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NEW DEVELOPMENTS IN THE LAW ON MONOPOLY: THE IMPACT OF THE IBM WEST COAST CASES

Robert L. Knox*

Chroniclers of the development of public policy toward monopoly may someday regard the 1970's as an important watershed in that development. The main events of that decade revolved around a series of court decisions involving International Business Machines Corporation (IBM). The issues dealt with IBM's response to burgeoning competition from manufacturers who produced peripheral devices that could be attached to IBM systems, thus replacing the corresponding IBM product. After years of litigation, IBM has been acquitted of monopoly charges. This article explores the reasons for that acquittal and discusses the implications for competitive behavior in general.

I. INTRODUCTION

An exhaustive analysis of monopolization litigation divides the process into three historical stages.¹ Stage I ended with the *U.S. Steel* case of 1920 and was characterized as the "abuse theory" of monopolization.² Firms would be found guilty of violating Section 2 of the Sherman Act³ if the record revealed a pattern of overt predatory acts specifically designed to enhance market position at the expense of identifiable competitors, actual or potential.⁴

Stage II began in the late 1930's and ended in the 1950's, with the centerpieces being the *Alcoa* decision of 1945 supported

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1. Flynn, *Monopolization Under the Sherman Act: The Third Wave and Beyond*, 26 ANTITRUST BULLETIN 1 (1981), [hereinafter cited as Flynn].

2. *U.S. v. United States Steel Corp.*, 251 U.S. 417 (1920).

3. 15 U.S.C.A. Paragraphs 1-7 (1980).

4. *Standard Oil v. U.S.*, 221 U.S. 1 (1911).

in 1953 by *United Shoe*.⁵ The major premise of this stage was a determination that a firm with a large share of a market could be guilty of monopolizing if its conduct were judged to be exclusionary in the sense that actual competitors could not grow or potential competitors were intimidated and hence would not enter the market.⁶ Such conduct enabled a firm to acquire or maintain monopoly power even though the conduct itself was not abusive or predatory.⁷ Emphasis was on the structure of the market and the resulting behavior that enabled the firm to maintain its market position.⁸ Stage II recognized that a firm's market position might be the result of natural market forces or might evolve from "superior skill and foresight," but the pivotal cases gave little guidance as to what conduct met these criteria.⁹ Efforts by alleged monopolists to employ the "thrust upon" or "superior skill and foresight" defenses were unsuccessful.¹⁰ At the close of this stage, the legal test for monopolization was definitively summarized in *U.S. v. Grinnell Corp.*:¹¹

The offense of monopoly under Section 2 of the Sherman Act has two elements: (1) the possession of monopoly power in the relevant market, and (2) the willful acquisition or maintenance of that power as distinguished from growth or development as a consequence of a superior product, business acumen, or historic accident¹²

This test requires a two-stage inquiry. First, the degree of monopoly power must be determined in an appropriately defined market. The intensity of the competitive pressures, if any, felt by the alleged monopolist must be reduced to an economically defensible number — the market share of the defendant.¹³ Once this threshold has been surmounted, attention shifts to the

5. *U.S. v. Aluminum Co. of America*, 148 F.2d 416 (1945); *U.S. v. United Shoe Machinery Corp.*, 110 F. Supp. 295 (1953), *aff'd* 347 U.S. 521 (1954).

6. *U.S. v. Aluminum Co. of America*, 148 F.2d at 429-45.

7. See P. ASCH, *ECONOMIC THEORY AND THE ANTITRUST DILEMMA* at 255 (1970).

8. *U.S. v. United Shoe Machinery Corp.*, 110 F. Supp. at 342.

9. *U.S. v. Aluminum Co. of America*, 148 F.2d at 430.

10. *U.S. v. United Shoe Machinery Corp.*, 110 F. Supp. at 343.

11. *U.S. v. Grinnell Corp.*, 384 U.S. 563 (1966).

12. *Id.* at 570-71.

13. Problems of market definition and market share determination are thoroughly discussed in F. FISHER, J. MCGOWAN and J. GREENWOOD, *FOLDED, SPINDLED, AND MUTILATED: ECONOMIC ANALYSIS AND U.S. v. IBM* at 43-49 (1983) [hereinafter cited as FISHER].

conduct of the alleged monopolist. Was the monopoly power achieved, maintained, or strengthened by business practices which are unjustifiable and which unnecessarily exclude rivals by damaging the competitive process? Distinguishing between such practices and those resulting from a superior product or business acumen become the essential issue of a monopolization case.¹⁴

Stage III began in the late 1960's with the Section 2 cases filed against International Business Machines Corporation by Control Data Corporation¹⁵ and the Department of Justice.¹⁶ This stage has developed largely through private litigation, although some key government cases have provided important impetus. Its focal point is the effort by private litigants to challenge IBM's leading position in the electronic data processing industry and the parallel effort by the Department of Justice to dissolve IBM.¹⁷ In addition, a private case against Eastman Kodak and government cases against DuPont, oil companies, and the cereal companies attempted to break new ground in the legal approach to monopoly.¹⁸

Stage III furthered the use of economic analysis in monopoly cases to analyze the behavior of the alleged monopolist in an effort to define what type of conduct could be construed as exclusionary and hence anticompetitive, and what type of conduct represented a reasonable response by a large firm to competition from rivals.¹⁹ The alleged monopolists were all large in an absolute sense and occupied leading positions in their respective markets. In most cases the firms were generally regarded as progressive in technology and well-managed.²⁰

If Stage III is ultimately judged to signal a new era in the development of public policy toward monopoly, it will largely be

14. *Id.* at 24-41.

15. *Control Data Corporation v. International Business Machines Corp.*, 318 F. Supp. 145 (1970).

16. *U.S. v. International Business Machines Corp.*, No. 69-200 (S.D.N.Y.) (1969).

17. *Id.*

18. *Berkey Photo, Inc. v. Eastman Kodak Co.*, 603 F.2d 263 (2d Cir. 1979); *In the Matter of E.J. DuPont De Nemours & Company*, FTC Docket No. 9108; *In re Exxon Corp.*, et al., FTC Docket No. 8934; *In re Kellogg Co.*, et al., FTC Docket No. 8883.

19. Flynn, *supra* note 1 at 34-36, 118.

20. For a discussion of important Stage III cases, see Flynn, *supra* note 1 at 22-29.

because of a series of Section 2 cases and court decisions involving IBM. The recent withdrawal of its massive case by the Department of Justice signals a close of the IBM litigation and affords an opportunity to assess the results of several private cases which essentially involved the same issues and which therefore suggest the direction Stage III is taking. All the cases began and most were concluded in the 1970's.²¹ The plaintiffs were competitors of IBM in the electronic data processing industry, a field that has experienced the most rapid growth and changing technology of any in the American economy in this century.

II. BACKGROUND

The history of the IBM litigation dates from the previously identified Control Data and Department of Justice suits. However, the former was settled prior to trial and the latter was eventually withdrawn. Consequently, the new developments in the application of Section 2 are based on cases involving companies that manufacture or lease electronic data processing equipment used primarily with and competing against IBM products.

Plaintiffs in the cases were: Telex Corporation, California Computer Products (CalComp), Memorex Corporation, Greyhound Computer Leasing Corporation and Transamerica Leasing Corporation. The first three were manufacturers of electronic data processing equipment and the last two were leasing companies.²² *Telex* resulted in a verdict against IBM at the trial level, but was reversed by an appeals court and settled before Supreme Court review. *CalComp* resulted in a directed verdict for IBM at the close of the plaintiff's case, later affirmed at the ap-

21. *Greyhound Computer Corp. v. IBM*, 559 F.2d 488 (9 Cir. 1977); *California Computer Products, Inc. v. IBM*, 613 F.2d 727 (9th Cir. 1979) [hereinafter cited as *CalComp*]; *Telex Corp. v. IBM*, 510 F.2d 894 (10th Cir. 1975); *ILC Peripherals Leasing Corp. v. IBM*, 458 F. Supp. 423 (N.D. Cal. 1978) [hereinafter cited as *Memorex*]; *Transamerica Computer Co. v. IBM*, 481 F. Supp. 965 (N.D. Cal. 1979) [hereinafter cited as *Transamerica*].

22. A leasing company purchases equipment from a manufacturer and markets that equipment to end users through various types of lease arrangements. It is not uncommon for a leasing company to displace a company's product on lease with an identical substitute purchased from the same company. For example, a leasing company might purchase a System/370 central processor from IBM and lease it to a bank which already had a similar or identical machine. For this to occur, the leasing company would have to offer better terms than IBM.

peals level, and no petition for certiorari was filed. *Memorex* was fully litigated and resulted in a directed verdict for IBM; the judgment was later affirmed by the appeals court,²³ and the Supreme Court denied certiorari.²⁴ *Greyhound* yielded a directed verdict for IBM at the close of the plaintiff's case, was later reversed and remanded by an appeals court, but was settled before the second trial began. *Transamerica* was fully litigated²⁵ and the trial judge entered a directed verdict for IBM; the decision was affirmed on appeal.²⁶ Juries were involved in both *Memorex* and *Transamerica*, but were unable to render a decision. Numerous federal judges have analyzed the issues and arguments and generally the results have been the same. IBM has been acquitted of charges that it monopolized the electronic data processing industry.

III. ISSUES

IBM was one of the pioneers in the development of electronic data processing. Although it was not the first firm to build a computer, it was the first to commit itself fully to the fledgling industry in the 1950's. IBM started from an established base in the office tabulating field, where it was a leader, and quickly rose to prominence along with several other firms in the development of electronic data processing (EDP) systems. It was in the forefront of new technological developments in a relatively short period of time — approximately twenty-five years. IBM did not develop all of the innovations, but it had its share and was quick to capitalize on developments by others, both inside and outside the industry. Its preeminence was hardly disputable, and, in 1964, it brought out the 360 line of electronic data processing systems.²⁷ The development represented an important commitment to developing a full line of compatible hardware, ranging from a relatively small to a very large and powerful system that was fully compatible with support hardware and software. However, it laid the foundation for the subsequent monopoly litiga-

23. *Memorex Corp., etc., et al. v. IBM Corp.*, 636 F.2d 1188 (9th Cir. 1980).

24. 69 L. Ed. 2d 983 (1981).

25. *Transamerica*, 481 F. Supp. 965.

26. *Transamerica Computer Co. v. IBM Corp.*, 698 F.2d 1377 (9th Cir. 1983).

27. For a discussion of the development of the computer industry and particularly the development of the IBM System/360, see FISHER, *supra* note 13, at 5-11. See also, A. McADAMS, *THE COMPUTER INDUSTRY, THE STRUCTURE OF AMERICAN INDUSTRY* (1982).

tion of the 1970's.

This litigation can be identified conveniently as the IBM West Coast cases, since most of the major plaintiffs were headquartered in California and the court trials and subsequent appeals were all in the Ninth Circuit. The *Telex* case was the primary antecedent, and the verdict against IBM at the trial level in the case spawned and encouraged *CalComp*, *Memorex* and *Transamerica*.²⁸

To understand the issues in the West Coast cases it is important to visualize an electronic data processing system. Such a system consists of several devices known as hardware, most notable of which is the central processing unit (CPU). This device performs the calculations involved in a computer process after receiving information from other devices known as peripherals. The CPU produces output that flows to and from other peripherals. The entire process is controlled by software, which tells the CPU and attending peripherals what to do. Systems manufacturers, such as IBM, produce and market all of the hardware and software required to transform the raw information into usable output. Other companies concentrate on producing and marketing one or more of the peripheral devices, such as a disk file, a terminal or a printer. Still others serve as intermediaries, purchasing hardware from systems manufacturers and peripheral companies and remarketing these devices to end users through leasing arrangements. Of the major plaintiffs in the West Coast cases, *CalComp* and *Memorex* were manufacturers of peripheral devices and *Transamerica* was a leasing company that purchased these products from other manufacturers such as *Telex*.

Companies such as *CalComp* and *Memorex* were known as plug-compatible manufacturers (PCMs). These companies produced peripheral devices that could be attached to IBM systems, thereby replacing the corresponding IBM product. For example, *Memorex* would obtain an IBM tape drive or disk drive reverse-engineer the device, and offer it to users of IBM equipment as a substitute for an existing IBM tape or disk drive. During the reverse-engineering process, PCMs sometimes improved the

28. *Telex Corp. v. IBM Corp.*, 367 F. Supp. 258 (N.D. Okla. 1973).

product so it had considerable appeal to users, who could replace an existing IBM device with a PCM device that would either be the equivalent of or an improvement on the IBM product. Since the PCMs had little or no development costs, and since they were duplicating only successful IBM products, they could offer the peripheral at a lower price than IBM's compatible product. The lower price was also necessary to compete against IBM's established reputation for quality products and services. Users of IBM equipment had to be convinced of better price and/or performance in the PCM devices to be induced to make the substitution. Within the electronic data processing industry, therefore, a group of companies developed that staked their success on duplicating IBM peripheral devices and offering them to users at lower prices. The success of this business strategy is evidenced by the fact that in the early 1970's, PCMs were growing rapidly and replacing IBM equipment at an accelerating rate.²⁹

However, this strategy was risky. Essentially it was based on two premises: First, the PCMs could copy the most successful IBM devices rapidly enough to produce sufficient profit to withstand obsolescence of their equipment through new and/or im-

29.

Year	PCM Placements and Revenues			
	Disks		Tapes	
	Spindles	(\$ Million)	(Drives)	(\$ Million)
1968	150	23.7	850	4.3
1969	1,050	80.8	2,950	29.9
1970	4,833	110.6	4,169	135.4
1971	12,402	162.6	5,931	312.3
1972	14,898	183.9	6,962	378.6
1973	22,600	307.8	12,272	689.8
1974	22,600	307.8	12,272	689.8
1975	26,585	352.5	13,607	854.3

Defendant's Exhibit 6515, p. 34, as cited in Brief of Appellee, *Transamerica v. IBM*, 699 F.2d 1377 (9th Cir. 1983) at 16 [hereinafter cited as *IBM's Transamerica Appeals Brief*].

Evidence offered in *Transamerica* showed that PCM list prices for virtually identical products were fifteen to twenty percent below IBM prices and often included discounts off list and other inducements such as free maintenance. In early 1971, IBM's monthly sales of peripherals were only nineteen percent of its projection. During the first five months of 1971, PCM's net installations of 2314 disk-type spindles rose from 2,000 to 6,500. IBM projected that it would lose ninety percent of its leased 2314/2319 disk installations by the end of 1973. *IBM's Transamerica Appeals Brief*, *supra* at 13-14.

proved technology; and second, IBM would not counter this rapidly emerging competition through product innovations and/or price reductions.³⁰ Rather, it was an implicit strategic assumption that IBM would continue to provide a price umbrella over the PCMs that would enable them to flourish by replicating IBM products and offering them at lower prices. The soundness of this strategy and the ultimate results constituted the major issue in the West Coast cases.³¹

As the PCMs grew and prospered, IBM found itself losing peripheral business. Users of IBM equipment on thirty-day lease were replacing that equipment and IBM became alarmed at the quantity of its peripherals coming off lease. Since peripherals account for somewhere between fifty and seventy-five percent of the value of a system, IBM viewed the PCMs as an important competitive threat, so important that it designated peripheral competition as a Key Corporate Strategic Issue and established a high-level executive group to study not only the threat but also some of the companies that individually posed that threat.³² The group, known within IBM as the Peripherals Task Force, had the responsibility of making recommendations as to how IBM could counter the growing competition.³³

Monopoly cases have both structural and behavioral dimensions. The structure centers on the determination of a relevant market while the behavior focuses on the conduct of the alleged monopolist. In many cases market definition is crucial because it is a hurdle the plaintiff must surmount before proceeding to the conduct issues.³⁴ Market definition in the West Coast cases was complex, largely because of the rapid growth and changing technology that characterize electronic data processing. However, it became a secondary issue because the trial and appellate courts simply assumed that IBM had monopoly power and proceeded to analyze its behavior.³⁵ Thus the West Coast cases centered on

30. CalComp, 613 F.2d at 738-40.

31. IBM's Post-Trial Brief, *Transamerica Computer Co. v. IBM Corp.*, Northern District of California, Civil Action No. C-73-1832-RHS, at 4-6 [hereinafter cited as IBM's Transamerica Post-Trial Brief].

32. Appellants' Opening Brief, *Memorex Corp. v. IBM Corp.*, 636 F.2d 1188 (9th Cir. 1980), at 33.

33. *Id.* at 34-37.

34. *Transamerica*, 481 F. Supp. at 974-76.

35. CalComp, 613 F.2d at 738.

conduct. Since even a monopolist can compete, the question became: When a firm has monopoly power in some relevant market, what sort of conduct can it pursue in response to competitive pressures that is not unreasonably restrictive of competition?³⁶

IBM's response to the competitive pressures generated by the PCMs can usefully be analyzed under three categories: (1) price, (2) marketing, and (3) product or technology. The strategies did not exist in isolation; they were interrelated and to some extent sequential. However, understanding is facilitated by looking at each strategy in turn. It must be remembered that price/performance is the key to competition in the electronic data processing industry.³⁷

A. Pricing

As already indicated above, PCM peripheral prices were considerably below those of the IBM equivalents. The principal IBM product that had been replicated by the PCMs was the 2314 disk drive. A disk drive is a device that stores data for processing on vertically stacked disks resembling phonograph records. Heads, which are mounted on arms, fly over the disks and electronically read the data already recorded, or, alternatively, record new data onto the disk. The stacks of disks are called spindles, and a disk drive may contain one or more spindles. The 2314, which was IBM's most popular drive, came in one-, two-, and four-spindle models.

The disk drive is attached to the CPU through a stand-alone device called a controller. The controller serves as an intermediary between the drive and the processor, regulating the input and output of data. The drive and the control unit were marketed together as a subsystem of both IBM and PCMs.

IBM had been developing a process known as "native attachment."³⁸ This process would eliminate the stand-alone control unit and allow the disk drive to attach directly to the CPU,

36. *Id.* at 735-36.

37. FISHER, *supra* note 13, at 131.

38. Appellee's Brief, *supra* note 32, at 48-50.

thereby saving costs and improving performance. This process was known as "Apricot," and the interface for native attachment was the same as the one between IBM's disk drives and their control units. The interface between the control unit and the CPU had been copied by the PCMs which enabled their subsystem (drive plus control unit) to attach to the IBM CPU. However, since the PCMs were interested only in attaching to the CPU, they had not copied the interface between IBM's disk drive and control unit.³⁹

This did not present a problem for the PCMs, however, because the Apricot interface was known in the marketplace and could have been duplicated by the PCMs had it been chosen by IBM for the native attachment.⁴⁰ Instead, IBM developed a new interface, designated "Mallard," which would be used with its new disk drive, the 2319A.⁴¹ This drive was a remanufactured four-spindle 2314 with one spindle removed in order to house the electronics which permitted native attachment through the Mallard interface.⁴²

The 2319A was IBM's initial response to the competitive inroads of the PCMs. This disk drive attached natively to two of the most popular models of the 370 CPU through the Mallard interface. Since the 2319A was a reuse of the displaced 2314 drive without a controller, it could be priced below it. The price chosen was \$1,000 per month rental for the three-spindle drive.⁴³ This price narrowed considerably the differential between IBM and its PCM competitors. Moreover, the PCMs could not attach their substitutes to the 370 CPU without reengineering the interface. They charged IBM with predatory behavior designed to halt the growing PCM displacement of the IBM disk drives.⁴⁴ Prices were alleged to be predatory, since PCMs were forced to reduce the prices of their 2314 substitutes, and the product was

39. IBM's Transamerica Appeals Brief, *supra* note 29, at 82.

40. *Id.* at 83.

41. *Id.* at 84.

42. Transamerica, 481 F. Supp. at 1004-5.

43. The lower price for the 2319A stemmed from the reuse program. The marginal cost of converting a displaced 2314 to a 2319A was considerably below the cost of developing an entirely new drive. Hence, the price could be lower and, even if the performance was constant, users still would find the 2319A attractive because of a better price/performance ratio.

44. Transamerica, 481 F. Supp. at 1004-5.

said to be predatory because the new interface precluded them from attaching their drives.

1. Was IBM's Pricing Predatory?

Since the turn-of-the-century monopoly cases of *Standard Oil*⁴⁵ and *American Tobacco*,⁴⁶ predatory pricing has been recognized as an abuse of monopoly power. A firm might sell a product below its costs, deliberately incurring short-term losses, until rivals are sufficiently disciplined or driven from the marketplace. Then the predator can raise the price to the monopoly level, thereby ensuring above-normal profits. Economists, however, have questioned the rationality of this behavior. The predator would need a "deep pocket" to sustain the losses until rivals are eliminated.⁴⁷ Moreover, once the price is raised to the monopoly level, new firms will enter the market or older ones will reappear and the predator must repeat the process. It might be cheaper simply to buy out the rivals one is trying to eliminate.

Concern over the prevalence of predatory pricing and a method of determining when it exists led to the famous "Areeda-Turner" rule.⁴⁸ Professors Areeda and Turner, using conventional microeconomic analysis, argued that a cost-based test should be used.⁴⁹ Prices are predatory if they are below marginal cost, or as an alternative, average variable cost. These costs belong to the predator, not the rival. Prices below the rival's marginal or average variable costs but above the alleged predator's are not predatory but merely serve to impact or eliminate a less efficient rival.⁵⁰ Presumably, this provides an objective standard that permits decision-makers to predict the legal

45. *Standard Oil v. U.S.*, 221 U.S. 1.

46. *U.S. v. American Tobacco Co.*, 221 U.S. 106 (1911).

47. McGee, *Predatory Price Cutting: The Standard Oil (N.J.) Case*, 1 JOURNAL OF LAW AND ECONOMICS 137 (1958). See also Koller, *The Myth of Predatory Pricing*, 4 ANTI-TRUST LAW AND ECONOMICS REVIEW 105 (1971).

48. Areeda and Turner, *Predatory Pricing and Related Practices Under Section 2 of the Sherman Act*, 88 HARV. L. REV. 697 (1975).

49. The literature on predatory pricing is voluminous. For a good summary see HAY, A CONFUSED LAWYER'S GUIDE TO THE PREDATORY PRICING LITERATURE, STRATEGY, PREDATION AND ANTITRUST ANALYSIS, (Federal Trade Commission) (1981) and the numerous citations therein.

50. Areeda and Turner, *supra* note 48, at 709.

consequences of their acts.⁵¹

In the West Coast cases, plaintiffs argued that IBM's pricing of the 2319A was predatory, designed to inflict maximum damage on the PCMs.⁵² This price, according to the PCMs, was chosen after careful study of their costs and prices and was set low enough to ensure that if they responded with even lower prices, their profits would be seriously impaired.⁵³

In cases in the Ninth Circuit, the Areeda-Turner rule had been used as a test for predatory pricing.⁵⁴ Consequently, the PCMs had to show that IBM's prices were below its marginal or average variable costs. In neither *CalComp* nor *Memorex* did the plaintiff offer evidence to support this claim. Transamerica attempted to show predatory pricing by an after-the-fact analysis of IBM's internal pricing procedures.⁵⁵ Like most firms, IBM had a formalized procedure for arriving at announcement prices for new products. This procedure relied on expected demand, product life, direct manufacturing costs, and an allocation of indirect costs based on some standard, in this case revenue apportionment.⁵⁶ Based on this procedure, IBM argued that the announcement price chosen for the 2319A was above its costs and therefore expected to be profitable.⁵⁷ Since IBM followed its usual pricing procedure and the PCMs did not offer evidence showing prices below IBM's cost, the courts rejected the predatory pricing allegation.⁵⁸ In addition, in *Memorex* a meeting-competition rule was promulgated (MC/AVC). Even a firm with monopoly power is permitted to respond to competition by reducing prices absent any showing that the prices were below

51. *Id.* at 698.

52. In addition, since the PCMs argued that the 2319A and the 2314 disk file were the same product, they alleged that the lower price on the 2319A was also discriminatory. The weakness of this argument is discussed in FISHER, *supra* note 13, at 316-17.

53. Appellants' Opening Brief, *supra* note 32, at 46.

54. *Hansen v. Shell Oil Co.*, 541 F.2d 1352 (9th Cir. 1976); *Janich Bros., Inc. v. American Distilling Co.*, 570 F.2d 848 (9th Cir. 1977); *Murphy Tugboat Co. v. Crowley*, 467 F. Supp. 841 (1979) *aff'd* 658 F.2d 1256 (9th Cir. 1981).

55. Transamerica's Opening Post-Trial Brief, 481 F. Supp. 695 (N.D. Cal. 1979) at 109-112.

56. Transamerica, 481 F. Supp. at 997-98.

57. IBM's Transamerica Post-Trial Brief, 481 F. Supp. 965 (N.D. Cal. 1979) at 34-45.

58. *Memorex*, 458 F. Supp. at 431.

marginal or average variable costs.⁵⁹ In the course of developing this cost-based rule of meeting competition, several variations emerged.

In *CalComp*, for example, the court indicated a somewhat stronger standard than the MC/AVC rule. It noted that prices might be predatory if they were above MC/AVC but below the short-run profit maximizing price provided entry barriers were high.⁶⁰ This standard is analogous to the economic concept of "limit pricing," where a firm sets a price to deter the entry of new firms or the expansion of existing firms. Presumably this price is above its own costs, but below those of a potential entrant or a less efficient rival.

However, the *Memorex* court rejected this possibility, noting that the record did not support the conjecture that IBM was pursuing a limit price strategy, primarily because of the absence of significant entry barriers.⁶¹ Indeed, the record of rapid entry of new firms into all areas of electronic data processing was overwhelming.

The *Transamerica* court promulgated a more rigorous cost test than the Areeda-Turner rule. It required that prices equal or exceed average total costs.⁶² The plaintiff, Transamerica, attempted to show that IBM's pricing procedure would always produce prices that exceed average total cost and, moreover, that costs were improperly determined. The court rejected these after-the-fact adjustments, citing IBM's use of its normal pricing procedure.

In summary, on the pricing issue, the *CalComp*, *Memorex*, and *Transamerica* courts were unanimous in rejecting plaintiffs' claims of predatory pricing. IBM's evidence that prices set at announcement, based on a standard pricing procedure, were expected to produce substantial profits and follow-up studies showing actual profitability sufficiently rebutted the predatory pricing allegation.

59. *Id.*

60. *CalComp*, 613 F.2d at 742-43.

61. *Memorex*, 458 F. Supp. at 433.

62. *Transamerica*, 481 F. Supp. at 995.

B. *Technology*

The plaintiffs in the West Coast cases attacked the 2319A (and its counterpart, the 2319B) as a product manipulation, the sole purpose of which was to preclude the PCMs from attaching their IBM copies to the 370 and 360 CPUs. They argued that IBM had no new technology available to combat the competition of the PCMs and therefore attempted to buy some time by developing a product that did not have improved technology but simply made life more difficult for their rivals. Moreover, they argued that IBM switched from the planned use of the interface Apricot, whose electronics were known, to Mallard, whose electronics were not, simply to preclude further PCM penetration of the peripheral market.

IBM's response to these allegations centered, as might be expected, on the technical improvements in the disk drives and their overall enhancement of the IBM systems. In a rapidly changing technological environment, it is inevitable that engineers will differ as to the appropriate design change. Even within IBM disagreement occurred, a fact strongly emphasized by the plaintiffs. The abandonment of one approach to attaching disk drives (Apricot) for another (Mallard) was cited by the plaintiffs as evidence that IBM chose the design most disadvantageous to the PCMs. This design, however, could be construed as most advantageous to IBM from an overall competitive viewpoint, given the fact that peripherals account for such an important part of an electronic data processing system.

The issue of choice among alternative strategies, in this instance involving the interface, was an important element in determining the extent to which a monopolist can respond to growing competition that is eroding its market position. In the dispute over the choice of Mallard over Apricot, plaintiffs in the West Coast cases argued that, since the Apricot interface could be more easily replicated, it should have been chosen. It represented a "softer alternative," a choice that would generate weaker competitive pressures. The *CalComp* court dealt with this issue forthrightly when it observed:

IBM, assuming it was a monopolist, had the right to redesign its products to make them more attractive to buyers — whether by reason of lower

manufacturing cost and price or improved performance. It was under no duty to help CalComp or other peripheral equipment manufacturers survive or expand. IBM need not have provided its rivals with disk products to examine and copy nor have constricted its product development so as to facilitate sales of rival products.⁶³

Specifically, IBM argued that the native attachment aspect of the 2319A offered cost savings in general, and putting part of the disk control electronics in the drive simplified maintenance, freed space in the central processor for other features and allowed for growth and possible future design modifications.⁶⁴ Either of the proposals for native attachment would have required an interface modification by the PCMs to permit their substitute 2314 drives to attach to the 370 intermediate systems. PCMs argued that it would have been easier to modify their products to attach under the Apricot program than under the Mallard program, both from a cost and time standpoint.⁶⁵ However, IBM produced evidence that showed that the modification of the 2319A was relatively easy, requiring approximately thirty days of engineering effort.⁶⁶

The nub of the dispute over design changes was both engineering and economic. In the latter case, the question was simply whether it would be more profitable for the PCMs to devote resources to reengineering their products to cope with the interface changes of 2319A or continue to produce their 2314 disk and controller subsystem that could still attach to all of the 370 systems as previously. With the price advantage the PCMs enjoyed over IBM's compatible 2314 drives, fulfilling replacement orders, of which a backlog existed, seemed more profitable.⁶⁷

Thus, the court in *Memorex*⁶⁸ refused to become enmeshed in an engineering dispute as to which design, Apricot or Mallard, was preferable, and which design would have the least competi-

63. CalComp, 613 F.2d at 744.

64. Transamerica, 481 F. Supp. at 1004-05.

65. *Id.*

66. IBM's Transamerica Appeals Brief, *supra* note 29, at 83.

67. *Id.*

68. *Memorex*, 458 F. Supp. at 439.

tive impact on the PCMs. It resolved the issue in favor of IBM on the grounds that the changes were based on sound engineering judgment and represented a competitive response by IBM to growing competition in disk drives and complete systems.⁶⁹

1. Other Design Changes⁷⁰

IBM's response to competition of PCMs in the area of disk products was also adopted in tape drives. Older products were superseded by technologically improved products which were sold or leased at lower prices. PCM plaintiffs attacked this strategy as simply "old wine in new bottles," the purpose of which was to destroy PCM competition through a disguised price cut.⁷¹ Specifically, IBM announced a tape subsystem consisting of a new control unit (the 3803) and a new drive (the 3420). The entire project was code-named "Aspen."⁷² PCM plaintiffs did not dispute the technical superiority of the control unit but argued that the tape drive was simply a refurbished drive of older technology which required a new interface between the drive and the controller and thus precluded the PCMs from attaching their tape drives of the older technology to the new controller.⁷³ IBM argued that, because the new controller was a superior product, it required a new interface to work with the tape drive, and therefore a new tape drive was necessary.⁷⁴ As to pricing, the Aspen system was profitable. Moreover, PCMs were not precluded from attaching their new tape drives, and one PCM (Telex) announced an Aspen copy in short order. The trial court in *Transamerica* found Aspen to be a product improvement offered at a lower price and consequently a reasonable response to competition, noting that the antitrust laws do not protect competitors from product competition.⁷⁵

Another reuse program for tape drives (Mandan) involved similar issues. Older model tape drives had been returned to

69. *Id.* at 440.

70. Other design changes and their impact are discussed in *Transamerica*, 481 F. Supp. at 1003-8.

71. *Id.* at 1004-05.

72. *Id.* at 1005.

73. *Id.*

74. IBM's *Transamerica* Appeals Brief, *supra* note 29, at 94.

75. *Transamerica*, 481 F. Supp. at 1004.

IBM from lease. Rather than incur the expense of storage or scrapping, IBM reused the older drives by changing seven wires and offered the new drive to customers who preferred a lower-cost alternative to Aspen.⁷⁶ The *Transamerica* trial court found that the interface change did not preclude PCMs from attaching their drives to the control unit had they wished to make the disclosed changes in the older technology drives.⁷⁷ Therefore, Mandan was a project which produced a tape drive of at least equal if not superior quality at a lower price.

The final product design change alleged by the PCMs to have been undertaken by IBM to destroy competition involved new central processors. In 1972 and 1973 IBM announced two new models in the 370 family of computers. These models were the smallest in the product line.⁷⁸ The PCMs argued that the products were deliberately degraded by IBM to prevent attachment of PCM peripherals.⁷⁹ This was accomplished, according to the PCMs, by failing to include an optional selector channel and also by supplying a slower byte multiplexor channel than had been previously planned.⁸⁰ These designs were alleged to have prevented the PCMs from attaching older technology tape and disk drives to the new 370 processors. The *Transamerica* trial court determined that IBM had indeed investigated removing the selector channel primarily to preclude PCM attachment but, in the course of the investigation, found the selector channel to be unnecessary from the standpoint of attaching the IBM tape and disk drives designed for the new CPUs.⁸¹ By eliminating it, IBM saved time and development expense. The tape and disk drives designed to work with the new processors were natively attached and offered better performance at lower prices than the older PCM (and IBM) technology. The *Memorex* trial court, in addressing this issue, stated: "[T]he DDA (the native attachment electronics on the 115 and 125s) was a product innovation, and that IBM was not required to provide a channel on the 125 and 115 to facilitate attachment of Memorex products."⁸² The

76. *Id.* at 1003-04.

77. *Id.*

78. *Id.* at 1006.

79. *Id.*

80. *Id.* at 1007-08.

81. *Id.*

82. *Memorex*, 458 F. Supp. at 443.

byte multiplexor channel was found by the *Transamerica* trial court to be too slow in accommodating PCM tape drives.⁸³ Had IBM proceeded with the original plans for a faster byte multiplexor on the 370 processors, PCM drives would have attached. IBM argued that engineering problems caused the slowing, but the trial court rejected this explanation and found that the degradation of the multiplexor was undertaken by IBM solely to preclude PCM competition.⁸⁴ This would have been a Section 2 violation had IBM possessed monopoly power.⁸⁵ However, since no finding was made as to IBM's monopoly power, the conduct was moot. The trial court also found, however, that Transamerica suffered no damage from this conduct since it did not attempt to develop peripherals to attach to the 155/125s.⁸⁶ This finding in *Transamerica* is at variance with the *CalComp* dictum that IBM did not have to orient its product development to assist competitors.

C. Marketing

Despite the introduction of the 2319A and 2319B, IBM continued to lose placements to the PCMs, who counterattacked by lowering prices on their 2314 copies.⁸⁷ These price cuts occurred sooner and were deeper than anticipated. Users continued to have three options in choosing storage capability for their 370 and 360 systems. They could purchase the IBM subsystem (the 2314), they could choose the PCM copy at a significantly lower price, or they could opt for the 2319 device if native attachment was preferred. Many continued to choose the PCM alternative and IBM continued to experience significant returns of their leased 2314 disk drives.⁸⁸

PCM competition continued to be an ongoing problem for IBM management, and new ways were sought to combat it. After continued study, including some simulations of the impact on selected PCMs, IBM abandoned its long-standing marketing policy of leasing equipment for only thirty days and introduced

83. *Transamerica*, 481 F. Supp. at 1007.

84. *Id.* at 1008.

85. *Id.*

86. *Id.* at 1013.

87. *Memorex*, 458 F. Supp. at 437.

88. IBM's *Transamerica* Brief, *supra* note 29, at 1007.

a long-term lease arrangement known as the Fixed Term Plan (FTP).⁸⁹ To appreciate the importance of this change in marketing strategy, one must understand the importance of leasing in the electronic data processing industry.

IBM pioneered the use of the "risk lease," a thirty-day leasing period which permitted the user of electronic data processing equipment to change equipment and suppliers in a short period of time.⁹⁰ This concept was beneficial to the user because it permitted a rapid response to changing data-processing needs and allowed users to switch to newer and improved technology as it developed. It benefited suppliers like IBM by making it easier for users to migrate to new equipment. Once a user had installed a given manufacturer's system, the user would be inclined to consider replacing that equipment with updated and improved versions from the same manufacturer.

The risk lease also opened the door for the PCMs. After copying IBM's most successful products, a PCM could confront a user with an equivalent product at a lower price. Constrained only by a thirty-day lease, the user could easily switch from IBM storage devices to PCM devices and suffer no loss in performance. The risk lease concept was largely responsible for the significant development and growth of PCM competition.

1. Fixed Term Plan

IBM was the last holdout in the electronic data processing industry for thirty-day leases.⁹¹ After a special study by another IBM task force of additional strategies for countering continued PCM competition, a long-term lease plan was introduced as an option for users. The plan, called FTP (fixed term plan), and ETP (extended term plan) provided for a considerable reduction in lease prices for users who agreed to sign a one-year or two-year lease on the equipment. The plan embodied cancellation charges equivalent to what the user would have paid for a thirty-day lease.⁹²

89. *Memorex*, 458 F. Supp. at 437.

90. For a thorough discussion of the economics of leasing, see *FISHER*, *supra* note 13, at 191.

91. IBM's Transamerica Post-Trial Brief, *supra* note 57, at 68.

92. *Id.* at 69.

FTP and ETP applied to peripheral products subject to the strongest competition by PCMs and could be viewed as a price cut fostered by lower marketing costs. Users on long-term lease plans did not require frequent visits by sales representatives in order to prevent the cancellation of thirty-day leases. Other firms in the electronic data processing industry employed long-term lease plans and the PCMs had made them the cornerstone of their competitive strategies. Some PCMs even offered leases of up to five years with corresponding price reduction. Was IBM's adoption of a common industry marketing activity predatory, as alleged by the PCMs, or was it a reasonable response to competition as alleged by IBM?

This question is answered by reviewing the impact of FTP on IBM revenues. In all of the West Coast cases, evidence was presented showing that IBM revenues would be reduced for a two-year period.⁹³ However, following this reduction, the plan was projected to return an increase in revenue and profit through expanded demand and increased volume, which would overcome the effect of the discount.⁹⁴ The decrease in revenue over the first two years of FTP was cited by plaintiffs as a classic "short-run reduction in revenue" designed to drive out competitors, with the implication that prices subsequently would be raised to higher levels to increase profit.⁹⁵ The IBM profit projections, however, assumed no price change after the initial FTP reduction and it was obvious that FTP would produce a higher level of profit over the long run than would be the case if IBM had maintained the pre-FTP price levels.⁹⁶ Although the profitability of individual products under FTP varied, the overall profitability of the entire FTP program was estimated by IBM to be twenty-four percent of revenue.⁹⁷ In no case did FTP make any product unprofitable.

In all of the West Coast cases FTP was carefully scrutinized, and in every case it was judged to be a price cut that was substantially profitable for IBM and also a price cut that was

93. *Memorex*, 458 F. Supp. at 438.

94. IBM's Transamerica Post-Trial Brief, *supra* note 57, at 65.

95. Appellants' Opening Brief, *supra* note 32, at 63.

96. Appellee's Brief, *supra* note 32, at 37.

97. IBM's Transamerica Post-Trial Brief, *supra* note 57, at 68.

made in response to competition generated by the PCMs.⁹⁸ Testimony by both plaintiffs' and defendants' witnesses confirmed the fact that IBM was rapidly losing business to the PCMs. For example, a *Memorex* witness testified that unless IBM became more price competitive, Memorex stood to lose between seventy to eighty percent of its disk business.⁹⁹

The lower IBM prices under FTP still were higher than those of the PCMs. Since predatory pricing means that the predator's prices are below its own costs (average variable or average total)¹⁰⁰ and it was demonstrated that IBM's prices were not only profitable but above its costs, the fact that the prices after FTP were higher than PCM prices confirms that the price cuts were not below PCM's costs. Hence, after FTP, the PCMs still had a price advantage, though it was narrower than before.¹⁰¹

D. Summary of the Conduct Issues

The strategic response by IBM to the competitive pressure of PCM products in the time period 1970-73 centered on the fact that the critical issue for the user of computer products, in making choices among devices to configure or augment an electronic data processing system, is the ratio of price to performance.¹⁰² Improved performance at the same price, equivalent performance at a lower price, or ultimately superior performance at a lower price are the central issues in the competitive process. This had formed the basis for the growing competitive strength of the PCMs in the peripherals area. By copying successful IBM machines, the PCMs offered lower prices for equivalent performance and in some instances improved performance at lower prices. To combat the loss of its peripheral business, IBM followed the same strategy. It redesigned its products and offered them at lower prices. It changed its traditional marketing methods and offered long-term leases on its products at lower prices. Its product designs were shown to have technological justification rather than superficial product manipulation. Users were af-

98. CalComp, 613 F.2d at 741-42.

99. Appellee's Brief, *supra* note 32, at 27.

100. Transamerica, 481 F. Supp. at 995-6.

101. *Id.* at 1003-04.

102. Fisher, *supra* note 138-141.

forded additional options. In the case of the 2319A, users were not forced to take the native attachment technology. They could still use the 2314 disk drive technology. Users of the 360 system could substitute 2319B technology if they desired a certain configuration of drives, but retain the 2314s if other configurations were desirable. Finally, if the design changes made by IBM did not produce better price and/or performance, the user could change devices or even complete systems.

Long-term leases afforded another option. If a user was not concerned about new technology superceding old, such user could opt for a long-term lease at lower prices. If concern existed, the thirty-day lease plan could be retained.

The issues litigated in all of the West Coast cases were essentially those described above. Twelve federal judges (three at the trial level and nine at the appeals level) unanimously agreed that IBM's conduct, even assuming it had monopoly power, was a manifestation of the competitive process, finding the end result an enhancement of user welfare through better products at lower prices.¹⁰³

Did IBM's actions increase competitive pressure on the PCMs? Unquestionably it did. PCMs were forced to lower the prices of their peripherals and to copy the new IBM products just as they had copied the old, and their profitability was endangered. Some of the PCMs succumbed to the competitive pressures and exited the market. Others regrouped and continued to compete successfully.¹⁰⁴

The basic premise on which the PCMs entered the peripherals market ultimately proved to be incorrect. IBM did not remain passive, protecting the growth of new competition with a price umbrella and static technology. Rather it responded with price reductions, a new marketing strategy, and improved technology — all manifestations of a dynamic competitive process.

103. At the trial level, Judges McNichols (CalComp), Conti (Memorex), and Schnacke (Transamerica) issued directed verdicts for IBM. At the appeals level, for each of the three cases, a three-judge panel affirmed.

104. For a discussion of the activities of the PCMs in the 1970s, see McAdams, *supra*, at 294-295.

IV. THE WEST COAST CASES AND COMPETITIVE BEHAVIOR

A review of the West Coast decisions sheds light on the process of competition in a market situation where technology is advancing rapidly, where entry into the market is relatively easy, where buyers have access to multiple options for satisfying their needs, and where the leading firm could not maintain its industry position without responding to new competition. The record in these cases aptly illustrates the action and reaction among firms that the competitive process is designed to foster.¹⁰⁵

Have the West Coast decisions changed the law on monopoly? Or have they clarified and perhaps advanced the existing state of monopoly law as it is applied in a rapidly changing market where such change is fostered, indeed compelled, by new and improved technology? Never before have the courts confronted market definition and market conduct issues where rapid technological change was such a pervasive element in the competitive process. The electronic data processing industry was not like those of petroleum, steel, aluminum, shoe machinery, fire alarms, or cellophane. This industry, in the space of twenty-five years, had undergone significant and rapid technological change, resulting in a panoply of products and services and a dramatic decline in the cost of information processing. The pace of technological change obviously had the following competitive effects by requiring: (1) firms to seek and adopt new ways of performing the computing functions; (2) firms to pursue product excellence through improved performance; (3) firms to seek and adopt new ways of performing the computing function; (4) continued re-evaluation of prices, since price/performance was the key to firm profitability and survival; and (5) firms to respond to emerging competition from a variety of sources — leasing companies, time-sharing, service bureaus, mini-computers, microprocessors, plug-compatible processors and peripherals, and software development.

Thus it can be seen that electronic data processing was an industry in ferment. Change was the norm, not the exception. The rapid development of new products and new ways of satis-

105. For insights into this process see Fisher, "Diagnosing Monopoly," 19 *Quarterly Journal of Economics and Business* 7 (1979).

fying user needs was a continuous process, forcing firms to scramble for market position. The conduct of the leading firm, IBM, must be analyzed in this context. IBM had developed the disk drive and initially had 100 percent of the market. Unquestionably, since disks were a superior storage device, they were a highly profitable aspect of IBM's business. New competition in the form of PCMs perceived an opportunity to enter the disk market and compete with the industry leader by copying its successful products and offering them to users as replacements. Because of lower production costs, the PCMs offered lower prices and made significant inroads into IBM's disk market placements. Recognizing the competitive threat, IBM formulated strategies to head off this growing competition in order to retain its market position. These strategies took the form of price reductions, product design changes, and marketing methods. PCMs had entered the disk submarket on the assumption that IBM would not respond to their competition in the price area, i.e., they assumed that IBM would leave its prices unchanged, thus providing a price umbrella under which they could flourish. This assumption proved incorrect. Thus the West Coast cases developed and provided the courts an opportunity to apply current monopoly law to a new environment. The result was a clarification of what a leading firm in a dynamic industry may do in response to competitive pressure.

The well-known dictum from *Alcoa*, often quoted but rarely applied, emerges as a major factor in the new approach to monopoly stemming from the West Coast cases: "The successful competitor, having been urged to compete, must not be turned upon when he wins."¹⁰⁶

Was IBM a successful competitor? What tactics can a firm with assumed monopoly power pursue? The fashioning of a legal rule to govern a large firm's conduct is difficult and imprecise. However, the West Coast cases seemingly have broadened this conduct to include a strategic combination of price, product modification, and marketing approaches that are made in response to competition and are designed to maintain or improve the large firm's market position.

106. *U.S. v. Aluminum Co. of America*, *supra*, at 480.

The *Transamerica* court spoke for all of the Ninth Circuit judges when it said:

It is an unwise policy for the law to coddle competitors, especially if the protection comes at the expense of destroying a larger firm's incentive to compete. Even companies that choose to enter dominated markets must be prepared to face competition on the merits. Where a monopolist chooses an alternative that does not unreasonably restrict competition, the law is not offended. It is the choice of an unreasonable alternative not the failure to choose the least restrictive alternative, that leads to liability.¹⁰⁷

Further, it said:

IBM did not lie dead in the water when faced with competition. It took action. And the action it took may have caused some competitors to suffer more than other actions would have. But the action IBM took, under the circumstances in which it acted, did not unreasonably restrict competition, and thus did not violate the law.¹⁰⁸

Thus, the West Coast cases helped to clarify and advance the state of monopoly law, especially as applied to a rapidly changing industry where the industry leader must respond to competitive pressures emanating from smaller firms seeking to erode that leading position. The cases, building on the *Alcoa/United Shoe/Grinnell* tests, avoided equating monopoly power with market share and focused on market conduct and the resulting market performance. Determining that IBM's conduct produced lower prices, superior products that enhanced user choice, and alternative terms for acquiring those products, the courts in the West Coast cases emphasized that these are the results expected from competition, not monopoly.

The cases established the premise that for conduct to be anticompetitive, it must produce results that are inconsistent with competition — higher prices and inferior products plus failure to adjust to user demands. None of these were present in the West

107. *Transamerica*, *supra*, at 1022.

108. *Id.*

Coast cases. The fact that individual competitors suffered discomfort in the form of lower profits or perhaps eventual exit from the market does not suggest the use of monopoly power. In *CalComp*, *Memorex*, and *Transamerica* the issue was competition, not competitors, and the outcomes were consistent with traditional economic analysis.