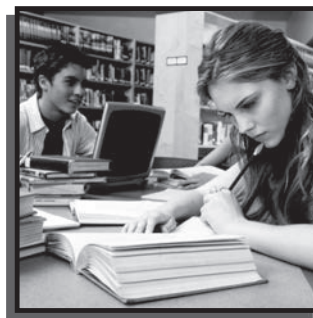


LESSON 5

WHAT IS A BOND?



LESSON 5

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LESSON DESCRIPTION

In this lesson the students learn what bonds are and how bonds work. They learn basic terminology related to bonds. They participate in a simulation activity aimed at showing that bonds are certificates of indebtedness, similar to an IOU note. Finally, they explore credit ratings in order to determine the relationship between ratings and bond coupons.

INTRODUCTION

Corporations and local, state, and federal governments often want to raise money in order to buy new equipment, pay off debts, or finance general operations. They sometimes borrow this money from the public by selling bonds. A bond is an “I owe you” certificate given to a lender (the holder of the bond) by a borrower (the bond seller). The bond states the terms of this special kind of loan: that the borrower will pay back the entire amount borrowed (called the principal) and will pay the lender something additional (an interest payment) for the use of his or her money. The borrower promises to pay back the loan on a particular day (the bond’s maturity date), at a predetermined rate of interest (the bond’s coupon rate).

Buying a bond is like buying stock, since each such purchase is an investment. But stocks differ from bonds in an important way: stocks make no promises about paying the stockholder dividends or returns. For example, Company X may generate enough profit to permit a dividend for all stockholders in the company, but Company X is under no obligation to pay out such a dividend. It may decline to do so. Also, it is possible that the price of Company X stock might fall over time. If Company X issues a bond, however, the company promises to pay back the principal (the face value of the bond) plus interest. If you purchase a

bond from Company X and hold it to maturity, you can calculate how much you’re supposed to be paid back by the company. Government-issued bonds (particularly those issued by the U.S. government) carry very little risk; bonds issued by corporations carry more risk. Part of this risk is measured by the credit rating of the bond’s issuer. Such ratings are indicators of the ability of a corporation or a government to repay its debts. In general, bond-rating agencies rate bonds on a scale from Aaa (highest quality) to C (no interest paid, bankruptcy filed, or in default). These ratings help investors make decisions about which bonds to buy.

CONCEPTS

Bond

Bond rating

Coupon

Coupon bond

Coupon rate

Face value

Maturity date

Par value

Risk

Zero-coupon bond

OBJECTIVES

Students will:

- Explain what a bond is and how bonds are used by governments and corporations.
- Define *face value*, *coupon*, and *maturity date*.
- Distinguish between coupon bonds and zero-coupon bonds.

- Identify the relationship between a bond's rating, risk, and rate of return.

CONTENT STANDARDS

Voluntary National Content Standards in Economics, 2nd Edition

- Standard 2:** Effective decision making requires comparing the additional costs of alternatives with the additional benefits. Many choices involve doing a little more or a little less of something: few choices are “all or nothing” decisions.
- Standard 12:** Interest rates, adjusted for inflation, rise and fall to balance the amount saved with the amount borrowed, which affects the allocation of scarce resources between present and future uses.

National Standards in K-12 Personal Finance Education, 3rd Edition

- Financial Responsibility and Decision Making Standard 4:** Make financial decisions by systematically considering alternatives and consequences.
- Saving and Investing Standard 3:** Evaluate investment alternatives.
- Saving and Investing Standard 4:** Describe how to buy and sell investments.
- Saving and Investing Standard 6:** Investigate how agencies that regulate financial markets protect investors.

TIME REQUIRED

90 minutes

MATERIALS

- Slides 5.1, 5.2, 5.3, and 5.4
- Activity 5.1: Investor Dollars. Photocopy and cut out enough \$100 slips so that, on average, each lender (one-half of the students) has \$200. That is, if

there are 13 lenders, cut out no more than 26 \$100 slips.

- Activity 5.2: Role Cards and IOU slips. Photocopy and cut out enough role cards and IOU slips for one-half of the students.
- One copy of Activity 5.3, 5.4, and 5.5 for each student

PROCEDURE

- Briefly introduce the topic of borrowing. Mention that some people disapprove of borrowing. Ask the students to describe situations in which they have borrowed something—some money, perhaps, or a bicycle or an article of clothing. Discuss these instances briefly. Raise a question, “If borrowing is a bad thing, as some people say, why do people borrow so often?” Ask the students to list several reasons why people might choose to borrow.

(To buy a car, buy a house, pay for college, and so on.)

- Continue the discussion by asking the students if they have ever lent something to someone. If they have, what did they lend and why did they lend it? Guide the discussion to another question: “Would you be more likely to lend to people who promised to pay you back with more than you lent them?” Discuss responses briefly. Explain that, to follow up on these discussions, the students will play a game that involves the concepts of lending and borrowing.
- Organize the class in two groups of equal size. Assign one group (half of the students) to be lenders. **Distribute \$100 slips (from Activity 5.1)** to the lenders so that, on average, each lender has \$200. Do not give all the lenders \$200; give some lenders \$100 and some \$300. Tell the lenders that they will do some lending and that their goal

in making loans is to get the greatest return they can on their money. They should seek out the borrowers who offer the best terms.

4. Assign the other half of the class to be borrowers. **Distribute one role card and three IOU slips (from Activity 5.2)** to each borrower. Tell the borrowers that their goal is to sell all their IOU slips to the lenders.
5. Tell the students that they will have five to ten minutes to move about the classroom to sell and buy IOU slips.
6. When time has elapsed, have the students return to their seats. Ask the following questions:
 - A. How many lenders lent all their money?
(All should have.)
 - B. How many borrowers sold all their IOU slips?
(There should be several students who were not able to sell all, or any, of their slips.)
 - C. Why were the lenders willing to buy some IOUs and not others?
(Answers will vary. Some lenders are likely to state that some borrowers probably would be unable to pay back their loans—for example, the borrower who wanted to open the ice cream stand at the skating rink.)
7. Tell the lenders to assume that a year has passed; now it is time to collect on their IOUs. **Display Slides 5.1 and 5.2.** Ask the lenders to write down the payments they received from their borrowers. Ask for a show of hands of lenders who received at least the amount they lent; and from those who received a payment in excess of the amount they lent; and from those who received

a payment less than the amount they lent. Ask why some lenders made a return while others did not. Discuss the responses.

8. Tell the students that, like individuals, governments and corporations often need to raise money for equipment, expansion, or operations. For these purposes, governments and corporations often borrow money, using something called a *bond*. Explain that a bond is a certificate of indebtedness—that is, an IOU certificate given to a lender (the purchaser of the bond) by a borrower (the corporation or government issuing the bond).
9. **Distribute a copy of Activity 5.3** to each student. Tell the students to read the first three sections of this activity. **Ask:** What are the main differences between government bonds and corporate bonds?
(U.S. government bonds are backed by the U.S. government and thus are less risky than corporate bonds.)
10. Have the students read the section of Activity 5.3 titled How Bonds Work. At the same time, **display Slides 5.3 and 5.4.** Point out the difference between a coupon and a zero-coupon bond. Explain that a coupon bond pays out interest at set intervals, with a final payment that includes the original principal (or par value) at the maturity date. A zero-coupon bond, on the other hand, pays all the interest and the principal of the bond at the maturity date. **Ask:** Why would a person purchase a coupon bond rather than a zero-coupon bond?
(Someone who wants a steady income stream, such as a retiree, might prefer a coupon bond.)
11. Have the students complete their reading of Activity 5.3. Ask them to list

several reasons why investors would buy bonds, particularly in light of the fact that, over time, stocks have outperformed bonds.

(Less risk and the certainty of fixed income over time may make bonds attractive to retired people and others who want the income that bonds generate; also, some bonds generate lower tax liability than stocks.)

12. Ask the students to quickly review the terms at the end of Activity 5.3. **Distribute a copy of Activity 5.4** to each student and have the students complete the Bond Quiz. Discuss their answers: *Answers: 1. c, 2. a, 3. c, 4. b, 5. b.*
13. Ask the students to recall the IOU activity. How many lenders received less than their promised payment? Would they have made different decisions if they had known more in advance about the borrowers? *(Probably so.)* Explain that, for the same reason, people who buy bonds also would like to know about bond issuers. That is why bonds are often rated; the ratings are intended to provide information to investors about the level of risk associated with particular bonds. Make the point that these ratings, provided by bond-rating services, are only estimates. Estimates are sometimes incorrect, particularly during a financial crisis. (Note: If time permits, discussion could touch on the role of the rating agencies in the financial crisis of 2007-2008. See Lawrence J. White, "Markets: The Credit Rating Agencies," *Journal of Economic Perspectives* 24 (2), Spring 2010, pp. 211-226.)
14. **Distribute a copy of Activity 5.5** to each student. Have the students read the introduction and examine the Moody's Investor Service bond-rating categories. Explain that Moody's, as

well as two other rating agencies (Fitch and Standard and Poors), provide valuable information about the likelihood that governments and corporations will be able to pay off their bond obligations. The lower the rating, the more likely a firm or government will default on the bonds and not be able to pay the interest and principal back to investors.

15. Ask the students to examine the table with selected coupon rates across various Moody's ratings. Explain that these are real data drawn from actual bonds that had a one-year maturity date. Ask them to complete the table by calculating the average coupon rates for the selected Moody's ratings categories.

(Average coupons: Aaa: 4.50, Aa: 6.60, Baa: 8.42, Caa: 9.79, C: 12.08.)

16. Once the students have calculated these rates, have them plot the average coupon rate for each rating on the figure titled Average Coupon Rates for Sample Bonds by Selected Moody's Ratings. Upon completion, have the students answer the **Questions for Discussion**.

(A. An inverse relationship: as bond ratings fall, coupon rates rise; B. Corporations with poor ratings must offer higher rates in order to overcome investor concern about the risk of default; C. Investors who buy C-rated bonds do so because, for these investors, the hope of high returns outweighs the potential risks involved.)

CLOSURE

17. Review the main points of the lesson, using these questions:

A. What is a bond?

(A bond is a certificate acknowledging a loan from the lender to a government or corporation.)

B. Why would someone buy a bond?

(To earn income. The bond's issuer promises to pay a specified rate of interest during the life of the bond and to repay the original loan. There is also the possibility of reselling the bond for a capital gain rather than holding it to maturity.)

C. Which type of bond is the least risky for investors? Why?

(U.S. government bonds are the least risky because they are backed by the U.S. government.)

D. What is a U.S. savings bond?

(U.S. savings bonds are issued by the U.S. government and are available in smaller denominations than other U.S. bonds. They are issued at half the face value and mature at face value at a date in the future.)

E. What is a municipal bond?

(A bond issued by a state or local government.)

F. What is a major tax benefit of holding municipal bonds?

(The bondholder does not have to pay federal tax on the interest.)

G. If corporate bonds are riskier than U.S. government bonds, why do people buy corporate bonds?

(Corporate bonds generally pay a higher interest rate.)

H. What is the difference between a coupon bond and a zero-coupon bond?

(A coupon bond pays interest at fixed intervals; a zero-coupon bond pays all of its interest and principal at the bond's maturity date.)

ASSESSMENT

Multiple-Choice Questions

1. What is a bond?
 - a. a certificate of ownership in a corporation, with the right to a share of the earnings
 - b. *a certificate representing a loan from an investor to a corporation or government entity*
 - c. a payment from an investor to a corporation for the rights to future profits
 - d. a group of stocks sold together for a set price
2. A bond that pays all of its interest and principal at the bond's maturity date is called a
 - a. *zero-coupon bond.*
 - b. bond fund.
 - c. coupon bond.
 - d. par-value bond.
3. Generally speaking, which of the following best describes the relationship between a bond's coupon rate and its credit rating?
 - a. The relationship cannot be determined.
 - b. As the bond's rating improves, the coupon rate increases.
 - c. As the bond's rating declines, the coupon rate decreases.
 - d. *As the bond's rating improves, the coupon rate decreases.*

4. All of the following are reasons to buy bonds except
 - a. bonds may outperform the stock market during certain periods of time.
 - b. *bonds generally have outperformed the stock market over the last 100 years.*
 - c. bonds pay out interest at set intervals, allowing people to live off the income.
 - d. investing in bonds may generate less tax liability than investing in stocks.

Constructed-Response Items

1. Explain why bond ratings, such as those provided by Moody's Investors Service, are important for investors.
(Bond ratings address the risk of default and the relationship between credit rating and the coupon rate. These services save investors time and resources that they might otherwise have to spend researching bonds on their own.)
2. Describe the difference between a coupon bond and a zero-coupon bond.
(Coupon bond: coupon [interest] payments set at fixed intervals; final payment at maturity includes the principal plus the final coupon value. Zero-coupon bond: purchased at a price below the par [face] value, no interest payments made until maturity when the principal and accumulated interest are paid.)

ACTIVITY 5.1
INVESTOR DOLLARS

\$100	\$100	\$100
\$100	\$100	\$100
\$100	\$100	\$100
\$100	\$100	\$100
\$100	\$100	\$100
\$100	\$100	\$100
\$100	\$100	\$100

ACTIVITY 5.2
ROLE CARDS AND IOUs

You are trying to raise \$300 to buy a new bike in order to expand your already successful paper route. <i>Role Card 1</i>	IOU: For lending me \$100, I agree to pay you \$110 at the end of the year. Signed, <i>Paper route mogul</i>
IOU: For lending me \$100, I agree to pay you \$110 at the end of the year. Signed, <i>Paper route mogul</i>	IOU: For lending me \$100, I agree to pay you \$110 at the end of the year. Signed, <i>Paper route mogul</i>
You are trying to raise \$300 to buy a new bicycle in order to hang out with your friends in a bike club. <i>Role Card 2</i>	IOU: For lending me \$100, I agree to pay you \$120 at the end of the year. Signed, <i>Future bike club member</i>
IOU: For lending me \$100, I agree to pay you \$120 at the end of the year. Signed, <i>Future bike club member</i>	IOU: For lending me \$100, I agree to pay you \$120 at the end of the year. Signed, <i>Future bike club member</i>

You are trying to raise \$300 for tuition payments to the local art school. Once you finish school, you plan to put your talents to work for Disney Studios as an animator. Role Card 3	IOU: For lending me \$100, I agree to pay you \$110 at the end of the year. Signed, <i>Future Disney animator</i>
IOU: For lending me \$100, I agree to pay you \$110 at the end of the year. Signed, <i>Future Disney animator</i>	IOU: For lending me \$100, I agree to pay you \$110 at the end of the year. Signed, <i>Future Disney animator</i>
You are trying to raise \$300 for tuition payments to the local art school. Once you finish school, you plan to put your talents to work as a graffiti artist, “tagging” buildings at night. Role Card 4	IOU: For lending me \$100, I agree to pay you \$120 at the end of the year. Signed, <i>Future graffiti vandal</i>
IOU: For lending me \$100, I agree to pay you \$120 at the end of the year. Signed, <i>Future graffiti vandal</i>	IOU: For lending me \$100, I agree to pay you \$120 at the end of the year. Signed, <i>Future graffiti vandal</i>

You are trying to raise \$300 to buy a new lawn mower for your landscaping business. Business has been so good that you need another mower to meet the demand. Role Card 5	IOU: For lending me \$100, I agree to pay you \$110 at the end of the year. Signed, <i>Lawn maintenance mogul</i>
IOU: For lending me \$100, I agree to pay you \$110 at the end of the year. Signed, <i>Lawn maintenance mogul</i>	IOU: For lending me \$100, I agree to pay you \$110 at the end of the year. Signed, <i>Lawn maintenance mogul</i>
You are trying to raise \$300 to start a hot chocolate stand you want to open this summer in front of the local pool. You are convinced that, even in the heat of summer, people want the “heartwarming feeling that a good cup of hot cocoa brings.” Role Card 6	IOU: For lending me \$100, I agree to pay you \$110 at the end of the year. Signed, <i>Hot cocoa entrepreneur</i>
IOU: For lending me \$100, I agree to pay you \$110 at the end of the year. Signed, <i>Hot cocoa entrepreneur</i>	IOU: For lending me \$100, I agree to pay you \$110 at the end of the year. Signed, <i>Hot cocoa entrepreneur</i>

You are trying to raise \$300 to start an ice cream stand this winter in front of the local outdoor ice skating rink. You are convinced that, even in the cold of winter, people want the “feeling of summer that an ice cream cone covered with sprinkles brings.” Role Card 7	IOU: For lending me \$100, I agree to pay you \$120 at the end of the year. Signed, <i>Ice cream entrepreneur</i>
IOU: For lending me \$100, I agree to pay you \$120 at the end of the year. Signed, <i>Ice cream entrepreneur</i>	IOU: For lending me \$100, I agree to pay you \$120 at the end of the year. Signed, <i>Ice cream entrepreneur</i>
You are trying to raise \$300 to start a t-shirt printing business at your school. You have conducted a survey of your classmates and are convinced that students will eagerly buy your custom designed t-shirts. Role Card 8	IOU: For lending me \$100, I agree to pay you \$110 at the end of the year. Signed, <i>Future t-shirt mogul</i>
IOU: For lending me \$100, I agree to pay you \$110 at the end of the year. Signed, <i>Future t-shirt mogul</i>	IOU: For lending me \$100, I agree to pay you \$110 at the end of the year. Signed, <i>Future t-shirt mogul</i>

ACTIVITY 5.3

THE ABCs OF BONDS

What Are Bonds?

Imagine that you are in the ice cream store with a friend on a Thursday evening and want to get a hot fudge sundae, but you realize you don't have any cash. You know you'll be getting your paycheck the next day, so you ask your friend to lend you a few dollars so you can have the sundae now. In return for the loan, you agree to pay your friend back tomorrow and buy lunch on Saturday as well. You may even write out the amount owed on a slip of paper, an "I.O.U." Your friend, finding these terms to his liking, lends you the money, and you enjoy a delicious sundae.

Governments and corporations often find themselves short of cash, just as you were on Thursday. One way to generate these needed resources is to issue *bonds*. A bond is similar to an I.O.U. When you purchase a bond, you are lending money to a government, a corporation, or some other entity, known as the bond *issuer*. In exchange for this loan, the issuer promises to pay you a specified rate of interest during the life of the bond and to repay the original loan (referred to as the *face value* or *par value* of the bond) when it comes due at its *maturity date*.

U.S. Government Bonds

When the U.S. government spends more than it collects in taxes, it borrows money by issuing bonds to cover the difference. The bonds issued by the U.S. government are called Treasury bonds. A special type of Treasury bond is a U.S. savings bond. U.S. savings bonds are issued in smaller amounts than other Treasury bonds. They are issued at half the face value and mature at face value at a date determined by the interest rate. For example, a \$1,000 face value U.S. savings bond might sell for \$500 today and, at the date of maturity, be redeemable for \$1,000 (the face value). Treasury bonds and U.S. savings bonds are widely regarded as the safest bond investments, even in times of financial crisis. U.S. bonds are considered safest because they are backed by "the full faith and credit" of the U.S. government; an investor is therefore nearly certain to get paid back. In addition, the interest paid on U.S. government bonds cannot be taxed by state or local governments.

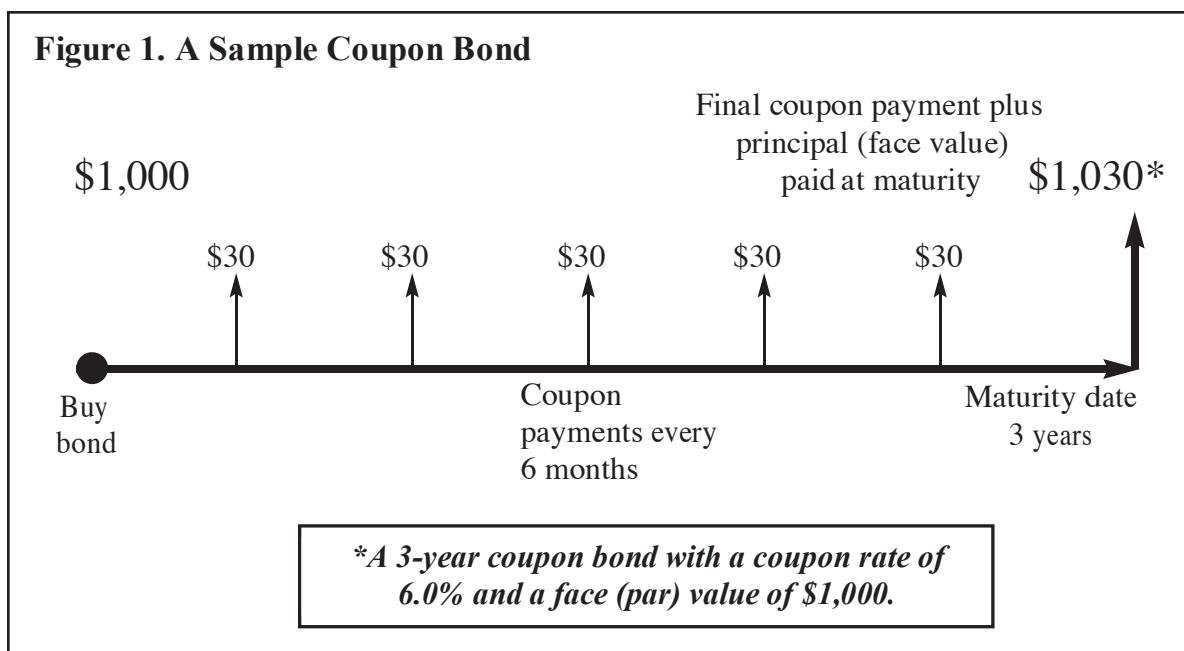
Municipal bonds are issued by states, counties, cities, towns, villages, and other units of local government. These bonds are considered fairly safe, but they are riskier than U.S. government bonds. The risk level for a municipal bond depends on the financial condition of the state or local government that issued it. The interest paid on most municipal bonds is not taxed by the federal government.

Corporate Bonds

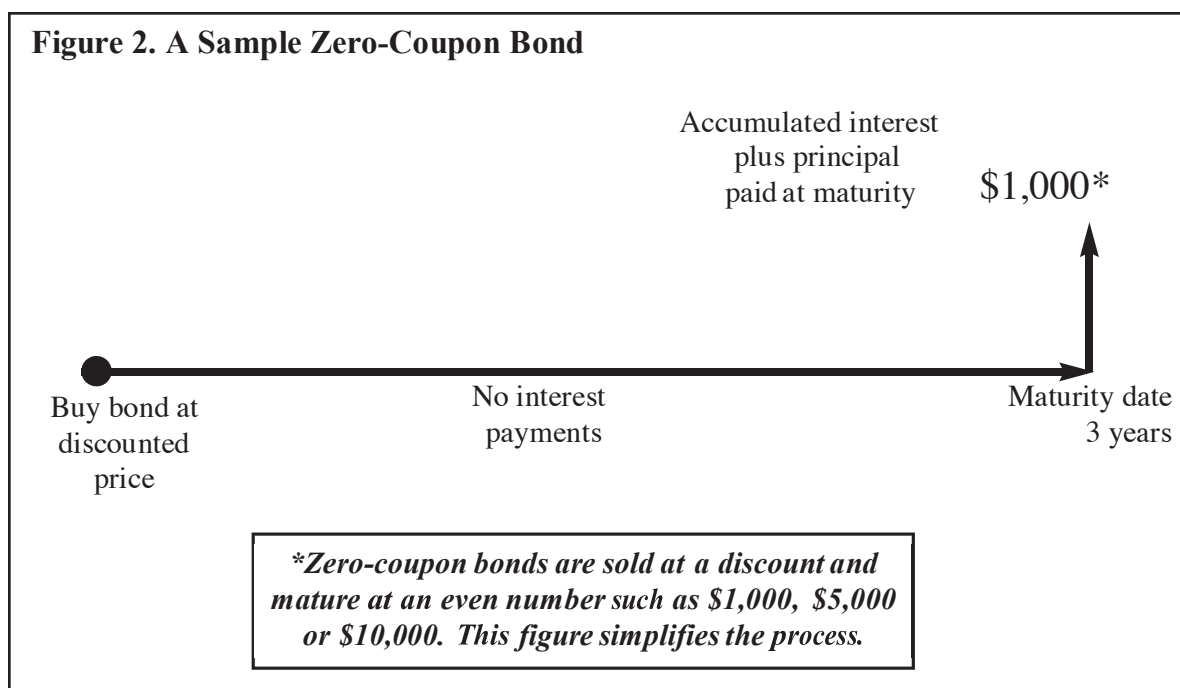
As corporations grow, they often don't generate enough money to pay for the supplies necessary to keep growing. Many corporations issue bonds to pay for new capital equipment or to cover operating expenses. When a company issues bonds, it borrows money from investors in exchange for agreeing to pay them interest on their money at a set date in the future. Corporate bonds are generally riskier than government bonds because even large, stable companies are much more likely to go out of business than the U.S. government. Corporate bonds can also be the most lucrative bonds to invest in, as the investor is generally rewarded for the extra risk undertaken.

How Bonds Work

The most basic bond is called a *coupon bond*. Coupon bonds pay out an interest payment (called the *coupon*) to the investor every six months. The *principal* (also called the *face value* or *par value* of the bond) is paid to the investor at a specified *maturity date*, which can range from a few months to 30 years. These bonds are said to be *fixed-income* securities because the amount the investor receives is set, or fixed, by the coupon rate. Figure 1 presents a timetable showing how coupon payments work.



The other common bond is called a *zero-coupon bond*. Unlike coupon bonds, zero-coupon bonds do not make periodic interest payments to the investor. Rather, investors buy the bond at a reduced face value; then, at the maturity date, investors receive one payment. The payment is equal to the principal of the bond plus the interest that has accumulated during the time the bond has been held by the investor. Someone saving for a small child's future college expenses might use zero coupon bonds, set to pay off at the beginning of the college years. A U.S. savings bond is an example of a zero-coupon bond. Figure 2 presents a time-table graph showing how zero-coupon bonds work.



Why Buy a Bond?

Over the last 100 years, the stock market has provided, on average, higher returns than other forms of investment. So why not just invest in stocks? Although bonds do not provide the same rate of return as stocks in the long run, they have several characteristics that investors value.

First, safety. Many bonds provide investors with relatively safe investments. Treasury bondholders can be almost certain that they will receive the amount they originally invested, plus interest, and corporate bondholders can have nearly the same certainty. By contrast, investors can lose their entire investment in individual stocks; in fact, that outcome occurs frequently—as it did, for some investors, in the recession of 2007-2009.

Second, regular income. Coupon bonds pay interest to investors at set intervals, and this arrangement can provide valuable income for those who need a regular cash flow—retirees, for example. If someone owned \$100,000 worth of coupon bonds that paid 8 per cent interest annually (that would be \$8,000 per year), one-half of that interest would be sent to the bondholder every six months, providing income to invest elsewhere.

Third, capital gains. Some people buy bonds to earn capital gains. Bond prices tend to change with interest rates. When interest rates fall, bond prices rise. When interest rates rise, existing bond prices fall. Some people buy bonds to make capital gains when interest rates fall. To do this, you must sell a bond at a new, higher price before the maturity date.

Fourth, taxes. Bonds can also provide a tax advantage. When a government issues bonds to raise money to build bridges or roads, the interest investors earn can be tax-exempt. Earnings on U.S. Treasury bonds are exempt from state and local taxes. Earnings on municipal bonds are exempt from federal taxes. Tax exemption can be an important factor for those who are eager to reduce the amount they pay in taxes.

A Review of Bond Terminology

Bond	Bonds are similar to an I.O.U. When you buy a bond, you make a loan to a government or a corporation in return for promised repayment at a specified rate of interest.
Coupon bond	A bond that pays out interest at fixed intervals (usually every six months) over the time the bond is held by the investor.
Coupon	The interest payment on a coupon bond.
Face value	The price an investor pays for a bond (also called par value or principal).
Fixed-income security	An investment in which the amount of income an investor receives is set, or fixed, by the issuer.
Issuer	The entity (government or corporation) that writes the bond purchased by investors.
Maturity date	The date at which the bond matures and the final payment is made to the investor.
Municipal bond	A bond issued by state or local governments.
Par value	The price an investor pays for a bond (also called face value or principal).
Principal	The initial cost of the bond (also known as the par value or face value of the bond).
Zero-coupon bond	A bond whose purchase price is below face value. One payment is made at maturity that includes the principal plus accumulated interest.

ACTIVITY 5.4

A BOND QUIZ

1. What is a bond's coupon rate?
 - a. the value of a bond at its issue date
 - b. the value of a bond at its maturity date
 - c. the percentage interest to be paid by the bond issuer
 - d. the purchase price of a bond
2. A bond's face value may also be called the
 - a. par value.
 - b. coupon.
 - c. maturity.
 - d. final payment.
3. Which of the following is the least risky investment?
 - a. corporate bonds
 - b. stocks
 - c. U.S. Treasury bonds
 - d. mutual funds
4. A bond's interest rate is called its
 - a. par value.
 - b. coupon rate.
 - c. face value.
 - d. principal.
5. A zero-coupon bond pays interest
 - a. periodically.
 - b. at the maturity date.
 - c. at the time of purchase.
 - d. never.

ACTIVITY 5.5

BOND RATINGS

Bonds are generally less risky than stocks. U.S. Treasury bonds carry very little risk for the investor because the U.S. government is unlikely to go bankrupt and default on its bonds. Defaulting means the issuer is unable to make further interest and principal payments to the bond holder. Because corporations can and sometimes do go into bankruptcy, the default risk for corporate bonds is higher than the risk for government bonds.

In order to help individual investors make better decisions about their investments, many corporate bonds are rated by a third-party source such as Moody's Investor Service. These ratings describe the creditworthiness of the issuer. The higher the rating, the less likely the corporation will go into default. Moody's ratings for bonds are as follows:

Moody's Investor Service Bond-Rating Codes

Aaa	Highest quality
Aa	High quality
A	Upper-medium quality
Baa	Medium grade
Ba	Somewhat speculative
B	Low grade, speculative
Caa	Low grade, default possible
Ca	Low grade, partial recovery possible
C	Default, recovery unlikely

These ratings are quite sensitive to perceived risk. Even a small change in perceived risk can make the bond rating change. U.S. Treasury bonds were rated Aaa by all of the major rating services until 2011, when one service downgraded them to Aa. Budget difficulties in Washington had slightly increased the still-tiny probability of a default on Treasury bonds.

Using Bond Ratings: An Exercise

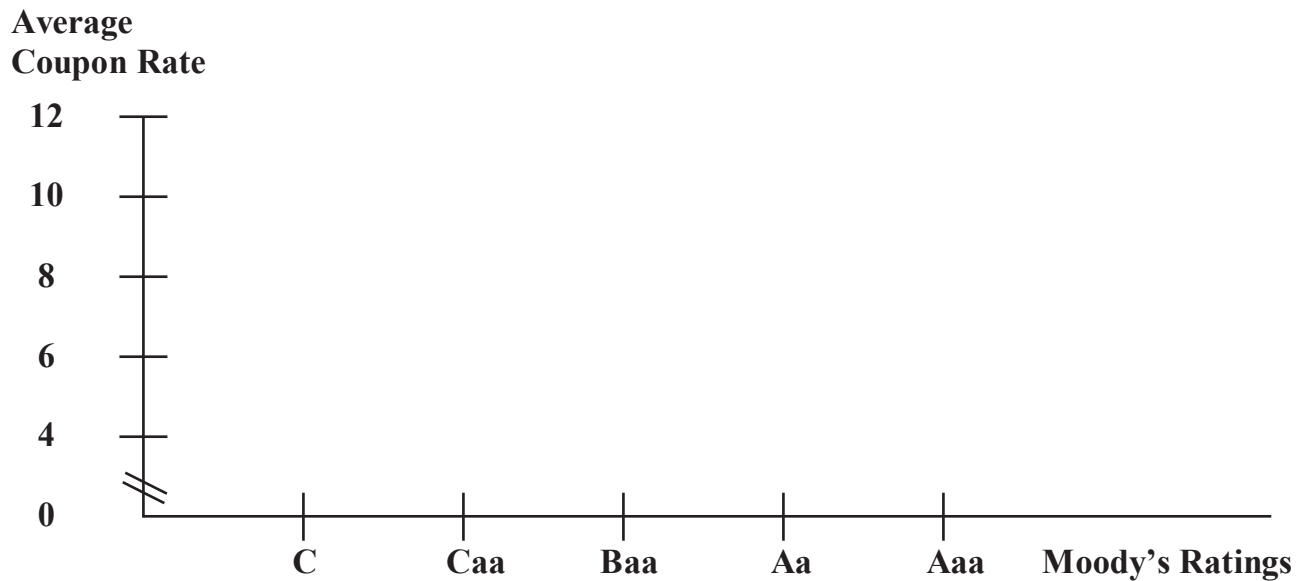
A strong relationship exists between the credit rating of a bond and its coupon rate. This relationship can be determined by examining a few sample cases. The following table reports the coupon rate for three corporate bonds in several of Moody's rating codes. Each of these bonds has a one-year maturity date.

Directions: In the bond rating table that follows, calculate the average coupon rate for each Moody's category. Then enter the average in the third column ("Average").

Moody's Bond Credit Ratings	Coupon Rate	Average	
Category 1: Aaa	Bond 1: 4.125		
Aaa	Bond 2: 5.125		Average coupon for Aaa rated bonds
Aaa	Bond 3: 4.250		
Category 2: Aa	Bond 1: 6.625		
Aa	Bond 2: 6.250		Average coupon for Aa rated bonds
Aa	Bond 3: 6.923		
Category 3: Baa	Bond 1: 8.250		
Baa	Bond 2: 8.875		Average coupon for Baa rated bonds
Baa	Bond 3: 8.125		
Category 4: Caa	Bond 1: 10.125		
Caa	Bond 2: 9.750		Average coupon for Caa rated bonds
Caa	Bond 3: 9.500		
Category 5: C	Bond 1: 11.500		
C	Bond 2: 12.875		Average coupon for C rated bonds
C	Bond 3: 11.875		

Source: Bond coupon rates for coupon bonds with one-year maturity dates issued by corporations; obtained using a search at <http://www.bondpage.com/>.

Now plot these results on the diagram below.



Then answer the following questions.

Questions for Discussion

- A. What is the relationship between bond rating and coupon rate?
- B. Why do corporations with lower credit ratings offer higher coupons or interest rates on their bonds?
- C. Why would investors buy a bond rated Caa or C?

SLIDE 5.1

LESSON 5 - WHAT IS A BOND?	
ONE YEAR LATER	
BORROWER	AFTER ONE YEAR...
You are trying to raise \$300 to buy a new bike in order to expand your already successful paper route.	The bike helped double the size of the paper route. Pay each bearer of this bond \$110.
You are trying to raise \$300 to buy a new bicycle in order to hang out with your friends in a bike club.	The bike club detracted from your school-work, forcing you to quit your after-school job. Pay each bearer of this bond \$100.
You are trying to raise \$300 for tuition payments to the local art school. Once you finish school, you plan to put your talents to work for Disney Studios as an animator.	You finished art school and took a job at MGM Studios. Pay each bearer of this bond \$110.
You are trying to raise \$300 for tuition payments to the local art school. Once you finish school, you plan to put your talents to work as a graffiti artist, "tagging" buildings at night.	You are arrested and spend six months in juvenile hall. Pay each bearer of this bond \$0.00.
You are trying to raise \$300 to buy a new lawnmower for your landscaping business. Business has been so good that you need another mower to meet the demand.	Business improves after the addition of the new mower. Pay each bearer of this bond \$110.

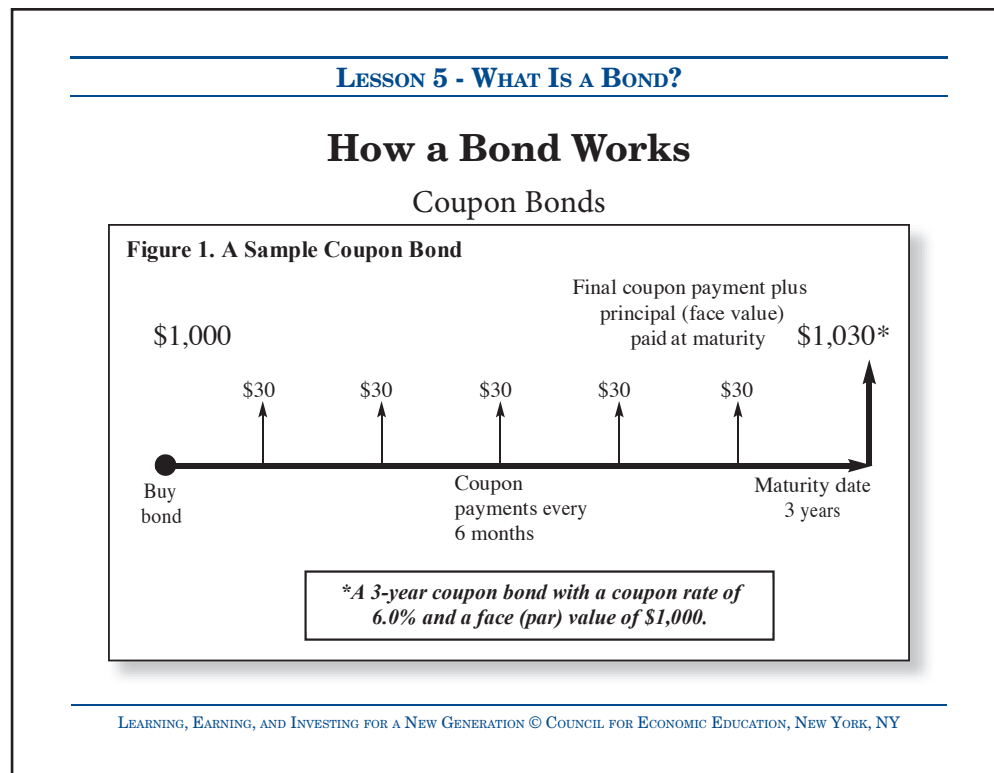
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SLIDE 5.2

LESSON 5 - WHAT IS A BOND?	
ONE YEAR LATER	
BORROWER	AFTER ONE YEAR...
You are trying to raise \$300 to start a hot chocolate stand you want to open this summer in front of the local pool. You are convinced that, even in the heat of summer, people want the "heart-warming feeling that a good cup of hot cocoa brings."	Bad idea! No one wants hot cocoa in 100° heat! Pay each bearer of this bond \$50.
You are trying to raise \$300 to start an ice cream stand this winter in front of the local outdoor ice skating rink. You are convince that, even in the cold of winter, people want the "feeling of summer that an ice cream cone covered with sprinkles brings."	Bad idea! No one wants ice cream in the middle of winter! Pay each bearer of this bond \$50.
You are trying to raise \$300 to start a t-shirt printing business at your school. You have conducted a survey of your classmates and are convinced that students will eagerly buy your custom designed t-shirts.	Great idea! The t-shirt business is a hit with your classmates! Pay each bearer of this bond \$100.

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SLIDE 5.3



SLIDE 5.4

