

Chapter 3

Structure of Interest Rates

Outline

Explaining Yield Differentials

- Credit (Default) Risk
- Liquidity
- Tax Status
- Term to Maturity

Explaining Actual Yield Differentials

- Yield Differentials of Money Market Securities
- Yield Differentials of Capital Market Securities

Estimating the Appropriate Yield

A Closer Look at the Term Structure

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- Research on Term Structure Theories
- Integrating the Theories of the Term Structure
- Use of the Term Structure
- Why the Slope of the Yield Curve Changes over Time
- How the Yield Curve Has Changed over Time
- International Structure of Interest Rates

Key Concepts

1. Use a current *Wall Street Journal* or other newspaper to show how yields vary among securities. The chapter helps to explain the disparity in yields.
2. Provide logic behind how default risk, liquidity, tax status, and maturity can affect yields.
3. Offer various theories for the term structure of interest rates, and then combine these theories to provide an integrated explanation.

POINT/COUNTER-POINT:

Should a Yield Curve Influence a Borrower's Preferred Maturity of a Loan?

POINT: Yes. If there is an upward-sloping yield curve, then a borrower should pursue a short-term loan to capitalize on the lower annualized rate charged for a short-term period. The borrower can obtain a series of short-term loans rather than one loan to match the desired maturity.

COUNTER-POINT: No. The borrower will face uncertainty regarding the interest rate charged on subsequent loans that are needed. An upward-sloping yield curve would suggest that interest rates will rise in the future, which will cause the cost of borrowing to increase. Overall, the cost of borrowing may be higher when using a series of loans than when matching the debt maturity to the time period in which funds are needed.

WHO IS CORRECT? Use the Internet to learn more about this issue and then formulate your own opinion.

ANSWER: Either side could be correct. If you believe that the yield curve provides a reasonable forecast of future interest rates, then the counter-point is a more valid argument.

Questions

1. **Characteristics That Affect Security Yields.** Identify the relevant characteristics of any security that can affect the security's yield.

ANSWER: The relevant characteristics are:

1. default risk
2. liquidity
3. tax status
4. maturity

2. **Impact of Credit Risk on Yield.** What effect does a high credit risk have on securities?

ANSWER: Investors require a higher risk premium on securities with a high default risk.

3. **Impact of Liquidity on Yield.** Discuss the relationship between the yield and liquidity of securities.

ANSWER: The greater the liquidity of a security, the lower is the yield, other things being equal.

- 4. Tax Effects on Yields.** Do investors in high tax brackets or those in low tax brackets benefit more from tax-exempt securities? Why? Do municipal bonds or corporate bonds offer a higher before-tax yield at a given point in time? Why? Which has the higher after-tax yield? If taxes did not exist, would Treasury bonds offer a higher or lower yield than municipal bonds with the same maturity? Why?

ANSWER: High-tax bracket investors benefit more from tax-exempt securities because their tax savings from avoiding taxes is greater.

Corporate bonds offer a higher before-tax yield, since they are taxable by the federal government. The municipal bonds may have a higher tax yield for investors subject to a high tax rate. For low-tax bracket investors, the corporate bonds would likely have a higher after-tax yield.

If taxes did not exist, Treasury bonds would offer a lower yield than municipal bonds because they are perceived to be risk-free. Thus, the required return on Treasury bonds would be lower than on municipal bonds.

- 5. Pure Expectations Theory.** Explain how a yield curve would shift in response to a sudden expectation of rising interest rates, according to the pure expectations theory.

ANSWER: The demand for short-term securities would increase, placing upward (downward) pressure on their prices (yields). The demand for long-term securities would decrease, placing downward (upward) pressure on their prices (yields). If the yield curve was originally upward sloped, it would now have a steeper slope as a result of the expectation. If it was originally downward sloped, it would now be more horizontal (less steep), or may have even become upward sloping.

- 6. Forward Rate.** What is the meaning of the forward rate in the context of the term structure of interest rates? Why might forward rates consistently overestimate future interest rates? How could such a bias be avoided?

ANSWER: The forward rate is the expected interest rate at a future point in time.

If forward rates are estimated without considering the liquidity premium, it may overestimate the future interest rates. If a liquidity premium is accounted for when estimating the forward rate, the bias can be eliminated.

- 7. Pure Expectations Theory.** Assume there is a sudden expectation of lower interest rates in the future. What would be the effect on the shape of the yield curve? Explain.

ANSWER: The demand for short-term securities would decrease, placing downward (upward) pressure on their prices (yields). The demand for long-term securities would increase, placing upward (downward) pressure on their prices (yields). If the yield curve was originally upward sloped, it would now be more horizontal (less steep). If it was downward sloped, it would now be more steep.

- 8. Liquidity Premium Theory.** Explain the liquidity premium theory.

ANSWER: If investors believe that securities with larger maturities are less liquid, they will require a premium when investing in such securities to compensate. This theory can be combined with the other theories to explain the shape of a yield curve.

- 9. Impact of Liquidity Premium on Forward Rate.** Explain how consideration of a liquidity premium affects the estimate of a forward interest rate.

ANSWER: When considering a liquidity premium, the estimate of a forward interest rate will be reduced.

- 10. Segmented Markets Theory.** If a downward-sloping yield curve is mainly attributed to segmented markets theory, what does that suggest about the demand for and supply of funds in the short-term and long-term maturity markets?

ANSWER: A downward-sloped yield curve suggests that the demand for short-term funds is high relative to the supply of short-term funds, causing a high yield. In addition, the demand for long-term funds is low relative to the supply of long-term funds, causing a low yield.

- 11. Segmented Markets Theory.** If the segmented markets theory causes an upward-sloping yield curve, what does this imply? If markets are not completely segmented, should we dismiss the segmented markets theory as even a partial explanation for the term structure of interest rates? Explain.

ANSWER: An upward-sloped yield curve caused by segmented markets implies that the demand for short-term funds is low relative to the supply of short-term funds. In addition, the demand for long-term funds is high relative to the supply of long-term funds.

Even if markets are not completely segmented, investors and borrowers may prefer a particular maturity market. Therefore, they may only switch to a different maturity if there is sufficient compensation (such as a higher return for investors or a lower cost of borrowing for borrowers).

- 12. Preferred Habitat Theory.** Explain the preferred habitat theory.

ANSWER: The preferred habitat theory suggests that while investors and borrowers may prefer a natural maturity, they may wander from that maturity under conditions where they can benefit from selecting a different maturity.

- 13. Yield Curve.** What factors influence the shape of the yield curve? Describe how financial market participants use the yield curve.

ANSWER: The yield curve's shape is affected by the demand and supply conditions for securities in various maturity markets. Expectations of interest rates, the desire for liquidity, and the desire by investors or borrowers for a specific maturity will influence the demand and supply conditions.

The yield curve can be used to determine the market's expectations of future interest rates. Market participants can compare their own expectations to the market's expectations in order to determine their borrowing or investing decisions.

Advanced Questions

- 14. Segmented Markets Theory.** Suppose that the Treasury decided to finance its deficit with mostly long-term funds. How could this decision affect the term structure of interest rates? If short-term and long-term markets are segmented, would the Treasury's decision have a more or less pronounced impact on the term structure? Explain.

ANSWER: If the Treasury borrowed heavily in the long-term markets, it could place upward pressure on long-term rates without having as much of an impact on short-term rates. If the markets are segmented, the effect of the Treasury's actions would be more pronounced.

- 15. Yield Curve.** If liquidity and interest rate expectations are both important for explaining the shape of a yield curve, what does a flat yield curve indicate about the market's perception of future interest rates?

ANSWER: A flat yield curve without consideration of a liquidity premium would represent no expected change in interest rates according to the pure expectations theory. Therefore, if the flat yield curve reflects the existence of a liquidity premium, this curve would actually have a slight downward slope when removing the liquidity premium. This suggests expectations of a slight decline in future interest rates.

- 16. Global Interaction among Yield Curves.** Assume that the yield curves in the United States, France, and Japan are flat. If the U.S. yield curve then suddenly become so positively sloped, do you think the yield curves in France and Japan would be affected? If so, how?

ANSWER: The yield curves in other countries would also be affected if the event precipitating the shift in the U.S. yield curve affects either actual or expected interest rates in other countries. If long-term interest rates in the United States rise in response to a greater U.S. demand for long-term funds, then the yield curve may have an upward slope. To the extent that this event attracts long-term funds in other countries, there would be a smaller supply of long-term funds in those countries, which could cause higher long-term rates there. Consequently, their yield curves would have an upward slope.

- 17. Multiple Effects on the Yield Curve.** Assume that (1) investors and borrowers expect that the economy will weaken and that inflation will decline, (2) investors require a small liquidity premium, and (3) markets are partially segmented and the Treasury currently has a preference for borrowing in short-term markets. Explain how each of these forces would affect the term structure, holding other factors constant. Then explain the effect on the term structure overall.

ANSWER: The weak economy creates the expectation of a decline in interest rates, so according to expectations theory, there would be a downward-sloping yield curve.

The liquidity premium results in a slight upward slope to the yield curve.

The Treasury's preference would result in a downward-sloping demand yield curve, when other factors are held constant. Overall, there would be a downward-sloping yield curve because the expectations and segmented markets effects would overwhelm the liquidity effect.

- 18. Effect of Crises on the Yield Curve.** During some crises, investors shift their funds out of the stock market and into money market securities for safety, even if they do not fear rising interest rates. Explain how and why these actions by investors affect the yield curve. Is the shift due to the expectations theory, liquidity premium theory, or segmented markets theory?

ANSWER: The movement into money market securities results in a larger supply of short-term funds, and lowers short-term interest rates. Thus, the yield curve becomes more steeply sloped. The shift in the yield curve is due to a preference for investors to move their funds into safe short-term securities, which reflects segmented markets theory, a preference for liquidity.

- 19. How the Yield Curve May Respond to Prevailing Conditions.** Consider how economic conditions affect the default risk premium. Do you think the default risk premium will likely increase or decrease during this semester? How do you think the yield curve will change during this semester? Offer some logic to support your answers.

ANSWER: This question is open-ended. It requires students to apply the concepts that were presented in this chapter in order to develop their own view. This question can be useful for class discussion because it will likely lead to a variety of answers, which reflects the dispersed opinions of market participants.

- 20. Assessing Interest Rate Differentials among Countries.** In some countries where there is high inflation, the annual interest rate is more than 50 percent, while in other countries such as the U.S. and many European countries, the annual interest rates are typically less than 10 percent. Do you think such a large interest rate differential is primarily attributed to the difference in the risk-free rates or to the difference in the credit risk premiums between countries? Explain.

ANSWER: The risk-free foreign interest rates are determined by supply and demand for funds in their local currency. Inflationary expectations affect the risk-free interest rate. Thus, the difference in interest rates between the countries with very high interest rates versus low interest rates is primarily attributed to risk-free rate differentials. The credit risk premium is typically higher in the countries with very high interest rates, but that is not the primary reason for the large difference between countries with very interest rates versus low interest rates.

- 21. Applying the Yield Curve to Risky Debt Securities.** Assume that the yield curve for Treasury bonds has a slight upward slope, starting at 6% for a 10-year maturity and slowly rising to 8% for a 30-year maturity. Create a yield curve that you believe would exist for A-rated bonds. Create a yield curve that you believe would exist for B-rated bonds.

ANSWER: The yield curve for A-rated bonds would likely have a similar slope as the yield curve for Treasury securities, but would be higher because of a credit risk premium. The yield curve for B-rated bonds would likely have a similar slope as the yield curve for A-rated bonds, but would be higher because of a credit risk premium.

Interpreting Financial News

Interpret the following comments made by Wall Street analysts and portfolio managers.

- a. “An upward-sloping yield curve persists because many investors stand ready to jump into the stock market.”

Investors are holding short-term Treasury securities, and are unwilling to hold long-term Treasury securities, because they may liquidate these securities soon, and prefer liquid securities that are less susceptible to interest rate risk.

- b. “Low-rated bond yields rose as recession fears caused a flight to quality.”

As investors selected safer bonds, they sold low-rated bonds, which placed downward pressure on prices of low-rated bonds and upward pressure on yields of low-rated bonds. Thus, the risk premium of low-rated bonds increased.

- c. “The shift from an upward-sloping yield curve to a downward-sloping yield curve is sending a warning about a possible recession.”

If the shift is due to changes in interest rate expectations, it suggests that interest rates may now be expected to decline. Such expectations can occur when the market expects that economic growth is slowing or is negative.

Managing in Financial Markets

As an analyst at a bond rating agency, you have been asked to interpret the implications of the recent shift in the yield curve. Six months ago, the yield curve exhibited a slight downward slope. Over the last six months, the long-term yields declined, while short-term yields remained the same. Analysts stated that the shift was due to revised expectations of interest rates.

- a. Given the shift in the yield curve, does it appear that firms increased or decreased their demand for long-term funds over the last six months?

The lower long-term yields may be attributed to a reduced demand for long-term funds. That is, firms may have reduced their issuance of long-term securities.

- b. Interpret what the shift in the yield curve suggests about the market’s changing expectations of future interest rates.

The yield curve six months ago implied the expectation of a slight decline in interest rates. The yield curve today implied the expectation of a larger decline in interest rates.

- c. Recently, an analyst argued that the underlying reason for the yield curve shift was that many of the large U.S. firms anticipate a recession. Explain why an anticipated recession could force the yield curve to shift as it has.

When the economic conditions are expected to deteriorate, the demand for loanable funds by firms tends to decrease (because firms reduce their borrowing when they cut back on their expansion plans). Therefore, the long-term yields decline, and the yield curve developed a steeper downward slope. So this shift in the yield curve can indicate to the market that firms are reducing their amount of borrowing, in response to their assessment of future economic conditions.

- d. What could the specific shift in the yield curve signal about the ratings of existing corporate bonds? What types of corporations would be most likely to experience a change in their bond ratings as a result of the specific shift in the yield curve?

To the extent that the downward shift in the yield curve signals an anticipated recession (or at least a reduction in economic growth), it could also signal that the creditworthiness of some corporations will decline. Therefore, the bond ratings of some corporations would be downgraded.

Corporations that are more sensitive to economic downturns would be more susceptible to a bond rating downgrade in response to a yield curve shift that signals an anticipated recession.

Problems

1. **Forward Rate.** a. Assume that as of today, the annualized two-year interest rate is 13 percent, while the one-year interest rate is 12 percent. Use only this information to estimate the one-year forward rate.

ANSWER:

$$\begin{aligned} {}_{t+1}r_1 &= \frac{(1 + {}_t i_2)^2}{(1 + {}_t i_1)} - 1 \\ &= \frac{(1.13)^2}{1.12} - 1 \\ &= 14.01\% \end{aligned}$$

- b. Assume that the liquidity premium on a two-year security is 0.3 percent. Use this information to re-estimate the one-year forward rate.

ANSWER:

$$\begin{aligned} {}_{t+1}r_1 &= \frac{1.13^2}{1.12} - 1 - \left[\frac{.003}{(1 + .12)} \right] \\ &= 13.74\% \end{aligned}$$

2. **Forward Rate.** Assume that as of today, the annualized interest rate on a three-year security is 10 percent, while the annualized interest rate on a two-year security is 7 percent. Use only this information to estimate the one-year forward rate two years from now.

ANSWER:

$$\begin{aligned} (1 + {}_t i_3)^3 &= (1 + {}_t i_2)^2 (1 + {}_{t+2}r_1) \\ {}_{t+2}r_1 &= \frac{(1 + {}_t i_3)^3}{(1 + {}_t i_2)^2} - 1 \\ &= \frac{1.10^3}{1.07^2} - 1 \\ &= 16.25\% \end{aligned}$$

3. **Forward Rate.** If ${}_t \dot{i}_1 > {}_t \dot{i}_2$, what is the market consensus forecast about the one-year forward rate one year from now? Is this rate above or below today's one-year interest rate? Explain.

ANSWER:

The one-year forward rate one year from now is:

$${}_{t+1}r_1 = \frac{(1 + {}_t i_2)^2}{(1 + {}_t i_1)} - 1$$

If $i_1 > i_2$, then the one-year forward rate one year from now must be below today's one-year interest rate.

4. **After-tax Yield.** You need to choose between investing in a one-year municipal bond with a 7 percent yield and a one-year corporate bond with an 11 percent yield. If your marginal federal income tax rate is 30 percent and no other differences exist between these two securities, which one would you invest in?

ANSWER:

$$Y_{at} = Y_{bt}(1 - T)$$

$$Y_{at} = 11\%(1 - 0.30) = 7.7\%$$

[You should prefer the corporate bond.]

5. **Deriving Current Interest Rates.** Assume that interest rates for one-year securities are expected to be 2 percent today, 4 percent one year from now and 6 percent two years from now. Using only the pure expectations theory, what are the current interest rates on two-year and three-year securities?

ANSWER:

$$(1 + i_2)^2 = (1 + i_1)(1 + {}_{t+1}r_1)$$

$$(1 + i_2)^2 = (1 + 0.02)(1 + 0.04)$$

$$(1 + i_2)^2 = 1.0608$$

$$1 + i_2 = 1.02995$$

$$i_2 = 0.0299$$

$$(1 + i_3)^3 = (1 + i_1)(1 + {}_{t+1}r_1)(1 + {}_{t+2}r_1)$$

$$(1 + i_3)^3 = (1 + 0.02)(1 + 0.04)(1 + 0.06)$$

$$(1 + i_3)^3 = 1.124448$$

$$1 + i_3 = 1.0398$$

$$i_3 = 0.0398$$

6. **Commercial Paper Yield.**

- a. A corporation is planning to sell its 90-day commercial paper to investors offering an 8.4 percent yield. If the three-month T-bill's annualized rate is 7 percent, the default risk premium is estimated to be 0.6 percent and there is a 0.4 percent tax adjustment, what is the appropriate liquidity premium?

ANSWER:

$$Y_{cp,n} = R_{f,n} + DP + LP + TA$$

$$LP = Y_{cp,n} - R_{f,n} - DP - TA$$

$$LP = 8.4\% - 7\% - 0.6\% - 0.4\%$$

$$LP = 0.4\%$$

- b. If due to unexpected changes in the economy the default risk premium increases to 0.8 percent, what is the appropriate yield to be offered on the commercial paper (assuming no other changes occur)?

ANSWER:

$$Y_{cp,n} = R_{f,n} + DP + LP + TA$$

$$Y_{cp,n} = 7\% + 0.8\% + 0.4\% + 0.4\% = 8.6\%$$

7. Forward Rate.

- a. Determine the forward rate for various one-year interest rate scenarios if the two-year interest rate is 8 percent, assuming no liquidity premium. Explain the relationship between the one-year interest rate and the one-year forward rate, holding the two-year interest rate constant.

ANSWER: As the one-year interest rate rises, the forward rate declines. The one-year forward rate is zero once the one-year interest rate is equal to the two-year interest rate, and it becomes negative if the one-year interest rate exceeds the two-year interest rate. The forward rate is reduced when using higher levels of a one-year interest rate, holding a two-year interest rate constant. The smaller the differential between the two-year and one-year interest rates, the lower is the interest rate in the second year that is needed so that the combination of the two one-year rates are equal to the two-year rate.

- b. Determine the one-year forward rate for the same one-year interest rate scenarios in question (a), assuming a liquidity premium of 0.4 percent. Does the relationship between the one-year interest rate and the forward rate changes when considering a liquidity premium?

ANSWER: The general relationship between the one-year interest rate and the one-year forward rate still holds.

- c. Determine how the one-year forward rate would be affected if the quoted two-year interest rate rises, holding the quoted one-year interest rate constant. Also, hold the liquidity premium constant. Explain the logic of this relationship.

ANSWER: The forward rate increases for higher levels of a two-year interest rate. The greater the differential between the two-year and one-year interest rates, the greater is the interest rate in the second year that is needed so that the combination of the two one-year rates are equal to the two-year rate.

- d. Determine how the one-year forward rate would be affected if the liquidity premium rises, holding the quoted one-year interest rates constant. Also, hold the two-year interest rate constant. Explain the logic of this relationship.

ANSWER: The forward rate is reduced for higher levels of the liquidity premium, holding the one-year and two-year interest rates constant. The higher the liquidity premium, the greater the proportion of the interest rate differential (two-year rate minus one-year rate) that is due to interest rate expectations, and the lower is the one-year forward rate.

8. After-tax Yield. Determine how the after-tax yield from investing in a corporate bond is affected by higher tax rates, holding the before-tax yield constant. Explain the logic of this relationship.

ANSWER: The after-tax yield is reduced for higher levels of the tax rate, holding the before-tax yield constant. The higher the tax rate, the greater the proportion of the before-tax yield that is allocated for taxes, and the smaller the proportion of the before-tax yield retained by the investor.

9. Debt Security Yield.

- a. Determine how the appropriate yield to be offered on a security is affected by a higher risk-free rate. Explain the logic of this relationship.

ANSWER: The appropriate yield to be offered on a security would need to be increased if the risk-free rate rises. A higher yield would be necessary to place the security, as investors still want a particular premium above the risk-free rate.

- b. Determine how the appropriate yield to be offered on a security is affected by a higher default risk premium. Explain the logic of this relationship.

ANSWER: The appropriate yield to be offered on a security would need to be increased if the default premium on the security increased, because the investors would require a higher return to compensate for the higher default risk.

Flow of Funds Exercise**Influence of the Structure of Interest Rates**

Recall that Carson Company has obtained substantial loans from finance companies and commercial banks. The interest rate on the loans is tied to the six-month Treasury bill rate (and includes a risk premium) and is adjusted every six months. Thus, Carson's cost of obtaining funds is sensitive to interest rate movements. Because of its expectations that the U.S. economy will strengthen, Carson plans to grow in the future by expanding its business and through acquisitions. Carson expects that it will need substantial long-term financing to finance its growth, and plans to borrow additional funds either through loans or by issuing bonds. It is also considering the issuance of stock to raise funds in the next year.

- a. Assume that the market's expectations for the economy are similar to those of Carson. Also assume that the yield curve is primarily influenced by interest rate expectations. Would the yield curve be upward sloping or downward sloping? Why?

The yield curve would be upward sloping to reflect the expectations of rising interest rates along with a liquidity premium for debt securities with longer maturities.

- b. If Carson could obtain more debt financing for 10-year projects, would it prefer to obtain credit at a long-term fixed interest rate, or at a floating rate. Why?

The prevailing interest rate would be lower on loans than on the bonds, but the interest rate on loans would increase over time if market interest rates rise. Therefore, Carson may be willing to lock in the cost of debt by issuing bonds rather than be subjected to the uncertainty if it obtains floating-rate loans.

- c. If Carson attempts to obtain funds by issuing 10-year bonds, explain what information would help to estimate the yield it would have to pay on 10-year bonds. That is, what are the key factors that would influence the rate it would pay on the 10-year bonds?

The key factors are the risk-free rate on 10-year bonds, the risk premium, and any special provisions on the bond. The yield to be offered is equal to a risk-free rate on ten-year bonds plus a risk premium to reflect the possibility of Carson's default, plus an adjustment for any special features of the bond.

- d. If Carson attempts to obtain funds by issuing loans with floating interest rates every six months, explain what information would help to estimate the yield it would have to pay over the next ten years. That is, what are the key factors that would influence the rate it would pay over the 10-year period?

The key factors are the risk-free rate on six-month T-bills, and the risk premium. The cost of debt in this case changes over time, and is dependent on how T-bill rates move over time.

- e. An upward-sloping yield curve suggests that the initial rate that financial institutions could charge on a long-term loan to Carson would be higher than the initial rate that they could charge on a loan that floats in accordance with short-term interest rates. Does this imply that creditors should prefer to provide a fixed-rate loan rather than a floating-rate loan to Carson? Explain why Carson's expectations of future interest rates are not necessarily the same as those of some financial institutions.

Creditors may prefer to provide fixed-rate loans if they expect interest rates to decline (so that they could lock in today's rate on their loan) and floating-rate loans if they expect interest rates to increase. Creditors may have different opinions than Carson Company about the macroeconomic conditions in the future, and how those conditions will affect interest rates. Therefore, they may have different expectations about future interest rates.

Solution to Integrative Problem for Part I

Interest Rate Forecasts and Investment Decisions

1. The appropriate recommendation requires a rational forecast of U.S. interest rates based on the information provided. A rational forecast can be created by recognizing what factors will or will not influence future interest rates, and weighing the potential influence of any relevant factors. Each of the nine pieces of information provided to the student is addressed below:
 1. Movements in interest rates over the year surely affected bond prices, but this information does not help forecast future interest rates.
 2. Changes in economic conditions over the last year affected interest rates (and therefore bond prices), but this information does not help forecast future interest rates.
 3. A slight decline in the U.S. savings rate should place slight upward pressure on U.S. interest rates, other things being equal.
 4. No impact anticipated.
 5. A stronger U.S. economy should place upward pressure on U.S. interest rates, regardless of the economy two years ago. What is important is the change in the future U.S. economy relative to present conditions, because U.S. bond prices today reflect present U.S. interest rates. Any change

in the U.S. demand for loanable funds will change the U.S. interest rates, forcing investors to revalue U.S. bonds.

6. An increase in the annual U.S. budget deficit (relative to the present period) causes an increase in U.S. demand for loanable funds, and therefore places upward pressure on U.S. interest rates.
7. An increase in the U.S. inflation rate causes an increase in the demand for loanable funds, and therefore places upward pressure on U.S. interest rates.
8. The expectation of a weaker dollar by investors around the world could cause foreign investors to reduce their investing in the United States, causing a net decline in the supply of funds in the United States provided by foreign investors. Consequently, there is upward pressure on U.S. interest rates.
9. The market's expectations about future interest rates in the United States are implied by the U.S. yield curve. Based on the downward slope, and an assumed small liquidity premium, the U.S. interest rates are expected by the market to decline. However, recall that you are basing your decision on your own assessment of future interest rates, not the market's assessment. Therefore, you should not use the yield curve as input to your decision.

Overall, Numbers 1, 2, 4, and 9 should have no influence on your forecast of U.S. interest rates. Number 3 suggests a slight decline in U.S. interest rates, while Numbers 5, 6, 7, and 8 suggest an increase in U.S. interest rates. The net effect is an expected increase in U.S. interest rates.

2. Following the same procedure as stated in Question 1, you can develop a rational forecast of Canadian interest rates. The assessment of Canadian bonds must be separated from the assessment of U.S. bonds since Canadian Treasury bond values will not always move in tandem with U.S. Treasury bond values.

Most of the information is either irrelevant for forecasting future interest rates in Canada or suggests no change. The only factors that influence Canadian interest rates and are expected to change are Canadian inflation and the value of the Canadian dollar. The expected decline in Canadian inflation should place downward pressure on Canadian interest rates. The appreciation of the Canadian dollar anticipated by investors around the world could cause the supply of funds in Canada to increase (as Canadian investors retain more funds in Canada, and U.S. investors may shift some of their investment to Canada to capitalize on the exchange rate effect). Consequently, there is downward pressure on Canadian interest rates.

3. The yield on newly issued U.S. corporate bonds should rise to a greater degree than newly issued U.S. Treasury bonds, because the change in the yield of newly issued corporate bonds should reflect not only the increase in the risk-free rate, but also the increase in the risk premium.