CHAPTER 6

# The Structure and Performance of Securities Markets

Tom Cruise needs a script, Annie Leibovitz a camera, and Venus Williams a tennis racket. Each performer uses the props appropriate for the medium in question. Performances can be stimulating, comical, pleasurable, disappointing. That's how it is in the world of entertainment.

Well, it's not so different in securities markets. Brokers, dealers, specialists, and traders are the actors. Telephones and computer terminals are the props. Stocks, bonds, and mortgages are the media. Performances are described as resilient, deep, broad, thin, liquid. Our task is to describe who goes with what and why. You can then decide whether to applaud or hiss after your next financial transaction.

## Nature and Function of Securities Markets

In the previous two chapters, we examined the forces that influence the equilibrium prices of different types of securities. For the most part, we ignored the structure of these markets, taking for granted that somehow the interested buyers and sellers of the securities would find their way to the marketplace. And that is precisely the main assumption underlying the equilibrium price that emerges from the intersection of supply and demand curves: The price balances the supplies of and demands for the security by *all* potential market participants.

In practice, bringing all buyers and sellers together is not quite so simple. Trading interests are not uncovered costlessly, because buyers and sellers may be in different locations and therefore not aware of each other. Similarly, time may elapse between a buyer's arrival at the marketplace and the appearance

of a compatible seller. Such geographical and temporal fragmentation makes the prices at which transactions actually take place differ from the equilibrium price. Real-world trading at prices that straddle the true equilibrium is the best we can hope for. In fact, we might think of the ideal situation as actual transactions prices doing a little dance around the theoretical equilibrium price.

Securities markets are organized to help bring buyers and sellers together, so that both parties to the transaction will be satisfied that a fair transactions price, close to the true equilibrium price, has been arranged. There are three main types of market organization that facilitate the actual purchase and sale of securities: an **auction market,** a **brokered market,** and a **dealer market.** In each case, the aim is to match up buyers and sellers.

Auction Market. The main feature of an auction market is that buyers and sellers confront each other directly to bargain over price. There is nothing that stands between buyers and sellers, just an auctioneer who records bids and offers tendered by potential buyers and sellers. The particular rules of the auction determine exactly how buyers and sellers are matched up. For example, there can be a single trade between all buyers and sellers at a single price or a series of trades at different prices. Under all circumstances, the key characteristic of the auction is that orders are centralized, so that the highest bidders and lowest offerers are exposed to each other. A popular example of an auction market is the on-line auction services of eBay. In the financial world, the most well-known auction market is the New York Stock Exchange, where auctions for individual securities take place at specific locations, called **posts,** on the floor of the exchange. The auctioneer in this case is the **specialist** who is designated by the exchange to represent (as an agent) orders tendered by public customers. A second example of an auction market is the twice-daily London gold fixing. Representatives of five London bullion dealers gather together to expose public orders to competitive bidding. One of the dealers is designated by the group as the auctioneer.

Brokered Market. When there are insufficient participants in an auction market, so that potential traders do not always find "reasonable" bids and offers, it may pay traders to employ the services of a broker to search for the other side of a trade. Thus a seller of securities may ask a broker to show the securities to potential buyers or a buyer may ask a broker to uncover potential sellers. Unlike the auctioneer, whose role is completely passive, the broker provides information about potential buyers and sellers and earns a **commission** in return. Many of us are familiar with real estate brokers who provide information for potential buyers and sellers of homes. Municipal bonds are the best example of securities that trade primarily in a brokered market.

Dealer Market. During the time it takes a broker to uncover a compatible trading partner, the equilibrium price of the security may change. It can be

profitable, therefore, for a person to remain in the marketplace to provide the service of continuously bidding for securities that investors want to sell and offering securities that investors want to buy. This person acts as a **dealer** (also called **market-maker**), buying securities for his or her own account when the public is selling and selling from her or his own account when the public is buying. Unlike brokers, dealers commit capital to the process of bringing buyers and sellers together and take on the risk of price changes in the securities they hold in inventory. Dealers expect to earn a profit, because they always quote a bid price (at which they buy) that is below their offer price (at which they sell).

Many securities trade in dealer markets, including government bonds, corporate bonds, and equities traded in the so-called **over-the-counter (OTC) market**. There are usually many dealers in each security. They are linked together either by telephone or by computer hookup. In fact, many over-the-counter stocks trade in a partially automated electronic stock market called **NASDAQ** (National Association of Securities Dealers Automated Quotation system). On the New York Stock Exchange, the specialists who are the designated auctioneers also quote bids and offers in their capacity as dealers. Thus trading on the New York Stock Exchange is a cross between a dealer market and an auction market.

The organizational structure of a market, the existence of brokers, dealers, exchanges, as well as the technological paraphernalia, such as quotation screens, computer terminals, and telecommunications, are all mobilized to keep transactions prices as close to true (but unknown) equilibrium prices as is economically feasible. Easy access to a trading forum, with many potential buyers and sellers, means that a security can be bought or sold quickly with little deviation from its equilibrium value. That is what is meant by *marketability*, a catch-all term indicating small deviations of actual transactions prices about the true equilibrium.

Good **marketability** implies that a security can be sold, liquidated, and turned into cash very quickly without triggering a collapse in price. Because a highly marketable security is more desirable to investors, its equilibrium price will be higher, and its return lower, relative to less marketable securities.

The rest of our discussion is devoted to examining the efficiency of securities markets. First we look at how effective markets are in bringing buyers and sellers together, the so-called **operating efficiency** of securities markets. We then turn to pricing efficiency and related regulatory concerns.

## Primary Versus Secondary Markets

Before detailing the nature of trading in securities markets, it is important to emphasize the distinction between **primary markets** and **secondary markets.** Most of the popular markets, such as the New York Stock Exchange and the Tokyo Stock Exchange, are secondary markets where existing securities are exchanged between individuals and institutions. The

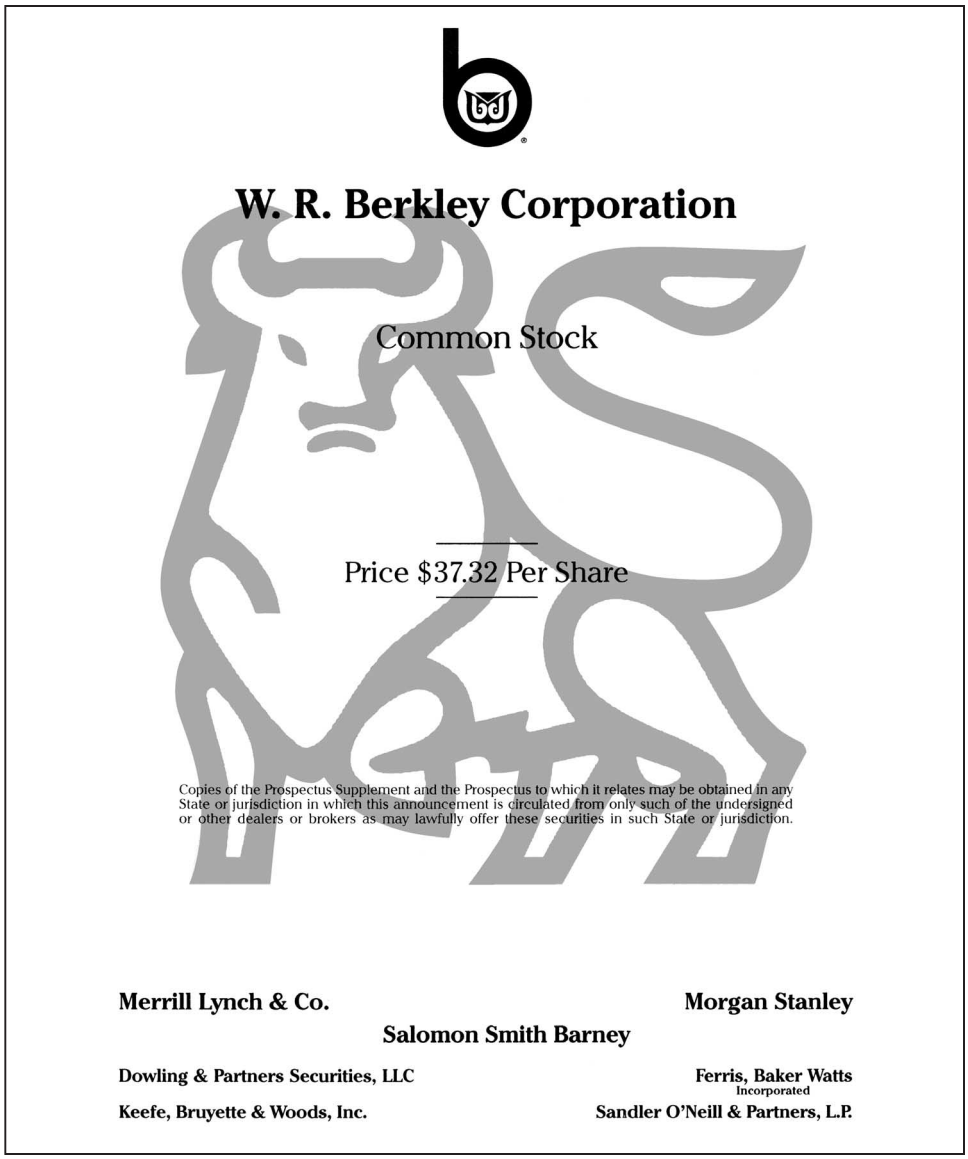
primary markets—markets for newly issued securities—are much less well-known.[1]

In the United States, for example, new issues of stocks or bonds to raise funds for General Motors, General Electric, or General Mills are not sold to saver-lenders on the floor of the New York Stock Exchange, the American Stock Exchange, or even the Midwest Stock Exchange in Chicago. Rather, the matchmaking takes place behind closed doors, aided by Wall Street's **investment banks.** Names such as Morgan Stanley, Goldman Sachs, Smith Barney, and Merrill Lynch dominate the list. They often act as brokers and dealers in secondary markets as well. But in their role as investment banks, they help distribute newly issued stocks and bonds to ultimate investors, insurance companies, pension funds, mutual funds, and individuals throughout the country.

These distributions are called **underwritings:** The investment bank guarantees an issuer of securities a price on the new issue. Often a number of investment banks band together in a syndicate to market a new issue; by sticking together, they share the risk of adverse movements in stock prices or interest rates between the time an issue is bought from the corporation and the time it goes out of the investment banks' inventory, safely tucked away in the portfolio of an individual investor or a financial intermediary. The idea is to get rid of the issue as quickly as possible, within a day or two. That minimizes the risk exposure of the investment banking firm's capital. Sometimes two syndicates are formed—one to sell the issue domestically and one to sell the issue internationally. Announcements of successful underwritings, called **tombstones,** appear frequently in the financial press.

A number of features of this new-issue market are noteworthy. First, as with many, or most, markets, it is not located in any particular spot. Underwritings of new issues do not take place on the floor of an organized exchange. Rather, the marketplace is a series of conference rooms of investment banking firms, linked by telephone with each other, with corporations, and with ultimate investors. Second, the most important commodity sold by these investment banking firms is information about the price required to sell an issue and who the likely buyers are. That's one of the most important functions of markets: dissemination of price and trading information. To market the new issue, investment bankers in effect sell the services of their capital by purchasing the issue outright from the corporation and thereby ensuring that the firm pays only the agreed-upon price. Subsequent adverse or favorable price movements do not affect the issuing firm, just the vacation prospects of the investment bankers. As compensation for their time and trouble,

[1]As we will see in Part III in our discussion of financial intermediaries, there are many kinds of newly issued (primary) financial assets, such as commercial loans made by banks to small and medium-size businesses, that rarely, if ever, trade in secondary markets. These nontraded assets are purchased by financial intermediaries and held until maturity. In addition to commercial loans, this group includes privately placed debt of midsize companies that is purchased by life insurance companies and commercial mortgages, also purchased by life insurance companies.




Newspaper advertisement (A "tombstone").
An underwriting syndicate floats a new issue.
*Source: Wall Street Journal,* November 26, 2002.

investment bankers earn a fee, called an **underwriting spread,** on each newly issued security.

The near-invisibility of primary markets, compared with the immense popular recognition of secondary markets for equities, does not change the fact that both serve essential functions. Moreover, there is a close interrelationship

between prices and yields on securities in secondary markets and those in primary markets. One important clue to the required new-issue yield on a corporation's bonds, for example, is the recent yield on the firm's obligations in the secondary market. How useful these yields are depends, in part, upon the "quality" of secondary market prices. Are they close to equilibrium prices, or do they reflect one or two transactions that might not be representative? Only by recognizing the nature of the secondary market can the prices and yields recorded there be evaluated.

## Efficiency of Secondary Market Trading

As we indicated at the beginning of the chapter, secondary markets work well if they bring together buyers and sellers of securities so that they transact at prices close to the true equilibrium price. Markets that accomplish this objective have low transactions costs and are considered liquid. One measure of the liquidity costs of a market is the spread between the bid price and the offer (or asked) price quoted by a dealer who "makes a market" in the particular security. In order to understand how the dealer's **bid-asked spread** measures liquidity costs, let's begin with a market that operates as an auction and then introduce dealers as participants.

The equilibrium price that we identify with the intersection of supply and demand curves emerges from the following type of auction. At a prearranged point in time, buyers and sellers interested in a particular security gather before an auctioneer. The auctioneer announces a price for the security (perhaps the price from the previous auction) and asks buyers and sellers to submit quantities they want to buy or sell at that price. If the quantity supplied exceeds what is demanded, the auctioneer announces a lower trial price and asks market participants to resubmit orders to buy or sell. If at the new lower price there are more buyers than sellers the auctioneer tries a slightly higher price and asks for still a new set of orders. This iterative "recontracting" process continues until a price emerges at which buying and selling interest are equal. At that point, the auctioneer instructs buyers to tender cash and sellers to tender the securities, and the exchange takes place at what has been established as the equilibrium price. This auction is known as a **Walrasian auction,** after Leon Walras, a nineteenth-century French economist who conceptualized the auction underlying the determination of equilibrium prices in this way. There is, in fact, one very real marketplace that operates as a Walrasian auction; namely, the twice-daily London gold fixing, where the price of gold bullion is determined.

Most markets operate quite differently from the Walrasian auction. Transactions usually occur continuously throughout the day rather than at a single point in time. In most cases, buyers and sellers of securities do not want to wait until a scheduled auction takes place. They prefer to transact immediately

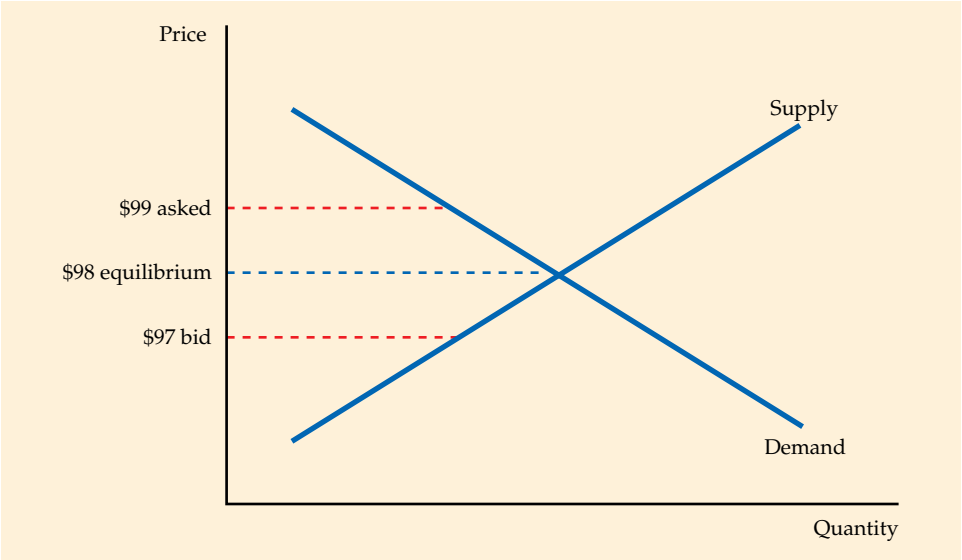



**FIGURE 6.1** Bid-asked spreads cause actual transactions prices to hover about the true equilibrium price.

in order to eliminate the uncertainty over where the new equilibrium price might be. To provide this service of immediate execution, dealers (market makers) enter the marketplace to quote a bid price at which they will buy from potential sellers and an offer price at which they will sell to potential buyers.

Figure 6.1 shows the **bid price** ($97) at which a dealer will buy from the sellers (on the supply curve) and the **asked** or **offer price** ($99) at which the dealer will sell to the buyer (on the demand curve). Unlike the buyers and sellers on the demand and supply curves, the dealer is not interested in the security itself. Rather the dealer's sole objective is to sell whatever inventory has been purchased before the equilibrium price has a chance to change. The dealer's reward is the spread between the bid and offer; in the case of Figure 6.1, the $2 difference between the $99 asked price and the $97 bid.

Note that if trading in this security were conducted in a Walrasian auction, all transactions would have occurred at the equilibrium price of $98 (that's the price where the quantity people want to sell just matches what others want to buy). But since buyers and sellers were concerned that the equilibrium price might change before the auction took place, they chose to transact at the dealer's bid and offer prices. The cost of transacting immediately, therefore, is measured by the spread between the dealer's bid and offer. Wider bid-asked spreads mean that the cost of transacting is high and that transactions prices differ considerably from equilibrium prices. A market is **liquid,** therefore, if bid-asked spreads are narrow. A security is considered liquid or

marketable if the bid-asked spread is narrow. Let's see what kinds of securities trade in liquid markets versus illiquid markets.[2]

The dealer will quote a narrow bid-asked spread if: (1) the expected volume of transactions is large; and (2) the anticipated risk of large equilibrium price changes is low. Large volume means it is easy to turn over inventory, since there are frequent orders to buy and sell. Low volatility of price changes means that the risk exposure of the dealer's inventory is small. Both mean that the dealer can be forced to quote narrow bid-asked spreads and still stay in business, committing capital and skill to market-making. Since dealers are no more benevolent than the rest of us, the element forcing dealers to quote narrow spreads is competitive pressure.

Table 6.1 shows a number of sample bid-asked quotations. First some basic explanations of the numbers. All bonds are quoted as a percent of **par.** Thus the Treasury 7.25 percent–coupon bonds due May 2016 could be sold at $135\,{}^{10}/_{32}$ (the bid price) per $100 face value and could be bought at $135\,{}^{11}/_{32}$ (the asked price) per $100 face value. Since minimum denominations of most bonds are $1,000, that means it costs $1,353.44 to buy such a bond, while I get $1,353.13 if I sell it. The spread (asked minus bid) recorded in the last column is ${}^{1}/_{32}$ or 3.13 cents per $100, or 31.3 cents per $1,000 transaction. In other words, if I buy a $1,000 Treasury bond and decide to sell immediately because I get a hot stock tip, my schizophrenia will cost me $0.31. A $2,000 round trip, as they call it, costs $0.63, a $3,000 trade, $0.94, and so on. This is a measure of the liquidity costs of the security: the transactions costs of buying and selling.

The bond of the Federal National Mortgage Association in the second line of Table 6.1 trades on a ${}^{1}/_{16}$-point spread, or $0.63 per $1,000, compared with the $0.31 per $1,000 round-trip transaction in the Treasury bond. This suggests that these securities have somewhat less liquidity than Treasury obligations, which is true.

The explanation for the variation in the spreads lies primarily in the volume of trading in the particular issues. Since Treasuries trade more than just about any other kind of security, it is not surprising that they have smaller bid-asked spreads.

The last section of Table 6.1 records the bids and offers for two over-the-counter equities. Aaon Inc. trades on a 9 cent spread, while Microsoft has a 1 cent spread. Like point spreads in football, these quotations must be scrutinized before you jump to costly conclusions. It's important to recall that

[2]One puzzling question is how a dealer knows where the equilibrium price is. An important source of information about the equilibrium price comes from the dealer's inventory of securities. For example, if a dealer quotes a very high bid and offer relative to where the equilibrium price is, the dealer will buy a lot more at the bid than he or she sells at the offer, producing an increase in the inventory of securities held. This provides a signal to the dealer to lower the bid and offer. If the bid and offer are too low, the dealer's inventory falls, and that signals the dealer to raise the bid and offer. So the answer is that by trial and error, the dealer's bid and offer prices hover around the equilibrium price.

**TABLE 6.1 Sample Bid and Asked Quotations on Securities**

| Name of market | Particular issue | | Bid | Ask | Spread |
|---|---|---|---|---|---|
| | Coupon | Maturity | | | |
| 1. Governments and Agencies | | | | | |
| Treasury Bond | 7.25 | May 2016 | $135^{10}/_{32}$ | $135^{11}/_{32}$ | $^{1}/_{32}$ |
| Federal National Mortgage Association | 6.00 | May 2008 | $116^{11}/_{32}$ | $116^{13}/_{32}$ | $^{1}/_{16}$ |
| 2. NASDAQ Stocks | | | | | |
| Aaon Inc. | | — | 15.10 | 15.19 | .09 |
| Microsoft Inc. | | — | 24.75 | 24.76 | .01 |

*Source: Wall Street Journal, www.nasdaq.com.*

quotations for bonds are *per $100 of face value*, while quotations in the equity market are *per share*. Thus to buy 200 shares of Aaon costs $3,038 (15.19 times 200), with an immediate sale netting $3,020. Thus it costs $18 for a $3,038 round trip in Aaon, while a $3,000 round trip in Treasuries costs only $0.93. The lesson is clear: Bid-asked spreads must be related to the price of the security and the implied cost of trading or liquidating a specific dollar amount. In general, there are higher transaction costs for equities compared with bonds. In part, this disparity reflects the greater risk of price fluctuation a dealer is exposed to with equities.[3]

But there's more to the story than bid-asked spreads. It is true that an actively traded NASDAQ stock, such as Microsoft, trades on a 1 cent spread per share. That's $4.04 per $10,000 round trip, just a bit more than the $3.125 it would cost to trade $10,000 in Treasury bonds. For trades of that size, equities can be just about as liquid as Treasury securities, if not more so.

The real difference between liquidity in Treasuries and liquidity in *any* equity lies in the size of transaction that can be handled without causing either a widening of the bid-asked spread or a shift up (in the case of a buy) or down (for a sale) in the implicit equilibrium price. Quotes in equities must be good for at least a round lot—100 shares. Quotes in the Treasury market must also be good for a round lot, usually $1 million in face value. A $10 million order in Treasuries can also be filled without much trouble. But for equities, there's simply no way to liquidate a $5 million block of stock, or even a $1 million position, without causing dealers to back away after the purchase of 100 or 200 shares. Thus the bid-asked spread measures the liquidity cost of normal-size transactions, and what's normal in the Treasury market would be

[3]In addition to these bid-asked spreads, your broker charges a fee, called a *commission*, for executing your trades. This expense depends more on whether you deal with a discount broker or a full-service broker than whether you are buying a stock or bond.

abnormal in any common stock. In fact, blocks of stock are not brought to the auction market on the floor of the New York Stock Exchange unless a trade has been arranged beforehand by dealers. While the public auction of organized exchanges looks good and has distinct advantages, it simply cannot handle the large trades of institutional investors.

This discussion suggests a somewhat more sophisticated measure of market performance, one that focuses on the ability of a market to absorb large trading volume without causing wild gyrations in transactions prices. The qualitative description of such markets is relatively easy: They have *depth, breadth,* and *resiliency*. A market is *deep* if it is easy to uncover buy and sell orders above and below current transactions prices; if these orders exist in large volume, then the market has *breadth;* if new orders quickly pour in when prices move up or down, the market is called *resilient*.

All of these characteristics imply low transactions price volatility. For example, even if a dealer's bid and asked quotes are good for 100 shares only, if a large purchase order causes institutions that continuously monitor dealer quotes to call in sell orders, then prices won't gyrate much. Markets that are *not* deep, broad, and resilient are called **thin markets;** only a small volume of trading can be absorbed without producing wide price swings.

Having said all that, there's not much else to do. There just aren't any good measures of this aspect of liquidity. Simply looking at price volatility is not enough; equilibrium price changes are part of everyday price movements and do not reflect poorly on a market's liquidity.

One important observation can be made, however, concerning the impact of communications technology on the ability of any market to absorb large

## IN THE NEWS

### After-Hours Trading Exposes Investors to Volatile Prices and Wider Spreads

As the 20th century ended, much fanfare greeted the arrival of after-hours trading. Electronic trading networks were created to allow investors to trade stocks when formal exchanges were closed. While trading during extended hours proved popular with the day traders who rode along the bull markets of the late 1990s, the general public was less interested in trading outside of normal hours. After the collapse of the 1990s bull market, day traders became more scarce, which further reduced the demand for extended hours trading.

The low volume in the after-hours markets has important implications for bid-asked spreads. According to a February 14, 2001 article in *USA Today,* "with the small number of traders in off-hours trading, stock prices tend to be more volatile with wide spreads between what buyers are bidding and sellers are asking." The paper cites the example of a retired real estate agent who pays a 25-cent spread during after-hours versus a 6-cent spread during normal trading hours. This is a perfect example of the link between trading volume and spreads discussed in the text.

*Source: USA Today,* Feb. 14, 2001; Noelle Knox.

orders without becoming "disorderly." Traders who can continuously monitor quotation screens can participate more quickly in buying and selling if prices deviate from their view of equilibrium. When prices fall, they buy; when prices rise, they sell. This very process contributes to price stability and liquidity. Moreover, the reduction in price volatility also leads to narrow bid-asked spreads, since dealer inventories are subject to less risk.

We have extended our discussion of secondary market trading, efficiency, marketability, and liquidity to the point of no return. Price changes should be small when trading is motivated by liquidity needs; that's the characteristic of highly marketable securities. But new information affecting the underlying value of the security should be reflected quickly in equilibrium price changes. Indeed, if prices of financial assets did not reflect news about bankruptcies, earnings trends, lawsuits, and whatever else affects the payments promised by the issuer of the financial instrument, then the market would be inefficient. Some call this aspect of a market **allocational efficiency.** Up to now, we have analyzed the operating efficiency of financial markets. Actually, the popular discussion of "efficient capital markets" focuses on allocational efficiency, without calling it by that name. In the next section, we provide an overview of efficient capital markets within the framework of regulation of securities markets.

## GOING OUT ON A LIMB

### The Computer Will Prevail

The New York Stock Exchange celebrated its 200th anniversary in 1992, but not much has changed since the exchange abandoned the buttonwood tree for its home at Eleven Wall Street. Buyers and sellers still bargain face-to-face on the stock exchange floor, with orders recorded on pads of paper in barely legible script. A similar situation prevails in the nation's commodities exchanges, where open outcry among buyers and sellers determines the price of everything from pork bellies to Treasury bond futures.

Not all modern trading markets mimic the procedures of the eighteenth century. London stocks now trade via computers and telecommunications, as do futures markets in Japan and Germany. In fact, the accompanying newspaper clipping describes an electronic alternative to trading in stocks listed on the New York Stock Exchange. There is little doubt that electronics will eventually prevail, even where the New York Stock Exchange is concerned.

The real question is why haven't computers already replaced all trading floors, the way word processors have replaced electric typewriters in the offices of the 1990s? The answer is liquidity. The New York Stock Exchange and the U.S. commodities exchanges are extremely liquid, with narrow bid-asked spreads that attract orders from public investors. Competing computer-based exchanges have difficulty breaking into the vicious cycle: Liquidity attracts trading volume that generates more liquidity. At some point, however, technology will prevail with a quantum improvement in the technique for matching buyers and sellers. At that point the exchange floor will go on the chopping block, the same one the buttonwood tree ended on.

# Efficient Capital Markets and Regulation

A vast literature has developed during the past twenty years based on a relatively straightforward proposition: The current price of a security fully reflects all publicly available information. Put somewhat differently: There is no unexploited publicly available information that would lead to superior investment performance. If securities prices fully reflect all available information, the capital market is called *efficient*.

It's hard to argue with the statement that markets will be efficient. If securities prices didn't reflect all publicly available information, market pressures would quickly force them to do so. Suppose that dealers ignored a news flash that an OTC-traded company had discovered how to make oil out of used textbooks. Everyone else would find the price of the security relatively cheap in view of the fantastic profits the company will reap. Buy orders would pour into brokerage offices and sell orders would disappear. Dealers would meet their commitment to sell 100 shares at the old asked price and then would more than double the quoted asking price to avoid selling what they didn't have at ridiculously low prices. As soon as the dealer quoted a price suffi-

## IN THE NEWS

### Electronic Trading Networks Look Toward the Big Board

By cutting costs and promising speedy execution of orders, electronic communications networks (ECNs) have captured roughly 70 percent of the trading in NASDAQ stocks. Now Instinet and Archipelago, the two biggest ECNs, have set their sights on the New York Stock Exchange.

"Our customers are telling us that they want us to build up the listed side of our business," said Andrew Goldman, an executive vice president at Instinet. They want "a robust alternative to the New York Stock Exchange," Mr. Goldman said, meaning one with enough liquidity to instantly match the bids and offers in their systems.

But the networks may find the New York Stock Exchange a much tougher competitor, largely because more than 80 percent of trading in Big Board stocks takes place on the floor of the exchange, where a specialist handles each listed stock. By contrast, in the over-the-counter market, many market-makers buy and sell shares electronically, and no one person or firm is responsible for maintaining orderly trading in a single security.

Robert McSweeney, a senior vice president of the exchange, in charge of competitive positions, said that ECNs cannot replicate the unique dynamic of floor trading at the Big Board.

"Specialists dampen volatility," he said, "by trading against the prevailing trend." Specialists trade between the best bids and offers so both sides get a better price, according to Mr. McSweeney.

*Source:* Tarquinio, J. Alex, "Electronic Trading Networks Look Toward the Big Board," *New York Times,* Dec. 29, 2002.

ciently high to reflect the rosy profit outlook, buy orders would drop to normal (the security would no longer be such a bargain), sell orders would reappear (let's take some profits), and the new equilibrium price would fully reflect all publicly available information.

There's nothing wrong with that story. It happens all the time, and that's precisely what we mean when we say that capital markets are efficient. The problem arises in the implications for buying and selling securities. The implication is quite simple: don't trade. If prices quickly incorporate all information affecting the fortunes of a company, then you can't earn above-average returns by selling so-called overvalued securities or buying undervalued ones. There aren't any bargains. Moreover, the fancy charts sold by investment advisers, suggesting that you buy when the price of a stock rises by 5 or 10 percent, aren't worth the paper they are printed on.

Needless to say, securities analysts have little use for such academic ranting and raving. How quickly do you think markets absorb new information? Within a day is the best estimate of academic researchers. If that's the case, there is little to gain from buying or selling after reading the investment bulletins of your favorite brokerage house. By the time you've finished reading, there's nothing to do but watch which way the price of your security went.

Our discussion of market efficiency made specific reference to publicly available information. It's quite possible, indeed, quite probable, that nonpublicly available information can be used to make extra profits or avoid undesirable losses. The Securities and Exchange Act of 1934 provided for the establishment of the **Securities and Exchange Commission (SEC)** to prevent fraud and promote equitable and fair operations in securities markets. The focal point of SEC regulations is the disclosure of information that might be relevant for the pricing of securities. The SEC insists that investors should not be at a disadvantage when purchasing or selling securities. Not only must there be full disclosure of all pertinent information, but misinformation and dissemination of false or misleading reports are specifically prohibited.

The SEC's job is not an easy one. As we will see in Chapter 15, the SEC has enlisted the aid of the various organized exchanges and the **National Association of Securities Dealers (NASD)** in supervising brokers and dealers, and in monitoring transactions in secondary markets. The exchanges and the NASD take these disciplinary and supervising responsibilities seriously. And with good reason. The specter of more detailed SEC involvement in day-to-day operations is more than enough to encourage vigorous self-regulation.

It would be a mistake, however, to assume that manipulation, fraud, misinformation, and deception have disappeared from financial transactions simply because the SEC plays watchdog. Markets are efficient because investors and traders scrutinize and search and screen all information for themselves. *Caveat emptor et venditor* are still the watchwords that ensure market efficiency.

## SUMMARY

1. The equilibrium price that emerges from the familiar supply-demand picture assumes that all buyers and sellers have been brought together in the marketplace. Actual transactions prices in real-world markets may differ from the theoretical equilibrium price, because it is costly to bring together all potential traders.
2. Markets that trade existing securities are organized as either auction, broker, or dealer markets. In all cases, resources are devoted to uncovering compatible trading interests. The New York Stock Exchange is the best example of an auction market, while government and corporate bonds are traded primarily in dealer markets. Brokers are frequently used in the municipal bond market.
3. It is important to distinguish these secondary markets for securities from the primary market, where newly issued securities are initially placed with investors. Virtually all corporations use investment bankers to help market new issues of stocks and bonds.
4. The operating efficiency of secondary markets is measured by how closely actual transactions prices conform to theoretical equilibrium prices. A narrow bid-asked spread in a dealer market produces transactions prices that are close to the true equilibrium price. Other dimensions to operating efficiency include the size of order that can be accommodated at a given quotation. In terms of these criteria, the market for Treasury securities is the most liquid secondary market.
5. Because investors place a positive value on liquidity, securities that are more liquid sell for higher prices than less liquid securities, all other things being equal, of course.
6. Securities markets are highly efficient processors of new information. Most evidence suggests that current prices fully reflect all publicly available information. Regulatory supervision by the Securities and Exchange Commission is aimed at preventing fraud and promoting fair and equitable trading.

## KEY TERMS

**allocational efficiency,** *p. 105*
**asked price,** *p. 101*
**auction market,** *p. 96*
**bid-asked spread,** *p. 100*
**bid price,** *p. 101*
**brokered market,** *p. 96*
**commission,** *p. 96*
**dealer,** *p. 97*
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**tombstone,** *p. 98*
**underwriting,** *p. 98*
**underwriting spread,** *p. 99*
**Walrasian auction,** *p. 100*

## QUESTIONS

**6.1** Describe the characteristics that distinguish auction, broker, and dealer markets. What is the main common objective of these different forms of market organization?

**6.2** What determines whether a dealer will quote a narrow or a wide bid-asked spread?

**6.3** Ignoring for a moment the size of the bid-asked spread, explain why Treasury bonds are more liquid than equities.

**6.4** What are the implications for investor decision making of the proposition that markets are efficient?

**6.5** How do investment bankers help companies issue new securities?

**6.6** Investment bankers are compensated for underwriting a new issue in the form of an underwriting spread. What do you imagine determines how big this fee is?

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