

Money and Banking, Assignment 3

Due date: **April 7th** (Thursday, in-class)

Part I Multiple Choices: (only one of the four options is correct)

1) If wealth increases, the demand for stocks _____ and that of long-term bonds _____, everything else held constant. **A**

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

2) An increase in the expected rate of inflation will _____ the expected return on bonds relative to the that on _____ assets, everything else held constant. **B**

- A) reduce; financial
- B) reduce; real
- C) raise; financial
- D) raise; real

3) If fluctuations in interest rates become smaller, then, other things equal, the demand for stocks _____ and the demand for long-term bonds _____. **D**

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

4) Which of the following statements is true? **B**

- A) State and local governments cannot default on their bonds.
- B) Bonds issued by state and local governments are called municipal bonds.
- C) All government issued bonds — local, state, and federal — are federal income tax exempt.
- D) The coupon payment on municipal bonds is usually higher than the coupon payment on Treasury bonds.

5) Everything else held constant, if the tax-exempt status of municipal bonds were eliminated, then **C**

- A) the interest rates on municipal bonds would still be less than the interest rate on Treasury bonds.
- B) the interest rate on municipal bonds would equal the rate on Treasury bonds.
- C) the interest rate on municipal bonds would exceed the rate on Treasury bonds.

6) If the expected path of 1-year interest rates over the next four years is 5 percent, 4

percent, 2 percent, and 1 percent, then the expectations theory predicts that today's interest rate on the four-year bond is C

- A) 1 percent.
- B) 2 percent.
- C) 3 percent.
- D) 4 percent.

13) If the expected path of 1-year interest rates over the next five years is 2 percent, 4 percent, 1 percent, 4 percent, and 3 percent, the expectations theory predicts that the bond with the lowest interest rate today is the one with a maturity of A

- A) one year.
- B) two years.
- C) three years.
- D) four years.

14) According to the expectations theory of the term structure B

- A) the interest rate on long-term bonds will exceed the average of short-term interest rates that people expect to occur over the life of the long-term bonds, because of their preference for short-term securities.
- B) interest rates on bonds of different maturities move together over time.
- C) buyers of bonds prefer short-term to long-term bonds.
- D) buyers require an additional incentive to hold long-term bonds.

15) The _____ of the term structure of interest rates states that the interest rate on a long-term bond will equal the average of short-term interest rates that individuals expect to occur over the life of the long-term bond, and investors have no preference for short-term bonds relative to long-term bonds. B

- A) segmented markets theory
- B) expectations theory
- C) liquidity premium theory
- D) separable markets theory

2) Which of the following statements concerning external sources of financing for nonfinancial businesses in the United States are true? B

- A) Stocks are a far more important source of finance than are bonds.
- B) Stocks and bonds, combined, supply less than one-half of the external funds.
- C) Financial intermediaries are the least important source of external funds for businesses.
- D) Since 1970, more than half of the new issues of stock have been sold to American

3) Which of the following statements concerning external sources of financing for nonfinancial businesses in the United States are true? C

- A) Issuing marketable securities is the primary way that they finance their activities.

- B) Bonds are the least important source of external funds to finance their activities.
- C) Stocks are a relatively unimportant source of finance for their activities.
- D) Selling bonds directly to the American household is a major source of funding for American

- 7) Nonfinancial businesses in Germany, Japan, and Canada raise most of their funds
- A) by issuing stock.
 - B) by issuing bonds.
 - C) from nonbank loans.
 - D) from bank loans.

- 8) Regulation of the financial system
- A) occurs only in the United States.
 - B) protects the jobs of employees of financial institutions.
 - C) protects the wealth of owners of financial institutions.
 - D) ensures the stability of the financial system.

- 9) Property that is pledged to the lender in the event that a borrower cannot make his or her debt payment is called
- A) collateral.
 - B) points.
 - C) interest.
 - D) good faith money.

- 10) A _____ is a provision that restricts or specifies certain activities that a borrower can engage in.
- A) residual claimant
 - B) risk hedge
 - C) restrictive barrier
 - D) restrictive covenant

- 11) Which of the following is not one of the eight basic puzzles about financial structure?
- A) Stocks are the most important source of finance for American businesses.
 - B) Issuing marketable securities is not the primary way businesses finance their operations.
 - C) Indirect finance, which involves the activities of financial intermediaries, is many times more important than direct finance, in which businesses raise funds directly from lenders in financial markets.
 - D) Banks are the most important source of external funds to finance businesses.

- 12) The reduction in transactions costs per dollar of investment as the size of transactions increases is
- A) discounting.

- B) economies of scale.
- C) economies of trade.
- D) diversification.

12) The problem created by asymmetric information before the transaction occurs is called _____, while the problem created after the transaction occurs is called _____.

A

- A) adverse selection; moral hazard
- B) moral hazard; adverse selection
- C) costly state verification; free-riding
- D) free-riding; costly state verification

13) An example of the _____ problem would be if Brian borrowed money from Sean in order to purchase a used car and instead took a trip to Atlantic City using those funds.

A

- A) moral hazard
- B) adverse selection
- C) costly state verification
- D) agency

14) The problem of adverse selection helps to explain _____

A

- A) why firms are more likely to obtain funds from banks and other financial intermediaries, rather than from securities markets.
- B) why collateral is an important feature of consumer, but not business, debt contracts.
- C) why direct finance is more important than indirect finance as a source of business finance.
- D) why lenders refuse loans to individuals with high net worth.

15) The principal-agent problem _____

C

- A) occurs when managers have more incentive to maximize profits than the stockholders-owners do.
- B) in financial markets helps to explain why equity is a relatively important source of finance for American business.
- C) would not arise if the owners of the firm had complete information about the activities of the managers.
- D) explains why direct finance is more important than indirect finance as a source of business finance.

Part II Analytical Exercises

1. Question 20 in the textbook (page 158).

Answer:

1) The expected return for stocks is

$$0.25*12\%+0.25*10\%+0.25*8\%+0.25*6\%=9\%;$$

The expected return for bonds is

$$0.6*10\%+0.4*7.5\%=9\%$$

The expected return for commodities is

$$0.2*20\%+0.25*12\%+0.25*6\%+0.25*4\%+0.05*9\%=9.5\%$$

Hence we should choose commodities to maximize expected return.

2) Generally bonds bear less risk than stocks (and accordingly smaller expected return in general). Therefore it is OK if you just answer we should choose bonds. More formally, we can calculate the risk of each investment by calculating the volatility of their returns:

For stocks

$$0.25 * (12\% - 9\%)^2 + 0.25 * (10\% - 9\%)^2 + 0.25 * (8\% - 9\%)^2 + 0.25 * (6\% - 9\%)^2 = 0.05\%$$

For bonds

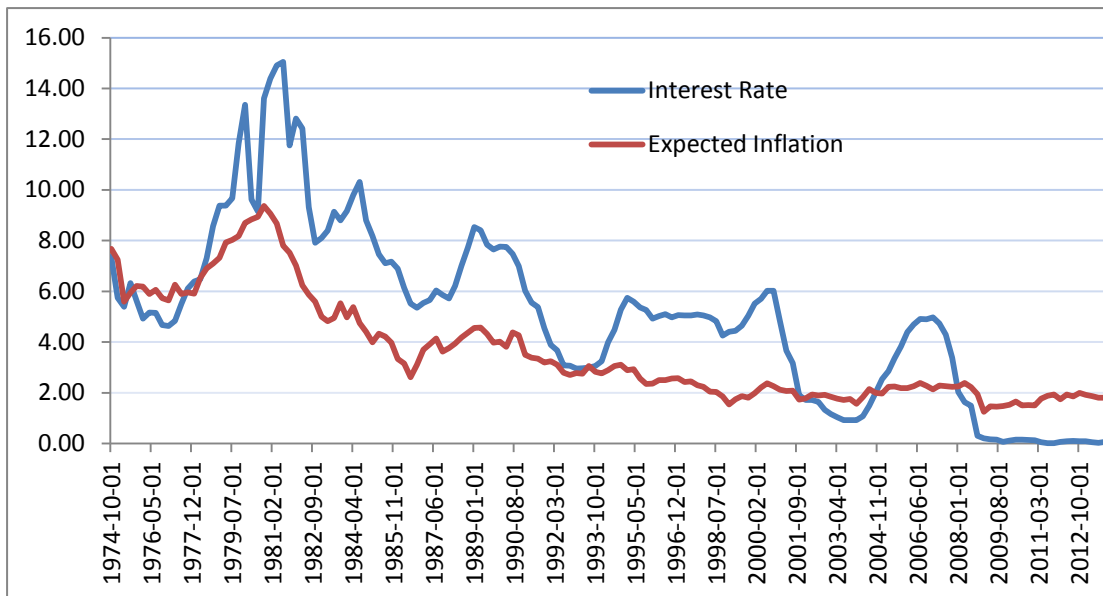
$$0.6 * (10\% - 9\%)^2 + 0.4 * (7.5\% - 9\%)^2 = 0.015\%$$

2. In class we have seen a graph showing the co-movement of interest rate and expected inflation for US (Figure 5 in the textbook). The expected inflation appeared in that graph was estimated by the author of the book. Another way to measure expected inflation is to use the Survey of Professional Forecasters database, which is widely used in academic research. Download the one-year-ahead inflation forecast at <http://www.phil.frb.org/research-and-data/real-time-center/survey-of-professional-forecasters/historical-data/inflation-forecasts.cfm>.

Combine this forecast with the Three Month Treasury Bill rates downloadable at <http://research.stlouisfed.org/fred2/series/TB3MS>.

Note that the inflation forecast data is a quarterly data (starting at the second quarter of 1970) while the interest rate data is monthly. To convert monthly data to quarterly data, following the instruction at <http://research.stlouisfed.org/tips/200303/>.

Answer: In fact the FRED database can automatically convert the monthly data to quarterly data for you (as I have illustrated in the class). The final graph should look like this (note that there is one data missing for the second quarter of 1970. Hence our plot starts at the third quarter of 1970.):



3. Question 25 in the textbook. (page. 182)

Answer:

The liquidity premium for

one year bond: $2\% - 2\% = 0$

two years bond: $3\% - (2\% + 3\%) / 2 = 0.5\%$

three years bond: $5\% - (2\% + 3\% + 4\%) / 3 = 2\%$

four years bond: $6\% - (2\% + 3\% + 4\% + 6\%) / 4 = 2.25\%$

five years bond: $8\% - (2\% + 3\% + 4\% + 6\% + 7\%) / 5 = 3.6\%$

4. Go to <http://stockcharts.com/freecharts/yieldcurve.php> and find out three points of time in the history that each corresponds to a upward sloping, a flat and a downward sloping yield curve. Use at least one of the three theories we have learned in the class to explain the patterns of the yield curve at these three points of time.

Answer:

For most of the time, the yield curve is upward sloping. Only for a short period between March 2000 and August 2000 we have a downward sloping yield curve. And from August 2006 to May 2007, we have roughly flat yield curves. To explain these shapes of yield curves, the most common argument is to use the expectation theory: people just have different expectation on future interest rates (either because monetary policy change of economic environment change) across time.