

Buying and Selling Securities

“Don’t gamble! Take all your savings and buy some good stock and hold it till it goes up. If it don’t go up, don’t buy it.”

–Will Rogers

You might wish to try Will Rogers’s well-known stock market advice, but first you must know the basics of securities trading. Fortunately, trading is a relatively simple task, as attested to by the billions of shares of stocks that trade among investors on a typical day. Essentially, you begin the process by opening a trading account with a brokerage firm and then submitting trading orders. But you should know about some important details beforehand. ■

To help you get started, this chapter covers the basics of the investing process. We begin by describing how you go about buying and selling securities such as stocks and bonds. We then outline some of the most important considerations and constraints to keep in mind as you get more involved in the investing process.

3.1 Getting Started

Suppose you have some money that you want to invest. One way to get started is to open an account with a securities broker, such as Scotia McLeod or TD Waterhouse. Such accounts are often called *brokerage* or *trading accounts*. Opening a trading account is straightforward and really much like opening a bank account. You will be asked to supply some basic information about yourself and sign an agreement (often simply called a customer's agreement) that spells out your rights and obligations and those of your broker. You then give your broker a cheque and instructions on how you want the money invested.

Suppose you want to invest in Alcan Corporation. You therefore open an account with \$10,000. You instruct your broker to purchase 100 shares of Alcan stock and to retain any remaining funds in your account. Your broker will locate a seller and purchase the stock on your behalf. If share price of Alcan is \$42, you will pay \$4,200. In addition, for providing this service, your broker will charge you a commission. How much depends on a number of things, including the type of broker and the size of your order, but for this order, \$25 wouldn't be an unusual commission charge. After paying for the stock and paying the commission, you would have \$5,775 left in your account. Your broker will hold your stock for you or deliver the shares to you, whichever you wish. At a later date, you can sell your stock by instructing your broker to do so. You would receive the proceeds from the sale, less another commission charge. You can always add money to your account and purchase additional securities, and you can withdraw money from your account or even close it altogether.

In broad terms, this basic explanation is really all there is to it. As we begin to discuss in the next section, however, there is a range of services available to you, and there are important considerations that you need to take into account before you actually begin investing.

Choosing a Broker

The first step in opening an account is choosing a broker. Brokers are traditionally divided into three groups: full-service brokers, discount brokers, and deep-discount brokers. Table 3.1 lists well-known brokers in each category. What distinguishes the three groups is the level of service they provide and the resulting commissions they charge.

With a deep-discount broker, essentially the only services provided are account maintenance and order execution—that is, buying and selling. You generally deal with a deep-discount broker over the telephone or, increasingly, using a Web browser (see the next section on online brokers for a discussion).

At the other extreme, a full-service broker will provide investment advice regarding the types of securities and investment strategies that might be appropriate for you to consider (or avoid). The larger brokerage firms do extensive research on individual companies and securities and maintain lists of recommended (and not recommended) securities. They maintain offices throughout the country, so, depending on where you live, you can actually stop in and speak to the person assigned to your account. A full-service broker will even manage your account for you if you wish.

Discount brokers fall somewhere between the two cases we have discussed so far, offering more investment counselling than the deep-discounters and lower commissions than the full-service brokers. Which type of broker should you choose? It depends on how much advice and service you need or want. If you are the do-it-yourself type, then you may seek out the lower commissions. If you are not, then a full-service broker

TABLE 3.1

Well-Known Brokerage Firms and Representative Commissions

Examples	Commission (\$20 share price)*
	Up to 1,000 Shares
Full-Service Brokers	
RBC Investments	\$150
Scotia McLeod	
Discount Brokers	
HSBC	\$25
CIBC Investor's Edge	
Deep-Discount Brokers	
Ques Trade	\$18

*These commissions are approximate and representative only. For discount and deep-discount brokers, Internet orders are considered. The fees are for market orders only.

In Canada major banks provide both full-service brokerage services and discount brokerage services.

might be more suitable. Full-service brokers generally have minimum account requirements. For example if you do not want to invest more than \$100,000 or \$150,000 (depending on the brokerage house) then brokers do not provide the full service and recommend you to use a discount service.

We should note that the brokerage industry is very competitive, and differences between broker types seem to be blurring. Full-service brokers frequently discount commissions to attract new customers (particularly those with large accounts), and you should not hesitate to ask about commission rates. Similarly, discount brokers have begun to offer securities research and extensive account management services. Basic brokerage services have become almost commodity-like, and, more and more, brokerage firms are competing by offering financial services such as retirement planning, credit cards, and cheque-writing privileges, to name a few.

Online Brokers

The most important recent change in the brokerage industry is the rapid growth of online brokers, also known as e-brokers or cyberbrokers. With an online broker, you place buy and sell orders over the Internet using a Web browser. If you are currently participating in a portfolio simulation such as Stock-Trak, then you already have a very good idea of how an online account looks and feels.

Before 1995, online accounts essentially did not exist; by 2000, many millions of investors were buying and selling securities online. The industry is growing so rapidly that it is difficult to even count the number of online brokers.

Online investing has fundamentally changed the discount and deep-discount brokerage industry by slashing costs dramatically. In a typical online trade, no human intervention is needed by the broker as the entire process is handled electronically, so operating costs are held to a minimum. As costs have fallen, so have commissions. Even for relatively large trades, online brokers typically charge less than \$25 per trade. For budget-minded investors and active stock traders, the attraction is clear.

Competition among online brokers is fierce. Some take a no-frills approach, offering only basic services and very low commission rates. Others, particularly the larger ones, charge a little more but offer a variety of services, including research and various

TABLE 3.2

Full-Service and Discount Brokerages

Brokers	Internet Address
Bank of Montreal, Nesbitt Burns	www.bmonesbittburns.com
CIBC Wood Gundy	www.cibcwoodgundy.com
Canaccord	www.canaccord.com
Credential Direct	www.credentialdirect.com
Disnat Direct	www.disnatdirect.com
eNorthern	www.enorthern.com
E* Trade	www.canada.etrade.com
HSBC	investdirect.hsbc.ca
National Bank	www.nbc.ca
Pacific International Securities	www.pi-securities.com
Qtrade	www.qtrade.ca
Questrade	www.questrade.com
RBC	www.rbc.com
ScotiaMcLeod	www.scotiabank.com
TD Waterhouse	www.tdwaterhouse.com
Wellington West	www.wellwest.ca

Which online broker is the best? See ratings at www.globeinvestor.com/series/brokersurvey

WORK THE WEB

In order to participate in e-trading, investors should open an online account for electronic trading. After that they can go to the website of their broker and give buy or sell orders, track their accounts, and trade on margin. The following website shows an online trade for an investor at HSBC's InvestDirect site. The investor entered an order to buy 50 shares of Nortel Stock at market price. Once the investor hits Submit, the order will be entered and the broker will fulfill the order.

The screenshot shows the HSBC InvestDirect Canada website interface. At the top, there are navigation tabs for Home, Accounts, Trading, Markets, and Research. Below these, there are sub-tabs for Stocks, Funds, Options, Order Status, and New Issues. The main content area displays a trade order form for 'NORTEL NETWORKS CORP NEW'. The form includes the following fields and options:

- Date + Order #: 200401060000110
- GET QUOTE button
- Action: Buy
- Quantity: 50
- Symbol: NT
- Market: T
- Price: Market or Limit
- Date: 0106
- Special Terms: Day or Good Till
- Settlement Terms:
- RESET and SUBMIT buttons

At the bottom of the form, there is a 'Quick Quote' section with a 'Symbol Lookup' field containing 'CA' and '80'.

Source: Courtesy of HSBC Bank Canada.

banking services such as cheque-writing privileges, credit cards, debit cards, and even mortgages. As technology continues to improve and investors become more comfortable using it, online brokerages will almost surely become the dominant form because of their enormous convenience—and the low commission rates.

When online brokers first appeared they were generally just discount and deep-discount brokers. Today, however, even full-service brokers offer extensive online services. Table 3.2 lists 16 full-service and discount brokerage houses in alphabetical order. The majority of these brokers are rated by the Globeinvestor's website.

Security Investors Protection Corporation

As you are probably aware, when you deposit money in a bank, your account is normally protected (up to \$60,000) by the Canadian Deposit Insurance Corporation (CDIC) which is a federal Crown corporation. However, brokerage firms, even though they are often called investment banks, cannot offer CDIC coverage. Most brokerage firms do belong to the **Canadian Investor Protection Fund**, or **CIPF** which was created in 1969. The CIPF insures your account for up to \$1,000,000 for losses of securities, commodity and futures contracts, segregated insurance funds and cash. Unlike the CDIC, the CIPF is not a government agency; it is a private insurance fund supported by the securities industry. Almost all brokerage firms are members of the CIPF.

There is a very important difference between CIPF coverage and CDIC coverage. Up to the maximum coverage, the value of whatever you deposit in a bank is fully guaranteed by the CDIC; you will not lose a cent under any circumstances with CDIC coverage. In contrast, the CIPF insures only that you will receive whatever cash and securities were held for you by your broker in the event of fraud or other failure. The value of any securities, however, is not guaranteed. In other words, you can lose everything in an CIPF-covered account if the value of your securities falls to zero.

Broker–Customer Relations

There are several other important things to keep in mind when dealing with a broker. First, any advice you receive is *not* guaranteed. Far from it—buy and sell recommendations carry the explicit warning that you rely on them at your own risk. Your broker does have a duty to exercise reasonable care in formulating recommendations and not recommend anything grossly unsuitable, but that is essentially the extent of it.

Second, your broker works as your agent and has a legal duty to act in your best interest; however, brokerage firms are in the business of generating brokerage commissions. This fact will probably be spelled out in the account agreement that you sign. There is, therefore, the potential for a conflict of interest. On rare occasions, a broker is accused of “churning” an account, which refers to extensive trading for the sole purpose of generating commissions. In general, you are responsible for checking your account statements and notifying your broker in the event of any problems, and you should certainly do so.

Finally, in the unlikely event of a significant problem, your account agreement will probably specify very clearly that you must waive your right to sue and/or seek a jury trial. Instead, you agree that any disputes will be settled by arbitration and that

Canadian Investor Protection Fund

Insurance fund covering investors' brokerage accounts with member firms.



To learn more about dispute resolution, visit www.ida.ca

arbitration is final and binding. Arbitration is not a legal proceeding, and the rules are much less formal. In essence, a panel is appointed by a self-regulatory body of the securities industry to review the case. The panel will be composed of a small number of individuals who are knowledgeable about the securities industry, but a majority of them will not be associated with the industry. The panel makes a finding, and, absent extraordinary circumstances, its findings cannot be appealed. The panel does not have to disclose factual findings or legal reasoning.



Check This

- 3.1a** What are the differences between full-service and deep-discount brokers?
- 3.1b** What is the CIPF? How does CIPF coverage differ from CDIC coverage?

3.2 Brokerage Accounts

The account agreement that you sign has a number of important provisions and details specifying the types of trades that can be made and who can make them. Another important concern is whether the broker will extend credit and the terms under which credit will be extended. We discuss these issues next.

Cash Accounts

cash account A brokerage account in which all transactions are made on a strictly cash basis.

A **cash account** is the simplest arrangement. Securities can be purchased to the extent that sufficient cash is available in the account. If additional purchases are desired, then the needed funds must be promptly supplied.

Margin Accounts

margin account A brokerage account in which, subject to limits, securities can be bought and sold on credit.

With a **margin account**, you can, subject to limits, purchase securities on credit using money loaned to you by your broker. Such a purchase is called a *margin purchase*. The interest rate you pay on the money you borrow is based on the broker's **call money rate**, which is, loosely, the rate the broker pays to borrow the money. You pay some amount over the call money rate, called the *spread*; the exact spread depends on your broker and the size of the loan. Suppose the call money rate has been hovering around 7 percent. If a brokerage firm charges a 2.5 percent spread above this rate on loan amounts under \$10,000, then you would pay a total of about 9.5 percent. However, this is usually reduced for larger loan amounts. For example, the spread may decline to .75 percent for amounts over \$100,000.

call money rate The interest rate brokers pay to borrow bank funds for lending to customer margin accounts.

There are several important concepts and rules involved in a margin purchase. For concreteness, we focus on stocks in our discussion. The specific margin rules for other investments can be quite different, but the principles and terminology are usually similar.

margin The portion of the value of an investment that is *not* borrowed.

In general, when you purchase securities on credit, some of the money is yours and the rest is borrowed. The amount that is yours is called the **margin**. Margin is usually expressed as a percentage. For example, if you take \$7,000 of your own money and borrow an additional \$3,000 from your broker, your total investment will be \$10,000. Of this \$10,000, \$7,000 is yours, so the margin is $\$7,000/\$10,000 = .70$, or 70 percent.

It is useful to create an account balance sheet when thinking about margin purchases (and some other issues we'll get to in just a moment). To illustrate, suppose

you open a margin account with \$10,000. You tell your broker to buy 100 shares of Research in Motion (RIM). RIM is selling for \$125 per share, so the total cost will be \$12,500. Since you have only \$10,000 in the account, you borrow the remaining \$2,500. Immediately following the purchase, your account balance sheet would look like this:

Assets		Liabilities and Account Equity	
100 shares of RIM	\$12,500	Margin loan	\$ 2,500
		Account equity	10,000
Total	<u>\$12,500</u>	Total	<u>\$12,500</u>

On the left-hand side of this balance sheet we list the account assets, which, in this case, consist of the \$12,500 in RIM you purchased. On the right-hand side we list the \$2,500 loan you took to partially pay for the stock: this is a liability because, at some point, the loan must be repaid. The difference between the value of the assets held in the account and the loan amount is \$10,000. This amount is your *account equity*, that is the net value of your investment. Notice that your margin is equal to the account equity divided by the value of the stock owned and held in the account: $\$10,000/\$12,500 = 0.80$ or 80 percent.

THE ACCOUNT BALANCE SHEET

EXAMPLE 3.1

You want to buy 1,000 shares of Loblaws at a price \$60 per share. You put up \$50,000 and borrow the rest. What does your account balance sheet look like? What is your margin?

The 1,000 shares of Loblaws cost \$60,000. You supply \$50,000, so you must borrow \$10,000. The account balance sheet looks like this:

Assets		Liabilities and Account Equity	
1000 shares of Loblaws	\$60,000	Margin loan	\$10,000
		Account equity	50,000
Total	<u>\$60,000</u>	Total	<u>\$60,000</u>

Your margin is the account equity divided by the value of the stock owned:

$$\begin{aligned} \text{Margin} &= \$50,000 / \$60,000 \\ &= 0.8333 = 83.33 \text{ percent} \end{aligned}$$

initial margin The minimum margin that must be supplied on a securities purchase.

Initial Margin When you first purchase securities on credit, there is a minimum margin that you must supply. This percentage is called the **initial margin**. In Canada, Investment Dealers Association of Canada sets the margin requirements. But individual brokerage firms may require higher amounts.

Currently initial margin requirement for stocks with prices higher than \$2.00 is 50 percent. In other words, if you have \$10,000 in cash that is not borrowed, you can borrow up to an additional \$10,000, but no more.

We emphasize that these initial margin requirements apply to stocks. In contrast, for the most part, there is little initial margin requirement for government bonds. On the other hand, margin is not allowed at all on certain other types of securities.

CALCULATING INITIAL MARGIN

EXAMPLE 3.2

Suppose you have \$6,000 in cash in a trading account with a 50 percent initial margin requirement. What is the largest order you can place (ignoring commissions)? If the initial margin were 60 percent, how would your answer change?

When the initial margin is 50 percent, you must supply half of the total, so \$12,000 is the largest order you could place. When the initial margin is 60 percent, your \$6,000 must equal 60 percent of the total. In other words, it must be the case that

$$\begin{aligned} \$6,000 &= 0.60 \times \text{Total order} \\ \text{Total order} &= \$6,000 / .60 \\ &= \$10,000 \end{aligned}$$

As this example illustrates, the higher the initial margin required, the less you can borrow.

maintenance margin

The minimum margin that must be present at all times in a margin account.

margin call

A demand for more funds that occurs when the margin in an account drops below the maintenance margin.

Maintenance Margin In addition to the initial margin requirement, brokerage firms and exchanges generally have a **maintenance margin** requirement. This amount is the minimum margin required at all times after the purchase.

The maintenance margin set by your broker is sometimes called the “house” margin requirement. The level is established by your broker, who may vary it depending on what you are buying. For low-priced and very volatile stocks, the house margin can be as high as 100 percent, meaning no margin at all.

A typical maintenance margin would be 30 percent. If your margin falls below 30 percent, then you may be subject to a **margin call**, which is a demand by your broker to add to your account, pay off part of the loan, or sell enough securities to bring your margin back up to an acceptable level. If you do not or cannot comply, your securities may be sold. The loan will be repaid out of the proceeds, and any remaining amounts will be credited to your account.

To illustrate, suppose your account has a 50 percent initial margin requirement and a 30 percent maintenance margin. A particular stock is selling for \$50 per share. You have \$20,000, and you want to buy as much of this stock as you possibly can. With a 50 percent initial margin, you buy up to \$40,000 worth, or 800 shares. The account balance sheet looks like this:

Assets		Liabilities and Account Equity	
800 shares @\$50/share	\$40,000	Margin loan	\$20,000
		Account equity	20,000
Total	<u>\$40,000</u>	Total	<u>\$40,000</u>

Unfortunately, right after you buy it, the company reveals that it has been artificially inflating earnings for the last three years (this is not good), and the share price falls to \$35 per share. What does the account balance sheet look like when this happens? Are you subject to a margin call?

To create the new account balance sheet, we recalculate the total value of the stock. The margin loan stays the same, so the account equity is adjusted as needed:

Assets		Liabilities and Account Equity	
800 shares @\$35/share	\$28,000	Margin loan	\$20,000
		Account equity	8,000
Total	\$28,000	Total	\$28,000

As shown, the total value of your “position” (i.e., the stock you hold) falls to \$28,000, a \$12,000 loss. You still owe \$20,000 to your broker, so your account equity is $\$28,000 - \$20,000 = \$8,000$. Your margin is therefore $\$8,000/\$28,000 = .286$, or 28.6 percent. You are below the 30 percent minimum, so you are undermargined and subject to a margin call.

The Effects of Margin Margin is a form of *financial leverage*. Any time you borrow money to make an investment, the impact is to magnify both your gains and losses, hence the use of the term “leverage.” The easiest way to see this is through an example. Imagine that you have \$30,000 in an account with a 60 percent initial margin. You now know that you can borrow up to an additional \$20,000 and buy \$50,000 worth of stock (why?). The call money rate is 5.50 percent; you must pay this rate plus a .50 percent spread. Suppose you buy 10,000 shares of Indigo at \$5 per share. One year later, Indigo is selling at \$6 per share. Assuming the call money rate does not change and ignoring dividends, what is the return on this investment?

At the end of the year, your 10,000 shares are worth \$60,000. You owe 6 percent interest on the \$20,000 you borrowed, or \$1,200. If you pay off the loan with interest, you will have $\$60,000 - \$21,200 = \$38,800$. You started with \$30,000 and ended with \$38,800, so your net gain is \$8,800. In percentage terms, your return was $\$8,800/\$30,000 = .2933$, or 29.33 percent.

How would you have done without the financial leverage created from the margin purchase? In this case, you would have invested just \$30,000. At \$5 per share, you would have purchased 6000 shares. At the end of the year, your 6000 shares would be worth \$6 apiece, or \$36,000 total. Your dollar profit is \$6,000, so your percentage return would be $\$6,000/\$30,000 = .20$, or 20 percent. If we compare this to the 29.33 percent that you made above, it’s clear that you did substantially better by leveraging.

The downside is that you would do much worse if Indigo’s stock price fell (or didn’t rise very much). For example, if Indigo had fallen to \$4 a share, you would have lost (check these calculations for practice) \$11,200, or 37.33 percent on your margin investment, compared to \$6,000, or 20 percent on the unmargined investment. This example illustrates how leveraging an investment through a margin account can cut both ways.

A MARGINAL INVESTMENT

EXAMPLE 3.3

A year ago, you bought 300 shares of Molson at \$35 per share. You put up the 50 percent initial margin. The call money rate plus the spread you paid was 8 percent. What is the return if the price

(continued)

today is \$30? Compare this to the return you would have earned if you had not invested on margin. Your total investment was 300 shares at \$35 per share, or \$10,500. You supplied 50 percent, or \$5,250, and you borrowed the remaining \$5,250. At the end of the year, you owe \$5,250 plus 8 percent interest, or \$5,670. If the stock sells for \$30, then your position is worth $300 \times 30 = \$9,000$. Deducting the \$5,670 leaves \$3,330 for you. Since you originally invested \$5,250, your dollar loss is $\$5,250 - \$3,330 = \$1,920$. Your percentage return is $-\$1,920 / \$5,250 = -36.57$ percent.

If you had not leveraged your investment, you would have purchased $\$5,250 / \$35 = 150$ shares. These would have been worth $150 \times \$30 = \$4,500$. You therefore would have lost \$750; your percentage return would have been $-\$750 / \$5,250 = 14.29$ percent, compared to the -36.57 percent that you lost on your leveraged position.

HOW LOW CAN IT GO?

EXAMPLE 3.4

In our previous example (Example 3.3), suppose the maintenance margin was 40 percent. At what price per share would you have been subject to a margin call?

To answer, let P^* be the critical price. You own 300 shares, so, at that price, your stock is worth $300 \times P^*$. You borrowed \$5,250, so your account equity is equal to the value of your stock less the \$5,250 you owe, or $300 \times P^* - \$5,250$. We can summarize this information as follows:

$$\begin{aligned}\text{Amount borrowed} &= \$5,250 \\ \text{Value of stock} &= 300 \times P^* \\ \text{Account equity} &= 300 \times P^* - \$5,250\end{aligned}$$

From our preceding discussion, your percentage margin is your dollar margin (or account equity) divided by the value of the stock:

$$\begin{aligned}\text{Margin} &= \frac{\text{Account equity}}{\text{Value of stock}} \\ &= \frac{300 \times P^* - \$5,250}{300 \times P^*}\end{aligned}$$

To find the critical price, we will set this margin to the maintenance margin and solve for P^* :

$$\text{Maintenance margin} = \frac{\text{Number of shares} \times P^* - \text{Amount borrowed}}{\text{Number of shares} \times P^*}$$

Solving for P^* yields

$$P^* = \frac{\text{Amount borrowed} / \text{Number of shares}}{1 - \text{Maintenance margin}}$$

Finally, setting the maintenance margin equal to 40 percent, we obtain this critical price for P^* :

$$\begin{aligned}P^* &= \frac{\$5,250 / 300}{1 - .40} \\ &= \frac{\$5,250}{180} = \$29.17\end{aligned}$$

At any price below \$29.17, your margin will be less than 40 percent, and you will be subject to a margin call, so this is the lowest possible price that could be reached before that occurs.

As Example 3.4 shows, you can calculate the critical price (the lowest price before you get a margin call) as follows:

$$P^* = \frac{\text{Amount borrowed} / \text{Number of shares}}{1 - \text{Maintenance margin}} \quad (3.1)$$

For example, suppose you had a margin loan of \$40,000, which you used to purchase, in part, 1,000 shares. The maintenance margin is 37.5 percent. What's the critical stock price, and how do you interpret it?

See if you don't agree that the critical stock price, P^* , is $\$40/.625 = \64 . The interpretation is straightforward: If the stock price falls below \$64, you're subject to a margin call.

Hypothecation and Street Name Registration

As part of your margin account agreement, you must agree to various conditions. We discuss two of the most important next.

Hypothecation Any securities you purchase in your margin account will be held by your broker as collateral against the loan made to you. This practice protects the broker because the securities can be sold by the broker if the customer is unwilling or unable to meet a margin call. Putting securities up as collateral against a loan is called **hypothecation**. In fact, a margin agreement is sometimes called a hypothecation agreement. In addition, to borrow the money that it loans to you, your broker will often *re*-hypothecate your securities, meaning that your broker will pledge them as collateral with its lender, normally a bank.

hypothecation

Pledging securities as collateral against a loan.

Street Name Registration Securities in a margin account are normally held in **street name**. This means that the brokerage firm is actually the registered owner. If this were not the case, the brokerage firm could not legally sell the securities should a customer refuse to meet a margin call or otherwise fail to live up to the terms of the margin agreement. With this arrangement, the brokerage firm is the "owner of record," but the account holder is the "beneficial owner."

street name An arrangement under which a broker is the registered owner of a security.

When a security is held in street name, anything mailed to the security owner, such as an annual report or a dividend cheque, goes to the brokerage firm. The brokerage firm then passes these on to the account holder. Street name ownership is actually a great convenience to the owner. In fact, because it is usually a free service, even customers with cash accounts generally choose street name ownership. Some of the benefits are:

1. Since the broker holds the security, there is no danger of theft or other loss of the security. This is important because a stolen or lost security cannot be easily or cheaply replaced.
2. Any dividends or interest payments are automatically credited, and they are often credited more quickly (and conveniently) than they would be if the owner received the cheque in the mail.
3. The broker provides regular account statements showing the value of securities held in the account and any payments received. Also, for tax purposes, the broker will provide all the needed information on a single form at the end of the year, greatly reducing the owner's record-keeping requirements.

Other Account Issues

If you do not wish to manage your account yourself, you can set up an *advisory account*. In this case, you pay someone else to make buy and sell decisions on your behalf. You are responsible for paying any commissions or other costs, as well as a management fee.

In a relatively recent innovation, brokerage firms have begun to offer *wrap accounts*. In such an account, you choose a money manager or set of money managers from a group offered by the brokerage firm. All of the costs, commissions, and expenses associated with your account are “wrapped” into a single fee that you pay, hence the name. If you simply authorize your broker to trade for you, then there is no management fee, but you are still responsible for any commissions. This arrangement is termed a *discretionary account*.

Most of the large brokerage firms offer accounts that provide for complete money management, including cheque-writing privileges, credit cards, and margin loans, especially for larger investors. Such accounts are generally called *asset management accounts*. The terms of these accounts differ from broker to broker, and the services provided frequently change in response to competition.

Finally, if you want to buy and sell a broad variety of individual securities, then a brokerage account is almost a requirement. It is true that some companies and other entities do sell directly to the public, at least at certain times and subject to various restrictions, so you can buy securities directly in some cases. In fact, you could buy and sell through the want ads in your local paper if you were so inclined, but given the modest commissions charged by deep-discount brokers, this hardly seems worth the trouble.

However, you should be aware that if you do not wish to actively buy and sell securities, but you do want to own stocks, bonds, or other financial assets, there is an alternative to a brokerage account: a *mutual fund*. Mutual funds are a means of combining or pooling the funds of a large group of investors. The buy and sell decisions for the resulting pool are then made by a fund manager, who is compensated for the service. Mutual funds have become so important that we will devote an entire chapter to them rather than give them short shrift here.



Check This

- 3.2a What is the difference between a cash and margin account?
- 3.2b What is the effect of a margin purchase on gains and losses?
- 3.2c What is a margin call?

3.3 Short Sales

An investor who buys and owns shares of stock is said to be *long* in the stock or to have a *long position*. An investor with a long position will make money if the price of the stock increases and lose money if it goes down. In other words, a long investor hopes that the price will increase.

Now consider a different situation. Suppose you thought, for some reason, that the stock in a particular company was likely to *decrease* in value. You obviously wouldn't want to buy any of it. If you already owned some, you might choose to sell it.

Beyond this, you might decide to engage in a **short sale**. In a short sale, you actually sell a security that you do not own. This is referred to as *shorting* the stock. After the short sale, the investor is said to have a *short position* in the security.

short sale A sale in which the seller does not actually own the security that is sold.

Financial assets of all kinds are sold short, not just shares of stock, and the terms “long” and “short” are universal. However, the mechanics of a short sale differ quite a bit across security types. Even so, regardless of how the short sale is executed, the essence is the same. An investor with a long position benefits from price increases, and, as we will see, an investor with a short position benefits from price decreases. For the sake of illustration, we focus here on shorting shares of stock. Procedures for shorting other types of securities are discussed in later chapters.

Basics of a Short Sale

How can you sell stock you don’t own? It is easier than you might think: You borrow the shares of stock from your broker and then you sell them. At some future date, you will buy the same number of shares that you originally borrowed and return them, thereby eliminating the short position. Eliminating the short position is often called *covering the position* or, less commonly, *curing the short*.

You might wonder where your broker will get the stock to loan you. Normally, it will simply come from other margin accounts. Often, when you open a margin account, you are asked to sign a loan-consent agreement, which gives your broker the right to loan shares held in the account. If shares you own are loaned out, you still receive any dividends or other distributions and you can sell the stock if you wish. In other words, the fact that some of your stock may have been loaned out is of little or no consequence as far as you are concerned.

An investor with a short position will profit if the security declines in value. For example, assume that you short 1,000 shares of Nortel at a price of \$10 per share. You receive \$10,000 from the sale (more on this in a moment). A month later, the stock is selling for \$6 per share. You buy 1,000 shares for \$6,000 and return the stock to your broker, thereby covering your position. Because you received \$10,000 from the sale and it costs you only \$6,000 to cover, you made \$4,000.

Conventional Wall Street wisdom states that the way to make money is to “buy low, sell high.” With a short sale, we hope to do exactly that, just in opposite order—sell high, buy low. If a short sale strikes you as a little confusing, it might help to think about the everyday use of the terms. Whenever we say that we are “running short” on something, we mean we don’t have enough of it. Similarly, when someone says “don’t sell me short” they mean don’t bet on them not to succeed.

THE LONG AND SHORT OF IT

EXAMPLE 3.5

Suppose you short 2,000 shares of Barrick Gold at \$30 per share. Three months later you cover your short. If Barrick is selling for \$26 per share at that time, did you make or lose money? How much? What if you covered at \$32?

If you shorted at \$30 per share and covered at \$26, you originally sold 2,000 shares at \$30 and later bought them back at \$26, so you made \$4 per share, or \$8,000. If you covered at \$32, you lost \$4,000.

Short Sales: Some Details

When you short a stock, you must borrow it from your broker, so there are various requirements you must fulfill. First, there is an initial margin and a maintenance

margin. Second, after you sell the borrowed stock, the proceeds from the sale are credited to your account, but you cannot use them. They are, in effect, frozen until you return the stock. Finally, if there are any dividends paid on the stock while you have a short position, you must pay them.

To illustrate, we will again create an account balance sheet. Suppose you want to short 100 shares of Molson when the price is \$30 per share. This means you will borrow shares of stock worth a total of $\$30 \times 100 = \$3,000$. Your broker has a 50 percent initial margin and a 40 percent maintenance margin on short sales.

An important thing to keep in mind with a margin purchase of securities is that margin is calculated as the value of your account equity relative to the value of the securities purchased. With a short sale, margin is calculated as the value of your account equity relative to the value of the securities sold short. Thus, in both cases margin is equal to equity value divided by security value.

In our example here, the initial value of the securities sold short is \$3,000 and the initial margin is 50 percent, at a minimum, so you must deposit half of \$3,000, or \$1,500, in your account. With this in mind, after the short sale, your account balance sheet is as follows:

Assets		Liabilities and Account Equity	
Proceeds from sale	\$3,000	Short position	\$3,000
Initial margin deposit	1,500	Account equity	1,500
Total	\$4,500	Total	\$4,500

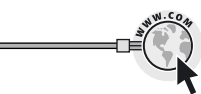
As shown, there are four items on the account balance sheet:

1. *Proceeds from sale.* This is the \$3,000 you received when you sold the stock. This amount will remain in your account until you cover your position. Note that you will not earn interest on this amount—it will just sit there as far as you are concerned.
2. *Margin deposit.* This is the 50 percent margin that you had to post. This amount will not change unless there is a margin call. Depending on the circumstances and your particular account agreement, you may earn interest on the initial margin deposit.
3. *Short position.* Because you must eventually buy back the stock and return it, you have a liability. The current cost of eliminating that liability is \$3,000.
4. *Account equity.* As always, the account equity is the difference between the total account value (\$4,500) and the total liabilities (\$3,000).

We now examine two scenarios: (1) the stock price falls to \$20 per share, and (2) the stock price rises to \$40 per share.

If the stock price falls to \$20 per share, then you are still liable for 100 shares, but the cost of those shares is now just \$2,000. Your account balance sheet becomes:

Assets		Liabilities and Account Equity	
Proceeds from sale	\$3,000	Short position	\$2,000
Initial margin deposit	1,500	Account equity	2,500
Total	\$4,500	Total	\$4,500



There are many sites devoted to the fine art of short selling. Try www.bearmarketcentral.com

Notice that the left-hand side doesn't change. The same \$3,000 you originally received is still held, and the \$1,500 margin you deposited is still there also. On the right-hand side, the short position is now a \$2,000 liability, down from \$3,000. Finally, the good news is that the account equity rises by \$1,000, so this is your gain. Your margin is equal to account equity divided by the security value (the value of the short position), $\$2,500/\$2,000 = 1.25$, or 125 percent.

However, if the stock price rises to \$40, things are not so rosy. Now the 100 shares for which you are liable are worth \$4,000:

Assets		Liabilities and Account Equity	
Proceeds from sale	\$3,000	Short position	\$4,000
Initial margin deposit	1,500	Account equity	500
Total	<u>\$4,500</u>	Total	<u>\$4,500</u>

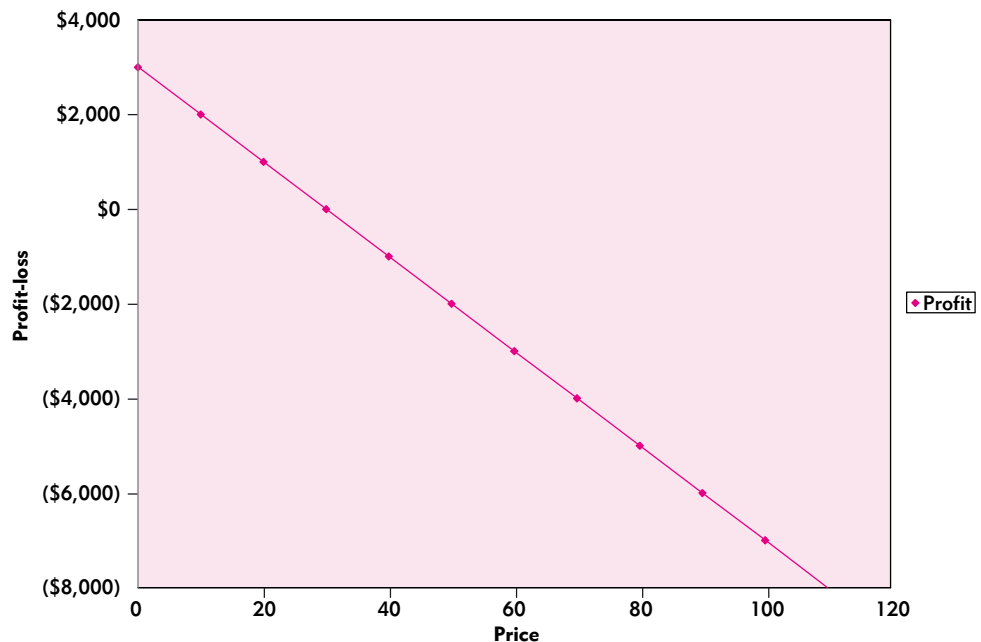
Again, the left-hand side doesn't change. The short liability rises by \$1,000, and, unfortunately for you, the account equity declines by \$1,000, the amount of your loss.

To make matters worse, when the stock price rises to \$40, you are severely undermargined. The account equity is \$500, but the value of the stock sold short is \$4,000. Your margin is $\$500/\$4,000 = 12.5$ percent. Since this is well below the 40 percent maintenance margin, you are subject to a margin call. You have two options: (1) buy back some or all of the stock and return it, or (2) add funds to your account.

We can graphically show the profit and loss position of an investor short selling 100 shares of stock at stock price \$30. Figure 3.1 illustrates profit and loss excluding the transaction and brokerage fees as a function stock price. The investor will get the maximum profit if stock price falls to \$0. On the other hand, if stock price exceeds \$30, then the investor will get loss.

FIGURE 3.1

Profit and Loss Positions as a Function of Stock Price



Top 20 Largest Consolidated Short Position Report

Please find below the Top 20 Largest Consolidated Short Position Report Highlights. The report is produced twice monthly, effective the 15th and the end of each month. The report below covers the 2-week period ending April 30th 2004.

TSX Datalinx collects this information on behalf of Market Regulation Services Inc. Participating Organizations are required to file this information pursuant to Universal Market Integrity Rule 10.10.

Issue Name	Symbol	As of Apr 30 th	As of Apr 15 th	Net Change
Nortel Networks Corporation	NT	38,331,230	36,957,241	1,373,989
Abitibi Consolidated Inc.	A	38,030,168	38,322,350	-292,182
Wheaton River Minerals Ltd. J	WRM	37,494,874	40,338,517	-2,843,643
Bombardier Inc. CL B SV	BBB.B	31,720,283	31,472,382	247,901
Cambior Inc.	CBJ	26,020,454	26,004,806	15,648
IUnits S&P/TSX 60 Index Fund Units	XIU	15,216,376	11,074,462	4,141,914
ATI Technologies Incorporated	ATY	14,569,531	14,513,793	55,738
Sherritt International Corp. RV	S	14,289,968	15,628,668	-1,338,700
Celestica Inc. SV	CLS	12,603,876	13,533,384	-929,508
Inco Limited	N	12,454,652	12,575,122	-120,470
Kinross Gold Corporation	K	11,410,096	11,535,367	-125,271
Quebecor World Inc. SV	IQW	10,893,446	10,829,466	63,980
Bema Gold Corporation J	BGO	10,022,468	10,603,971	-581,503
Royal Group Technologies Ltd.	RYG	9,408,143	9,762,205	-354,062
Domtar Inc.	DTC	9,293,637	8,946,658	346,979
Cgi Group Inc. CL A SV	GIB.A	8,511,831	8,582,514	-70,683
Barrick Gold Corporation	ABX	7,623,016	7,905,933	-282,917
BCE Inc.	BCE	6,850,099	5,893,283	956,816
Shaw Communications CL B NV	SJR.B	6,838,764	6,965,402	-126,638
Golden Star Resources Ltd.	GSC	6,713,157	6,557,949	155,208

Source: TSX website, www.tse.com, May 7, 2004.

A CASE OF THE SHORTS

EXAMPLE 3.6

You shorted 5,000 shares of a particular stock at a price of \$30 per share. The initial margin is 50 percent, and the maintenance margin is 40 percent. What does your account balance sheet look like following the short?

Following the short, your account becomes:

Assets		Liabilities and Account Equity	
Proceeds from sale	\$150,000	Short position	\$150,000
Initial margin deposit	75,000	Account equity	75,000
Total	\$225,000	Total	\$225,000

Notice that you shorted \$150,000 worth of stock, so, with a 50 percent margin requirement, you deposited \$75,000.

MARGIN CALLS

EXAMPLE 3.7

In our previous example (Example 3.6), at what price per share would you be subject to a margin call?

To answer this one, let P^* be the critical price. The short liability then is 5,000 shares at a price of P^* , or $5,000 \times P^*$. The total account value is \$225,000, so the account equity is $\$225,000 - 5,000 \times P^*$. We can summarize this information as follows:

$$\text{Short position} = 5,000 \times P^*$$

$$\text{Account equity} = \$225,000 - 5,000 \times P^*$$

Notice that the total account value, \$225,000, is the sum of your initial margin deposit plus the proceeds from the sale, and this amount does not change. Your margin is the account equity relative to the short liability:

$$\begin{aligned} \text{Margin} &= \frac{\text{Account equity}}{\text{Value of stock}} \\ &= \frac{\text{Initial margin deposit} + \text{Short proceeds} - \text{Number of shares} \times P^*}{\text{Number of shares} \times P^*} \\ &= \frac{\$150,000 + 75,000 - 5,000 \times P^*}{5,000 \times P^*} \end{aligned}$$

To find the critical price, we will set this margin equal to the maintenance margin and solve for P^* :

$$\text{Maintenance margin} = \frac{\text{Initial margin deposit} + \text{Short proceeds} - \text{Number of shares} \times P^*}{\text{Number of shares} \times P^*}$$

Solving for P^* yields:

$$P^* = \frac{(\text{Initial margin deposit} + \text{Short proceeds}) / \text{Number of shares}}{1 + \text{Maintenance margin}}$$

Finally, setting the maintenance margin equal to 40 percent, we obtain this critical price for P^* :

$$P^* = \frac{\$225,000 / 5,000}{1.40} = \$32.14$$

At any price above \$32.14, your margin will be less than 40 percent, so you will be subject to a margin call, so this is the highest possible price that could be reached before that occurs.

As Example 3.7 shows, you can calculate the critical price on a short sale (the highest price before you get a margin call) as follows:

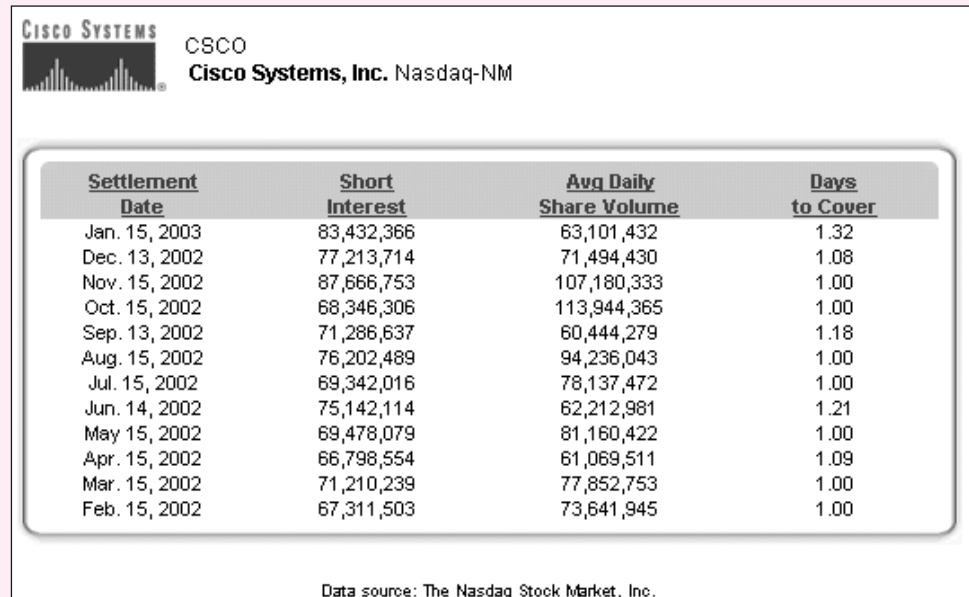
$$P^* = \frac{(\text{Initial margin deposit} + \text{Short proceeds}) / \text{Number of shares}}{1 + \text{Maintenance margin}} \quad (3.2)$$

For example, suppose you shorted 1,000 shares at \$50. The initial margin is 50 percent, and the maintenance margin is 40 percent. What's the critical stock price, and how do you interpret it?

Noting that the initial margin deposit is \$25,000 (50 percent of the short proceeds), see if you don't agree that the critical stock price, P^* , is $\$75/1.4 = \53.57 . So, if the stock price rises above 53.57, you're subject to a margin call.

WORK THE WEB

You can find the short interest for the current month in many financial publications. But what if you want a longer history of the shares sold short for a particular company? At www.nasdaq.com, you can find the short interest for companies listed on the Nasdaq for the previous 12 months. We went to the site and looked up Cisco, and this is what we found:



Settlement Date	Short Interest	Avg Daily Share Volume	Days to Cover
Jan. 15, 2003	83,432,366	63,101,432	1.32
Dec. 13, 2002	77,213,714	71,494,430	1.08
Nov. 15, 2002	87,666,753	107,180,333	1.00
Oct. 15, 2002	68,346,306	113,944,365	1.00
Sep. 13, 2002	71,286,637	60,444,279	1.18
Aug. 15, 2002	76,202,489	94,236,043	1.00
Jul. 15, 2002	69,342,016	78,137,472	1.00
Jun. 14, 2002	75,142,114	62,212,981	1.21
May 15, 2002	69,478,079	81,160,422	1.00
Apr. 15, 2002	66,798,554	61,069,511	1.09
Mar. 15, 2002	71,210,239	77,852,753	1.00
Feb. 15, 2002	67,311,503	73,641,945	1.00

Data source: The Nasdaq Stock Market, Inc.

As you can see, the short interest in Cisco has risen from about 67 million shares in February 2002 to about 83 million shares in January 2003. Why would you want a history of short sales? Some investors use short sales as an indicator of investor pessimism, which we discuss in a later chapter. Here's a question for you: What do you think "Days to Cover" means?

short interest The amount of common stock held in short positions.

At this point you might wonder whether short selling is a common practice among investors. Actually it is quite common and a substantial volume of stock sales are initiated by short sellers. The nearby *Investment Updates* box is a report from the TSX website reporting short interest. **Short interest** is the amount of common stock held in short positions. As shown on page 87, the amount of stock held short for some companies can be several tens of millions of shares, and the total number of shares held short across all companies can be several billion shares. A nearby *Work the Web* box shows how to find short interest for a particular company.

We conclude our discussion of short sales with a *very* important observation. With a long position, the most you can ever lose is your total investment. In other words, if you buy \$10,000 worth of stock, \$10,000 is the most you can lose because the worst that can happen is the stock price drops to zero. However, if you short \$10,000 in stock, you

can lose *much more* than \$10,000 because the stock price can keep rising without any particular limit. Potential short sellers should remember the following classic bit of Wall Street wisdom: “He that sells what isn’t his’n, must buy it back or go to prison!”¹



Check This

- 3.3a What is a short sale?
- 3.3b Why might an investor choose to short a stock?
- 3.3c What is the maximum possible loss on a short sale? Explain.

3.4 Investor Objectives, Constraints, and Strategies

Different investors will have very different investment objectives and strategies. For example, some will be very active, buying and selling frequently; others will be relatively inactive, buying and holding for long periods of time. Some will be willing to bear substantial risk in seeking out returns; for others, safety is a primary concern. In this section, we describe, in general terms, some strategies that are commonly pursued and their relationship to investor constraints and objectives.

In thinking about investor objectives, the most fundamental question is: Why invest at all? For the most part, the only sensible answer is that we invest today to have more tomorrow. In other words, investment is simply deferred consumption; instead of spending today, we choose to wait because we wish to have (or need to have) more to spend later. There is no difference, really, between investing and saving.

Given that we invest now to have more later, the particular investment strategy chosen will depend on, among other things, willingness to bear risk, the time horizon, and taxes. We discuss these and other issues next.

Risk and Return

Probably the most fundamental decision that an investor must make concerns the amount of risk that she is willing to bear. Most investors are *risk-averse*, meaning that, all other things the same, they dislike risk and want to expose themselves to the minimum risk level possible. However, as our previous chapter indicated, larger returns are generally associated with larger risks, so there is a trade-off. In formulating investment objectives, the individual must therefore balance return objectives with risk tolerance.

Attitudes toward risk are strictly personal preferences, and individuals with very similar economic circumstances can have very different degrees of risk aversion. For this reason, the first thing that must be assessed in evaluating the suitability of an investment strategy is risk tolerance. Unfortunately, this is not an easy thing to do. Most individuals have a difficult time articulating in any precise way their attitude toward risk (what’s yours?). One reason is that risk is not a simple concept; it is not easily defined or measured. Nevertheless, the nearby *Investment Updates* box contains an article from *The Wall Street Journal* about risk tolerance that has a short quiz that might help you assess your attitude toward risk. When you take the quiz, remember there are no right or wrong answers. Afterwards, score your risk tolerance as shown at the end of the article.

¹Of course, the same is true for “she that sells what isn’t hers’n”; it just doesn’t rhyme as well.

Bumpy Market Reminds Investors to Assess Their Risk Tolerance

Do-It-Yourself Crowd Has Quizzes to Rate Courage on Finances

Risk

For many investors, it's a word that has all but disappeared from the lexicon. Throughout much of the 1990s, stocks mostly went up. And even when they went down, many investors saw the slump as just another buying opportunity because stocks soon would go up again.

But the bumpy ride of the past six months finally has woken investors up to the fact that, with stocks more volatile these days than anytime in history, risk is playing an increasingly significant role in their lives.

Did you root the Nasdaq Composite Index higher when it bested 5000 earlier this year, but secretly fear for your overbloated technology shares? Did you panic when the Nasdaq subsequently plummeted in March and April, then kick yourself for not investing more when the market rebounded days later?

These dueling visions of fear and greed reflect the fact that many of today's do-it-yourself investors haven't assessed their own tolerance for risk, captivated instead by the lure of what seems to be easy, almost riskless, riches.

The current, and often myopic, quest for market wealth has spawned "a willingness to take risks that [average investors] haven't had in the past," says Robert J. Shiller, an economics professor at Yale University and author of a new market tome, "Irrational Exuberance." In the process, he says, "investors haven't stopped to think about what risk is at all."

Until the recent market drop, "people had no clue what [risk] is about," agrees Joanna Bickel, a project manager at TIAA-CREF, the big New York provider of retirement services, which is working to bring a more sophisticated risk-assessment tool to its Web site later this year so that its investors can better gauge their own risk profile.

There once was a time when risk assessment was the duty of stockbrokers or financial planners, who questioned clients to gauge their comfort level for volatility and potential losses. But with the explosion of online trading, investors have taken control of their own finances. In the process, they have cast aside the mental due diligence that ultimately determines whether they're sleepless in Cisco or bored by Boeing.

It's an age-old quest for balance. Investors who structure their portfolios so that they are comfortable with both the rewards and risks are the ones who sleep best when market downdrafts keep others awake at

night. Moreover, they aren't the ones berating themselves for missing out on big gains when the market rebounds.

To help investors determine the level of risk they're most comfortable with, here's a statistically based risk-tolerance quiz constructed with the help of Investment Technologies Inc., a New York firm that provides investment tools and risk-assessment instruments to financial institutions such as banks and investment firms.

Financial companies increasingly rely on risk quizzes similar to this one, though often far more detailed, to better assess a client's true tolerance for market vicissitudes. As investors continue to take on increasing responsibility for their own money—through online trading or in self-managed 401(k) and IRA retirement accounts—"the issue of how individual investors make investment decisions is becoming a huge issue," says Brian Rom, president of Investment Technologies.

All manner of risk-assessment quizzes are available. Some are posted on financial Web sites, others are available from financial planners and investment companies. Some are relatively simple and are designed to match an investor with particular mutual funds or annuities.

The more sophisticated quizzes are based on statistical research that quantifies the psychological behavior of people and their money habits. Such "behavioral finance" studies have determined that many people typically aren't rational but are irrational when it comes to money and risk.

For example, research has shown that most people fear loss more than they value comparable gain. Offer someone a sure \$50 or, on the flip of a coin, the possibility of winning \$100 or winning nothing, and chances are they'll pocket the sure thing. Conversely, penalize them \$50 to start, then offer a flip of a coin to lose \$100 or lose nothing, and they'll invariably take the coin toss. Both scenarios are statistically equivalent, yet people tend to view "the possibility of recouping a loss as more important than the possibility of greater gain," even though the coin flip could mean an even greater loss, says James Corter, associate professor of statistics and education at New York's Columbia University.

The accompanying quiz is based on research done by Mr. Corter. At just eight questions, it is short, but it is backed by empirical studies and "has adequate reliability and validity," says Mr. Corter.

The quiz is designed to reveal where an individual falls along the risk spectrum. It is accompanied by a

(continued)

Bumpy Market Reminds Investors to Assess Their Risk Tolerance

chart detailing where a variety of stock and bond investments, based on historical performance and volatility, fall along the risk spectrum, to give quiz takers an idea of the class of investments most likely to match an investor's temperament.

Certainly, no risk quiz can tell you everything about your financial courage, and your score here doesn't mean that if you fall into a more conservative category that you can't stomach a little exposure to volatile tech stocks. "But if you answer the questions candidly," says Ms. Bickel at TIAA-CREF, "and don't worry about whether you come out conservative or a swinger, you'll have" an accurate portrayal of your risk level that you can use when building your portfolio.

Risk Adviser

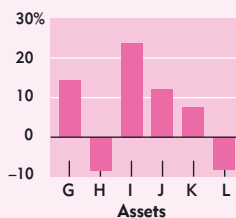
Do you know your risk tolerance? This short questionnaire can help you gain a better understanding of your tolerance for market vicissitudes. Answer the questions, tally the results and match the score to the Suitable Investments.*

- 1 Choose the statement that best describes your interests in an investment program.
 - A My primary aim is to achieve high long-term return in the value of my portfolio, even if that means accepting some significant short-term swings in values.
 - B My primary interest is in stable growth in the value of my portfolio, even if that means somewhat lower returns over time.
 - C I attach equal value to maximizing long-term returns and minimizing fluctuations in value.
- 2 How important are the following factors when you decide to purchase a stock or mutual fund?
 - a) Short-term potential for the price to appreciate.
 - b) Long-term potential for the price to appreciate.
 - c) If a stock, the potential that the company will be bought or taken over.
 - d) Gain or loss in the price over the past six months.
 - e) Gain or loss in the price over the past five years.
 - f) Stock was recommended by a friend or coworker.
 - g) Risk that the price could drop.
 - h) Potential that the investment will pay dividends.

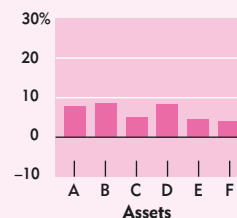
Very Important	Somewhat Important	Not At All Important
A	B	C
A	B	C
A	B	C
A	B	C
A	B	C
A	B	C
A	B	C
A	B	C
A	B	C

- 3 a) Would you put \$5,000 of your assets into an investment where you have a 70% chance of doubling your money (to \$10,000) and a 30% chance of losing the entire \$5,000?
Yes _____ No _____
- b) How about an 80% chance of doubling to \$10,000 and a 20% chance of losing the entire \$5,000?
Yes _____ No _____
- c) How about a 60% chance of doubling to \$10,000 and a 40% chance of losing the entire \$5,000?
Yes _____ No _____
- 4 Suppose you have a choice between two mutual funds, both of which are broadly diversified into 6 asset classes (e.g., stocks, bonds, real estate, etc.). The charts below show the changes in value over the past 12 months for the assets in each portfolio. Which portfolio of assets do you prefer to invest in?

One-Year Returns for Assets in Portfolio A



One-Year Returns for Assets in Portfolio B



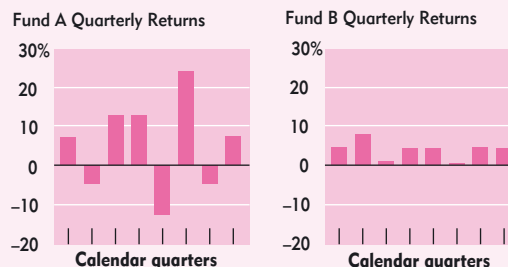
- 5 Assume that you have made an investment that has dropped in value by \$2,000 and you find yourself faced with the following choice (please circle only one option):

(continued)

(concluded)

- A Sell and take the immediate \$2,000 loss (a 100% chance of loss).
 - B Hold on to it with a 50% chance of recouping the \$2,000 and a 50% chance of losing an additional \$2,000.
 - C No preference.
- 6 Assume that you have recently invested \$10,000 in a stock and that the value of this stock has dropped 15% in value in one week. You can discover no reason for this decline, and the broader market has not dipped accordingly. Which of the following actions would you be most likely to take? (Circle one answer only.)
- A Buy more.
 - B Sell all your holdings in the fund immediately and put the money into a less volatile investment.
 - C Sell half of your holdings in the fund immediately and put the money elsewhere.
 - D Wait for the price to recover and then sell all your holdings in the fund.
 - E Do nothing (occasional dips in price are to be expected).

7 The following charts show quarterly performance of two equity mutual funds over the past two years. Which do you prefer to invest in?



- 8 As an investor in stock and bond markets, how would you rate your degree of experience relative to other individual investors? (Please circle one.)
- A Extremely experienced
 - B More than average experience
 - C Average experience
 - D Less than average experience
 - E Little or no experience

Source: Investment Technologies Inc.

Scoring

1 – A. 15; B. 0; C. 7

FOR EACH QUESTION:

2a) – A. 0; B. 1; C. 2

2b) through 2e)

A. 2; B. 1; C. 0

FOR EACH QUESTION:

2f) through 2h)

A. 0; B. 1; C. 2

FOR EACH QUESTION:

3a) through 3c)

Yes. 5; No. 0

4 – A. 10; B. 0

5 – A. 0; B. 10; C. 10

6 – A. 15; B. 0; C. 5; D. 0;

E. 10

7 – A. 10; B. 0

8 – A. 20; B. 15; C. 10;

D. 5; E. 0

Score In Points	Suitable Investments*
0–11	Avoid risk! Open a money-market account—or buy a bigger mattress.
12–33	Gentlemen (and ladies) prefer bonds, and are most at home with high-grade corporate and government bonds of an intermediate duration.
34–55	You’re still a bond buyer. But you’re willing to live a bit closer to the edge with interest-only U.S. Treasury STRIPS.
56–77	Mix it up. Convertible bonds and stocks are to your liking. But safer utilities and large blue chips are as risky as you go. Real-estate investment trusts fit too.
78–99	Stock up on stocks. At the low end, you’re comfortable with larger value stocks; at the high end, riskier midcap and growth stocks work.
100+	Viva Las Vegas, baby! Place your bets on ‘Net stocks and new-tech issues. Risks are high, but so are the payoffs.

*Suitable investments are based upon an analysis of the volatility of 75 various bond and stock indices, and apply to investment horizons of between 10 and 15 years.

Investor Constraints

In addition to attitude toward risk, an investor's investment strategy will be affected by various constraints. We discuss five of the most common and important constraints next.

Resources Probably the most obvious constraint, and the one to which many students can most easily relate, is *resources*. Obviously, if you have no money, you cannot invest at all! Beyond that, certain types of investments and investment strategies either explicitly or effectively have minimum requirements.

What is the minimum resource level needed? It depends on the investment strategy, and there is no precise answer. Through mutual funds, investments in the stock market can be made for as little as \$500 to start, with subsequent investments as small as \$100 or less. However, since there are frequently minimum commission levels, account fees, and other costs associated with buying and selling securities, an investor interested in actively trading on her own would probably need more like \$5,000 to \$50,000.

Horizon The investment *horizon* refers to the planned life of the investment. For example, individuals frequently save for retirement, where the investment horizon, depending on your age, can be very long. On the other hand, you might be saving to buy a house in the near future, implying a relatively short horizon.

The reason horizon is important is evident in our previous chapter. It is true that stocks outperformed the other investments in the long run, but there were short periods over which they did much worse. Consequently, if you have to pay tuition in 30 days, stocks are probably not the best investment for that money. Thus, in thinking about the riskiness of an investment, one important consideration is when the money will be needed.

Liquidity For some investors, there is the possibility that an asset will need to be sold quickly. In such cases, the asset's *liquidity* is particularly important. An asset with a high degree of liquidity is one that can be sold quickly without a significant price concession. Such an asset is said to be liquid.

Notice that liquidity has two related dimensions. After all, any asset can be sold quickly and easily if the price is cut sufficiently, so it's not just a question of the ease with which an asset can be sold. Liquidity is difficult to measure precisely, but some assets are clearly much more liquid than others. A good way to think about liquidity is to imagine buying an asset and then immediately reselling it. The less you would lose on this "round-trip" transaction, the more liquid is the asset.

Taxes Different types of investments are taxed very differently. When we talk about the return on an investment, what is really relevant is the *aftertax* return. As a result, taxes are a vital consideration. Higher tax bracket investors will naturally seek investment strategies with favourable tax treatments, while lower tax bracket (or tax-exempt) investors will focus more on pretax returns.

In addition, the way in which an investment is held can dramatically affect its tax status. The tax laws and other rules are in a constant state of flux, so we will stick to broad principles. The general idea is that certain types of accounts, particularly retirement savings accounts, receive preferential tax treatment. The tax break can be



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enormous, and, as a result, the amount you can invest each year in these accounts is strictly limited. There are also lots of rules regarding when you can withdraw the money, and it is important to pay careful attention to them.

Investors can open an RRSP (Registered Retirement Savings Plan) account and contribute their savings into the plan. They choose the type of investment instruments they want (e.g., stocks, bonds, GICs, mutual funds, etc.). No matter what type of investment instruments investors choose, their contributions are tax-deductible. Later, when they retire, they owe income taxes on whatever they take out of the account. However, there are restrictions on RRSP investment plans. We will discuss RRSP accounts in detail in Chapter 5.

Special Circumstances Beyond the general constraints we have discussed, essentially everyone will have some special or unique requirements or opportunities. For example, many companies will match certain types of investments made by employees on a dollar-for-dollar basis (typically up to some maximum per year). In other words, you double your money immediately with complete certainty. Since it is difficult to envision any other investment with such a favourable payoff, such an opportunity should probably be taken even though there may be some undesirable liquidity, tax, or horizon considerations.

A list of possible special circumstances would be essentially endless, so we make no attempt to produce one here. Just to give a few examples, however, the number of dependents and their needs will vary from investor to investor, and the need to provide for dependents will be an important constraint. Some investors want to invest only in companies whose products and activities they consider to be socially or politically suitable, and some investors want to invest primarily in their own community or state. Finally, some investors, such as corporate insiders, face regulatory and legal restrictions on their investing, and others, such as political officeholders, may have to avoid (or at least ethically *should* avoid) some types of investments out of concern for conflicts of interest.

Strategies and Policies

In formulating an investment strategy or policy, the four key areas that must be addressed are investment management, market timing, asset allocation, and security selection. We discuss each of these next.

Investment Management A basic decision that you and every other investor must make is whether you will manage your investments yourself or hire someone else to do it. At the one extreme, you can open an account with a broker and make all of the buy and sell decisions yourself. At the other extreme, you can invest all of your money in a managed account, such as a wrap account, and make no buy and sell decisions at all.

Often investors partially manage their investments themselves and partially use professional managers. For example, you might divide your money between, say, four different mutual funds. In this case, you have hired four different money managers. However, you decided what types of funds to buy, you chose the particular funds within each type, and you decided how to divide your money between the funds.

It might appear that managing your money by yourself is the cheapest way to go because you save on the management fees. Appearances can be deceiving, however. First of all, you should consider the value of your time. For some, researching investments and making investment decisions is something of a hobby; for many of us, however, it is too time-consuming, and this is a powerful incentive to hire professional management. Also, for some strategies, the costs of doing it yourself can exceed those of hiring someone even after considering fees simply because of the higher commissions and other fees that individual investors frequently pay. For example, it might not be a bad idea for some of your investment to be in real estate, but a small investor will find it very difficult to directly acquire a sound real estate investment at reasonable cost.

An interesting question regarding professional management concerns the possibility of generating superior returns. It would seem logical to argue that by hiring a professional investor to manage your money, you would earn more, at least on average. Surely the pros make better investment decisions than the amateurs! Surprisingly, this isn't necessarily true. We will return to this subject in later chapters, but, for now, we simply note that the possibility of a superior return may not be a compelling reason to prefer professional management.

Market Timing A second basic investment decision you must make is whether you will try to buy and sell in anticipation of the future direction of the overall market. For example, you might move money into the stock market when you thought it was going to rise, and move money out when you thought it was going to fall. This activity is called **market timing**. Some investors very actively move money around to try to time short-term market movements; others are less active but still try to time longer-term movements. A fully passive strategy is one in which no attempt is made to time the market.

market timing Buying and selling in anticipation of the overall direction of a market.

Market timing certainly seems like a reasonable thing to do; after all, why leave money in an investment if you expect it to decrease in value? You might be surprised that a common recommendation is that investors *not* try to time the market. As we discuss in more detail in a later chapter, the reason is that successful market timing is, to put it mildly, very difficult. To outperform a completely passive strategy, you must be able to very accurately predict the future; if you make even a small number of bad calls, you will likely never catch up.

Asset Allocation As we have examined in Chapter 2, in formulating your investment strategy, you must decide what percentage of your money will be placed in each of these broad categories. This is your **asset allocation** decision.

asset allocation The distribution of investment funds among broad classes of assets.

An important asset allocation decision for many investors is how much to invest in common stocks and how much to invest in bonds. There are some basic rules of thumb for this decision, one of the simplest being to split the portfolio into 60 percent stocks and 40 percent bonds. This popular 60–40 mix is generally a reasonable allocation strategy, but you should read the article in the nearby *Investment Updates* box before you finally decide.

security selection Selection of specific securities within a particular class.

Security Selection After the asset allocation you must decide on **security selection**, that is, you must decide which specific securities to buy within each class.

For example, you might decide that you want 30 percent of your money in small stocks. This is an asset allocation decision. Next, however, you must decide *which*

Why do so many investors hold a mix of 60% stocks and 40% bonds?

As it turns out, there are three main arguments for the 60–40 mix. *But none of them clinch the case.*

It Produces Good Returns in Bad Times

The 1930s and 1940s were a nightmare for investors. In the 1930s, stocks were trounced by deflation. In the 1940s, bonds were battered by inflation. But in both decades, a mix of 60% U.S. stocks and 40% U.S. longer-term government bonds outpaced inflation by a healthy margin.

“What 60–40 has done is kept people whole over an extended period, especially a deflationary period,” says Keith Ambachtsheer, a pension consultant in Toronto. “Where 60–40 runs into problems is in the 1970s,” when inflation was much higher than in the 1940s. That high inflation not only wreaked havoc on bonds, but also hurt stocks, which were vulnerable because of rich valuations.

It Offers a Decent Mix of Income and Capital Gains

If you are retired and living off your portfolio, you might have been told to buy a 60–40 mix, because you get a moderate amount of income and your portfolio should keep growing along with inflation.

Right now, for instance, stocks yield less than 2%, but bonds kick off around 6%, giving a 60–40 portfolio an overall yield of some 3½%.

Meanwhile, for capital appreciation, you have to rely on your stocks. Over the long haul, these might climb at 7% a year, assuming share price-to-earnings multiples hold steady and earnings per share rise at their historic 7% annual clip. If you have 60% in stocks, that translates into overall portfolio growth of more than 4%, nicely ahead of today’s 2% inflation rate.

But in truth, you could keep up with inflation—and generate a much higher yield—by putting far less into stocks and keeping even more in bonds. For retirees, it seems, there is nothing magical about the 60–40 mix.

It Generates the Best Risk-Adjusted Return

Derek Sasveld, a senior consultant with Chicago’s Ibbotson Associates, says the theoretical justification for the 60–40 mix came in the mid-1960s. At that time, there was keen interest among some institutional investors in building portfolios that produced good risk-adjusted returns. To find the right mix, they looked at the past 40 years of U.S. stock and bond returns.

“That 60–40 portfolio from 1926 through 1965 was terrific,” Mr. Sasveld notes. “The correlation between stocks and bonds at that point was virtually zero.”

But times have changed. “Stocks and bonds are now more correlated,” Mr. Sasveld says. “People shouldn’t think about the 60–40 mix as being a good place to start.”

Source: Jonathan Clements, *The Wall Street Journal*, December 16, 1997. © Dow Jones & Company, Inc. All Rights Reserved Worldwide.

small stocks to buy. Here again there is an active strategy and a passive strategy. With an active strategy, we try to identify those small stocks that we think will do the best in the future; in other words, we try to pick “winners.” Investigating particular securities within a broad class in an attempt to identify superior performers is often called *security analysis*.

With a passive security selection strategy, we might just acquire a diverse group of small stocks, perhaps by buying a mutual fund that holds shares in hundreds of small companies.

A useful way to distinguish asset allocation from security selection is to note that asset allocation is essentially a macro-level activity because the focus is on whole markets or classes of assets. Security selection is a much more micro-level activity because the focus is on individual securities.

If we simultaneously consider the active versus passive aspects of asset allocation and security selection, four distinct investment strategies emerge, which we summarize in the following two-by-two table:

Asset Allocation	Security Selection	
	Active	Passive
Active	I	II
Passive	III	IV

With strategy I, we actively move money between asset classes based on our beliefs and expectations about future performance and we also try to pick the best performers in each class. This is a fully active strategy. At the other extreme, strategy IV, we follow a fully passive strategy, neither changing asset allocation very much nor choosing individual securities in an attempt to identify the likely best performers.

With strategy II, we actively vary our holdings by class, but we don't try to choose particular securities within each class. With this strategy, we might move back and forth between short-term government bonds and small stocks in an attempt to time the market. Finally, with strategy III, we don't vary our asset allocations, but we do select individual securities. A diehard stock picker would fall into this category; such an investor holds 100 percent stocks and concentrates solely on buying and selling individual companies.



Check This

- 3.4a What does the term “risk-averse” mean?
- 3.4b What are some of the constraints investors face in making investment decisions?
- 3.4c What is asset allocation?

3.5 Summary and Conclusions

This chapter explores the investing process. We discuss how to choose a broker and various aspects of broker–customer relations, including hypothecation, street name registration, and arbitration. The use of margin to purchase securities is covered, and the financial leverage effect of a margin purchase is emphasized. We describe short sales in some detail and stress the potentially unlimited losses that can arise from a short position. Finally, we cover some of the constraints faced by investors, and we briefly describe some basic investment strategy considerations, including market timing, asset allocation, and security selection.

Real World

This chapter covered the basics of brokerage accounts, some important trade types, and, finally, some big-picture issues regarding investment strategies and objectives. How should you, as an investor or investment manager, put this information to work?

The answer is that you need to open a brokerage account! Investing is like many activities; the best way to learn is by making mistakes. Unfortunately, making mistakes with real money is an expensive way to learn, so we don't recommend trying things like short sales with real money, at least not at first.

Instead, to learn about how to trade and gain some experience with making (and losing) money, you should open a Stock-Trak account (or a similar simulated brokerage account). Take it seriously. Try various trade types and strategies and see how they turn out. The important thing to do is to follow your trades and try to understand why you made or lost money and also why you made or lost the amount you did.

In a similar vein, you should carefully review your account statements to make sure you understand exactly what each item means and how your account equity is calculated.

After you have gained some experience trading "on paper," you should open a real account as soon as you can pull together enough money. Try visiting the various online brokers we list in Table 3.2 to find out the minimum amount you need to open an account. The amount has been declining.

Looking back at Chapter 1, you know that it's important to get started early. Once you have a real account, however, it's still a good idea to keep a separate "play money" account to test trading ideas to make sure you really understand them before committing your precious real money.

Key Terms

Canadian Investor Protection Fund (CIPF) 76
cash account 77
margin account 77
call money rate 77
margin 77
initial margin 78
maintenance margin 79

margin call 79
hypothecation 82
street name 82
short sale 83
short interest 89
market timing 96
asset allocation 96
security selection 96

Chapter Review Problems and Self-Test

- The Account Balance Sheet** Suppose you want to buy 3,000 shares of Magna International at a price of \$100 per share. You put up \$200,000 and borrow the rest. What does your account balance sheet look like? What is your margin?
- Short Sales** Suppose that in the previous problem you shorted 3,000 shares instead of buying. The initial margin is 60 percent. What does the account balance sheet look like following the short?
- Margin Calls** You purchased 500 shares of stock at a price of \$105 per share on a 50 percent margin. If the maintenance margin is 30 percent, what is the critical stock price?

Answers to Self-Test Problems

1. The 3,000 shares of Magna cost \$300,000. You supply \$200,000, so you must borrow \$100,000. The account balance sheet looks like this:

Assets		Liabilities and Account Equity	
3,000 shares of Magna	\$300,000	Margin loan	\$100,000
		Account equity	200,000
Total	\$300,000	Total	\$300,000

Your margin is the account equity divided by the value of the stock owned:

$$\begin{aligned}\text{Margin} &= \$200,000 / \$300,000 \\ &= .666 \dots \\ &= 67\%\end{aligned}$$

2. Following the short, your account is as follows:

Assets		Liabilities and Account Equity	
Proceeds from sale	\$300,000	Short position	\$300,000
Initial margin deposit	180,000	Account equity	180,000
Total	\$480,000	Total	\$480,000

Notice that you shorted \$300,000 worth of stock, so, with a 60 percent margin requirement, you deposited \$180,000.

3. The lowest price the stock can drop before you receive a margin call is:

$$P^* = \frac{\text{Amount borrowed} / \text{Number of shares}}{1 - \text{Maintenance margin}}$$

You borrowed $500 \times \$105 \times 0.50 = \$26,250$. Therefore:

$$P^* = \frac{\$26,250 / 500}{1 - 0.3} = \$75$$

You will receive a margin call if the stock drops below \$75.



Test Your Investment Quotient



- Investment Objectives** An individual investor's investment objectives should be expressed in terms of:
 - Risk and return.
 - Capital market expectations.
 - Liquidity needs and time horizon.
 - Tax factors and legal and regulatory constraints.
- Asset Allocation** Which of the following best reflects the importance of the asset allocation decision to the investment process? The asset allocation decision:
 - Helps the investor decide on realistic investment goals.
 - Identifies the specific securities to include in a portfolio.



- c. Determines most of the portfolio's returns and volatility over time.
 - d. Creates a standard by which to establish an appropriate investment horizon.
3. **Leverage** You deposit \$100,000 cash in a brokerage account and purchase \$200,000 of stocks on margin by borrowing \$100,000 from your broker. Later, the value of your stock holdings falls to \$150,000, whereupon you get nervous and close your account. What is the percentage return on your investment (ignore interest paid)?
- a. 0 percent
 - b. -25 percent
 - c. -50 percent
 - d. -75 percent
4. **Leverage** You deposit \$100,000 cash in a brokerage account and short sell \$200,000 of stocks. Later, the value of the stocks held short rises to \$250,000, whereupon you get nervous and close your account. What is the percentage return on your investment?
- a. 0 percent
 - b. -25 percent
 - c. -50 percent
 - d. -75 percent
5. **Account Margin** You deposit \$100,000 cash in a brokerage account and purchase \$200,000 of stocks on margin by borrowing \$100,000 from your broker. Later, the value of your stock holdings falls to \$175,000. What is your account margin in dollars?
- a. \$50,000
 - b. \$75,000
 - c. \$100,000
 - d. \$150,000
6. **Account Margin** You deposit \$100,000 cash in a brokerage account and purchase \$200,000 of stocks on margin by borrowing \$100,000 from your broker. Later, the value of your stock holdings falls to \$150,000. What is your account margin in percent?
- a. 25 percent
 - b. 33 percent
 - c. 50 percent
 - d. 75 percent
7. **Account Margin** You deposit \$100,000 cash in a brokerage account and short sell \$200,000 of stocks on margin. Later, the value of the stocks held short rises to \$225,000. What is your account margin in dollars?
- a. \$50,000
 - b. \$75,000
 - c. \$100,000
 - d. \$150,000
8. **Account Margin** You deposit \$100,000 cash in a brokerage account and short sell \$200,000 of stocks on margin. Later, the value of the stocks held short rises to \$250,000. What is your account margin in percent?
- a. 20 percent
 - b. 25 percent
 - c. 33 percent
 - d. 50 percent
9. **Margin Calls** You deposit \$100,000 cash in a brokerage account and purchase \$200,000 of stocks on margin by borrowing \$100,000 from your broker, who requires a maintenance margin of 30 percent. Which of the following is the largest value for your stock holdings for which you will still receive a margin call?
- a. \$200,000
 - b. \$160,000

- c. \$140,000
 - d. \$120,000
10. **Margin Calls** You deposit \$100,000 cash in a brokerage account and short sell \$200,000 of stocks. Your broker requires a maintenance margin of 30 percent. Which of the following is the lowest value for the stocks you are holding short for which you will still receive a margin call?
 - a. \$260,000
 - b. \$240,000
 - c. \$220,000
 - d. \$200,000
 11. **Investment Decisions** Which of the following investment factors, strategies, or tactics is the least relevant to a passive investment policy?
 - a. Market timing
 - b. Asset allocation
 - c. Political environment
 - d. Tax status
 12. **Investment Decisions** Which of the following investment factors, strategies, or tactics is most associated with an active investment policy?
 - a. Market timing
 - b. Asset allocation
 - c. Security selection
 - d. Tax status
 13. **Investment Decisions** Which of the following investment strategies or tactics will likely consume the greatest amount of resources, time, effort, and so on, when implementing an active investment policy?
 - a. Market timing
 - b. Asset allocation
 - c. Security selection
 - d. Tax strategy
 14. **Investment Decisions** Which of the following investment strategies or tactics is likely the most relevant in the decision to short sell a particular stock?
 - a. Market timing
 - b. Asset allocation
 - c. Security selection
 - d. Tax strategy
 15. **Investment Constraints** Which of the following investment constraints is expected to have the most fundamental impact on the investment decision process for a typical investor?
 - a. Investor's tax status
 - b. Investor's time horizon
 - c. Investor's need for liquidity
 - d. Investor's attitude toward risk

Concept Questions

1. **Margin** What does it mean to purchase a security on margin? Why might you do it?
2. **Short Sales** What does it mean to sell a security short? Why might you do it?
3. **Margin Requirements** What is the reason margin requirements exist?
4. **Allocation versus Selection** What is the difference between asset allocation and security selection?

5. **Allocation versus Timing** Are market timing and active asset allocation similar? Why or why not?
6. **Street Name Registration** Why is street name registration advantageous to investors? Under what circumstances is it required?
7. **Broker–Customer Relations** Suppose your broker tips you on a hot stock. You invest heavily, but, to your considerable dismay, the stock plummets in value. What recourse do you have against your broker?
8. **Long Profits** An important difference between a long position in stock and a short position concerns the potential gains and losses. Suppose a stock sells for \$18 per share, and you buy 500 shares. What are your potential gains and losses?
9. **Liquidity** The liquidity of an asset directly affects the risk of buying or selling that asset during adverse market conditions. Describe the liquidity risk you face with a short stock position during a market rally, and a long stock position during a market decline.
10. **Short Sale Profits** Suppose you sell short 1,000 shares of a stock at \$60 per share. Ignoring borrowing costs and fees, what is the maximum profit you can earn from this investment? What is the potential maximum loss?

Questions and Problems

Core Questions

1. **Calculating Margin** Sprinkle Corporation stock sells for \$75 per share, and you've decided to purchase as many shares as you possibly can. You have \$12,000 available to invest. What is the maximum number of shares you can buy if the initial margin is 50 percent?
2. **Margin** You purchase 500 shares of Kinnel Co. stock on margin at a price of \$60. Your broker requires you to deposit \$18,000. What is your margin loan amount? What is the initial margin requirement?
3. **Margin Return** In the previous problem, suppose you sell the stock at a price of \$70. What is your return? What would your return have been had you purchased the stock without margin? What if the stock price is \$50 when you sell the stock?
4. **Margin** Repeat the previous two problems assuming the initial margin requirement is 40 percent. Does this suggest a relationship between the initial margin and returns?
5. **Margin Purchases** You have \$10,000 and decide to invest on margin. If the initial margin requirement is 60 percent, what is the maximum dollar purchase you can make?
6. **Margin Calls** You buy 1,200 shares of stock at a price of \$110 and an initial margin of 60 percent. If the maintenance margin is 35 percent, at what price will you receive a margin call?
7. **Margin Calls** You decide to buy 5,000 shares of stock at a price of \$42 and an initial margin of 50 percent. What is the maximum percentage decline in the stock before you will receive a margin call if the maintenance margin is 25 percent?
8. **Margin Calls on Short Sales** The stock of Lockman Industries is trading at \$92. You feel the stock price will decline, so you short 700 shares at an initial margin of 50 percent. If the maintenance margin is 30 percent, at what share price will you receive a margin call?
9. **Margin Calls on Short Sales** You short sold 1,000 shares of stock at a price of \$45 and an initial margin of 60 percent. If the maintenance margin is 40 percent, at what share price will you receive a margin call? What is your account equity at this stock price?
10. **Taxes and Returns** You purchase a stock at the beginning of the year at a price of \$63. At the end of the year the stock pays a dividend of \$1.20 and you sell the stock for \$71.

What is your return for the year? Now suppose that dividends are taxed at your marginal tax rate of 31 percent and long-term capital gains (over 11 months) are taxed at 20 percent. What is your aftertax return for the year?

Intermediate Questions

11. **Calculating Margin** Using the information in Problem 1, construct your equity account balance sheet at the time of your purchase. What does your balance sheet look like if the share price rises to \$90? What if it falls to \$65 per share? What is your margin in both cases?
12. **Calculating Margin** You've just opened a margin account with \$10,000 at your local brokerage firm. You instruct your broker to purchase 400 shares of Smolira Golf stock, which currently sells for \$43 per share. What is your initial margin? Construct the equity account balance sheet for this position.
13. **Margin Call** Suppose you purchase 300 shares of stock at \$80 per share with an initial cash investment of \$15,000. If your broker requires a 30 percent maintenance margin, at what share price will you be subject to a margin call? If you want to keep your position open despite the stock price plunge, what alternatives do you have?
14. **Margin and Leverage** In the previous problem, suppose the call money rate is 5 percent and you are charged a 1.5 percent premium over this rate. Calculate your return on investment for each of the following share prices one year later. What would your rate of return be in each case if you purchased \$15,000 of stock with no margin? Ignore dividends.
 - a. \$96
 - b. \$80
 - c. \$64
15. **Margin and Leverage** Suppose the call money rate is 8 percent, and you pay a spread of 2 percent over that. You buy 1,000 shares at \$40 per share with an initial margin of 50 percent. One year later, the stock is selling for \$57 per share, and you close out your position. What is your return assuming no dividends are paid?
16. **Margin and Leverage** Suppose the call money rate is 6 percent, and you pay a spread of 2.5 percent over that. You buy 1,000 shares of stock at \$40 per share. You put up \$25,000. One year later, the stock is selling for \$45 per share, and you close out your position. What is your return assuming a dividend of \$1 per share is paid?
17. **Margin Interest** Suppose you take out a margin loan for \$120,000. The rate you pay is a 9 percent effective rate. If you repay the loan in six months, how much interest will you pay?
18. **Margin Interest** Suppose you take out a margin loan for \$80,000. You pay a 7 percent effective rate. If you repay the loan in two months, how much interest will you pay?
19. **Annualized Returns** Suppose you hold a particular investment for 9 months. You calculate that your holding-period return is 14 percent. What is your annualized return?
20. **Annualized Returns** In the previous question, suppose your holding period was 7 months instead of 9. What is your annualized return? What do you conclude in general about the length of your holding period and your annualized return?
21. **Annualized Returns** Suppose you buy stock at a price of \$50 per share. Four months later, you sell it for \$43. You also received a dividend of \$.40 per share. What is your annualized return on this investment?
22. **Calculating Returns** Looking back at Problem 12, suppose the call money rate is 6 percent and your broker charges you a spread of 1.25 percent over this rate. You hold the stock for six months and sell at a price of \$48 per share. The company paid a dividend of \$.75 per share the day before you sold your stock. What is your total dollar return from this investment? What is your effective annual rate of return?

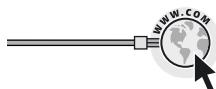
23. **Short Sales** You believe that Gonas, Inc., stock is going to fall and you've decided to sell 3,000 shares short. If the current share price is \$80, construct the equity account balance sheet for this trade. Assume the initial margin is 100 percent.
24. **Short Sales** Repeat the previous problem assuming you short the 3,000 shares on 75 percent margin.
25. **Calculating Short Sale Returns** You just sold short 1,500 shares of Wetscope, Inc., a fledgling software firm, at \$50 per share. You cover your short when the price hits \$36 per share one year later. If the company paid \$.80 per share in dividends over this period, what is your rate of return on the investment? Assume an initial margin of 50 percent.
26. **Short Sales** You believe the stock in Taylor Co. is going to fall, so you short 2,000 shares at a price of \$85. The initial margin is 50 percent. Construct the equity balance sheet for the original trade. Now construct an equity balance sheet for a stock price of \$75 and a stock price of \$95. What is your margin at each of these stock prices? What is your effective annual return if you cover your short position at each of these prices in four months?

STANDARD & POOR'S

S&P Problems

www.mcgrawhill.ca/edumarketinsight

1. **Margin** Download the historical stock prices for Telus Corporation (TU) under the "Mthly. Adj. Prices" link. Assume you purchased 400 shares of Telus Corporation stock at the closing price six months ago. The initial margin requirement is 50 percent and the maintenance margin is 30 percent. Show the account balance sheet based on monthly closing prices for the last five months. At what stock price will you receive a margin call? Are any margin deposits required over this period? What is your return on this investment?
2. **Short Sales** Download the historical stock prices for Celestica Inc. (CLS) under the "Mthly. Adj. Prices" link. Assume you short sold 200 shares of Celestica stock at the closing price six months ago. The initial margin requirement is 50 percent and the maintenance margin is 30 percent. Show the account balance sheet based on monthly closing prices for the last five months. At what stock price will you receive a margin call? Are any margin deposits required over this period? What is your return on this investment?



What's on the Web

1. **Risk Tolerance** As we discussed in the chapter, risk tolerance is based on an individual's personality and investment goals. There are numerous risk tolerance questionnaires on the Web. One, provided by Merrill Lynch, is located at individual.ml.com. Go to the website, locate the questionnaire and take the quiz. How conservative or aggressive are you?
2. **Short Interest** You can find the number of short sales on a particular stock at ca.finance.yahoo.com. Go to the site and find the number of shares sold for Quebecor (IQW) under the "Profile" link. How many shares are sold short in the current month? What about the previous month? What do the "Percent of Float" and "Short Ratio" mean?
3. **Broker Call Money Rate** What is the current call rate? To find out, go to www.robtv.com and look up "Tools." Under the "Tools," go to "Money Market Report" and then to "Money Rates."
4. **Margin Purchases** Suppose you have a margin account with Scotiabank. You purchase 1,000 shares of Rogers Communication on 50 percent margin at today's price. Go to ca.finance.yahoo.com to find your purchase price. Ignoring transaction costs, how much will you borrow? Next go to www.robtv.com to find the current broker call money rate. If you keep your investment for one year, how much will you pay in interest assuming the margin rate stays the same? What does the stock price have to be in one year for you to break even on your investment?

STOCK | TRAK

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Trading Common Stocks with Stock-Trak

Stock-Trak allows you to trade common stocks in much the same way you would with an individual brokerage account that supported trading on the Internet. This includes buying, selling, and selling short common stocks trading on the major markets—NYSE, AMEX (the American Stock Exchange), Nasdaq, and TSX. There are a few restrictions, however. For example, Stock-Trak restricts trading to common stocks trading at a price of \$5.00 or more per share. Thus, many small-company stocks cannot be traded. Stock-Trak also requires that all stock trades be in multiples of 25 shares. You should consult the most recent Stock-Trak rules at the website (www.mcgrawhill.ca/college/corrado) for other possible restrictions that might apply.

There are four basic types of stock trades:

1. Buy to open or increase a long position.
2. Sell to close or reduce a long position.
3. Short sell to open or increase a short position.
4. Buy to cover or reduce a short position.

When buying a stock, you take a long position with the hope that the stock price will increase. By selling stock you are closing all or part of a long position. Selling short refers to selling stock shares that you don't own with the hope that you can later buy them back at a lower price. Buying stock shares back to close all or part of a short position is called covering a short position. We will discuss these four types of orders in the sequence of transactions described immediately below.

Suppose you want to buy 1,000 shares of Texas Instruments and short sell 800 shares of Citigroup. These stocks trade on the NYSE under the ticker symbols TXN and C, respectively. Your orders would look like this:

What type of trade will this be? <input checked="" type="radio"/> Buy to open or increase a long position <input type="radio"/> Sell to close or reduce a long position <input type="radio"/> Sell short <input type="radio"/> Cover a short position	Number of shares (example: 500) <input type="text" value="1000"/>	Ticker Symbol (all capital letters): <input type="text" value="TXN"/>
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What type of trade will this be? <input type="radio"/> Buy to open or increase a long position <input checked="" type="radio"/> Sell to close or reduce a long position <input type="radio"/> Sell short <input type="radio"/> Cover a short position	Number of shares (example: 500) <input type="text" value="800"/>	Ticker Symbol (all capital letters): <input type="text" value="C"/>
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After execution, you would have a 1,000-share long position in Texas Instruments (TXN) and an 800-share short position in Citigroup (C).

Now, suppose you later want to reduce your long position in TXN to 600 shares and increase your short position in C to 1,200 shares. The necessary orders would look like this:

What type of trade will this be?	Number of shares (example: 500)	Ticker Symbol (all capital letters):
Buy to open or increase a long position	<input type="text" value="400"/>	<input type="text" value="TXN"/>
Sell to close or reduce a long position		
Sell short		
Cover a short position		

What type of trade will this be?	Number of shares (example: 500)	Ticker Symbol (all capital letters):
Buy to open or increase a long position	<input type="text" value="400"/>	<input type="text" value="C"/>
Sell to close or reduce a long position		
Sell short		
Cover a short position		

After execution, you would have a 600-share long position in TXN and a 1,200-share short position in C.

To close out your long and short positions completely, you would submit these orders:

What type of trade will this be?	Number of shares (example: 500)	Ticker Symbol (all capital letters):
Buy to open or increase a long position	<input type="text" value="600"/>	<input type="text" value="TXN"/>
Sell to close or reduce a long position		
Sell short		
Cover a short position		

What type of trade will this be?	Number of shares (example: 500)	Ticker Symbol (all capital letters):
Buy to open or increase a long position	<input type="text" value="1200"/>	<input type="text" value="C"/>
Sell to close or reduce a long position		
Sell short		
Cover a short position		

After execution, you will have closed out both positions completely. Your Stock-Trak account will then reflect any gains or losses on these transactions, including commission costs.

We should note here that Stock-Trak (and most brokerage accounts) has a restriction on margin purchases. For example, after reading the chapter, you have decided to purchase a stock on margin. Stock-Trak will not permit a margin purchase as long as you have cash in your account. In other words, in your Stock-Trak account, you cannot purchase on margin until you have the initial \$500,000 fully invested. Any purchases above this amount will be margin purchases.

Stock-Trak Exercises

- Stock Transactions** You have decided to purchase 1,000 shares of Biovail and short 600 shares of Manulife. Complete these transactions on Stock-Trak.
- Stock Transactions** The next day, you decide that you want only 600 shares of Biovail and want to short 200 more shares of Manulife. Complete the necessary transactions.
- Stock Transactions** You have now decided to close your long position in Biovail and close out your short position in Manulife. Complete the necessary transactions. What is your total dollar gain or loss on these transactions?