Chapter 21

Antitrust

Sherman Act

LEARNING OBJECTIVES

1. What is the first U.S. antitrust law?
2. What is antitrust anyway?

In archaic language, a **trust**[1] (which is now known as a cartel) was a group of firms acting in concert. The antitrust laws that made such trusts illegal were intended to protect competition. In the United States, these laws are enforced by the **U.S. Department of Justice**[2]'s (DOJ) Antitrust Division and by the Federal Trade Commission (FTC). The United States began passing laws during a time when some European nations were actually passing laws forcing firms to join industry cartels. By and large, however, the rest of the world has since copied the U.S. antitrust laws in one form or another.

The **Sherman Act**[3], passed in 1890, was the first significant piece of antitrust legislation. It has two main requirements.

Section 1. Trusts, etc., in restraint of trade illegal; penalty

Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is declared to be illegal. Every person who shall make any contract or engage in any combination or conspiracy hereby declared to be illegal shall be deemed guilty of a felony, and, on conviction thereof, shall be punished by fine not exceeding $10,000,000 if a corporation, or, if any other person, $350,000, or by imprisonment not exceeding 3 years, or by both said punishments, in the discretion of the court.

Section 2. Monopolizing trade a felony; penalty

1. A group of firms acting in concert.
2. Federal government agency that enforces the antitrust laws, along with the Federal Trade Commission (FTC), among other responsibilities.
3. The first U.S. antitrust law; it makes restraint of trade (monopolization) illegal.

Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a felony, and, on conviction thereof, shall be punished by fine not exceeding $10,000,000 if a corporation, or, if any other person, $350,000, or by imprisonment not exceeding 3 years, or by both said punishments, in the discretion of the court.The current fines were instituted in 1974; the original fines were $5,000, with a maximum imprisonment of one year. The Sherman Act is 15 U.S.C. § 1.

The phrase *in restraint of trade* is challenging to interpret. Early enforcement of the Sherman Act followed the Peckham Rule, named for noted Justice Rufus Peckham, which interpreted the Sherman Act to prohibit contracts that reduced output or raised prices while permitting contracts that would increase output or lower prices. In one of the most famous antitrust cases ever, the United States sued Standard Oil, which had monopolized the transportation of oil from Pennsylvania to the East Coast cities of the United States in 1911.

The exact meaning of the Sherman Act had not been settled at the time of the Standard Oil case. Indeed, Supreme Court Justice Edward White suggested that, because contracts by their nature set the terms of trade and thus restrain trade to those terms, and Section 1 makes contracts restraining trade illegal, one could read the Sherman Act to imply that *all* contracts were illegal. Chief Justice White concluded that, because Congress couldn't have intended to make all contracts illegal, the intent must have been to make unreasonable contracts illegal, and he therefore concluded that judicial discretion is necessary in applying the antitrust laws. In addition, Chief Justice White noted that the act makes monopolizing illegal, but doesn't make having a monopoly illegal. Thus, Chief Justice White interpreted the act to prohibit certain acts leading to monopoly, but not monopoly itself.

The legality of monopoly was further clarified through a series of cases, starting with the 1945 Alcoa case, in which the United States sued to break up the aluminum monopoly Alcoa. The modern approach involves a **two-part test**[4]. First, does the firm have monopoly power in a market? If it does not, no monopolization has occurred and there is no issue for the court. Second, if it does, did the firm use illegal tactics to extend or maintain that monopoly power? In the language of a later decision, did the firm engage in "the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of superior product, business acumen or historic accident" (*U.S. v. Grinnell*, 1966)?

There are several important points that are widely misunderstood and even misreported in the press. First, the Sherman Act does not make having a monopoly illegal. Indeed, three legal ways of obtaining a monopoly—a better product, running

4. In antitrust, the requirement for an antitrust violation that a firm had monopoly power and abused that power.

a better business, or luck—are mentioned in one decision. It is illegal to leverage an existing monopoly into new products or services, or to engage in anticompetitive tactics to maintain the monopoly. Moreover, you must have monopoly power currently to be found guilty of illegal tactics.

When the DOJ sued Microsoft over the incorporation of the browser into the operating system and other acts (including contracts with manufacturers prohibiting the installation of Netscape), the allegation was not that Windows was an illegal monopoly. The DOJ alleged Microsoft was trying to use its Windows monopoly to monopolize another market, the Internet browser market. Microsoft's defense was twofold. First, it claimed not to be a monopoly, citing the 5% share of Apple. (Linux had a negligible share at the time.) Second, it alleged that a browser was not a separate market but an integrated product necessary for the functioning of the operating system. This defense follows the standard two-part test.

Microsoft's defense brings up the question, What is a monopoly? The simple answer to this question depends on whether there are good substitutes in the minds of consumers, so that they may substitute an alternate product in the event of bad behavior by the seller. By this test, Microsoft had an operating system monopoly; in spite of the fact that there was a rival product, Microsoft could increase the price, tie the browser and MP3 player to the operating system, or even disable Word Perfect, and most consumers would not switch to the competing operating system. However, Microsoft's second defense, that the browser wasn't a separate market, was a much more challenging defense to assess.

The Sherman Act provides criminal penalties, which are commonly applied in price-fixing cases—that is, when groups of firms join together and collude to raise prices. Seven executives of General Electric (GE) and Westinghouse, who colluded in the late 1950s to set the prices of electrical turbines, each spent several years in jail, and incurred over $100 million in fines. In addition, Archer Daniels Midland executives went to jail after their 1996 conviction for fixing the price of lysine, which approximately doubled the price of this common additive to animal feed. When highway contractors are convicted of bid-rigging, the conviction is typically under the Sherman Act for monopolizing their market.

KEY TAKEAWAYS

- A trust (now known as a cartel) is a group of firms acting in concert. The antitrust laws made such trusts illegal and were intended to protect competition. In the United States, these laws are enforced by the Department of Justice's (DOJ) Antitrust Division and by the Federal Trade Commission (FTC).
- The Sherman Act, passed in 1890, is the first significant piece of antitrust legislation. It prevents mergers and cartels that would increase prices.
- Having a monopoly is legal, provided it is obtained through legal means. Legal means include "superior product, business acumen or historic accident."
- Modern antitrust investigations involve a two-part test. First, does the firm have monopoly power in a market? If it does not, no monopolization has occurred and there is no issue for the court. If it does, did the firm use illegal tactics to extend or maintain that monopoly power?
- The Sherman Act provides criminal penalties, which are commonly applied in price-fixing cases.

21.1 Clayton Act

LEARNING OBJECTIVES

1. What other major antitrust legislation exists in the United States?
2. What is predatory pricing and why is it illegal?
3. Is price discrimination illegal?

Critics of the Sherman Act, including famous trust-buster President Teddy Roosevelt, felt the ambiguity of the Sherman Act was an impediment to its use and that the United States needed a more detailed law setting out a list of illegal activities. The **Clayton Act**[5], 15 U.S.C. §§ 12–27, was passed in 1914 and it adds detail to the Sherman Act. The same year, the FTC Act was passed, creating the **Federal Trade Commission (FTC)**[6], which has authority to enforce the Clayton Act as well as to engage in other consumer protection activities.

The Clayton Act does not have criminal penalties, but it does allow for monetary penalties that are three times as large as the damage created by the illegal behavior. Consequently, a firm, motivated by the possibility of obtaining a large damage award, may sue another firm for infringement of the Clayton Act. A plaintiff must be directly harmed to bring such a suit. Thus, customers who paid higher prices or firms that were driven out of business by exclusionary practices are permitted to sue under the Clayton Act. When Archer Daniels Midland raised the price of lysine, pork producers who bought lysine would have standing to sue, but final pork consumers who paid higher prices for pork, but who didn't directly buy lysine, would not.

Highlights of the Clayton Act include:

- Section 2, which prohibits price discrimination that would lessen competition
- Section 3, which prohibits exclusionary practices, such as tying, exclusive dealing, and predatory pricing, that lessen competition
- Section 7, which prohibits share acquisition or merger that would lessen competition or create a monopoly

5. Second major U.S. antitrust law; prohibits various behaviors leading to a lessening of competition.
6. Federal government agency that enforces the antitrust laws, along with the U.S. Department of Justice (DOJ), and provides consumer protection.

The language *lessen competition* is generally understood to mean that a significant price increase becomes possible; that is, competition has been harmed if the firms in the industry can successfully increase prices.

Section 2 is also known as **Robinson-Patman**[7] because of a 1936 amendment by that name. It prohibits price discrimination that lessens competition. Thus, price discrimination to final consumers is legal under the Clayton Act; the only way price discrimination can lessen competition is if one charges different prices to different businesses. The logic of the law was articulated in the 1948 Morton Salt decision, which concluded that lower prices to large chain stores gave an advantage to those stores, thus injuring competition in the grocery store market. The discounts in that case were not cost-based, and it is permissible to charge different prices based on costs.

Section 3 rules out practices that lessen competition. A manufacturer who also offers service for the goods it sells may be prohibited from favoring its own service organization. Generally manufacturers may not require the use of the manufacturer's own service. For example, an automobile manufacturer can't require the use of replacement parts made by the manufacturer, and many car manufacturers have lost lawsuits on this basis. In an entertaining example, Mercedes prohibited Mercedes dealers from buying Bosch parts directly from Bosch, even though Mercedes itself was selling Bosch parts to the dealers. This practice was ruled illegal because the quality of the parts was the same as Mercedes's (indeed, identical), so Mercedes's action lessened competition.

Predatory pricing[8] involves pricing below cost in order to drive a rival out of business. It is relatively difficult for a firm to engage in predation simply because it only makes sense if, once the rival is eliminated, the predatory firm can then increase its prices and recoup the losses incurred. The problem is that once the prices go up, entry becomes attractive; so what keeps other potential entrants away? One answer is reputation: a reputation for a willingness to lose money in order to dominate the market could deter potential entrants. Like various rare diseases that happen more often on television shows than in the real world (e.g., Tourette's syndrome), predatory pricing probably happens more often in textbooks than in the real world.Economists have argued that American Tobacco, Standard Oil, and AT&T each engaged in predation in their respective industries.

The FTC also has authority to regulate mergers that would lessen competition. As a practical matter, the DOJ and the FTC divide responsibility for evaluating mergers. In addition, other agencies may also have jurisdiction over mergers and business tactics. The Department of Defense has oversight of defense contractors, using a threat of "we're your only customer." The Federal Communications Commission has

7. Section of the Clayton Act prohibiting price discrimination that lessens competition.

8. Pricing below cost in order to drive a rival out of business.

statutory authority over telephone and television companies. The Federal Reserve Bank has authority over national and most other banks.

Most states have antitrust laws as well, and they can challenge mergers that would affect commerce in the respective state. In addition, attorneys general of many states may join the DOJ or the FTC in suing to block a merger or in other antitrust actions, or they can sue independently. For example, many states joined the Department of Justice in its lawsuit against Microsoft. Forty-two states jointly sued the major record companies over their "minimum advertised prices (MAP)" policies, which the states argued resulted in higher compact disc prices. The MAP case settlement resulted in a modest payment to compact disc purchasers. The FTC had earlier extracted an agreement to stop the practice.

KEY TAKEAWAYS

- The Clayton Act was passed in 1914 and adds detail to the Sherman Act. The FTC, which has authority to enforce the Clayton Act, as well as engage in other consumer protection activities, was created the same year.
- The Clayton Act does not have criminal penalties, but it does allow for monetary penalties that are three times as large as the damage created by the illegal behavior.
  - Highlights of the Clayton Act include:
    - Section 2, which prohibits price discrimination that would lessen competition
    - Section 3, which prohibits exclusionary practices, such as tying, exclusive dealing, and predatory pricing, that lessen competition
    - Section 7, which prohibits share acquisition or merger that would lessen competition or create a monopoly
- The language *lessen competition* is generally understood to mean that a significant price increase becomes possible; that is, competition has been harmed if the firms in the industry can successfully increase prices.
- Predatory pricing involves pricing below cost in order to drive a rival out of business.
- The DOJ and the FTC divide responsibility for evaluating mergers.
- Most states have antitrust laws as well, and they can challenge mergers that would affect commerce in the respective state.

21.2 Price Fixing

LEARNING OBJECTIVE

1. What is price fixing and how does it work?

Price fixing[9], which is called **bid-rigging**[10] in a bidding context, involves a group of firms agreeing to increase the prices they charge and restrict competition against each other. The most famous example of price fixing is probably the Great Electrical Conspiracy in which GE and Westinghouse (and a smaller firm, Allis-Chalmers) fixed the prices of turbines used for electricity generation. Generally these turbines were the subject of competitive (or, in this case, not-so-competitive) bidding, and the companies set the prices by designating a winner for each bidding situation and using a price book to provide identical bids by all companies. An amusing element of the price-fixing scheme was the means by which the companies identified the winner in any given competition: they used the phase of the moon. The phase of the moon determined the winner, and each company knew what to bid based on the phase of the moon. Executives from the companies met often to discuss the terms of the price-fixing arrangement, and the Department of Justice (DOJ) acquired a great deal of physical evidence in the process of preparing its 1960 case. Seven executives went to jail and hundreds of millions of dollars in fines were paid.

Most convicted price-fixers are from small firms. The turbine conspiracy and the Archer Daniels Midland lysine conspiracy are unusual. (There is evidence that large vitamin manufacturers conspired in fixing the price of vitamins in many nations of the world.) Far more common conspiracies involve highway and street construction firms, electricians, water and sewer construction companies, or other owner-operated businesses. Price fixing seems most common when owners are also managers and there are a small number of competitors in a given region.

As a theoretical matter, it should be difficult for a large firm to motivate a manager to engage in price fixing. The problem is that the firm can't write a contract promising the manager extraordinary returns for successfully fixing prices because such a contract itself would be evidence and moreover implicate higher management. Indeed, Archer Daniels Midland executives paid personal fines of $350,000, and each served 2 years in jail. Thus, it is difficult to offer a substantial portion of the rewards of price fixing to managers in exchange for the personal risks the managers would face from engaging in price fixing. Most of the gains of price fixing accrue to shareholders of large companies, while large risks and costs

9. Situation in which a group of firms agrees to increase the prices they charge and restrict competition against each other.

10. Price fixing in an auction context.

fall on executives. In contrast, for smaller businesses in which the owner is the manager, the risks and rewards are borne by the same person, and thus the personal risk is more likely to be justified by the personal return.

We developed earlier a simple theory of cooperation, in which the grim trigger strategy was used to induce cooperation. Let us apply that theory to price fixing. Suppose that there are *n* firms and that they share the monopoly profits π_m equally if they collude. If one firm cheats, that firm can obtain the entire monopoly profits until the others react. This is clearly the most the firm could get from cheating. Once the others react, the collusion breaks down and the firms earn zero profits (the competitive level) from then on. The cartel is feasible if 1/*n* of the monopoly profits forever is better than the whole monopoly profits for a short period of time. Thus, cooperation is sustainable if $\frac{\pi_m}{n(1-\delta)} = \frac{\pi_m}{n}\left(1 + \delta + \delta^2 + \ldots\right) \geq \pi_m$.

The left-hand side of the equation gives the profits from cooperating—the present value of the 1/*n* share of the monopoly profits. In contrast, if a firm chooses to cheat, it can take at most the monopoly profits, but only temporarily. How many firms will this sustain? The inequality simplifies to $n \leq \frac{1}{1-\delta}$ .Suppose the annual interest rate is 5% and the reaction time is 1 week—that is, a firm that cheats on the cooperative agreement sustains profits for a week, after which time prices fall to the competitive level. In this case, 1 – δ is a week's worth of interest (δ is the value of money received in a week), and therefore $\delta = 0.95^{1/52} = 0.999014$. According to standard theory, the industry with a weeklong reaction time should be able to support cooperation with up to a thousand firms.

There are numerous and varied reasons why this theory fails to work very well empirically, including that some people are actually honest and do not break the law, but we will focus on one game-theoretic reason here. The cooperative equilibrium is not the only equilibrium, and there are good reasons to think that full cooperation is unlikely to persist. The problem is the prisoner's dilemma itself: generally the first participant to turn in the conspiracy can avoid jail. Thus, if one member of a cartel is uncertain whether the other members of a price-fixing conspiracy are contacting the DOJ, that member may race to the DOJ—the threat of one confession may cause them all to confess in a hurry. A majority of the conspiracies that are prosecuted arise because someone—a member who feels guilty, a disgruntled ex-spouse of a member, or perhaps a member who thinks another member is suffering pangs of conscience—turns them in. Lack of confidence in the other members creates a self-fulfilling prophecy. Moreover, cartel members should lack confidence in the other cartel members who are, after all, criminals.

On average, prosecuted conspiracies were about 7 years old when they were caught. Thus, there is about a 15% chance annually of a breakdown of a conspiracy, at least among those that are eventually caught.

KEY TAKEAWAYS

- Price fixing, which is called bid rigging in a bidding context, involves a group of firms agreeing to increase the prices they charge and restrict competition against each other.
- The most famous example of price fixing is probably the Great Electrical Conspiracy in which GE and Westinghouse fixed the prices of turbines. The companies used the phase of the moon to determine the winner of government procurement auctions.
- Theoretically, collusions should be easy to sustain; in practice, it does not seem to be.

21.3 Mergers

LEARNING OBJECTIVE

1. How does the government decide which mergers to block and which to permit?

The U.S. Department of Justice (DOJ) and the Federal Trade Commission (FTC) share responsibility for evaluating mergers. Firms with more than $50 million in assets are required under the Hart-Scott-Rodino Act to file with the government an intention to merge with another firm. The government then has a limited amount of time to either approve the merger or request more information (called a second request). Once the firms have complied with the second request, the government again has a limited amount of time before it either approves the merger or sues to block it. The government agencies themselves don't stop the merger, but instead they sue to block the merger, asking a federal judge to prevent the merger as a violation of one of the antitrust laws. Mergers are distinct from other violations because they have not yet occurred at the time the lawsuit is brought, so there is no threat of damages or criminal penalties; the only potential penalty imposed on the merging parties is that the proposed merger may be blocked.

Many proposed mergers result in settlements. As part of the settlement associated with GE's purchase of Radio Corporation of America (RCA) in 1986, a small appliance division of GE's was sold to Black & Decker, thereby maintaining competition in the small kitchen appliance market. In the 1999 merger of oil companies Exxon and Mobil, a California refinery, shares in oil pipelines connecting the Gulf with the Northeast, and thousands of gas stations were sold to other companies. The 1996 merger of Kimberley-Clark and Scott Paper would have resulted in a single company with over 50% of the facial tissue and baby wipes markets, and in both cases divestitures of production capacity and the Scotties brand name preserved competition in the markets. Large bank mergers, oil company mergers, and other large companies usually present some competitive concerns, and the majority of these cases are solved by divestiture of business units to preserve competition.

A **horizontal merger**[11] is a merger of competitors, such as Exxon and Mobil or two banks located in the same city. In contrast, a **vertical merger**[12] is a merger between an input supplier and input buyer. The attempt by book retailer Barnes and Noble to purchase the intermediary Ingram, a company that buys books from publishers and sells to retailers but doesn't directly sell to the public, would have resulted in a

11. A merger of competitors.

12. A merger between an input supplier and an input buyer.

vertical merger. Similarly, Disney is a company that sells programs to television stations (among other activities), so its purchase of TV network ABC was a vertical merger. The AOL-Time Warner merger involved several vertical relationships. For example, Time Warner is a large cable company, and cable represents a way for AOL to offer broadband services. In addition, Time Warner is a content provider, and AOL delivers content to Internet subscribers.

Vertical mergers raise two related problems: foreclosure and raising rivals' costs. **Foreclosure**[13] refers to denying access to necessary inputs. Thus, the AOL-Time Warner merger threatened rivals to AOL Internet service (like EarthLink) with an inability to offer broadband services to consumers with Time Warner cable. This potentially injures competition in the Internet service market, forcing Time Warner customers to use AOL. In addition, by bundling Time Warner content and AOL Internet service, users could be forced to purchase AOL Internet service in order to have access to Time Warner content. Both of these threaten foreclosure of rivals, and both were resolved to the government's satisfaction by promises that the merged firm would offer equal access to rivals.

Raising rivals' costs[14] is a softer version of foreclosure. Rather than deny access to content, AOL Time Warner could instead make the content available under disadvantageous terms. For example, American Airlines developed the Sabre computerized reservation system, which was used by about 40% of travel agents. This system charged airlines, rather than travel agents, for bookings. Consequently, American Airlines had a mechanism for increasing the costs of its rivals: by increasing the price of bookings on the Sabre system. The advantage to American Airlines was not just increased revenue of the Sabre system but also the hobbling of airline rivals. Similarly, banks offer free use of their own automated teller machines (ATMs), but they charge the customers of other banks. Such charges raise the costs of customers of other banks, thus making other banks less attractive and providing an advantage in the competition for bank customers.

The DOJ and the FTC periodically issue horizontal merger guidelines, which set out how mergers will be evaluated. This is a three-step procedure for each product that the merging companies have in common.

The procedure starts by identifying product markets. To identify a product market, start with a product or products produced by both companies. Then ask if the merged parties can profitably raise price by a small but significant and nontransitory increase in price, also known as a **SSNIP**[15] (pronounced "snip"). A SSNIP is often taken to be a 5% price increase, which must prevail for several years. If the companies can profitably increase price by a SSNIP, then they are judged to have monopoly power and consumers will be directly harmed by the merger. (This

13. Denying access to necessary inputs.

14. Increasing input prices as a means of harming a rival.

15. A small but significant and nontransitory increase in price.

is known as a **unilateral effect**[16] because the merging parties will increase price unilaterally after the merger is consummated.) If they can't increase prices, then an additional product has to be added to the group; generally the best substitute is added. Ask whether a hypothetical monopoly seller of these three products can profitably raise price. If it can, an antitrust market has been identified; if it cannot, yet another substitute product must be added. The process stops adding products when enough substitutes have been identified that, if controlled by a hypothetical monopoly, would have their prices significantly increased.

The logic of product market definition is that, if a monopoly wouldn't increase price in a meaningful way, then there is no threat to consumers—any price increase won't be large or won't last. The market is defined by the smallest set of products for which consumers can be harmed. The test is also known as the hypothetical monopoly test.

The second step is to identify a geographic market. The process starts with an area in which both companies sell and asks if the merged company has an incentive to increase price by a SSNIP. If it does, that geographic area is a geographic market. If it does not, it is because buyers are substituting outside the area to buy cheaply, and the area must be expanded. For example, owning all the gas stations on a corner doesn't let one increase price profitably because an increase in price leads to substitution to gas stations a few blocks away. If one company owned all the stations in a half-mile radius, would it be profitable to increase price? Probably not because there would still be significant substitution to more distant stations. Suppose, instead, that one owned all the stations for a 15-mile radius. Then an increase in price in the center of the area is not going to be thwarted by too much substitution outside the area, and the likely outcome is that prices would be increased by such a hypothetical monopoly. In this case, a geographic market has been identified. Again, parallel to the product market definition, a geographic market is the smallest area in which competitive concerns would be raised by a hypothetical monopoly. In any smaller area, attempts to increase price are defeated by substitution to sellers outside the area.

The product and geographic markets together are known as a **relevant antitrust market**[17] (relevant for the purposes of analyzing the merger).

The third and last step of the procedure is to identify the level of concentration in each relevant antitrust market. The Hirschman-Herfindahl Index (HHI) is used for this purpose. The HHI is the sum of the squared market shares of the firms in the relevant antitrust market, and it is justified because it measures the price-cost margin in the Cournot model. Generally, in practice, the shares in percentage are used, which makes the scale range from 0 to 10,000. For example, if one firm has

16. In antitrust, a situation in which merging parties increase price unilaterally after the merger is consummated.

17. A set of products sold in a geographic area in which a hypothetical monopoly can profitably raise price.

40%, one has 30%, one has 20%, and the remaining firm has 10%, the HHI is $40^2 + 30^2 + 20^2 + 10^2 = 3{,}000$.

Usually, anything over 1,800 is considered very concentrated, and anything over 1,000 is concentrated.

Suppose firms with shares *x* and *y* merge, and nothing in the industry changes besides the combining of those shares. Then the HHI goes up by $(x + y)^2 - x^2 - y^2 = 2xy$. This is referred to as the change in the HHI. The merger guidelines suggest that the government will likely challenge mergers with (a) a change of 100 and a concentrated post-merger HHI, or (b) a change of 50 and a very concentrated post-merger HHI. It is more accurate in understanding the merger guidelines to say that the government likely won't challenge unless either (a) or (b) is met. Even if the post-merger HHI suggests a very concentrated industry, the government is unlikely to challenge if the change in the HHI is less than 50.

Several additional factors affect the government's decision. First, if the firms are already engaging in price discrimination, the government may define quite small geographic markets, possibly as small as a single customer. Second, if one firm is very small (less than 1%) and the other not too large (less than 35%), the merger may escape scrutiny because the effect on competition is likely small. Third, if one firm is going out of business, the merger may be allowed as a means of keeping the assets in the industry. Such was the case with Greyhound's takeover of Trailways, a merger that produced a monopoly of the only intercity bus companies in the United States.

Antitrust originated in the United States, and the United States remains the most vigorous enforcer of antitrust laws. However, the European Union has recently taken a more aggressive antitrust stance, and in fact it has blocked mergers that obtained tentative U.S. approval, such as GE and Honeywell.

Antitrust is, in some sense, the applied arm of oligopoly theory. Because real situations are so complex, the application of oligopoly theory to antitrust analysis is often challenging, and we have only scratched the surface of many of the more subtle issues of law and economics in this text. For example, intellectual property, patents, and standards all have their own distinct antitrust issues.

KEY TAKEAWAYS

- Firms with large assets are required to notify the government prior to merging.
- Many proposed mergers result in settlements.
- A horizontal merger is a merger of competitors. In contrast, a vertical merger is a merger between an input supplier and input buyer.
- Vertical mergers raise two problems: foreclosure and raising rivals' costs. Foreclosure refers to denying access to necessary inputs. Raising rivals' costs is a softer version of foreclosure because it charges more for inputs.
- Mergers are evaluated by a three-step procedure that involves looking at product market, geographic market, and effects.
- A product market is a set of products sufficiently extensive that a monopolist can profitably raise price by a small but significant and nontransitory increase in price, also known as a SSNIP (pronounced "snip").
- The logic of product market definition is that, if a monopoly wouldn't increase price in a meaningful way and there is no threat to consumers, any price increase won't be large or won't last. The market is defined by the smallest set of products for which consumers can be harmed. The test is also known as the hypothetical monopoly test.
- The second step is to identify a geographic market, which exactly parallels the product market, looking for an area large enough that a hypothetical monopolist over the product market in that geographic market would profitably raise price by a SSNIP.
- The product and geographic markets together are known as a relevant antitrust market (relevant for the purposes of analyzing the merger).
- The third and last step of the procedure is to identify the level of concentration in each relevant antitrust market. The Hirschman-Herfindahl Index (HHI) is used for this purpose.
- Several additional factors, including price discrimination and failing firms, affect the government's decision to sue and thus block mergers.
- Antitrust is, in some sense, the applied arm of oligopoly theory.