation rate.
- B) an increase in the volatility of stock prices.
- C) an increase in the liquidity of stocks.
- D) all of the above.
- E) only A and B of the above.

Answer: E

2) When bond interest rates become less volatile, the demand for bonds _____ and the interest rate _____.

- A) decreases; rises
- B) decreases; falls
- C) increases; falls
- D) increases; rises

Answer: C

3) A decrease in the liquidity of corporate bonds, other things being equal, shifts the demand curve for corporate bonds to the _____ and the demand curve for Treasury bonds shifts to the _____.

- A) right; left
- B) right; right
- C) left; left
- D) left; right

Answer: D

4) Bonds with no default risk are called

- A) flower bonds.
- B) default-free bonds.
- C) zero-risk bonds.
- D) no-risk bonds.

Answer: B

5) The concept of adverse selection helps to explain

- A) which firms are more likely to obtain funds from banks and other financial intermediaries, rather than from the securities markets.
- B) why indirect finance is more important than direct finance as a source of business finance.
- C) why direct finance is more important than indirect finance as a source of business finance.
- D) only A and B of the above.
- E) only A and C of the above.

Answer: D

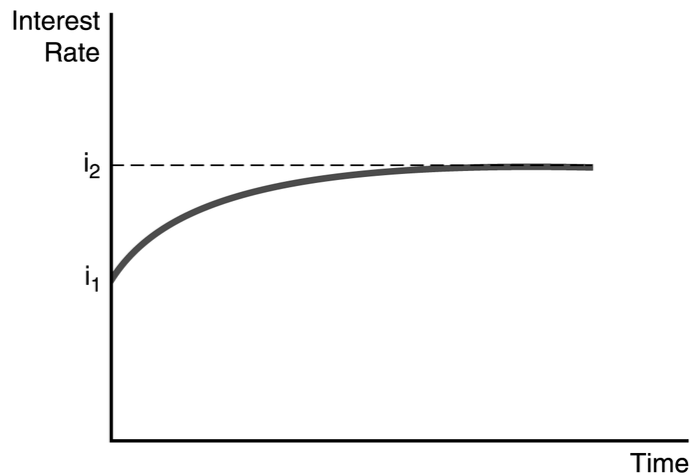


Figure 1

- 6) Figure 1 above, illustrates the effect of an increased rate of money supply growth. From the figure, one can conclude that the
- A) Fisher effect is smaller than the expected inflation effect and interest rates adjust quickly to changes in expected inflation.
 - B) liquidity effect is dominated by the Fisher effect and interest rates adjust slowly to changes in expected inflation.
 - C) liquidity effect is dominated by the Fisher effect and interest rates adjust quickly to changes in expected inflation.
 - D) Fisher effect is dominated by the liquidity effect and interest rates adjust slowly to changes in expected inflation.

Answer: C

- 7) If a corporation begins to suffer large losses, then
- A) the default risk on the corporate bond will increase and the bond's return will become less uncertain, meaning the expected return on the corporate bond will fall.
 - B) the default risk on the corporate bond will decrease and the bond's return will become less uncertain, meaning the expected return on the corporate bond will fall.
 - C) the default risk on the corporate bond will decrease and the bond's return will become less uncertain, meaning the expected return on the corporate bond will rise.
 - D) the default risk on the corporate bond will increase and the bond's return will become more uncertain, meaning the expected return on the corporate bond will fall.

Answer: D

- 8) If bad credit risks are the ones who most actively seek loans and, therefore, receive them from financial intermediaries, then financial intermediaries face the problem of
- A) adverse selection.
 - B) free-riding.
 - C) moral hazard.
 - D) costly state verification.

Answer: A

- 16) When bonds become more widely traded, and as a consequence the market becomes more liquid, the demand curve for bonds shifts to the _____ and the interest rate _____.
- A) left; falls B) right; falls C) right; rises D) left; rises

Answer: B

- 17) Expectations of _____ have a major impact on bond prices and interest rates through the _____ effect.
- A) money growth; Fisher B) money growth; Pigou
 C) inflation; Pigou D) inflation; Fisher

Answer: D

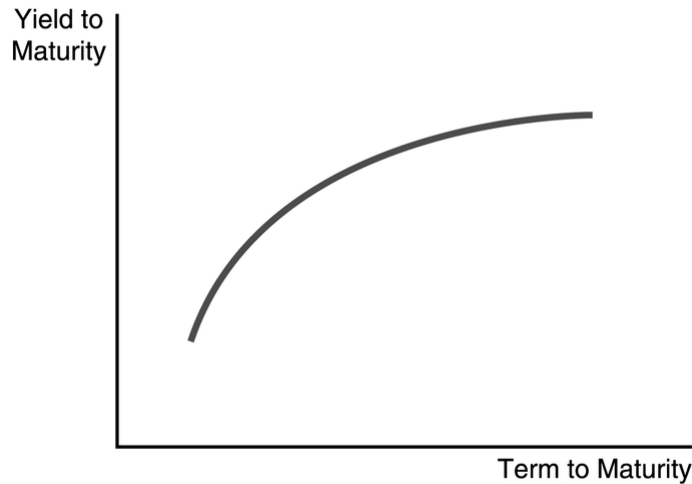


Figure 2

- 18) The steeply upward sloping yield curve in Figure 2 indicates that _____ interest rates are expected to _____ in the future.
- A) short-term; fall moderately
 B) long-term; remain unchanged
 C) long-term; fall moderately
 D) short-term; remain unchanged
 E) short-term; rise

Answer: E

- 19) According to the liquidity premium theory
- A) a steeply rising yield curve indicates that short-term interest rates are expected to remain unchanged in the future.
 B) a downward sloping yield curve indicates that short-term interest rates are expected to fall sharply in the future.
 C) a flat yield curve indicates that short-term interest rates are expected to rise moderately in the near future, then fall moderately in the distant future.
 D) a moderately rising yield curve indicates that short-term interest rates are expected rise moderately in the future.

Answer: B

20) Which of the following is the primary source of external funds used by American businesses to finance their activities?

A) Other loans

B) Bank loans

C) Stock

D) Bonds and commercial paper

Answer: B

Part B: SHORT ANSWER QUESTIONS (40%)

Write brief answers to the questions below being as succinct and clear as possible. **Show any calculations** as necessary in answering the questions. Note: **You will not receive full credit for just simply writing down the answer, without showing any working!**

21.(20%) Suppose that you are a fund manager and face the following two investment opportunities: **Option I:** purchase a sequence of two 1 year bonds whose yields are 6% today and expected to be 8% a year from now. **Option II:** Purchase a 2 year bond whose yields are 8% per year and hold it over 2 years.

a. [2 pts] Which option (i.e. Option I or II) would you pick? Why?

Answer:

*Option II: 8 % average yield
Option I: $(6+8)/2 = 7\%$ average yield
Hence pick option II.*

b. [4 pts] Suppose that other fund managers perceived the same investment opportunity as you did in part (a) and acted accordingly. What would happen to the price of 1 year bonds? What would happen to the price of 2 year bonds? What would happen to their respective yields?

Answer:

Demand for 1 year bonds decreases relative to Demand for 2 year bonds. Hence the bond demand curve shifts out for 2 year bonds and in for 1 year bonds. As a result, the price (interest) on 1 year bonds falls (rises). The price (interest) on 2 year bonds rises (falls).

c. [4 pts] What is the name of the theory that predicts the “no-arbitrage” outcome outlined above? What does this theory predict about the term structure of interest rates in terms of how the yield of long term bonds are related to yields on a sequence of 1 year bonds?

Answer:

Expectations Theory predicts this “no-arbitrage” outcome since bonds are perfect substitutes. It predicts that yields on long term bonds are the average of the expected yields of a sequence of 1 year bonds.

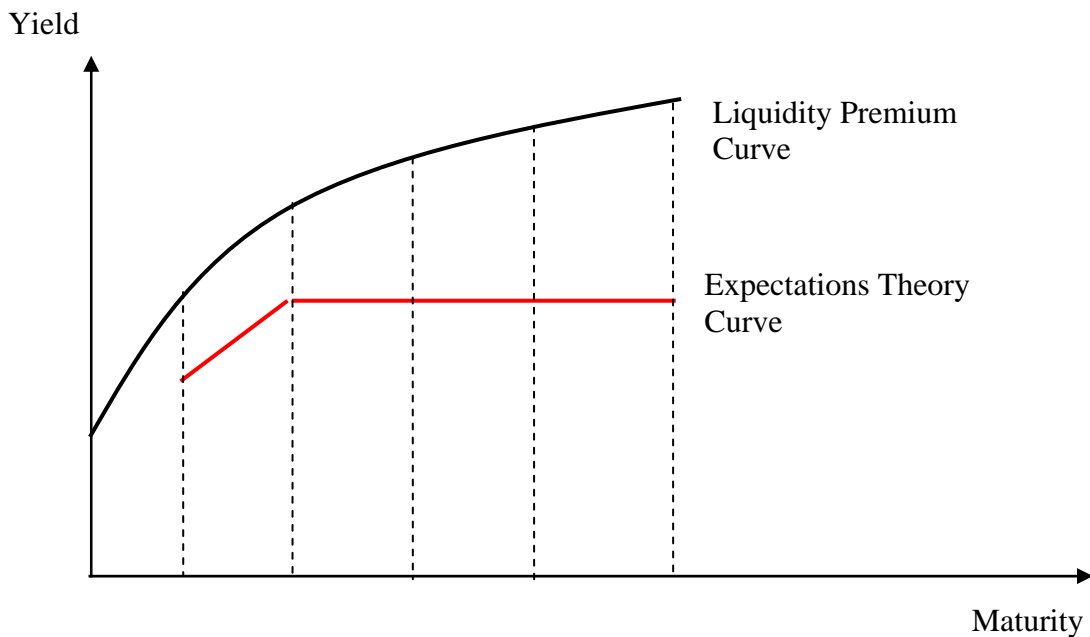
- d. [5 pts] Suppose that the short term rates on 1 year bonds today were 6% and that the expected short term rates on 1 year bonds in the future were: 8%, 7%, 7% and 7% over the subsequent 4 years. Calculate the implied yields on 2 year, 3 year, 4 year and 5 year bonds below:

Answer:

$$\begin{aligned}
 \text{2 year bonds:} & \quad i_2 = (6+8)/2 = 7\% \\
 \text{3 year bonds:} & \quad i_3 = (6+8+7)/3 = 7\% \\
 \text{4 year bonds:} & \quad i_4 = (6+8+7+7)/4 = 7\% \\
 \text{5 year bonds:} & \quad i_5 = (6+8+7+7+7)/5 = 7\%
 \end{aligned}$$

- e. [5 pts] Using your answers to part (d), draw the term structure of interest rates, as predicted by the **Liquidity Premium Theory**.

Answer:



22. (20%) Suppose you are considering buying an apple tree. Historically, each year this apple tree has produced an average of 20 apples per year, and is expected to continue doing so. Suppose that apples sell for \$0.50 in the market today; apple trees cost \$100 today and the annual rate of apple tree inflation is 5.5%

a. [4 pts] Suppose that the rate of apple tree inflation has remained constant over time. What would you expect the price of this apple tree to be 1 year from today?

Answer:

$$\begin{aligned}
 P_{\text{APPLE TREE, 1 year}} &= P_{\text{APPLE TREE, today}} * \text{Gross apple tree inflation} \\
 &= \$100 * (1.055) \\
 &= \$105.50
 \end{aligned}$$

b. [6 pts] Suppose your required rate of return from holding any asset is 10%. What is your valuation of the price of the apple tree? [Hint: You may assume you keep the entire profits from selling apples and that there are no costs for you to sell apples]

Answer:

$$\begin{aligned}
 P_0 &= \frac{D_1}{(1+k_e)} + \frac{P_1}{(1+k_e)} \\
 &= \frac{20 * \$0.50}{1.1} + \frac{\$105.50}{1.1} = 105
 \end{aligned}$$

c. [4 pts] Based on your answer to part (b), would you buy this apple tree? Why (or why not)? [Hint: Relate your answer here to the current price of apple trees today.]

Answer:

Buy, since the apple tree is trading at a price below what I value it at.

i.e. My valuation: \$105 > \$100 Market Valuation

- d. [2 pts] Suppose that on May 1, 2006, the news service announces a swarm of locusts heading your way. It is likely to affect you and other apple producers in your area. What will happen to the price of apple trees as a result?

Answer:

Price of apple trees fall as expected return on apple trees fall.

*Note: The price of **apples** would be expected to rise because of a shortage, but here, the question asks what would happen to the price of apple trees. Since it is an asset here, and not a good or service, the outcome of what happens to the price of apple trees would depend on factors like risk, expected return, and liquidity.*

- e. [4 pts] In the diagram below, show what happens to the price of apple trees if the market for apples was **inefficient**?

