The National Cooperative Research Act of 1984: A New Antitrust Regime for Joint Research and Development Ventures

Christopher O.B. Wright

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# COMMENTS

**THE NATIONAL COOPERATIVE RESEARCH ACT OF 1984: A NEW ANTITRUST REGIME FOR JOINT RESEARCH AND DEVELOPMENT VENTURES**

**BY CHRISTOPHER O.B. WRIGHT**

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THE NATIONAL COOPERATIVE RESEARCH ACT OF 1984: A NEW ANTITRUST REGIME FOR JOINT RESEARCH AND DEVELOPMENT VENTURES

BY CHRISTOPHER O.B. WRIGHT

INTRODUCTION

The National Cooperative Research Act of 1984 (the "Act") grants special treatment under the antitrust laws to joint research and development ("R&D") ventures which are conducting basic research, theoretical analysis, experimentation or testing of a scientific or technical nature. The National Cooperative Research Act is the first Congressional statement of the status of joint ventures formed for research and development purposes under the federal antitrust laws. The Act declares that joint research and development ventures are not per se illegal, and instructs courts that any anticompetitive conduct of joint R&D ventures should be judged under a "reasonableness" test which balances procompetitive and anticompetitive effects to determine antitrust legality. The Act does not provide antitrust immunity for joint R&D ventures, but instead provides that if a joint R&D venture registers with the Justice

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† J.D. 1986, Boalt Hall School of Law, University of California, Berkeley; A.B. 1981 Stanford University. The author wishes to thank Executive Editor Allan Schare and the other members of the Editorial Board of High Technology Law Journal, as well as Professors Thomas M. Jorde and Lawrence A. Sullivan, for their assistance in the preparation of this Comment.


2. "Joint research and development ventures" and "joint R&D ventures" are used in this Comment to denote joint ventures that conform with the Act's definitions. See 15 U.S.C. § 4301(a)(6) and 15 U.S.C. § 4301(b). The term "research joint venture" will be used to denote research ventures without regard to the definitions or requirements of the Act.


Department and the Federal Trade Commission and is subsequently found to have engaged in illegal conduct, it is shielded from potential treble damage awards. The Act limits recovery by private plaintiffs for injuries due to the anticompetitive actions of a joint R&D venture to the actual damages sustained by such persons,\(^5\) and to further discourage private suits against joint R&D ventures, the Act requires attorney's fees to be paid to prevailing defendants in certain circumstances.\(^6\)

The law was passed by unanimous votes in both houses of Congress, and was hailed as one of the most important pieces of legislation to be passed in the 98th Congress.\(^7\) In adopting the National Cooperative Research Act, Congress sought to remove any uncertainty on the part of American business as to the antitrust standards applicable to research joint ventures. Proponents of the Act believed that American competitiveness in international markets would be enhanced if companies were encouraged to pool their research and development resources in a cooperative manner. Their optimistic views were supported by the former Chief of the Antitrust Division of the United States Department of Justice who predicted that ""[t]he net result of the Act will be an increase in R&D activity and a quickening of the pace of innovation, to the benefit of the American economy."\(^8\)

This Comment will begin by presenting in Section I the legislative history of the National Cooperative Research Act. In order to evaluate Congressional perceptions and motivations, the research joint venture business form will then be described and prior antitrust treatment of research joint ventures will be analyzed in the context of the Act's legislative history. The antitrust treatment of joint R&D ventures under the National Cooperative Research Act will be presented in Section II, followed by a discussion in Section III of private industry response and Justice Department implementation of the Act. Section IV will consider whether Congress fully achieved its goal of removing uncertainty in the law, and will suggest amendments to the National Cooperative Research Act designed to minimize the anticompetitive risks associated with research joint ventures. The final section of this Comment will argue that the National Cooperative Research Act should not serve as precedent for further relaxation of the federal antitrust laws, as some have

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argued, at least not until there has been more time to evaluate the Act's impacts.

I. PRELUDE TO NEW ANTITRUST TREATMENT OF RESEARCH JOINT VENTURES

A. Legislative History of the National Cooperative Research Act

Antitrust exemptions for research joint ventures were considered by the Federal Government as early as 1979, but the first concerted Congressional efforts to promote cooperative research among American corporations by modifying the antitrust laws began in 1983 and spanned the entire term of the 98th Congress. The House and Senate Judiciary Committees considered ten different joint R&D bills during the next eighteen months, including the National Productivity and Innovation Act, President Reagan's proposed legislation to modify the antitrust laws. Legislation providing special antitrust treatment for joint R&D ventures passed the U.S. House of Representatives on May 1, 1984, by a unanimous roll call vote of 417 to 0. Similar legislation was passed by the U.S. Senate on July 31, 1984, by a unanimous vote of 97 to 0. A joint conference committee was appointed and presented its conference report on September 21, 1984. The conference report was


12. For a comparison of these different bills, see Crane, Joint Research and Development Ventures and The Antitrust Laws, 21 HARV. J. ON LEGIS. 405, 442-53 (1984).


15. 130 CONG. REC. H3216 (daily ed. May 1, 1984).


18. 130 CONG. REC. H9939 (daily ed. Sept. 21, 1984). The primary issues that were resolved in Conference Committee concerned (1) the definition of qualifying joint research and development ventures; (2) the scope of the notification requirement; and (3) the awarding of attorney's fees to prevailing defendants. See 130 CONG. REC. H10565-66 (daily ed. Oct. 1, 1984) (statement of Rep. Rodino). The Conferrees also agreed on a new short title for the legislation, the National Cooperative Research Act of
approved by the Senate on September 26, 1984, \textsuperscript{19} and, in one of the last official acts of the 98th Congress, the House of Representatives adopted the conference report on October 1, 1984. \textsuperscript{20}

Bipartisan support for the National Cooperative Research Act was based primarily on a belief that the legislation was a major step forward in improving America's international competitiveness. \textsuperscript{21} Congressman Carlos Moorhead (R.-Cal.) stated during a floor debate on the National Cooperative Research Act that "the overriding purpose of [the bill] is to encourage American companies to compete more effectively in the international marketplace [and that] all of the provisions of this legislation should be interpreted in a manner consistent with that overriding purpose and intent." \textsuperscript{22} Furthermore, the bill was not considered to be solely a "high technology" bill, because the benefits of the statute were to be available to traditional industries such as steel, automobiles and pharmaceuticals. \textsuperscript{23}

The declining competitive position of American firms in the world marketplace was dramatically apparent in escalating trade deficits and declining market shares in traditional areas of American preeminence. In 1984, while the legislation was under consideration, the broadest measure of the nation's trade deficit, the current account, was running in excess of $25 billion per quarter for an annual total in excess of $100 billion. \textsuperscript{24} In the high technology area, the United States during the period 1965 to 1980 lost world market share in seven out of ten industrial sectors, including electronics, professional and scientific instruments, medicine and plastics. \textsuperscript{25}

U.S. competitiveness in high technology sectors had been deteriorating since before the post-1980 appreciation of the dollar, which suggested a general weakness in the technological performance of the

\textsuperscript{19} 130 CONG. REC. S11845 (daily ed. Sept. 26, 1984).
\textsuperscript{21} 130 CONG. REC. H10567 (daily ed. Oct. 1, 1984) (statement of Rep. Fish) ("All [of the different joint R&D bills considered by Congress] had a common objective: to enable American companies to compete in the world marketplace in the 1980's and beyond.").
\textsuperscript{23} Id.
U.S. economy.\textsuperscript{26} This diminished technological competitiveness on the part of American firms corresponded with a decline in the levels of overall R\&D spending.\textsuperscript{27} International competitiveness is highly correlated with R\&D funding: firms that devote a small portion of their revenues to R\&D tend to be poor competitors internationally, while firms that are strongly committed to R\&D tend to be highly competitive in global markets.\textsuperscript{28} The proponents of the National Cooperative Research Act argued that underinvestment in R\&D and declining technological competitiveness were due to a reluctance on the part of American firms to enter research joint ventures because of their fear of antitrust liability for treble damages.\textsuperscript{29}

In considering antitrust exemptions for cooperative research ventures, some members of Congress seemed particularly concerned that American antitrust laws were much stricter than those of our competitors. "Our major trading partners—Japan, Germany, and France, for example—have all sanctioned collaborative efforts on research and development," noted Congressman Henry Hyde (R.-Ill.) during Congressional debates.\textsuperscript{30} Senator Dennis DeConcini (D.-Ariz.) said: "Of particular concern is that Japanese antitrust law does not prohibit companies from conducting joint research and development in such areas as computers, microelectronics, electronic instruments, optical communications, lasers, robots, and aerospace."\textsuperscript{31}

Congress' assessment of the antitrust laws of our trading partners was generally accurate. For example, while European antitrust law is


\textsuperscript{28} \textit{Congressional Budget Office, supra} note 26, at xiv.


generally restrictive of research joint ventures, a number of recent rules adopted by the European Economic Community ("EEC") give explicit exemptions from the European antitrust laws to research joint ventures. In Japan, where antitrust enforcement is lax by United States standards, there are several provisions in an otherwise rigorous antimonopoly law which specifically permit several types of legal cartels, including research joint ventures. Japan's Ministry of Trade and Industry ("MITI") is authorized to approve research joint ventures and exempt the participants from the antimonopoly laws. MITI has successfully organized and contributed funding to large scale R&D efforts by Japanese firms.

In floor debates and in the Conference Report, the sponsors of the National Cooperative Research Act stressed repeatedly that the Act was meant to be a "clarification" of the antitrust laws, not a revision.

32. See Blechman, Use of Joint Ventures to Foster U.S. Competitiveness in International Markets, 53 ANTITRUST L. J. 65, 67 (1984). For example, the Treaty of Rome contains antitrust provisions similar to those found in American law. Article 85(1) is similar to section 1 of the Sherman Act and prohibits, among other things, price-fixing and agreements between undertakings which involve the "limitations or control of production, markets, technical development or investment ...." Article 85(3) provides, however, that Article 85(1) may be declared inapplicable to agreements which contribute to promoting technical or economic progress. Treaty Establishing the European Economic Community, Mar. 25, 1957, 298 U.N.T.S. 11, 47-48.

33. In 1971, the EEC adopted regulations which empowered the Commission to apply Article 85(3) to grant block exemptions to certain agreements and practices which had as their object research and development. This included agreements regarding the use of resulting data and industrial property rights. HIRSCH, BECHTOLD & HOOTZ, COMMON MARKET CARTEL LAW 131 (A. Gleiss trans. 3d ed. 1981). Early in 1984, the EEC proposed a new group exemption for research joint ventures. 27 O.J. EUR. COMM. (No. C 16) 3 (1984). The final version of the group exemption was adopted December 19, 1985 and became effective March 1, 1985. 28 O.J. EUR. COMM. (No. L 53) 5 (1985). It provides that Article 85(1) shall not apply to agreements entered into for the purpose of joint research and development. The exemption does not apply, however, when two or more of the parties to the venture are competing manufacturers and their combined production of the products capable of being improved or replaced by the R&D-products exceeds 20% of the market for such products in the Common Market. For a discussion of the EEC Block Exemption Regulation for R&D cooperation agreements see Emerging International Antitrust Perspectives on Research and Development Joint Ventures, 16 INT'L & POL'Y INT'L. BUS. 1181, 1197-1209 (1984).


According to Senator Joseph Biden (D.-Del.), the legislation was designed to send the proper positive signal to businesses otherwise prepared to invest in joint research that the antitrust laws did not prevent them from doing so. Business decisionmakers, it was argued, could not tell in advance whether their behavior in forming and carrying out research joint ventures violated federal antitrust law, thus subjecting themselves to criminal prosecution or exposing their companies to substantial damage claims. In testimony before Congress, the Assistant Secretary of Commerce asserted that “[presently] no legal counsel of any major company will allow his chief executive officer to risk treble damages, and criminal sanctions in a high-risk effort that involves a pooled R&D collaborative program.”

Uncertainty may have been a particular problem in the research joint venture area prior to passage of the Act not because of inconsistencies in judicial opinions, but because of a lack of case law and precedent on the subject. The Reagan Administration argued that there was a risk that some courts might not fully appreciate the beneficial aspects of joint research and development, and that the availability of treble damages increased the costs associated with the risk that some court might incorrectly condemn a particular practice that was procompetitive. The main problem caused by the perceived uncertainty in the antitrust law was overdeterrence. Congress was persuaded that lawful procompetitive joint ventures were not being formed for fear of antitrust

& Ad. News 3131, 3139 (“a pre-eminent purpose of this bill is to clarify the antitrust analysis of joint R&D ventures”). These claims must have been referring to the statutory enunciation of the rule of reason test for evaluating joint R&D ventures, because de-trebling was not a clarification of prior law.


38. Violations of the Sherman Act are felonies punishable with potential jail sentences of up to three years and/or fines up to $100,000 for individuals and $1,000,000 for corporations. 15 U.S.C. § 1-2 (1982).


42. Message of the President to Congress, 19 WEEKLY COMP. PRES. DOC. 1235 (Sept. 12, 1983), reprinted in 130 CONG. REC. S11983 (daily ed. Sept. 12, 1983).

43. Senate Judiciary Comm. Hearings, supra note 29, at 35 (statement of Ass’t Att’y Gen. William F. Baxter). A recurrent criticism of treble damage suits is that, as a result of uncertainty in the law, they may deter socially beneficial conduct. See STAFF OF HOUSE COMM. ON JUDICIARY, 98TH CONG., 2D SESS., STUDY OF THE ANTITRUST TREBLE DAMAGE REMEDY 24-25 (Comm. Print 1984) [hereinafter cited as TREBLE DAMAGE STUDY].
liability, and that the net result was an underinvestment in joint research and development.44 There were relatively few research joint ventures being formed per year compared with the total number of new R&D projects in the economy.45 Officials of the Department of Justice testified that uncertainty in the law was inhibiting the formation of competitive R&D joint ventures, but they were unable to cite specific examples of ventures not formed due to antitrust concerns.46

A specific example of a research joint venture that expressed its concern over potential antitrust liability was the Microelectronics and Computer Technology Corporation ("MCC"). MCC, located in Austin, Texas, is one of the largest research joint ventures in the country today. MCC is a separate corporation whose more than twenty shareholders include companies such as Control Data Corporation, Kodak, Boeing and National Semiconductor Corporation.47 After the MCC joint venture was formed, the participants were each threatened with an antitrust lawsuit by a prominent plaintiff's law firm.48 The founders of the venture reported that many companies were hesitant to become involved in MCC because of their fear of potential antitrust liability.49 Nevertheless, the shareholders invested a total of $600 million to employ 260 scientists on research projects ranging from computer architecture to semiconductor manufacturing. The goal of MCC, according to its promoters, is to produce technological innovations that will keep member companies

45. S. BERG, J. DUNCAN & P. FRIEDMAN, JOINT VENTURE STRATEGIES AND CORPORATE INNOVATION 71 (1982). See also Joint Economic Comm. Hearings, supra note 34, at 139 (statement of Charles H. Herz, General Counsel, National Science Foundation) (identifying only twenty-one joint R&D ventures with no production or marketing components formed during the period 1977-79).
47. Notice, 50 Fed. Reg. 15,989 (1985). All but two members of MCC are Fortune 500 companies with significant assets and revenues. MCC therefore does not fit the model of a research joint venture made up of small corporations that cannot afford research on their own, but rather appears to be designed to obtain efficiencies such as economies of scale while avoiding duplication of effort. For a comparison of MCC with other types of joint research efforts, see Fusfeld & Haklisch, Cooperative R&D for Competitors, HARV. BUS. REV., Nov.-Dec. 1985, at 65.
competitive with American and Japanese computer industry leaders. This joint venture was described by its supporters as especially necessary for the United States to stay competitive with the Japanese in technology advances.

There was almost no opposition to the legislation from private industry. Congressman Ed Zschau (R.-Cal.) testified that no Silicon Valley firm expressed disagreement with the bill. The American Bar Association supported Congressional efforts to subject research joint ventures to the rule of reason, but suggested that the participants in such a venture should be freed from treble damages without having to report the venture in advance to the government. The most vocal opposition to the elimination of treble damages in private antitrust cases involving research joint ventures came from legal scholars in the academic community who argued that the antitrust laws were already permissive toward research joint ventures. These opponents were essentially ignored. The result is a new legal regime for research joint ventures.

Although there was bipartisan agreement on the need to restore American competitiveness in international markets, there were differences of opinion along party lines as to how lenient the antitrust laws should be toward research joint ventures. Generally speaking, Republican Senators tended to deny the presence of any anticompetitive risks associated with research joint ventures, while Democrats expressed more concern about removing incentives for the private action


51. MCC's founders and its president, Admiral Bobby Inman, were among the most vocal advocates for passage of the National Cooperative Research Act, appearing at virtually every Congressional hearing on the issue of antitrust and research joint ventures. See, e.g., Letter from Prof. Lawrence A. Sullivan to Sen. Strom Thurmond (Mar. 13, 1984), reprinted in Senate Judiciary Comm. Hearings, supra note 29, at 343-44 (no evidence of economically useful ventures limited to R&D being deterred by antitrust concerns); Senate Judiciary Comm. Hearings, supra note 29, at 103 (statement of Prof. Joseph Brodley).


remedy through detrebling and the awarding of attorneys fees to pre-
vailing defendants. The final version of the bill that emerged from the
Conference Committee was hailed by both Democrats and Republicans
as a genuine compromise between all concerned parties. The two most
contested issues in the Congressional hearings were first, the advantages
and disadvantages of the research joint venture form to the economy
and innovation generally, and second, the actual state of the antitrust
laws with respect to research joint ventures. A brief discussion of these
two issues is necessary and is presented below.

B. Research Joint Ventures In Theory and Practice

Almost any agreement or undertaking between two or more firms
can be described as a joint venture. This has led corporations law com-
mentators to describe a joint venture as nothing more than an "ad hoc
partnership." While there are an unlimited number of ways to struc-
ture such a business arrangement, a joint venture has been defined for
antitrust purposes as an integration of operations between two or more
separate firms under the following conditions:

1. the enterprise is under the joint control of the parent firms,
which are not under related control;
2. each parent makes a substantial contribution to the joint enter-
prise;
3. the enterprise exists as a business entity separate from its
parents; and
4. the joint venture creates significant new enterprise capability in
terms of new productive capacity, new technology, a new pro-
duct, or entry into a new market.

A corporate joint venture contemplates the use of a separate cor-
poration, established and controlled by the joint venturers who usually
make an equity contribution and become shareholders in the venture.
A joint venture is a partial rather than complete integration of two or
more firms which allows for continued competition between their

56. See, e.g., id. at 32, reprinted in 1984 U.S. CODE CONG. & AD. NEWS at 3126 (Addi-
tional Views of Mr. Metzenbaum).
57. 130 CONG. REC. S11843 (daily ed. Sept. 26, 1984) (statements of Sen. Metzen-
baum and Sen. Dole).
1979).
60. S. BERG, J. DUNCAN & P. FRIEDMAN, supra note 45, at 12. Alternatives to joint
ventures tend to be contractual. Consortiums, for example, usually involve less restric-
tive contracts than those used for joint ventures and, since they usually do not involve
equity capitalization, a separate legal entity is not created. Ohmae, Consortium May
Loosen Up Stiff Joint Venture, Wall St. J., Mar. 11, 1985, at 28, col. 3 (e. ed.).
unintegrated operations.\textsuperscript{61} For example, joint research projects, unlike mergers, do not necessarily eliminate independent research activity by the parties to the venture.\textsuperscript{62}

Business enterprises form joint ventures with other companies, including their marketplace rivals, for numerous reasons. The primary incentives for participation in joint ventures, considered in greater detail below, include: (1) risk avoidance, (2) technology acquisition, (3) utilization of the assets and attributes belonging to partners, and (4) organizational superiority. Although diversification of risk is not usually the primary motivation behind most joint ventures, a share in several projects can reduce risk relative to complete ownership of one.\textsuperscript{63} Firms also may participate in joint ventures in order to acquire new technology that is unavailable or prohibitively expensive through licensing.\textsuperscript{64} Joint ventures involving the sharing of technology allow participants individually to apply the technology acquired to new products, processes and services for markets of their own choosing.\textsuperscript{65}

A joint venturer may seek from its partners that which is unavailable elsewhere (or which is available but too expensive) in the form of either assets, such as capital, trademarks or patents, or attributes such as foreign nationality or customers for the venture output.\textsuperscript{66} Many companies use joint ventures with foreign companies in order to enter foreign markets that are otherwise closed for lack of capital, technology or personnel or where particular economic sectors are closed to majority-owned foreign enterprises.\textsuperscript{67} Some American manufacturers

\begin{itemize}
\item \textsuperscript{61} See Ginsburg, \textit{Antitrust, Uncertainty and Technological Innovation}, 24 \textit{ANTITRUST BULL.} 635, 670 (1979).
\item \textsuperscript{62} \textit{ANTITRUST DIV., U.S. DEP’T OF JUSTICE, ANTITRUST GUIDE CONCERNING RESEARCH JOINT VENTURES} 7 (1980), \textit{reprinted in [Oct.-Dec.] ANITRUST & TRADE REG. REP. (BNA)} No. 992, at 1, 3 (Special Supp. Dec. 4, 1980) [hereinafter cited as \textit{ANTITRUST GUIDE}]. Research joint ventures, for example, usually involve the contribution by the participants of less than all of their assets and frequently involve only a portion of a firm's assets devoted to R&D. Participants in joint research ventures are frequently corporations with their own very large internal R&D budgets. Fusfeld & Haklish, \textit{supra} note 47, at 60.
\item \textsuperscript{63} S. BERG, J. DUNCAN & P. FRIEDMAN, \textit{supra} note 45, at 94. The overall risk of failure associated with a given project is the same whether the joint venture form is used or not, but the potential rewards of a successful project can be recouped by participants with much smaller investment levels and therefore less total exposed risk.
\item \textsuperscript{64} See generally J. KILLING, \textit{STRATEGIES FOR JOINT VENTURE SUCCESS} 87-102 (1983).
\item \textsuperscript{65} Norris, \textit{Cooperative R&D: A Regional Strategy}, \textit{ISSUES IN SCI. AND TECH.}, Winter 1985, at 92, 94.
\item \textsuperscript{66} J. KILLING, \textit{supra} note 64, at 53-54. Partners contributing either attributes or assets are advised to play a passive role in managing the venture because their managerial contribution is not important. While these assets and attributes may be necessary to the joint venture's success, they do not require managerial involvement on the part of the parent supplying them. \textit{Id.}
\item \textsuperscript{67} R. HALL, \textit{THE INTERNATIONAL JOINT VENTURE} 1 (1984).
\end{itemize}
view joint ventures with foreign companies as the best way to succeed in product markets characterized by global competition. American automobile manufacturers, for example, have recently formed joint production and marketing ventures with Japanese automobile manufacturers to produce small cars for the American market, in the apparent hope of taking advantage of Japanese cost efficiencies while learning Japanese production methods.

Finally, joint ventures are attractive for organizational reasons because they can be formed for a discrete project or series of projects, the participants need not totally merge all their assets and operations, and each co-venturer retains more control over the direction of the enterprise than would a mere investor.

There are many disincentives to forming joint ventures apart from potential antitrust liability for the participants. The decision to engage in a joint venture is difficult because both the relative contributions to be made by the participants and the payoffs from the venture are uncertain. Joint ventures are viewed by some corporate executives as a last resort because of the substantial organizational difficulties involved in their operation. If joint venture ownership is divided equally, deadlocks in decisionmaking authority may occur. In a joint research organization, for example, disagreements may arise over research priorities or the location of research facilities.

Economic and industry-specific factors appear to be the key determinants of joint venture activity. Over time, joint venture activity appears to follow the business cycle, with significant drops in aggregate joint venture activity occurring during economic recessions.

68. J.D. Baxter, Management Challenge: U.S. Industry Fights Back in World Trade, IRON AGE, June 18, 1984, at 43, 49. These ventures between American and foreign corporations raise unique issues not specifically addressed in this Comment primarily because few of these international joint ventures are limited to research and development.


72. S. BERG, J. DUNCAN & P. FRIEDMAN, supra note 45, at 11.

73. Id. at 72; see also J. KILLING, supra note 64, at 8-12. For example, there are likely to be differing economic and strategic objectives of the participants and, where the success of a joint venture depends primarily on one firm's capability, that firm is likely to prefer undertaking the project on its own. S. BERG, J. DUNCAN & P. FRIEDMAN, supra note 45, at 44.

74. 4 P. AREEDA & D. TURNER, ANTITRUST LAW ¶ 947b (1980).

75. S. BERG, J. DUNCAN & P. FRIEDMAN, supra note 45, at 15.
venture activity also varies across industries, with the heaviest incidence in mining, electrical and nonelectrical machinery and chemical industry groups.76

The three primary incentives for conducting research and development on a cooperative basis appear to be sharing risks, obtaining missing ingredients, and achieving economies of scale. A research joint venture offers an optimal organizational form for projects involving high risks, technological innovations or high information costs.77 A survey of corporate managers reveals that technologically-oriented joint ventures are seen as particularly viable when an industry is characterized by barriers to entry, rapid growth and relatively large R&D expenditures.78

Research is a high-risk activity that may produce little or no return on investment due to uncertainties associated with the ultimate completion and successful commercial application of the research product, as well as possible preemption by a rival.79 Research joint ventures spread the risks and costs that may otherwise be unacceptably high for individual firms in light of expected returns.80 Firms can increase the overall return on their investment when they are allowed access to the fruits of everyone's contribution to the joint venture. Control Data Corporation, for example, estimates that its $14 million investment in MCC will give it access in the first three years to R&D results costing about $119 million.81

76. Id. at 16. According to a recent survey based on Federal Trade Commission and private data covering the years 1964 to 1975, the computer and electronics industry had 48 joint ventures and ranked fourth in overall activity and eighteenth when measured by joint venture intensity due to the large number of firms in the industry. Id. at 18. Joint venture activity refers to the cumulative number of joint venture participations by parent firms, while joint venture intensity refers to the number of participations relative to the number of firms in the industry.77. Brodley, supra note 59, at 1529. 78. S. BERG, J. DUNCAN & P. FRIEDMAN, supra note 45, at 156. Non-technologically oriented ventures are more often attempts to achieve diversification.

79. Research also presents possible free-rider problems. A free-rider is someone who obtains the benefits of another organization's labor without contributing a proportionate (or any) share of the expenses. See R. POSNER & F. EASTERBROOK, ANTITRUST: CASES, ECONOMIC NOTES AND OTHER MATERIALS 177 (2d ed. 1981). In the R&D context, a free rider would be a non-participant firm that copies the advances made by the joint venture either illegally or through reverse engineering.

80. Schwartz & Cooper, Antitrust Policy and Technological Innovations: A Response, ISSUES IN SCI. AND TECH., Spring 1985, at 128, 129. Many firms defer research projects until their potential for success is very high. One survey of industrial research found that seventy-five percent of projects undertaken in private laboratories had probabilities of success estimated at eighty percent or more, while only three percent had estimates of less than fifty percent. F. SCHERER, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 416 (2d ed. 1980).

81. Norris, supra note 65, at 94.
Individual firms can utilize joint ventures to share the speculative risks associated with the long-term basic research projects necessary for the technological advance of their industry. A recent survey of corporate joint research efforts found them to be characterized by well-endowed research budgets averaging about $20 million annually, concentrated in high technology industries, and focused on developing a stronger technical basis for enhanced productivity and competitiveness. Modern research joint ventures are characterized as “precompetitive,” in contrast to earlier joint research efforts which focused on noncompetitive activities such as health and safety and dissemination of technical information.

Individual firms lacking all the ingredients necessary for a successful research project (e.g. trained personnel, essential patents and licenses, or access to raw materials) are likely to form research joint ventures with other firms possessing different missing ingredients. The combination of complementary abilities and expertise in particular areas of research may produce a synergistic effect which lowers the total cost of R&D. This also avoids the duplication of R&D expenditures and frees up financial and intellectual resources necessary to expand the technological horizons of the participants.

A research joint venture can take advantage of economies of scale and thereby make it feasible for small firms to conduct research together that would be infeasible for any one of the firms acting alone. When effective research requires extremely expensive facilities which small firms cannot afford by themselves, a joint venture may result in an overall increase in R&D. Each successive scientific and technical barrier in an industry may require significantly larger R&D investments than those needed for the previous breakthrough. In addition, “the unit cost of operating very sophisticated scientific machinery used in experiments generally decreases as the frequency of use increases.”

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83. Fusfeld & Haklisch, supra note 47, at 60.
84. “Precompetitive” research activities occur when no single company can develop or sustain the technical base required for an industry to stay competitive. They are strategically designed by the participants to strengthen the technical infrastructure of their industries. Id. at 65.
85. Id. at 61.
86. Norris, supra note 65, at 94.
Research joint ventures are not a universally popular form. Some industries may be too secretive and protective of proprietary data for firms to be inclined to collaborate on joint research. Some American companies refuse to participate in any research joint venture because they do not want to share proprietary information with their competitors. Other companies such as Advanced Micro Devices, Inc., Control Data Corporation and RCA are participants in several research joint ventures.

The National Cooperative Research Act appears to proceed from the assumption that at least in the short run any and all research joint ventures will accelerate innovation and therefore be in the public interest. This assumption merits closer scrutiny than it received from Congress. Research joint ventures do accelerate innovation and improve product market competition if the venture candidates face R&D competition primarily from others rather than from each other. "On the other hand," two economists recently concluded, "if the prospective joint venturers . . . have more to lose from each other's unilateral advances than they do from together falling behind the rest of the market or from failing together to jump ahead of the rest of the market, then the [research joint venture] may slow the pace of innovation." Although there are many potential social benefits from research joint ventures, their net effect on the economy is unknown and the impact of joint venture activity on total innovation and on economy-wide levels of R&D is not clear. Joint ventures may have a long-term substitution effect on internal R&D expenditures for individual firms due to expectations that future technological needs can be at least partially satisfied through joint ventures. However, according to one study, as industry joint venture propensities increased, the R&D intensities among individual firms in the industry also increased, suggesting that research joint ventures have a procompetitive impact on industrial R&D.

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91. Monsanto, for example, refuses to collaborate on biotechnology research with DuPont or Dow Chemical. *Id.* at 64.
92. While each separate venture may have different research objectives and the participants may only be trying to maximize their chances of being a member of a successful project, multiple memberships raise antitrust concerns because they can facilitate the companies' attempts to control and monitor innovation in a greater portion of the industry.
94. *Id.*
95. S. BERG, J. DUNCAN & P. FRIEDMAN, supra note 45, at 71, 77.
96. *Id.* at 145, 156-67.
97. *Id.* at 100.
Research joint ventures additionally can avoid the wasteful duplication of research and development expenditures and effort that can result when numerous companies compete to develop similar technologies. In summary, the long-term impacts on the economy of the higher levels of joint research activity envisioned by the sponsors of the National Cooperative Research Act are uncertain.

C. Antitrust Treatment of Research Joint Ventures Prior to the National Cooperative Research Act

It is necessary to briefly examine American antitrust law, particularly as it has been applied to research joint ventures, in order both to evaluate Congressional perception of prior law and to fully understand the changes made by the National Cooperative Research Act. The underlying economic rationale of the antitrust laws is that vigorous competition between firms will produce optimum prices and output of products for consumers. The antitrust laws are also designed to protect economic liberty as well as to promote diffusion of corporate control and thereby avoid concentration of economic power.

Research joint ventures are subject to the federal antitrust laws because they are susceptible to anticompetitive abuse. Joint ventures formed to conduct research and development pose the three types of anticompetitive risks which characterize any joint venture: collusion, loss of potential competition and market exclusion. A research joint venture among direct competitors poses a risk of collusion on output and prices even if the venture is narrowly confined to research. If participating firms would have independently undertaken the research project now being assumed by the joint venture, potential and actual competition in the market has been reduced, causing industry innovation in turn to

98. Such duplication is especially harmful when research resources, particularly human resources in the form of engineers and scientists, are scarce.

99. This background is also important because Congress intended that nothing in the National Cooperative Research Act should modify the interpretation of the antitrust laws as applied to any activity not within the scope of the statute’s definition of joint research and development venture (e.g., joint ventures formed for production and marketing purposes). Congress intended that these activities are to be analyzed and judged solely under existing antitrust principles. H.R. REP. NO. 1044, 98th Cong., 2d Sess. 8, reprinted in 1984 U.S. CODE CONG. & AD. NEWS 3131, 3132-33.

100. "The Sherman Act . . . rests on the premise that the unrestrained interaction of competitive forces will yield the best allocation of our economic resources, the lowest prices, the highest quality and the greatest material progress . . . ." Northern Pac. Ry. Co. v. United States, 356 U.S. 1, 4-5 (1958).

101. Id. at 4.


103. See Brodley, supra note 59, at 1530.
suffer. Product innovation may suffer if joint venturers conspire to deliberately slow the pace of technological advance, or if the venture has the effect of reducing the incentives of the participants to aggressively develop and introduce new products on their own. Excluding competitors from the venture and denying them access to the technology developed by the venture is troublesome where the technology is necessary for effective competition and the research achieved by the venture cannot be duplicated effectively by those outside of the venture.

The legality of joint ventures, and research joint ventures in particular, cannot be determined by reference to a single statute or theory of liability. Any joint venture may be subject to separate antitrust claims under the Sherman Act section 1 and section 2, section 5 of the Federal Trade Commission Act, and section 7 of the Clayton Act. Similar conclusions about the antitrust legality of research joint ventures can be reached regardless of which of these statutes is applied. Prior to adoption of the National Cooperative Research Act, there were four main concerns about the status of research joint ventures under the antitrust laws: (1) whether rule of reason or per se treatment was appropriate under section 1 of the Sherman Act; (2) whether section 7 applied to research joint ventures; (3) the implications of Berkey Photo, Inc. v. Eastman Kodak Co., and (4) the Department of Justice enforcement position.

1. Per Se or Rule of Reason?

Section 1 of the Sherman Act prohibits every contract combination and conspiracy in restraint of trade. Since almost every contract can be characterized as a restraint of trade, the Supreme Court has

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105. L. Schwartz, J. Flynn & H. First, supra note 70, at 557.
111. 603 F.2d 263 (2d Cir. 1979), cert. denied, 444 U.S. 1093 (1980).
interpreted this statute to forbid only *unreasonable* restraints of trade.\(^{113}\) Certain agreements among competitors, such as those having the sole or primary purpose to fix prices or divide markets, are deemed unreasonable regardless of any claimed benefits or efficiencies, and in the language of the antitrust law are deemed to be "per se" illegal.\(^{114}\)

Business practices which are not conclusively presumed to be anticompetitive, and are therefore not per se illegal, are evaluated by weighing the competitive benefits of the practice against any anticompetitive impacts. Under this style of analysis, known as the "rule of reason," the factfinder weighs all of the circumstances of a case in deciding whether a restrictive practice should be prohibited because it imposes an unreasonable restraint on competition.\(^{115}\) The rule of reason is the legal standard applied to the majority of anticompetitive practices challenged under section 1 of the Act.\(^{116}\)

Prior to adoption of the National Cooperative Research Act, the rule of reason was the prevailing legal standard for antitrust analysis of research joint ventures, although a number of joint ventures outside the R&D context had been declared per se illegal. Several Supreme Court cases contain broad language suggesting that under certain circumstances any joint venture is per se unlawful under section 1 of the Sherman Act,

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113. Standard Oil Co. of New Jersey v. United States, 221 U.S. 1, 60 (1911).

114. As a general rule, the following are subject to per se treatment: (1) horizontal price fixing, United States v. Socony-Vacuum Oil Co., 310 U.S. 150, 218 (1940); (2) horizontal territorial allocation, United States v. Topco Assoc., 405 U.S. 596, 608 (1972); (3) group boycotts, Klor's, Inc. v. Broadway-Hale Stores, Inc., 359 U.S. 207, 212 (1959), *but see* Northwest Wholesale Stationers Inc. v. Pacific Stationery and Printing Co., 105 S. Ct. 2613 (1985) (applying rule of reason to expulsion from joint buying cooperative); and (4) vertical price maintenance, Albrecht v. Herald Co., 390 U.S. 145 (1968).


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\text{The court must consider the facts peculiar to the business to which the restraint is applied; its condition before and after the restraint was imposed; the nature of the restraint and its effect, actual or probable. The history of the restraint, the evil believed to exist, the reason for adopting the particular remedy, the purpose or end sought to be attained, are all relevant factors.}
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Chicago Bd. of Trade v. United States, 246 U.S. 231, 238 (1918).

116. GTE Sylvania, 433 U.S. at 49. The continuing debate about the proper spheres of rule of reason and per se analysis is beyond the scope of this Comment. The Supreme Court has admitted that there is often no bright line separating conduct that should be analyzed under the per se rule from that which should be analyzed under the rule of reason. National Collegiate Athletic Ass'n v. Board of Regents of the Univ. of Okla., 104 S. Ct. 2948 (1984). For a discussion of the differences between the per se and rule of reason categories, see Flynn, *Rethinking Sherman Act Section 1 Analysis: Three Proposals for Reducing the Chaos*, 49 ANTITRUST L.J. 1593 (1980). *See also* Gellhorn & Tatham, *Making Sense Out of the Rule of Reason*, 35 CASE W. RES. L. REV. 155 (1984).
but none of these cases involved research joint ventures. 117 All of these cases involved joint venture arrangements used by the participants as a vehicle to fix prices, allocate markets or pool products, and all of the parties involved were actual competitors before the joint venture was formed. The most plausible interpretation of these cases is that under section 1 of the Sherman Act, a joint venture among competitors will constitute an unreasonable restraint of trade if the primary purpose or effect of the venture is to fix prices or allocate markets. 118

Despite the per se language of these cases, the implication of recent Supreme Court holdings is that joint ventures challenged under section 1 of the Sherman Act will be judged under the rule of reason, 119 particularly where the venture is designed to result in efficiencies. 120 The prevailing legal approach to joint ventures has thus been characterized as "highly permissive." 121 However, if the purpose of the joint venture is illegal per se (e.g., to fix prices or divide markets), the joint venture is likewise illegal per se. 122 But despite the apparent judicial recognition of the competitive efficiencies offered by joint ventures, 123 the early cases condemning joint ventures as per se illegal in certain circumstances have

117. See, e.g., United States v. Topco Assoc., Inc., 405 U.S. 596 (1972) (licensing rules of cooperative association of regional supermarket chains formed to market grocery items under Topco brand name viewed as horizontal restraints and therefore per se illegal); Citizen Publishing Co. v. United States, 394 U.S. 131 (1969) (condemning advertising and subscription rate price-fixing and profit pooling by jointly managed subsidiary of two competing daily newspapers); Timken Roller Bearing Co. v. United States, 341 U.S. 593 (1951) (rejecting proposition that agreements between legally separate persons to suppress competition can be justified as reasonable merely by labeling the project a "joint venture"); Associated Press v. United States, 326 U.S. 1 (1945) (invalidating exclusionary membership by-laws of cooperative news service as restraints of trade "on their face," without regard to their past effect); United States v. Socony-Vacuum Oil Co, 310 U.S. 150, 223 (1940) (declaring that any combination formed for the purpose and with the effect of fixing prices is illegal per se).


119. See GTE Sylvania, 433 U.S. at 58-59. ("[D]eparture from the rule-of-reason standard must be based upon demonstrable economic effect rather than . . . upon formalistic line drawing."); see also National Collegiate Athletic Ass'n v. Board of Regents of the Univ. of Okla., 104 S. Ct. 2948 (1984) (applying rule of reason to horizontal price-fixing and output limitation of college football television plan where such restraints were essential for the product to be available at all).

120. Division Chief's Speech, supra note 8, at 872.

121. Brodley, supra note 59, at 1534.

122. Id. at 1535.

never been overruled.\textsuperscript{124} The result has been uncertainty over the legal treatment of these business arrangements.\textsuperscript{125}

Although there is uncertainty surrounding joint ventures in general, joint research efforts have never been held illegal per se under the antitrust laws.\textsuperscript{126} Indeed, no cases, in the Supreme Court or otherwise, have held joint research and development to be a violation of the antitrust laws.\textsuperscript{127} An early Supreme Court case suggested in dictum that joint research between competitors would not necessarily be unlawful.\textsuperscript{128} The Department of Justice concluded in a 1980 published report that "[a] ‘rule of reason’ established by case law under [section 1 of the Sherman Act] applies in evaluating the legality of joint research if there is a legitimate business purpose for performing research jointly."\textsuperscript{129} The view that courts should use a rule of reason analysis to evaluate the harms and benefits of joint research programs challenged under section 1 is also supported by the commentators.\textsuperscript{130}

2. \textit{Section 7 of the Clayton Act}

In addition to potential liability for unreasonable restraints of trade under section 1 of the Sherman Act, research joint ventures may be subject to the standards of section 7 of the Clayton Act\textsuperscript{131} if they involve the acquisition of assets of another participant (including tangible

\textsuperscript{124} These cases, however, may have been thoroughly discredited. See 5 \textit{TRADE REG. REP. (CCH)} \textsuperscript{\textcircled{1}} 50,447 (May 10, 1983) (Remarks of Ass’t Att’y Gen. William F. Baxter before the National Ass’n of Mfrs.). The Justice Department claims that cases such as Top-co would not be decided the same way today. See \textit{Joint Ventures Offer Firms Flexibility, Antitrust Safety for Cooperative Activities}, [July-Dec.] \textit{ANTITRUST & TRADE REG. REP. (BNA)} No. 1241, at 869, 873 (Nov. 21, 1985) (statement of Deputy Ass’t Att’y Gen. Charles F. Rule).

\textsuperscript{125} See McCracken, \textit{Joint Ventures: Evaluating the Risk Under Existing Antitrust Laws}, \textit{COMPUTER LAWYER}, Mar. 1984, at 12, 14, 15 ("[T]here is no ‘safe harbor’ for joint ventures under existing antitrust principles. . . . Companies desiring to enter into joint ventures do so at their own risk . . . .").

\textsuperscript{126} \textit{LEGAL STRATEGIES FOR INDUSTRIAL INNOVATION} 56 (R. Givens ed. 1982).

\textsuperscript{127} \textit{Joint Economic Comm. Hearings, supra} note 34, at 18 (statement of Ass’t Att’y Gen. William F. Baxter). Even where the venture itself is lawful, collateral (or ancillary) restrictions on the activities of the participants may be unlawful when not reasonably related to the legitimate objectives of the venture. See Berkey Photo, Inc. v. Eastman Kodak Co., 603 F.2d 263, 302 (2d Cir. 1979), \textit{cert. denied}, 444 U.S. 1093 (1980).

\textsuperscript{128} United States v. Line Material Co., 333 U.S. 287, 310 (1948) (cross-licensing of patents to fix prices held an unlawful use of monopoly rights).

\textsuperscript{129} \textit{ANTITRUST GUIDE, supra} note 62, at 6, \textit{reprinted in} [Oct.-Dec.] \textit{ANTITRUST & TRADE REG. REP.} at 3.

\textsuperscript{130} See L. SULLIVAN, supra note 87 at 303; see also \textit{ABA ANTITRUST SECTION, supra} note 118, at 52.

\textsuperscript{131} Section 7 of the Clayton Act prohibits a person from acquiring the stock or assets of another "where . . . the effect of such acquisition . . . may be substantially to lessen competition, or to tend to create a monopoly." 15 U.S.C. § 18 (1982).
property such as copyrights or patents) or if the participants create a separate entity in which they each have an equity interest.\textsuperscript{132} Section 7 was enacted primarily to regulate mergers,\textsuperscript{133} but joint ventures may also violate section 7 if they threaten to eliminate actual competition among the joint venture partners or discourage joint venturers from entering a new market on an individual basis.\textsuperscript{134}

Under the potential competition theory first articulated in United States v. Penn-Olin Chemical Co.,\textsuperscript{135} the formation of a joint venture should be analyzed by considering whether it eliminated “the potential competition of the corporation that might have remained at the edge of the market continually threatening to enter.”\textsuperscript{136} The Court noted that a well-financed and aggressive corporation “waiting anxiously to enter an oligopolistic market would be a substantial incentive to competition which cannot be underestimated.”\textsuperscript{137} Despite section 7 and the potential competition doctrine, a joint venture between two parties may pass antitrust muster where their merger would not because the participants may continue to compete vigorously in many markets after entering the joint venture.\textsuperscript{138} Furthermore, the government has never successfully challenged a research joint venture on section 7 grounds.

3. The Berkey Case

Berkey Photo, Inc. v. Eastman Kodak Co.\textsuperscript{139} established legal standards for antitrust analysis of research joint ventures.\textsuperscript{140} Berkey is a factually complex case involving section 1 restraint of trade and section 2 monopolization claims brought against Kodak, Berkey’s principal competitor in the camera and photo finishing businesses.\textsuperscript{141} Kodak made

\begin{footnotesize}
\begin{enumerate}
\item[132.] \textsc{Antitrust Guide, supra} note 62, at 5-6, \textit{reprinted} in [Oct.-Dec.] \textsc{Antitrust \& Trade Reg. Rep.} at 3. The legal standard under section 7 of the Clayton Act may be similar to the rule of reason under section 1 of the Sherman Act so far as joint research is concerned. \textit{Id.}
\item[133.] Brown Shoe Co. v. United States, 370 U.S. 294, 312-16 (1962).
\item[135.] \textit{Id.}
\item[136.] \textit{Id.} at 173.
\item[137.] \textit{Id.} at 174.
\item[138.] \textit{Division Chief’s Speech, supra} note 8, at 873. \textit{See also} P. \textsc{Areeda} \& D. \textsc{Turner, supra} note 74, at \$ 947.
\item[139.] 603 F.2d 263 (2d Cir. 1979), \textit{cert. denied}, 444 U.S. 1093 (1980).
\item[140.] While the arrangements at issue in Berkey were joint development programs and not technically research joint ventures, the Second Circuit treated them as such. \textit{Id.} at 301.
\item[141.] This Comment will consider only the section 1 claims in Berkey since they are most relevant to analysis of joint venture activity. For a discussion of the monopolization claims and the Second Circuit’s treatment in Berkey of innovation issues under section 2, see P. \textsc{Areeda} \& D. \textsc{Turner, supra} note 74, at \$ 738.2.
\end{enumerate}
\end{footnotesize}
cameras and film but did not make flash devices for taking photographs in dim lighting. In 1967 Sylvania came to Kodak with a flash invention called the “magicube” which represented a major advance over prior flashes since it did not require batteries. Kodak and Sylvania subsequently entered into a joint project to develop and market the Sylvania invention. As a condition for joint development of the magicube, Kodak prohibited Sylvania from disclosing its inventions to any other camera manufacturer so that all details of the new device would be withheld from the public and the trade. Shortly thereafter, General Electric also approached Kodak with proposals for a new flash device. In exchange for Kodak’s agreement to produce the General Electric flash as part of a joint venture, General Electric was similarly forbidden to disclose its invention to others.

Berkey charged that Kodak violated section 1 of the Sherman Act by requiring that Sylvania and General Electric not predisclose to competing camera manufacturers information regarding flashcube innovations on which Kodak, Sylvania and General Electric were working. Berkey claimed that the secrecy agreements Kodak extracted from GE and Sylvania were an unreasonable restraint of trade because they prevented other camera makers from competing in the production of cameras that could operate with the new flash devices. The jury agreed with Berkey and found that Kodak’s conduct was an unreasonable restraint of trade.

On appeal, the Second Circuit found that there was enough evidence for the jury to have found a violation of section 1. The court found that without any technological justification, GE kept a desirable innovation off the market for two years solely to suit Kodak’s convenience. “There is a hollow ring to a claim of justification by appeal to the need to promote innovation, where the result of the conduct was such a clear loss to consumers,” the court noted.

Berkey represents the best example of the type of antitrust scrutiny to which research joint ventures were subject prior to the National Cooperative Research Act. In Berkey, the Second Circuit held that joint technology development agreements were not per se violations of section 1. “Joint development programs can benefit competition,” the court

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143. 603 F.2d at 302. As to Berkey’s claim that Kodak was liable for monopolization, the court stated that “we respect innovation” and refused to require predisclosure of Kodak’s own inventions. Id. at 301. By effectively rejecting a predatory innovation cause of action, the court deliberately construed section 2 of the Sherman Act to avoid an interpretation that would stifle innovation. Id. “But this is . . . different from an agreement among a few firms to restrict to themselves the rewards of innovation,” which is the subject of section 1. Id.
144. Id. at 302 (citing Continental T.V., Inc. v. GTE Sylvania, Inc., 433 U.S. 36, 49-50 & n.16 (1977)).
noted, "but they are not without their costs." The rule of reason articulated by the Second Circuit, the market power of the participant firms is likely to be the most significant factor. Joint ventures involving a monopolist such as Kodak must be particularly scrutinized in order to prevent barriers to entry. The court did not condemn all research joint ventures involving a monopolist, however, because they may sometimes result in an increase in research output. Instead the court warned that where the market structure is such that only a dominant firm has the resources necessary to exploit the complementary technology being offered by a firm in a complementary market, the alternative to joint development could be no development at all.

Berkey also established that research joint ventures possessing market power have exclusionary potential and therefore may be required to disclose information about the research results to nonparticipants. If access to the joint venture research is essential for nonparticipants to compete effectively, and the research is not easily duplicated by nonparticipants, unreasonable restrictions on access to the joint research may violate section 1. The sole purpose of a joint venture cannot be to limit the rewards of technology to a limited number of competitors, especially where there is evidence of any intent to monopolize. Restraints placed on the venture participants which are not necessary to achieve the venture's legitimate goals are suspect.

Assuming that the venture is not a sham for the purposes of fixing prices or dividing markets, the Berkey case illustrates that the ultimate issue for antitrust purposes is whether the research joint venture will stimulate or retard innovation. A joint venture among competing firms in an industry presumably reduces the incentives of the participants to conduct similar research individually. Whether the joint venture presents an antitrust problem depends, among other things, on the industry market structure, the venture's research program, and the

145. Id. at 301.
146. According to the court:
The relevant variables [for rule of reason] might include: the size of the joint venturers; their share of their respective markets; the contributions of each party to the venture and the benefits derived; the likelihood that, in the absence of the joint effort, one or both parties would undertake a similar project, either alone or with a smaller firm in the other market; the nature of the ancillary restraints imposed and the reasonableness of their relationship to the purposes of the venture.
147. Id. at 301 (citing L. Sullivan, supra note 87, at 298-303).
148. Id. at 302.
149. See id.
150. ABA Antitrust Section, supra note 118, at 52.
151. See Berkey, 603 F.2d at 302-04.
152. See Schwartz & Cooper, supra note 80, at 134.
internal R&D budgets of the participants. The larger the number and
the size of participating firms in the joint venture, the greater the poten-
tial for monopolization and a slowdown in research.

4. United States Department of Justice Enforcement Position

A pure research joint venture without ancillary restraints has never
been challenged by the Antitrust Division of the United States Depart-
ment of Justice.153 Furthermore, the Department of Justice has never
brought criminal charges against joint R&D project participants.154 The
government did, however, challenge a joint research program between
major automobile manufacturers to develop air pollution control devices
in compliance with government environmental regulations.155 The ancil-
lary restraints associated with this joint venture between direct competi-
tors were believed to be resulting in a slowdown in research output. It
was alleged that the participants had an incentive to delay progress be-
cause there was no deadline on the program and because the successful
development of the technology would not have increased demand but
only raised the industry’s costs. The government objected to the joint
venture and forced the automobile manufacturers to agree to a consent
decree prohibiting them from conspiring to delay or obstruct the
development and installation of the devices.156

To help alleviate uncertainty over the government’s position on
research joint ventures, the Department of Justice in 1980 published its
Antitrust Guide Concerning Research Joint Ventures.157 Under the multi-


154. Joint Economic Comm. Hearings, supra note 34, at 136 (statement of Ass’t Att’y
Gen. William F. Baxter) (“I do not think any lawyer would seriously suggest that the
threat of criminal liability deterred an effort to form any bona fide joint R&D effort.”).

155. United States v. Automobile Mfrs. Ass’n, 1969 Trade Cas. (CCH) ¶ 72,907 (C.D.
Trade Cas. (CCH) ¶ 65,088 (C.D. Cal. 1982).

156. Id. For a discussion of the conflicting incentives involved in performing joint
research to meet governmental requirements, see L. Sullivan, supra note 87, at 301-03.

157. Antitrust Guide, supra note 62. The Antitrust Guide did not remove all uncer-
tainty in this area because the report was not binding on either its author or the courts.
The Justice Department report stated: “The wide variety of actual and possible joint
research ventures makes it difficult to lay down rules that will be applicable to every
particular case, and additional factors [that would increase the anticompetitive risks] may
have to be considered in some circumstances . . . .” Id. at 13-14, reprinted in [Oct.-Dec.]
Antitrust & Trade Reg. Rep. at 5. The Antitrust Guide nevertheless represented the
Justice Department position until the passage of the National Cooperative Research Act.
See Joint Economic Comm. Hearings, supra note 34, at 50 (statement of Ass’t Att’y Gen.
William F. Baxter). The 1980 Antitrust Guide has been superseded by the legislative his-
tory of the National Cooperative Research Act as the best explanation of the Justice
Department’s current enforcement position. Joint Ventures Offer Firms Flexibility, Anti-
trust Safety for Cooperative Activities, [July-Dec.] Antitrust & Trade Reg. Rep. No. 1241,
factor test announced by the Justice Department, the legality of a research joint venture depended on the nature of the proposed research, the identity of the joint venturers, the industry and the restraints on conduct imposed in connection with the project. In general, research joint ventures conducting basic research in unconcentrated industries with limited collateral restraints would not offend the antitrust laws. According to the Justice Department, joint research among firms in non-competing industries will seldom give rise to antitrust concerns, nor will joint ventures between competitors possessing small market shares where there are no unreasonably restrictive collateral restraints. The Justice Department concluded that "much joint research may be engaged in without violating the antitrust laws." 

II. THE NATIONAL COOPERATIVE RESEARCH ACT

The National Cooperative Research Act affects joint R&D ventures in three important ways. First, it attempts to clarify the proper standard for evaluating this type of joint venture under the antitrust laws. Second, the Act grants special protections in the way of reduced damage exposure to joint R&D ventures that file notifications with the Federal government. Finally, parties to a joint R&D venture can recover attorney's fees when successfully defending antitrust suits in certain prescribed circumstances. These three areas are discussed below.

A. The Reasonableness Standard

The Act provides that "in any action under the federal antitrust laws, or under any State law similar to the antitrust laws, the conduct of any person in making or performing a contract to carry out a joint research and development venture shall not be deemed illegal per se." Instead, such conduct is to be judged on the basis of its reasonableness, taking into account all relevant factors affecting competition, including its effect on competition in relevant research and development markets. It is important to remember that use of this standard, which applies to all activities that come within the statutory definition of a joint research and development venture, does not necessarily mean that the

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159. Id. at 7, reprinted in [Oct.-Dec.] ANTITRUST & TRADE REG. REP. at 3.
162. Id.
venture will survive antitrust scrutiny. There are three main issues raised by the Act's statutory rule of reason standard: (1) the scope of conduct that is consistent with the Act's definition of a joint R&D venture; (2) the definition of the relevant R&D market; and (3) the competitive factors that are to be considered in determining the antitrust legality of joint R&D ventures.

1. Definition of Joint Research and Development Venture

Under the National Cooperative Research Act, a "joint research and development venture" means any group of activities by two or more persons for the purpose of:

(A) theoretical analysis, experimentation, or systematic study of phenomena or observable facts,
(B) the development or testing of basic engineering techniques,
(C) the extension of investigative findings or theory of a scientific or technical nature into practical application for experimental and demonstration purposes, including the experimental production and testing of models, prototypes, equipment, materials and processes, or
(D) the collection, exchange and analysis of research information.163

Joint R&D ventures may pursue any combination of the purposes specified above, and they may establish and operate facilities for conducting research.164 The Act also permits the joint venture to be conducted on a protected and proprietary basis, to prosecute applications for patents and to grant licenses for the results of the venture.165

The protections of the Act are unavailable to joint ventures that do not engage in research and development conduct as defined in the statute. The drafters of the statute intended that "the determination of whether or not a particular venture falls within the purview of this Act will be based solely upon this Act's definition, this Act's legislative history, and judicial interpretation of this Act."166 The definition is

165. Id. This Comment does not consider the types of intellectual property protections which may be undertaken by joint R&D ventures. The precursor to the National Cooperative Research Act as submitted by the Reagan Administration also contained provisions to clarify the antitrust treatment of certain intellectual property devices such as patent pools, but the Justice Department withdrew these proposals for further study. See Senate Judiciary Comm. Hearings, supra note 29, at 254 (statement of Ass't Att'y Gen. J. Paul McGrath).
intended to exclude from statutory protection most conduct by a joint R&D venture that could result in spillover effects into decisions about such items as the price or output of goods or services sold outside the venture.\textsuperscript{167}

The following activities are specifically excluded from the definition of a "joint research and development venture": (1) the exchange of information among competitors relating to costs, prices or marketing that is not reasonably required to conduct the R&D that is the purpose of the venture; (2) agreements involving the production and marketing of products or processes, such as trade secrets and patents, that are not developed through the R&D venture; and (3) agreements to restrict or require the sale, licensing or sharing of inventions not developed through the venture, or to restrict or require participation in other R&D activities, that are not reasonably required to prevent misappropriation of proprietary information.\textsuperscript{168}

Classic cartel-like conduct by joint ventures, such as horizontal price-fixing and territorial restrictions and restraints on competition that are ancillary to a legitimate cooperative R&D venture, are not included in the definition of a joint R&D venture and are therefore excluded from the protections of the Act.\textsuperscript{169} Moreover, "when the sole purpose of the joint activity is to prepare a product for the commercial marketplace, the protections of the Act are not available."\textsuperscript{170}

2. Defining the Relevant Market

Courts are required under the Act to pay special attention to the "effects on competition in properly defined relevant research and development markets" when analyzing joint R&D ventures for antitrust legality.\textsuperscript{171} Market definition and the assessment of market power are the crucial first steps in rule of reason antitrust analysis.\textsuperscript{172} However,

\textsuperscript{167} Id. at 11, reprinted in 1984 U.S. CODE CONG. & AD. NEWS at 3135. The definitions and exclusions are also intended to deny the Act's protections to restraints on competition that are ancillary to a legitimate joint R&D venture. 130 CONG. REC. H10566 (daily ed. Oct. 1, 1984) (statement of Rep. Rodino).

\textsuperscript{168} 15 U.S.C. § 4301(b).

\textsuperscript{169} See H.R. REP. NO. 1044, 98th Cong., 2d Sess. 8, reprinted in 1984 U.S. CODE CONG. & AD. NEWS 3131, 3132. Representative Peter Rodino stated during the floor debates: "We are creating no exemptions for anticompetitive behavior." 130 CONG. REC. H10565 (daily ed. Oct. 1, 1984) (statement of Rep. Rodino). It should be noted that such conduct engaged in by research joint ventures may still be subject to rule of reason treatment under prior case law.


\textsuperscript{172} Harris & Jorde, Antitrust Market Definition: An Integrated Approach, 72 CALIF. L. REV. 1, 5-6 (1984).
there is little case law precedent for defining R&D markets, and the legis-
slative history of the National Cooperative Research Act is surprisingly
sketchy on the proper methodology for defining "relevant research and
development markets." Under traditional antitrust doctrine, the relevant
product and geographic markets must first be determined, and then the
market share possessed by the firm or joint venture in question must be
calculated.\textsuperscript{173}

a. Product Market

The basic products of research and development are knowledge
and information.\textsuperscript{174} The activity of research and development as a
separate market consists primarily of private firms conducting, or capable
of conducting, R&D for their own use, under contract or for license to
others. Research by private non-profit foundations, university scientists
and government laboratories should also be considered for inclusion in
the market if they are conducting comparable R&D to that conducted by
the joint venture.\textsuperscript{175}

"The relevant R&D market must be defined largely by identifying
firms (other than the joint venturers) that are undertaking the same or
similar research and development or that would be willing and able to
undertake similar R&D in response to an increase in the expected rate of
return on investment in that R&D," according to William F. Baxter.\textsuperscript{176}

"To be included in the relevant R&D market," according to the Confer-
ence Report accompanying the Act, "firms must have the ability and in-
centive, either individually or in collaboration with one another, to

\textsuperscript{173} Id. at 5.

\textsuperscript{174} H.R. REP. NO. 1044, 98th Cong., 2d Sess. 9, reprinted in 1984 U.S. CODE CONG.
& AD. NEWS 3131, 3134. See also Joint Economic Comm. Hearings, supra note 34, at 18
(statement of Ass't Att'y Gen. William F. Baxter).

\textsuperscript{175} It is not clear whether Congress intended that the R&D work being carried out
by the Federal Government, which accounts for about half of the total R&D conducted
in the United States, should usually be considered in the relevant market. Most of the
research and development conducted by the Federal Government does not have com-
petitiveness as its goal. \textit{PRESIDENT'S COMMISSION, supra} note 25, at 19.

\textsuperscript{176} Baxter, \textit{Antitrust Law and the Stimulation of Technological Invention and Innova-
tion, Joint Economic Comm. Hearings, supra} note 34, at 73. Baxter's approach would iden-
tify and include in the market those companies who are currently performing R&D that
is similar to that performed by the joint venture, or who could begin to perform such
R&D relatively rapidly. \textit{See also Jorde & Harris, supra} note 172, at 29 (suggesting tran-
sactional approach to market definition which emphasizes subjective perceptions of
firms). The Conference Report accompanying the Act, however, states that an objective
standard should be used in deciding whether to include a firm in the relevant market.
NEWS 3131, 3134.
undertake R&D comparable to that of the joint venture in question.\textsuperscript{177} In addition to a firm's ability and incentive to compete in a relevant R&D market, an evaluation of the "firm's business objectives, facilities, technologies, and other available assets" will determine whether it is included in the market.\textsuperscript{178} Since a primary anticompetitive concern surrounding joint R&D ventures is the risk of collusion that will result in an underinvestment in R&D,\textsuperscript{179} the relevant R&D market should be defined to include those individual firms and business combinations outside the joint R&D venture which have a realistic chance of upsetting any plans by the participants to slow research progress.\textsuperscript{180} Firms therefore need not be actual competitors at the production or marketing stage in order to be included in the relevant R&D market, since this is not relevant to their ability or incentive to compete in the R&D market.\textsuperscript{181}

While the most important competitive measuring stick is "effects on competition in properly defined relevant research and development markets,"\textsuperscript{182} the Conference Report states that this does not mean that other competitive factors should be ignored.\textsuperscript{183} Under the Act all relevant factors affecting competition should be taken into account in considering the reasonableness of a joint R&D venture.\textsuperscript{184} This means that other markets besides the R&D market will be relevant because joint R&D ventures can affect price and output competition among the participants at the production and marketing stages, either currently or in the future.\textsuperscript{185} The Conference Report suggests that a joint R&D venture

\textsuperscript{178} Id.
\textsuperscript{180} Strictly speaking, the R&D market should be narrowly defined as separate from the market for innovation. R&D itself provides only the scientific and technical advances needed to sustain rapid rates of innovation, while several steps are usually needed to translate R&D into competitive advantage. Firms that may be willing and able to manufacture, package or sell the goods and services that result from the R&D efforts of the venture might be part of a relevant "innovation market" (if there is such a thing) but they should not be included in the relevant R&D market unless they actually conduct comparable research or would be capable of conducting such research.
\textsuperscript{182} Id.
\textsuperscript{183} Id.
\textsuperscript{185} Baxter, Antitrust Law and the Stimulation of Technological Invention and Innovation, Joint Economic Comm. Hearings, supra note 34, at 70. There may therefore be three markets that are relevant for antitrust purposes when examining the competitive impacts of a joint research and development venture. The first is today's market for existing products and services. The second is the R&D market itself. The third is "tomorrow's markets for the new goods and services that will result from the successful R&D joint
might have anticompetitive effects if it includes a large portion of the competitors in properly defined relevant markets for goods and services that are currently being produced.\textsuperscript{186} The overall reasonableness of the venture will therefore probably require consideration of several distinct product markets. Joint R&D ventures may therefore be condemned not only because of their negative effects on R&D competition, but because of anticompetitive effects in one of several product markets.\textsuperscript{187}

\begin{itemize}
\item[b.] Geographic Market

The relevant geographic market for a joint R&D venture will generally be international because of the unique nature of research and information, because it is virtually costless to transmit the information that embodies the fruits of R&D and because of the presence or potential of foreign competition in many areas.\textsuperscript{188} The Conference Report instructs courts to consider the international dimension of R&D markets because overseas R&D competitors can be significant factors in properly defined R&D markets.\textsuperscript{189}

\item[c.] Market Share and Market Power

Once the relevant R&D market has been defined, the market share of the joint venture should be calculated. The purpose of calculating market shares is to determine the relative abilities of the market participants to engage in successful R&D. There is, however, no ideal measure


\textsuperscript{187.} Attempts to examine all the potential competitive effects of joint R&D ventures by lumping everything into the R&D market should be resisted because R&D markets are only one relevant product market. Assistant Attorney General Baxter suggested that "if the technology being pursued by the joint venture is sufficiently understood and developed to evaluate its commercial potential, alternative technologies that clearly would be competitive with the joint venture's technology should be included in the market definition." Baxter, Antitrust Law and the Stimulation of Technological Invention and Innovation, Joint Economic Comm. Hearings, supra note 34, at 72. The problem with this approach is that rarely will courts (or even the participants) be able to determine what technologies will result from the basic research being conducted by a joint R&D venture. According to Baxter, "technologies that would be at least 90 to 95 percent as efficient . . . as the venture's technology would counteract the joint venture's ability to suppress innovation." Id. This is probably true but is irrelevant for determining which firms belong in the relevant R&D market. Baxter's approach is relevant only for deciding which firms to include in current or future product markets.

\textsuperscript{188.} Division Chief's Speech, supra note 8, at 873.

of market share for a joint R&D venture because the traditional concepts of shipments or capacity as measured in dollars or unit volume are not applicable to research and development. The Department of Justice will assign R&D market shares based on absolute R&D expenditures, adjusting those shares where necessary to reflect the differing abilities of market participants to perform R&D. An alternative proxy for determining market share is the use of "R&D-oriented assets." In a variety of situations, market share and market concentration data may either understate or overstate the likely future competitive significance of a firm or firms in the market, so uncertainty in characterizing market power is inevitable.

3. Weighing Competitive Effects

The Act declares that "the conduct of any person in making or performing a contract to carry out a joint research and development venture shall . . . be judged on the basis of its reasonableness." A "reasonableness" test means that courts must consider the actual competitive effects of such ventures under something similar to the "rule of reason" antitrust standard. The Act says courts should take into account "all relevant factors affecting competition," which is consistent with prior doctrine. A joint R&D venture shall not be deemed to violate the antitrust laws if it has no anticompetitive effects at all, or if the venture's procompetitive effects outweigh any anticompetitive effects. The first

190. Division Chief's Speech, supra note 8, at 873. Absolute expenditures must be weighted in some way to reflect the relative R&D efficiency and effectiveness of each firm. Even though two firms spend identical amounts on R&D, one may be a more significant provider of R&D. Baxter, Antitrust Law and the Stimulation of Technological Invention and Innovation, Joint Economic Comm. Hearings, supra note 34, at 70.


193. See, e.g., United States v. General Dynamics, 415 U.S. 486 (1974) (holding that merger would not substantially lessen competition where market share figures regarding past coal production were irrelevant for measuring future ability to compete).


197. See supra note 115.

inquiry therefore is whether a particular joint R&D venture has or may have anticompetitive effects. The Conference Report identifies four anticompetitive effects that courts should consider when evaluating joint R&D ventures.

a. Overinclusiveness

The major anticompetitive concern associated with joint R&D ventures is that there will be too many participants in the joint venture, thus reducing the number of competing R&D efforts.\(^{199}\) If there are too few competing R&D ventures and too few independent research efforts, the incentives for the joint venture to innovate might be diminished. The incentives created by the potential rewards of winning and the costs of losing in the R&D competition are reduced when joint venture participants are required to share the venture's successes and failures with many competitors.\(^{200}\) If fewer businesses are pursuing alternative research programs because they are members of a single large joint venture, R&D mistakes and failures become more costly.\(^{201}\) Overinclusive joint R&D ventures therefore present the dual risks of diminished incentives for innovation and costly mistakes in research strategy, both of which can diminish the output of useful research and development.

There is no standard size or minimum number of joint ventures necessary to ensure adequate R&D competition.\(^{202}\) Congress heard testimony that a joint venture containing only fifteen to twenty percent of the relevant R&D market would be unlikely to produce anticompetitive effects.\(^{203}\) A joint R&D venture is unlikely to present a problem of overinclusiveness if, after its formation, four or five other equal-sized ventures would still be possible in the relevant R&D market.\(^{204}\) This does not mean that a joint R&D venture is necessarily anticompetitive when there are (or can only be) fewer than four entities in the R&D market.\(^{205}\) Joint R&D ventures that encompass an entire industry are permissible if

\(^{199}\) Id. at 10, reprinted in 1984 U.S. CODE CONG. & AD. NEWS at 3134.
\(^{200}\) Id.
\(^{201}\) Id.
\(^{202}\) Id. The optimal size of the joint venture will depend on the structure of the industry, the number of firms involved, and the nature of the research being undertaken.
\(^{203}\) See Senate Judiciary Comm. Hearings, supra note 29, at 23 (statement of Ass't Att'y Gen. William F. Baxter). Baxter believes that a research joint venture controlling 15 to 20 percent of R&D assets in a relevant market is benign as a matter of law. Baxter, Market Definition, supra note 185, at 723.
\(^{205}\) Id. at 10, reprinted in 1984 U.S. CODE CONG. & AD. NEWS at 3135.
necessary to achieve the efficiency gains that justified the formation of the joint venture in the first place.\textsuperscript{206}

b. Exclusion of Competitors

When research objectives can be efficiently achieved only when a large portion of the competitors in a market are included in the joint venture (e.g., to achieve economies of scale), the exclusion of competitors may be anticompetitive. For example, if the optimal size of a joint R&D venture includes fifty-one percent of the market, the venture may have to include the other forty-nine percent of the market if they are incapable of forming an efficient venture on their own.\textsuperscript{207} The Conference Report recognizes that there may be situations in which all of the competitors in the relevant R&D market should be included in the joint venture.\textsuperscript{208}

Antitrust commentators generally agree that exclusion of rivals by joint action is anticompetitive when there is no efficiency gain, but they disagree as to how strong a showing of efficiency gain is required to justify exclusion of a rival.\textsuperscript{209} If the joint venture would give the participants a unique advantage over rivals, excluding competitors from access to the products of the venture may be justified only if it is indispensable to achieve productive benefits that outweigh any competitive loss.\textsuperscript{210} Under traditional antitrust doctrine, private facilities which are essential to entry in a market or industry must generally be made available to competitors on nondiscriminatory terms.\textsuperscript{211}

c. Slowing the Pace of Innovation

Any agreement by participants in a joint R&D venture to slow the pace of innovation or unreasonably discourage the commercialization and exploitation of the fruits of the venture would be highly anticompetitive.\textsuperscript{212} Collusion of this kind has previously been rejected by courts.\textsuperscript{213} It is often difficult, of course, to detect such collusion, and

\textsuperscript{206} Id. When only a venture of this size can efficiently pursue the research objectives, the exclusion of competitors by the venture may be anticompetitive. \textit{Id.}

\textsuperscript{207} Senate Judiciary Comm. Hearings, supra note 29, at 23 (statement of Ass't Att'y Gen. William F. Baxter).


\textsuperscript{209} Brodley, \textit{supra} note 59, at 1534 n.31.

\textsuperscript{210} Brodley, \textit{Joint Ventures with Foreign Partners}, 53 \textit{Antitrust} L.J. 73, 80 (1984).

\textsuperscript{211} \textit{See} United States v. Terminal Road Ass'n, 224 U.S. 383 (1912).


\textsuperscript{213} \textit{See} Berkey Photo, Inc. v. Eastman Kodak Co., 603 F.2d 263 (2d Cir. 1979) (applying rule of reason); \textit{see also} United States v. Automobile Mfrs. Ass'n, 1969 Trade Cas.
consumers may not feel the direct effects of agreements to slow innovation for a long time.

d. Spillover Effects

Spillover occurs when permissible coordination of research and development activities leads to anticompetitive conduct concerning non-R&D matters such as the manufacturing and pricing of current products. Collusion among competitors with respect to the price or output of goods and services sold outside their joint R&D venture, or with respect to strategic business decisions unrelated to research and development, is likely to be anticompetitive.\textsuperscript{214} The definition of ‘joint R&D venture’ in the Act is intended to preclude spillover effects by limiting the range of permissible activities.\textsuperscript{215} Joint R&D ventures should emphasize basic research\textsuperscript{216} and limit their agreements involving production and marketing to those concerning the proprietary information developed through the venture, such as patents and trade secrets.\textsuperscript{217} Participants wishing to avoid spillover effects should consider implementing safeguards such as separating all marketing and sales people from involvement in management of the joint R&D venture.\textsuperscript{218}

Once the anticompetitive effects of a particular joint R&D venture are established, they must be weighed against any demonstrated procompetitive benefits. Among the procompetitive factors which must be considered are the enhancement of efficiency through economies of scale and synergies created by complementary abilities of different competitors.\textsuperscript{219} The possible efficiency contributions of joint ventures include:


215. \textit{Id.}

216. \textit{Id.} In fact, joint R&D ventures must limit themselves to basic research in order to retain the benefits of the Act. 15 U.S.C. § 4301(a)(6).


218. Safeguards built into a program can minimize the likelihood of spillover effects. H.R. REP. NO. 1044, 98th Cong., 2d Sess. 11, \textit{reprinted in} 1984 U.S. CODE CONG. & AD. NEWS 3131, 3135. See Centrifugal Pump Industry Wins Justice Clearance for $6 Million R&D Joint Venture, [July-Dec.] ANITTRUST & TRADE REG. REP. (BNA), No. 1223, at 69 (July 11, 1985) (reporting Justice Department approval of joint research and development venture that will be run by independent contractor, and supervised by board of directors composed of representatives with no pricing or marketing responsibility for their company, who will keep records of all meetings and telephone conversations) [hereinafter cited as \textit{Centrifugal Pump Industry Clearance}].

(1) economies of scale; (2) complementing assets or specialized skills; (3) acquiring new technological or managerial capabilities; and (4) improving the risk/reward ratio for introduction of new products or entry into new geographic markets.220 Procompetitive benefits are more likely to outweigh anticompetitive effects as the cost of an R&D venture increases relative to a single firm’s budgetary limits, or as greater economies of scale can be achieved by cooperative research.221 Since the Conference Report’s discussion is not exhaustive regarding the factors to be considered under the rule of reason,222 courts should consider competitive factors such as those described by the Second Circuit in Berkey.223

Potential competition theories under section 7 of the Clayton Act and the Penn-Olin decisions appear to still be applicable to joint R&D ventures after the Act.224 The Act states that in any action under “the antitrust laws,”225 the conduct of any person in making a contract to carry out a joint R&D venture shall be judged on the basis of its reasonableness, taking into account all factors affecting competition. Potential competition would seem to be a “relevant factor” for consideration, although there is no legislative history on this precise question. This means that the mere formation of a joint R&D venture could be found to violate the antitrust laws if its effect might be to substantially lessen competition in the relevant R&D market.226

B. Notification and Detrebling

Proper notification to the agencies charged with antitrust enforcement227 allows joint research and development ventures to invoke a

222. Id. at 9, reprinted in 1984 U.S. CODE CONG. & AD. NEWS at 3133.
223. See supra note 146.
224. But see Stoll & Goldfein, Joint Ventures--Farewell to 'Penn-Olin?', N.Y.L.J., Nov. 20, 1984 at 1, col. 1. See supra text accompanying notes 135-38 for a discussion of the potential competition theory.
226. The Act covers the making of a contract to carry out a joint R&D venture as well as the performing of the contract. 15 U.S.C. § 4302.
227. Notifications filed pursuant to the Act must be delivered in writing to the Federal Trade Commission's Bureau of Competition and the Antitrust Division of the Department of Justice. 49 Fed. Reg. 50,122 (1984) (statement of Ass't Att'y Gen. J. Paul McGrath). Within thirty days after receiving notification, the Department of Justice will publish a notice in the Federal Register identifying the parties to the venture and describing in general terms its area of planned activity. 15 U.S.C. § 4305(b). The contents of
special statutory protection from treble damages.228 Any plaintiff making a successful antitrust claim against a joint R&D venture based on conduct that is within the scope of a notification that has been filed pursuant to the Act is limited to recovering actual damages, interests and costs, including a reasonable attorney's fee.229

The original notification must disclose the identities of the participants and the nature and objectives of the venture.230 Notification must occur not later than ninety days after parties have entered into a written agreement to form such a venture.231 Any change in a joint R&D venture’s membership must be disclosed in a notification within ninety days in order to maintain the continuous protections of the Act.232 Additional notifications may have to be filed when the joint venture undertakes new or different research activities,233 but even without these new notifications, joint R&D ventures will continue to enjoy the Act’s detrebling protections for activity which was disclosed in the original notification.234

The decision to register under the National Cooperative Research Act is entirely voluntary.235 Congress left it to the venturers themselves to weigh the disadvantages of disclosure against the advantages of limiting the Federal Register Notice must be made available to the joint venturers prior to publication. Id. This will allow the parties to exercise their right to withdraw a notification before publication of a notice. 15 U.S.C. § 4305(e). Alternatively, the Department of Justice invites joint venturers to submit their own draft Federal Register Notices. 49 Fed. Reg. 50,122 (1984).

230. 15 U.S.C. § 4305(a). There is no requirement that joint R&D ventures notify the antitrust agencies of their specific research activities; only the “nature and objectives” of a research project must be disclosed. The parties need only provide as part of the notification adequate information to permit the antitrust agencies to publish a notice. H.R. REP. NO. 1044, 98th Cong., 2d Sess. 19, reprinted in 1984 U.S. CODE CONG. & AD. NEWS 3131, 3144.

232. Failure to disclose that a new member has joined the joint R&D venture will terminate the protections of the Act for all parties to the venture at the conclusion of the 90 day period. H.R. REP. NO. 1044, 98th Cong., 2d Sess. 17-18, reprinted in 1984 U.S. CODE CONG. & AD. NEWS 3131, 3142.
235. H.R. REP. NO. 1044, 98th Cong., 2d Sess. 21, reprinted in 1984 U.S. CODE CONG. & AD. NEWS 3131, 3146 ("Joint ventures are free to take advantage of the notification procedure if they so choose.").
ing their potential exposure to actual damages. The Act’s reasonableness test and provisions permitting defendants to recover attorney’s fees in certain circumstances apply to joint R&D ventures (as defined) even if they have not notified the antitrust enforcement agencies. A decision by a particular joint research and development venture not to file a notification does not create a negative inference or presumption of non-compliance under the statute, but the venture will not qualify for detrebling protection.

Joint venturers must also exercise their own discretion in determining the quantity and form of the material required to describe the nature and objectives of their venture. Parties to a joint R&D venture have an incentive to be accurate (if not thorough) in their notifications because in the event of litigation a reviewing court will look to see if the notification accurately describes the venture’s activities before allowing the Act’s protections.

The antitrust agencies’ roles in implementing the notification provision are intended to be purely ministerial. Notification does not involve a type of federal regulation of joint R&D because publication of the notice in the Federal Register implies neither approval nor certification of the conduct of the joint venturers by the enforcement agencies. Congress did not believe that regulations to implement the notification procedures needed to be promulgated because Congress only

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236. The 90 day filing period was provided so that the venturers could have sufficient time to decide whether to file notification materials. Id. at 17, reprinted in 1984 U.S. CODE CONG. & AD. NEWS at 3142.

237. Id. at 21, reprinted in 1984 U.S. CODE CONG. & AD. NEWS at 3146.

238. Id.

239. 49 Fed. Reg. 50,122 (1984). A completely uninformative notification, however, such as “research and development to promote the mutual interests of the parties,” would not satisfy the requirements of section 4305(a). H.R. REP. No. 1044, 98th Cong., 2d Sess. 19, reprinted in 1984 U.S. CODE CONG. & AD. NEWS 3131, 3144.

240. Nonsubstantive or technical omissions in the filing will not destroy the protections of 15 U.S.C. § 4303 where a joint venture has made a good faith effort to comply with the written notification requirements. See H.R. REP. No. 1044, 98th Cong., 2d Sess. 19, reprinted in 1984 U.S. CODE CONG. & AD. NEWS 3131, 3143.


242. H.R. REP. No. 1044, 98th Cong., 2d Sess. 17, reprinted in 1984 U.S. CODE CONG. & AD. NEWS 3131, 3142. The published notifications cannot suggest that the joint venture is entitled to the protection of the Act because this will only be determined by courts if the venture is involved in litigation under the Act. All the notices published in the Federal Register state that “the notification was filed for the purpose of invoking the Act’s provisions limiting the recovery of antitrust plaintiffs to actual damages under specified circumstances.” (emphasis added). See, e.g., Notice, 50 Fed. Reg. 26,850 (1985).
wanted joint venturers to submit adequate information for the publication of a notice in the Federal Register.\textsuperscript{243}

The advantages of notification are not available to all joint ventures involving research,\textsuperscript{244} and companies wishing to maintain privacy from either the government or competitors or both may forgo the protections of the Act's detrebling provisions if they view the level of required disclosure as too high.\textsuperscript{245} Although the National Cooperative Research Act modifies the right granted to private parties to sue for treble damages,\textsuperscript{246} injured parties\textsuperscript{247} may still sue for full recovery of their actual damages, the cost of suit, reasonable attorney's fees and prejudgment interest\textsuperscript{248} unless the court finds that such an award is unjust.\textsuperscript{249}

To summarize, R&D conduct within the scope of a joint research and development venture's notification is never subject to recovery for more than actual damages when there is compliance with the notification requirements. It must be emphasized that detrebling is linked to notification and a joint R&D venture must file a proper notification and file additional notifications as necessary when the scope of the research or membership in the joint venture changes. The other advantages of the Act, including the reasonableness standard and the awarding of attorney's fees to prevailing parties in certain circumstances, do not depend on notification.

\textsuperscript{244} Firms are likely to forgo filing if research and development is but one component of a broader joint venture effort that includes manufacturing and marketing. These commercial activities are explicitly excluded from the Act's definition, except where they involve the production or marketing of proprietary information developed through the venture. 15 U.S.C. § 4301(b)(2).
\textsuperscript{245} But cf. 15 U.S.C. § 4305(d) (protecting from disclosure under the Freedom of Information Act and from open judicial or administrative proceedings all information and documentary material submitted by the joint R&D venture but not appearing in the published notice).
\textsuperscript{247} Plaintiffs presumably will continue to be confronted with traditional standing tests requiring antitrust injury. To have standing, a plaintiff must prove that it suffered "antitrust injury" which is "injury of the type the antitrust laws were intended to prevent and that flows from that which makes the defendant's acts unlawful." Brunswick Corp. v. Pueblo Bowl-O-Mat, 429 U.S. 477, 489 (1977) (denying standing to bowling centers challenging Brunswick's acquisition of competing centers under Clayton Act § 7).
C. Attorney's Fees

When a plaintiff's claim or its conduct of litigation in either a state or federal antitrust suit against a joint R&D venture is held to be "frivolous, unreasonable, without foundation, or in bad faith," the defendant may be reimbursed for fees incurred in defending against such claim or conduct.\textsuperscript{250} The bill originally adopted by the House of Representatives would routinely have awarded attorney's fees to the prevailing party.\textsuperscript{251} Congress, however, did not want to discourage plaintiffs from performing their valuable function as "private attorneys general" under the antitrust laws, so there is no liability for attorney's fees when a plaintiff loses a non-frivolous case brought in good faith.\textsuperscript{252}

In choosing to allow courts to award prevailing defendants attorney's fees only for suits that are "frivolous, unreasonable, without foundation, or in bad faith," Congress followed the standard adopted by the Supreme Court for awarding attorney's fees to defendants in Title VII employment discrimination cases.\textsuperscript{253} Since joint ventures by definition include multiple parties, a plaintiff's potential liability for his opponents' attorney's fees might be extremely high.\textsuperscript{254} A trial court may offset part or all of any fee award if it finds that the prevailing party conducted a portion of the litigation frivolously, unreasonably, without foundation, or in bad faith.\textsuperscript{255} The Act's provisions for attorney's fees do not apply to parens-patriae suits brought by State Attorneys General under section 4C of the Clayton Act.\textsuperscript{256}

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\item \textsuperscript{250} 15 U.S.C. § 4304(a)(2).
\item \textsuperscript{251} H.R. 5041, 98th Cong., 1st Sess., 130 CONG. REC. H8730 (daily ed. Aug. 9, 1984).
\item \textsuperscript{253} See id. at 15, reprinted in 1984 U.S. CODE CONG. & AD. NEWS at 3139-40 (detailed discussion of how this standard for awarding attorney's fees should operate). The Supreme Court first articulated this standard in Christianburg Garment Co. v. EEOC, 434 U.S. 412, 417-22 (1978).
\item \textsuperscript{254} A joint research and development venture that takes the corporate form could alternatively be sued in its individual capacity.
\item \textsuperscript{256} H.R. REP. NO. 1044, 98th Cong., 2d Sess. 16, reprinted in 1984 U.S. CODE CONG. & AD. NEWS 3131, 3141. Section 4C, codified at 15 U.S.C. § 15c, provides that "the court may, in its discretion, award a reasonable attorney's fee to a prevailing defendant upon a finding that the State attorney general has acted in bad faith, vexatiously, wantonly, or for oppressive reasons." 15 U.S.C. § 15c(d)(2) (1982).
\end{itemize}
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III. IMPLEMENTATION OF THE NATIONAL COOPERATIVE RESEARCH ACT

A. Private Industry Response

As of January 31, 1986, thirty-two joint R&D ventures had filed written notifications with the Justice Department and had notices published in the Federal Register pursuant to the Act. While many of these ventures will be conducting research in the high technology areas of computers, semiconductors and telecommunications, a majority of the joint ventures have been formed to perform research in traditional fields such as steel fabrication, concrete and cement, truck transmissions, oil and gas drilling, and automobiles. This early experience is consistent with the suggestions of a recent Harvard Business Review survey that the cooperative research efforts most likely to respond to a modification of the antitrust laws will be those composed of a small number of companies cooperating in a single development project or technical area and guided by a well-defined business plan. Only fifteen of the joint R&D ventures that have filed notifications appear to have been in existence prior to the Act's official enactment.

While private industry response in the first year may be an insufficient basis on which to speculate on the Act's long-term effectiveness, eighty-five percent of the industrial organization economists responding to a recent survey predicted that the amount of joint research being conducted would increase as a result of the National Cooperative Research Act. However, the most common expectation was that in quantitative terms the increase was likely to be de minimus. Forty-six percent of those responding to the survey stated that the competitive performance of firms in this country would decrease as a result of the Act because it will allow firms to engage in illegal activity such as price fixing. Many of the economists concluded that competitive research would continue because of the chance for individual firms to invent something on their own. The economists were...

257. Fusfeld & Haklisch, supra note 47, at 74.
258. Preexisting joint ventures were required to notify the Federal Government not later than January 9, 1985, 15 U.S.C. § 4305(a), and the Justice Department was required by law to publish the Federal Register notice within 30 days after filing, 15 U.S.C. § 4305(b). It was therefore assumed that joint R&D ventures that had been in existence prior to the effective date of the Act would have had notices published in the Federal Register on or before February 15, 1985.
260. Id. at 6-7.
261. Id. at 7.
consistent in their opinion that the law will not substantially affect the economy at home or abroad.

B. Current Department of Justice Enforcement Policy

The Justice Department’s ministerial function of processing notifications pursuant to the National Cooperative Research Act has not displaced either its traditional enforcement function or its routine investigation of business combinations for antitrust violations. With incentives for private antitrust suits against joint R&D ventures dramatically reduced by the National Cooperative Research Act, the United States government may in fact be the primary plaintiff challenging joint R&D ventures under the antitrust statutes. The current Justice Department position is that it will not be concerned with joint R&D ventures unless they result in highly concentrated markets for research. The Department will consider efficiency justifications that yield high market shares, and will be sensitive to the need for reasonable restrictions on venture-generated technology.

The Justice Department believes collateral restrictions are legal if they directly further a joint venturer’s essential purpose and are of limited scope and duration, but will oppose collateral agreements that bear no reasonable relationship to the success of the joint R&D venture, in particular those involving horizontal price fixing or market division. A commitment by joint venture partners to forgo all independent R&D activity, for example, would be highly suspect.

The Justice Department recommends reliance on the business review letter process if there is a concern about the antitrust treatment of a specific proposed venture, and joint R&D ventures continue to seek

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262. Division Chief’s Speech, supra note 8, at 874. The current Department of Justice position is consistent with the analysis in the 1980 Antitrust Guide. See generally ANTI-TRUST GUIDE, supra note 62, at 16-19, reprinted in [Oct.-Dec.] ANTITRUST & TRADE REG. REP. at 5-6. According to an interview with former Assistant Attorney General McGrath, antitrust officials try to judge whether a joint venture “is likely to produce something that would not have been produced as efficiently, whether economic benefits will flow that otherwise would not occur, and then balance that against the risk of price fixing or collusion of some other troublesome sort.” Henderson, Antitrust and the Efficiency Test, Wash. Post Nat’l Weekly Ed., Apr. 8, 1985, at 21, col. 3.

263. Division Chief’s Speech, supra note 8, at 874.

264. Id. Examples of such permissible restraints include agreements that venture partners exchange previous research results, not disclose venture-related research results to outsiders until patents are obtained, and divide up research efforts among themselves. Id. This position is consistent with the approach adopted in Berkey Photo, Inc. v. Eastman Kodak Co., 603 F.2d 263, 302 (2d Cir. 1979), cert. denied, 444 U.S. 1093 (1980).

265. Division Chief’s Speech, supra note 8, at 874.

266. Id. Although the Justice Department is not authorized to issue advisory opinions to private parties, in certain circumstances, the Antitrust Division analyzes proposed business plans at the written request of interested parties and states its present enforce-
business review clearance even if they have already filed notifications pursuant to the Act. 

Government scrutiny of joint research has been demanding and clearance has not been automatic. Microelectronics and Computer Technology Corporation, for example, was informed in 1982 that the Antitrust Division would not challenge its formation because the mere establishment of the joint venture did not raise anticompetitive concerns. However, because the proposed venture had the potential of lessening competition in research, the Antitrust Division indicated that it would subsequently review the specific research ventures planned by MCC to determine whether they would result in any anticompetitive effects. In March, 1985, the Justice Department announced that it would not challenge the implementation of MCC’s current joint research and development programs.

The Justice Department in deciding whether to give business review approval to joint R&D ventures may apply a higher standard than a court would apply in a lawsuit under the Act. The Act is concerned primarily with the formation of joint R&D ventures, requires no advance showing of efficiencies before granting its protections and directs its focus primarily on research markets. The Justice Department, on the other hand, seems to have adopted a “predictive collusion” test which considers more than simply the R&D market in order to predict at the time of formation whether the joint R&D venture is likely to have long-term negative impacts on competition in future product markets. The Justice Department position, for example, is that the relevant market for the joint R&D venture would be the same as the relevant market for evaluating the potential anticompetitive effects of a merger between the joint venturers.

267. In granting business review clearance to research joint ventures, the Division reserves the right to institute enforcement proceedings if the actual operation of the research joint venture proves anticompetitive in purpose or effect. See Centrifugal Pump Industry Clearance, supra note 218, at 69 (business review clearance granted to research joint venture after determination that there was no “countervailing significant risk to competition in existing products or in future products outside the scope of the venture.”).


270. Schwartz & Cooper, supra note 19, at 132-33. See Centrifugal Pump Industry Clearance, supra note 218, at 69 (business review clearance granted to research joint venture after determination that there was no “countervailing significant risk to competition in existing products or in future products outside the scope of the venture.”).

271. Baxter, Antitrust Law and the Stimulation of Technological Invention and Innovation, Joint Economic Comm. Hearings, supra note 34, at 70. The 1984 Merger Guidelines define a market as a group of products such that a hypothetical firm that is the only present and future seller of those products would possess the power to profitably restrict
rule of thumb, if a joint venture were a merger and would pass muster under the merger guidelines, it is legal.\(^2\) This approach to market definition that attempts to predict the effect of a joint R&D venture on current or future product markets in order to determine the venture’s legality at its point of formation has been criticized because many joint R&D ventures that present no danger to R&D competition may fail concentration tests focusing on today’s and tomorrow’s product markets.\(^2\) Nevertheless, the Justice Department recently gave its approval to a four partner research joint venture comprised of the only four current United States manufacturers of centrifugal pumps.\(^2\)

**IV. ANALYSIS AND ARGUMENT**

The National Cooperative Research Act represents a short-term solution to the long-term declines in research and development expenditures, productivity and international competitiveness on the part of American industry.\(^2\) There can be little doubt about the seriousness of the problems Congress was hoping to solve by passing the National Cooperative Research Act. Substantial evidence presented to Congress in the legislative hearings demonstrated a need for legislative clarification in an area where uncertainty may have been limiting national research progress. However, it is doubtful whether Congress fully achieved its goals and whether its response in the form of the National Cooperative Research Act was the most effective means of addressing these problems. Subjecting joint research and development venturers to antitrust scrutiny under the rule of reason, reducing the incentives for private parties to pursue claims against such ventures and limiting judgments to actual damages are by themselves unlikely to result in a significant acceleration in the pace of industrial innovation. Furthermore, legal mechanisms that carefully distinguish between anticompetitive and output and to raise prices. Antitrust Div., U.S. Dep’t of Justice, 1984 Merger Guidelines, 49 Fed. Reg. 26,823, 26,824 (1984).

\(^{272}\) Enactment of Statutory Protections Improves Climate for Joint Ventures, [July-Dec.] *Antitrust & Trade Reg. Rep.* (BNA) No. 1188, at 800, 802 (Nov. 1, 1984) (statement of Acting Ass’t Att’y Gen. Charles F. Rule). In evaluating mergers, the Department considers both the post-merger market concentration and the increase in concentration resulting from the merger. The Department will not challenge mergers in unconcentrated markets, but will, for example, challenge the merger of any firm with the leading firm in the market having over 35 percent market share. Antitrust Div., U.S. Dep’t of Justice, 1984 Merger Guidelines, 49 Fed. Reg. 26,823 (1984).

\(^{273}\) See Schwartz & Cooper, supra note 80, at 132-34.

\(^{274}\) Centrifugal Pump Industry Clearance, supra note 218, at 69. The venture will conduct basic research into the reliability and performance of centrifugal pumps.

\(^{275}\) Some of these problems have in fact worsened since late 1984. The trade deficit, for example has continued to escalate. Freadhoff, *New 1985 Trade Deficit Figures Confirm Widening of Imbalance*, Investor’s Daily, Mar. 13, 1986, at 31, col. 3.
procompetitive joint R&D ventures at their point of formation may eventually be needed.

A. Codifying Prior Law

The National Cooperative Research Act has, to a large extent, merely codified existing antitrust doctrine. This codification by itself is unlikely to have a significant effect on the nation’s R&D output, which has prompted some to criticize the Act as unnecessary. The Act does not establish that joint R&D ventures are legal under the antitrust laws, nor does it provide any antitrust immunity for joint R&D ventures. Safe harbors from the application of the antitrust laws for qualifying research joint ventures were not seriously considered by Congress, perhaps because of the difficulty of developing a formula for characterizing those research joint ventures which should come within the scope of a safe harbor protection clause. Nevertheless, Congress believed that even if the Act was a clarification in the law, eliminating some legal uncertainty would increase the attractiveness of cooperative R&D and help reduce the overall risk normally associated with major R&D projects. However, it is questionable how much uncertainty has actually been removed by the Act.

Furthermore, the private right of action, although emasculated by the Act’s detrebling and attorney’s fees provisions, remains intact and private lawsuits against joint R&D ventures are still possible. Private litigants will continue to have incentives to sue the participants in a joint R&D venture. First, such venturers may still be found to have engaged in unreasonable conduct, and an award of actual damages can be substantial. Second, if the joint venture engages in research or conduct beyond the scope of notification, the detrebling provisions no longer apply. Finally, treble damages are not the only motivation for private use of the antitrust laws.

277. See Ordover & Willig, supra note 93, at 313.
279. See infra text accompanying notes 281-98.
280. Relaxed Justice Department enforcement of antitrust laws in the merger area, for example, has prompted private companies to sue competitors who are planning mergers. The goal of such lawsuits does not appear to be the collection of treble damage awards but rather the frustration through costly and time-consuming litigation of those mergers that pose a competitive risk. Her.ey, Corporate Vigilantes, FORBES, Mar. 25, 1985, at 145. Chrysler’s suit against the General Motors-Toyota joint venture for manufacturing Japanese small cars in America is a good example of suit brought for other reasons than the prospect of a treble damages award. Chrysler dropped its suit against General Motors one day before announcing a similar joint venture of its own with Mitsubishi Mo-
B. Continuing Antitrust Uncertainty for Joint R&D Ventures

To date, there has been no reported litigation concerning the National Cooperative Research Act. Eventually courts will be forced to interpret the new law and weigh anticompetitive effects against procompetitive benefits. The Conference Report is intended to guide the courts in weighing the competitive effects of joint R&D ventures, but Congress anticipated that “the courts will continue to develop further rules and presumptions based upon experience with joint R&D programs.” This means that despite the clarification sought by Congress, uncertainty remains in the antitrust law governing research joint ventures.

The statute’s ultimate goal appears to be an increase in productive R&D output. While a “consumer welfare” test is not mentioned in the National Cooperative Research Act or the accompanying legislative history, it has been argued that consumer welfare should be the principal goal of antitrust. If the result of the formation or the conduct of the joint R&D venture is directly and identifiably disadvantageous to the welfare of consumers, then there is likely to be a violation of the antitrust laws under the Act’s reasonableness test just as there would be under prior law.

The rule of reason is an attractive legal standard because it can be adapted to the particular circumstances of the firm and industry in question, but it does not always provide the predictability of outcome that

tors of Japan. As part of the settlement of its suit, Chrysler did, however, achieve certain concessions from General Motors that were not part of the FTC consent decree. Buss, Chrysler Settles Suit Over Link of GM, Toyota, Wall. St. J., Apr. 15, 1985, at 2, col. 1 (w. ed.).


283. Berkey Photo, Inc. v. Eastman Kodak Co. represents an important example of the consumer welfare principle in action. The Second Circuit said that predisclosure was not necessary to avoid section 2 monopolization liability, 603 F.2d at 284 & n.28, but then suggested that pre-disclosure was necessary to avoid liability for restraint of trade under section 1. Id. at 303-04. This distinction appears to turn on the likelihood of decreased innovation and the threat of delay for competitive advantage and market control by a monopolist like Kodak. If the result of the research joint venture’s actions is directly and identifiably disadvantageous to consumer welfare, then there is an antitrust violation.

284. This may explain why the judicial trend in recent years has been to narrow the application of per se rules and expand the types of business combinations subject to rule of reason. See Baxter, Antitrust: A Policy in Search of Itself, 54 ANTITRUST L.J. 15, 16 (1985).
business decisionmakers seem to desire. Little predictive guidance is possible under the rule of reason for joint ventures because the ultimate legal result depends on judicial characterization of a complex factual transaction.\(^{285}\) If interpreted by courts to resemble traditional rule of reason doctrine, the Act’s reasonableness test will require that all the circumstances of a case be weighed in deciding whether a restrictive practice should be prohibited for imposing an unreasonable restraint on competition.\(^{286}\) Uncertain and inconsistent treatment of joint R&D ventures may result as courts develop their own rules and presumptions under the multi-factor balancing test required by the rule of reason. Specifically, uncertainty is likely to arise regarding the type of non-research activity that can be undertaken consistent with the Act’s definitions, the consideration of efficiency and the appropriate size of joint R&D ventures.

1. Definitions

A key issue is the extent to which the Act’s protections will be forfeited by joint ventures that do not exclusively limit themselves to research and development activities.\(^{287}\) The definition of "joint R&D venture" in the Act allows for joint production and marketing efforts involving proprietary information developed through the venture\(^{288}\) and other conduct that is "reasonably required" to conduct the venture or protect against misappropriation of proprietary information.\(^{289}\) It has been argued that this allows companies the opportunity to structure joint ventures that include a wide variety of non-R&D activities yet remain within the Act’s purview so long as the sole purpose of the joint activity is not to prepare a product for the commercial marketplace.\(^{290}\) There is strong evidence of Congressional intent to allow some commercialization activities by joint R&D ventures.\(^{291}\) However, the statute is not directed

\(^{285}\) Brodley, supra note 59, at 1536.


\(^{287}\) The uncertainty over what activities will qualify for the Act’s protections is due primarily to the phrasing of the exclusion provisions which suggest a considerably broader reach for the Act than the narrow research activities included in the definition of "joint R&D venture." Compare 15 U.S.C. § 4301 (a)(6) with 15 U.S.C. § 4301(b). See also Holmes, Research Joint Ventures and the Antitrust Laws: Recent Statutory and Administrative Changes, 83 Pat. & Trademark Rev. 59, 63 (1985).


\(^{289}\) 15 U.S.C. §§ 4301(b)(1) and (b)(3).


\(^{291}\) "[M]arketing the intellectual property developed through a joint R&D program may be the ultimate goal and a key financial aspect of a joint R&D program and is rightfully viewed as an integral part of it." S. Rep. No. 427, 98th Cong. 2d Sess. 16, reprinted
to joint ventures in production and marketing, even though they may have significant procompetitive effects. Ventures which do not engage in the basic research activities set out in the Act's definition, or which engage in marketing and manufacturing of products and services other than the underlying intellectual property developed by the venture, should not be included in the Act's purview and are likely to be judged under preexisting antitrust principles.

2. Efficiency Considerations

Once anticompetitive effects have been identified, courts will be required to evaluate the efficiency justifications that are likely to be offered by various joint R&D ventures. Courts looking for guidance on this question may refer to the articulated policies of the antitrust enforcement agencies. The Department of Justice when analyzing mergers will reject claims of efficiencies if equivalent or comparable savings can reasonably be achieved by the parties through other means. Courts applying such reasoning to joint R&D ventures might ask if there were other partners whose participation in the venture would raise less anticompetitive risks. Joint R&D venturers may be required to meet a high evidentiary burden to prove their claimed efficiency advantages and establish a greater level of expected net efficiencies for more significant anticompetitive risks. Non-scale economies are difficult if not impossible to quantify, and assessments must therefore be essentially qualitative. Furthermore, as the FTC has observed, "even behavior that improves

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in 1984 U.S. CODE CONG. & AD. NEWS 3105, 3112-13. This Senate Judiciary Committee Report, which accompanied S. 1841, accurately reflects Congressional intent as to the activities to be excluded from the Act's definitions. H.R. REP. No. 1044, 98th Cong., 2d Sess. 8, reprinted in 1984 U.S. CODE CONG. & AD. NEWS 3131, 3132.


293. The Federal Trade Commission, in reviewing efficiency claims is interested in "real technical efficiencies" which increase productivity, including scale economies and technological transfers. Purely pecuniary economies, such as tax benefits, that may be grounded in sound business motivation fail to qualify as real technical efficiencies in the FTC scheme. Enactment of Statutory Protections Improves Climate for Joint Ventures, [July-Dec.] ANTITRUST & TRADE REG. REP. (BNA) No. 1188, at 800, 802 (Nov. 1, 1984) (reporting statement of FTC Commissioner George Douglas). According to the Department of Justice, cognizable efficiencies in the merger area include achieving economies of scale, better integration of facilities, plant specialization, lower transportation costs, and sometimes reductions in general administrative and overhead expenses. Antitrust Div., U.S. Dep't of Justice, 1984 Merger Guidelines, 49 Fed. Reg. 26,823, 26,834 (1984).


296. Brodley, supra note 210, at 77.
efficiency or technology may still be unreasonable, since the benefits may be only incidental in relation to the adverse effects (e.g. improvements instituted merely as a temporary measure for the purpose of driving competitors out of the market).”

3. **Optimal Size.**

A final area of uncertainty for joint R&D ventures, related to efficiency considerations, involves selecting the correct number of participants and the proper size of the venture. It may be anticompetitive for a joint venture either to have too many members or to exclude participants from the venture, depending on the nature of the relevant R&D market and the research being undertaken. Parties forming a joint research and development venture who believe, for example, that the optimum size of the venture includes forty percent of the relevant market face a dilemma similar to that which they would have faced before the passage of the Act: should they form the larger and more efficient venture with the expectation that if challenged they would be able to sustain their efficiency justification, or should they scale back the size of the venture to a less efficient size in order to minimize the risk of being found overinclusive? The optimal size of a research joint venture is a question of fact involving economic rather than legal questions; however, judges, not economists, will be the ones who ultimately determine this issue on a case-by-case basis when litigation under the Act arises.

C. **Anticompetitive Risks**

Even if the Act leads to some noticeable increase in the amount of joint research being conducted in this country, there are potentially serious long-term anticompetitive consequences that could result from the special treatment given joint R&D ventures under the Act. Specifically, certain companies taking advantage of the Act’s provisions may be allowed to consolidate their dominant positions in their respective industries, thus leading to concentration in research markets. Barriers to entry are likely to increase if new companies find that in order to compete successfully they need either to be members of joint R&D ventures or to have access through licensing or other means to the technology produced by established ventures. The most serious antitrust problems

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298. This is substantially more than the 20% market share suggested by Congress as the point at which anticompetitive effects are unlikely. See H.R. REP. NO. 1044, 98th Cong., 2d Sess. 10, reprinted in 1984 U.S. CODE CONG. & AD. NEWS 3131, 3134-35.
associated with joint research and development ventures are likely to arise not in the R&D phase but in the subsequent manufacturing and vertical distribution phases when pricing decisions must be made. The primary anticompetitive risks are that the joint R&D venture can facilitate price and output decisions of the venturers and that the venture’s R&D decisions may negatively affect the R&D activities of other active and potential rivals.

One of the primary purposes of the antitrust laws is to prevent collusion by market competitors, but the National Cooperative Research Act may actually facilitate collusion among competitors. Collusion in R&D is especially troublesome because it may be a more enduring and stable kind of collusion than collusion in product markets. Since collusion on research and development matters does not take the form of higher prices, it is not susceptible to market correction except over the very long term.

A major criticism of the National Cooperative Research Act is that it has drastically reduced the incentives for private enforcement at a time when government antitrust enforcement is at an all-time low. While research joint ventures that are formed in whole or in part out of a desire to control innovation in an industry are still illegal under the Act, they will be less likely to be detected because of the emasculated private remedies. Also, even if there is eventual detection, which is likely, any short-term delays in R&D progress due to collusion may prove very significant in the longer-term because of the ripple effects of each individual innovation and because the threats from foreign competition are so intense.

The detrebling provisions of the Act should be linked to an evaluation of anticompetitive risks rather than solely to disclosure and timely notification to federal agencies, especially when the required disclosure is so minimal. Congress left the quantity and form of disclosure to the

299. R. Posner, Antitrust Law: An Economic Perspective 22. See Northern Pac. Ry. Co. v. United States, 356 U.S. 1, 4-5 (1958) ("The Sherman Act . . . rests on the premise that the unrestrained interaction of competitive forces will yield the best allocation of our economic resources, the lowest prices, the highest quality and the greatest material progress . . . .").

300. Thirty-one percent of the economists who responded to the University of Georgia Study believed that the Act is likely to promote collusion. Cartwright, Kamerschen, Tilley & Wright, supra note 259, at 7.

301. Baxter, Market Definition, supra note 185, at 722.

302. Id. This is because there is no incentive or means for consumers, who purchase only end products, to shift to other researchers, and hence there is no corresponding opportunity for fringe firms to grow.

303. See President’s Commission, supra note 25, at 16.

304. Congress intended that the notices in the Federal Register provide notice to private parties of those joint R&D ventures that seek the newly created protection of the Act. However, detrebling protection is tied to the notification filed under 15 U.S.C.
discretion of the joint venturers, rather than insisting that joint venturers provide sufficient information in the notices for preliminary antitrust scrutiny. The required disclosure of the research objectives and the identity of the participants in a joint R&D venture bears little relationship to the potential impact of the joint venture on competition. Further, the notices published in the Federal Register contain no information about the capital structure of the joint venture, its total capitalization or any estimate of its share of the market for R&D. It is impossible to determine from the public notices precisely what level of financial and organizational commitment has been made by each of the members of these joint ventures, or the size and scope of the research efforts being undertaken. In short, it is too easy for firms to place themselves under the umbrella of the National Cooperative Research Act. Even anticompetitive joint R&D ventures apparently qualify for the statute's deterring protections merely by filing notifications and stating some vague R&D objectives in a brief filing to the Justice Department and Federal Trade Commission.  

D. Possible Amendments to Counter Anticompetitive Risks

To ensure competition in domestic markets while better achieving the goal of promoting American international competitiveness, amendments to the National Cooperative Research Act should be considered. Four possible amendments to the statute, some of which were considered and rejected by Congress, would limit qualifying joint R&D ventures in terms of their duration, size, definition, and access restrictions.

1. **Limit the Duration of Qualifying Joint Ventures**

The statute in no way limits the duration of a joint R&D venture to a specific period of time. Limiting the duration of the joint venture is desirable because joint research projects of short duration are less likely to have anticompetitive consequences than lengthier ones. First, anticompetitive effects are confined to the prescribed time period. Second, competitive rivalry among venturers who know of the venture’s termination is likely to be increased, creating incentives for participants to

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§ 4305(a) and not to the notice published in the Federal Register. H.R. REP. NO. 1044, 98th Cong., 2d Sess. 16, reprinted in 1984 U.S. CODE CONG. & AD. NEWS 3131, 3141.

305. But see supra note 237.

306. Qualifying joint R&D ventures are already limited to the basic research phase, and subsequent production and marketing phases are excluded from the Act’s protections. See supra text accompanying notes 287-92. The research and development phase, however, can be unlimited in time.


308. See Brodley, supra note 59, at 1547.
retain their independent research capabilities. One standard for measuring the reasonableness of the duration of technology-sharing agreements is the "reverse engineering" period, the time needed for a party lacking the technology to develop it on its own.309

2. Limit the Size of Qualifying Joint Ventures

Limiting the size of a qualifying joint venture based on market shares or some other objective criterion would help to prevent overinclusiveness and the associated risk of a slowdown in innovation.310 The Act does not distinguish between small joint R&D ventures and those formed by participants who together possess a very large share of the relevant R&D market. The size of the joint research and development venture itself and the relative sizes of the participants will be relevant factors in a rule of reason analysis, but it may be preferable to subject joint ventures that include either the largest companies in the industry or that represent a monopolist's share of the relevant market to a higher level of preliminary scrutiny. The current statute does not prevent the formation of a joint R&D venture that encompasses the entire industry, even though it may prove later to have significant anticompetitive and spillover effects. Instead, the venture is permitted to begin operations virtually unreviewed, with only a slight possibility of antitrust scrutiny if a suit is subsequently brought. It might make more sense to have a reviewing process that screens very large ventures when their notification is filed rather than allowing them to function unless and until someone brings suit.

3. Limit Research Objectives

Joint venturers who seek to invoke the Act's protections need not show that their particular joint venture will in some way improve America's competitive position or promote innovation. The Act and the accompanying Conference Report contain no guidance as to how the research carried out by the joint ventures should be conducted.


310. This approach has already been considered in Europe. A proposed group exemption from Article 85(1) of the Treaty of Rome for research joint ventures would have specifically excluded joint ventures where more than one of the top three firms in an industry is involved in a joint venture. The European proposal would also have prohibited research joint ventures where the aggregate sales of all the joint venturers were more than $500 million. In essence, the EEC proposed to allow exemptions from antitrust only for joint ventures between medium and small-sized companies. 27 O.J. EUR. COMM. (No. C 16) 3 (1984); see also Blechman, supra note 32, at 67-68.
Research objectives will still be determined by private companies acting in secret, and the free market and the profit motives of firms are to be trusted to determine optimal R&D priorities and funding levels. Furthermore, there is no government involvement in directing research objectives. The exact contribution that joint R&D ventures will make toward improving our position in the international economy is therefore unclear. It is ironic that Congress should be so trusting of the motives of the participants in joint R&D ventures when, as Senator Biden stated during the deliberations over the Act, “the whole reason for the antitrust laws is that we [in Congress] do not trust the companies to be competitive.”

The provisions of the National Cooperative Research Act should be limited to those joint R&D ventures that are likely to improve America’s international competitive position. This could be accomplished by requiring that the parties to a joint R&D venture demonstrate an intent to challenge foreign competitors in the domestic market, which would require a showing of present or future threats, or an intent to sell abroad in foreign markets. Another requirement for antitrust exemption should be a statement of the type and quantity of the efficiency gains that are expected from the joint research and development venture. Under the National Cooperative Research Act’s regime, there is no alternative but to wait for private litigation or independent Justice Department investigations to determine whether the joint R&D venture produces net efficiencies. Because technology changes quickly, with one round of advances building on those that precede it, falling behind in one round of innovation makes it much harder to enter the competition later on. If we cannot afford to lose even small steps in our race with foreign competitors, some minimal advance showing of a joint R&D venture’s expected efficiency gains should be required.

4. Limit Restrictions on Distribution of Research Results

It is easier to accept joint R&D ventures as procompetitive when participants are willing to make their outputs available to nonparticipants because the exclusionary aspects of the venture are reduced. While some experts strongly opposed mandatory licensing of the fruits of joint R&D ventures, the founders of MCC argued for mandatory licensing after a period of three years, on the assumption that the three years of exclusive use of the product plus reasonable royalties would

312. President’s Commission, supra note 25, at 16.
provide sufficient incentives for inventors.\textsuperscript{314} Given the risks inherent in high technology research, participants need to be assured of commensurate rewards, so some restrictive licensing practices should be tolerated. Under any scheme requiring open access to research output, however, venture participants should be assured of reasonable royalties. Wider distribution of technology will occur as long as the venture’s output is available on a nondiscriminatory and reasonable basis.\textsuperscript{315} This is important because, as the President’s Commission on Industrial Competitiveness observed, “[i]t does us little good to design state-of-the-art products if within a short time our foreign competitors can manufacture them more cheaply.”\textsuperscript{316}

V. THE NATIONAL COOPERATIVE RESEARCH ACT AS PRECEDENT FOR ANTITRUST REFORM

A. Responding to International Competition

Passage of the National Cooperative Research Act reflects a growing consensus in Washington that American antitrust laws should be relaxed in order to encourage increased technological innovation and to allow American companies to better compete in the global economy.\textsuperscript{317} The paradox of the National Cooperative Research Act is that, like most of the other proposed antitrust law reforms whose stated goals are to restore American international competitiveness, it permits and indeed requires a reduction in inter-firm competition among American companies to achieve its intended results. The potential costs associated with such large-scale inter-firm cooperation include monopolization, greater industry concentration and increased barriers to entry. This is unfortunate

\textsuperscript{314} Joint Economic Comm. Hearings, supra note 72, at 188 (statement of John W. Lacey, Executive Vice President, Control Data Corporation). The bylaws of MCC provide that participants have exclusive access to the technology developed by the venture for three years. After three years, MCC may make licenses available to third parties on reasonable and nondiscriminatory terms, with participants collecting a pro rata share of royalties. MCC Bylaws (Dec. 7, 1982), reprinted in House Science and Technology Comm. Hearings, supra note 49, at 429-33.

\textsuperscript{315} See L. SULLIVAN, supra note 87, at 299.

because technological advance in an industry is an integral aspect of in-
dustrial competition, motivated by the prospect of competitive advantage
and the fear of losing in the competitive race.\textsuperscript{318}

Some argue that it is better for small American companies to be
-crushed by big American companies than to be crushed by big foreign
companies.\textsuperscript{319} This is a short-sighted policy premise. America is likely
to face stiff international competition for years to come, but this should
not force us to sacrifice a vigorous competitive environment in domestic
markets. The most significant problem in terms of our international
competitive position is that foreign governments appear to be able to
function in coordinated ways that the United States government does
not, because antitrust is regarded in America as something separate and
distinct from general economic policy. There are political and cultural
barriers to an effective American national planning policy, however, and
the experience of other countries may not be readily transferable to the
American system.\textsuperscript{320} What is needed is an institutionally acceptable way
of accommodating antitrust and other legitimate economic policies in the
enforcement process.\textsuperscript{321}

Two alternative approaches represent intermediate steps that fall
short of full scale national planning. First, there should be more atten-
tion given to international competition in traditional antitrust enforce-
ment. The National Cooperative Research Act represents an important
step in this direction. Second, a greater government role in supporting
and overseeing research and development activities in the private sector
should be initiated.

Consideration of international markets\textsuperscript{322} is one of the most direct
ways of introducing foreign competition as a factor in the antitrust
laws,\textsuperscript{323} and represents an advancement from earlier doctrine. For ex-
ample, the Department of Justice in its 1980 \textit{Guide to Research Joint

\textsuperscript{318} See R. NELSON, HIGH TECHNOLOGY POLICIES: A FIVE NATION COMPARISON (1984)
xi (recommending government support of generic research by industry).

\textsuperscript{319} L. THUROW, supra note 27, at 182.


\textsuperscript{321} Blechman, supra note 32, at 65.

\textsuperscript{322} The President’s Commission on Industrial Competitiveness, in recommending
that U.S. antitrust laws be changed to reflect the new global markets within which
American firms operate, points out that antitrust statutes were enacted when America
was isolated from the rigors of international competition. \textit{PRESIDENT’S COMMISSION,
supra note} 25, at 39.

\textsuperscript{323} The Act’s inclusion of international markets in antitrust analysis is consistent
with the 1984 Department of Justice Merger Guidelines, which give explicit recognition
to foreign competition and world markets when evaluating the market impacts of
Ventures, in a hypothetical case involving a joint venture that could increase the ability of American companies to compete with foreign companies, refused to consider this factor. The 1980 Antitrust Guide stated: "[A]ctivities by American firms objectionable under the antitrust laws are not allowable simply because they would arguably defend or improve the position of U.S. firms vis-a-vis foreign competitors."324

Consideration of international markets will allow for some large-scale joint ventures among American companies that dominate the domestic market as long as they are relatively insignificant factors in international markets. These international markets under the Act will include all the firms that "have the ability and incentive, either individually or in collaboration with one another, to undertake R&D comparable to the joint venture in question."325 World R&D markets are not highly concentrated326 so concentration increases in R&D markets among American firms are therefore not likely to raise competitive concerns.327

A greater government role in directing private research and development than that contemplated by the National Cooperative Research Act may be desirable.328 Other industrialized countries have demonstrated that by coordinating research and development and then sharing the information widely it is possible to cut the costs of technological advancement and increase the speed with which new technologies show up in the economy.329 Social rates of return on innovation are greater than individual rates of return,330 which suggests that societal

326. Baxter, Market Definition, supra note 185, at 719.
329. L. Thurow, supra note 27, at 108. Thurow argues for using public money and having government help finance civilian research and development projects with long to medium term payoffs, and to then rapidly spread the knowledge around the economy. Id. at 273-77.
330. Mansfield, Rapoport, Romeo, Wagner & Beardsley, Social and Private Rates of Return from Industrial Innovations, 91 Q.J. Econ. 221, 234 (1977). This is because dissemination of information can occur relatively rapidly and costlessly, and because it is difficult for a single firm to capture all of the benefits of any breakthrough.
mechanisms to disseminate the knowledge that will form the basis for innovation would be desirable.

Possible government roles include direct funding and tax incentives, as well as charting research objectives for collaborative research projects. Our international competitors all have a government agency which partially finances civilian cooperative medium-term industrial research on new products or new production processes.\textsuperscript{331} The Federal government could establish similar programs and agree to finance up to fifty percent of industrial R&D projects and limit financial support to groups of companies working on a collaborative basis. When only one firm is willing to participate in a research project, the government could still provide financial assistance so long as the research output would be freely cross-licensed to other firms, with the government sharing in any license fees received.\textsuperscript{332}

B. The National Cooperative Research Act as Precedent for Future Detrebling

Enforcement of the federal antitrust laws does not rest exclusively with the Justice Department and other agencies of the Federal government. Indeed, private actions have become the principal vehicle for the enforcement of the antitrust laws.\textsuperscript{333} Private parties that meet the standing tests are given the right to sue antitrust violators for three times the damages caused by the violation, plus attorney's fees.\textsuperscript{334} By providing incentives for nongovernmental plaintiffs and their lawyers to act as "private attorneys general" in helping to deter anticompetitive conduct that the government lacks the resources to detect and prosecute, private enforcement serves the multiple goals of punishing the violator, deterring misconduct and compensating the victim.\textsuperscript{335}

The Conference Report accompanying the Act "emphasize[s] that the elimination of treble damages for agreements limited to joint research and development for which notification has been provided is not to be regarded as a precedent for any further elimination of treble damages."\textsuperscript{336} According to Congress, certain unique characteristics justify eliminating treble damages in this narrow context,\textsuperscript{337} and "the eli-

\begin{itemize}
  \item \textsuperscript{331} L. Thurow, \textit{supra} note 27, at 264.
  \item \textsuperscript{332} Id.
  \item \textsuperscript{333} TREBLE DAMAGE STUDY, \textit{supra} note 43, at 1.
  \item \textsuperscript{334} 15 U.S.C. § 15.
  \item \textsuperscript{335} TREBLE DAMAGE STUDY, \textit{supra} note 43, at 1.
  \item \textsuperscript{336} H.R. REP. NO. 1044, 98th Cong., 2d Sess. 13, \textit{reprinted in} 1984 U.S. CODE CONG. & AD. NEWS 3131, 3137.
  \item \textsuperscript{337} Specifically, joint R&D ventures are unique because of foreign competition, the difficulty of assessing antitrust risks, and the deterrent effect of highly speculative damage exposure on potential members of a venture. \textit{Id.}
\end{itemize}
nation of treble damages in this context cannot be relied upon to justify de-trebling in other circumstances where these special characteristics of joint R&D are not present.\textsuperscript{338}

The Reagan Administration recently proposed "The Antitrust Remedies Improvements Act of 1986," which would eliminate treble damages for all antitrust violations other than price-fixing which results in overcharging or undercharging.\textsuperscript{339} This detrebling proposal is motivated principally by the same perception which motivated proponents of the National Cooperative Research Act, namely a continuing weakness in America’s international trade position believed to be due in part to overly stringent American antitrust laws.\textsuperscript{340} The threat of treble damages, it is argued, has deterred conduct that would benefit competition.

One solution to any overdeterrence problem is to refine and clarify the substantive law to lessen areas of uncertainty, which would not necessitate tinkering with the treble damage remedy.\textsuperscript{341} In the joint research area, Congress could have stated the reasonableness test as it did in the Act and not detrebled, or vice versa. Clarifying the substantive law and limiting judgments to actual damages as the National Cooperative Research Act does may not have been necessary to solve overdeterrence problems. In fact, the National Cooperative Research Act may underdeter anticompetitive conduct because of its open-ended protections and the emasculation of private rights of action. Similarly, detrebling in non-price fixing areas may not be necessary if there is judicial recognition of the procompetitive and efficiency-enhancing aspects of the business practices that are sought to be encouraged by the antitrust reforms.

C. Antitrust Laws, Innovation, and High Technology

By promoting competition in the market, antitrust policy attempts to promote innovation.\textsuperscript{342} A number of business people have expressed concern that the antitrust laws actually discourage innovation.\textsuperscript{343} Competition of some sort is an essential incentive for firms to undertake

\textsuperscript{338} Id.
\textsuperscript{341} TREBLE DAMAGE STUDY, supra note 43, at 37.
expensive research projects. However, it is acknowledged that the prospect of monopoly profits is one of the primary incentives for many innovators. The economist Joseph A. Schumpeter's theory of innovation and competition was that temporary monopoly profits are not only acceptable but are also necessary to stimulate innovation. In adopting the National Cooperative Research Act, Congress may have been following Schumpeter's theories which postulate a positive relationship between market concentration and technological progressiveness. The evidence does suggest a positive but weak association between concentration and innovation by industry, as innovation appears to be disproportionately centered in the largest several hundred manufacturing corporations, most of them oligopolists. Innovation is traceable to large firms operating in oligopolistic markets, supporting the Schumpeterian theory.

Research and development can be considered to be an investment with innovation as the return on that investment. Innovation by itself is rarely sufficient to translate into competitive advantage. Instead, innovation must be accompanied by cost advantages in marketing, distribution, manufacturing, purchasing or application engineering if it is to contribute to a sustainable competitive position.

Contrary to popular belief, new scientific knowledge is among the least reliable and least predictable sources of successful innovations. Furthermore, knowledge-based innovation has the longest lead-time of all innovation, nearing twenty-five to thirty years. Knowledge-based innovation is usually based on the convergence of several different kinds of knowledge, not all of them scientific or technological. It is simplistic to assume that modification of the antitrust laws will automatically result in accelerated rates of innovation, or that the antitrust laws are by themselves unduly restrictive of technologically innovative activity. Congress should commission an empirical evaluation of the effects of the

344. See J. SCHUMPETER, CAPITALISM, SOCIALISM & DEMOCRACY (1942). The essence of Schumpeter's position is that market power is necessary for innovation, and the competition that matters most is the competition that comes from the innovation itself.

345. INDUSTRIAL CONCENTRATION: THE NEW LEARNING 246-78 (H. Goldschmid, M. Mann & J. Weston eds. 1974).

346. CONGRESSIONAL BUDGET OFFICE, supra note 26, at 3.


349. Id. at 111.

350. See R. GIVENS, ANTITRUST: AN ECONOMIC PERSPECTIVE § 29.01 (1984) (citing numerous examples where legal uncertainty of antitrust treatment of innovation has been reduced).
National Cooperative Research Act before making further changes in the nation's antitrust laws for the purposes of promoting technological innovation.

CONCLUSION

By explicitly subjecting joint research and development ventures to rule of reason scrutiny under the antitrust statutes and by limiting potential liability to single rather than treble damages for those joint research and development ventures which properly notify the Federal government, the National Cooperative Research Act will almost certainly lead to an increase in the total amount of joint research undertaken. The Act is, however, weak medicine for America's ills of rising trade deficits and declining international competitiveness. The positive contributions which Congress felt joint R&D ventures can make to the American economy in the form of enhanced efficiencies, economies of scale and reduced duplication of effort are not likely to be achieved in the immediate future. Furthermore, not all research joint ventures should be encouraged because some have the potential for facilitating collusion, raising barriers to entry and skewing the competitive incentives for conducting research. Nevertheless, the Act provides legislative clarification in an area where antitrust uncertainty may have been inhibiting national research progress. Thus the National Cooperative Research Act constitutes a positive step toward improving our base of scientific and technological knowledge.