

The average trade of an individual is in the thousands of shares, whereas the institutional trade can be in the millions of shares. Clearly, the bigger the order, the bigger the move in the stock.

Maria Bartiromo, Business news anchor

Stock Market Ticker

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Key Terms

- Dow Jones Industrial Average (DJIA)
- ticker
- stock symbol
- ticker symbol
- trading volume
- trading price
- directional arrow
- total value of a trade
- uptick
- downtick
- money flow
- positive money flow
- negative money flow
- daily money flow
- net money flow

Objectives

- Understand stock market ticker information.
- Determine the total value of a trade from ticker information.
- Determine trade volumes from ticker information.

HOW IS STOCK MARKET DATA TRANSMITTED TO THE INVESTOR?

Investors are always interested in how the market is doing. You can refer to a variety of published information systems to track the performance of certain types of stocks. Perhaps the most well-known of these systems is the **Dow Jones Industrial Average (DJIA)**, also known as the Dow. The Dow follows the daily trading action of 30 large public companies. Historically, these were industrial companies, but the corporations included in the Dow have grown to include those in telecommunications, pharmaceuticals, broadcasting, retail, insurance, and more. The Dow is a well-respected average that offers a broad picture of how the market is performing from day to day.

Investors wanting specific information often turn to another source. One of the first stock information transmission machines was invented by Thomas Edison in 1869. It was known as the Universal Stock Ticker and had a printing speed of about one character per second. The machine was known as a **ticker** because of the ticking sound that it made as printed tape came out of it. This *ticker tape machine* replaced the need for handwritten and hand-delivered messages about stock trades. Stock tickers in different buildings were connected by telegraph machines. The printed tape would contain a ticker symbol that was unique to a given company. Once the company was identified by the symbol, the ticker would print information about the number of shares traded, the price of that trade, and any change in the direction of the price of a share of the stock. While actual stock ticker machines are now a thing of the past, the idea of transmitting this important information is not. Ticker machines have been replaced by electronic scrolling information that appears on electronic billboards, computers, and TV screens. Many financial TV programs have stock information scrolling across the bottom of the screen during the trading day.

Stock tickers let you know that a stock transaction (trade) has occurred. The ticker offers the following information in coded format.

- **Stock Symbol** or **Ticker Symbol** The letter or letters used to identify a corporation whose shares are traded on a stock market are *stock symbols* or *ticker symbols*. Stocks that trade on the New York Stock Exchange have 1-, 2-, or 3-letter symbols. Stocks that trade on the NASDAQ had only 4-letter symbols until recently when stocks that transferred to the NASDAQ from the NYSE were allowed to keep their symbols even if fewer than 4 letters.
- **Trading Volume** The *trading volume* is the number of shares traded in a single transaction. Trading volumes are listed on the ticker using a shorthand information system. For example, 10K indicates that 10,000 shares traded, 10M indicates that 10,000,000 shares traded, and 10B means that 10,000,000,000 shares traded (rarely seen).
- **Trading Price** The trading price per share may be displayed on the ticker preceded by the @ symbol, meaning that each share was traded at the specified price. The @ symbol is not always used.
- **Directional Arrows** Arrows indicate whether the traded price of a single share is greater than the previous day's closing price (▲) or less than the previous day's closing price (▼).

Skills and Strategies

The following examples show how to interpret stock ticker information.

EXAMPLE 1

• Marcy is following the stock market ticker scrolling across the bottom of her TV screen on cable business station. She had purchased some shares of Visa, Inc. last week and is interested in seeing if there are any current trades. She knows that Visa, Inc. has the ticker symbol V. She saw the following information: V 12K@87.37 ▲ 0.12. What can Marcy learn from this line of symbols?

• **SOLUTION** The letter V indicates that a trade has been made for a certain amount of Visa shares. The next piece of information, 12K, indicates that the volume of the most recent trade was 12 thousand shares. Each of those shares was traded at \$87.37. This price was up \$0.12 from the previous day's closing price of one share of Visa, Inc.

■ CHECK YOUR UNDERSTANDING

Kevin knows that General Electric has the ticker symbol GE. What can Kevin learn from the following line of symbols: GE 12K@73.72 ▼ 0.55?

■ EXTEND YOUR UNDERSTANDING

Had the trading price of this transaction been at \$87.35, what number would have appeared after the directional arrow? Explain your answer.

EXAMPLE 2

Tom needed money for graduate school tuition. He called his broker and asked her to sell all 3,000 of his Coca-Cola (KO) shares on Wednesday as soon as the trading price hit \$57 per share. Tom knew that Coca-Cola closed at \$57.25 on Tuesday. How will his trade appear on the ticker?

SOLUTION Tom is selling 3,000 shares, so the volume is 3K. The sale price of \$57 is down from the previous day's close by \$0.25. This trade appears as KO 3K@57 ▼ 0.25.

■ CHECK YOUR UNDERSTANDING

What would be the previous day's close for a share of Coca-Cola if the ticker had read KO 3K@57 ▲ 0.25?

Total Value of a Trade

The **total value of a trade** is determined by multiplying the number of shares traded by the trading price. This value does not include any fees.

EXAMPLE 3

Toni purchased 15,000 shares of stock of Target Corporation at \$54.88 per share. Her trade appeared on the stock ticker as TGT 15K@54.88 ▼ 0.17. What was the total value of her trade?

SOLUTION Each of the shares cost Toni \$54.88. Multiply the number of shares by the price to find the total value of her trade.

Number of shares \times price $15,000 \times 54.88 = 823,200$

The total value of her trade was \$823,200.

■ CHECK YOUR UNDERSTANDING

Suppose Toni made her purchase at the previous day's closing price. What would have been the difference between the values of the trades?

Trade Volume

Trade volume can appear in decimal formats on the stock ticker. For example, 2.5K is 2.5 thousand, or $2.5 \times 1,000$, or 2,500. The volume of 3,890,000 shares can be expressed in ticker notation by using the symbol M to represent millions. To determine the number of millions in 3,890,000, divide by 1,000,000. Moving the decimal left 6 places, 3,890,000 is 3.89 million and is symbolized as 3.89M.

EXAMPLE 4

Grandpa Rich left his three grandchildren: Nicole, Jeff, and Kristen, 8,750 shares of Apple Inc (AAPL) in his will. The grandchildren sold all of the shares at a price of \$190.30 on Friday. The closing price of Apple on Thursday was \$187.83. How did this trade appear on the stock ticker?

SOLUTION Divide the total number of shares by 1,000. Moving the decimal point 3 places to the left, 8,750 equals 8.75 thousand. The

- volume of 8,750 shares is 8.75K on the ticker. Because the shares were
- sold on Friday at a price that was \$2.47 higher than the previous day's
- close, an upward directional arrow indicates the increase. The trade
- appeared on the ticker as follows: AAPL 8.75K@190.30 ▲ 2.47.

■ CHECK YOUR UNDERSTANDING

Express 0.15M shares traded using the K symbol.

Customized Tickers

Some stock traders follow customized tickers that offer trade-to-trade information. The term *tick* is used whenever there is a change in the price of a share from one trade to the next. A trade is an **uptick** if the price is higher than the previous trade. A trade is a **downtick** if the price is lower. These tick changes contribute to a type of market analysis known as **money flow**. When a stock is purchased at an uptick, it is **positive money flow**. When it is purchased at a downtick, it is **negative money flow**.

Daily money flow is a calculated indicator that is the average of a day's high, low, and close, multiplied by the volume for the day. This calculation can be compared with that for the previous trading day and indicates whether there was a positive or negative money flow. If more shares were bought on the uptick than the downtick, **net money flow** is positive because more investors were willing to pay a price above the market price.

EXAMPLE 5

- Laura is interested in trades of Microsoft (MSFT). She has been follow-
- ing the upticks and downticks for the past two days. She knows that
- MSFT closed on Tuesday at \$20.68, with a high at \$21.25 and a low at
- \$20.50. There were 11,902,000 shares traded on that day. She found
- that Monday's closing price was \$21.23. The high was \$21.30 and the
- low was \$19.95. The volume for Monday was 16,537,000 shares. Was
- the net money flow from Monday to Tuesday positive or negative?

SOLUTION Calculate the average of each day's high, low, and close, and then multiply that by the daily volume.

Find Monday's average.
$$\frac{21.30 + 19.95 + 21.23}{3} \approx 20.83$$

Multiply price by volume.
$$20.83 \times 16,537,000 = \$344,465,710$$

Find Tuesday's average.
$$\frac{21.25 + 20.50 + 20.68}{3} = 20.81$$

Multiply price by volume.
$$20.81 \times 11,902,000 = \$247,680,620$$

There is a negative net money flow from Monday to Tuesday.

■ CHECK YOUR UNDERSTANDING

Let H represent a day's High, L represent a day's Low, C represent a day's close, and V represent the day's volume. Write a formula that can be used to determine the day's money flow.

Applications

The average trade of an individual is in the thousands of shares, whereas the institutional trade can be in the millions of shares. Clearly, the bigger the order, the bigger the move in the stock.

Maria Bartiromo, Business news anchor

1. How might a large trade “move the market”? How might those words apply to what you have learned?

Use the following ticker information to answer Exercises 2–9. The stock symbols represent the following corporations: HD, Home Depot Inc; S, Sprint Nextel Corporation; VZ, Verizon Communications Inc; and XOM, Exxon Mobil Corp.

HD 32.3M@29.13▲1.13 S 1.1K@9.14▼0.78 VZ 3.32K@38.77▲2.27 XOM 0.66K@92.67▼1.58

2. Jessica put in an order for some shares of Exxon Mobil Corp.
 - a. As shown on the ticker, how many shares did Jessica buy?
 - b. How much did each share cost?
 - c. What was the value of Jessica’s trade?
3. Phil sold his shares of Verizon Communications Inc, as indicated on the above ticker.
 - a. How many shares did he sell?
 - b. How much did each share sell for?
 - c. What was the total value of all the shares Phil sold?
4. How many shares of Home Depot are indicated on the ticker?
5. What is the total value of all of the Sprint Nextel Corporation shares traded?
6. How can @29.13 be interpreted?
7. How can XOM .66K be interpreted?
8. How can ▼1.58 be interpreted?
9. What was the previous day’s closing price for each stock?

Use the following ticker to answer Exercises 10–17. The stock symbols represent the following corporations: PG, Procter & Gamble Co; BAC, Bank of America Corp; DIS, Walt Disney Co; and K, Kellogg Co.

PG 4.5K@66.75▼0.39 BAC 0.65M@36.17▲0.54 DIS 2.55K @34.90▼1.08 K 0.76K@51.49▲0.04

10. Michele is following the trades of Procter & Gamble Co on the business channel. The result of the latest trade is posted on the ticker above.
 - a. How many shares of PG were traded?
 - b. How much did each share cost?
 - c. What was the value of the Procter & Gamble Co trade?
 - d. Suppose that the next PG trade represents a sale of 23,600 shares at a price that is \$0.18 higher than the last transaction. What will Michele see scrolling across her screen for this transaction?

11. Sarah sold her Disney shares as indicated on the ticker.
 - a. How many shares did she sell?
 - b. How much did each share sell for?
 - c. What was the total value of all the shares Sarah sold?
 - d. Suppose that the next DIS trade that comes across the ticker represents a sale of 7,600 shares at a price that is \$0.98 higher than the last transaction. What will Sarah see scrolling across her screen for this transaction of DIS?
12. How many shares of Kellogg Co. are indicated on the ticker?
13. What is the total value of all of the Bank of America shares traded?
14. How can @36.17 be interpreted?
15. How can K 0.76K be interpreted?
16. How can ▲0.04 be interpreted?
17. What was the previous day's closing price for each stock?
 - a. Procter & Gamble Co
 - b. Bank of America Corp
 - c. Walt Disney Co
 - d. Kellogg Co
18. Write the ticker symbols for each situation.
 - a. 36,000 shares of ABC at a price of 37.15 which is \$0.72 higher than the previous day's close
 - b. 1,240 shares of XYZ at a price of \$9.17, which is \$1.01 lower than the previous day's close
19. Maria is a stock broker and has been following transactions for Ford Motor Co (F). On Tuesday, the last trade of the day for Ford was posted on the ticker as \$8.11. On Wednesday, the last trade of the day was \$0.56 higher than Tuesday's close for a purchase of 5,600 shares of Ford. Write the stock ticker symbols that would appear on the scroll for the last trade of the day on Wednesday for Ford.
20. Dorothy purchased x thousand shares of Macy's Inc (M) at y dollars per share. This purchase price reflected a decrease of z dollars from the previous day's close. Express the ticket symbols algebraically.
21. Danielle is examining the change in the money flow for Yahoo! Inc shares on two consecutive dates. The information is given in the table. Do the May 16 numbers reflect a positive or negative money flow? Explain.

Date	High	Low	Close	Volume
16-May	27.95	27.40	27.66	53,299,800
15-May	27.90	26.85	27.75	79,670,500

22. Isaac follows the market action of Google Inc. He has watched the prices for two consecutive days. The information he collected is given in the table. Do the June 7 numbers reflect a positive or negative money flow? Explain.

Date	High	Low	Close	Volume
7-June	584.68	578.32	580	4,974,100
6-June	582.95	575.60	581	4,342,700

When somebody buys a stock it's because they think it's going to go up and the person who sold it to them thinks it's going to go down. Somebody's wrong.

George Ross, Television actor

Stock Transactions

1-6

Key Terms

- portfolio
- round lot
- odd lot
- trade
- gross capital gain
- gross capital loss

Objectives

- Learn the basic vocabulary of buying and selling shares of stock.
- Compute gains and losses from stock trades.

WHAT IS A STOCK PORTFOLIO?

A **portfolio** is a grouping of all the stocks a person currently owns. A portfolio changes whenever stocks are bought or sold. Stocks are best for long-term goals as over time good stocks tend to grow and become more valuable. There are many reasons that stockholders buy or sell shares.

Stocks can go up or down in value. Because some stocks do not perform as planned, it is best to have a diversified portfolio of stocks of different-sized companies in different industries.

When stock is bought and sold, a **trade** is made with another stockholder. If an investor is buying 600 shares of Xerox Corp, the investor is buying the shares from another shareholder who wants to sell them, not from Xerox Corp. Only the first purchaser of the stock actually bought it from Xerox Corp.

Most shareholders buy and sell stocks in multiples of 100 shares, which are called **round lots**. A purchase of less than 100 shares is called an **odd lot**. When you buy stock, even if its value increases, you will not make a profit until you actually *sell* the stock. If the shares are sold at a higher price than they were purchased for, you make a profit.

The difference between the selling price and the purchase price is a **gross capital gain**. If you sell a stock for less money than you paid for it, you have a **gross capital loss**. You must report capital gains and losses to the Internal Revenue Service because each affects the amount of income taxes owed.

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Skills and Strategies

Investors should keep careful track of the stock market and the stocks in their portfolio, so they know when to buy new stocks, add to what they already own, sell, or just hold on to what they own. Here you will learn how investors determine their capital gains and losses.

EXAMPLE 1

Several years ago, Marlene purchased stock for \$7,241. Last week she sold the stock for \$9,219. What was her gross capital gain?

SOLUTION Subtract the purchase price from the selling price to find her capital gain.

$$\text{Selling price} - \text{Purchase price} \qquad 9,219 - 7,241 = 1,978$$

Marlene has a gross capital gain of \$1,978. She must report this as income on her income tax return for the year in which she sold the stock.

■ CHECK YOUR UNDERSTANDING

Brett used money he received as a gift for high school graduation to purchase \$4,000 worth of shares of stock. After he graduated from college, he needed money to buy a car, so he sold the stock for \$2,433. What was his capital gain or loss?

EXAMPLE 2

Five years ago, Jessica bought 300 shares of a cosmetics company's stock for \$34.87 per share. Yesterday she sold all of the shares for \$41 per share. What was her capital gain?

SOLUTION Multiply to find the purchase price of all 300 shares. Multiply to find the selling price of all 300 shares. Subtract to find the capital gain.

$$\text{Multiply purchase price by 300.} \qquad 34.87 \times 300 = 10,461$$

$$\text{Multiply selling price by 300.} \qquad 41 \times 300 = 12,300$$

$$\text{Subtract.} \qquad 12,300 - 10,461 = 1,839$$

Jessica's gross capital gain was \$1,839.

■ CHECK YOUR UNDERSTANDING

Kelvin bought 125 shares of stock for \$68.24 per share. He sold them nine months later for \$85.89 per share. What was his capital gain?

■ EXTEND YOUR UNDERSTANDING

Three years ago, Maxine bought 450 shares of stock for x dollars per share. She sold them last week for y dollars per share. Express her capital gain algebraically in terms of x and y .

EXAMPLE 3

Randy paid \$3,450 for shares of a corporation that manufactured cell phones. He sold it for \$6,100. Express his capital gain as a percent of the original purchase price. Round to the nearest tenth of a percent.

SOLUTION Find the amount of capital gain from the sale.

$$\text{Capital gain} = \text{Selling price} - \text{Purchase price}$$

Substitute values.

$$\text{Capital gain} = 6,100 - 3,450 = 2,650$$

Think of \$2,650 as part of a whole. The whole is \$3,450. You need to express “what percent of 3,450 is 2,650” as an equation. Let x represent the percent increase, expressed as a decimal.

Write the equation.

$$(x)(3,450) = 2,650$$

Divide each side of equation by 3,450.

$$x = \frac{2,650}{3,450}$$

Calculate.

$$x \approx 0.7681$$

Randy earned a 76.8% capital gain on his investment.

■ CHECK YOUR UNDERSTANDING

Allison bought shares in Citigroup Corporation in early 2007 for \$55 per share. She sold them later that year for \$35 per share. Express her loss as a percent of the purchase price. Round to the nearest percent.

EXAMPLE 4

Andy paid w dollars for shares of a corporation that manufactured cell phones. He sold it for y dollars. Express his capital gain as a percent of the original purchase price. Round to the nearest tenth of a percent.

SOLUTION Find the capital gain using variables.

$$\text{Capital gain} = \text{Selling price} - \text{Purchase price}$$

Substitute values.

$$\text{Capital gain} = y - w$$

Think of $y - w$ as part of a whole. The whole is w . Express “what percent of w is $y - w$ ” as an equation. Let x represent the percent increase, expressed as a decimal.

Write the equation. Solve for x .

$$(x)(w) = y - w$$

Divide each side of equation by w .

$$x = \frac{y - w}{w}$$

Andy earned a capital gain of $100 \frac{(y - w)}{w}$ percent on his investment.

■ CHECK YOUR UNDERSTANDING

Linda bought \$800 of stock in a garden equipment corporation. The selling price is x dollars. Express the percent increase of Linda’s potential capital gain algebraically.

Applications

When somebody buys a stock it's because they think it's going to go up and the person who sold it to them thinks it's going to go down. Somebody's wrong.

George Ross, Television actor

1. Is it always true that someone sells a stock because they think it is going to go down in price? How do those words apply to what you've learned in this lesson?
2. Zach bought 200 shares of Goshen stock years ago for \$21.35 per share. He sold all 200 shares today for \$43 per share. What was his gross capital gain?
3. Mitchell bought 600 shares of Centerco two years ago for \$34.50 per share. He sold them yesterday for \$38.64 per share.
 - a. What was the percent increase in the price per share?
 - b. What was the total purchase price for the 600 shares?
 - c. What was the total selling price for the 600 shares?
 - d. What was the percent capital gain for the 600 shares?
 - e. How does the percent increase in the price of one share compare to the percent capital gain for all 600 shares?
4. Tori bought x shares of Mattel stock for m dollars per share. She sold all of the shares months later for y dollars per share. Express her capital gain or loss algebraically.
5. Ramon bought x shares of Xerox stock for a total of \$40,000. Express the price he paid per share algebraically.
6. In 2004, Joe bought 200 shares in the Nikon corporation for \$12.25 per share. In 2007 he sold the shares for \$31.27 each.
 - a. What was Joe's capital gain?
 - b. Express Joe's capital gain as a percent, rounded to the nearest percent.
7. General Motors stock fell from \$32 per share in 2006 to \$20 per share during 2008.
 - a. If you bought and then sold 300 shares at these prices, what was your loss?
 - b. Express your loss as a percent of the purchase price. Round to the nearest tenth of a percent.
8. Elliott purchased shares of Microsoft in 2008 for \$28 per share. He plans to sell them as soon as the price rises 20%. At what price will he sell his shares?
9. Maria purchased 1,000 shares of stock for \$35.50 per share in 2003. She sold them in 2007 for \$55.10 per share. Express her capital gain as a percent, rounded to the nearest tenth of a percent.

- 10.** Austin purchased shares of stock for x dollars in 2004. He sold them in 2010 for y dollars per share.
- Express his capital gain algebraically.
 - Express his capital gain as a percent of the purchase price.
- 11.** During 2003, a share of stock in the Coca-Cola Company sold for \$39. During 2008, the price hit \$56 per share. Express the increase in price as a percent of the price in 2003. Round to the nearest tenth of a percent.
- 12.** Alexa purchased 700 shares of Campagna Corporation stock for x dollars per share in 2005. She sold them in 2010 for y dollars per share, where $y < x$.
- Did Alexa have a gross capital gain or a gross capital loss? Explain.
 - Alexa used the formula $\frac{700y - 700x}{700x}$ to compute the percent of the loss. Her husband Tom used the formula $\frac{y - x}{x}$ to compute the percent of the loss. She told him he was incorrect because he didn't take into account that she bought 700 shares. He says that his formula is correct, and so is hers. Who is correct, Alexa or Tom? Explain.
- 13.** Zeke bought g shares of stock for w dollars per share. His broker called him and told him to sell the shares when they earn a 40% capital gain.
- Express the total purchase price of all the shares algebraically.
 - Express the capital gain algebraically.
 - Zeke decides to sell his shares. Express the total selling price of all the shares algebraically.
- 14.** Jake bought d shares of stock for x dollars per share years ago. His stock rose in price and eventually hit a price that would earn him a 140% capital gain. He decided to sell half of his d shares.
- Represent half of the d shares algebraically.
 - Represent the capital gain earned on each of the shares that were sold algebraically.
 - Represent the capital gain earned on all of the shares that were sold algebraically.
 - Represent the total value of the shares that were sold algebraically.
 - Jake keeps the remaining half of the shares for several more years. The company goes bankrupt and those shares become worthless. Jake had a large gain on the shares he sold earlier—and took a loss on the shares that became worthless. Did investing in the d shares result in a capital gain or loss for Jake? Explain using the algebraic expressions you created in parts a–d.
- 15.** Ahmad sold 125 shares of stock for x dollars that he had purchased for \$32.75 per share.
- How much did he originally pay for the shares of stock?
 - Write an inequality that represents an amount such that Ahmad made money from the sale of the stocks.
 - Suppose Ahmad lost money on the stocks. Write an inequality that represents an amount such that Ahmad lost no more than \$1,000 from the sale of the stocks.

The bad news is time flies. The good news is you're the pilot.
 Michael Althsuler, Businessman

1-7

Stock Transaction Fees

Objectives

- Compute the fees involved in buying and selling stocks.
- Become familiar with the basic vocabulary of stock trading.

Key Terms

- stockbroker
- broker fee
- commission
- discount broker
- at the market
- limit order
- net proceeds

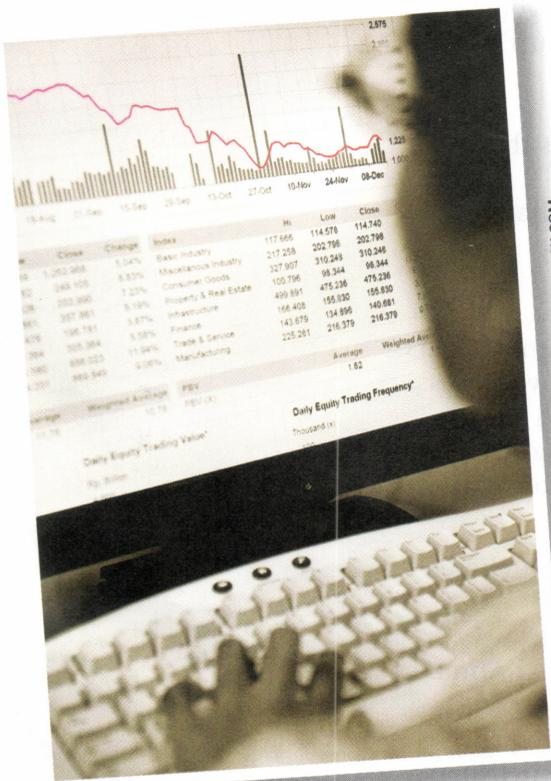
HOW DO YOU BUY AND SELL STOCK?

You don't buy stock at a store. Shares of stock can only be purchased through a licensed **stockbroker**. If you decided to sell your shares, you couldn't bring them to school and sell them to someone in the cafeteria. You also cannot walk into a stock exchange to sell your shares. Only stockbrokers buy and sell stocks. They also give advice to investors. For their services, stockbrokers charge a broker fee. The **broker fee** can be a flat fee, which does not depend on the value of the transaction, or a commission, which does depend on the value of the transaction. A **commission** is a percentage of the value of the stock trade.

Some people make their own investment decisions. They read the financial newspapers and websites to learn about new developments in the stock market. They still must buy and sell through brokers, but they may decide to use a discount broker. **Discount brokers** charge low fees. They do not give investment advice. They only make stock transactions. Discount brokers are available online, by phone, and in person. An online trading account is convenient because the investor can access it 24 hours a day.

If you buy or sell **at the market**, you are instructing your broker to get the best available price. You can also place a **limit order**, which specifies the price you want to pay. If you put in a limit order to buy a stock only for a specific price, your broker will not make a purchase for any price higher than the price specified.

The fees you pay brokers when buying or selling stock affect the amount you gain or lose on the trade. Your **net proceeds** represent the amount of money you make after broker fees are subtracted. Make sure you are aware of the broker fees whenever you make a stock trade.



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