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A number of questions arise with value ratios:

1. Is there any advantage to the EV/EBITDA ratio over the PE ratio? Yes. Companies in the same industry may differ by leverage, i.e., the ratio of debt to equity. As you will learn in Chapter 14, leverage increases the risk of equity, impacting the discount rate,  $R$ . Thus, while firms in the same industry may be otherwise comparable, they are likely to have different PE ratios if they have different degrees of leverage. Since enterprise value includes debt and equity, the impact of leverage on the EV/EBITDA ratio is less.<sup>7</sup>
2. Why is EBITDA used in the denominator? The numerator and denominator of a ratio should be consistent. Since the numerator of the PE ratio is the price of a share of *stock*, it makes sense that the denominator is the earnings per share (EPS) of *stock*. That is, interest is specifically subtracted before EPS is calculated. By contrast, since EV involves the sum of debt and equity, it is sensible that the denominator is unaffected by interest payments. This is the case with EBITDA since, as its name implies, earnings are calculated before interest is taken out.
3. Why does the denominator ignore depreciation and amortization? Many practitioners argue that, since depreciation and amortization are not cash flows, earnings should be calculated before taking out depreciation and amortization. In other words, depreciation and amortization merely reflect the sunk cost of a previous purchase. However, this view is by no means universal. Others point out that depreciable assets will eventually be replaced in an ongoing business. Since depreciation charges reflect the cost of future replacement, it can be argued that these charges should be considered in a calculation of income.
4. What other denominators are used in value ratios? Among others, practitioners may use EBIT (earnings before interest and taxes), EBITA (earnings before interest, taxes, and amortization), and free cash flow.
5. Why is cash subtracted out? Many firms seem to hold amounts of cash well in excess of what is needed. For example, Microsoft held tens of billions of dollars in cash and short-term investments throughout the last decade, far more than many analysts believed was optimal. Since an enterprise value ratio should reflect the ability of *productive* assets to create earnings or cash flow, cash should be subtracted out when calculating the ratio. However, the viewpoint that all cash should be ignored can be criticized. Some cash holdings are necessary to run a business, and this amount of cash should be included in EV.

## 6.4 VALUING STOCKS USING FREE CASH FLOWS

So far in this chapter, we have discounted cash payouts to value a single share of stock and used the method of comparables. As an alternative, one can value stocks by discounting their cash flows using a “top down” approach.

As an example, consider Global Harmonic Control Systems (GHCS). Revenues, which are forecasted to be \$500 million in one year, are expected to grow at 10 percent per year for the two years after that, 8 percent per year for the next two years, and 6 percent per year after that. Expenses including depreciation are 60 percent of revenues. Net investment, including net working capital and capital spending less depreciation, is 10 percent of revenues. Because all costs are proportional to

revenues, net cash flow (sometimes referred to as free cash flow) grows at the same rate as do revenues. GHCS is an all-equity firm with 12 million shares outstanding. A discount rate of 16 percent is appropriate for a firm of GHCS's risk.

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The relevant numbers for the first five years, rounded to two decimals, are:

YEAR (\$000,000)	1	2	3	4	5
Revenues	500.00	550.00	605.00	653.40	705.67
Expenses	300.00	330.00	363.00	392.04	423.40
Earnings before taxes	200.00	220.00	242.00	261.36	282.27
Taxes (40%)	80.00	88.00	96.80	104.54	112.91
Earnings after taxes	120.00	132.00	145.20	156.82	169.36
Net investment	50.00	55.00	60.50	65.34	70.57
Net cash flow	70.00	77.00	84.70	91.48	98.79

Since net cash flow grows at 6 percent per year after Year 5, net cash flow in Year 6 is forecasted to be \$104.72 (= \$98.79 × 1.06). Using the growing perpetuity formula, we can calculate the present value as of Year 5 of all future cash flows to be \$1,047.22 million [= \$104.72/(.16 - .06)].

The present value as of today of that terminal value is:

$$\mathbf{\$1,047.22 \times \frac{1}{(1.16)^5} = \$498.59 \text{ million}}$$

The present value of the net cash flows during the first five years is:

$$\mathbf{\frac{\$70}{1.16} + \frac{\$77}{(1.16)^2} + \frac{\$84.7}{(1.16)^3} + \frac{\$91.48}{(1.16)^4} + \frac{\$98.79}{(1.16)^5} = \$269.39 \text{ million}}$$

Adding in the terminal value, today's value of the firm is \$767.98 million (= \$269.39 + 498.59). Given the number of shares outstanding, the price per share is \$64.00 (= \$767.98/12).

The above calculation assumes a growing perpetuity after Year 5. However, we pointed out in the previous section that stocks are often valued by multiples. An investor might estimate the terminal value of GHCS via a multiple, rather than the growing perpetuity formula. For example, suppose that the price-earnings ratio for comparable firms in GHCS's industry is 7.

Since earnings after tax in Year 5 are \$169.36. Using the PE multiple of 7, the value of the firm at Year 5 would be estimated as \$1,185.52 million (= \$169.36 × 7).

The firm's value today is:

$$\mathbf{\frac{\$70}{1.16} + \frac{\$77}{(1.16)^2} + \frac{\$84.7}{(1.16)^3} + \frac{\$91.48}{(1.16)^4} + \frac{\$98.79}{(1.16)^5} + \frac{\$1,185.52}{(1.16)^5} = \$833.83}$$

With 12 million shares outstanding, the price per share of GHCS would be \$69.49 (= \$833.83/12).

Now we have two estimates of the value of a share of equity in GHCS. The different estimates reflect the different ways of calculating terminal value. Using the constant growth discounted cash flow method for terminal value, our estimate of the equity value per share of GHCS is \$64; using the PE comparable method, our estimate is \$69.49. There is no best method. If the comparable firms were all identical to GHCS, perhaps the PE method would be best. Unfortunately, firms are not identical. On the other hand, if we were very sure of the terminal date and the growth in subsequent cash flows, perhaps the constant growth method would be best. In practice, both methods are used.

Conceptually, the dividend discount model, the comparables method, and the free cash flow model are mutually consistent and can be used to determine the value of a share

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of stock. In practice, the dividend discount model is especially useful for firms paying very steady dividends and the comparables method is useful for firms with similar growth opportunities. The free cash flow model is helpful for non-dividend-paying firms with external financing needs.

## 6.5 SOME FEATURES OF COMMON AND PREFERRED STOCKS

In discussing common stock features, we focus on shareholder rights and dividend payments. For preferred stock, we explain what the “preferred” means, and we also debate whether preferred stock is really debt or equity.

### Common Stock Features

The term **common stock** means different things to different people, but it is usually applied to stock that has no special preference either in receiving dividends or in bankruptcy.

**SHAREHOLDER RIGHTS** The conceptual structure of the corporation assumes that shareholders elect directors who, in turn, hire management to carry out their directives. Shareholders, therefore, control the corporation through the right to elect the directors. Generally, only shareholders have this right.

Directors are elected each year at an annual meeting. Although there are exceptions (discussed next), the general idea is “one share, one vote” (*not one shareholder, one vote*). Corporate democracy is thus very different from our political democracy. With corporate democracy, the “golden rule” prevails absolutely.<sup>8</sup>

Directors are elected at an annual shareholders’ meeting by a vote of the holders of a majority of shares who are present and entitled to vote. However, the exact mechanism for electing directors differs across companies. The most important difference is whether shares must be voted cumulatively or voted straight.

To illustrate the two different voting procedures, imagine that a corporation has two shareholders: Smith with 20 shares and Jones with 80 shares. Both want to be a director. Jones does not want Smith, however. We assume there are a total of four directors to be elected.

The effect of **cumulative voting** is to permit minority participation.<sup>9</sup> If cumulative voting is permitted, the total number of votes that each shareholder may cast is determined first. This is usually calculated as the number of shares (owned or controlled) multiplied by the number of directors to be elected.

With cumulative voting, the directors are elected all at once. In our example, this means that the top four vote getters will be the new directors. A shareholder can distribute votes however he/she wishes.

Will Smith get a seat on the board? If we ignore the possibility of a five-way tie, then the answer is yes. Smith will cast  $20 \times 4 = 80$  votes, and Jones will cast  $80 \times 4 = 320$  votes. If Smith gives all his votes to himself, he is assured of a directorship. The reason is that Jones can’t divide 320 votes among

four candidates in such a way as to give all of them more than 80 votes, so Smith will finish fourth at worst.

In general, if there are  $N$  directors up for election, then  $1/(N + 1)$  percent of the stock plus one share will guarantee you a seat. In our current example, this is  $1/(4 + 1) = 20$  percent. So the more seats that are up for election at one time, the easier (and cheaper) it is to win one.

With **straight voting**, the directors are elected one at a time. Each time, Smith can cast 20 votes and Jones can cast 80. As a consequence, Jones will elect all of the candidates.

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The only way to guarantee a seat is to own 50 percent plus one share. This also guarantees that you will win every seat, so it's really all or nothing. page 180

## EXAMPLE 6.6

### Buying the Election

Stock in JRJ Corporation sells for \$20 per share and features cumulative voting. There are 10,000 shares outstanding. If three directors are up for election, how much does it cost to ensure yourself a seat on the board?

The question here is how many shares of stock it will take to get a seat. The answer is 2,501, so the cost is  $2,501 \times \$20 = \$50,020$ . Why 2,501? Because there is no way the remaining 7,499 votes can be divided among three people to give all of them more than 2,501 votes. For example, suppose two people receive 2,502 votes and the first two seats. A third person can receive at most  $10,000 - 2,502 - 2,502 = 5,000$  votes, so the third seat is yours.

As we've illustrated, straight voting can "freeze out" minority shareholders; that is the reason many states have mandatory cumulative voting. In states where cumulative voting is mandatory, devices have been worked out to minimize its impact.

One such device is to stagger the voting for the board of directors. With staggered elections, only a fraction of the directorships are up for election at a particular time. Thus, if only two directors are up for election at any one time, it will take  $1/(2 + 1) = 33.33$  percent of the stock plus one share to guarantee a seat.

Overall, staggering has two basic effects:

1. Staggering makes it more difficult for a minority to elect a director when there is cumulative voting because there are fewer directors to be elected at one time.
2. Staggering makes takeover attempts less likely to be successful because it makes it more difficult to vote in a majority of new directors.

We should note that staggering may serve a beneficial purpose. It provides "institutional memory," that is, continuity on the board of directors. This may be important for corporations with significant long-range plans and projects.

**PROXY VOTING** A proxy is the grant of authority by a shareholder to someone else to vote his/her shares. For convenience, much of the voting in large public corporations is actually done by proxy.

As we have seen, with straight voting, each share of stock has one vote. The owner of 10,000 shares has 10,000 votes. Large companies have hundreds of thousands or even millions of shareholders. Shareholders can come to the annual meeting and vote in person, or they can transfer their right to vote to another party.

Obviously, management always tries to get as many proxies as possible transferred to it. However, if shareholders are not satisfied with management, an "outside" group of shareholders can try to obtain

votes via proxy. They can vote by proxy in an attempt to replace management by electing enough directors. The resulting battle is called a *proxy fight*.

**CLASSES OF STOCK** Some firms have more than one class of common stock. Often, the classes are created with unequal voting rights. The Ford Motor Company, for example, has Class B common stock, which is not publicly traded (it is held by Ford family interests and trusts). This class has 40 percent of the voting power, even though it represents less than 10 percent of the total number of shares outstanding.

There are many other cases of corporations with different classes of stock. For example, Adolph Coors Class B shares, which were owned by the public, had no votes at all except in the case of a merger. (Adolph Coors later merged with Molson.) The CEO of cable TV giant Comcast, Brian Roberts, owned about .4 percent of the company's equity, but he

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## Preferred Stock Features

**Preferred stock** differs from common stock because it has preference over common stock in the payment of dividends and in the distribution of corporation assets in the event of liquidation. *Preference* means only that the holders of the preferred shares must receive a dividend (in the case of an ongoing firm) before holders of common shares are entitled to anything.

Preferred stock is a form of equity from a legal and tax standpoint. It is important to note, however, that holders of preferred stock sometimes have no voting privileges.

**STATED VALUE** Preferred shares have a stated liquidating value, usually \$100 per share. The cash dividend is described in terms of dollars per share. For example, a Ford “\$5 preferred” easily translates into a dividend yield of 5 percent of stated value.

**CUMULATIVE AND NONCUMULATIVE DIVIDENDS** A preferred dividend is *not* like interest on a bond. The board of directors may decide not to pay the dividends on preferred shares, and their decision may have nothing to do with the current net income of the corporation.

Dividends payable on preferred stock are either *cumulative* or *noncumulative*; most are cumulative. If preferred dividends are cumulative and are not paid in a particular year, they will be carried forward as an *arrearage*. Usually, both the accumulated (past) preferred dividends and the current preferred dividends must be paid before the common shareholders can receive anything.

Unpaid preferred dividends are *not* debts of the firm. Directors elected by the common shareholders can defer preferred dividends indefinitely. However, in such cases, common shareholders must also forgo dividends. In addition, holders of preferred shares are sometimes granted voting and other rights if preferred dividends have not been paid for some time.

**IS PREFERRED STOCK REALLY DEBT?** A good case can be made that preferred stock is really debt in disguise, a kind of equity bond. Preferred shareholders receive a stated dividend only, and if the corporation is liquidated, preferred shareholders get a stated value. Often, preferred stocks carry credit ratings much like those of bonds. Furthermore, preferred stock is sometimes convertible into common stock, and preferred stocks are often callable.

In addition, many issues of preferred stock have obligatory sinking funds. The existence of such a sinking fund effectively creates a final maturity because it means that the entire issue will ultimately be retired. For these reasons, preferred stock seems to be a lot like debt. However, for tax purposes, preferred dividends are treated like common stock dividends.

In the 1990s, firms began to sell securities that look a lot like preferred stock but are treated as debt for tax purposes. The new securities were given interesting acronyms like TOPrS (trust-originated preferred securities, or toppers), MIPS (monthly income preferred securities), and QUIPS (quarterly income preferred securities), among others. Because of various specific features, these instruments can be counted as debt for tax purposes, making the interest payments tax deductible. Payments made to investors in these instruments are treated as interest for personal income taxes for individuals. Until 2003, interest payments and dividends were taxed at the same marginal tax rate. When the tax rate on dividend payments was reduced, these instruments were not included, so individuals must still pay their higher income tax rate on dividend payments received from these instruments.

## 6.6 THE STOCK MARKETS



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Stock markets consist of a **primary market** and a **secondary market**. In the primary, or new-issue market, shares of stock are first brought to the market and sold to investors. In the secondary market, existing shares are traded among investors.

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In the primary market, companies sell securities to raise money. We will discuss this process in detail in a later chapter. We therefore focus mainly on secondary market activity in this section. We conclude with a discussion of how stock prices are quoted in the financial press.

## Dealers and Brokers

Because most securities transactions involve dealers and brokers, it is important to understand exactly what is meant by the terms *dealer* and *broker*. A **dealer** maintains an inventory and stands ready to buy and sell at any time. In contrast, a **broker** brings buyers and sellers together, but does not maintain an inventory. Thus, when we speak of used car dealers and real estate brokers, we recognize that the used car dealer maintains an inventory, whereas the real estate broker does not.

In the securities markets, a dealer stands ready to buy securities from investors wishing to sell them and sell securities to investors wishing to buy them. Recall from our previous chapter that the price the dealer is willing to pay is called the *bid price*. The price at which the dealer will sell is called the *ask price* (sometimes called the *asked*, *offered*, or *offering price*). The difference between the bid and ask price is called the *spread*, and it is the basic source of dealer profits.

Dealers exist in all areas of the economy, not just the stock markets. For example, your local college bookstore is probably both a primary and a secondary market textbook dealer. If you buy a new book, this is a primary market transaction. If you buy a used book, this is a secondary market transaction, and you pay the store's ask price. If you sell the book back, you receive the store's bid price, often half of the ask price. The bookstore's spread is the difference between the two prices.

How big is the bid-ask spread on your favorite stock? Check out the latest quotes at [www.bloomberg.com](http://www.bloomberg.com).

In contrast, a securities broker arranges transactions between investors, matching investors wishing to buy securities with investors wishing to sell securities. The distinctive characteristic of security brokers is that they do not buy or sell securities for their own accounts. Facilitating trades by others is their business.

## Organization of the NYSE

The New York Stock Exchange, or NYSE, has been popularly known as the Big Board. It has occupied its current location on Wall Street since the turn of the twentieth century. Measured in terms of dollar volume of activity and the total value of shares listed, it is the largest stock market in the world.

**MEMBERS** Historically, the NYSE had 1,366 exchange members. Prior to 2006, the exchange members were said to own “seats” on the exchange, and, collectively, the members of the exchange were also the owners. For this and other reasons, seats were valuable and were bought and sold fairly regularly. Seat prices reached a record \$4 million in 2005.

In 2006, all of this changed when the NYSE became a publicly owned corporation called NYSE Group, Inc. Naturally, its stock is listed on the NYSE. Now, instead of purchasing seats, exchange members must purchase trading licenses, the number of which is limited to 1,361. In 2013, a license would set you back a cool \$40,000—per year. Having a license entitles you to buy and sell securities on the floor of the exchange. Different members play different roles in this regard.

On April 4, 2007, the NYSE grew even larger when it merged with Euronext to form NYSE Euronext. Euronext was a stock exchange in Amsterdam, with subsidiaries in Belgium, France, Portugal, and the United Kingdom. With the merger, NYSE Euronext became the world's first global exchange, with trading occurring 21 hours each business day. Further expansion occurred in 2008 when NYSE Euronext merged with the American Stock Exchange. Then, in November 2013, the acquisition of the NYSE by the Intercontinental Exchange (ICE) was completed. ICE, which was founded in May 2000, was originally a commodities exchange, but its rapid growth gave it the necessary \$8.2 billion for the acquisition of the NYSE.

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As we briefly describe how the NYSE operates, keep in mind that other markets owned by NYSE Euronext and ICE may function differently. What makes the NYSE somewhat unique is that it is a *hybrid market*. In a hybrid market, trading takes place both electronically and face-to-face.

With electronic trading, orders to buy and orders to sell are submitted to the exchange. Orders are compared by a computer and, whenever there is a match, the orders are executed with no human intervention. Most trades on the NYSE occur this way. For orders that are not handled electronically, the NYSE relies on its license holders. There are three different types of license holders: **designated market makers (DMMs)**, **floor brokers**, and **supplemental liquidity providers (SLPs)**.

DMMs, formerly known as “specialists,” act as dealers in particular stocks. Typically, each stock on the NYSE is assigned to a single DMM. As a dealer, a DMM maintains a two-sided market, meaning that the DMM continually posts and updates bid and ask prices. By doing so, the DMM ensures that there is always a buyer or seller available, thereby promoting market liquidity.

Floor brokers execute trades for customers, trying to get the best price possible. Floor brokers are generally employees of large brokerage firms such as Merrill Lynch, the wealth management division of Bank of America. The interaction between floor brokers and DMMs is the key to nonelectronic trading on the NYSE. We discuss this interaction in detail in just a moment.

SLPs are essentially investment firms that agree to be active participants in stocks assigned to them. Their job is to regularly make a one-sided market (i.e., offering to either buy or sell). They trade purely for their own accounts (using their own money), so they do not represent customers. They are given a small rebate on their buys and sells, which encourages them to be more aggressive. The NYSE’s goal is to generate as much liquidity as possible, which makes it easier for ordinary investors to quickly buy and sell at prevailing prices. Unlike DMMs and floor brokers, SLPs do not operate on the floor of the stock exchange.

**OPERATIONS** Now that we have a basic idea of how the NYSE is organized and who the major players are, we turn to the question of how trading actually takes place. Fundamentally, the business of the NYSE is to attract and process **order flow**. The term *order flow* means the flow of customer orders to buy and sell stocks. The customers of the NYSE are the millions of individual investors and tens of thousands of institutional investors who place their orders to buy and sell shares in NYSE-listed companies. The NYSE has been quite successful in attracting order flow. Currently, it is not unusual for well over a billion shares to change hands in a single day.

**FLOOR ACTIVITY** It is quite likely that you have seen footage of the NYSE trading floor on television, or you may have visited the NYSE and viewed exchange floor activity from the visitors’ gallery. Either way, you would have seen a big room, about the size of a basketball gym. This big room is called, technically, “the Big Room.” There are a few other, smaller rooms that you normally don’t see, one of which is called “the Garage” because that is what it was before it was taken over for trading.

On the floor of the exchange are a number of stations, each with a roughly figure-eight shape. Each of the stations is a **DMM’s post**. These stations have multiple counters with numerous terminal screens above and on the sides. DMMs normally operate in front of their posts to monitor and manage trading in the stocks assigned to them. Clerical employees working for the DMMs operate behind the counter. Moving around the exchange floor are floor brokers, who receive customer orders, walk out

to DMMs' posts where the orders can be executed, and return to confirm order executions and receive new customer orders.

Take a virtual field trip to the New York Stock Exchange at [www.nyse.com](http://www.nyse.com).

To better understand activity on the NYSE trading floor, imagine yourself as a floor broker. Your phone clerk has just handed you an order to sell 20,000 shares of Walmart for a customer of the brokerage company that employs you. The customer wants to sell the stock at the best possible price as soon as possible. You immediately walk (running violates exchange rules) to the DMM's post where Walmart stock is traded.

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As you approach the DMM's post where Walmart is traded, you check the terminal screen for information on the current market price. The screen reveals that the last executed trade was at \$60.25 and that the DMM is bidding \$60 per share. You could immediately sell to the DMM at \$60, but that would be too easy.

Instead, as the customer's representative, you are obligated to get the best possible price. It is your job to "work" the order, and your job depends on providing satisfactory order execution service. So, you look around for another broker who represents a customer who wants to buy Walmart stock. Luckily, you quickly find another broker at the DMM's post with an order to buy 20,000 shares. Noticing that the DMM is asking \$60.10 per share, you both agree to execute your orders with each other at a price of \$60.05. This price is exactly halfway between the DMM's bid and ask prices, and it saves each of your customers  $.05 \times 20,000 = \$1,000$  as compared to dealing at the posted prices.

For a very actively traded stock, there may be many buyers and sellers around the DMM's post, and most of the trading will be done directly between brokers. This is called trading in the "crowd." In such cases, the DMM's responsibility is to maintain order and to make sure that all buyers and sellers receive a fair price. In other words, the DMM essentially functions as a referee.

More often, however, there will be no crowd at the DMM's post. Going back to our Walmart example, suppose you are unable to quickly find another broker with an order to buy 20,000 shares. Because you have an order to sell immediately, you may have no choice but to sell to the DMM at the bid price of \$60. In this case, the need to execute an order quickly takes priority, and the DMM provides the liquidity necessary to allow immediate order execution.

## NASDAQ Operations

In terms of total dollar volume of trading, the second largest stock market in the United States is NASDAQ (say "Naz-dak"). The somewhat odd name originally was an acronym for the National Association of Securities Dealers Automated Quotation system, but NASDAQ is now a name in its own right.

Introduced in 1971, the NASDAQ market is a computer network of securities dealers and others that disseminates timely security price quotes to computer screens worldwide. NASDAQ dealers act as market makers for securities listed on NASDAQ. As market makers, NASDAQ dealers post bid and ask prices at which they accept sell and buy orders, respectively. With each price quote, they also post the number of stock shares that they obligate themselves to trade at their quoted prices.

Like NYSE DMMs, NASDAQ market makers trade on an inventory basis, that is, using their inventory as a buffer to absorb buy and sell order imbalances. Unlike the NYSE DMM system, NASDAQ features multiple market makers for actively traded stocks. Thus, there are two key differences between the NYSE and NASDAQ:

1. NASDAQ is a computer network and has no physical location where trading takes place.
2. NASDAQ has a multiple market maker system rather than a DMM system.

Traditionally, a securities market largely characterized by dealers who buy and sell securities for their own inventories is called an **over-the-counter (OTC) market**. Consequently, NASDAQ is often referred to as an OTC market. However, in their efforts to promote a distinct image, NASDAQ

officials prefer that the term OTC not be used when referring to the NASDAQ market. Nevertheless, old habits die hard, and many people still refer to NASDAQ as an OTC market.

By some measures, the NASDAQ has grown to the point that it is as big as (or bigger than) the NYSE. For example, on February 19, 2016, 1.90 billion shares were traded on the NASDAQ versus 1.18 billion on the NYSE. In dollars, NASDAQ trading volume for the day was \$69.1 billion compared to \$40.3 billion for the NYSE.

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## FINANCE MATTERS

### THE WILD, WILD WEST OF STOCK TRADING

Where do companies go when they can't (or don't want to) meet the listing requirements of the larger stock markets? Two options are the Over-the-Counter Bulletin Board (OTCBB) and OTC Markets, formerly Pink Sheets. These two electronic markets are part of the Wild, Wild West of stock trading. The somewhat odd names have simple explanations. The OTCBB began as an electronic bulletin board that was created to facilitate OTC trading in nonlisted stocks. The name "Pink Sheets" just reflects the fact that, at one time, prices for such stocks were quoted on pink sheets of paper.

The well-known markets such as NASDAQ and the NYSE have relatively strict listing requirements. If a company fails to meet these requirements, it can be delisted. The OTCBB and the OTC Markets, on the other hand, have no listing requirements. The OTCBB does require that companies file financial statements with the SEC (or other relevant agency), but the Pink Sheets does not.

Stocks traded on these markets often have very low prices and are frequently referred to as "penny stocks," "microcaps," or even "nanocaps." Relatively few brokers do any research on these companies, so information is often spread through word of mouth or the Internet, not the most reliable of sources. In fact, for many stocks, these markets often look like big electronic rumor mills and gossip factories. To get a feel for what trading looks like, we captured a typical screen from the OTCBB website ([finra-markets.morningstar.com/MarketData/EquityOptions/default.jsp](http://finra-markets.morningstar.com/MarketData/EquityOptions/default.jsp)):

OOTC Equity					
Most Actives	% Gainers	% Losers	Exchange by <input type="text" value="OOTC"/>		
Symbol		Last	Chg	Chg %	Vol (mil) ▼
KATX	▼	0.0001	-0.0001	-50.0000	353.5201
GFOO	▲	0.0002	0.0000	0.0000	228.6835
VELA	▲	0.0003	0.0001	50.0000	193.4933
VPCO	▲	0.0017	0.0007	70.0000	121.0148
SKYF	▲	0.0005	0.0003	150.0000	108.2410
PZOO	▼	0.0003	-0.0001	-14.2857	104.5303
NECA	▲	0.0002	0.0000	0.0000	100.4475
<u>INOL</u>	▲	0.0001	0.0000	0.0000	88.1378
HDSI	▲	0.0005	0.0002	66.6667	86.1769
BVTK	▲	0.0001	0.0000	0.0000	81.0175

Source: Financial Industry Regulatory Authority, Inc.

## OOTC Equity

Most Actives	% Gainers	% Losers	Exchange by <input type="text" value="OOTC"/>		
Symbol		Last	Chg	Chg %	Vol (mil)
HRDI	▲	0.0200	0.0200	199900.0000	0.0050
TIPS	▲	0.0100	0.0100	39900.0000	0.0000
XCLK	▲	0.0001	0.0001	9900.0000	0.0200
MILPQ	▲	0.0139	0.0137	6850.0000	0.0020
EVSO	▲	0.0025	0.0024	2400.0000	0.0000
ATNAQ	▲	0.0200	0.0180	900.0000	0.5556
CLNP	▲	0.0001	0.0001	900.0000	71.1669
HIMR	▲	0.0001	0.0001	900.0000	1.0000
IFXY	▲	0.0001	0.0001	900.0000	5.3450
WCRI	▲	0.1400	0.1240	775.0000	0.0012

Source: Financial Industry Regulatory Authority, Inc.

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First, take a look at the returns. Here Media (HRDI) had a return for the day of 199,900 percent! That's not something you see every day. Of course, the big return was generated with a whopping price increase of \$.02 per share. A stock listed on the OTCBB is often the most actively traded stock on any particular day. For example, by the end of this particular day, Bank of America was the most active stock on the NYSE, trading about 354 million shares. On the OTCBB, Kat Exploration (KATX) traded about 210 million shares. But, at an average price of, say \$.0001 per share, the total dollar volume in Kat Exploration was all of \$35,400. In contrast, trades in Bank of America amounted to about \$1.9 billion.

The OTC Markets ([www.otcm Markets.com](http://www.otcm Markets.com)) is operated by a privately owned company. To be listed on the OTC Markets, a company just has to find a market maker willing to trade in the company's stock. Companies list on the OTC Markets for various reasons. Small companies that do not wish to meet listing requirements are one type. Another is foreign companies that often list on the OTC Markets because they do not prepare their financial statements according to GAAP, a requirement for listing on U.S. stock exchanges. There are many companies that were formerly listed on bigger stock markets that were either delisted involuntarily or chose to "go dark" for various reasons, including, as we discussed in Chapter 1, the costs associated with Sarbox compliance.

All in all, the OTCBB and the OTC Markets can be pretty wild places to trade. Low stock prices allow for huge percentage returns on small stock price movements. Be advised, however, that attempts at manipulation and fraud are commonplace. Also, stocks on these markets are often thinly traded, meaning there is little volume. It is not unusual for a stock listed on either market to have no trades on a given day. Even two or three days in a row without a trade in a particular stock is not uncommon.

NASDAQ ([www.nasdaq.com](http://www.nasdaq.com)) has a *great* website; check it out!

The NASDAQ is actually made up of three separate markets: the NASDAQ Global Select Market, the NASDAQ Global Market, and the NASDAQ Capital Market. As the market for NASDAQ's larger and more actively traded securities, the Global Select Market lists about 1,600 companies (as of early 2016), including some of the best-known companies in the world, such as Microsoft and Intel. The NASDAQ Global Market companies are somewhat smaller in size, and NASDAQ lists about 700 of them. Finally, the smallest companies listed on NASDAQ are in the NASDAQ Capital Market; about 750 or so are currently listed. Of course, as Capital Market companies become more established, they may move up to the Global Market or Global Select Market.

**ECNs** In a very important development in the late 1990s, the NASDAQ system was opened to so-called **electronic communications networks (ECNs)**. ECNs are basically websites that allow investors to trade directly with one another. Investor buy and sell orders placed on ECNs are transmitted to the NASDAQ and displayed along with market maker bid and ask prices. As a result, the ECNs open up the NASDAQ by essentially allowing individual investors, not just market makers, to enter orders. As a result, the ECNs act to increase liquidity and competition.

Of course, the NYSE and NASDAQ are not the only places stocks are traded. See our nearby *Finance Matters* box for a discussion of somewhat wilder markets.

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## Stock Market Reporting

You can get real-time stock quotes on the web. See [finance.yahoo.com](http://finance.yahoo.com) for details.

In recent years, the reporting of stock prices and related information has increasingly moved from traditional print media, such as *The Wall Street Journal*, to various websites. Yahoo! Finance ([finance.yahoo.com](http://finance.yahoo.com)) is a good example. We went there and requested a stock quote on wholesale club Costco, which is listed on the NASDAQ. Here is a portion of what we found:

**Costco Wholesale Corporation (COST)** - NasdaqGS ★ Watchlist

**149.10** +0.40 (0.27%) 12:28PM EST - Nasdaq Real Time Price

Prev Close:	148.70	Day's Range:	148.49 - 149.70
Open:	149.63	52wk Range:	117.03 - 169.73
Bid:	149.05 x 100	Volume:	603,949
Ask:	149.09 x 200	Avg Vol (3m):	2,522,910
1y Target Est:	168.48	Market Cap:	65.57B
Beta:	0.859532	P/E (ttm):	27.91
Next Earnings Date:	2-Mar-16 	EPS (ttm):	5.34
		Div & Yield:	1.60 (1.08%)

Most of this information is self-explanatory. The most recent reported trade took place at 12:28 p.m. for \$149.10. The reported change is from the previous day's closing price. The opening price is the first trade of the day. We see the bid and ask prices of \$149.05 and \$149.09, respectively, along with the market "depth," which is the number of shares sought at the bid price and offered at the ask price. The "1y Target Est" is the average estimated stock price one year ahead based on estimates from security analysts who follow the stock.

How big is the bid-ask spread on your favorite stock Check out the latest quotes at [www.bloomberg.com](http://www.bloomberg.com).

Moving to the second column, we have the range of prices for this day, followed by the range over the previous 52 weeks. Volume is the number of shares traded today, followed by average daily volume over the last three months. Market cap is the number of shares outstanding (from the most recent quarterly financial statements) multiplied by the current price per share. P/E is the PE ratio we discussed earlier. The earnings per share (EPS) used in the calculation is "ttm," meaning "trailing twelve months." Finally, we have the dividend on the stock, which is actually the most recent quarterly dividend multiplied by 4, and the dividend yield. Notice that the yield is just the reported dividend divided by the stock price:  $\$1.60/149.10 = .0108$ , or 1.08%.

## SUMMARY AND CONCLUSIONS

This chapter has covered the basics of stocks and stock valuations. The key points include:

1. A stock can be valued by discounting its dividends. We mention three types of situations:
  - a. The case of zero growth of dividends.
  - b. The case of constant growth of dividends.
  - c. The case of differential growth.

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**An estimate of the growth rate of a stock is needed for the dividend discount model. A useful estimate of the growth rate is**

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$$g = \text{Retention ratio} \times \text{Return on retained earnings (ROE)}$$

3. From accounting, we know that earnings are divided into two parts: dividends and retained earnings. Most firms continually retain earnings in order to create future dividends. One should not discount earnings to obtain price per share since part of earnings must be reinvested. Only dividends reach the stockholders and only they should be discounted to obtain share price.
4. We suggest that a firm's price–earnings ratio is a function of three factors:
  - a. The per-share amount of the firm's valuable growth opportunities.
  - b. The risk of the stock.
  - c. The type of accounting method used by the firm.
5. As the owner of shares of common stock in a corporation, you have various rights, including the right to vote to elect corporate directors. Voting in corporate elections can be either cumulative or straight. Most voting is actually done by proxy, and a proxy battle breaks out when competing sides try to gain enough votes to have their candidates for the board elected.
6. In addition to common stock, some corporations have issued preferred stock. The name stems from the fact that preferred stockholders must be paid first, before common stockholders can receive anything. Preferred stock has a fixed dividend.
7. The two biggest stock markets in the United States are the NYSE and the NASDAQ. We discussed the organization and operation of these two markets, and we saw how stock price information is reported.

## CONCEPT QUESTIONS

1. **Stock Valuation** Why does the value of a share of stock depend on dividends?
2. **Stock Valuation** A substantial percentage of the companies listed on the NYSE and the NASDAQ don't pay dividends, but investors are nonetheless willing to buy shares in them. How is this possible given your answer to the previous question?
3. **Dividend Policy** Referring to the previous questions, under what circumstances might a company choose not to pay dividends?
4. **Dividend Growth Model** Under what two assumptions can we use the dividend growth model presented in the chapter to determine the value of a share of stock? Comment on the reasonableness of these assumptions.
5. **Common versus Preferred Stock** Suppose a company has a preferred stock issue and a common stock issue. Both have just paid a \$2 dividend. Which do you think will have a higher price, a share of the preferred or a share of the common?
6. **Dividend Growth Model** Based on the dividend growth model, what are the two components of the total return on a share of stock? Which do you think is typically larger?
7. **Growth Rate** In the context of the dividend growth model, is it true that the growth rate in dividends and the growth rate in the price of the stock are identical?

8. **Price–Earnings Ratio** What are the three factors that determine a company’s price–earnings ratio?
9. **Voting Rights** When it comes to voting in elections, what are the differences between U.S. political democracy and U.S. corporate democracy?
10. **Corporate Ethics** Is it unfair or unethical for corporations to create classes of stock with unequal voting rights?
11. **Voting Rights** Some companies, such as Under Armour, have created classes of stock with no voting rights at all. Why would investors buy such stock?
12. **Stock Valuation** Evaluate the following statement: Managers should not focus on the current stock value because doing so will lead to an overemphasis on short-term profits at the expense of long-term profits.