

Mergers

► **The scale and** pace of merger activity in the United States have been remarkable. In 2006, a record year for mergers, U.S. companies were involved in deals totaling nearly \$1.5 trillion. During such periods of intense merger activity, management spends significant amounts of time either searching for firms to acquire or worrying about whether some other firm will acquire them.

A merger adds value only if the two companies are worth more together than apart. This chapter covers why two companies could be worth more together and how to get the merger deal done if they are. Many marriages between companies are amicable, but sometimes one party is dragged unwillingly to the altar. So we also look at what is involved in hostile takeovers.

We proceed as follows.

- *Motives.* Sources of value added.
- *Dubious motives.* Don't be tempted.
- *Benefits and costs.* It's important to estimate them consistently.

- *Mechanics.* Legal, tax, and accounting issues.
- *Takeover battles and tactics.* We look at merger tactics and show some of the economic forces driving merger activity.
- *Mergers and the economy.* How can we explain merger waves? Who gains and who loses as a result of mergers?

Mergers are partly about economies from combining two firms, but they are also about who gets to run the company. Pick a merger, and you'll almost always find that one firm is the protagonist and the other is the target. The top management of the target firm usually departs after the merger.

Financial economists now view mergers as part of a broader *market for corporate control*. The activity in this market goes far beyond ordinary mergers. It includes leveraged buyouts (LBOs), spin-offs and divestitures, and also nationalizations and privatizations where the government acquires or sells a business. These are the subject of the next chapter.



31-1 Sensible Motives for Mergers

Table 31.1 lists a few recent mergers. Notice that most of these are **horizontal mergers**, that is, combinations of two firms in the same line of business. Two recent headline-grabbing examples are Pfizer's acquisition of Wyeth and Bank of America's acquisition of Merrill Lynch.

A **vertical merger** involves companies at different stages of production. The buyer expands back toward the source of raw materials or forward in the direction of the ultimate consumer. An example of a vertical merger is the 2008 acquisition of Tele Atlas by its fellow Dutch firm, TomTom. TomTom, the world's largest maker of car navigation devices, plans to use Tele Atlas's digital map data to provide real-time updates to its sat-nav systems.

Industry	Acquiring Company	Selling Company	Payment (\$ billions)
Pharmaceuticals	Pfizer	Wyeth	64.5
Electricity	Enel (Italy)	Endesa (Spain)	58.7
Brewing	InBev SA (Belgium)	Anheuser-Busch	50.6
Banking	Bank of America	Merrill Lynch	46.4
Pharmaceuticals	Roche (Switzerland)	Genentech	44.3
Pharmaceuticals	Merck	Schering-Plough	38.4
Mining	Rio Tinto (U.K.)	Alcan (Canada)	38.1
Telecoms	Verizon Wireless	Alltel	28.1
Food	Mars Inc	William Wrigley	27.0
Banking	Lloyds TSB (U.K.)	HBOS (U.K.)	18.0
Banking	Wells Fargo	Wachovia	12.7

TABLE 31.1

Some important recent mergers.

Source: *Mergers and Acquisitions*, various issues.

Other recent vertical mergers include that between Google and Double-Click and the proposed tie-up between Live Nation and Ticketmaster.

A **conglomerate merger** involves companies in unrelated lines of businesses. The principal mergers of the 1960s and 1970s were mostly conglomerate. Conglomerates are much less popular now, at least in the United States and other developed economies. Much of the action in the 1980s and 1990s has come from breaking up the conglomerates that had been formed 10 to 20 years earlier.

With these distinctions in mind, we are about to consider motives for mergers, that is, reasons why two firms may be worth more together than apart. We proceed with some trepidation. The motives, though they often lead the way to real benefits, are sometimes just mirages that tempt unwary or overconfident managers into takeover disasters. This was the case for AOL, which spent a record-breaking \$156 billion to acquire Time Warner. The aim was to create a company that could offer consumers a comprehensive package of media and information products. It didn't work. Even more embarrassing (on a smaller scale) was the acquisition of Apex One, a sporting apparel company, by Converse Inc. The purchase was made on May 18, 1995. Apex One was closed down on August 11, after Converse failed to produce new designs quickly enough to satisfy retailers. Converse lost an investment of over \$40 million in 85 days.¹

Many mergers that seem to make economic sense fail because managers cannot handle the complex task of integrating two firms with different production processes, accounting methods, and corporate cultures. The nearby box shows how these difficulties bedeviled the merger of three Japanese banks.

The value of most businesses depends on *human* assets—managers, skilled workers, scientists, and engineers. If these people are not happy in their new roles in the merged firm, the best of them will leave. Beware of paying too much for assets that go down in the elevator and out to the parking lot at the close of each business day. They may drive into the sunset and never return.

Consider the \$38 billion merger between Daimler-Benz and Chrysler. Although it was hailed as a model for consolidation in the auto industry, the early years were rife with conflicts between two very different cultures:

German management-board members had executive assistants who prepared detailed position papers on any number of issues. The Americans didn't have assigned aides and

¹ Mark Maremount, "How Converse Got Its Laces All Tangled," *BusinessWeek*, September 4, 1995, p. 37.

Those Elusive Synergies

When three of Japan's largest banks combined to form Mizuho Bank the result was a bank with assets of \$1.5 trillion, more than twice those of the world leader Deutsche Bank. The name "Mizuho" means "rich rice harvest" and the bank's management forecasted that the merger would yield a rich harvest of synergies. In a message to shareholders, the bank president claimed that the merger would create "a comprehensive financial services group that will surge forward in the 21st century." He predicted that the bank would "lead the new era through cutting-edge comprehensive financial services . . . by exploiting to the fullest extent the Group's enormous strengths, which are backed by a powerful customer base and state-of-the-art financial and information technologies." The cost of putting the banks together was forecasted at ¥130 billion, but management predicted future benefits of ¥466 billion a year.

Within a few months of the announcement, reports began to emerge of squabbles among the three partners. One problem area was IT. Each of the three merging banks had a different supplier for its computer system. At first it was proposed to use just one of these three systems, but then the banks decided

to connect the three different systems together using "relay" computers.

Three years after the initial announcement the new company opened for business on April 1, 2002. Five days later, computer glitches resulted in a spectacular foul-up. Some 7,000 of the bank's cash machines did not work, 60,000 accounts were debited twice for the same transaction, and millions of bills went unpaid. *The Economist* reported that two weeks later Tokyo Gas, the biggest gas company, was still missing ¥2.2 billion in payments, and the top telephone company, NTT, which was looking for ¥12.7 billion, was forced to send its customers receipts marked with asterisks in place of figures, since it did not know which of about 760,000 bills had been paid.

One of the objectives behind the formation of Mizuho was to exploit economies in its IT systems. The launch fiasco illustrated dramatically that it is easier to predict such merger synergies than to realize them.

Sources: The creation of Mizuho Bank and its launch problems are described in "Undispensable: A Fine Merger Yields One Fine Mess," *The Economist*, April 27, 2002, p. 72; "Big, Bold, but . . .", *Euromoney*, December 2000, pp. 30-35; and "Godzilla Bank," *Forbes*, March 20, 2000, pp. 132-133.

formulated their decisions by talking directly to engineers or other specialists. A German decision worked its way through the bureaucracy for final approval at the top. Then it was set in stone. The Americans allowed midlevel employees to proceed on their own initiative, sometimes without waiting for executive-level approval. . . .

Cultural integration also was proving to be a slippery commodity. The yawning gap in pay scales fueled an undercurrent of tension. The Americans earned two, three, and, in some cases, four times as much as their German counterparts. But the expenses of U.S. workers were tightly controlled compared with the German system. Daimler-side employees thought nothing of flying to Paris or New York for a half-day meeting, then capping the visit with a fancy dinner and a night in an expensive hotel. The Americans blanched at the extravagance.²

Nine years after acquiring Chrysler, Daimler threw in the towel and announced that it was offloading an 80% stake in Chrysler to a leveraged-buyout firm, Cerberus Capital Management. Daimler actually paid Cerberus \$677 million to take Chrysler off its hands. Cerberus in return assumed about \$18 billion in pension and employee health care liabilities and agreed to invest \$6 billion in Chrysler and its finance subsidiary.

There are also occasions when the merger does achieve gains but the buyer nevertheless loses because it pays too much. For example, the buyer may overestimate the value of stale

² Bill Vlasic and Bradley A. Stertz, "Taken for a Ride," *BusinessWeek*, June 5, 2000. Reprinted with special permission © The McGraw-Hill Companies, Inc.

inventory or underestimate the costs of renovating old plant and equipment, or it may overlook the warranties on a defective product. Buyers need to be particularly careful about environmental liabilities. If there is pollution from the seller's operations or toxic waste on its property, the costs of cleaning up will probably fall on the buyer.

Now we turn to the possible sources of merger *synergies*, that is, the possible sources of added value.

Economies of Scale

Many mergers are intended to reduce costs and achieve economies of scale. For example, when Bank of New York and Mellon Financial Corporation merged in 2007, management forecasted annual cost savings of \$700 million or over 8% of the current combined costs. They anticipated that the merger would allow the two companies to share services and technology, and would permit a reduction in staff from 40,000 to about 36,000. (Some of these savings involved senior management. For example, there were two chief financial officers before the merger and only one afterward.)

Achieving these *economies of scale* is the natural goal of horizontal mergers. But such economies have been claimed in conglomerate mergers, too. The architects of these mergers have pointed to the economies that come from sharing central services such as office management and accounting, financial control, executive development, and top-level management.³

Economies of Vertical Integration

Vertical mergers seek economies in vertical integration. Some companies try to gain control over the production process by expanding back toward the output of the raw material or forward to the ultimate consumer. One way to achieve this is to merge with a supplier or a customer.

Vertical integration facilitates coordination and administration. We illustrate via an extreme example. Think of an airline that does not own any planes. If it schedules a flight from Boston to San Francisco, it sells tickets and then rents a plane for that flight from a separate company. This strategy might work on a small scale, but it would be an administrative nightmare for a major carrier, which would have to coordinate hundreds of rental agreements daily. In view of these difficulties, it is not surprising that all major airlines have integrated backward, away from the consumer, by buying and flying airplanes rather than simply patronizing rent-a-plane companies.

Do not assume that more vertical integration is better than less. Carried to extremes, it is absurdly inefficient, as in the case of LOT, the Polish state airline, which in the late 1980s found itself raising pigs to make sure that its employees had fresh meat on their tables. (Of course, in a centrally managed economy it may be necessary to raise your own cattle or pigs, since you can't be sure you'll be able to buy meat.)

Nowadays the tide of vertical integration seems to be flowing out. Companies are finding it more efficient to *outsource* the provision of many services and various types of production. For example, back in the 1950s and 1960s, General Motors was deemed to have a cost advantage over its main competitors, Ford and Chrysler, because a greater fraction of the parts used in GM's automobiles were produced in-house. By the 1990s, Ford and Chrysler had the advantage: they could buy the parts cheaper from outside suppliers. This was partly because the outside suppliers tended to use nonunion labor at lower wages. But it also appears that manufacturers have more bargaining power versus independent suppliers than versus a production facility that's part of the corporate family. In 1998 GM decided to spin off Delphi, its automotive parts division, as a separate company. After the spin-off, GM can continue to buy parts from Delphi in large volumes, but it negotiates the purchases at arm's length.

³ Economies of scale are enjoyed when the average unit cost of production goes down as production increases. One way to achieve economies of scale is to spread fixed costs over a larger volume of production.

Complementary Resources

Many small firms are acquired by large ones that can provide the missing ingredients necessary for the small firms' success. The small firm may have a unique product but lack the engineering and sales organization required to produce and market it on a large scale. The firm could develop engineering and sales talent from scratch, but it may be quicker and cheaper to merge with a firm that already has ample talent. The two firms have *complementary resources*—each has what the other needs—and so it may make sense for them to merge. Also, the merger may open up opportunities that neither firm would pursue otherwise.

In recent years many of the major pharmaceutical firms have faced the loss of patent protection on their more profitable products and have not had an offsetting pipeline of promising new compounds. This has prompted an increasing number of acquisitions of biotech firms. For example, in 2008 Eli Lilly acquired ImClone Systems. Lilly paid \$6.5 billion for ImClone, a premium of some 50% over the company's earlier market value. But Lilly's CEO claimed that the acquisition would "broaden Lilly's portfolio of marketed cancer therapies and boost Lilly's oncology pipeline with up to three promising targeted therapies in Phase III in 2009." At the same time ImClone obtained the resources necessary to bring its products to market.

Surplus Funds

Here's another argument for mergers: Suppose that your firm is in a mature industry. It is generating a substantial amount of cash, but it has few profitable investment opportunities. Ideally such a firm should distribute the surplus cash to shareholders by increasing its dividend payment or repurchasing stock. Unfortunately, energetic managers are often reluctant to adopt a policy of shrinking their firm in this way. If the firm is not willing to purchase its own shares, it can instead purchase another company's shares. Firms with a surplus of cash and a shortage of good investment opportunities often turn to mergers *financed by cash* as a way of redeploying their capital.

Some firms have excess cash and do not pay it out to stockholders or redeploy it by wise acquisitions. Such firms often find themselves targeted for takeover by other firms that propose to redeploy the cash for them. During the oil price slump of the early 1980s, many cash-rich oil companies found themselves threatened by takeover. This was not because their cash was a unique asset. The acquirers wanted to capture the companies' cash flow to make sure it was not frittered away on negative-NPV oil exploration projects. We return to this *free-cash-flow* motive for takeovers later in this chapter.

Eliminating Inefficiencies

Cash is not the only asset that can be wasted by poor management. There are always firms with unexploited opportunities to cut costs and increase sales and earnings. Such firms are natural candidates for acquisition by other firms with better management. In some instances "better management" may simply mean the determination to force painful cuts or realign the company's operations. Notice that the motive for such acquisitions has nothing to do with benefits from combining two firms. Acquisition is simply the mechanism by which a new management team replaces the old one.

A merger is not the only way to improve management, but sometimes it is the only simple and practical way. Managers are naturally reluctant to fire or demote themselves, and stockholders of large public firms do not usually have much *direct* influence on how the firm is run or who runs it.⁴

⁴ It is difficult to assemble a large-enough block of stockholders to effectively challenge management and the incumbent board of directors. Stockholders can have enormous indirect influence, however. Their displeasure shows up in the firm's stock price. A low stock price may encourage a takeover bid by another firm.

If this motive for merger is important, one would expect to observe that acquisitions often precede a change in the management of the target firm. This seems to be the case. For example, Martin and McConnell found that the chief executive is four times more likely to be replaced in the year after a takeover than during earlier years.⁵ The firms they studied had generally been poor performers; in the four years before acquisition their stock prices had lagged behind those of other firms in the same industry by 15%. Apparently many of these firms fell on bad times and were rescued, or reformed, by merger.

Industry Consolidation

The biggest opportunities to improve efficiency seem to come in industries with too many firms and too much capacity. These conditions seem to trigger a wave of mergers and acquisitions, which then force companies to cut capacity and employment and release capital for reinvestment elsewhere in the economy. For example, when U.S. defense budgets fell after the end of the Cold War, a round of consolidating takeovers followed in the defense industry. The consolidation was inevitable, but the takeovers accelerated it.

The banking industry is another example. Most of the banking mergers in Table 31.1 have involved rescues of failing banks by larger and stronger rivals. But many earlier bank mergers involved successful banks that sought to achieve economies of scale. The United States entered the 1980s with far too many banks, largely as a result of outdated restrictions on interstate banking. As these restrictions eroded and communications and technology improved, hundreds of small banks were swept up into regional or “super-regional” banks. For example, look at Figure 31.1, which shows the dozens of acquisitions by Bank of America and its predecessor companies. The main motive of these mergers was to reduce costs.⁶

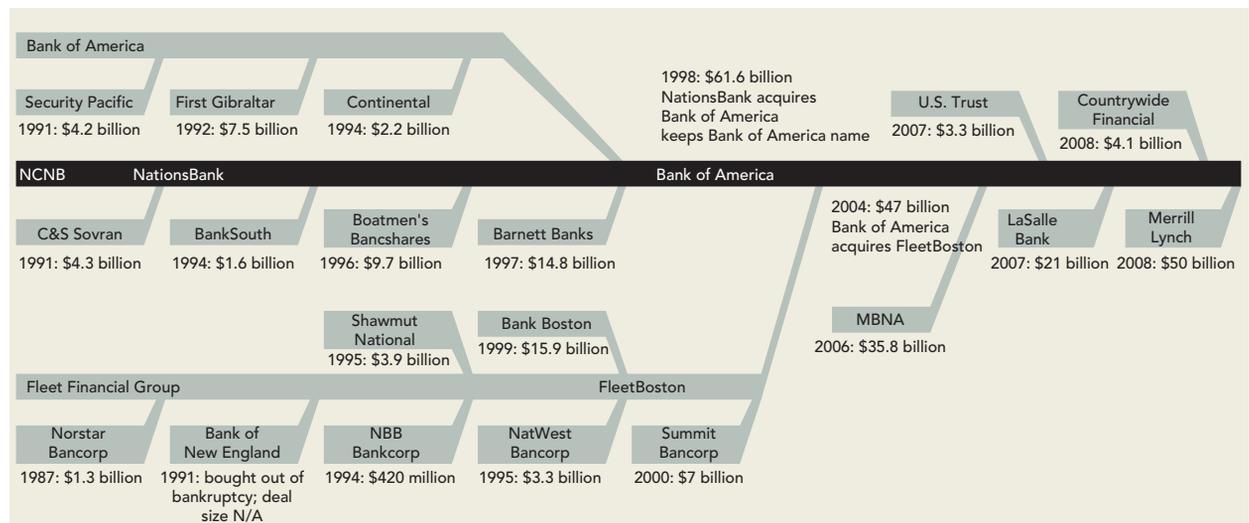


FIGURE 31.1

Part of Bank of America's family tree.

Sources: Thomson Financial SDC M&A Database and Bank of America annual reports.

⁵ K. J. Martin and J. J. McConnell, “Corporate Performance, Corporate Takeovers, and Management Turnover,” *Journal of Finance* 46 (June 1991), pp. 671–687.

⁶ A study of 41 large bank mergers estimated cost savings with present value averaging 12% of the combined market values of the merging banks. See J. F. Houston, C. M. James, and M. D. Ryngaert, “Where Do Merger Gains Come From? Bank Mergers from the Perspective of Insiders and Outsiders,” *Journal of Financial Economics* 60 (May/June 2001), pp. 285–331.

In Europe also during the past 20 years there has been a wave of bank mergers as companies have sought to gain the financial muscle to compete in a Europe-wide banking market. These include the mergers of UBS and Swiss Bank Corp (1997), BNP and Banque Paribas (1998), Hypobank and Bayerische Vereinsbank (1998), Banco Santander and Banco Central Hispanico (1999), Unicredit and Capitalia (2007), and Commerzbank and Dresdner Bank (2009).

31-2 Some Dubious Reasons for Mergers

The benefits that we have described so far all make economic sense. Other arguments sometimes given for mergers are dubious. Here are a few of the dubious ones.

Diversification

We have suggested that the managers of a cash-rich company may prefer to see it use that cash for acquisitions rather than distribute it as extra dividends. That is why we often see cash-rich firms in stagnant industries merging their way into fresh woods and pastures new.

What about diversification as an end in itself? It is obvious that diversification reduces risk. Isn't that a gain from merging?

The trouble with this argument is that diversification is easier and cheaper for the stockholder than for the corporation. There is little evidence that investors pay a premium for diversified firms; in fact, as we will explain in Chapter 32, discounts are more common. The Appendix to this chapter provides a simple proof that corporate diversification does not increase value in perfect markets as long as investors' diversification opportunities are unrestricted. This is the *value-additivity* principle introduced in Chapter 7.

Increasing Earnings per Share: The Bootstrap Game

Some acquisitions that offer no evident economic gains nevertheless produce several years of rising earnings per share. To see how this can happen, let us look at the acquisition of Muck and Slurry by the well-known conglomerate World Enterprises.

The position before the merger is set out in the first two columns of Table 31.2. Because Muck and Slurry has relatively poor growth prospects, its stock's price-earnings ratio is lower than World Enterprises' (line 3). The merger, we assume, produces no economic

	World Enterprises before Merger	Muck and Slurry	World Enterprises after Merger
1. Earnings per share	\$2.00	\$2.00	\$2.67
2. Price per share	\$40	\$20	\$40
3. Price-earnings ratio	20	10	15
4. Number of shares	100,000	100,000	150,000
5. Total earnings	\$200,000	\$200,000	\$400,000
6. Total market value	\$4,000,000	\$2,000,000	\$6,000,000
7. Current earnings per dollar invested in stock (line 1 ÷ line 2)	\$.05	\$.10	\$.067

TABLE 31.2 Impact of merger on market value and earnings per share of World Enterprises.

Note: When World Enterprises purchases Muck and Slurry, there are no gains. Therefore, total earnings and total market value should be unaffected by the merger. But earnings per share increase. World Enterprises issues only 50,000 of its shares (priced at \$40) to acquire the 100,000 Muck and Slurry shares (priced at \$20).

benefits, and so the firms should be worth exactly the same together as they are apart. The market value of World Enterprises after the merger should be equal to the sum of the separate values of the two firms (line 6).

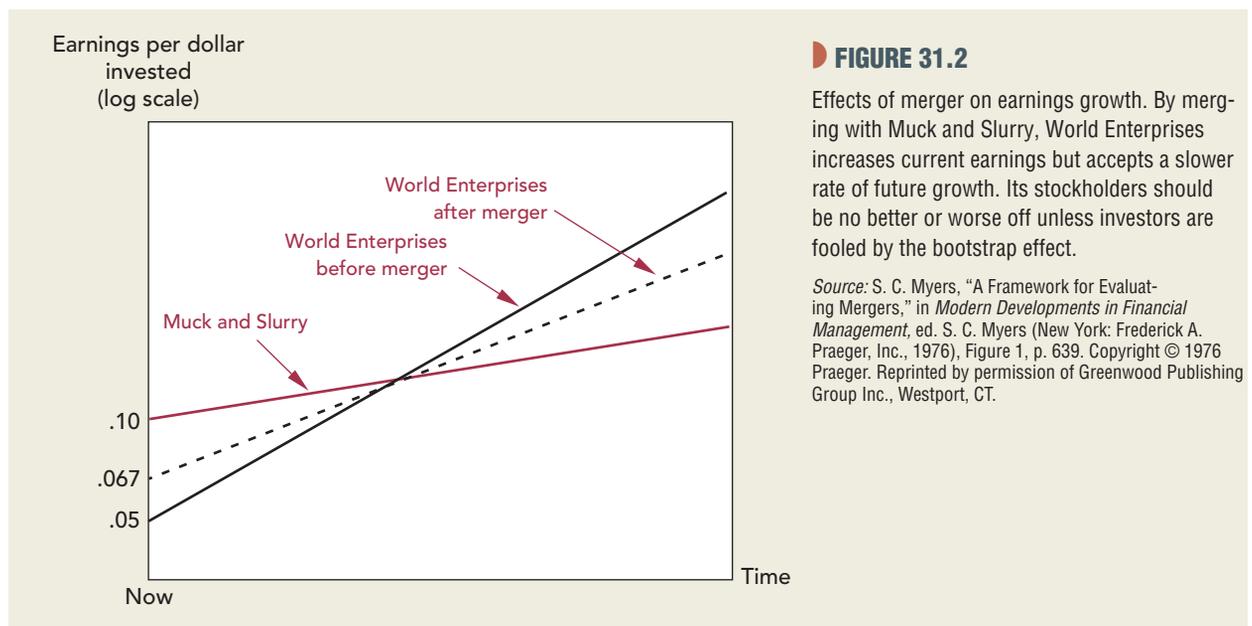
Since World Enterprises' stock is selling for double the price of Muck and Slurry stock (line 2), World Enterprises can acquire the 100,000 Muck and Slurry shares for 50,000 of its own shares. Thus World will have 150,000 shares outstanding after the merger.

Total earnings double as a result of the merger (line 5), but the number of shares increases by only 50%. Earnings *per share* rise from \$2.00 to \$2.67. We call this the *bootstrap effect* because there is no real gain created by the merger and no increase in the two firms' combined value. Since the stock price is unchanged, the price-earnings ratio falls (line 3).

Figure 31.2 illustrates what is going on here. Before the merger \$1 invested in World Enterprises bought 5 cents of current earnings and rapid growth prospects. On the other hand, \$1 invested in Muck and Slurry bought 10 cents of current earnings but slower growth prospects. If the *total* market value is not altered by the merger, then \$1 invested in the merged firm gives 6.7 cents of immediate earnings but slower growth than World Enterprises offered alone. Muck and Slurry shareholders get lower immediate earnings but faster growth. Neither side gains or loses provided everybody understands the deal.

Financial manipulators sometimes try to ensure that the market does *not* understand the deal. Suppose that investors are fooled by the exuberance of the president of World Enterprises and by plans to introduce modern management techniques into its new Earth Sciences Division (formerly known as Muck and Slurry). They could easily mistake the 33% postmerger increase in earnings per share for real growth. If they do, the price of World Enterprises stock rises and the shareholders of both companies receive something for nothing.

This is a “bootstrap” or “chain letter” game. It generates earnings growth not from capital investment or improved profitability, but from purchase of slowly growing firms with low price-earnings ratios. If this fools investors, the financial manager may be able to puff up stock price artificially. But to keep fooling investors, the firm has to continue to expand by merger *at the same compound rate*. Clearly this cannot go on forever; one day expansion must slow down or stop. At this point earnings growth falls dramatically and the house of cards collapses.



This game is not often played these days, but you may still encounter managers who would rather acquire firms with low price–earnings ratios. Beware of false prophets who suggest that you can appraise mergers just by looking at their immediate impact on earnings per share.

Lower Financing Costs

You often hear it said that a merged firm is able to borrow more cheaply than its separate units could. In part this is true. We have already seen (in Section 15-4) that there are significant economies of scale in making new issues. Therefore, if firms can make fewer, larger security issues by merging, there are genuine savings.

But when people say that borrowing costs are lower for the merged firm, they usually mean something more than lower issue costs. They mean that when two firms merge, the combined company can borrow at lower interest rates than either firm could separately. This, of course, is exactly what we should expect in a well-functioning bond market. While the two firms are separate, they do not guarantee each other's debt; if one fails, the bondholder cannot ask the other for money. But after the merger each enterprise effectively does guarantee the other's debt; if one part of the business fails, the bondholders can still take their money out of the other part. Because these mutual guarantees make the debt less risky, lenders demand a lower interest rate.

Does the lower interest rate mean a net gain to the merger? Not necessarily. Compare the following two situations:

- *Separate issues.* Firm A and firm B each make a \$50 million bond issue.
- *Single issue.* Firms A and B merge, and the new firm AB makes a single \$100 million issue.

Of course AB would pay a lower interest rate, other things being equal. But it does not make sense for A and B to merge just to get that lower rate. Although AB's shareholders do gain from the lower rate, they lose by having to guarantee each other's debt. In other words, they get the lower interest rate only by giving bondholders better protection. There is no *net* gain.

In Section 23-2 we showed that

$$\text{Bond value} = \text{bond value assuming no chance of default} - \text{value of shareholders' (put) option to default}$$

Merger increases bond value (or reduces the interest payments necessary to support a *given* bond value) only by reducing the value of stockholders' option to default. In other words, the value of the default option for AB's \$100 million issue is less than the combined value of the two default options on A's and B's separate \$50 million issues.

Now suppose that A and B each borrow \$50 million and *then* merge. If the merger is a surprise, it is likely to be a happy one for the bondholders. The bonds they thought were guaranteed by one of the two firms end up guaranteed by both. The stockholders lose in this case because they have given bondholders better protection but have received nothing for it.

There is one situation in which mergers can create value by making debt safer. Consider a firm that covets interest tax shields but is reluctant to borrow more because of worries about financial distress. (This is the trade-off theory described in Chapter 18.) Merging decreases the probability of financial distress, other things equal. If it allows increased borrowing, and increased value from the interest tax shields, there can be a net gain to the merger.⁷

⁷ This merger rationale was first suggested by W. G. Lewellen, "A Pure Financial Rationale for the Conglomerate Merger," *Journal of Finance* 26 (May 1971), pp. 521–537. If you want to see some of the controversy and discussion that this idea led to, look at R. C. Higgins and L. D. Schall, "Corporate Bankruptcy and Conglomerate Merger," *Journal of Finance* 30 (March 1975), pp. 93–114; and D. Galai and R. W. Masulis, "The Option Pricing Model and the Risk Factor of Stock," *Journal of Financial Economics* 3 (January–March 1976), especially pp. 66–69.

31-3 Estimating Merger Gains and Costs

Suppose that you are the financial manager of firm A and you want to analyze the possible purchase of firm B.⁸ The first thing to think about is whether there is an *economic gain* from the merger. There is an economic gain *only if the two firms are worth more together than apart*. For example, if you think that the combined firm would be worth PV_{AB} and that the separate firms are worth PV_A and PV_B , then

$$\text{Gain} = PV_{AB} - (PV_A + PV_B) = \Delta PV_{AB}$$

If this gain is positive, there is an economic justification for merger. But you also have to think about the *cost* of acquiring firm B. Take the easy case in which payment is made in cash. Then the cost of acquiring B is equal to the cash payment minus B's value as a separate entity. Thus

$$\text{Cost} = \text{cash paid} - PV_B$$

The net present value to A of a merger with B is measured by the difference between the gain and the cost. Therefore, you should go ahead with the merger if its net present value, defined as

$$\begin{aligned} \text{NPV} &= \text{gain} - \text{cost} \\ &= \Delta PV_{AB} - (\text{cash} - PV_B) \end{aligned}$$

is positive.

We like to write the merger criterion in this way because it focuses attention on two distinct questions. When you estimate the benefit, you concentrate on whether there are any gains to be made from the merger. When you estimate cost, you are concerned with the division of these gains between the two companies.

An example may help make this clear. Firm A has a value of \$200 million, and B has a value of \$50 million. Merging the two would allow cost savings with a present value of \$25 million. This is the gain from the merger. Thus,

$$\begin{aligned} PV_A &= \$200 \\ PV_B &= \$50 \\ \text{Gain} &= \Delta PV_{AB} = +\$25 \\ PV_{AB} &= \$275 \text{ million} \end{aligned}$$

Suppose that B is bought for cash, say, for \$65 million. The cost of the merger is

$$\begin{aligned} \text{Cost} &= \text{cash paid} - PV_B \\ &= 65 - 50 = \$15 \text{ million} \end{aligned}$$

Note that the stockholders of firm B—the people on the other side of the transaction—are ahead by \$15 million. *Their* gain is *your* cost. They have captured \$15 million of the \$25 million merger gain. Thus when we write down the NPV of the merger from A's viewpoint, we are really calculating the part of the gain that A's stockholders get to keep. The NPV to A's stockholders equals the overall gain from the merger less that part of the gain captured by B's stockholders:

$$\text{NPV} = 25 - 15 = +\$10 \text{ million}$$

⁸ This chapter's definitions and interpretations of the gains and costs of merger follow those set out in S. C. Myers, "A Framework for Evaluating Mergers," in *Modern Developments in Financial Management*, ed. S. C. Myers (New York: Praeger, 1976).

Just as a check, let's confirm that A's stockholders really come out \$10 million ahead. They start with a firm worth $PV_A = \$200$ million. They end up with a firm worth \$275 million and then have to pay out \$65 million to B's stockholders.⁹ Thus their net gain is

$$\begin{aligned} \text{NPV} &= \text{wealth with merger} - \text{wealth without merger} \\ &= (PV_{AB} - \text{cash}) - PV_A \\ &= (\$275 - \$65) - \$200 = +\$10 \text{ million} \end{aligned}$$

Suppose investors do not anticipate the merger between A and B. The announcement will cause the value of B's stock to rise from \$50 million to \$65 million, a 30% increase. If investors share management's assessment of the merger gains, the market value of A's stock will increase by \$10 million, only a 5% increase.

It makes sense to keep an eye on what investors think the gains from merging are. If A's stock price falls when the deal is announced, then investors are sending the message that the merger benefits are doubtful or that A is paying too much for them.

Right and Wrong Ways to Estimate the Benefits of Mergers

Some companies begin their merger analyses with a forecast of the target firm's future cash flows. Any revenue increases or cost reductions attributable to the merger are included in the forecasts, which are then discounted back to the present and compared with the purchase price:

$$\text{Estimated net gain} = \text{DCF valuation of target, including merger benefits} - \text{cash required for acquisition}$$

This is a dangerous procedure. Even the brightest and best-trained analyst can make large errors in valuing a business. The estimated net gain may come up positive not because the merger makes sense but simply because the analyst's cash-flow forecasts are too optimistic. On the other hand, a good merger may not be pursued if the analyst fails to recognize the target's potential as a stand-alone business.

Our procedure *starts* with the target's stand-alone market value (PV_B) and concentrates on the *changes* in cash flow that would result from the merger. *Ask yourself why the two firms should be worth more together than apart.*

The same advice holds when you are contemplating the sale of part of your business. There is no point in saying to yourself, This is an unprofitable business and should be sold. Unless the buyer can run the business better than you can, the price you receive will reflect the poor prospects.

Sometimes you may come across managers who believe that there are simple rules for identifying good acquisitions. They may say, for example, that they always try to buy into growth industries or that they have a policy of acquiring companies that are selling below book value. But our comments in Chapter 11 about the characteristics of a good investment decision also hold true when you are buying a whole company. *You add value only if you can generate additional economic rents*—some competitive edge that other firms can't match and the target firm's managers can't achieve on their own.

One final piece of horse sense: Often two companies bid against each other to acquire the same target firm. In effect, the target firm puts itself up for auction. In such cases, ask yourself whether the target is worth more to you than to the other bidder. If the answer is no, you should be cautious about getting into a bidding contest. Winning such a contest may be more expensive than losing it. If you lose, you have simply wasted your time; if you win, you have probably paid too much.

⁹ We are assuming that PV_A includes enough cash to finance the deal, or that the cash can be borrowed at a market interest rate. Notice that the value to A's stockholders after the deal is done and paid for is $\$275 - \$65 = \$210$ million—a gain of \$10 million.

More on Estimating Costs—What If the Target's Stock Price Anticipates the Merger?

The cost of a merger is the premium that the buyer pays over the seller's stand-alone value. How can that value be determined? If the target is a public company, you can start with its market value; just observe price per share and multiply by the number of shares outstanding. But bear in mind that if investors *expect* A to acquire B, or if they expect *somebody* to acquire B, the market value of B may overstate its stand-alone value.

This is one of the few places in this book where we draw an important distinction between market value (MV) and the true, or “intrinsic,” value (PV) of the firm as a separate entity. The problem here is not that the market value of B is wrong but that it may not be the value of firm B as a separate entity. Potential investors in B's stock will see two possible outcomes and two possible values:

Outcome	Market Value of B's Stock
1. No merger	PV_B : Value of B as a separate firm
2. Merger occurs	PV_B plus some part of the benefits of the merger

If the second outcome is possible, MV_B , the stock market value we observe for B, will overstate PV_B . This is exactly what *should* happen in a competitive capital market. Unfortunately, it complicates the task of a financial manager who is evaluating a merger.

Here is an example: Suppose that just before A and B's merger announcement we observe the following:

	Firm A	Firm B
Market price per share	\$200	\$100
Number of shares	1,000,000	500,000
Market value of firm	\$200 million	\$50 million

Firm A intends to pay \$65 million cash for B. If B's market price reflects only its value as a separate entity, then

$$\begin{aligned}\text{Cost} &= (\text{cash paid} - PV_B) \\ &= (65 - 50) = \$15 \text{ million}\end{aligned}$$

However, suppose that B's share price has *already* risen \$12 because of rumors that B might get a favorable merger offer. That means that its intrinsic value is overstated by $12 \times 500,000 = \$6$ million. Its true value, PV_B , is only \$44 million. Then

$$\text{Cost} = (65 - 44) = \$21 \text{ million}$$

Since the merger gain is \$25 million, this deal still makes A's stockholders better off, but B's stockholders are now capturing the lion's share of the gain.

Notice that if the market made a mistake, and the market value of B was *less* than B's true value as a separate entity, the cost could be negative. In other words, B would be a *bargain* and the merger would be worthwhile from A's point of view, even if the two firms were worth no more together than apart. Of course, A's stockholders' gain would be B's stockholders' loss, because B would be sold for less than its true value.

Firms have made acquisitions just because their managers believed they had spotted a company whose intrinsic value was not fully appreciated by the stock market. However, we know from the evidence on market efficiency that “cheap” stocks often turn out to be expensive. It is not easy for outsiders, whether investors or managers, to find firms that are truly undervalued by the market. Moreover, if the shares are bargain-priced, A doesn't need

a merger to profit by its special knowledge. It can just buy up B's shares on the open market and hold them passively, waiting for other investors to wake up to B's true value.

If firm A is wise, it will not go ahead with a merger if the cost exceeds the gain. Firm B will not consent if A's gain is so big that B loses. This gives us a range of possible cash payments that would allow the merger to take place. Whether the payment is at the top or the bottom of this range depends on the relative bargaining power of the two participants.

Estimating Cost When the Merger Is Financed by Stock

Many mergers involve payment wholly or partly in the form of the acquirer's stock. When a merger is financed by stock, cost depends on the value of the shares in the new company received by the shareholders of the selling company. If the sellers receive N shares, each worth P_{AB} , the cost is

$$\text{Cost} = N \times P_{AB} - PV_B$$

Just be sure to use the price per share *after the merger is announced* and its benefits are appreciated by investors.

Suppose that A offers 325,000 (.325 million) shares instead of \$65 million in cash. A's share price before the deal is announced is \$200. If B is worth \$50 million stand-alone,¹⁰ the cost of the merger *appears* to be

$$\text{Apparent cost} = .325 \times 200 - 50 = \$15 \text{ million}$$

However, the apparent cost may not be the true cost. A's stock price is \$200 before the merger announcement. At the announcement it ought to go up.

Given the gain and the terms of the deal, we can calculate share prices and market values after the deal. The new firm will have 1.325 million shares outstanding and will be worth \$275 million.¹¹ The new share price is $275/1.325 = \$207.55$. The true cost is

$$\text{Cost} = .325 \times 207.55 - 50 = \$17.45 \text{ million}$$

This cost can also be calculated by figuring out the gain to B's shareholders. They end up with .325 million shares, or 24.5% of the new firm AB. Their gain is

$$.245(275) - 50 = \$17.45 \text{ million}$$

In general, if B's shareholders are given the fraction x of the combined firms,

$$\text{Cost} = xPV_{AB} - PV_B$$

We can now understand the first key distinction between cash and stock as financing instruments. If cash is offered, the cost of the merger is unaffected by the merger gains. If stock is offered, the cost depends on the gains because the gains show up in the postmerger share price.

Stock financing also mitigates the effect of overvaluation or undervaluation of either firm. Suppose, for example, that A overestimates B's value as a separate entity, perhaps because it has overlooked some hidden liability. Thus A makes too generous an offer. Other things being equal, A's stockholders are better off if it is a stock offer rather than a cash offer. With a stock offer, the inevitable bad news about B's value will fall partly on the shoulders of B's stockholders.

¹⁰ In this case we assume that B's stock price has *not* risen on merger rumors and accurately reflects B's stand-alone value.

¹¹ In this case no cash is leaving the firm to finance the merger. In our example of a cash offer, \$65 million would be paid out to B's stockholders, leaving the final value of the firm at $275 - 65 = \$210$ million. There would only be one million shares outstanding, so share price would be \$210. The cash deal is better for A's shareholders in this example.

Asymmetric Information

There is a second key difference between cash and stock financing for mergers. A's managers will usually have access to information about A's prospects that is not available to outsiders. Economists call this *asymmetric information*.

Suppose A's managers are more optimistic than outside investors. They may think that A's shares will really be worth \$215 after the merger, \$7.45 higher than the \$207.55 market price we just calculated. If they are right, the true cost of a stock-financed merger with B is

$$\text{Cost} = .325 \times 215 - 50 = \$19.88$$

B's shareholders would get a "free gift" of \$7.45 for every A share they receive—an extra gain of $\$7.45 \times .325 = 2.42$, that is, \$2.42 million.

Of course, if A's managers were really this optimistic, they would strongly prefer to finance the merger with cash. Financing with stock would be favored by *pessimistic* managers who think their company's shares are *overvalued*.

Does this sound like "win-win" for A—just issue shares when overvalued, cash otherwise? No, it's not that easy, because B's shareholders, and outside investors generally, understand what's going on. Suppose you are negotiating on behalf of B. You find that A's managers keep suggesting stock rather than cash financing. You quickly infer A's managers' pessimism, mark down your own opinion of what the shares are worth, and drive a harder bargain.

This asymmetric-information story explains why buying-firms' share prices generally fall when stock-financed mergers are announced.¹² Andrade, Mitchell, and Stafford found an average market-adjusted fall of 1.5% on the announcement of stock-financed mergers between 1973 and 1998. There was a small *gain* (.4%) for a sample of cash-financed deals.¹³

31-4 The Mechanics of a Merger

Buying a company is a much more complicated affair than buying a piece of machinery. Thus we should look at some of the problems encountered in arranging mergers. In practice, these arrangements are often *extremely* complex, and specialists must be consulted. We are not trying to replace those specialists; we simply want to alert you to the kinds of legal, tax, and accounting issues they deal with.

Mergers, Antitrust Law, and Popular Opposition

Mergers can get bogged down in the federal antitrust laws. The most important statute here is the Clayton Act of 1914, which forbids an acquisition whenever "in any line of commerce or in any section of the country" the effect "*may be* substantially to lessen competition, or to *tend* to create a monopoly."

Antitrust law can be enforced by the federal government in either of two ways: by a civil suit brought by the Justice Department or by a proceeding initiated by the Federal Trade Commission (FTC).¹⁴ The Hart-Scott-Rodino Antitrust Act of 1976 requires that these agencies be informed of all acquisitions of stock amounting to \$15 million or 15% of

¹² The same reasoning applies to stock issues. See Sections 15-4 and 18-4.

¹³ See G. Andrade, M. Mitchell, and E. Stafford, "New Evidence and Perspectives on Mergers," *Journal of Economic Perspectives* 15 (Spring 2001), pp. 103–120. This result confirms earlier work, including N. Travlos, "Corporate Takeover Bids, Methods of Payment, and Bidding Firms' Stock Returns," *Journal of Finance* 42 (September 1987), pp. 943–963; and J. R. Franks, R. S. Harris, and S. Titman, "The Postmerger Share-Price Performance of Acquiring Firms," *Journal of Financial Economics* 29 (March 1991), pp. 81–96.

¹⁴ Competitors or third parties who think they will be injured by the merger can also bring antitrust suits.

the target's stock, whichever is less. Thus, almost all large mergers are reviewed at an early stage.¹⁵ Both the Justice Department and the FTC then have the right to seek injunctions delaying a merger. An injunction is often enough to scupper the companies' plans.

Both the FTC and the Justice Department have been flexing their muscles in recent years. Here is an example. After the end of the Cold War, sharp declines in defense budgets triggered consolidation in the U.S. aerospace industry. By 1998 there remained just three giant companies—Boeing, Lockheed Martin, and Raytheon—plus several smaller ones, including Northrup Grumman. Thus, when Lockheed Martin and Northrup Grumman announced plans to get together, the Departments of Justice and Defense decided that this was a merger too far. In the face of this opposition, the two companies broke off their engagement.

Other industries in which large mergers have been blocked on antitrust grounds include aluminum (Reynolds and Alcoa), telecoms (WorldCom and Sprint), supermarkets (Kroger and WinnDixie), video rentals (Hollywood Entertainment and Blockbuster), and office equipment (Office Depot and Staples).

Companies that do business outside the U.S. also have to worry about foreign antitrust laws. For example, GE's \$46 billion takeover bid for Honeywell was blocked by the European Commission, which argued that the combined company would have too much power in the aircraft industry.

Sometimes trustbusters will object to a merger, but then relent if the companies agree to divest certain assets and operations. For example, when the organic grocer Whole Foods Market acquired its closest rival, Wild Oats Markets, the FTC required the company to sell the Wild Oats brand and 13 stores.

Mergers may also be stymied by political pressures and popular resentment even when no formal antitrust issues arise. The news in 2005 that PepsiCo might bid for Danone aroused considerable hostility in France. The prime minister added his support to opponents of the merger and announced that the French government was drawing up a list of strategic industries that should be protected from foreign ownership. It was unclear whether yogurt production would be one of these strategic industries.

Economic nationalism is not confined to Europe. In 2005 China National Offshore Oil Corporation (CNOOC) felt obliged to withdraw its bid for Unocal, after what it described as "unprecedented political opposition" in Congress. The following year Congress voiced its opposition to the takeover of Britain's P&O by the Dubai company DP World. The acquisition went ahead only after P&O's ports in the United States were excluded from the deal.

The Form of Acquisition

Suppose you are confident that the purchase of company B will not be challenged on antitrust grounds. Next you will want to consider the form of the acquisition.

One possibility is literally to *merge* the two companies, in which case one company automatically assumes *all* the assets and *all* the liabilities of the other. Such a merger must have the approval of at least 50% of the stockholders of each firm.¹⁶

An alternative is simply to buy the seller's stock in exchange for cash, shares, or other securities. In this case the buyer can deal individually with the shareholders of the selling company. The seller's managers may not be involved at all. Their approval and cooperation are generally sought, but if they resist, the buyer will attempt to acquire an effective majority of the outstanding shares. If successful, the buyer has control and can complete the merger and, if necessary, toss out the incumbent management.

¹⁵ The target has to be notified also, and it in turn informs investors. Thus the Hart-Scott-Rodino Act effectively forces an acquiring company to "go public" with its bid.

¹⁶ Corporate charters and state laws sometimes specify a higher percentage.

Balance Sheet of A Corporation				Balance Sheet of B Corporation			
NWC	20	30	D	NWC	1	0	D
FA	80	70	E	FA	9	10	E
	<u>100</u>	<u>100</u>			<u>10</u>	<u>10</u>	
Balance Sheet of AB Corporation							
NWC	21	30	D				
FA	89	88	E				
Goodwill	8						
	<u>118</u>	<u>118</u>					

TABLE 31.3 Accounting for the merger of A Corporation and B Corporation assuming that A Corporation pays \$18 million for B Corporation (figures in \$ millions).

Key: NWC = net working capital;
FA = net book value of fixed assets;
D = debt;
E = book value of equity.

The third approach is to buy some or all of the seller's assets. In this case ownership of the assets needs to be transferred, and payment is made to the selling firm rather than directly to its stockholders.

Merger Accounting

When one company buys another, its management worries about how the purchase will show up in its financial statements. Before 2001 the company had a choice of accounting method, but in that year the Financial Accounting Standards Board (FASB) introduced new rules that required the buyer to use the *purchase method* of merger accounting. This is illustrated in Table 31.3, which shows what happens when A Corporation buys B Corporation, leading to the new AB Corporation. The two firms' initial balance sheets are shown at the top of the table. Below this we show what happens to the balance sheet when the two firms merge. We assume that B Corporation has been purchased for \$18 million, 180% of book value.

Why did A Corporation pay an \$8 million premium over B's book value? There are two possible reasons. First, the true values of B's *tangible assets*—its working capital, plant, and equipment—may be greater than \$10 million. We will assume that this is *not* the reason; that is, we assume that the assets listed on its balance sheet are valued there correctly.¹⁷ Second, A Corporation may be paying for an *intangible asset* that is not listed on B Corporation's balance sheet. For example, the intangible asset may be a promising product or technology. Or it may be no more than B Corporation's share of the expected economic gains from the merger.

A Corporation is buying an asset worth \$18 million. The problem is to show that asset on the left-hand side of AB Corporation's balance sheet. B Corporation's tangible assets are worth only \$10 million. This leaves \$8 million. Under the purchase method, the accountant takes care of this by creating a new asset category called goodwill and assigning \$8 million to it.¹⁸ As long as the goodwill continues to be worth at least \$8 million, it stays on the balance sheet and the company's earnings are unaffected.¹⁹ However, the company is obliged each year to estimate the fair value of the goodwill. If the estimated value ever falls below \$8 million, the amount shown on the balance sheet must be adjusted downward and the write-off deducted from that year's earnings. Some companies have found that this can make a nasty dent in profits. For example, when the new accounting rules were introduced, AOL was obliged to write down the value of its assets by \$54 billion.

¹⁷ If B's tangible assets are worth more than their previous book values, they would be reappraised and their current values entered on AB Corporation's balance sheet.

¹⁸ If part of the \$8 million consisted of payment for identifiable intangible assets such as patents, the accountant would place these under a separate category of assets. Identifiable intangible assets that have a finite life need to be written off over their life.

¹⁹ Goodwill is depreciated for tax purposes, however.

	Taxable Merger	Tax-free Merger
Impact on Captain B	Captain B must recognize a \$30,000 capital gain.	Capital gain can be deferred until Captain B sells the Baycorp shares.
Impact on Baycorp	Boat is revalued at \$280,000. Tax depreciation increases to $\$280,000/10 = \$28,000$ per year (assuming 10 years of remaining life).	Boat's value remains at \$150,000, and tax depreciation continues at \$15,000 per year.

TABLE 31.4 Possible tax consequences when Baycorp buys Seacorp for \$330,000. Captain B's original investment in Seacorp was \$300,000. Just before the merger Seacorp's assets were \$50,000 of marketable securities and one boat with a book value of \$150,000 but a market value of \$280,000.

Some Tax Considerations

An acquisition may be either taxable or tax-free. If payment is in the form of cash, the acquisition is regarded as taxable. In this case the selling stockholders are treated as having *sold* their shares, and they must pay tax on any capital gains. If payment is largely in the form of shares, the acquisition is tax-free and the shareholders are viewed as *exchanging* their old shares for similar new ones; no capital gains or losses are recognized.

The tax status of the acquisition also affects the taxes paid by the merged firm afterward. After a tax-free acquisition, the merged firm is taxed as if the two firms had always been together. In a taxable acquisition, the assets of the selling firm are revalued, the resulting write-up or write-down is treated as a taxable gain or loss, and tax depreciation is recalculated on the basis of the restated asset values.

A very simple example will illustrate these distinctions. In 1995 Captain B forms Seacorp, which purchases a fishing boat for \$300,000. Assume, for simplicity, that the boat is depreciated for tax purposes over 20 years on a straight-line basis (no salvage value). Thus annual depreciation is $\$300,000/20 = \$15,000$, and in 2005 the boat has a net book value of \$150,000. But in 2005, Captain B finds that, owing to careful maintenance, inflation, and good times in the local fishing industry, the boat is really worth \$280,000. In addition, Seacorp holds \$50,000 of marketable securities.

Now suppose that Captain B sells the firm to Baycorp for \$330,000. The possible tax consequences of the acquisition are shown in Table 31.4. In this case, Captain B may ask for a tax-free deal to defer capital gains tax. But Baycorp can afford to pay more in a taxable deal because depreciation tax shields are larger.

31-5 Proxy Fights, Takeovers, and the Market for Corporate Control

The shareholders are the owners of the firm. But most shareholders do not feel like the boss, and with good reason. Try buying a share of IBM stock and marching into the boardroom for a chat with your employee, the chief executive officer.

The *ownership* and *management* of large corporations are separated. Shareholders elect the board of directors but have little direct say in most management decisions. Agency costs arise when managers or directors are tempted to make decisions that are not in the shareholders' interests.

As we pointed out in Chapter 1, there are many forces and constraints working to keep managers' and shareholders' interests in line. But what can be done to ensure that the board has engaged the most talented managers? What happens if managers are inadequate? What if the board is derelict in monitoring the performance of managers? Or what if the firm's managers are fine but the resources of the firm could be used more efficiently by merging with another firm? Can we count on managers to pursue policies that might put them out of a job?

These are all questions about the *market for corporate control*, the mechanism by which firms are matched up with owners and management teams, who can make the most of the firm's resources. You should not take a firm's current ownership and management for granted. If it is possible for the value of the firm to be enhanced by changing management or by reorganizing under new owners, there will be incentives for someone to make the change.

There are three ways to change the management of a firm: (1) a successful proxy contest in which a group of shareholders votes in a new board of directors who then pick a new management team, (2) a takeover of one company by another, and (3) a leveraged buyout of the firm by a private group of investors. We focus here on the first two methods and postpone discussion of buyouts until the next chapter.

Proxy Contests

Shareholders elect the board of directors to keep watch on management and replace unsatisfactory managers. If the board is lax, shareholders are free to elect a different board.

When a group of investors believes that the board and its management should be replaced, they can launch a proxy contest at the next annual meeting. A *proxy* is the right to vote another shareholder's shares. In a proxy contest, the dissident shareholders attempt to obtain enough proxies to elect their own slate to the board of directors. Once the new board is in control, management can be replaced and company policy changed. A proxy fight is therefore a direct contest for control of the corporation. Many proxy fights are initiated by major shareholders who consider the firm poorly managed. In other cases a fight may be a prelude to the merger of two firms. The proponent of the merger may believe that a new board will better appreciate the advantages of combining the two firms.

Proxy contests are expensive and difficult to win. Dissidents who engage in proxy fights must use their own money, but management can use the corporation's funds and lines of communications with shareholders to defend itself. To level the playing field somewhat, the SEC has proposed new rules to make it easier to mount a proxy fight. In the meantime, shareholders have found that simply voting against the reelection of existing directors can send a powerful signal. When Disney shareholders voted 43% of the shares against the reelection of Michael Eisner, the company's autocratic chairman, he heard the message and resigned the next day.

The threat of a proxy fight may also encourage management to change company policy. For example, in 2008 shareholder activist Carl Icahn indicated his intention to put himself forward for nomination to the board of Motorola. However, Icahn controlled less than 7% of the votes and failed to prevent the reelection of the existing board. Nevertheless the pressure from Icahn had an effect: Motorola agreed to nominate two new board members and to consult with Icahn about a possible spin off of the company's handset division.²⁰

Takeovers

The alternative to a proxy fight is for the would-be acquirer to make a *tender offer* directly to the shareholders. If the offer is successful, the new owner is free to make any management changes. The management of the target firm may advise its shareholders to accept the offer, or it may fight the bid in the hope that the acquirer will either raise its offer or throw in the towel.

In the United States the rules for tender offers are set largely by the Williams Act of 1968 and by state laws. The courts act as a referee to see that contests are conducted fairly. The problem in setting these rules is that it is unclear who requires protection. Should the

²⁰ In Chapter 1 we also saw how in the same year Carl Icahn used the threat of a proxy fight to gain seats on the board of Yahoo! Inc.

management of the target firm be given more weapons to defend itself against unwelcome predators? Or should it simply be encouraged to sit the game out? Or should it be obliged to conduct an auction to obtain the highest price for its shareholders? And what about would-be acquirers? Should they be forced to reveal their intentions at an early stage, or would that allow other firms to piggyback on their good ideas by entering bids of their own?²¹ Keep these questions in mind as we review a recent takeover battle.

Oracle Bids for PeopleSoft

Hostile takeover bids tend to be less common in high-tech industries where an acrimonious takeover battle may cause many of the target's most valued staff to leave. Investors were therefore startled in June 2003 when the software giant, Oracle Corp, announced a \$5.1 billion cash tender offer for its rival PeopleSoft. The offer price of \$16 a share was only a modest 6% above the recent price of PeopleSoft stock. PeopleSoft's CEO angrily rejected the bid as dramatically undervaluing the business and accused Oracle of trying to disrupt PeopleSoft's business and to thwart its recently announced plan to merge with its smaller rival J.D. Edwards & Co. PeopleSoft immediately filed a suit claiming that Oracle's management had engaged in "acts of unfair trade practices" and had "disrupted PeopleSoft's customer relationships." In another suit J.D. Edwards claimed that Oracle had wrongly "interfered with its proposed merger with PeopleSoft" and demanded \$1.7 billion in compensatory damages.

Oracle's bid was the opening salvo in a battle that was to last 18 months. Some of the key dates in this battle are set out in Table 31.5. PeopleSoft had several defenses at its disposal. First, it had in place a **poison pill** that would allow it to flood the market with additional shares if a predator acquired 20% of the stock. Second, the company instituted a customer-assurance program that offered customers money-back guarantees if an acquirer were to reduce customer support. At one point in the takeover battle the potential liability under this program reached nearly \$1.6 billion. Third, elections to the PeopleSoft board were staggered, so that different directors came up for re-election in different years. This meant that it would take two annual meetings to replace a majority of PeopleSoft's board.

Date	Event
June 6, 2003	Oracle offers cash of \$16 a share for PeopleSoft stock, a premium of 6%.
June 18, 2003	Oracle increases offer to \$19.50 a share.
February 4, 2004	Oracle raises offer to \$26 a share.
February 26, 2004	Justice Department files suit to block deal. Oracle announces plans to appeal.
May 16, 2004	Oracle <i>reduces</i> offer to \$21 a share.
September 9, 2004	Oracle wins appeal in a federal court against Department of Justice antitrust ruling.
September 27, 2004	Hearing begins in Delaware court of Oracle's request to overturn PeopleSoft's poison pill.
November 1, 2004	Oracle raises offer to \$24 a share. Accepted in respect of 61% of PeopleSoft shares.
November 23, 2004	Oracle announces plans to mount a proxy fight by naming four nominees for PeopleSoft's board.
December 13, 2004	Oracle raises offer to \$26.50 a share. Accepted by PeopleSoft's board.

TABLE 31.5 Some key dates in the Oracle/PeopleSoft takeover battle.

²¹ The Williams Act obliges firms who own 5% or more of another company's shares to tip their hand by reporting their holding in a Schedule 13(d) filing with the SEC.

Oracle not only had to overcome PeopleSoft's defenses, but it also had to clear possible antitrust roadblocks. Connecticut's attorney general instituted an antitrust action to block Oracle's bid, in part to protect his state's considerable investment in PeopleSoft software. Then an investigation of the deal by the U.S. Department of Justice ruled that the deal was anticompetitive. Normally such an objection is enough to kill a deal, but Oracle was persistent and successfully appealed the ruling in a federal court.

While these battles were being fought out, Oracle revised its offer four times. It upped its offer first to \$19.50 and then to \$26 a share. Then, in an effort to put pressure on PeopleSoft shareholders, Oracle *reduced* its offer to \$21 a share, citing a drop of 28% in the price of PeopleSoft's shares. Six months later it raised the offer again to \$24 a share, warning investors that it would walk away if the offer was not accepted by PeopleSoft's board or a majority of PeopleSoft shareholders.

Sixty percent of PeopleSoft's shareholders indicated that they wished to accept this last offer, but before Oracle could gain control of PeopleSoft, it still needed the company to get rid of the poison pill and customer-assurance scheme. That meant putting pressure on PeopleSoft's management, which had continued to reject every approach. Oracle tried two tactics. First it initiated a proxy fight to change the composition of PeopleSoft's board. Second, it filed a suit in a Delaware court alleging that PeopleSoft's management breached its fiduciary duty by trying to thwart Oracle's offer and not giving it "due consideration." The lawsuit asked the court to require PeopleSoft to dismantle its takeover defenses, including the poison-pill plan and the customer-assurance program.

PeopleSoft's CEO had at one point said that he "could imagine no price nor combination of price and other conditions to recommend accepting the offer." But with 60% of PeopleSoft's shareholders in favor of taking Oracle's latest offer, it was becoming less easy for the company to keep saying no, and many observers were starting to question whether PeopleSoft's management was acting in shareholders' interest. If management showed itself deaf to shareholders' interests, the court could well rule in favor of Oracle, or disgruntled shareholders might vote to change the composition of the PeopleSoft board. PeopleSoft's directors therefore decided to be less intransigent and testified at the Delaware trial that they would consider negotiating with Oracle if it were to offer \$26.50 or \$27 a share. This was the breakthrough that Oracle was looking for. It upped its offer immediately to \$26.50 a share, PeopleSoft lifted its defenses, and within a month 97% of PeopleSoft's shareholders had agreed to the bid. After 18 months of punch and counterpunch the battle for PeopleSoft was over.

Takeover Defenses

What are the lessons from the battle for PeopleSoft? First, the example illustrates some of the stratagems of modern merger warfare. Firms like PeopleSoft that are worried about being taken over usually prepare their defenses in advance. Often they persuade shareholders to agree to **shark-repellent** changes to the corporate charter. For example, the charter may be amended to require that any merger must be approved by a *supermajority* of 80% of the shares rather than the normal 50%. Although shareholders are generally prepared to go along with management's proposals, it is doubtful whether such shark-repellent defenses are truly in their interest. Managers who are protected from takeover appear to enjoy higher remuneration and to generate less wealth for their shareholders.²²

Many firms follow PeopleSoft's example and deter potential bidders by devising poison pills that make the company unappetizing. For example, the poison pill may give existing shareholders the right to buy the company's shares at half price as soon as a bidder acquires

²² A. Agarwal and C. R. Knoeber, "Managerial Compensation and the Threat of Takeover," *Journal of Financial Economics* 47 (February 1998), pp. 219-239; and P. A. Gompers, J. L. Ishii, and A. Metrick, "Corporate Governance and Equity Prices," *Quarterly Journal of Economics* 118 (2003), pp. 107-155.

more than 15% of the shares. The bidder is not entitled to the discount. Thus the bidder resembles Tantalus—as soon as it has acquired 15% of the shares, control is lifted away from its reach. These and other lines of defense are summarized in Table 31.6

Why did PeopleSoft's management contest the takeover bid? One possible reason was to extract a higher price for the stock, for Oracle was ultimately forced to pay 66% more than its original offer. But the comment by PeopleSoft's CEO that he could imagine no price at which the merger would be welcome suggests that the defensive tactics may have been intended to defeat the bid and protect managers' positions with the firm.

Companies sometimes reduce these conflicts of interest by offering their managers **golden parachutes**, that is, generous payoffs if the managers lose their jobs as a result of a takeover. It may seem odd to reward managers for being taken over. However, if a soft landing overcomes their opposition to takeover bids, a few million may be a small price to pay.

Any management team that tries to develop improved weapons of defense must expect challenge in the courts. In the early 1980s the courts tended to give managers the benefit of the doubt and respect their business judgment about whether a takeover should be resisted. But the courts' attitudes to takeover battles have changed. For example, in 1993 a court blocked Viacom's agreed takeover of Paramount on the grounds that Paramount directors did not do their homework before turning down a higher offer from QVC. Paramount was forced to give up its poison-pill defense and the stock options that it had offered to Viacom. Such decisions have led managers to become more careful in opposing bids, and they do not throw themselves blindly into the arms of any white knight.²³

Preoffer Defenses	Description
Shark-repellent charter amendments:	
Staggered board	The board is classified into three equal groups. Only one group is elected each year. Therefore the bidder cannot gain control of the target immediately.
Supermajority	A high percentage of shares, typically 80%, is needed to approve a merger.
Fair price	Mergers are restricted unless a fair price (determined by formula or appraisal) is paid.
Restricted voting rights	Shareholders who acquire more than a specified proportion of the target have no voting rights unless approved by the target's board.
Waiting period	Unwelcome acquirers must wait for a specified number of years before they can complete the merger.
Other:	
Poison pill	Existing shareholders are issued rights that, if there is a significant purchase of shares by a bidder, can be used to purchase additional stock in the company at a bargain price.
Poison put	Existing bondholders can demand repayment if there is a change of control as a result of a hostile takeover.
Postoffer Defenses	
Litigation	Target files suit against bidder for violating antitrust or securities laws.
Asset restructuring	Target buys assets that bidder does not want or that will create an antitrust problem.
Liability restructuring	Target issues shares to a friendly third party, increases the number of shareholders, or repurchases shares from existing shareholders at a premium.

TABLE 31.6 A summary of takeover defenses.

²³ In 1985 a shiver ran through many boardrooms when the directors of Trans Union Corporation were held personally liable for being too hasty in accepting a takeover bid.

At the same time governments have provided some new defensive weapons. In 1987 the Supreme Court upheld state laws that allow companies to deprive an investor of voting rights as soon as the investor's share in the company exceeds a certain level. Since then state antitakeover laws have proliferated. Many allow boards of directors to block mergers with hostile bidders for several years and to consider the interests of employees, customers, suppliers, and their communities in deciding whether to try to block a hostile bid.

Anglo-Saxon countries used to have a near-monopoly on hostile takeovers. That is no longer the case. Takeover activity in Europe now exceeds that in the United States, and in recent years some of the most bitterly contested takeovers have involved European companies. For example, Mittal's \$27 billion takeover of Arcelor resulted from a fierce and highly politicized five-month battle. Arcelor used every defense in the book—including inviting a Russian company to become a leading shareholder.

Mittal is now based in Europe, but it began operations in Indonesia. This illustrates another change in the merger market: Acquirers are no longer confined to the major industrialized countries. They now include Brazilian, Russian, Indian, and Chinese companies. For example, Tetley Tea, Anglo-Dutch steelmaker Corus, and Jaguar and Land Rover have all been acquired by Indian conglomerate Tata Group. IBM's personal computer business has been bought by the Chinese company Lenovo, and Inco, the Canadian nickel producer, is now owned by Brazil's Vale.

Who Gains Most in Mergers?

As our brief history illustrates, in mergers sellers generally do better than buyers. Andrade, Mitchell, and Stafford found that following the announcement of the bid, selling shareholders received a healthy gain averaging 16%.²⁴ The overall value of the merging firms, buyer and seller combined, increases by about 2% on average. Thus the merging firms are worth more together than apart. But it seems that the stock prices of the acquiring firms *decline* on average.²⁵

Why do so many firms make acquisitions that appear to destroy value? One explanation appeals to behavioral traits; the managers of acquiring firms may be driven by hubris or overconfidence in their ability to run the target firm better than its existing management. This may well be so, but we should not dismiss more charitable explanations. For example, McCardle and Viswanathan have pointed out that firms can enter a market either by building a new plant or by buying an existing business. If the market is not growing, it makes more sense for the firm to expand by acquisition. Hence, when it announces the acquisition, firm value may drop simply because investors conclude that the market is no longer growing. The acquisition in this case does not destroy value; it just signals the stagnant state of the market.²⁶

Why do sellers earn higher returns? There are two reasons. First, buying firms are typically larger than selling firms. In many mergers the buyer is so much larger that even substantial net benefits would not show up clearly in the buyer's share price. Suppose, for example, that company A buys company B, which is only one-tenth A's size. Suppose the dollar value of the net gain from the merger is split equally between A and B.²⁷ Each company's shareholders receive the same *dollar* profit, but B's receive 10 times A's *percentage* return.

²⁴ G. Andrade, M. Mitchell, and E. Stafford, "New Evidence and Perspectives on Mergers," *Journal of Economic Perspectives* 15 (Spring 2001), pp. 103–120.

²⁵ One recent study found that the losers were mainly the largest acquirers; the stockholders of the other acquirers appeared to gain. See S. B. Moeller, F. P. Schlingemann, and R. Stulz, "Firm Size and the Gains from Acquisitions," *Journal of Financial Economics* 73 (August 2004), pp. 201–228.

²⁶ K. F. McCardle and S. Viswanathan, "The Direct Entry versus Takeover Decision and Stock Price Performance around Takeovers," *Journal of Business* 67 (January 1994), pp. 1–43.

²⁷ In other words, the *cost* of the merger to A is one-half the gain ΔPV_{AB} .

The second, and more important, reason is the competition among potential bidders. Once the first bidder puts the target company “in play,” one or more additional suitors often jump in, sometimes as white knights at the invitation of the target firm’s management. Every time one suitor tops another’s bid, more of the merger gain slides toward the target. At the same time, the target firm’s management may mount various legal and financial counterattacks, ensuring that capitulation, if and when it comes, is at the highest attainable price.

Of course, bidders and targets are not the only possible winners. Unsuccessful bidders often win, too, by selling off their holdings in target companies at substantial profits.

Other winners include investment bankers, lawyers, accountants, and in some cases arbitrageurs such as hedge funds, which speculate on the likely success of takeover bids.²⁸ “Speculate” has a negative ring, but it can be a useful social service. A tender offer may present shareholders with a difficult decision. Should they accept, should they wait to see if someone else produces a better offer, or should they sell their stock in the market? This dilemma presents an opportunity for hedge funds, which specialize in answering such questions. In other words, they buy from the target’s shareholders and take on the risk that the deal will not go through.

31-6 Mergers and the Economy

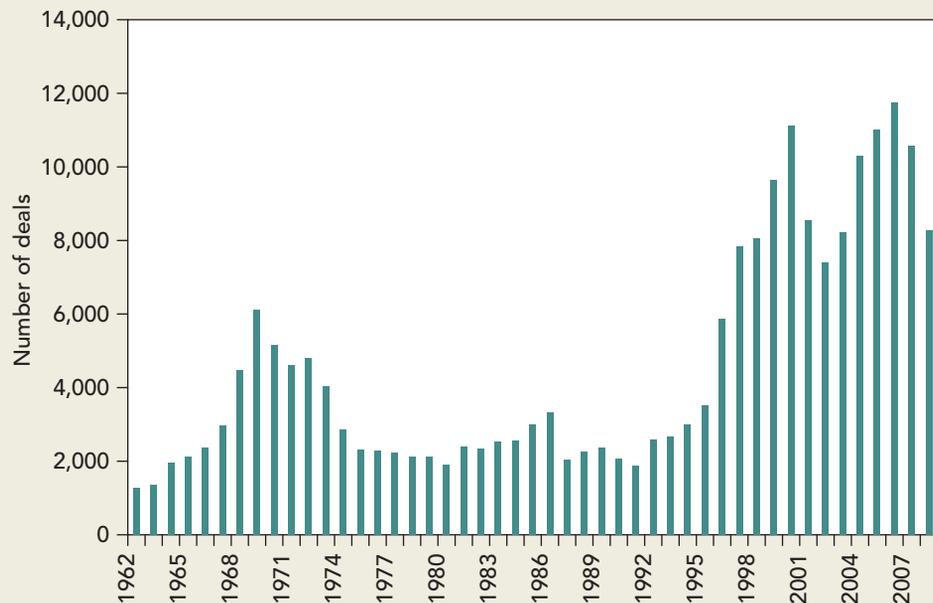
Merger Waves

Figure 31.3 shows the number of mergers in the United States for each year from 1962 to 2008. Notice that mergers come in waves. There was an upsurge in merger activity from 1967 to 1969 and then again in the late 1980s and 1990s. Another merger boom got under way in 2003, only to peter out with the onset of the credit crisis.

FIGURE 31.3

The number of mergers in the United States, 1962–2008.

Source: Mergerstat, www.mergerstat.com.



²⁸ Strictly speaking, an arbitrageur is an investor who takes a fully hedged, that is, riskless, position. But arbitrageurs in merger battles often take very large risks indeed. Their activities are known as “risk arbitrage.”

We don't really understand why merger activity is so volatile. If mergers are prompted by economic motives, at least one of these motives must be "here today and gone tomorrow," and it must somehow be associated with high stock prices. But none of the economic motives that we review in this chapter has anything to do with the general level of the stock market. None burst on the scene in 1967, departed in 1970, and reappeared for most of the 1980s and again in the mid-1990s and early 2000s.

Some mergers may result from mistakes in valuation on the part of the stock market. In other words, the buyer may believe that investors have underestimated the value of the seller or may hope that they *will* overestimate the value of the combined firm. But we see (with hindsight) that mistakes are made in bear markets as well as bull markets. Why don't we see just as many firms hunting for bargain acquisitions when the stock market is low? It is possible that "suckers are born every minute," but it is difficult to believe that they can be harvested only in bull markets.

Merger activity tends to be concentrated in a relatively small number of industries and is often prompted by deregulation and by changes in technology or the pattern of demand. For example, deregulation of telecoms and banking in the 1990s led to a spate of mergers in both industries. Andrade, Mitchell, and Stafford found that about half of the value of all U.S. mergers between 1988 and 1998 occurred in industries that had been deregulated.²⁹

Do Mergers Generate Net Benefits?

There are undoubtedly good acquisitions and bad acquisitions, but economists find it hard to agree on whether acquisitions are beneficial *on balance*. Indeed, since there seem to be transient fashions in mergers, it would be surprising if economists could come up with simple generalizations.

We do know that mergers generate substantial gains to acquired firms' stockholders and overall gains in the value of the two merging firms. But not everybody is convinced. Some believe that investors react to mergers with short-run enthusiasm and don't give enough critical attention to long-term prospects.

Since we can't observe how companies would have fared in the absence of a merger, it is difficult to measure the long-run effects on profitability. Ravenscroft and Scherer, who looked at mergers during the 1960s and early 1970s, argued that productivity declined in the years following a merger.³⁰ But studies of subsequent merger activity suggest that mergers *do* seem to improve real productivity. For example, Paul Healy, Krishna Palepu, and Richard Ruback examined 50 large mergers between 1979 and 1983 and found an average increase of 2.4 percentage points in the companies' pretax returns.³¹ They argue that this gain came from generating a higher level of sales from the same assets. There was no evidence that the companies were mortgaging their long-term future by cutting back on long-term investments; expenditures on capital equipment and research and development tracked industry averages.³²

²⁹ See Footnote 24. See also J. Harford, "What Drives Merger Waves?" *Journal of Financial Economics* 77 (September 2005), pp. 529–560.

³⁰ See D. J. Ravenscroft and F. M. Scherer, "Mergers and Managerial Performance," in *Knights, Raiders, and Targets: The Impact of the Hostile Takeover* ed. J. C. Coffee, Jr., L. Lowenstein, and S. Rose-Ackerman (New York: Oxford University Press, 1988).

³¹ See P. Healy, K. Palepu, and R. Ruback, "Does Corporate Performance Improve after Mergers?" *Journal of Financial Economics* 31 (April 1992), pp. 135–175. The study examined the pretax returns of the merged companies relative to industry averages. A study by Lichtenberg and Siegel came to similar conclusions. Before merger, acquired companies had lower levels of productivity than did other firms in their industries, but by seven years after the control change, two-thirds of the productivity gap had been eliminated. See F. Lichtenberg and D. Siegel, "The Effect of Control Changes on the Productivity of U.S. Manufacturing Plants," *Journal of Applied Corporate Finance* 2 (Summer 1989), pp. 60–67.

³² Maintained levels of capital spending and R&D are also observed by Lichtenberg and Siegel, "The Effect of Control Changes on the Productivity of U.S. Manufacturing Plants," *Journal of Applied Corporate Finance* 2 (Summer 1989), pp. 60–67; and B. H. Hall, "The Effect of Takeover Activity on Corporate Research and Development," in *Corporate Takeover: Causes and Consequences* ed. A. J. Auerbach (Chicago: University of Chicago Press, 1988).

The most important effect of acquisitions may be felt by the managers of companies that are *not* taken over. Perhaps the threat of takeover spurs the whole of corporate America to try harder. Unfortunately, we don't know whether, on balance, the threat of merger makes for active days or sleepless nights.

The threat of takeover may be a spur to inefficient management, but it is also costly. It can soak up large amounts of management time and effort. In addition, the company needs to pay for the services provided by the investment bankers, lawyers, and accountants. In the year 2006 merging companies in the United States paid in total nearly \$4 billion for professional assistance.

SUMMARY

A merger generates synergies—that is, added value—if the two firms are worth more together than apart. Suppose that firms A and B merge to form a new entity, AB. Then the gain from the merger is

$$\text{Gain} = PV_{AB} - (PV_A + PV_B) = \Delta PV_{AB}$$

Gains from mergers may reflect economies of scale, economies of vertical integration, improved efficiency, the combination of complementary resources, or redeployment of surplus funds. In some cases the object is to install a more efficient management team or to force shrinkage and consolidation in an industry with excess capacity or too many small, inefficient companies. There are also dubious reasons for mergers. There is no value added by merging just to diversify risks, to reduce borrowing costs, or to pump up earnings per share.

You should go ahead with the acquisition if the gain exceeds the cost. Cost is the premium that the buyer pays for the selling firm over its value as a separate entity. It is easy to estimate when the merger is financed by cash. In that case,

$$\text{Cost} = \text{cash paid} - PV_B$$

When payment is in the form of shares, the cost naturally depends on what those shares are worth after the merger is complete. If the merger is a success, B's stockholders will share the merger gains.

The mechanics of buying a firm are much more complex than those of buying a machine. First, you have to make sure that the purchase does not fall afoul of the antitrust laws. Second, you have a choice of procedures: You can merge all the assets and liabilities of the seller into those of your own company; you can buy the stock of the seller rather than the company itself; or you can buy the individual assets of the seller. Third, you have to worry about the tax status of the merger.

Mergers are often amicably negotiated between the management and directors of the two companies; but if the seller is reluctant, the would-be buyer can decide to make a tender offer. We sketched some of the offensive and defensive tactics used in takeover battles. We also observed that when the target firm loses, its shareholders typically win: selling shareholders earn large abnormal returns, while the bidding firm's shareholders roughly break even. The typical merger appears to generate positive net benefits for investors, but competition among bidders, plus active defense by target management, pushes most of the gains toward the selling shareholders.

Mergers come and go in waves. The most recent wave, which peaked in 2006, consisted mostly of horizontal mergers. Merger activity thrives in periods of economic expansion and buoyant stock prices. Mergers are most frequent in industries that are coping with change, for example, changes in technology or regulation. The wave of mergers in banking and telecoms, for instance, can be traced to deregulation of these industries in the 1990s.

Here are three general works on mergers:

R. Bruner, *Applied Mergers and Acquisitions* (Hoboken, NJ: John Wiley & Sons, 2004).

J. F. Weston, M. L. Mitchell, and J. H. Mulherin, *Takeovers, Restructuring and Corporate Governance*, 4th ed. (Upper Saddle River, NJ: Prentice-Hall 2000).

S. Betton, B. E. Eckbo, and K. S. Thorburn, “Corporate Takeovers,” in B. E. Eckbo (ed.), *Handbook of Empirical Corporate Finance* (Amsterdam: Elsevier/North-Holland, 2007), chapter 15.

Recent merger waves are reviewed in:

G. Andrade, M. Mitchell, and E. Stafford, “New Evidence and Perspectives on Mergers,” *Journal of Economic Perspectives* 15 (Spring 2001), pp. 103–120.

S. J. Everett, “The Cross-Border Mergers and Acquisitions Wave of the Late 1990s,” in R. E. Baldwin and L. A. Winters (eds.), *Challenges to Globalization* (Chicago: University of Chicago Press, 2004).

J. Harford, “What Drives Merger Waves?” *Journal of Financial Economics* 77 (September 2005), pp. 529–560.

B. Holmstrom and S. N. Kaplan, “Corporate Governance and Merger Activity in the U.S.: Making Sense of the 1980s and 1990s,” *Journal of Economic Perspectives* 15 (Spring 2001), pp. 121–144.

Finally, here are some informative case studies:

S. N. Kaplan (ed.), *Mergers and Productivity* (Chicago: University of Chicago Press, 2000). This is a collection of case studies.

R. Bruner, “An Analysis of Value Destruction and Recovery in the Alliance and Proposed Merger of Volvo and Renault,” *Journal of Financial Economics* 51 (1999), pp. 125–166.



FURTHER READING



Select problems are available in McGraw-Hill Connect. Please see the preface for more information.

BASIC

- Are the following hypothetical mergers horizontal, vertical, or conglomerate?
 - IBM acquires Dell Computer.
 - Dell Computer acquires Wal-Mart.
 - Wal-Mart acquires H. J. Heinz.
 - H. J. Heinz acquires IBM.
- Which of the following motives for mergers make economic sense?
 - Merging to achieve economies of scale.
 - Merging to reduce risk by diversification.
 - Merging to redeploy cash generated by a firm with ample profits but limited growth opportunities.
 - Merging to combine complementary resources.
 - Merging just to increase earnings per share.
- Velcro Saddles is contemplating the acquisition of Pogo Ski Sticks, Inc. The values of the two companies as separate entities are \$20 million and \$10 million, respectively. Velcro Saddles estimates that by combining the two companies, it will reduce marketing and

PROBLEM SETS

administrative costs by \$500,000 per year in perpetuity. Velcro Saddles can either pay \$14 million cash for Pogo or offer Pogo a 50% holding in Velcro Saddles. The opportunity cost of capital is 10%.

- a. What is the gain from merger?
 - b. What is the cost of the cash offer?
 - c. What is the cost of the stock alternative?
 - d. What is the NPV of the acquisition under the cash offer?
 - e. What is its NPV under the stock offer?
4. Which of the following transactions are *not* likely to be classed as tax-free?
 - a. An acquisition of assets.
 - b. A merger in which payment is entirely in the form of voting stock.
 5. True or false?
 - a. Sellers almost always gain in mergers.
 - b. Buyers usually gain more than sellers.
 - c. Firms that do unusually well tend to be acquisition targets.
 - d. Merger activity in the United States varies dramatically from year to year.
 - e. On the average, mergers produce large economic gains.
 - f. Tender offers require the approval of the selling firm's management.
 - g. The cost of a merger to the buyer equals the gain realized by the seller.
 6. Briefly define the following terms:
 - a. Purchase accounting
 - b. Tender offer
 - c. Poison pill
 - d. Golden parachute
 - e. Synergy

INTERMEDIATE

7. Examine several recent mergers and suggest the principal motives for merging in each case.
8. Examine a recent merger in which at least part of the payment made to the seller was in the form of stock. Use stock market prices to obtain an estimate of the gain from the merger and the cost of the merger.
9. Respond to the following comments.
 - a. "Our cost of debt is too darn high, but our banks won't reduce interest rates as long as we're stuck in this volatile widget-trading business. We've got to acquire other companies with safer income streams."
 - b. "Merge with Fledgling Electronics? No way! Their P/E's too high. That deal would knock 20% off our earnings per share."
 - c. "Our stock's at an all-time high. It's time to make our offer for Digital Organics. Sure, we'll have to offer a hefty premium to Digital stockholders, but we don't have to pay in cash. We'll give them new shares of our stock."
10. Sometimes the stock price of a possible target company rises in anticipation of a merger bid. Explain how this complicates the bidder's evaluation of the target company.
11. Suppose you obtain special information—information unavailable to investors—indicating that Backwoods Chemical's stock price is 40% undervalued. Is that a reason to launch a takeover bid for Backwoods? Explain carefully.

12. As treasurer of Leisure Products, Inc., you are investigating the possible acquisition of Plastitoys. You have the following basic data:

	Leisure Products	Plastitoys
Earnings per share	\$ 5.00	\$ 1.50
Dividend per share	\$ 3.00	\$.80
Number of shares	1,000,000	600,000
Stock price	\$90	\$20

You estimate that investors currently expect a steady growth of about 6% in Plastitoys' earnings and dividends. Under new management this growth rate would be increased to 8% per year, without any additional capital investment required.

- What is the gain from the acquisition?
 - What is the cost of the acquisition if Leisure Products pays \$25 in cash for each share of Plastitoys?
 - What is the cost of the acquisition if Leisure Products offers one share of Leisure Products for every three shares of Plastitoys?
 - How would the cost of the cash offer and the share offer alter if the expected growth rate of Plastitoys were not changed by the merger?
13. The Muck and Slurry merger has fallen through (see Section 31-2). But World Enterprises is determined to report earnings per share of \$2.67. It therefore acquires the Wheelrim and Axle Company. You are given the following facts:

	World Enterprises	Wheelrim and Axle	Merged Firm
Earnings per share	\$2.00	\$2.50	\$2.67
Price per share	\$40	\$25	?
Price-earnings ratio	20	10	?
Number of shares	100,000	200,000	?
Total earnings	\$200,000	\$500,000	?
Total market value	\$4,000,000	\$5,000,000	?

Once again there are no gains from merging. In exchange for Wheelrim and Axle shares, World Enterprises issues just enough of its own shares to ensure its \$2.67 earnings per share objective.

- Complete the above table for the merged firm.
 - How many shares of World Enterprises are exchanged for each share of Wheelrim and Axle?
 - What is the cost of the merger to World Enterprises?
 - What is the change in the total market value of the World Enterprises shares that were outstanding before the merger?
14. Explain the distinction between a tax-free and a taxable merger. Are there circumstances in which you would expect buyer and seller to agree to a taxable merger?
15. Look again at Table 31.3. Suppose that B Corporation's fixed assets are reexamined and found to be worth \$12 million instead of \$9 million. How would this affect the AB Corporation's balance sheet under purchase accounting? How would the value of AB Corporation change? Would your answer depend on whether the merger is taxable?

CHALLENGE

16. Examine a hostile acquisition and discuss the tactics employed by both the predator and the target companies. Do you think that the management of the target firm was trying to defeat the bid or to secure the highest price for its stockholders? How did each announcement by the protagonists affect their stock prices?
17. How do you think mergers should be regulated? For example, what defenses should target companies be allowed to employ? Should managers of target firms be compelled to seek out the highest bids? Should they simply be passive and watch from the sidelines?

APPENDIX

Conglomerate Mergers and Value Additivity

A pure conglomerate merger is one that has no effect on the operations or profitability of either firm. If corporate diversification is in stockholders' interests, a conglomerate merger would give a clear demonstration of its benefits. But if present values add up, the conglomerate merger would not make stockholders better or worse off.

In this appendix we examine more carefully our assertion that present values add. It turns out that values *do* add as long as capital markets are perfect and investors' diversification opportunities are unrestricted.

Call the merging firms A and B. Value additivity implies

$$PV_{AB} = PV_A + PV_B$$

where

$$PV_{AB} = \text{market value of combined firms just after merger}$$

$$PV_A, PV_B = \text{separate market values of A and B just before merger}$$

For example, we might have

$$PV_A = \$100 \text{ million } (\$200 \text{ per share} \times 500,000 \text{ shares outstanding})$$

and

$$PV_B = \$200 \text{ million } (\$200 \text{ per share} \times 1,000,000 \text{ shares outstanding})$$

Suppose A and B are merged into a new firm, AB, with one share in AB exchanged for each share of A or B. Thus there are 1,500,000 AB shares issued. *If* value additivity holds, then PV_{AB} must equal the sum of the separate values of A and B just before the merger, that is, \$300 million. That would imply a price of \$200 per share of AB stock.

But note that the AB shares represent a portfolio of the assets of A and B. Before the merger investors could have bought one share of A and two of B for \$600. Afterward they can obtain a claim on *exactly* the same real assets by buying three shares of AB.

Suppose that the opening price of AB shares just after the merger is \$200, so that $PV_{AB} = PV_A + PV_B$. Our problem is to determine if this is an equilibrium price, that is, whether we can rule out excess demand or supply at this price.

For there to be excess demand, there must be some investors who are willing to increase their holdings of A and B as a consequence of the merger. Who could they be? The only thing new created by the merger is diversification, but those investors who want to hold assets of A *and* B will have purchased A's and B's stock before the merger. The diversification is redundant and consequently won't attract new investment demand.

Is there a possibility of excess supply? The answer is yes. For example, there will be some shareholders in A who did not invest in B. After the merger they cannot invest solely in A, but only in a fixed combination of A and B. Their AB shares will be less attractive to them than the

pure A shares, so they will sell part of or all their AB stock. In fact, the only AB shareholders who will *not* wish to sell are those who happened to hold A and B in exactly a 1:2 ratio in their premerger portfolios!

Since there is no possibility of excess demand but a definite possibility of excess supply, we seem to have

$$PV_{AB} \leq PV_A + PV_B$$

That is, corporate diversification can't help, but it may hurt investors by restricting the types of portfolios they can hold. This is not the whole story, however, since investment demand for AB shares might be attracted from other sources if PV_{AB} drops below $PV_A + PV_B$. To illustrate, suppose there are two other firms, A^* and B^* , which are judged by investors to have the same risk characteristics as A and B, respectively. Then before the merger,

$$r_A = r_{A^*} \quad \text{and} \quad r_B = r_{B^*}$$

where r is the rate of return expected by investors. We'll assume $r_A = r_{A^*} = .08$ and $r_B = r_{B^*} = .20$.

Consider a portfolio invested one-third in A^* and two-thirds in B^* . This portfolio offers an expected return of 16%:

$$\begin{aligned} r &= x_{A^*}r_{A^*} + x_{B^*}r_{B^*} \\ &= 1/3(.08) + 2/3(.20) = .16 \end{aligned}$$

A similar portfolio of A and B before their merger also offered a 16% return.

As we have noted, a new firm AB is really a portfolio of firms A and B, with portfolio weights of $1/3$ and $2/3$. It is therefore equivalent in risk to the portfolio of A^* and B^* . Thus the price of AB shares must adjust so that it likewise offers a 16% return.

What if AB shares drop below \$200, so that PV_{AB} is less than $PV_A + PV_B$? Since the assets and earnings of firms A and B are the same, the price drop means that the expected rate of return on AB shares has risen above the return offered by the A^*B^* portfolio. That is, if r_{AB} exceeds $1/3r_A + 2/3r_B$, then r_{AB} must also exceed $1/3r_{A^*} + 2/3r_{B^*}$. But this is untenable: Investors A^* and B^* could sell part of their holdings (in a 1:2 ratio), buy AB, and obtain a higher expected rate of return with no increase in risk.

On the other hand, if PV_{AB} rises above $PV_A + PV_B$, the AB shares will offer an expected return less than that offered by the A^*B^* portfolio. Investors will unload the AB shares, forcing their price down.

A stable result occurs only if AB shares stick at \$200. Thus, value additivity will hold exactly in a perfect-market equilibrium if there are ample substitutes for the A and B assets. If A and B have unique risk characteristics, however, then PV_{AB} can fall below $PV_A + PV_B$. The reason is that the merger curtails investors' opportunity to tailor their portfolios to their own needs and preferences. This makes investors worse off, reducing the attractiveness of holding the shares of firm AB.

In general, the condition for value additivity is that investors' opportunity set—that is, the range of risk characteristics attainable by investors through their portfolio choices—is independent of the particular portfolio of real assets held by the firm. Diversification per se can never expand the opportunity set given perfect security markets. Corporate diversification may reduce the investors' opportunity set, but only if the real assets the corporations hold lack substitutes among traded securities or portfolios.

In a few cases the firm may be able to expand the opportunity set. It can do so if it finds an investment opportunity that is unique—a real asset with risk characteristics shared by few or no other financial assets. In this lucky event the firm should not diversify, however. It should set up the unique asset as a separate firm so as to expand investors' opportunity set to the maximum extent. If Gallo by chance discovered that a small portion of its vineyards produced wine comparable to Chateau Margaux, it would not throw that wine into the Hearty Burgundy vat.