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In October of 1976, the Vanderbilt Law Review *published an article on vertical divestiture of the petroleum industry by Mr. Stark Ritchie, general counsel for the American Petroleum Institute. In his article, Mr. Ritchie examined the economic justifications for vertical integration in the oil industry, suggested several consequences of divestiture, and concluded that the remedy would be an inappropriate and inefficient method of increasing competition in the industry. In response to that article, Professor Adams examines the concentration of economic power in the petroleum industry, the relationship of vertical integration to the exercise of horizontal control, and the merits of the efficiency rationale for vertical integration. He concludes that functional vertical divestiture would be both technically and financially feasible and in the public interest.*

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I. INTRODUCTION

On September 30, 1940, the Department of Justice filed a massive antitrust case against twenty-two major oil companies, 379 of

* Distinguished University Professor, Professor of Economics, and Past President, Michigan State University; member of the Attorney General's National Committee to Study the Antitrust Laws (1953-1955). B.A., Brooklyn College, 1942; M.A., 1946, Ph.D., 1947, Yale University.

their subsidiaries and affiliates, and the American Petroleum Institute (which Clarence Darrow had described in 1934 as "the switch board for the controlling companies").[1] The Department articulated the rationale for filing this comprehensive structural case, which came to be known as the *Mother Hubbard* case, as follows:

> This proceeding is being instituted under the Department's policy of taking up in a single investigation or proceeding all of the restraints which affect the distribution of a product from the raw material to the consumer. Only in this way can economic results be achieved. Piecemeal prosecutions against segments of an industry are both costly and inconclusive. They do not raise the fundamental issues which the Court should decide, and therefore do not clarify the law. They allow restraints of trade to flourish in one segment of the industry while they are being prosecuted in another.
>
> In the past 10 years, the Department has been flooded with complaints from independents and consumers against various practices in the oil industry. These complaints have resulted in a series of piecemeal prosecutions in all of which the Government has been successful. Yet in spite of the success of these prosecutions, the complaints continue, prices are still inflexible, independent enterprise is still under a handicap, because the cases applied only to segments rather than to the entire structure of the industry.
>
> For this reason the present action is brought. It will eventually present to the Supreme Court of the United States for final decision all of the issues with respect to the reasonableness of the present vast combinations in the production, transportation, refining, and distribution of petroleum products.[2]

The complaint as originally drafted asked that the twenty-two principal defendants be ordered to divest their transportation and marketing facilities. With the outbreak of war in Europe and the United States' imminent involvement in the conflict, however, the Attorney General agreed to delete the request for structural relief from the complaint.[3] Like so many other cases of great pitch and mo-

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1. A. SAMPSON, THE SEVEN SISTERS 202 (1975).

2. *Consent Decree Program of the Department of Justice: Hearings Before the Subcomm. on Antitrust of the House Comm. on the Judiciary*, 85th Cong., 1st Sess. 123-24 (1957), *quoted in* SENATE COMM. ON THE JUDICIARY, PETROLEUM INDUSTRY COMPETITION ACT OF 1976, S. REP. No. 1005, 94th Cong., 2d Sess. 105 (1976) [hereinafter cited as PETROLEUM INDUSTRY COMPETITION ACT REPORT]. This report makes a cogently reasoned case, replete with documentary references, in favor of vertical divestiture.

3. Prior to filing the case, Attorney General Robert H. Jackson submitted the complaint to the Council of National Defense. The Council in turn referred it to its Oil Industry Advisory Commission, nine of whose eleven members were connected with either Jersey Standard (Exxon) or Shell. Both of these companies, of course, were parties to the case and it

> came as no surprise that the advisory commission found that divestiture of transportation and marketing would adversely affect the defense effort. Any effort at using the antitrust laws to restructure the industry would, in their words, "becloud relationships between the Government and Industry." Attorney General Jackson acquiesced in the Commission's report and deleted the request for structural relief from the complaint.

PETROLEUM INDUSTRY COMPETITION ACT REPORT, *supra* note 2, at 105.

ment, the *Mother Hubbard* case eventually was settled by a pusilanimous consent decree.[4]

On July 18, 1973, the Federal Trade Commission issued a complaint against the eight largest domestic oil companies.[5] The complaint in *In re Exxon Corp.* charged the companies with maintaining and reinforcing "a noncompetitive market structure" in the refining industry on the East and Gulf coasts through their control of crude oil and crude transportation. In language reminiscent of the *Mother Hubbard* case, the Commission stated the rationale for its action as follows:

> The history of the Federal Trade Commission's activity in the petroleum industry has been characterized by a case-by-case attack on specific anticompetitive marketing practices. This approach has, in general, been of limited success in controlling wasteful marketing practices, dealer coercion, and the lack of competition in the petroleum industry. Despite the staff's success in bringing and winning cases before the Commission and in the courts, as well as obtaining compliance orders, the petroleum industry over the last 50 years has managed to circumvent the orders in many cases by subtle changes in policy or practices. . . .
>
> The reason for the limited success of the early petroleum cases is not to be found in the cases or remedies themselves. The staff did a thorough job in researching, developing and prosecuting the individual cases. The remedies applied in each case were directed at the particular abuse. But the practice-by-practice approach to antitrust attack, which sought to correct specific anticompetitive conduct at the marketing level, did not adequately address the industry's vertically integrated structure or its multi-level behavior. The major oil companies operate on four levels—crude production, refining, transportation, and marketing. To fashion a remedy for one level without considering the performance of a company, or the industry, at the other levels, ignores the market power associated with vertical integration and limited competition.[6]

As in *Mother Hubbard*, the antitrust authorities recoguized that an industry's noncompetitive structure militates toward noncompetitive behavior and results in noncompetitive performance. They recognized that, if the goals of the antitrust laws are to be attained, there is no alternative to structural reorganization of the horizontally and vertically integrated oil oligopoly.

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4. For the deplorable record of antitrust versus the petroleum industry and some of the reasons for it, see *Market Performance and Competition in the Petroleum Industry: Hearings Before the Senate Comm. on Interior and Insular Affairs, Part 1*, 93d Cong., 1st Sess. 370-98 (1973) (testimony of Mark J. Green). *See also* PETROLEUM INDUSTRY COMPETITION ACT REPORT, *supra* note 2, at 95-124.

5. *In re* Exxon Corp., 83 F.T.C. 233 (1973).

6. STAFF OF SENATE PERMANENT SUBCOMM. ON INVESTIGATIONS OF THE SENATE COMM. ON GOVERNMENT OPERATIONS, 93D CONG., 1ST SESS., INVESTIGATION OF THE PETROLEUM INDUSTRY 4-5 (Comm. Print 1973) [hereinafter cited as INVESTIGATION OF THE PETROLEUM INDUSTRY].

More important than this latest antitrust action against the petroleum industry, however, is the growing awareness in Congress—precipitated in part by the Arab oil embargo of October 1973 and by the subsequent rise in petroleum prices and oil company profits—that the oil industry for all intents and purposes is operating a worldwide cartel that is not subject to effective regulation by the government, to the discipline of a competitive marketplace, or to systematic compulsion to promote the public interest. Policy makers grow increasingly aware that structural reform of the industry is imperative and that such reform probably will have to be achieved by legislation rather than by litigation. Accordingly, several divestiture bills were introduced in the Ninety-fourth Congress, some providing for functional vertical divestiture within the petroleum industry, others for horizontal divestiture to prevent the leading oil companies from dominating alternate sources of energy.[7] One of these bills, S. 2387, was reported out favorably by the Senate Judiciary Committee on June 15, 1976, but no floor action was taken. Nevertheless, S. 2387 was attached as a vertical divestiture amendment to the natural gas deregulation bill, but was defeated by the narrow margin of only nine votes, forty-five to fifty-four.[8] Divestiture had become one of the central issues in congressional debates during the energy crisis.

This article will examine: first, the concentration of economic power in the oil industry; second, the manner in which vertical integration reinforces the horizontal control exercised by the major oil companies; third, the extent to which prevailing patterns of vertical integration are based on efficiency considerations; and, finally, whether vertical divestiture is a feasible remedy.

II. The Concentrated Power of Big Oil

Spokesmen for the oil industry claim that it includes some 10,000 producers and that the concentration ratios, especially in crude oil, are far lower than in other major industries, notably the automobile, aluminum, computer, and aircraft industries.[9] Commenting on this line of argument, John W. Wilson has observed:

7. *E.g.*, S. 739, S. 745, S. 756, S. 1137, S. 1138, and S. 2387, 94th Cong., 1st Sess. (1975), dealing with vertical divestiture, and S. 489, 94th Cong., 1st Sess. (1975), dealing with horizontal divestiture.

8. J. Blair, The Control of Oil 382 (1976).

9. *See, e.g.*, Ritchie, *Petroleum Dismemberment*, 29 Vand. L. Rev. 1131, 1137-42 (1976). *See also The Petroleum Industry: Hearings Before the Senate Subcomm. on Antitrust and Monopoly of the Senate Comm. on the Judiciary, Part 3*, 94th Cong., 1st Sess. 1849-1917, 2102-29, 2217-49 (1975) [hereinafter cited as *Vertical Integration Hearings*].

> Despite its size, conventional concentration ratio measurements indicate that oil is not particularly concentrated in comparison with other major industries . . . . [W]hile the concentration ratios for the top four or top eight crude oil producers have increased substantially in the last twenty years, the industry still seems to compare favorably with other leading manufacturing industries, such as automobiles, copper, computers, and aluminum. Thus, argue the industry's defenders, right-thinking rational men should direct their antitrust interests toward more critical targets like breakfast cereals and beer, and leave oil alone.[10]

At first blush, the oil industry's argument seems persuasive (see Table 1), but, in fact, it is misleading for a number of reasons.

First, concentration has been increasing steadily since the mid-1950's, so that by 1974 the eight largest companies controlled almost as large a share of crude oil production as did the twenty largest in 1955.

TABLE 1

CONCENTRATION IN CRUDE PRODUCTION

	1955	1965	1974
4 Top	21.2%	27.9%	31.1%
8 Top	35.9%	44.6%	54.0%
20 Top	55.7%	63.0%	76.9%

Source: ENERGY ACTION COMMITTEE, DIVESTITURE FACTBOOK 15 (1976).

This trend is explained in part by the massive mergers during the period, especially mergers between the very largest companies. In 1965, for example, Union Oil (assets of 916.5 million dollars) acquired Pure Oil (assets of 766.1 million dollars). In 1966, Atlantic Refining (assets of 960.4 million dollars) acquired Richfield (assets of 499.6 million dollars), and in 1968, Sun Oil (assets of 1,598.5 million dollars) acquired Sunray DX (assets of 749.0 million dollars). In 1969, Atlantic Richfield (assets of 2,450.9 million dollars) acquired Sinclair (assets of 1,851.3 million dollars). As a result, the twenty majors of 1955 have become the sixteen majors of today. Moreover, as Professor Walter Measday points out,

> concentration in reserve ownership is even more important, particularly for the future, than concentration in current production. And the largest companies control most of the proved reserves. The Federal Trade Commission staff found that in 1970 our sixteen major companies controlled 77 percent of the net

10. Wilson, *Market Structure and Interfirm Integration in the Petroleum Industry*, 9 J. ECON. ISSUES 324 (1975).

> proved oil reserves in the United States and Canada. The producer has effective control, however, over all of the oil he lifts including the shares for royalty owners and other nonworking interest holders. In terms of gross reserves, the sixteen majors may control more than 90 percent of existing proved reserves.[11]

Second, the major oil companies are not the run-of-the-mill corporate giants dominating *Fortune*'s list of the 500 largest industrial corporations. Rather, they are multinationals whose domains extend from Alaska to Kuwait, from Indonesia to Venezuela. Indeed, the sun never sets on their far-flung empires. Table 2 compares the control over crude production exercised in the United States, the Middle East, the OPEC countries, and the Free World by the seven largest majors, the so-called Seven Sisters.[12] The percentage control exercised by *all* the majors, of course, is even higher than that of the Seven Sisters. That these companies may no longer *own* their erstwhile properties in the OPEC countries is, as shall be demonstrated, of secondary importance. In practice, they still *control* the disposition of the lion's share of the free world's crude oil production.

Third, the major oil companies are intertwined with one another through a seamless web of interlocking control.[13] They do not function as independent or competitive units but as cooperative entities at every strategic point in the industry's integrated structure. They are meshed with one another like strands of spaghetti in a symbiotic relationship almost inevitably precluding any genuinely competitive behavior. John W. Wilson, the former chief of the Federal Power Commission's Division of Economic Studies, has explained the significance of bringing "horizontally and vertically juxtaposed firms into close working relationships with each other" as follows:

> They *must* work together to further their joint interests. Consequently, each becomes familiar with the others and with each other's operations. Men in such close working relationships learn to consider one another's interests. This process of learning to live together is, of course, quite laudable in certain social and political contexts. The success of our Nation's international relations, for example, depends greatly upon this process. But it is, most assuredly, not the kind of institutional setting within which a free market economy can be expected to function efficiently. Real economic competition is made of tougher stuff. . . . In order to function both efficiently and in the public interest, free

11. Measday, *The Petroleum Industry*, in THE STRUCTURE OF AMERICAN INDUSTRY 136 (5th ed. W. Adams ed. 1977). For concentration in refining, see BLAIR, *supra* note 8, at 131-36.

12. *See also* BLAIR, *supra* note 8, at 25-76.

13. *Id.* at 136-51; S. RUTTENBERG, THE AMERICAN OIL INDUSTRY: A FAILURE OF ANTI-TRUST POLICY 41-118 (1973).

markets *must be competitive*. This means that the participants must be structurally and behaviorally independent of each other. That precondition, quite apparently does not apply to the petroleum industry.[14]

The claim, therefore, that the petroleum industry fits the structural model of effective competition is pure fiction.

TABLE 2

THE SEVEN SISTERS' SHARES OF WORLD CRUDE OIL PRODUCTION (1972)

Company	Production in U.S. (Thou. b/d)	% of total U.S. production	Production in Middle East[2] & Libya (Thou. b/d)	% of total M.E.[2] & Libya production	Production in all OPEC (Thou. b/d)	% of total OPEC production	Production[1] worldwide (excluding E. Europe & China) (Thou. b/d)	% of world production (excluding E. Europe & China)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Exxon	1,114	9.9	2,527	12.9	4,050	15.2	6,145	14.7
Texaco	916	8.1	2,155	11.0	2,674	10.0	4,021	9.6
Socal	528	4.7	2,155	11.0	2,614	9.8	3,323	7.9
Gulf	651	5.8	1,887	9.7	2,409	9.0	3,404	8.1
Mobil	457	4.1	1,178	6.0	1,477	5.5	2,399	5.7
BP	—	—	3,903	20.0	4,506	16.9	4,659	11.1
Shell	726	6.5	1,372	7.0	2,877	10.8	5,416	12.9
Total	4,392	39.1	14,165	77.6	20,607	77.1	29,367	70.0

1. Taken from company annual reports.
2. Excludes Bahrain.

Source: Multinational Corporations and United States Foreign Policy: Hearings Before the Senate Subcomm. on Multinational Corporations of the Senate Comm. on Foreign Relations, Part 4, 93d Cong., 2d Sess. 68 (1974).

Joint ventures are one manifestation of this symbiotic relationship. A joint venture establishes a community of interest among the parents and a mechanism for avoiding competition between them. The mechanism provides an opportunity for foreclosing nonpartners from access to supplies and/or from access to markets and serves as a forum in which ostensible competitors can meet to exchange information and coordinate plans with apparent impunity.[15] Most impor-

14. *The Natural Gas Industry: Hearings Before the Senate Subcomm. on Antitrust and Monopoly of the Senate Comm. on the Judiciary, Part 1*, 93d Cong., 1st Sess. 499 (1973). The Wilson evidence on joint ventures, interties, and interlocks deserves detailed attention. *Id.* at 478-97.

15. A classic example is the Cal-Tex group of companies through which Texaco and Standard of California jointly have operated many of their foreign assets for the past 40 years.

tant, perhaps, the device, at least in the oil industry, thus far has remained immune from antitrust attack. Table 3 indicates how the major oil companies use joint ventures, now with one partner and then with another, in a seemingly infinite set of permutations and combinations in bidding for federal offshore lease sales. Thus, Amerada Hess submitted no independent and 168 joint bids during the period; Getty, no independent and 281 joint bids; Phillips, no independent and 169 joint bids; and Union, no independent and 245 joint bids.

TABLE 3

JOINT BIDDING IN FEDERAL OFFSHORE LEASE SALES (1970-72)

Company	Number of independent bids	Bidding partners	Number of joint bids with each
Amerada-Hess	0	Signal	50
		Louisiana Land	51
		Marathon	51
		Texas Eastern	16
Amoco	6	Texas Eastern	117
		Union	96
		CNG	79
		Transco	15
		Shell	14
Atlantic-Richfield	12	Cities	106
		Getty	73
		Continental	114
Chevron	79	Mobil	25
		Murphy	17
		General American	17
		Pennzoil	12
		Pelto	13
		Superior	9
		Gulf	7
		Burmah	4
		Mesa	4
Cities Service	7	Atlantic	106
		Getty	100
		Continental	163
		Tenneco	3

Caltex's profits accounted for 59.5% of Texaco's total profits [in 1975], up sharply from 37.3% and 26.5% in the two previous years. For Socal, the reliance on Caltex also increased, but less sharply, rising to 63.9%, from 59.3% and 40.5% of Socal's total profits in the two previous years.

PETROLEUM INTELLIGENCE WEEKLY, March 22, 1976, at 5. A reasonable person might well question whether companies whose fortunes are so closely tied to one another are competitors, as the industry contends, or partners.

Continental	27	Atlantic	114
		Cities	163
		Getty	102
		Tenneco	5
Exxon	80		
Getty	0	Atlantic	73
		Cities	100
		Continental	102
		Placid	4
		Superior	2
Gulf	17	Mobil	17
		Pennzoil	8
		Standard Oil of California (Chevron)	7
Marathon	24	Signal	65
		Louisiana Land	69
		Amerada	51
		Texas Eastern	29
Mobil	8	Pennzoil	30
		Standard Oil of California (Chevron)	25
		Mesa	16
		Burmah	13
		Gulf	17
		Ashland	2
Phillips	0	Skelly (Getty)	69
		Allied Chemicals	66
		American Petrofina	34
Shell	59	Transco	47
		CNG	15
		Standard Oil of Indiana (Amoco)	14
		Florida Gas	17
Sun	115	Pennzoil	2
Texaco	15	Tenneco	32
Union	0	Amoco	96
		Texas Eastern	96
		Texas Gas	48
		Florida Gas	5

Source: The Natural Gas Industry: Hearings Before the Senate Subcomm. on Antitrust and Monopoly of the Senate Comm. on the Judiciary, Part 1, 93d Cong., 1st Sess. 481 (1973).

According to Professor Walter Mead, this amounts to bid rigging:

> In any given sale, it is obvious that when four firms . . . each able to bid independently, combine to submit a single bid, three interested, potential bidders have been eliminated; i.e., the combination has restrained trade. This situation does not differ materially from one of explicit collusion in which four firms meet in advance of a given sale and decide who among them should bid (which three should refrain from bidding) for specific leases and, instead of

competing among themselves, attempt to rotate the winning bids. The principal difference is that explicit collusion is illegal.[16]

Indeed, explicit collusion has been illegal per se since bid rigging was condemned in 1898 by *United States v. Addyston Pipe & Steel Co.*[17]

The major oil companies also use joint ventures in their control of interstate pipelines (see Table 4). Outside of the United States, the pattern is similar. In 1952, according to one report, "every important pipeline in existence or even proposed [was] controlled by the seven principal international oil companies, individually or jointly."[18] The significance of this joint control over pipelines as a vertical integration lever will be discussed below.

TABLE 4

JOINT VENTURES IN THE OIL PIPELINE INDUSTRY

Pipeline company and co-owners	Percent held by each
Badger Pipeline Co. (assets = $12,400,000):	
Atlantic-Richfield	34
Cities Service	32
Texaco	22
Union Oil	12
Dixie Pipeline Co. (assets = $46,400,000):	
Amoco	12.1
Atlantic-Richfield	7.4
Cities Service	5.0
Continental	4.1
Exxon	11.1
Mobil	5.0
Phillips	14.5
Shell	5.5
Texaco	5.0
Gulf	18.2
Transco	3.6
Allied Cbemical	8.6
Laurel Pipeline Co. (assets = $35,900,000):	
Gulf	49.1
Texaco	17
Clark	11
Marathon	10
Cities Service	8
Shell	7
Platte Pipeline Co. (assets = $33,000,000):	
Continental	20
Marathon	25
Union Oil	15
Atlantic-Richfield	25
Gulf	15
West Shore Pipeline Co. (assets = $17,600,000):	
Shell	20
Amoco	16.5
Mobil	14
Texaco	9
Marathon	9
Clark	8
Cities Service	8
Continental	6.5
Union Oil	5.5

16. Mead, *The Competitive Significance of Joint Ventures*, 12 ANTITRUST BULL. 839 (1967).

17. 85 F. 271 (6th Cir. 1898).

18. FTC REPORT ON THE INTERNATIONAL PETROLEUM CARTEL 27-28 (Comm. Print 1952).

Texaco	33.9
Sohio	17.0
Colonial Pipeline Co. (assets = $480,200,000):	
Amoco	14.3
Atlantic-Richfield	1.6
Cities Service	14.0
Continental	7.5
Phillips	7.1
Texaco	14.3
Gulf	16.8
Sohio	9.0
Mobil	11.5
Union Oil	4.0
Plantation Pipeline Co. (assets = $176,100,000):	
Exxon	48.8
Shell	24.0
Refiners Oil Corp	27.1
Four Corners Pipeline Co. (assets = $20,900,000):	
Shell	25
Chevron	25
Gulf	20
Continental	10
Atlantic-Richfield	10
Superior	10
Olympic Pipeline Co. (assets = $30,700,000):	
Shell	43.5
Mobil	29.5
Texaco	27.0
Wolverine Pipeline Co. (assets = $21,800,000):	
Union Oil	26
Mobil	21
Exxon	3.5
Wyco Pipeline Co. (assets = $14,100,000):	
Amoco	40
Texaco	40
Mobil	20
Yellowstone Pipeline Co. (assets = $16,000,000):	
Continental	40
Exxon	40
Husky	6
Union Oil	14
West Texas Gulf Pipeline Co. (assets = $19,800,000):	
Gulf	57.7
Cities Service	11.4
Sun	12.6
Union Oil	9.0
Sohio	9.2
Chicap Pipeline Co. (assets = $25,600,000):	
Union Oil	43.4
Clark	33.2
Amoco	23.4
Cook Inlet Pipeline Co.:	
Atlantic-Richfield	20
Marathon	30
Union Oil	30
Mobil	20
Texas-New Mexico Pipeline Co. (assets = $30,500,000):	
Texaco	45
Atlantic-Richfield	35
Cities Service	10
Getty	10

Source: The Natural Gas Industry: Hearings Before the Senate Subcomm. on Antitrust and Monopoly of the Senate Comm. on the Judiciary, Part 1, 93d Cong., 1st Sess. 485 (1973).

Table 5 is a selected list of joint ventures by the major oil companies outside of the United States. A more comprehensive listing of these ventures and an analysis of their anticompetitive impact is found in the Federal Trade Commission's landmark *Report on the International Petroleum Cartel.*[19]

19. *Id.* at 37-193.

TABLE 5

SELECTED INTERNATIONAL JOINT VENTURES OF PETROLEUM COMPANIES

Petroleum Company (1971 crude production)	Co-owners	Percent Held by Each
Arabian American Oil Co. (1.45 bil. bbls.)	Texaco	30.00
	Exxon	30.00
	Chevron	30.00
	Mobil	10.00
Iranian Oil Participants, Inc. (1.3 bil. bbls.)	Mobil	7.00
	Exxon	7.00
	Chevron	7.00
	Texaco	7.00
	Gulf	7.00
	B. P.	40.00
	Shell	14.00
	Atlantic	1.67
	Signal	.83
	Getty	.83
Iraq Petroleum Co.	B. P.	23.750
	Shell	23.750
	Exxon	11.875
	Mobil	11.875
Kuwait Oil Co., Ltd. (1.27 bil. bbls.)	Gulf	50.00
	B. P.	50.00

Source: Horizontal Integration of the Energy Industry: Hearings Before the Subcomm. on Energy of the Joint Economic Comm., 94th Cong., 1st Sess. 112 (1975).

In all, according to one estimate, joint ventures among the major oil companies provide approximately 12,000 occasions each year for ostensible competitors, the joint venture parents, to meet and discuss their common problems and means for resolving them.[20] The devices are the cement for binding together a loose-knit cartel into a cozy system of mutual interdependence.

Fourth, as Table 6 demonstrates, the major oil companies are further bound together by a network of indirect interlocks. With the exception of Gulf and Socal, as John Blair has observed,

> all of the eight largest oil companies were interlocked in 1972 through large commercial banks with at least one member of the top group. Exxon had four such interlocks—with Mobil, Standard (Ind.), Texaco, and ARCO. Mobil had

20. S. RUTTENBERG, *supra* note 13, at 61.

three (with Exxon, Shell, and Texaco), as did Standard of Indiana (with Exxon, Texaco, and ARCO), as well as Texaco (with Exxon, Mobil, and Standard of Indiana). ARCO was interlocked with Exxon, and Standard (Ind.), and Shell with Mobil.[21]

At the very least, Blair concluded, "meeting together presents directors of competing companies with potential conflicts of interest."[22]

Fifth, the extensive use of exchange agreements among the major oil companies not only has cemented their horizontal fraternity, but has given them a powerful weapon against their vertically nonintegrated competitors. For years the United States has gone without a meaningful crude oil market. Most crude oil is bought and sold under excbange agreements by which the buyer of x barrels of crude oil for his refinery at a particular location agrees to deliver an equivalent amount to the seller at another location. Walter Measday has pointed out that such exchange agreements "replace a competitive market with a network of bilateral or multilateral barter transactions from which nonintegrated firms can be easily excluded as first purchasers of crude and which, by their very nature, must be less efficient allocators of resources than open markets would be."[23]

Sixth, oil companies, discontent with their control over only the oil and natural gas industries, have expanded, largely by merger and acquisition, into other energy industries. They have acquired coal, uranium, geothermal, and tar sands reserves to protect their oil and gas empires from interfuel competition (see Table 7). In 1965, one oil company (Gulf) engaged in coal operations and produced less than two percent of the industry's output. Ten years later, eight oil companies produced more than twenty percent of the industry's output, and eleven of the sixteen majors controlled more than forty percent or more of all privately held coal reserves. Companies like Phillips, Mobil, Shell, Atlantic Richfield (ARCO), and Sun Oil are all in the multibillion-ton coal-reserve class without ever having mined a single ton of coal. The biggest risk they face in becoming major producers, as Senator Kennedy has pointed out, "is that coal may become technologically obsolete before they could exhaust their reserves."[24]

21. BLAIR, *supra* note 8, at 144-46.

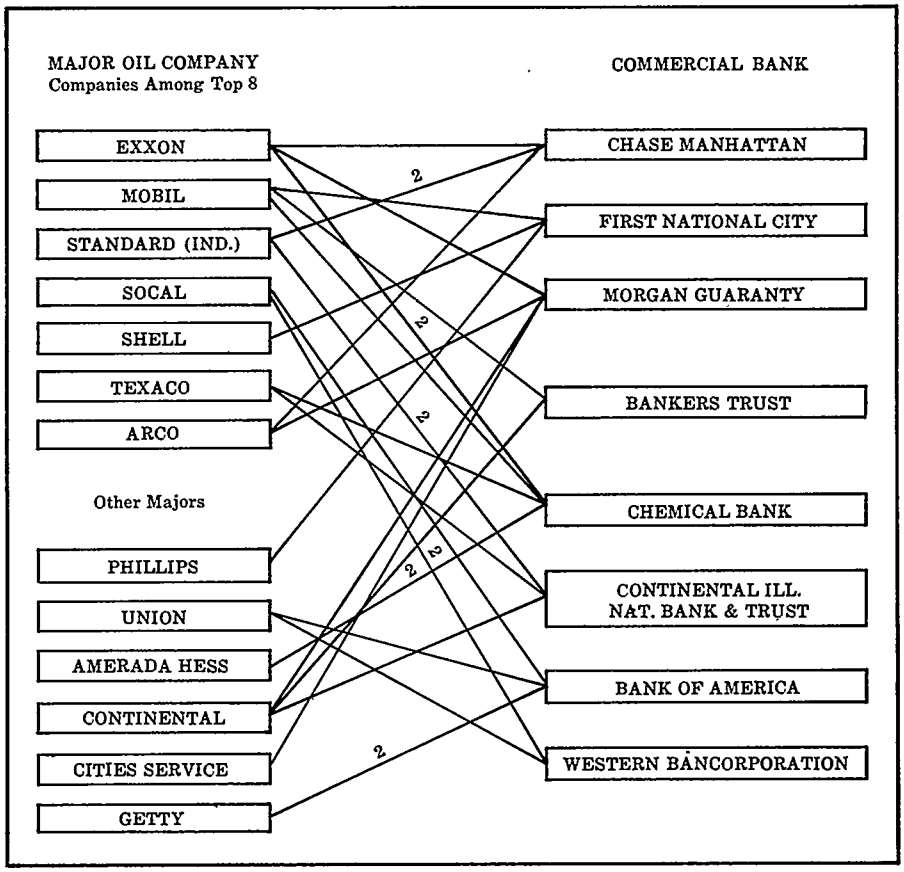
22. *Id.* at 147.

23. Measday, Feasibility of Petroleum Industry Divestiture, at 8 (paper presented to Stanford University Institute for Energy Studies, Sept. 1976) (on file at the *Vanderbilt Law Review*).

24. Letter from Senator Kennedy to the Senate Judiciary Committee (Aug. 27, 1977) (on file at the *Vanderbilt Law Review*) (asking for support of his amendment to the Coal

TABLE 6

INDIRECT INTERLOCKING DIRECTORATES AMONG MAJOR OIL COMPANIES THROUGH COMMERCIAL BANKS (1972)



Source: J. BLAIR, THE CONTROL OF OIL 145 (1976).

The same takeover pattern occurred in the uranium industry. In 1967, two oil companies engaged in uranoso-uranic oxide (U_3O_8) milling operations with less than twenty-eight percent of the industry's output. In 1972 Exxon and Continental Oil entered the industry, giving oil companies thirty-eight percent of the milling capacity. By 1977 Atlantic Richfield (ARCO) had acquired Anaconda, the third largest uranium producer, and Standard of Ohio also had

Conversion Bill (S. 977), which would bar future acquisition of competing coal and uranium resources by major oil companies).

entered the field. As a result, oil companies now control from fifty to fifty-five percent of the uranium industry's reserves.[25]

TABLE 7

ENERGY RESERVES OF TOP THIRTY OIL COMPANIES IN TRILLIONS OF BTU'S

Company	1975 Net Domestic Crude OIL/NGL	1975 Net Domestic NATURAL GAS	1975 COAL	1975 URANIUM
1. Exxon	23,374.0	23,198.7	199,332.0	7,525.0
2. Texaco	16,344.0	15,872.0	47,460.0	—
3. Shell	10,782.2	7,101.4	23,730.0	—
4. Standard of Indiana	13,003.6	10,936.3	—	—
5. Gulf	7,424.0	6,736.9	61,698.0	34,400.0
6. Standard of California	10,248.6	7,341.1	—	1,290.0
7. Atlantic-Richfield	13,166.0	12,820.5	52,206.0	—
8. Mobil	5,800.0	7,782.4	59,325.0	—
9. Getty	9,488.8	3,449.9	—	8,600.0
10. Sun	5,115.6	4,198.4	53,890.8	—
11. Union	3,543.8	7,354.4	—	—
12. Phillips	4,036.8	5,462.0	47,460.0	5,375.0
13. Continental	3,010.2	3,212.3	316,795.5	10,750.0
14. Cities Service	4,332.6	4,710.4	—	—
15. Marathon	4,634.2	2,345.0	—	—
16. Amerada Hess	3,132.0	1,536.0	—	—
17. Tenneco	1,258.6	3,843.1	40,341.0	—
18. Louisiana Land & Exploration	1,084.6	1,353.7	—	—
19. Pennzoil	852.6	1,923.1	—	—
20. Superior	1,160.0	3,481.6	—	—
21. Union Pacific	684.4	809.0	237,300.0	2,150.0
22. Santa Fe	765.6	81.2	8,780.1	—
23. R. J. Reynolds	N/A	N/A	—	—
24. International Paper	580.0	362.5	—	—
25. Kerr-McGee	342.2	840.7	66,444.0	62,350.0
26. Standard of Ohio	26,332.0	6,425.6	18,984.0	2,150.0
27. General American	585.8	630.8	—	—
28. Ashland	365.4	1,010.7	21,357.0	—
29. American Petrofina	324.8	192.5	—	—
30. Diamond Shamrock	713.4	1,126.4	—	—

Source: "Horizontal" Oil Company Divestiture and Separation Proposals, Exhibit IV-D. (Report to the American Petroleum Institute, Oct. 15, 1976).

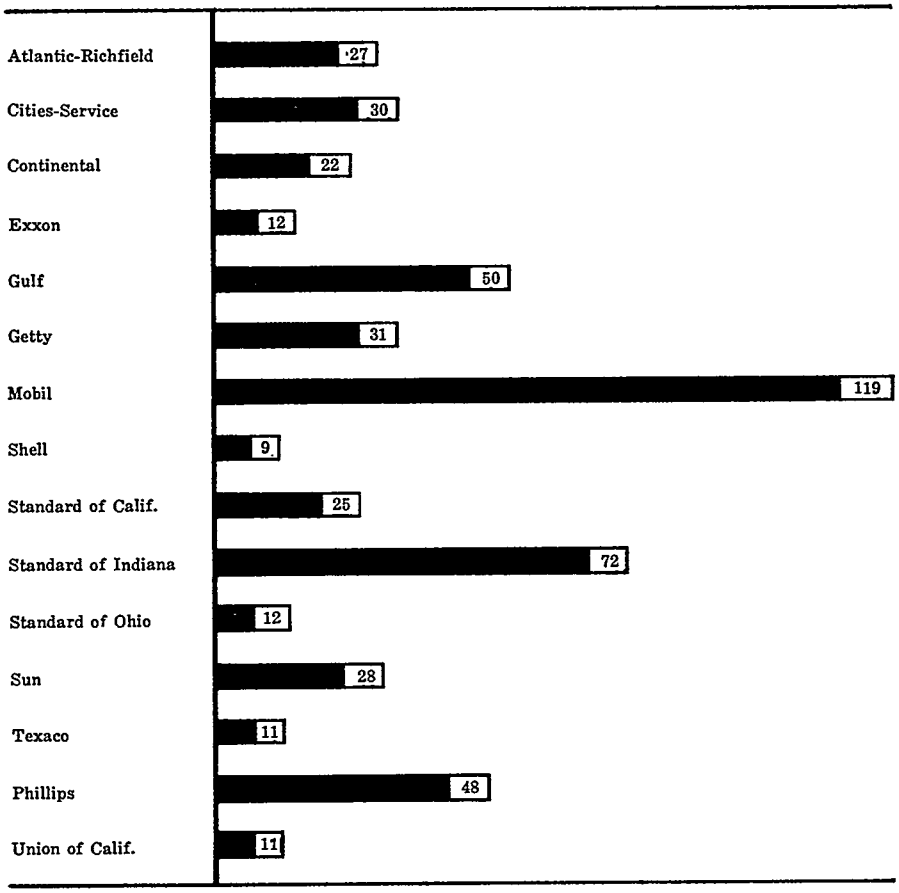
The impact of these incursions by the major oil companies into the domain of substitute fuels is not difficult to conjecture. After all, no man can be expected to compete with himself, nor can any man be expected to serve two masters and be equally loyal to each. As Walter Measday has observed:

> Would Continental Oil encourage price and market competition between [its subsidiary] Consolidation Coal and its traditional oil operations? Would Union Oil push geothermal development in an area where it might cut into the market for Union's fuel oil? The question extends to the exploitation of successful R & D. According to Senator Bartlett (R., Oklahoma), 49 of 52 patents relating to coal gasification or liquefaction issued from 1964 to 1974 went to oil companies. Let us make the highly unlikely assumption that an oil company with extensive foreign investments were to achieve a technological break-

25. *Id.* A recent compilation by the Federal Energy Administration of nonpetroleum holdings by oil companies revealed the following:

through which could make the United States self-sufficient in energy. Would Exxon enjoy telling Sheik Yamani or would Occidental inform Col. Qadaffi that no more Saudi Arabian or Libyan oil would be lifted for the U.S. market? Or would there be some temptation to delay exploitation of the technology until "it's really needed"?[25]

NUMBER OF NONPETROLEUM HOLDINGS OF OIL COMPANIES



Source: FEA, THE PETROLEUM INDUSTRY, A REPORT ON CORPORATE AND INDUSTRY STRUCTURE (1975).

26. Measday, *supra* note 23, at 13. These questions are not entirely rhetorical. The oil giants have a track record in the suppression of competing fuels. Jersey Standard's (Exxon) handling of the hydrogenation patents, acquired pursuant to a cartel agreement with I.G. Farben of Germany, is a case in point:

> To Standard, these agreements promised, first, ownership and control, outside Germany, of IG's hydrogenation processes and any future IG processes for making synthetically products having similar uses to those of the customary petroleum refinery products, from whatever raw material they might be derived; and, second, a junior partnership

Such considerations lend force to current congressional attempts to protect interfuel competition by prohibiting the oil companies from further expansion into rival branches of the energy industry.[27]

Finally, the government historically has done for the oil companies what they could not do for themselves without clear violations of the antitrust laws. Under the guise of conservation and national defense, the Bureau of Mines has set national output quotas, the states have authorized prorationing schemes, and Congress has approved the Interstate Oil Compact and has legislated tariff protection and import quotas. In addition, the federal government has subsidized the multinational giants with special tax offsets and both the domestic and the multinational producers with magnanimous depletion allowances. In war and peace and in times of crisis, real or imagined, the government has favored the industry with antitrust exemptions. The State Department, according to one analyst, has

---

with IG, outside Germany, in the manufacture of new chemical products derived from petroleum or natural gas. . . .

Standard's use of its exclusive rights to IG's processes in the oil industry shows clearly that its main object in acquiring them was to strengthen its control over the oil industry. For the purpose, the IG agreements performed a dual function—defensive and offensive. Acquisition of the hydrogenation rights eliminated the most serious threat ". . . which has ever faced the company since the dissolution," according to Frank Howard, the Standard official who played a leading role in the negotiations with IG. Once these rights were safely acquired, Standard and Shell showed little disposition to use them, or to encourage others to use them, in actual productive operations. Their acquisition forestalled the threat to the oil industry of liquid fuels and lubricants from coal. . . .

Standard and Shell did little to encourage widespread synthetic production of liquid fuels and lubricants from coal. They had acquired these processes primarily to protect their own vast interests in petroleum. Standard summarized its policy as follows:

I.H.P. [International Hydrogenation Patents Company] should keep in close touch with developments in all countries where it has patents, and should be fully informed with regard to the interest being shown in hydrogenation and the prospect of its introduction. . . . *It should not, however, attempt to stir up interest in countries where none exists.* If the Management decides that in any country the interest in hydrogenation is serious, or that developments in such country are likely to affect I.H.P.'s position adversely, then I.H.P. should discuss the matter actively with the interested parties, and attempt to persuade them that its process should be used. . . .

If coal, tar, etc., hydrogenation be feasible from an economic standpoint, or if it is to be promoted for nationalistic reasons or because of some peculiar local conditions, it is better for us as oil companies to have an interest in the development, obtain therefrom such benefits as we can, and assure the distribution of the products in question through our existing marketing facilities.

G. STOCKING & M. WATKINS, CARTELS IN ACTION 491-93 (1946) (footnotes omitted).

27. *See, e.g., Interfuel Competition: Hearings Before the Senate Subcomm. on Antitrust and Monopoly of the Senate Comm. on the Judiciary*, 94th Cong., 1st Sess. (1975); *Horizontal Integration of the Energy Industry: Hearings Before the Subcomm. on Energy of the Joint Economic Comm.*, 94th Cong., 1st Sess. (1975) [hereinafter cited as *Horizontal Integration Hearings*].

been the industry's law firm, the Interior Department its Washington office.[28] No wonder that the industry is sometimes depicted as

28. *See* R. ENGLER, THE BROTHERHOOD OF OIL: ENERGY POLICY AND THE PUBLIC INTEREST (1977); R. ENGLER, THE POLITICS OF OIL: A STUDY OF PRIVATE POWER AND DEMOCRATIC DIRECTIONS (1961). The erstwhile description of the political influence of oil—according to which "the Standard has done everything with the Pennsylvania legislature except to refine it"—may no longer be apt, but the omnipresence of oil in the corridors of political power is unshaken. Respectable men with bulging briefcases still penetrate the portals of government. As Sampson reports, the oil companies contributed

> generously to the Republican Party, and President Nixon's fundraisers, Maurice Stans and Herbert Kalmbach, leaned heavily on them to help finance the notorious 1972 campaign. Four of the sisters contributed substantially, mostly through individuals. Officials of Exxon gave $217,747 led by the chairman, Ken Jamieson ($2,500), the president Jim Garvin ($3,200) and the head of their Greek affiliate, Thomas Pappas ("the Greek bearing gifts") ($101,672): while the Rockefeller family gave $268,000. Socal gave $163,000, led by their chairman, Otto Miller ($50,000) and including $12,000 from John McCone. Mobil gave only $4,300, and Texaco (whether through caution or meanness) apparently gave nothing. By far the biggest contributor was Gulf whose offerings included a million dollars given clandestinely by Richard Mellon Scaife, a major Gulf shareholder with his own political ambitions; and at least $100,000 which was produced through the Bahamas subsidiary of Gulf by the chief lobbyist of the company, Claude Wild. The eventual discovery of these illegal gifts, and of others, was to bring back all the old public suspicions of the corruptions of oil money.
>
> The global scope of the oil money, however, was not to emerge until 1975, when the Securities and Exchange Commission began investigating political contributions. In April 1975 Gulf were eventually compelled to admit, in their 1975 proxy statement, that between 1960 and 1973 "approximately $10.3 million of corporate funds were used in the United States and abroad for such purposes, some of which may be considered unlawful". Soon a succession of countries—Venezuela, Bolivia, Peru, Ecuador—demanded to know whether their politicians had been bribed, and Peru even expropriated Gulf's properties. Eventually the chairman of Gulf, Robert Dorsey, had to confess to having paid bribes of $4 million from 1966 onwards to the ruling party in South Korea; and to having given another $350,000, together with a helicopter, to the late General Barrientos in Bolivia. The limelight then shifted to Exxon, whose chairman, Ken Jamieson, had to admit in May 1975 that his company had made political contributions in Canada and Italy; and a new uproar ensued.

SAMPSON, *supra* note 1, at 206-07. One indication that such efforts are not in vain is the generous tax treatment Congress has accorded the oil industry over the years:

U.S. TAXES PAID BY THE AMERICAN SISTERS*

	1972		1962-1971	
Company	*Net income before taxes* ($ billions)	*% paid in U.S. taxes*	*Net income before taxes* ($ billions)	*% paid in U.S. taxes*
Exxon	3.700	6.5	19.653	7.3
Texaco	1.376	1.7	8.702	2.6
Mobil	1.344	1.3	6.388	6.1
Gulf	1.009	1.2	7.856	4.7
Socal	0.941	2.05	5.186	2.7

a government-sanctioned, government-protected, government-subsidized cartel operating a finely tuned scheme to restrict output and maintain prices on a worldwide scale.[29]

In summary, introduction of the "moderate" concentration ratios recorded in Table 1 as proof that the oil industry is competitive in structure is disingenuous indeed. These ratios, as has been demonstrated, seriously understate the pervasive horizontal control exercised by the petroleum giants and, when simplistically accepted at face value, conceal the worldwide dominance of these giants over energy reserves.

III. The Reinforcement of Shared Monopoly Power Through Vertical Integration

Vertical integration by corporate giants is the capstone of control in the petroleum industry. As the mechanism for harnessing and transmitting market power through the successive stages of production, refining, and marketing, vertical integration constitutes the primary barrier to new competition. Specialized firms at any one stage of the industry must live at the sufferance of the integrated majors—vulnerable to the constant threat of price squeezes, the denial of supply, and the foreclosure from markets. The very fact of vertical integration, therefore, militates against workable competition in the petroleum industry and relegates competition to the interstices and fringes of the marketplace.

For example, the combined effect of vertical integration and the depletion allowance encouraged the integrated companies to report their profits at the crude oil stage rather than at the refining or marketing stage. The majors accomplishsd this objective by posting a high price on crude oil, which they then sold to their own refineries as well as to independents. For the vertically integrated companies, the high price for crude was simply a bookkeeping transaction. Its effect was to increase profits on crude, to reduce tax payments, and, in spite of lower profits at the refining stage, to increase total profits for the integrated concern. For the independent refiner, by contrast, the increase in crude prices meant a decrease in both refining profits

*Source: *Multinational Corporations and United States Foreign Policy: Hearings Before the Senate Subcomm. on Multinational Corporations of the Senate Comm. on Foreign Relations, Part 4,* 93d Cong., 2d Sess. 104 (1974), *quoted in* SAMPSON, *supra* note 1, at 205.

29. *See, e.g., Horizontal Integration Hearings, supra* note 27, at 108; INVESTIGATION OF THE PETROLEUM INDUSTRY, *supra* note 6, at 27.

and total profits; nonintegrated, he could not recoup the narrowed margins in refining at some other stage of operations.[30]

To illustrate, assuming a 27.5 percent depletion allowance, an integrated concern that could supply seventy-seven percent of its refinery needs with its own crude oil production stood to gain from an increase in crude prices even if the increase was not passed on at the refining stage. If the integrated company had a self-sufficiency ratio in excess of 38.5 percent, it stood to gain even if it passed on only half of the crude oil price increase.[31] In other words, an integrated company could decide to operate its refineries at zero or subnormal profits and thus discipline, squeeze, or bankrupt the nonintegrated refiners who are both its customers for crude and its competitors in the sale of refined products. (Incidentally, fifteen of the top seventeen refiners in the United States have a crude oil self-sufficiency ratio in excess of 38.5 percent.[32])

As the Federal Trade Commission concluded in its recent petroleum report, "The vertical integration system contained all the elements essential to a squeeze on refining profits and could be overcome only if the potential refining entrant could enter the industry on a vertically integrated basis."[33] By thus raising the cost of entry at the refining stage, vertical integration in and of itself becomes a formidable entry barrier that few newcomers can afford to hurdle. The system is also a barrier to established, independent refiners, many of whom eventually give up the battle for survival and sell out to their integrated rivals. (Incidentally, acquisitions of independent refiners accounted for 40.7 percent of the increase in refining capacity among the top twenty oil companies between 1959 and 1969.[34])

The control of pipelines by the vertically integrated majors poses a similar problem. A pipeline rate set well above the competitive cost of transporting crude oil, for example, imposes no burden on the majors who own the pipeline. For them, the high price is simply a bookkeeping transaction involving a transfer of funds from the refinery operation to the pipeline operation. To the nonintegrated refiner, however, an excessive pipeline charge is a real cost increase that he cannot recoup elsewhere and that places him at a

30. INVESTIGATION OF THE PETROLEUM INDUSTRY, *supra* note 6, at 12-31.

31. M. DE CHAZEAU & A. KAHN, INTEGRATION AND COMPETITION IN THE PETROLEUM INDUSTRY 221-22 (1959). *See also* Kahn, *The Depletion Allowance in the Context of Cartelization*, 54 AM. ECON. REV. 286-314 (1964).

32. INVESTIGATION OF THE PETROLEUM INDUSTRY, *supra* note 6, at 20.

33. *Id.* at 26.

34. *Market Performance and Competition in the Petroleum Industry: Hearings Before the Senate Comm. on Interior and Insular Affairs, Part 1*, 93d Cong., 1st Sess. 1664 (1973).

competitive disadvantage vis-à-vis his integrated competitors.

The implications of the integrated majors' control over pipelines has been explained by Beverly Moore as follows:

> Almost every one of the major pipeline systems constructed since World War II is jointly owned by the few companies which dominate the marketing areas which the pipelines serve. From the standpoint of the owners, the arrangement is perfectly natural.
>
> If a few companies wish to exploit a market by constructing a joint venture pipeline to it, they will have little interest in inviting all their actual and potential competitors to come along with them. Likewise, the owners will have an incentive to lay the line so that it or its feeder spurs will pass in close proximity to their own refineries and marketing terminals, but not to those of their nonowner competitors. The owners will have an incentive to provide input and output facilities, storage tanks, and synchronization geared to their own operations, but again not to those of their nonowner competitors.
>
> The result is that, while joint venture pipelines are theoretically common carriers, equally accessible to all, access can be substantially more expensive for nonowners than for owners.
>
> This initial disadvantage is widened by the fact that the nonowner must pay the full rate or tariff while the owner actually pays only the pipeline cost, recouping the difference through the pipeline company's dividend payments to him. The rate-cost differential which measures this further degree of discrimination is commonly as high as 20 to 30 percent.[35]

The integrated majors also can use their control of pipelines as an entry barrier if they choose to exclude or limit flows of crude oil to the independents. According to the Federal Trade Commission's 1973 report:

> This can be done by (1) requiring shipments of minimum size, (2) granting independents irregular shipping dates, (3) limiting available storage at the pipeline terminal, (4) imposing unreasonable product standards upon inde-

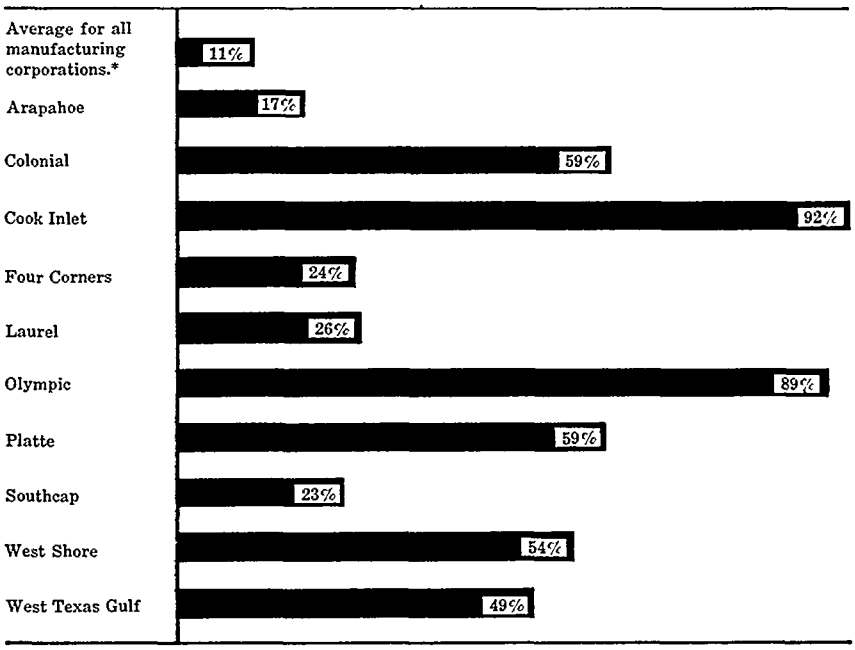
35. *Anticompetitive Impact of Oil Company Ownership of Petroleum Products Pipelines: Hearings Before the House Subcomm. on Special Small Business Problems of the House Select Comm. on Small Business*, 92d Cong., 2d Sess. 129 (1972). The argument that pipelines are common carriers regulated by a government agency is hardly convincing when one examines the following profits data:

pendent customers of pipelines, and (5) employing other harassing or delaying tactics.[36]

The companies controlling the pipelines control, to a large extent, the oil moving through those lines and determine the allocation of that oil among nonintegrated refiners. In addition, as Interstate Commerce Commission statistics for 1973 indicate, ninety-two percent of the crude going into reporting lines was owned individually or jointly by the sixteen majors.[37] Thus, through control of crude oil supplies or through ownership of pipelines, vertical integration gives the majors dominating the petroleum industry the power to mollify, discipline, coerce, and exclude their nonintegrated rivals. It empowers them to determine the conditions for entry and the rules for survival in the petroleum industry.

The consequences of vertical integration by the major oil companies are particularly striking in the international sphere. The

PIPELINES: AVERAGE ANNUAL RETURN ON PAID-IN INVESTMENT, 1968-72



*FTC, QUARTERLY FINANCIAL REPORT FOR MANUFACTURING CORPORATIONS (1968-72).

Source: ICC, TRANSPORT STATISTICS IN THE UNITED STATES, PIPELINES, PART 6, (1968-72).

36. INVESTIGATION OF THE PETROLEUM INDUSTRY, *supra* note 6, at 26.
37. ICC, TRANSPORT STATISTICS IN THE UNITED STATES, PIPELINES, PART 6, at 8-11 (1973).

ability of OPEC to limit output and to maintain or raise its revenue levels rests upon its ability to proration production cutbacks satisfactorily among its member countries. OPEC, in other words, needs an agency to perform for it the same function as the Texas Railroad Commission traditionally performed for the domestic industry. To the extent that OPEC can rely upon the integrated oil companies to serve as its prorationing and marketing agent or, in other words, to the extent that it can rely upon these companies to exercise coalescing rather than countervailing power, it can assure the viability of its worldwide control over oil prices. That the companies more or less willingly have lent themselves to the attainment of that objective was made clear by the Church Committee:

> First, access to crude oil is the necessary precondition for an oil company to stay in business. In a supply-limited situation a refiner without secure access to crude is faced with the high probability of being unable to operate. Second, the price at which OPEC sells oil to companies other than the traditional concessionaries has, up to this time at least, been somewhat higher than the cost of similar oil to the established majors. One reason for this differential has been that the established companies have continued to lift some part of the oil produced within their concessions at tax paid cost, i.e., the cost of production, plus royalties plus taxes rather than at the higher buyback price. Finally, certain tax advantages which reduce the real cost of oil accrue to a company from its ownership of equity oil in a foreign producer country. Thus, for example, a company which lifts part of its foreign oil at tax paid cost may presently credit the income tax portion of that cost against its U.S. tax liability on other foreign income.
>
> Multinational oil corporations are currently engaged in a series of negotiations designed to ensure their exclusive right to "buyback" oil—oil which has become the property of the producer countries by virtue of the various participation "agreements", and which those countries now wish to sell back to the previous company concession holders. The four Aramco shareholders—Exxon, Texaco, Socal and Mobil—by joint negotiations seek to establish a special relationship with Saudi Arabia which would give them preferential access to the Saudi crude oil supply at a discount off the going market price, even should that country acquire 100 percent of Aramco.
>
> The multinational oil companies, on the other hand, provide the OPEC with important advantages. As vertically-integrated corporations, the major oil companies guarantee OPEC members an assured outlet for their production in world markets. The primary concern of the established major oil companies is to maintain their world market shares and their favored position of receiving oil from OPEC nations at costs slightly lower than other companies. To maintain this favored status, the international companies help proration production cutbacks among the OPEC members. Their ability to do this derives from the existence of their diversified production base in OPEC countries.[38]

The importance to the OPEC countries of maintaining common

38. SENATE COMM. ON FOREIGN RELATIONS, 93D CONG., 2D SESS., REPORT ON MULTINATIONAL OIL CORPORATIONS AND U.S. FOREIGN POLICY 10 (1975) [hereinafter cited as MULTINATIONAL OIL CORPORATIONS].

interests with the integrated majors was not lost on the prime movers in the cartel. Said Sheik Zaki Yamani, Saudi Arabia's Minister of Petroleum:

> . . . Nationalization of the upstream (production) operations would inevitably deprive the majors of any further interest in maintaining crude-oil price levels. They would then become mere offtakers buying the crude oil from the producing countries and moving it to their markets in Europe, Japan and the rest of the world. In other words, their present integrated profit structure, whereby the bulk of their profits are concentrated in the producing end, would be totally transformed. With the elimination of their present profit margin of, say, 40 cents a barrel from production operations, the majors would have to make this up by shifting their profit focus downstream to their refining and product-marketing operations. Consequently, their interest would be identical with that of the consumers—namely, to buy crude oil at the cheapest possible price.[39]

In other words, by avoiding nationalization of the integrated majors' crude oil properties and instead entering into participation agreements with them, the companies would be given an incentive to identify with OPEC interests rather than with the interests of consuming countries. In the words of Sir Eric Drake, the companies would not only be the tax collectors for the producers;[40] they now would be much closer partners, serving also as OPEC's prorationing and marketing mechanism. In effect, as Professor M.M. Adelman has stated, they would be the "agents of a foreign power."[41]

The Church Committee summed up the symbiotic relationship between OPEC and the integrated majors in the following fashion:

> Thus the current changeover from the concession system to exclusive long term, large-volume supply contracts does not alter the interest that the international oil companies have in helping OPEC carry out its production and pricing policies. So long as the individual OPEC countries have assured outlets for their oil through exclusive joint arrangements with the major oil companies, the divisions within OPEC are unlikely to manifest themselves in lower oil prices, even in the face of a worldwide surplus of crude oil productive capacity estimated at over eight million barrels per day. There are, thus, parallel interests between OPEC and the major oil companies in which the companies ensure their access to the crude but at the price imposed by OPEC regardless of a theoretical crude oil surplus.[42]

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39. *Id.* at 11.

40. SAMPSON, *supra* note 1, at 236.

41. *Id.* As Adelman put it to the Senate Committee on Foreign Relations, "The cartel governments use the multinational companies to maintain prices, limit produetion, and divide markets. This connection, I submit, is the most strategic element in the world oil market." *Multinational Corporations and United States Foreign Policy: Hearings Before the Senate Subcomm. on Multinational Corporations of the Senate Comm. on Foreign Relations, Part 2*, 94th Cong., 1st Sess. 3 (1975).

42. MULTINATIONAL OIL CORPORATIONS, *supra* note 38, at 11.

In short, the very logic of vertical integration has permitted the Seven Sisters and the lesser international majors to enjoy a tenuous co-habitation arrangement, if not an indissoluble marriage with the OPEC producers.

The implications for consumer interests have been clearly spelled out by Walter Measday:

> So long as they can control the marketing of OPEC oil, the integrated majors have little reason to oppose OPEC price increases. They can pass such increases through into the prices of their own products secure in the knowledge that competitors, who are also their customers, are not getting oil any cheaper. They may, indeed, enjoy positive benefits from OPEC price increases through the enhanced values of the reserves which they still possess.
>
> The Prudhoe Bay field alone provides an example here. Each one dollar increase in the value of a reserve barrel raises the North Slope assets of Exxon, Atlantic Richfield and Sohio/BP by a minimum of $10 billion and probably much more—the improvement in asset values is none the less real because it is off-balance sheet. A good case can be made that had it not been for the Arabs, the North Slope would have been a financial disaster, given the escalation in pipeline construction costs. As it is, a recent estimate forecasts profits in the range of $2.00 a barrel for production delivered from this area. Similarly, North Sea oil has been made profitable only through OPEC actions. There is, in short, no great divergence—now that OPEC ownership of its own reserves has been accepted—between the interests of the international majors and the interests of OPEC member nations.[43]

All that has happened since 1973 is the replacement of Seven Sisters private cartel by a cartel of OPEC governments working hand-in-glove with a consortium of vertically integrated international oil giants.

IV. Vertical Integration and Efficiency

In appearances before Congress and in releases to the media, industry spokesmen are fond of picturing the vertical integration of major oil companies as a finely tuned machine assuring a smooth and continuous flow of materials from the crude fields to service stations. Tampering with that machine, they claim, would make coordination and planning of supply more difficult, would result in wasteful duplication, would increase overhead costs, and generally would entail sizable losses of efficiency. Vertical divestiture, they say, would saddle consumers with higher costs for heating fuel and gasoline.[44]

Little hard-core evidence supports these claims. Indeed, the evidence *produced by the integrated majors themselves* points in

43. Measday, supra note 23, at 11.

44. *See, e.g., Vertical Integration Hearings, Part 1, supra* note 9, at 131 (testimony of Frank Ikard).

the opposite direction. First, there is no such thing as a continuous flow from a major's crude field to its own refinery and through its own marketing organization into its own branded gas pumps. As was noted above, the major companies systematically exchange crude as well as refined products through a system of simultaneous purchases and sales agreements. An indeterminate and probably modest proportion of a major's oil moves in a continuous flow through its own vertical system. Exxon admitted as much in testimony before the Senate Antitrust and Monopoly Subcommittee in 1975:

> It is not possible to trace Exxon-owned feedstocks to each refinery. Exxon's crude production is often commingled with purchased crude, part of the commingled stream sold to others, and some Exxon crude is sold outright. For example, during 1974, Exxon's net crude plus condensate production was 701 [million barrels per day]. We purchased 868 [million barrels per day] from others (including royalty oil), and we sold 780 [million barrels per day] to others.[45]

In other words, Exxon operates a crude oil business, supplied in part from its own wells and in part by outside firms, and distributed in part to Exxon's refineries and in part to other refiners.

Second, the majors repeatedly argue, when the argument suits their purpose, that the functional components of their vertical organization operate quite independently from one another. Thus, Exxon told the South Carolina Tax Commission:

> Each of these functions is managed and accounted for on a functional operating basis. Each is a segment of [Exxon's] total corporate enterprise, but each has its own accounting, budgeting and forecasting, its own management and staff, its own profit center, its own investment center, its own physical facilities, etc. The profit or loss of each function is separately and accurately computed.[46]

Similarly, before the Wisconsin Tax Appeals Commission, Exxon argued:

> [N]one of [Exxon's] functional departments are integral parts of a unitary business composed of all functions combined; rather it [Exxon] will show that

45. *The Industrial Reorganization Act: Hearings on the Energy Industry Before the Senate Subcomm. on Antitrust and Monopoly of the Senate Comm. on the Judiciary, Part 9*, 94th Cong., 1st Sess. 529 (1975). Professor Adelman underscored this point in his assessment of the logic of vertical integration in petroleum:

> The industry's job, of arranging an immense flow of sticky combustible liquids, is made no easier or harder by common ownership of the segments. A company that on paper is balanced and produces "enough" crude for its own use actually has to dispose of much of most of it to others. Oil is where you find it, scattered in thousands of fields all over the country or the world. It often doesn't pay to bring it home.

PETROLEUM INDUSTRY COMPETITION ACT REPORT, *supra* note 2, at 125.

46. *Vertical Integration Hearings, Part 2, supra* note 9, at 1174.

each function is independent and not unitary to, or an integral part of, any other function.[47]

Apparently oblivious of the industry's claim that divestiture would result in the wasteful multiplication of company headquarters, one of Exxon's senior vice presidents explained the organization of his company's production, refining, and marketing departments to the Wisconsin Commission as follows:

> [E]ach of the operating departments had its own separate management responsible for the proper conduct of that operation. Each of these management managers had a technical staff to provide all the supporting technical service that he needed to operate his particular operation. He also had the administrative staff when necessary to assist him. Each of these departments had its own separate and distinct field organization which conducted the operations in the field.
>
> . . . .
>
> . . . [W]hen all these elements are taken together the entire organization of each of these separate functional segments is designed to permit them to operate independently and separate from each other segment . . . [T]hey were on a self-sufficient basis, except . . . the availability of some of the Coordination and Service Departments which was provided at the corporate level. These departments were free to consult with those staff departments, if they felt it was necessary.[48]

Equally revealing is the testimony of Dr. Ezra Solomon, a former member of the President's Council of Economic Advisors, appearing on behalf of Exxon before the Wisconsin Commission. Dr. Solomon gave the following answers in response to questioning by Exxon's counsel:

> Q. Do you have an opinion . . . as to whether Humble [i.e., Exxon] was a unitary company?
>
> A. No, by my definition. If it is integrated, it is by definition not unitary.
>
> Q. And on the same basis do you have an opinion as to whether the functional operations of the Humble Exploration and Production Department, the Refining Department and the Marketing Department were carried on as separate businesses?
>
> A. Yes, there are three separate unitary businesses, and if I remember right, there were even more, but these are the major important stages that a vertically integrated company combines.
>
> Q. Each stage, E and P, Refining and Marketing, you would say were separate businesses?
>
> A. Yes.
>
> Q. On the same basis do you have an opinion as to whether or not the Wisconsin Marketing operations were an integral part of the Humble E and P function?
>
> A. No, they are not.
>
> Q. Did you find any economic dependence between the Wisconsin operation and the E and P Department?

47. *Id.* at 1229-30.

48. *Id.* at 1285, 1293.

A. No, none whatever. It appears that Humble's E and P Department was a functioning unit even before there were any Wisconsin operations.

. . . .

[Dr. Solomon] A. Could Humble's E and P Department sever its relationship with the Wisconsin operation without affecting the Wisconsin operation?

[Mr. Ragatz] Q. Right.

A. Yes, I imagine it could.

Q. And could the Wisconsin Marketing operations have been severed without damage to the E and P function?

A. Yes, the Wisconsin Marketing end of it didn't exist for a while, and after it existed, it could have heen severed without affecting the E and P viability.

Q. Now, on the same basis as I previously asked, do you have an opinion as to whether the Wisconsin Marketing operations were during the years in issue an integral part of the Humble Refining Department?

A. They were not.

Q. Was there any economic dependence in that relationship?

A. Not that one could see from the record at all. The Refining Department was a unitary business that could have functioned with or without the Wisconsin Marketing.

Q. And so there was no—or the Department could have been feasibly economically severed without damaging the Wisconsin Marketing operations?

A. You could have a Wisconsin Marketing operation without having a Refining Department.

Q. Then in other words, there was an ample supply of products without obtaining them from Humble Refining?

A. That's correct.

Q. Could the Wisconsin Marketing operations have been feasibly economically severed without damaging Humble's Refining Department operations?

A. Yes.

Q. So there was an ample demand for Humble's Refining product without the Wisconsin market?

A. Yes.

Q. And going back to the E and P Department for a minute, I take it that in the market there would be an ample demand for crude oil without the Humble Refining Department being in the picture so that Humble's E and P Department could have disposed of its crude oil produced?

A. Yes. Many companies exist as crude oil producers.

Q. And as to the Refining Department, there was an ample supply of crude oil in the market so that the Refining Department was not economically dependent upon Humble's E and P Department?

A. Not in the sense that I am using the word here.

Q. And the two departments could have been economically severed on a feasible basis?

A. The very fact that refineries exist as independent refineries and producers exist as independent producers and on a fairly large scale suggests that this can be done.[49]

Later, after counsel for the State of Wisconsin had finished his cross-examination, Exxon's counsel resumed his questioning of Dr. Solomon:

49. *Id.* at 1739-42.

Q. Professor Solomon, on cross-examination you were asked questions that seemed to be driving at a dependent relationship between separate functions of an integrated oil company. Would you comment on the concept of dependence in terms of demand and supply in the market itself as to whether or not everybody in business has some dependency on market conditions and distinguish that from an economic dependency in terms of the concept of unitary?

A. Well, in the case of a unitary business, the degree of dependence between the subcomponents that comprise that unit are very strong. They are essential, they are necessary. You could not feasibly run it in today's economy, or whatever economy we are talking about, without all of those components.

In the case of a vertically-integrated company, the presence of business or unitary businesses within the vertical combination, the dependence is not as strong at all. It is quite a bit weaker. There is, obviously, some advantage for each unitary business belonging in a family of businesses. Size alone does provide some help. That degree of dependence is sort of trivial compared to the interdependence within each unit itself.

Q. In the market could you say that the dependence for a refinery would be that there be a supply of crude in the general market itself and that there not be a dependence between ownership of a producing function and a refining function?

A. Well, the common ownership of the two functions is not all that important in terms of the demand and supply of the flow of product, either crude or the products that come out of them. There is a well-established market for crude petroleum. It has a daily quotation. A refinery can buy there, a crude producer can sell there. Likewise, at the refined end there is a clear cut market for petroleum products in which a lot of people engage and in which there are daily quotations so that the degree of dependence is not that great at all.

Q. In other words the refinery can get crude from market sources that have no ownership relationship to the refinery and, in turn, can sell its product to the market sources that have no ownership relationship to the refinery?

A. Quite. The total demand and supply for crude is balanced. It really doesn't matter where you get it. It's the same kind of thing and you get it at the same price anyway.[50]

"Truth," it seems, depends upon the forum in which the majors happen to be testifying. In one case, vertical integration is indispensable for efficiency and cost minimization; in another, it does not seem to make much difference.

Professor M.M. Adelman, who, incidentally, does not support vertical divestiture, has made perhaps the most forthright judgment of the industry's efficiency argument:

> The industry's contention, that vertical integration helps efficiency, is unfounded. Common ownership of these activities, by one company, neither saves money nor costs any. (There are bound to be some exceptions to the rule; relatively, they are unimportant.) Most companies became integrated long ago for reasons that are now history. They have stayed integrated because there is no reason to change.[51]

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50. *Id.* at 1750-52.

51. Washington Post, April 30, 1976, § D, at 9, col. 7, *quoted in* PETROLEUM INDUSTRY COMPETITION ACT REPORT, *supra* note 2, at 139.

In addition, interposing genuine markets between successive stages of the oil industry would not impair efficient operations. Given past experience, however, such markets certainly would enhance competition by lowering the entry barriers to newcomers at all levels of the industry.

V. The Feasibility of Divestiture

After extensive hearings on S. 2387, the Senate Subcommittee on Antitrust and Monopoly concluded that divestiture of the vertically integrated petroleum majors is not only desirable, but feasible.[52] Divestiture is technically feasible because, as has been noted already, the majors operate their departments as functionally separate units. Several companies, including Gulf, Sun, and Continental, already have restructured their organizations to place production activities within wholly owned subsidiaries that are separate from other functional subsidiaries. Other companies have a similar functional separation in their organizations, although they operate through separate divisions rather than through distinct subsidiaries. In other words, they already have accomplished *technical* divestiture as a result of internal management decisions. As counsel for Exxon told the Wisconsin Tax Appeal Commission:

> The evidence will show that Humble [Exxon] was organized on a functionally independent basis, and that its separate functions were operated as separate businesses in competition with other oil companies having similar functions and other companies which only operated in the business activity of a particular function.
>
> We intend to develop through the evidence the functional independence of the various departments.[53]

As for the *financial* feasibility of divestiture, courts are fully equipped to handle the remedy's problems—problems no less routine than those arising from bankruptcies and voluntary spinoffs in cases of corporate reorganizations. As one expert in the field told the Subcommittee,

> All of the activity which I have described in general terms should provide us with a measure of comfort, in that we are not without the requisite legal, accounting and financial expertise to accomplish complex corporate transactions of substantial magnitude without making economic tidal waves and without transcending the constitutional limitations of due process and on deprivation of property rights. These have been accomplished in the main, without denigrating the rights of shareholders, debtholders, or other creditors and

52. Petroleum Industry Competition Act Report, *supra* note 2, at 147-50.

53. *Vertical Integration Hearings, Part 2, supra* note 9, at 1219-20.

> where the rights of shareholders, debtholders or creditors have been affected, our judicial system has adequately dealt with these situations.[54]

Experience with the Public Utility Holding Company Act of 1935 indicates that massive divestiture can take place without crippling the reorganized industry, damaging the efficiency of its operations, or riding roughshod over the interests of stockholders or creditors.[55]

Rearranging stockholder equities would be the simplest problem. If past practice is followed, the petroleum majors would be reorganized into functional subsidiaries whose stock would either be sold off or, more likely, distributed to existing stockholders with the proviso, of course, that the interests controlling the company before divestiture would not control more than one of the functionally separate successor companies. Management of the corporate debt, issued with the backing of the full faith and credit of a corporate entity that is to be altered substantially by divestiture, would pose a stickier problem. Debt under covenants of this type clearly might have to be refinanced. If securities issued in the past at a relatively low rate of interest must be refinanced at a time when interest rates are higher, the major concern would be the effect on the embedded cost of a company's debt. As Walter Measday points out, however, such problems are not insoluble:

> An example of one such solution is the recent divestiture of Northwest Pipeline by El Paso, which affected 26 series of El Paso's long-term debt. By court order, each of these series was replaced by an El Paso issue and a Northwest issue bearing the same maturities as the original series but with a 1/8 percent higher interest rate "to sweeten the deal." The ratio between the two companies' debt is the proportion between the taxable basis of properties retained by El Paso and those transferred to Northwest. In other words, an investor in El Paso 5's issued in 1962 and maturing in 1982 now holds El Paso 5-1/8's and Northwest 5-1/8's, still maturing in 1982. The increase in interest rate is minor compared to the inflation in rates since 1962, while the value of the securities to investors has been enhanced.[56]

Such problems, although obviously not devoid of complexity, clearly are soluble without prejudice to investor interests.

Moreover, companies threatened with divestiture would not likely find the raising of needed funds in the capital market an impossible task. For example, Georgia Pacific, which was the subject of an FTC divestiture action, was able to raise nearly 500 million dollars in debt on favorable terms in the short period between

54. *Id., Part 3,* at 2049.

55. *Study of Monopoly Power, Hearings Before the Subcomm. on Study of Monopoly Power, House Comm. on the Judiciary,* 81st Cong., 1st Sess. 1339-53, 1460-69 (1949).

56. Measday, *supra* note 23, at 21-22.

the announcement of the FTC's complaint and the spinoff of Louisiana-Pacific pursuant to a voluntary consent settlement.[57] Similarly, in the six years between the filing of the FTC's complaint against Kennecott, in which the government sought divestiture of Peabody Coal, the company raised at least 700 million dollars on terms at least as favorable as those available to most other large corporations. Indeed, six months *after* the Supreme Court denied certiorari in the case, Kennecott obtained a revolving credit of 250 million dollars—at the prime rate for two years and thereafter at one-fourth above the prime rate until the last two years of the loan, during which an interest charge one-half above the prime rate was to be in effect.[58] The investment community apparently views the "uncertainties" of divestiture with considerably more equanimity than many other risks to which its business clients may be subject.[59]

A vertical divestiture action against the petroleum majors should be an even less than average cause for concern. Contrary to the industry's dire forebodings about "disintegration" and "dismemberment"—implying that the majors would be broken down to the size of the neighborhood gasoline station—the successor companies still would be corporate entities of impressive size and power. In the words of the Senate Subcommittee:

> Exxon was the largest U.S. manufacturing company, in terms of 1974 assets, on the Fortune "500" list. Divested, Exxon's manufacturing—refining, chemicals, etc.—and marketing assets would have totaled about $15.8 billion, surpassed only by General Motors—$20.5 billion. Exxon's producing operations—$10.5 billion in assets—would have been in sixth place—behind General Motors, Exxon manufacturing and marketing, Ford, IBM, and, by a narrow margin, I.T.&T. Exxon Pipe Line Co., with assets of $709 million, would have been nearly within the top 200 companies.
>
> Marathon Oil, smallest of the majors in assets, ranked No. 77 on this basis among U.S. companies in 1974. The surviving producing operation—$883 million in assets—would still have been among the top 200 companies, as would refining and marketing—$751 million. Even Marathon Pipe Line Co.'s assets—$102 million—were within the range spanned by the 500 largest companies.[60]

If the successor companies resulting from divestiture of the petroleum giants were to find survival difficult or if they were to find raising capital impossible in spite of sound management, the 99.8 percent of United States manufacturing firms that are smaller than those successors must abandon hope.

57. PETROLEUM INDUSTRY COMPETITION ACT REPORT, *supra* note 2, at 134-35.
58. *Id.* at 133-34.
59. Measday, *supra* note 23, at 22.
60. PETROLEUM INDUSTRY COMPETITION ACT REPORT, *supra* note 2, at 132-33.

VI. Conclusion

In its report on S. 2387, the Senate Judiciary Committee recommended that the eighteen vertically integrated petroleum giants be reorganized into separate producing and refining-marketing companies and that all pipelines be reconstituted as independent common carriers having no interest in the crude oil and products being transported through them.[61] The Committee assured the Senate that the proposed divestiture could be accomplished:

> Without the loss of managerial and operating efficiencies;
> Without inhibiting needed capital investments;
> Without injuring investors in the companies;
> Without inhibiting the timely growth of energy supplies.[62]

The Committee expressed the confidence that implementation of its divestiture proposal would:

> Allow the development of free markets in crude and products;
> Bring about increased efficiencies in the industry;
> Deliver products and services at the best prices to consumers;
> Protect the independent refiners and marketers from extinction without requiring Government intervention;
> Remove the Government from various phases of the industry's operation;
> Put pressure on the operation of the OPEC cartel;
> Forestall the nationalization of the oil industry.[63]

In the light of available evidence, these contentions seem eminently reasonable, especially because the policy alternatives to divestiture—the status quo, governmental regulation, or nationalization—clearly are deficient in protecting the public interest.

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61. *Id.* at 5.
62. *Id.* at 6.
63. *Id.*