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# **Building Your Future: Investing**

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*A Student and Teacher Resource  
for Financial Literacy Education*

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The Actuarial Foundation

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## About This Book

Personal finance is part knowledge and part skill – and the *Building Your Future* book series gives students a foundation in both. It addresses knowledge by covering the essential principles of banking in Book One, financing in Book Two, investing in Book Three, and succeeding in Book Four. The series also addresses the mathematical skills that students need to live a financially healthy life. Students will be able to see the real-world consequences of mastering their finances, which helps them understand the relevance of good mathematical skills. We hope you enjoy this *Building Your Future* book series.

The catalyst for this book series was based on an original book authored and donated to The Actuarial Foundation by an actuary, James A. Tilley, FSA, who was interested in financial literacy education in schools. We thank Mr. Tilley for his original works that inspired this *Building Your Future* series.

## About The Actuarial Foundation

The Actuarial Foundation is a 501(c)(3) nonprofit organization. The mission of The Actuarial Foundation is to enhance math education and financial literacy through the talents and resources of actuaries. Through *Advancing Student Achievement*, a program that seeks to improve and enhance student math education in classrooms across the country, we are proud to add *Building Your Future*, a financial literacy education curriculum for teachers and students, to our library of math resources. Please visit the Foundation's Web site at: [www.actuarialfoundation.org](http://www.actuarialfoundation.org) for additional educational materials.

**What is an Actuary?** Actuaries are the leading professionals in finding ways to manage risk. It takes a combination of strong math and analytical skills, business knowledge and understanding of human behavior to design and manage programs that control risk. "Actuary" was included as one of the Best Jobs of 2012 as reported in the Wall Street Journal. To learn more about the profession, go to: [www.BeAnActuary.org](http://www.BeAnActuary.org).

# Building Your Future

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# Building Your Future

## Chapter 1: Bonds



### Did You Know....

Some bonds, like municipal bonds, are exempt from some taxes.

### Key Terms:

- Earnings
- Bond
- Issuer
- Holder
- Coupons
- Certificates
- Face amount
- Coupon rate
- Maturity date
- Price
- Cost of funds
- Fair market price
- Yield to maturity
- Fluctuations

### What You'll Learn

One way to increase the amount of interest you earn on your money is by “lending” money to the government or a business in the form of a bond purchase. Government and corporate bonds offer people the opportunity to invest in a variety of ways that can generate **earnings** while providing a great deal of security.

**earnings**  
*money earned through paid employment, as profit, or from investments*

### Understanding Bonds

Most people who save money do not put all of their money into a bank savings account. While bank savings accounts allow for easy access of funds, these accounts typically don't pay much interest on deposited funds. If you're looking for a way to save money and earn more interest, **bonds** offer you an opportunity to increase your earnings.

**bond**  
*a loan made by an investor to a government or company with the promise that the principal amount borrowed will be repaid, usually with interest, at a specific time, usually a year or more in the future*

Many large companies and governments need to borrow large sums of money so they can have funds to conduct business. When companies or governments decide to borrow, they often opt to “issue,” or sell, bonds. Basically, the investor is loaning his or her money to the company or government knowing that when the specified time is up, he or she will be repaid with interest.

### Career Link

*Actuaries working for government agencies or investment banks help specific organizations determine when to issue bonds, how many bonds to issue, the bonds' price and interest rate, and the maturity date for the bond offering.*

**issuer**

*the government or company that borrows the money*

**holder**

*the person or company who purchases the bond*

**coupons**

*interest payments made by the bond issuer to the bond holder*

**certificates**

*documents issued by a government or company that include the name of the issuer, the interest rate and the bond's maturity date*

**face amount**

*the amount of money borrowed by the issuer*

**coupon rate**

*the annual percentage interest rate paid on the bond*

**maturity date**

*date by which the issuer must repay the principal amount borrowed*

In a bond transaction, there is a bond **issuer** (most often a company or government) and a bond **holder**. Bonds generally require the investment of a larger sum of money, typically \$1,000 or more. Depending on the type of bond, minimum investment amounts can be as high as \$100,000.

Just like any other loan, the borrower must pay interest to the lender. Unlike a bank savings account or a home loan where interest is paid monthly, bond issuers typically pay interest to the holders every six months through **coupons**.

Long ago, all bonds were issued on official papers called **certificates**. Along the certificates' side or bottom were coupons representing the interest payment that was to be made by the issuer on the date specified on the coupon. The bond holder would cut out the coupon and send it to the issuer. After receiving the coupon, the issuer would make the interest payment to the bond holder. Today, bond records are maintained by computers and the interest money owed to the holder is automatically sent to the holder, typically to an account maintained by the holder at an investment firm.

To understand how bond interest is computed, there are several terms you must know. When you purchase a bond, the bond's **face amount** is printed on the front of the bond certificate. If the minimum size of a bond is \$1,000, then the face amount would be \$1,000. The bond's **coupon rate** is also printed on the bond certificate's face.

Another important piece of information on the bond certificate is the **maturity date**. For example, if you purchased a \$1,000 bond on January 1, 2012 and it was a ten-year bond, the maturity date printed on the bond would be January 1, 2022, which is ten years from the date of issue.

The first coupon payment for a typical bond occurs six months after it is issued. If the bond was issued on January 1, 2012, then the first coupon payment would be on July 1, 2012 and the second coupon payment would be on

January 1, 2013. Since the interest is paid twice each year, the interest rate applied to each six-month period is exactly one half of the annual coupon rate.

Try It!

### Examples and Practice

For this example, let's assume that you purchased a \$10,000 bond with an annual coupon rate of 7.00% for a period of ten years. Create a spreadsheet based on this example and answer the questions below.

	A	B	C	D	E	F
1	<b>Date</b>	<b>Face Amount</b>	<b>Annual Coupon Rate</b>	<b>Coupon Payment</b>	<b>Face Amount Repaid</b>	<b>Total Cash Payment Received</b>
2	3/1/2012	\$10,000.00	7.00%	\$350.00	\$0.00	\$350.00
3	9/1/2012	\$10,000.00	7.00%	\$350.00	\$0.00	\$350.00

- How do you calculate the Coupon Payment amount in column D? Describe the mathematical steps for doing this along with the spreadsheet formula you would use.
- How much money will you make each year from this investment? Note that interest from bonds does not compound.
- Over the life of the bond, how much will you receive in total cash payments?

### Bond Pricing

As an investor, it is important to understand how bonds are **priced**. If you are purchasing a newly-issued bond, then the amount you pay for the bond is typically the face amount, and the issuer must pay you the **cost of funds**. However, if you want to purchase a bond some time after the date it was issued, then pricing becomes more complicated.

**price**  
amount the investor must pay for the bond

**cost of funds**  
the interest rate that the issuer must pay on the bond

Assume that it's March 1, 2014, and that you own ten-year bonds purchased in March of 2012 with a face amount of \$10,000, and a coupon rate of 7%. You want to buy an additional \$10,000 in bonds from the same issuer, with the same maturation date, and you want a coupon rate of 7%. There's just one problem: the current interest rate in the financial marketplace is 6%. That means that today, the issuer will sell any new bonds at a coupon rate of 6% and a maturity date of March 1, 2022. The bond still sells for exactly \$10,000. But it does not provide the 7% coupon rate that you want.

There's still a way to purchase an additional \$10,000 in bonds and still receive a 7% coupon rate despite current market conditions: just buy some more of the original bonds (the ones issued in 2012) on the open market. The question is, how much will they cost today?

**Try It!**

**Examples and Practice**

Use the data from the spreadsheet you previously created to find out how much interest the new bond will earn. Answer the questions below.

- How much interest will you earn each year on the new bond?
- Over the course of the bond's life, how much interest will you earn on the new bond?
- Would you be willing to pay more out of pocket to purchase an old bond rather than a new bond? Why?

Earlier you learned the concepts of discount factor and present value. You can use these concepts to determine the price of the old bond. You will remember that we use the discount factor to compute the present value of money at different times in the future. To clearly see how we use this to determine the price of the old bond, study the spreadsheet below.

	A	B	C	D	E	F	G	H	I
1	<b>Six-month Period</b>	<b>Six-month Interest Rate</b>	<b>Beginning Account Balance</b>	<b>Interest Payment</b>	<b>Ending Account Balance</b>		<b>Discount Factor</b>	<b>Period-by-period Bond Payments</b>	<b>Present Value of Bond Payments</b>
2	1	3.00%	\$10,000.00	\$300.00	\$10,300.00		.970874	\$350.00	\$339.81
3	2	3.00%	\$10,300.00	\$309.00	\$10,609.00		.942596	\$350.00	\$329.91
4	3	3.00%	\$10,609.00	\$318.27	\$10,927.27		.915142	\$350.00	\$320.30
5	4	3.00%	\$10,927.27	\$327.82	\$11,255.09		.888487	\$350.00	\$310.97
6	5	3.00%	\$11,255.09	\$337.65	\$11,592.74		.862609	\$350.00	\$301.91
7	6	3.00%	\$11,592.74	\$347.78	\$11,940.52		.837484	\$350.00	\$293.12
8	7	3.00%	\$11,940.52	\$358.22	\$12,298.74		.813092	\$350.00	\$284.58
9	8	3.00%	\$12,298.74	\$368.96	\$12,667.70		.789409	\$350.00	\$276.29
10	9	3.00%	\$12,667.70	\$380.03	\$13,047.73		.766417	\$350.00	\$268.25
11	10	3.00%	\$13,047.73	\$391.43	\$13,439.16		.744094	\$350.00	\$260.43
12	11	3.00%	\$13,439.16	\$403.17	\$13,842.34		.722421	\$350.00	\$252.85
13	12	3.00%	\$13,842.34	\$415.27	\$14,257.61		.701380	\$350.00	\$245.48
14	13	3.00%	\$14,257.61	\$427.73	\$14,685.34		.680951	\$350.00	\$238.33
15	14	3.00%	\$14,685.34	\$440.56	\$15,125.90		.661118	\$350.00	\$231.39
16	15	3.00%	\$15,125.90	\$453.78	\$15,579.67		.641862	\$350.00	\$224.65
17	16	3.00%	\$15,579.67	\$467.39	\$16,047.06		.623167	\$10,350.00	\$6,449.78
18	17								
19	18								\$10,628.06
20	19								

The spreadsheet shows the current six-month interest rate of 3.00% for the six-month period, half of the yearly coupon rate. Column A shows the six-month periods on the bond, and column G shows the bond's discount factor. (As you will recall, to determine the discount rate, you divide the current value of your money—in this case, \$10,000—by the amount it will be worth in the future; in this case, the ending account balance shown in column E). Column H shows the coupon payments and the final repayment of the face amount for the old bond. Column I illustrates the present value of the bonds by multiplying the payment amounts in column H by the discount factor in column G. The amount in cell I19 is the total from column I and is the price you would pay if you wanted to purchase the old bond today.

We added up all of the numbers in column I to determine the price of the old bond today so that we could calculate the **fair market price**. The bond is nothing more or less than the series of future payments that is shown in column H. The bond is worth \$10,628.06, exactly what that series of future payments is worth. The amounts in column I show what each of the future payments are worth today, and the sum of those present values is what the bond is worth and what you would have to pay to purchase the old bond.

**fair market price**  
*the price that a reasonable investor would expect to pay for the bond*



**Try It!**

**Examples and Practice**

To test this theory, study the spreadsheet below. It uses the data related to the new bond, which yields 6% annually. Notice that the new bond is worth exactly \$10,000, the same as its purchase price.

As you think about the cost of bonds and review the samples presented, remember that when interest rates rise, bond prices go down. When interest rates go down, bond prices go up. That’s because you’re comparing the new rate to the old, and higher rates are more attractive. So if current rates rise, the rates on older bonds are less attractive, and if current rates fall, the rates on older bonds are more desired by investors.

	A	B	C	D	E		G	H	I
1	Six-month Period	Six-month Interest Rate	Beginning Account Balance	Interest Payment	Ending Account Balance		Discount Factor	Period-by-period Bond Payments	Present Value of Bond Payments
2	1	3.00%	\$10,000.00	\$300.00	\$10,300.00		.970874	\$300.00	\$291.26
3	2	3.00%	\$10,300.00	\$309.00	\$10,609.00		.942596	\$300.00	\$282.78
4	3	3.00%	\$10,609.00	\$318.27	\$10,927.27		.915142	\$300.00	\$274.54
5	4	3.00%	\$10,927.27	\$327.82	\$11,255.09		.888487	\$300.00	\$266.55
6	5	3.00%	\$11,255.09	\$337.65	\$11,592.74		.862609	\$300.00	\$258.78
7	6	3.00%	\$11,592.74	\$347.78	\$11,940.52		.837484	\$300.00	\$251.25
8	7	3.00%	\$11,940.52	\$358.22	\$12,298.74		.813092	\$300.00	\$243.93
9	8	3.00%	\$12,298.74	\$368.96	\$12,667.70		.789409	\$300.00	\$236.82
10	9	3.00%	\$12,667.70	\$380.03	\$13,047.73		.766417	\$300.00	\$229.93
11	10	3.00%	\$13,047.73	\$391.43	\$13,439.16		.744094	\$300.00	\$223.23
12	11	3.00%	\$13,439.16	\$403.17	\$13,842.34		.722421	\$300.00	\$216.73
13	12	3.00%	\$13,842.34	\$415.27	\$14,257.61		.701380	\$300.00	\$210.41
14	13	3.00%	\$14,257.61	\$427.73	\$14,685.34		.680951	\$300.00	\$204.29
15	14	3.00%	\$14,685.34	\$440.56	\$15,125.90		.661118	\$300.00	\$198.34
16	15	3.00%	\$15,125.90	\$453.78	\$15,579.67		.641862	\$300.00	\$192.56
17	16	3.00%	\$15,579.67	\$467.39	\$16,047.06		.623167	\$10,300.00	\$6,418.62
18									
19									\$10,000.00
20									

## Bond Yields

We have referred to the interest rate used to compute the present values of bond payments—periodic coupons and the face amount at maturity—as the “cost of funds” for newly issued bonds. It is also known as the bond’s **yield to maturity**, which assures that the sum of the present values of all the bond payments is exactly equal to the market price of the bond. When bond yields go up, bond prices go down, and when bond yields go down, bond prices go up.

**yield to maturity**  
*the market rate of interest  
on the bond*

Bond yields to maturity are critically important to the bond markets. Bond traders who make up the over-the-counter market for all U.S. government and corporate bonds focus on yields to maturity, not bond prices. The market for bonds is quoted in terms of yields, and bond prices are derived from the quoted yields by means of the present value method.

The use of a new bond with coupon dates and a maturity date that just happen to match perfectly the coupon dates and the maturity date of an old bond is merely a device for determining the appropriate bond yield to compute the price of the old bond. In the real world, there seldom exists a new bond that perfectly matches a particular old bond that is desired by a bond trader, especially with both bonds having the same issuer.

Instead, a trader who wants to price a particular old bond will look at various other bonds that have maturity dates near the maturity date of the particular old bond he wants to price. The trader will consider many such bonds issued by the U.S. government and by various corporations to establish an appropriate yield to maturity for each bond. The trader will pay special attention to setting the appropriate difference in yield among these similar bonds of different issuers. In this manner, bond traders make the market for all bonds.

Traders’ collective activities (in response to economic news and to the demand for various bonds) result in changes to bond values from trade to trade during a business day. Such **fluctuations** in bond yields tend to be greater from day to day than from trade to trade, and greater from week to week than from day to day.

**fluctuations**  
*changes in the value  
of bonds*

### Independent Practice

Assume that loved ones have purchased bonds for you each year on your birthday with the intent that when they matured you would be able to use them to pay some of your college or other expenses often incurred by young adults (such as a new car or a down payment on a home). Using the data on the Bonds: Independent Practice Worksheet that you will receive from your teacher, create a spreadsheet that will help you determine the value of the bonds. Answer the questions on the worksheet.



# Building Your Future

## Chapter 2: Stocks



### Did You Know....

Over time, the total return on stocks has exceeded that of any other class of asset. One dollar invested in stocks in 1802 would have grown to \$8.8 million in 2003, in bonds to \$16,064, in treasury bills to \$4,575, and in gold to \$19.75.

### Key Terms:

- Stock
- Share
- Shareholder
- Portfolio
- Dividend
- Annual return
- Depreciation
- Total annual return
- Exchanges
- Specialist
- Buy limit order
- Sell limit order
- Market order
- Stockbroker
- Securities firm
- Floor broker
- Transaction cost
- Online trading
- Last price
- Market value
- Annual dividend yield
- Stock price index

### What You'll Learn

The stock market offers investors the opportunity to purchase a small piece of a company in exchange for incurring the risk of making or losing money on that investment. Using data related to specific companies and industries, as well as stock price trends, you can learn the risks and rewards of investing in the stock market.

### What is Stock?

When people mull over the types of investments they want to make, most consider purchasing some type of **stock** as part of a long-term investment plan designed to accumulate money for major life events such as college or retirement. Suppose that a company has 10,000 **shares** of stock and you own 1,000 of them. This would mean you own 10% of the company as a

**stock**  
*ownership in a corporation*

**share**  
*a unit of stock  
owned by an investor*

### Career Link

*Almost all careers in the financial services industry require strong mathematical skills: brokers and traders, for example, must be able to quickly calculate prices and analyze market trends, and investment bankers who prepare stocks for public issue must be able to analyze market conditions and determine the price and volume of a stock offering.*

**shareholder**  
a person who owns one or more shares of stock

**portfolio**  
collection of investments owned by an investor

**Try It!**

**shareholder.** To spread their risk, many times investors will own a number of different stocks in addition to other investments they might have in their **portfolio.**

### Examples and Practice

To understand more clearly how stock ownership works, consider the following scenario. You and four friends want to start a lawn and landscape business. You will need to purchase equipment such as mowers, trimmers and assorted lawn tools to get started. You calculate that it will cost \$1,000 to cover all startup costs. None of you have enough money to start the business on your own, so you agree that everyone will contribute what they can by purchasing shares of ownership. Each share will sell for \$50. In order to be part owner of the business, each person will have to purchase a minimum of one share.

Create a spreadsheet using the categories shown. Use what you know about spreadsheet formulas to calculate the missing numbers in the "Percentage of Ownership" and "Value of Shares" columns based on the total number of shares purchased. See the Company Ownership Spreadsheet below.

Company Ownership Spreadsheet				
	A	B	C	D
1	<b>Owner</b>	<b>Shares Purchased</b>	<b>Percentage of Ownership</b>	<b>Value of Shares</b>
2	You	5		
3	Friend 1	3		
4	Friend 2	6		
5	Friend 3	4		
6	Friend 4	2		
7				
8	Total		100%	\$1,000.00

- How do you calculate the Percentage of Ownership amount that appears in column C? Describe the mathematical steps for doing this along with the spreadsheet formula you would use.
- How do you calculate the Value of Shares amount that appears in column D? Describe the mathematical steps for doing this along with the spreadsheet formula you would use.
- How many total shares were sold?
- Who has the greatest percentage of ownership in the company? Explain why.

## Trading Shares

In the earlier scenario, you and four friends purchased shares in a lawn and landscape business by purchasing 50 shares totaling \$1,000 altogether. After several months of business, Friend 3 learns that he will be moving out of state and wants to sell his shares. Friends 1 and 4 want to purchase an equal number of Friend 3's shares for the same price that he paid for the shares.

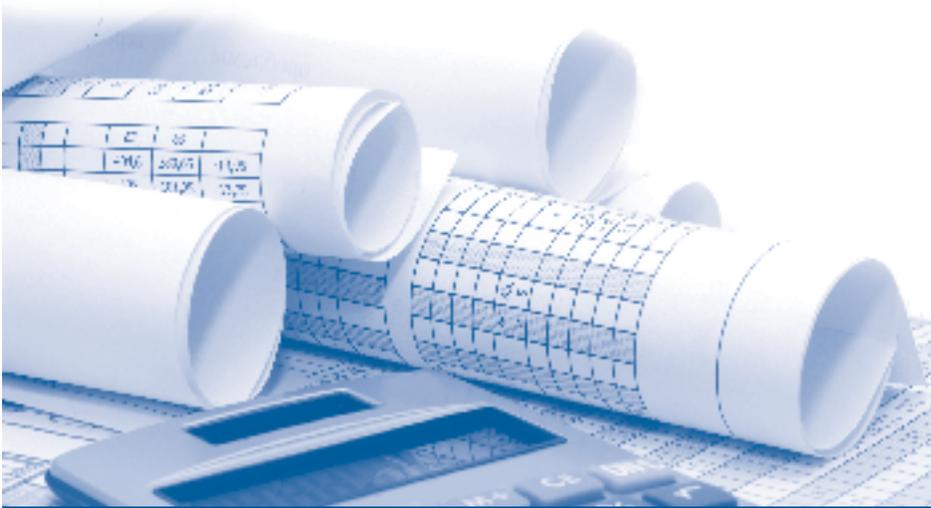
A month later, Friend 2 realizes that she needs some extra cash for an unexpected expense. Friend 2 sells two shares of stock to you for the same price she paid for the shares.

### Try It!

#### Examples and Practice

Use the data above to update your spreadsheet to reflect the new ownership positions. This spreadsheet should show the shares that were traded.

- *How many shares does each person now own?*
- *Who has the greatest percentage of ownership in the company, and how many shares of stock does this person own?*



## Dividend Distribution

Since you and your friends have started a business, you are hoping it will be profitable. That is, you are hoping to make money on your investment. Over time you have developed a list of 15 clients who pay you \$40 per week to mow their lawns. After expenses, the profits from mowing each lawn equal \$32 per lawn.

You and your friends decide that the weekly profits will be distributed to the company owners at the end of each week. To make sure that the profits are distributed fairly, you need to ensure that you have correctly calculated each person's percentage of ownership. For example, if you own 20% of the business, then you should collect 20% of the weekly profits.

### dividend

amount of money an investor is paid for each share of stock owned in a company

Another way to determine the amount of money to be distributed is to calculate the **dividend**. To calculate the dividend, you must determine the total amount of profits for the week (15 lawns x \$32 per lawn = \$480 per week). Then you must divide the profits by the total number of shares in the company. In this case, there are 20 shares, making the dividend \$24 per share (\$480 earned / 20 shares = \$24 per share).

### Try It!

### Examples and Practice

Using the data presented above, add a column titled “Weekly Dividend” to your spreadsheet and calculate the following:

- How much does each stockholder earn in weekly dividends?
- How much would each stockholder earn on a monthly basis?
- What would happen if the profits on each lawn decreased to \$25 per lawn? Calculate the new amount each shareholder would earn.
- What would happen if the number of lawns increased to 20 and the profit remained at \$25 per lawn? Calculate the amount each shareholder would earn.

### Total Return on Investment

You can see from the spreadsheet data that during its first year, the business should make in excess of the \$1,000 that was initially invested by the shareholders. Consider the following example to calculate the business’ earnings.

Your business is seasonal and operates from April through October. During that time, you had 20 lawns per week generating a profit of \$25 per week, for a total profit of \$500 per week or \$2,000 per month (20 lawns x \$25 profit per lawn = \$500 per week x 4 weeks per month = \$2,000 per month). The business operates for a total of seven months, making the overall profit \$14,000 (\$2,000 per month x 7 months = \$14,000).

### annual return

the increase in an investment’s value, expressed as a percentage per year

Using this example, the shareholders invested \$1,000 and received an **annual return** of \$14,000 for making the investment. To calculate this percentage, you take the total amount earned divided by the total cost of the initial investment. In our example, this would be expressed as  $\$14,000 / \$1,000 = 14$ . You then multiply by 100 to turn this into a percentage. In our case, this would equal 1,400%—a great investment since each dollar invested yielded a dividend of \$14. What is important to remember about this example is that *there are very, very few investments that perform anywhere near this well*. This is partly because real companies do not consistently generate such high profits and because companies typically don’t distribute all of their earnings to shareholders. They usually distribute only a small portion of their earnings to the shareholders, using the rest to build up cash reserves or invest the money back into the business.

Another thing to consider when determining the annual return is something called **depreciation**. Depreciation can occur as a result of wear and tear on equipment. In our business, the mowers, trimmers and other equipment cost \$1,000, but after a full season of use, the equipment is no longer worth \$1,000. Instead, it might be worth only \$800, so the value of the investment has decreased by \$200. This depreciation must be considered when calculating the **total annual return**. This is illustrated below:

Total earned dividend = \$14,000

Loss on the investment = \$200 (depreciation)

$\$14,000 - \$200 = \$13,800 / \$1,000$  (initial investment) = 13.8 or 1,380%

### **depreciation**

*a non-cash expense that reduces the value of a company's assets*

### **total annual return**

*annual gains and losses divided by the cost of the investment; expressed as a percentage*

### **Try It!**

#### **Examples and Practice**

Use the formula shown above to calculate the total annual return for the scenarios presented below.

- *In year two, the value of the equipment drops to \$650 and the dividend income falls to \$11,000. What is the total annual return?*
- *In year three, the value of the equipment is \$450 and the dividend income rises to \$11,500. What is the total annual return?*

As you can see, this is a very successful business with huge annual returns. There is a very slim chance of ever finding an investment that will generate the type of returns seen in this example. Most people are quite content to earn a 10% total annual return on the stocks they purchase, considering that the typical dividend yield on stocks generally ranges between 1.00% and 9.00%, and averages 2.00% to 3.00% across all of the stocks available in the financial marketplace.

#### **Liquidating the Company**

At the end of three years, you and your friends no longer want to run the business, and you want to get some of your initial investment back so you can spend it on other things. If you cannot find anyone to purchase the business as a going concern, you will have no choice but to liquidate, or sell any existing assets at market price. The equipment is now worth \$450, and you find someone willing to buy it from the shareholders at that price. Since there were 20 shares total, the average price per share is  $\$450/20 = \$22.50$ . This means that each shareholder gets \$22.50 for each share that he or she owns.

### **Try It!**

#### **Examples and Practice**

Use the data above to answer the following question.

*How much money will each of the remaining shareholders get after liquidating the company?*

### **exchanges**

*organizations established for the purpose of arranging the buying and selling of various companies' stocks*

### **specialist**

*an employee responsible for recording all of the people who want to buy or sell a particular company's stock*

### **buy limit order**

*the highest price at which an investor will purchase a specific stock*

### **sell limit order**

*the lowest price at which an investor will sell a specific stock*

### **market order**

*a buyer or seller agrees to purchase or sell at whatever price is available in the market*

### **stockbroker**

*employee of a securities firm to whom orders to buy or sell stock are communicated*

### **securities firm**

*a company where an account is maintained for the purpose of buying and selling stocks*

### **floor broker**

*works on the stock exchange floor and communicates buy and sell directions with the specialist*

### **transaction cost**

*fee paid to stockbroker for each trade he or she makes*

### **online trading**

*using the Internet to buy and sell stocks*

## **How are Stocks Traded?**

The largest stock **exchange** in the U.S. is the New York Stock Exchange (NYSE). Some firms belonging to an exchange employ people whose job it is to make a market in the stock of a particular company. This type of employee is known as a **specialist**. The pages of the specialist's books appear on the screens of computer monitors.

Next to each of the buyers' names in the specialist's book is the number of shares to be bought or sold. When placing an order, a buyer can indicate a **buy limit order**, **sell limit order** or **market order**. The specialist's job is to match up buyers and sellers so that orderly trading takes place and there are no big jumps in the price of the stock from moment to moment.

Individual investors do not deal directly with an exchange when buying and selling stocks. Instead, they deal with a **stockbroker** at a **securities firm**. In addition, many securities firms allow investors to submit buy and sell orders online via the Internet.

Traditionally, once an order to buy or sell shares of stock has been received by a securities firm, the order is sent to a **floor broker**. When the trade has been executed, the flow of communication reverses and the floor broker informs the specialist who then posts the results of the trade on the computer system for the stockbroker to see. The stockbroker then phones the investor with specific information about the price at which the shares were bought or sold. The investor pays a **transaction cost** for this service.

While many people use stockbrokers, the popularity of **online trading** has increased dramatically as more people have gained Internet access. This can be much less expensive than working with a stockbroker.

Each day thousands of investors place orders to buy and sell stocks for a particular company, causing almost continual change in the price of the stock. For example, when the exchange opens for trading in the morning, 10,000



shares of a particular company's stock may trade at a price of \$50 per share. The next trade in that stock may be for 5,000 shares at a price of \$50.25. The trade after that could be for 25,000 shares at \$49.75. Throughout the remainder of the trading day, the company's stock will be bought and sold many more times. The low price for the day could be \$48 per share and the high price for the day might be \$53 per share. You can see that the share price fluctuates, or changes, throughout the day as trades occur. The **last price** for the day could be the low price, high price or a price somewhere in between the two. Investors often discuss the **market value** of a stock, which is the current quoted price at which investors buy or sell a share of common stock.

### **last price**

*the price of a specific stock at the time the market closes*

### **market value**

*the last reported sale price or current bid/asking price for a particular stock*

In addition to the NYSE, there is another market-making mechanism by which huge volumes of stocks are traded every day called the over-the-counter (OTC) market. Securities firms that belong to the National Association of Securities Dealers (NASD) can use a computerized automatic quotation system for trading stocks that are not listed on an exchange. This is called the Nasdaq (National Association of Securities Dealers Automatic Quotation System). Members using the Nasdaq system indicate the prices at which they are willing to buy or sell various stocks. This information is put together for all NASD member securities firms. As a result, an orderly market for matching buyers and sellers exists.

## **Interpreting Daily Stock Market Information**

Major newspapers and many websites contain pages of information about the stock market. To simplify how this information is displayed, each company's stock is assigned a ticker symbol whether it trades on the NYSE or the Nasdaq. For example, the Ford Motor Company has F as its ticker symbol, while Microsoft is MSFT.

When reviewing daily stock performance in newspapers and online reports, investors can see the last price for the day and compare it to the high and low prices for the day, as well as the last price for the previous day. The rate quotes are in increments of one cent. Investors can also see how many shares of the stock were traded, the stock's average price over the past 52 weeks (year), and the stock's dividend yield. By studying this information, investors can determine the amount of risk and volatility associated with the stock.

Investors can also calculate the **annual dividend yield**. For example, if you had 100 shares of stock that paid a quarterly (every three months) dividend of \$1 per share, then you would earn \$400 because  $100 \text{ shares of stock} \times \$1 \text{ quarterly dividend} = \$100 \times 4 \text{ (number of quarters in the year)} = \$400$  (total annual dividend earnings). To determine the annual dividend yield, you must know how much you paid for each share. If you purchased each share for \$150, then the shares cost you \$15,000. The total dividends of \$400 divided by the purchase cost of \$15,000 = approximately 2.67%, which would be the stock's annual dividend yield.

### **annual dividend yield**

*the sum of the quarterly dividends paid for the year divided by the price per share of a particular stock*

## Try It!

### Examples and Practice

Answer the following questions using the formulas from the previous page and the scenario provided below.

You purchased 100 shares of stock for \$77.88 per share. You earn a quarterly dividend of \$.33 per share.

- *How much will your quarterly dividend payment be?*
- *What is the total of the dividends you earn for the entire year?*
- *What is the annual dividend yield (%) for this stock?*

**stock price index**  
*a measure of stock market  
performance*

### Stock Price Indices

Investors find it very useful to have an overall measure of the stock market's performance. A **stock price index** represents the combined price performance of a large number of stocks. There are several different stock market indices commonly used today; you can find them in the business sections of most daily newspapers and on Internet websites that post information about the financial markets.

The oldest and most widely recognized stock price measure is the Dow Jones Industrial Average, known as the "Dow" and quoted as DJIA. It is NOT a broad measure of the stock market, as it comprises only 30 "blue chip" stocks. Blue chip stocks are high quality stocks with a reputation for, and solid record of, stable earnings and dividend growth. Most of the Dow stocks are large industrial companies.

The S&P500 is a broad measure of stock market performance because it includes stocks from 500 different companies that represent all different sectors, not just large industrial companies. The Nasdaq Composite Index includes over 5,000 stocks that are traded on the Nasdaq market. Even though this index includes a large number of stocks, it is not as broadly representative as one might think, since many of the stocks are from the technology sector rather than a wide range of companies.

## Independent Practice

Using what you have learned about stocks, you will research a number of stocks and purchasing options. After completing your research, you will complete the mock purchase and sale of stocks over a one-month period and track each stock's activity. At the end of the month, you will study your investment choices and create a chart or graph illustrating the gains and losses on your investments. See the Stocks: Independent Practice Worksheet which you will receive from your teacher for specific details on completing the assignment.

# Building Your Future

## Chapter 3: Mutual Funds



### Did You Know....

The U.S. mutual fund market—with \$11.6 trillion in assets under management at year-end 2011—is the largest in the world, accounting for 49 percent of the \$23.8 trillion in mutual fund assets worldwide.

### Key Terms:

- Mutual fund
- Asset
- Asset allocation
- Asset mix
- Sales load
- No load
- Net investment
- Mutual fund share
- Net asset value
- Mutual fund family
- Year-to-date (YTD) percentage total return

### What You'll Learn

When investing, it is important to have a wide range of assets and to select them wisely; one commonly-purchased asset is the mutual fund. This chapter will discuss various types of mutual funds and the costs and benefits associated with each. In addition, you'll see how the ability to calculate costs and potential returns can assist you in making smart investment decisions.

### What is a Mutual Fund?

According to researchers, to achieve a high degree of diversification and minimize risk, you should have at least 15 different stocks in your portfolio. These stocks should be from a variety of different sized companies and industries. Since most of us are not experts on a wide range of industries and companies and do not have time to stay up-to-date on the strength and management of these companies, we often rely on subject matter experts to help us gather and understand this information.

### Career Link

*Financial analysts can be found throughout the financial industry, working for banks, insurance companies, and mutual funds and securities firms. Their role is to help people decide how to invest their money. In addition to having good people skills, math, computer and problem-solving skills are vital. Most financial analysts have a college degree in business, accounting, statistics or finance.*

**mutual fund**

*a portfolio of many different investments managed by professionals and subject to laws and regulations designed to protect individual investors*

While most of us rely on experts to an extent, many investors are not comfortable giving up complete control of their investment portfolios to someone else. That is why **mutual funds** are so popular. Thousands of different mutual funds exist in the U.S. They can include stocks, bonds or both. Since individual investors can select the mutual funds they want to invest in and change the amount invested in these funds from time to time, they are able to maintain control over their investments.

**asset**

*anything you own to which a monetary value can be assigned*

The stocks and bonds in mutual funds are referred to as **assets**. When investors purchase mutual funds, they may choose to split their assets into different types of funds. They may choose to place 70% of the money into stock mutual funds and 30% into bond mutual funds. The 70% placed into stock mutual funds may be further split into specific stock funds: for example, 30% of the money might go into stock mutual fund 1, 50% might go into stock mutual fund 2, and 20% might go into stock mutual fund 3. The investor may then take the 30% of the money that is being used for bond mutual funds and divide it so that 40% goes into bond mutual fund 1 and 60% goes into bond mutual fund 2. This allows the investor to further diversify his or her investments. (See the Asset Allocation pie chart below.)

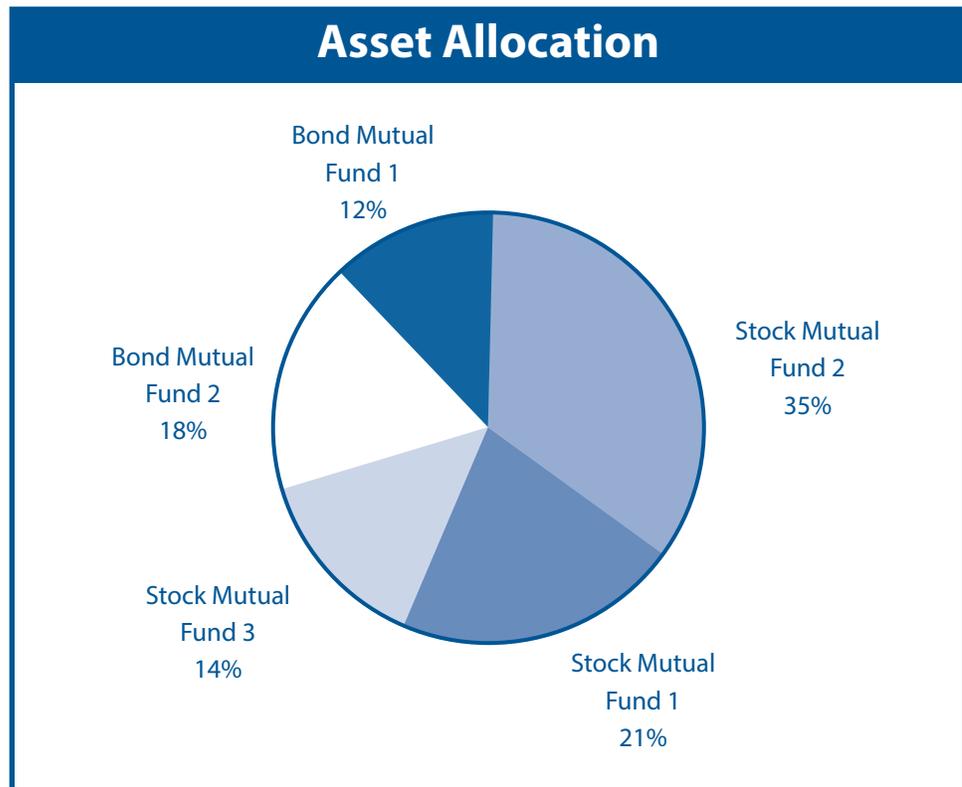
**asset allocation**

*a way to divide investments to minimize risk and maximize returns*

In the example presented, we would say that the investor's **asset allocation**, or **asset mix**, is 70% stocks and 30% bonds.

**asset mix**

*another term for asset allocation*





## Stock Funds and Bond Funds

There are many different types of stock and bond mutual funds. Each of these is likely to be made up of many different stocks or bonds. The tables below describe the most common types of stock and bond funds.

Type of Stock Mutual Fund	Typical Makeup of Fund
<b>Equity Growth Fund</b>	Stocks of large companies for which future earnings are expected to have above-average growth relative to all companies in the marketplace
<b>Equity Value Fund</b>	Stocks of large companies for which investment analysts' models indicate that the stock prices should actually be higher than the current market prices
<b>Aggressive Equity Fund</b>	Stocks of smaller and medium-sized companies for which future earnings are expected to have rapid growth
<b>S&amp;P 500 Index Fund</b>	Stocks of companies of all sizes; designed to mimic the combined performance of the S&P 500 index
<b>International Equity Fund</b>	Stocks of companies that are based outside of the U.S. and managed according to a "value" or "growth" style as described above
<b>European Equity Fund</b>	Stocks of companies based in Europe and managed according to a "value" or "growth" style as described above
<b>Asian Pacific Equity Fund</b>	Stocks of companies based in Asia and usually managed according to a "growth" style

Type of Bond Mutual Fund	Typical Makeup of Fund
<b>U.S. Government Fund</b>	Bonds issued by the U.S. federal government with maturities between one and 30 years
<b>Fixed Income Fund</b>	Bonds issued by the U.S. federal government and by high-quality U.S.-based companies with maturities between one and 30 years
<b>High Yield Fund</b>	Bonds issued by lower-quality companies with unpredictable future earnings; these companies could experience losses that could cause the suspension or elimination of both the periodic coupon payments and repayment of the bond's face amount at maturity
<b>International Fixed Income Fund</b>	Bonds issued by foreign governments and companies

Since professionals manage these funds, there are various charges deducted each day from the market value of the assets in the mutual fund. These charges pay the cost of fund management activities such as selecting appropriate assets for the fund and adjusting the mix of assets each day. On an annual basis, total mutual fund charges generally range between 0.2% and 2% of the fund's market value. Bond mutual funds or stock index funds such as the S&P 500 typically have lower costs while the "value" and "growth" funds have higher costs.

**sales load**

*a fee charged when you invest in the mutual fund*

**no load**

*funds that do not require you to pay to invest*

**net investment**

*money placed in the fund after the sales load has been deducted*

Some funds charge a **sales load**. Today, most mutual funds are **no load** funds. The few that still charge for investing will use a percentage rate for calculating their fee. For example, if you want to invest \$1,000 in a fund that has an 8% sales load, then the **net investment** would be \$920 ( $\$1,000 \times 8\% = \$80$  sales load.  $\$1,000 - \$80$  sales load = \$920 net investment).



## Try It!

### Examples and Practice

- Which of the funds from the chart above seems the least risky? Most risky? Why?
- Why do you think “value” and “growth” funds might have a higher annual charge?
- If you wanted to invest \$500 in a mutual fund with a 4.75% sales load, how much would your net investment be?

### Net Asset Values

When you invest in a mutual fund, you do not directly own any of the individual shares of stocks or any of the individual bonds in the fund. Instead you own **mutual fund shares**.

The fund’s **net asset value** is calculated at the end of each business day. To calculate net asset value, the market price of each individual asset (stock or bond) in the fund is determined. The fund’s total market value is then calculated by adding the value of each individual asset in the fund. The daily amount of total expense charges is deducted from the total market value to give the net market value of the fund. The net market value is then divided by the total number of mutual fund shares owned by all investors in the fund.

In print and online publications that publish information about the financial markets, you can find important information about mutual funds in mutual fund quotation tables. These tables are typically arranged by **mutual fund family**. The tables include information about the daily change in net asset value as well as the **year-to-date (YTD) percentage total return**.

**mutual fund share**  
*a very small fraction of each individual stock or bond in the fund*

**net asset value**  
*the price at which you can buy or sell one share of the mutual fund*

**mutual fund family**  
*a number of different mutual funds that are all run by professionals associated with a specific company*

**year-to-date (YTD) percentage total return**  
*the mutual fund’s gains/losses over the past year*

## Try It!

### Examples and Practice

Use the data below to calculate the net asset value of the mutual fund.

- The fund has 20 million shares
- The market value of all the assets of the growth stock mutual fund is \$300 million at the end of the business day
- The daily expense rate for the fund is 0.004%, or 1.46% annually
- What is the net asset value of one share of this mutual fund?
- How much would it cost you to buy 100 shares of this no load fund?

## Independent Practice

Create a mutual fund investment portfolio using what you have learned about risk and diversification. Calculate your gains and losses over a 30-day period. Use the **Mutual Funds: Independent Practice Worksheet** which you will receive from your teacher to complete this project.



# Building Your Future

## Chapter 4: Risk and Diversification



### Did You Know....

A portfolio of 20-30 securities generally will be less risky than a portfolio holding only one or two securities.

### Key Terms:

- Risk
- Fluctuations
- Long-term trend
- Upward trend
- Price return
- Dividend return
- Diversify
- Positive correlation
- Uncorrelated

### What You'll Learn

When investing, you should know how much you can afford to risk and what types of investments pose the highest risks. By studying long-term trends and learning how financial markets change, you will gain a greater understanding of why spreading your money among a range of investments is important.

### Financial Risk

When people think about risk, they think about something bad that can happen. However, when we think about **risk** in terms of financial markets and investments, we must consider how much money we can afford to lose and the minimum amount of return we can stand to earn on an investment.

**risk**  
*likelihood of suffering losses or earning less than expected on financial investments*

When people invest money, the financial outcome is uncertain; stock market **fluctuations** are often difficult to predict. Following are some common financial and investment risks:

**fluctuations**  
*changes in stock prices*

- Stock prices could decline sharply
- Interest rates could rise, causing the value of bonds to fall

### Career Link

*Explaining what an actuary does would not be complete without also explaining risk itself. Risk comes in many forms. Examples include the risk of losing one's home or car to a hurricane or an accident, or the risk of losing one's income due to disability or death. Every person and organization faces risk. As experts in measuring and managing risk, actuaries fill a significant need in our society. If the risk management programs actuaries develop didn't exist, our economy would not be able to grow as it does.*

- A borrower could be unable to repay his or her loan
- A weak foreign government could default on its bonds and not repay the face amount at maturity
- A credit card holder could declare personal bankruptcy and not pay off his or her outstanding balance
- The prices of things you need or want to buy could become more expensive, causing your savings and investments to become insufficient
- State and federal governments could raise taxes that will eat into the total returns on your investments

Most people do not like to take large risks with their money; they certainly do not like to take large risks with ALL of their money. Generally, the prices at which you can buy various investments, and their expected rate of return, reflect the riskiness of the investments. The riskier the investment, the greater the total return you expect to get from it, or you simply would not choose to make the investment.

No one knows for sure how stock prices will change from day to day, week to week, or year to year. Many experts have done research in an attempt to unlock the secrets of the stock market as a means of making lots of money. What we can say with confidence is that a very large part of the changes in stock prices during any given period of time are random, meaning they occur by chance and are not predictable.

Stock analysts spend a great deal of time carefully studying individual companies in the hopes of picking the winners—the companies that will

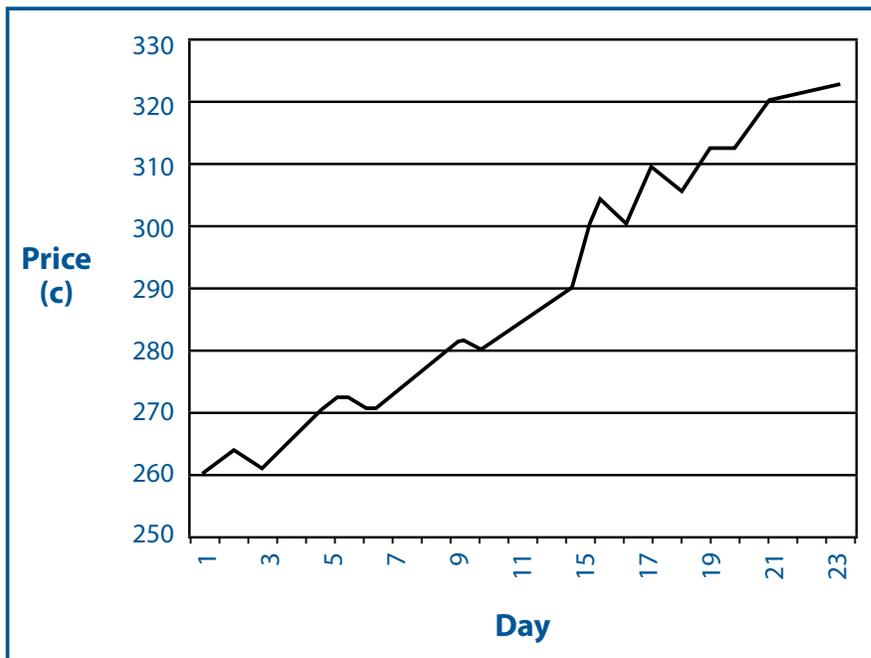


consistently have strong and growing profits. Stock analysts and investment strategists believe that there is a lot that is predictable about the **long-term trend** in the stock price of a company with steadily growing profits.

When experts study stock prices, they look at trends. Stock analysts try to determine which companies' stocks will have the greatest **upward trend** over a long period of time. They'll recommend that investors buy those stocks.

Over a period of time, a stock's total return has two parts: the **price return** and the **dividend return**. If we were to study a stock over a three-month period and see an average price return of 2.5% during that time, that time period would be referred to as the stock's upward price trend. Therefore, an upward trend means that a stock has a positive average in terms of its price return.

Study the chart below. Notice that the price changes each day. Some days the price goes up, and some days the price drops. However, if you study the overall price from Day 1 through Day 23, you will notice that despite some decreases, the overall price is higher on Day 23 than it was on Day 1. This is a visual illustration of what an upward price trend could look like.



## Diversifying Your Investments

Due to the risks associated with investing, you should avoid "putting all of your eggs in one basket." Simply stated, you do not want to invest all of your money in one specific investment. To do so would mean taking on the risk of losing all of your money if the investment failed. Most investors choose to **diversify**. This way you can reduce the risk of experiencing serious financial losses. For example, if you wanted to diversify your investments, you might

**long-term trend**  
*what happens to an investment over a period of several years*

**upward trend**  
*the tendency for a stock price to rise over time*

**price return**  
*change in a stock's price*

**dividend return**  
*stock dividends received*

**diversify**  
*put money into a variety of investments*

buy stocks, bonds, and mutual funds, and put some money into a savings account. This way, if one investment incurs losses, the others could potentially continue to increase, minimizing the amount of money you risk losing. Your level of risk reduction depends on how differently the various investment instruments behave. In other words, the stock prices may rise, but the interest rate on your savings account may fall.



**positive correlation**  
*the tendency of stock prices to move up or down together*

When considering investment strategies, it helps to understand the concept of **positive correlation**. For example, if a securities firm expert issues a report saying computer hardware companies are going to make less money than anticipated, this news is likely to send the prices of all technology stocks down.

**uncorrelated**  
*investments which have no relationship to the performance of other investments*

On the other hand, there are times when investment performance is **uncorrelated**. For example, if you own stock in a company that produces engines for a specific type of airplane, and its customer decides to discontinue purchasing that model, chances are the stock price for the engine-producing company will fall. However, that does not mean the prices for all stocks will fall. In other words, there is no correlation, or connection, between the airplane engine company's stock and other stocks you might own, such as a stock in a pharmaceutical company.

## Independent Practice

You will select stocks from various market sectors and study their performance over a given time period. Using that data along with the Risk and Diversification: Independent Practice Worksheet you will receive from your teacher, look for stock trends and examples that illustrate the importance of diversification as a means of reducing risk.

# Building Your Future

## Chapter 5: Inflation



### Did You Know....

The U.S. and other developed countries have much lower rates of inflation (typically 1.0% to 4.0%; the U.S. is at 2.9%) than developing countries such as Argentina (25%), Syria (33.6%), and South Sudan (79%).

### Key Terms:

- Disposable income
- Inflation rate
- Price series
- Bureau of Labor Statistics
- Consumer Price Index/CPI
- Market basket of goods and services
- Purchasing power
- Capital gains

### What You'll Learn

Focusing on the cost of day-to-day living, you will learn what inflation is, the factors that affect inflation, how inflation is measured and the effects of inflation on consumers and the U.S. economy. By focusing on the various goods and services that comprise the Consumer Price Index (CPI), you will see how inflation affects purchasing power and the connection between the inflation rate and investment returns.

### Calculating the Inflation Rate

Each year, it may seem that your **disposable income** buys less and less as the cost of goods and services grows. Everything from food, clothing and gasoline to books, movie theater tickets and video games seems to cost more than it did last year.

Calculating the **inflation rate** is not difficult. Let's look at the price of t-shirts at a local clothing store to see how the inflation rate is calculated into an annual percentage. Assume that you purchased a t-shirt in August 2012 for \$12.99. When you returned in August 2013 and purchased the same shirt for a friend, the cost was \$13.99. Over the course of one year, the cost of the shirt increased by \$1.00. To determine the inflation rate, you simply take the increase in price

**disposable income**  
*the amount of money you have left for spending or saving after you pay taxes*

**inflation rate**  
*the annual percentage increase in the prices of goods and services*

### Career Link

*When people plan for retirement, they calculate how much money they will need well into the future. Social Security is a key consideration for many, and actuaries have been deeply involved in looking at the financial soundness and ideal structure of that system, with the inflation rate playing a central role in determining how much money will be needed to cover cost of living adjustments.*

of \$1.00 and divide it by the original price of the shirt, which was \$12.99, for a percentage increase of 7.7%. If you wanted to continue the calculation at the same annual rate of inflation to project the cost in upcoming years, then you would simply multiply the most current cost (\$13.99) by 7.7%. This would show an increase in price of \$1.08, making the cost of a t-shirt in 2014 \$15.07.

### price series

uses a set inflation rate along with actual prices to determine the hypothetical price of the same goods/services in the future

If you developed a **price series**, then the following numbers would reflect the prices for the years 2012-2019: \$12.99, \$13.99, \$15.07, \$16.23, \$17.48, \$18.83, \$20.28 and \$21.84. When using this example, it is important to remember that the prices for the first two years, 2012 and 2013, are the only actual prices since these were purchases that were already made. All of the other amounts are hypothetical prices based on the assumption that the inflation rate of 7.7% calculated in 2013 would continue forever into the future.

### Try It!

### Examples and Practice

Use the data below to calculate the inflation rate and price series for a pair of jeans purchased at your favorite store. Assume that you return to the same store and purchase the exact same brand and style of jeans each year. You can use a spreadsheet or calculate the numbers on paper.

2012 purchase price: \$75.00

2013 purchase price: \$88.75

- *What is the inflation rate for these jeans?*
- *If that inflation rate remains consistent, how much will the jeans cost in 2014, 2015, 2016, and 2017?*
- *Which years reflect actual prices? Hypothetical prices?*



## The Consumer Price Index

All of us are consumers, and the amount of money we pay for various goods and services affects everyone. **The Bureau of Labor Statistics** (<http://www.bls.gov>) publishes an important overall measure of price inflation called the **Consumer Price Index (CPI)**. The government calculates the CPI based on the combined price of a **market basket of goods and services**. The eight major categories considered for the CPI, along with examples of items found in those categories, are:

- Food/Beverages: breakfast cereal, milk, coffee, chicken, wine, full service meals, snacks
- Housing: rent of primary residence, owners' equivalent rent, fuel oil, bedroom furniture
- Apparel: men's shirts and sweaters, women's dresses, jewelry
- Transportation: new vehicles, airline fares, gasoline, motor vehicle insurance
- Medical Care: prescription drugs and medical supplies, physicians' services, eyeglasses and eye care, hospital services
- Recreation: televisions, toys, pets and pet products, sports equipment, admissions (tickets to events, movies, etc.)
- Education/Communication: college tuition, postage, telephone services, computer software and accessories
- Other Goods and Services: tobacco and smoking products, haircuts and other personal services, funeral expenses



No individual or family in the U.S. spends money exactly the way that the CPI's market basket of goods and services shows. The CPI is intended to give a good indication of how people who live in cities across the entire country spend their money. Therefore, the CPI can be an indicator of how the average city-dwelling family in the U.S. spends its money. By tracking the CPI, people can compare how much more money they spend each year to buy the same market basket of goods and services. To better understand their own spending patterns, investors can customize a market basket of goods by tracking the monthly or yearly prices of the items that they spend money on.

**Bureau of Labor Statistics**  
*division of the U.S. Department of Labor that calculates the Consumer Price Index*

**Consumer Price Index/CPI**  
*a monthly price series showing the inflation rate for a market basket of goods and services*

**market basket of goods and services**  
*items that people typically spend money on including food, housing, clothing, transportation, medical care, recreation, education, communication and miscellaneous goods and services*

## Investment Returns vs. Inflation

Why is it important for investors to understand inflation? Let's suppose that an investor's customized basket of goods and services costs \$1,000 at a particular point in time. Let's also suppose that he or she invests \$1,000 at that same point in time in a portfolio of stocks and bonds. One year later, assume that the same market basket of goods now costs \$1,050. In other words, the annual inflation rate was 5%. The investor will still be able to buy the market basket of good and services if his or her portfolio is worth at least \$1,050. However, if the portfolio is worth less than \$1,050, the investor won't have enough money to buy the entire basket of goods and services. In this example, unless the annual total return on the investment portfolio is at least 5%, the investor's portfolio will be insufficient.

**purchasing power**  
*the value of money based on  
the amount and quality of  
goods and services it can buy*

The key objective for investors is to establish a portfolio of assets that earns an average annual return that is equal to or greater than the average annual inflation rate. If the investor fails to achieve that objective, the portfolio will lose part of its **purchasing power**. As investors, it is important to understand that it is unrealistic to believe that a portfolio will be able to beat the inflation rate every year. However, over an extended period of time (five years or more), the portfolio's average annual total return must exceed the average annual inflation rate so it does not lose purchasing power.

**capital gains**  
*profits earned from  
the sale of an asset  
such as a stock*

Individual investors pay taxes each year on the interest and dividends received on investments. If the investor sells the portfolio assets, he or she will also pay taxes on any **capital gains**.

For the portfolio to maintain its purchasing power, the total return after taxes like the capital gains tax must exceed the inflation rate. The challenge faced by many investors is to consistently earn total returns after these taxes are subtracted that at least match the inflation rate, particularly when inflation rates are high.

## Independent Practice

Customize a market basket of goods and services and see how the prices of these items could be affected by inflation. Use the Inflation: Independent Practice Worksheet that you will receive from your teacher to complete the activity.

# Building Your Future

## Appendix: Online Resources



Below you will find a list of additional resources related to the chapters in this book. These resources can be used to extend your understanding and study of the subjects in each section.

### Chapter 1: Bonds

#### **Treasury Direct**

Find information about U.S. government bonds and ways to purchase them.

<http://www.savingsbonds.gov/>

#### **Library of Economics**

Provides detailed articles about bonds and the various types available for investment.

<http://www.econlib.org/library/Enc/Bonds.html>

### Chapter 2: Stocks

#### **The Stock Market**

Provides basics about the history of the stock market, picking and tracking stocks, market trends, and a glossary of stock market terminology.

<http://library.thinkquest.org/3088/stockmarket/introduction.html>

### Chapter 3: Mutual Funds

#### **U.S. Securities and Exchange Commission**

Get information about important factors to consider when investing, common pitfalls, a mutual fund fee calculator, and a glossary of terms

<http://www.sec.gov/investor/pubs/inwsmf.htm>

### Chapter 4: Risk and Diversification

#### **U.S. Securities and Exchange Commission**

Get tips and information about ways to minimize risk through diversifying investments

<http://www.sec.gov/investor/pubs/assetallocation.htm>

### Chapter 5: Inflation

#### **Bureau of Labor Statistics**

Provides documentation about the CPI, inflation calculators, and statistics and information related to inflation

<http://www.bls.gov>