discrimination, price-setting, price leadership, extortion, countervailing power, do-nothing view on oligopoly power, antitrust view on oligopoly power, regulation view on oligopoly power.

2. "From an ethical point of view, big business is always bad business." Discuss the pros and cons of this statement.

3. What kind of public policy do you think the United States should have with respect to business competition? Develop moral arguments to support your answer (i.e., arguments showing that the kinds of policies you favor will advance the public welfare, or secure certain important rights, or ensure certain forms of justice).

4. In your judgment, should an American company operating in a foreign country in which collusive price-fixing is not illegal obey the U.S. laws against collusion? Explain your answer.

Web Resources

Readers who want to conduct research on the market issues in this chapter through the Internet might want to start with the Antitrust Organization, which provides cases, articles, and links on price-fixing, mergers, vertical price restraints, and so on (*http://www.antitrust.org*). Also excellent is Oligopoly Watch, which provides a continually updated website with current information on price-fixing activity, mergers, and so on (*http://www.oligopolywatch.com*). The Federal Trade Commission provides access to its antitrust decisions and proceedings (*http://www.ftc.gov*), and the Justice Department does the same (*http://www.usdoj.gov/atr/cases.html*). Additional links and important legal cases relating to all these issues can be found through the excellently organized and copious resources of Hieros Gamos (*http://hg.org/antitrust.html*), or through the American Bar Association (*http://www.abanet.org*). Yahoo provides numerous useful links about antitrust law (*http://www.yahoo.com/Government/Law*).

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Playing Monopoly: Microsoft

On November 5, 1999, Bill Gates, then the richest man in the world, learned that a federal judge, Thomas Jackson, had just issued "findings of fact" declaring that his company, Microsoft, "enjoys monopoly power" and that it had used its monopoly power to "harm consumers" and crush competitors to maintain its Windows monopoly and to establish a new monopoly in Web browsers by bundling its Internet Explorer with Windows. On the day the judgment was issued, Microsoft stock began its decline. The decline was hastened by an announcement in February 2000 that the European Commission, which enforces European Union laws on competition and monopolization, had been investigating Microsoft's anticompetitive practices in server software since 1997 and was extending its investigation to look into Microsoft's bundling of its Windows Media Player with Windows. Two months later, on April 3, 2000, U.S. judge Thomas Jackson issued a second verdict, concluding on the basis of his earlier findings of fact that Microsoft had violated U.S. antitrust law and was subject to the penalties allowed by the law. The price of Microsoft stock plunged, bringing the entire stock market down with it. Two short months later, on June 7, 2000, Judge Jackson ordered that Microsoft should be broken up into two separate companies—one devoted to operating systems and the other to applications such as word processing, spreadsheets, and Web browsers. With the price of Microsoft stock now skidding, Gates, who was no longer the richest man in the world, vowed that Microsoft would appeal this and any similar verdict and would never be broken apart.[1]

Bill Gates was born in 1955 in Bremerton, Washington. When he was 13 years old, his grammar school acquired a computer terminal, and by the end of the year he had written his first software program (for playing tic-tac-toe). During high school, he held a few entry-level programming jobs. Gates enrolled in Harvard University in 1974, but quickly lost interest in classes and quit to start a software business in Albuquerque, New Mexico, with a friend, Paul Allen, whom he had known since grammar school in Seattle. At the time, the first small but primitive personal computers were being manufactured as kits for hobbyists. These computers, like the Altair 8080 computer (which used Intel's new 8080 microprocessor, had no keyboard, no screen, and only 256 bytes of memory), had no accompanying software and were extremely difficult to program because they had to use "machine code" (consisting entirely of sequences of zeros and ones), which is virtually incomprehensible to humans. Gates and Allen together revised a program called BASIC (Beginner's All-purpose Symbolic Instruction Code, a program written several years earlier by two engineers who gave it away for free), which allowed users to write their own programs using an understandable set of English instructions, and they adapted it so that it would work on the Altair 8080. They sold the adaptation to the maker of the Altair 8080 for $3,000.

In 1977, Apple Computer marketed the first personal computer (PC) aimed at consumers, and by 1978, more than 300 dealers were selling the "Apple II." That year, Gates and Allen began writing software programs for the Apple II, renamed their company *Microsoft*, and moved it to Seattle, where, with 13 employees, it ended the year with revenues of $1.4 million. In 1979, two hobbyists developed VisiCalc, the first spreadsheet program, for the Apple II, and Microsoft developed MS Word, a rudimentary word processor for the Apple II. With these new software "applications," sales of the Apple II took off and the personal computer market was born. By 1980, Microsoft, which continued writing programs for the growing personal computer market, had earnings of $8 million.

In 1980, IBM belatedly decided to enter the growing market for personal computers. By now many other companies had flocked into the PC market, including Radio Shack, Commodore, COMPAQ, AT&T, Xerox, DEC, Data General, and Wang. By 1984, some 350 companies around the world would be making PCs. Because IBM needed to enter the market quickly, it decided to assemble its computer from components that were readily available on the market. A key component that IBM needed for its computer was an operating system. An operating system is the software that allows application programs (like a word processor, spreadsheet, browser, or game) to run on a particular machine. Every computer must have an operating system or it cannot run any application programs. The operating system coordinates the various components of the computer (keyboard inputs, monitor, printer, ports, etc.) and contains the applications programming interface (API), which consists of the codes that applications use to "command" the computer to carry out its functions. Applications programs, such as games or word processors, are written so that they will run on a specific operating system by making use of that operating system's API to make the computer carry out the program's commands. Unfortunately, a program written for one operating system will not work on another operating system. Most of the companies making PCs had developed their own operating systems, although several made use of one called CP/M, which was written to work on many different computers. Applications developed to run on CP/M could run on any computer using CP/M. This meant that an application did not have to be rewritten for each different kind of computer, but could be written once for CP/M and would then run on any computer using CP/M.

IBM needed an operating system quickly and approached the maker of CP/M for a license to use CP/M but was turned down. The somewhat desperate IBM representatives then met with Bill Gates to ask whether Microsoft had one available. Although Microsoft at the time did not own an operating system, Bill Gates told IBM that he could provide one to them. Immediately after the IBM meeting, Bill Gates went to a friend who he knew had written an operating system that was a "knock-off of CP/M" and that could work on the computer IBM was planning. Without telling his friend about the meeting with IBM, Gates offered to buy his friend's operating system for $60,000. The friend agreed. After some tweaking, Microsoft licensed the system to IBM as MS-DOS, with the proviso that Microsoft could also license MS-DOS to other computer manufacturers. When IBM started mass-producing its personal computer in 1981 (IBM's share of the market went from nothing in 1981, to 10 percent in 1983, and 40 percent in 1987) and other computer makers began producing copies of IBM's computer, MS-DOS became the standard operating system for personal computers built according to IBM's standards. Bill Gates's company was on its way to becoming a billion-dollar firm.

Because an application program has to be written to work on a specific operating system, and because so many personal computers were now using the MS-DOS operating system, software companies were much more willing to create programs for the large market of MS-DOS users than for the much smaller numbers of people using other competing operating systems. As thousands of new software programs were developed for MS-DOS—including Microsoft's own spreadsheet, Multiplan, and its word processor, MS Word—even more people adopted MS-DOS, initiating what economists call a *network effect*. A product creates a network effect when the value of the product to a buyer depends on how many other people have already bought the product. A

standard example of a product that creates a network effect is a communication network like a telephone network. The more people that are connected to a telephone network, the more valuable it will be for a new subscriber to be connected to the network since he can communicate with more people. Many products besides communication networks can give rise to network effects, including, of course, operating systems. The more people that own an operating system, the more that software companies are willing to write programs for that operating system. The more software programs they write for the operating system, the more people want to buy that operating system. Because of this network effect, the proportion of computers using MS-DOS quickly increased, and the proportion of computers using other operating systems (such as CP/M, Apple computer's, or Atari's or Commodore's) declined.

However, in 1984, Apple Computer developed an innovative new operating system for its own computers that used intuitive graphics or pictures that let users issue commands to the computer by selecting icons and pull-down menus on the screen using a mouse. The new operating system was tremendously popular, and Apple sales began to climb. In 1987, however, Microsoft began selling Windows, a new operating system for IBM-compatible computers that copied Apple's operating system. Unlike MS-DOS, which had used obscure combinations of characters to issue commands to the computer, Windows used graphics that were similar to Apple's, had virtually the same pull-down menus and icons, and the same usage of the same mouse. Apple sued Microsoft on the grounds that, in copying the "look and feel" of their operating system, Microsoft had stolen a key piece of their copyrighted property. Apple lost the suit and, with the loss of its key software advantage, its market share withered away.

Although early versions of Windows were not very good, quality improved over the years. In 1995 Microsoft issued Windows 95, in 1998 it issued Windows 98, in 2000 it issued the Millennium version of Windows, and two years later it issued Windows XP. The next version of Windows was code-named "Longhorn." As the new millennium began, Microsoft controlled 90 percent of the personal computer operating system market—a virtual monopoly—and Bill Gates was fabulously rich.

In the early 1990s, however, two threats to Microsoft's monopoly had emerged.[2] One was Netscape, an Internet browser, and the other was Java, a programming language. The Internet is a network through which digital information, pictures, sounds, text, and other digital data can be sent from one computer to another. To make these data usable, a user's computer must be connected to the Internet and must have a software program called a *browser*. The browser takes the digital data that come through the Internet and transforms them into an intelligible picture or text that can be displayed on the user's computer screen or into a sound that

can be played on the computer's speakers. However, a browser is not only capable of interpreting digital data that come over the Internet; it can also execute the instructions of software programs, whether those programs are sent over the Internet or reside in the user's own computer. In this respect, a browser functions much like an operating system. Some people predicted that someday every computer might rely on a browser instead of an operating system to run software programs. Although the browser would still need some rudimentary operating system to run, this operating system did not have to be Windows. Windows could become obsolete. Netscape, a company that began selling a browser named Navigator on December 15, 1994, quickly captured 70 percent of the browser market. In May 1995, Bill Gates wrote an internal memo to his executives, warning:

> A new competitor "born" on the Internet is Netscape. Their browser is dominant, with a 70% usage share, allowing them to determine which network extensions will catch on. They are pursuing a multi-platform strategy where they move the key API [applications programming interface] into the client to commoditize the underlying operating system.

In addition to the browser threat, Microsoft was also worried about Java, a programming language that Sun Microsystems, a manufacturer of computer hardware and software, had developed in May 1995. Programs that are written in the Java language can operate on any computer equipped with Java software, regardless of the operating system the computer used. In this respect, Java software also could function like an operating system and also threatened to make Windows obsolete. In an internal memo, a Microsoft senior executive stated that Java was "our major threat," and in September 1996, Bill Gates wrote an e-mail saying, "This scares the hell out of me," and asked managers to make it a top priority to neutralize Java.

To make matters worse, Java and Netscape joined forces. Netscape agreed to incorporate the Java software into its Navigator browser so that any programs written in Java would work on a computer that was using Netscape. This meant that short programs written in Java could be sent over the Internet and then run on the user's computer through its Netscape browser. This also meant that Java programs did not need Windows, but could run on any computer using any operating system so long as it was also using Netscape's Navigator browser. Because Java was now being distributed together with Netscape, the number of computers equipped with Java rapidly multiplied. A Microsoft executive fearfully wrote in a memo that Netscape's browser had become the "major distribution vehicle" for Java.

According to the "findings of fact" accepted by the judge presiding over the Microsoft antitrust trial,

Microsoft quickly embarked on a campaign to undercut the threat that Netscape now posed to its monopoly. First, a team of Microsoft executives met with Netscape's executives in June 1995. Microsoft's people proposed that Microsoft should provide the browser for Windows computers while Netscape should provide browsers for all other computers—essentially the 10 percent of computers that ran on Apple's operating system, on OS/2, or on other relatively minor operating systems. A memo written the next day by a Microsoft executive who was present stated that a goal of the meeting was to "establish Microsoft ownership of the Internet client platform for Win95." Netscape refused to go along with this plan to divide the browser market. Microsoft then refused to share the codes for Windows 95 so that Netscape would be unable to develop a browser for Windows 95. Netscape had to wait several months after Windows 95 was released before it finally got hold of its codes and was finally able to develop a new version of Navigator that would take advantage of the Windows 95 applications interface.

Microsoft also developed its own browser by borrowing a browser program it had earlier licensed from Spyglass Inc, renaming it Internet Explorer, and copying many of Netscape's features onto it. (The chairman of Spyglass later complained that "whenever you license technology to Microsoft, you have to understand it can someday build it itself, drop it into the operating system, and put you out of that business.") Unfortunately, when Microsoft tried to sell its browser in 1995, users felt it was inferior to Netscape and sales lagged. Microsoft continued working on its browser, and its fourth version, Internet Explorer 4.0, released in late 1997, finally began to be compared favorably to Netscape's browser. Still, few people were buying Internet Explorer. Microsoft then decided to use its operating system monopoly to undercut Netscape. In February 1997, Christian Wildfeuer, a Microsoft executive, suggested in an internal memo that it would "be very hard to increase browser share on the merits of Internet Explorer 4 alone. It will be more important to leverage our Operating System asset to make people use Internet Explorer instead of Netscape's Navigator." If Internet Explorer was bundled together with Windows, so that when Windows was installed on a computer Internet Explorer was also automatically installed, then users would tend to use Internet Explorer rather than go through the expense and trouble of purchasing and installing Netscape. Accordingly, Microsoft incorporated a copy of Internet Explorer into Windows 95 that automatically installed itself when Windows was installed. Windows 98 went farther by integrating Internet Explorer into the operating system so that it was extremely difficult for a user even to remove Internet Explorer. Moreover, when a user "uninstalled" Internet Explorer, it stayed in the computer and still appeared when Windows 98 was running certain commands. Although this integration made Windows 98 run more slowly and

consumed resources on the user's computer, it also made it much more difficult and risky for users to try to replace Internet Explorer with Netscape Navigator. Microsoft claimed that it was now giving Internet Explorer away "for free," but skeptics pointed out that the costs of developing the browser had to be recovered from sales of Windows and so a portion of what the consumer paid for a copy of Windows went to pay for the costs of developing the browser.

Microsoft did more than bundle Internet Explorer with Windows. According to the court's "findings of fact," Microsoft required any computer maker that wanted Windows on its computers to agree that it would not remove Windows Explorer and would not promote Netscape's browser. If a computer maker also agreed to not even give its customers a copy of Netscape, Microsoft discounted the price of Windows. Because Microsoft's monopoly meant that computer manufacturers either had to install Windows on their computers or make them virtually useless, manufacturers had no choice but to sign the agreements that shut Netscape out of the market. Although users were still able to buy a copy of Netscape from a retailer, the number of users doing this declined. Not only would purchasing a copy of Netscape require paying extra for software that would do much of what their installed Internet Explorer could already do but it also required that they perform the tricky task of removing Internet Explorer from their computers and installing Netscape in its place. Not surprisingly, Netscape's share of the market rapidly dropped, and Internet Explorer's rapidly rose—a successful outcome of Wildfeuer's strategy "to leverage our Operating System asset to make people use Internet Explorer instead of Navigator."

Microsoft dealt with its Java threat by asking Sun Microsystems for the right to license and distribute Java with its Windows system. Sun Microsystems gave Microsoft that right, not knowing that Microsoft was planning to change Java. The version of Java that Microsoft distributed was a version that incorporated several changes that would no longer allow regular Java programs to run on computers using Microsoft's Java. Thus, there were now two versions of Java, and the version that most users were getting installed with their Windows computers was a version that was incompatible with the regular version of Java and that Microsoft now owned. Microsoft had apparently planned this move because an earlier internal Microsoft document stated that it was a "strategic objective" for Microsoft to "kill cross-platform Java" by expanding the "polluted Java market"—a reference to Microsoft's own "polluted" version of Java. Because all Windows-based computers now incorporated a copy of Microsoft's Java, developers began to write programs for Microsoft's Java, not Sun's. Microsoft encouraged these developers by offering them special technical support and other inducements. In effect, Microsoft had turned Java into a part of Windows so that

there was now little threat that Windows would be rendered obsolete by Java.

But on May 18, 1998, the U.S. Department of Justice (DOJ), then headed by U.S. Attorney General Janet Reno (an appointee of Democratic President Bill Clinton), filed an antitrust suit against Microsoft in Judge Jackson's court, claiming that the company had violated the Sherman Antitrust Act by engaging in "a pattern of anticompetitive practices designed to thwart browser competition on the merits, to deprive customers of choice between alternative browsers, and to exclude Microsoft's Internet browser competitors," especially Netscape and Java.[3] The DOJ claimed that Microsoft had violated the antitrust act in four ways: (a) Microsoft had forced computer companies that used its Windows operating system to sign agreements that they would not license, distribute, or promote software products that competed with Microsoft's own software products; (b) Microsoft "tied" its own browser, Internet Explorer, to its Windows operating system so that customers who purchased Windows also had to get Internet Explorer, although these were separate products and tying the two products together degraded the performance of Windows; (c) Microsoft had attempted to use its operating system monopoly to gain a new monopoly in the Internet browser market by forcing computer companies that used its Windows operating system to agree to leave Internet Explorer as the default browser and to not preinstall or promote the browser of any other company; and (d) Microsoft had a monopoly in the market for PC operating systems and had used anticompetitive and predatory tactics to maintain its monopoly power. As a penalty to ensure that Microsoft not engage in such behaviors again, the DOJ recommended that the part of the company devoted to creating Windows should be spun off and separated from the part that developed browsers and other software applications.

On June 7, 2000, Judge Jackson found Microsoft guilty of counts b, c and d, and ordered that the company be broken up into two separate companies—one to develop and market operating systems and the other to develop and market all other Microsoft programs. Although the judge could have simply ordered Microsoft to cease engaging in the illegal practices, he feared that policing such an order would require so much government oversight that it was simply not practical. The judge also ruled that the two new companies would not be allowed to share any technical information with each other that they did not share with all their other customers. Nor could Microsoft punish or threaten any computer manufacturers for distributing or promoting the products or services of its competitors. Finally, Judge Jackson ordered that Microsoft had to let computer manufacturers remove any Microsoft applications from its Windows operating system.[4] The Judge ruled, however, that Microsoft would not have to implement his orders until it had time to appeal his decision.

In a defensive "white paper," Microsoft stated:

> Antitrust policy seeks to promote low prices, high output, and rapid innovation. On all three measures, the personal computer software industry generally—and Microsoft in particular—is a model of competitiveness. . . . Market share numbers do not reflect the highly dynamic nature of the software industry, where entire business segments can disappear virtually overnight as new technologies are developed.

Microsoft claimed that it was responsible for much of the innovation that characterized the software industry. In addition, it claimed that its actions, including its decision to bundle Internet Explorer with Windows and its decision to "improve" Java by changing it, were all done to help consumers and give them more value for their money.

Microsoft appealed the judge's verdict, and on June 28, 2001, a federal appeals court reversed Judge Jackson's breakup penalty. The federal appeals court held that, based on interviews he gave to the news media during the case, Jackson appeared to be biased against Microsoft, and this bias might have affected the severity of the penalty he had imposed on the company. Although Jackson's findings of fact were to remain in place, the appeals court held that a new penalty would have to be devised for the company.

The previous year, however, George W. Bush had been inaugurated president and his administration had assigned a new person, John Ashcroft, as the new attorney general to head up the Department of Justice. According to Edward Roeder, an expert on corporate political contributions, in the previous 5 years Microsoft had begun contributing heavily to the Republican Party's election campaigns, contributing about 75 percent of its $6-million-dollar-a-year 2000 political contributions to Republicans, creating "an unprecedented campaign to influence the new Administration's antitrust policy," and to "escape from the trial with its monopoly intact."[5] On September 6, 2001, the new Republican-appointed head of the DOJ announced that it would no longer seek the breakup of Microsoft but would, instead, seek a lesser penalty. Two months later, on November 2, 2001, the DOJ announced that it had reached a settlement with Microsoft. According to the agreement, Microsoft would share its application programming interface with other rival software companies who wanted to write applications (such as word-processing programs or games) that could run on Windows; it would have to give computer makers and users the ability to hide icons for Windows applications, such as the icon for Internet Explorer or for Microsoft's digital media player; it could not prevent competing programs from being installed on a Windows computer; it could not retaliate against computer makers who used competing

software. A three-person panel would be given complete access to Microsoft's records and source code for the next 5 years to ensure that Microsoft complied with the agreement. Microsoft, however, would not be prevented from bundling whatever software programs it wanted with its Windows operating system. The new judge appointed to the case, Judge Colleen Kollar-Kotelly, reviewed the settlement and on November 1, 2003, she handed down a decision essentially ratifying the settlement between Microsoft and the DOJ. The state of Massachusetts and two computer trade groups, however, who objected to the settlement as a mere slap on the wrist, filed an appeal, arguing that Microsoft's monopolistic behaviors deserved tougher sanctions. That appeal came to an end on June 30, 2004, when a federal appeals court ruled that the 2001 settlement satisfied the legal requirements for addressing Microsoft's violations of antitrust laws. By that time, Microsoft had settled several suits with other states and companies and had paid a total of $1.5 billion to these parties.

Microsoft's monopoly woes were not quite over, however. In 1997, the European Union's "Competition Commissioner" had announced that the European Union was investigating allegations that Microsoft had illegally used its Windows monopoly power to try to establish a new monopoly in the server market by refusing to share its Windows application programming interface with companies making software for servers (servers are computers that connect several other computers together). If other companies are not given the Windows application programming interfaces, they cannot write server programs that can smoothly connect computers running Windows. Since only Microsoft had full access to its Windows application programming interface, only Microsoft would be able to write server programs for Windows computers, thereby giving it a new monopoly in the server market.

In 2000, the European Commission expanded its investigation to look into how Microsoft had bundled its Windows Media Player together with the company's new Windows 2000 operating system. Because all buyers of Windows 2000 already had Microsoft's Digital Media Player installed on their computers, they were not likely to buy a competitor's digital media player. In this way, suggested the commission, Microsoft would gain a new monopoly in the market for digital media players.

In April 2004, the European Commission issued its final ruling on its investigations. It concluded that "Microsoft Corporation broke European Union competition law by leveraging its near monopoly in the market for PC operating systems onto the markets . . . for servers . . . and for media players." The commission fined Microsoft 497 million euros (equivalent to about $613 million) and ordered it (1) to disclose to competitors the interfaces required for their server software to work with Windows computers and (2) to offer a version of Windows without Microsoft's own Digital Media Player.

Microsoft immediately appealed this ruling to the European Court of First Instance. In addition, it asked that the second order be suspended until the European Court of First Instance had ruled on its appeal. In June 2004, the European Commission agreed that until the court ruled on the appeal, Microsoft did not have to offer a version of Windows without its Digital Media Player. Experts on European law said the appeal could take several years.

Meanwhile, some governments had stopped purchasing Windows and had instead adopted Linux, a free "open-source" operating system. Among these were Italy, Germany, Great Britain, France, India, South Korea, China, Brazil and South Africa. Several companies, including Amazon.com, FedEx, and Google, had moved to Linux. A study by Forrester Research found that 72 percent of companies it surveyed were increasing their use of Linux, and over half of them were planning to replace Windows with Linux.

Questions

1. Identify the behaviors that you think are ethically questionable in the history of Microsoft. Evaluate the ethics of these behaviors.

2. What characteristics of the market for operating systems do you think created the monopoly market that Microsoft's operating system enjoyed? Evaluate this market in terms of utilitarianism, rights, and justice (your analysis should make use of the textbook's discussion of the effects of monopoly markets on the utility of participants in the market, on the moral rights of participants in the market, and on the distribution of benefits and burdens among participants in the market), giving explicit examples from the operating systems industry to illustrate your points.

3. In your view, should the government have sued Microsoft for violation of the antitrust laws? In your view, was Judge Jackson's order that Microsoft be broken into two companies fair to Microsoft? Was Judge Kollar-Kotelly's November 1, 2003 decision fair? Was the April 2004 decision of the European Commission fair to Microsoft? Explain your answers.

4. Who, if anyone, is harmed by the kind of market that Microsoft's operating system has enjoyed? Explain your answer. What kind of public policies, if any, should we have to deal with industries like the operating system industry?

Notes

1. This and the following information is based on Sandy McMurray, "Why Microsoft Lost in Court," *The Toronto Sun*, June 14, 2000, p. 73; Jared Sandberg, "Bill's Many Trials," *Newsweek*, April 17, 2000, p. 48; Eun-Kyung Kim, "Judge Rules Against Microsoft," *Associated Press*, April 3, 2000; David Lawsky, "Judge Finds Microsoft Broke Antitrust Law," *Reuters*, April 3, 2000; James V. Grimaldi, "Judge Says