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Financial Responsibility Rules under the Oil Pollution Act of 1990

ABSTRACT

The potentially unlimited liability associated with vessel ownership under the Oil Pollution Act of 1990 has led to avoidance behaviors from the shipping industry, such as the restructuring of corporations to evade liability. To generate an incentive for sound risk management in the shipping sector, financial responsibility should be properly enforced. Protection and Indemnity Clubs, which have traditionally provided financial guaranties, now refuse to provide such safeguards to avoid liability under the Act. The magnitude of oil movements in U.S. waters has created alternative commercial guarantors without any serious adverse impact on U.S. oil imports. It remains to be seen how the U.S. marine insurance market can be restructured without unnecessary duplication in insurance coverage and premiums.

I. INTRODUCTION

The United States depends on oil imports for nearly 50 percent of its oil consumption and accounts for about 30 percent of the transportation of oil at sea worldwide. U.S. oil pollution regulations therefore directly influence marine oil transportation worldwide.[1] To control pollution risks associated with oil transportation in U.S. waters, the Oil Pollution Act of 1990 (OPA 90)[2] introduced increased liability limits and financial responsibility requirements for the shipping sector. Increasing liability has led to avoidance behaviors from the shipping industry, including formation of single-vessel corporations that can evade liability through corporate defenses. The potentially unlimited liability under OPA 90 exacerbates the effects of this trend. OPA 90 should be properly enforced to provide financial responsibility in the shipping sector, particularly with respect to small corporations. The success of the financial responsibility regulations will depend upon the response of the regulated parties.

Because of the magnitude of oil movements in U.S. waters, the financial responsibility regulations under OPA 90 have succeeded in ensuring that the shipping industry undertakes sound risk management

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1. *See* NAT'L RESEARCH COUNCIL, DOUBLE-HULL TANKER LEGISLATION 13 (1998).

2. Oil Pollution Act of 1990, Pub. L. No. 101-380, 104 Stat. 484 (codified at 33 U.S.C. §§ 2701-2761 (1994 & Supp. IV 1998)) [hereinafter OPA 90].

steps up to a point, without serious adverse consequences such as disruption in the flow of U.S. oil imports or any obvious impact on oil prices. However, it remains to be seen how the U.S. marine insurance market will be restructured without unnecessary duplication in the insurance coverage and premiums among insurers under the regulations. Furthermore, the financial responsibility rule suffers its own intrinsic limitations in terms of risk management.

II. THE FINANCIAL RESPONSIBILITY PROGRAM OF OPA 90

A. Concept and Rationale of the Program

1. Financial Responsibility Requirements and Liability Limits

As a precondition to the legal operation of its business, a responsible party for any vessel over 300 gross tons using any place under U.S. jurisdiction, or any vessel that operates in the exclusive economic zone of the United States to transport oil destined for the United States, must establish and maintain evidence of financial responsibility sufficient to meet the maximum amount of liability for removal costs and damages from oil spills to which the responsible party would be subject in cases where the liability limits apply.[3] Under OPA 90, the limit of a tank vessel's liability for each incident is set at the greater of either $1200 per gross ton or $10 million if the vessel is greater than 3000 gross tons, and $2 million if the vessel is 3000 gross tons or less. Liability for other vessels does not exceed $600 per gross ton or $500,000, whichever is greater.[4]

The liability limits do not apply if the incident is caused by the responsible party's gross negligence or willful misconduct, or violation of an applicable federal safety, construction, or operating regulation.[5] The responsible party would also be denied limitation of liability if it fails or refuses to report the incident, to provide reasonable cooperation or assistance in connection with removal activities, or to comply with orders relating to removal activities or protection of public health.[6] There are many federal safety, construction, or operating regulations, some of which are very specific and can be easily breached. Therefore, this would effectively pierce the limitation of liability because a spill always would be considered a violation of such a regulation.[7]

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3. *See* 33 U.S.C. § 2716(a) (1994 & Supp. IV 1998); 33 C.F.R. § 138.10 (2001).
4. *See* 33 U.S.C. § 2704(a) (1994 & Supp. IV 1998).
5. *See id.* § 2704(c).
6. *See id.*
7. *See The Federal Requirements for Vessels to Obtain Evidence of Financial Responsibility for Oil Spill Liability under the Oil Pollution Act of 1990: Hearing Before the Subcomm. on Coast Guard and Maritime Transportation of the House Comm. on Transportation and Infrastructure*, 104th Cong.

OPA 90 does not preempt states from imposing additional liability, unlimited in many states, with respect to oil spills in their respective states (see Appendix I).[8] The liability limits under OPA 90 cannot be a shelter for responsible parties sued under state laws providing unlimited liability.[9] Removal costs and damages exceeding liability limits are to be covered by the Oil Spill Liability Trust Fund (OSLTF)[10] up to $1 billion per incident. With the payments, the OSLTF becomes subrogated to all rights, claims, and causes of action that the claimant has under any other law. This could effectively increase the responsible party's liability limit up to $1 billion, breaking the shipowner's stipulated limit of liability.[11] Despite its stipulated limitation of liability, OPA 90 effectively imposes unlimited liability on responsible parties through easily pierced limitation of liability, in addition to liability that exists under state law. A multiplicity of claims in state and federal courts will likely arise. Ultimately, the aggregate amount of claims could exceed the liability limit because OPA 90 neglects concursus, a mechanism to settle all claims in one proceeding.[12] It causes many shipowners to purchase insurance coverage exceeding the statutory requirement under OPA 90.[13]

2. *Corporate Reorganization*

The strategic response of parties accountable to the rules has important implications for the ultimate success of financial responsibility

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49 (1996) (statement of Dagfinn Lunde, Managing Director, the International Association of Independent Tanker Owners (INTERTANKO)); PETROLEUM INDUS. RESEARCH FOUND., INC., TRANSPORTING U.S. OIL IMPORTS: THE IMPACT OF OIL SPILL LEGISLATION ON THE TANKER MARKET PREPARED FOR THE U.S. DEPARTMENT OF ENERGY 25 (1992).

8. *See* 33 U.S.C. § 2718 (1994).

9. *See* Robin Buckner Price, *U.S. Oil Spill Law to Cause Growing Tanker Problem*, OIL & GAS J., Sept. 30, 1991, at 21; Jeffery D. Morgan, *The Oil Pollution Act of 1990: A Look at Its Impact on the Oil Industry*, 6 FORDHAM ENVTL. L.J. 1, 6 (1994).

10. The Oil Spill Liability Trust Fund was established by the Internal Revenue Code of 1986. *See* I.R.C. § 9509 (1994).

11. *See* 33 U.S.C. § 2715(b) (1994 & Supp. IV 1998); I.R.C. § 9509 (1994); MICHAEL M. GIBSON, ENVIRONMENTAL REGULATION OF PETROLEUM SPILLS AND WASTES 81-82 (1993); A.F. Bessemer Clark, *The U.S. Oil Pollution Act of 1990*, 1991 LLOYD'S MAR. & COM. L.Q. 247, 250-51; Morgan, *supra* note 9, at 6; *Vessel Certificate of Financial Responsibility: Hearing Before the Subcomm. on Coast Guard and Navigation of the House Comm. on Merchant Marine and Fisheries*, 103d Cong. 260 (1994) (statement of Stathes Kulukundis, Deputy Chairman, Greek Shipping Co-operation Committee).

12. *See* 104th Cong., *supra* note 7, at 50 (statement of Dagfinn Lunde, Managing Director, the International Association of Independent Tanker Owners (INTERTANKO)); Melissa Kness Cooney, *The Stormy Seas of Oil Pollution Liability: Will Protection and Indemnity Clubs Survive?*, 16 HOUS. J. INT'L L. 343, 370-71 (1993).

13. *See* Richard H. Hobbie, Insurance (the New WQIS Policy) at the Thirteenth New Orleans Maritime Seminar (Jan. 26, 1994).

as a form of environmental regulation.[14] Substantially unlimited liability on the shipping sector motivates shipping companies to minimize assets held within the United States. The judgment-proof problem would prevail in the industries whose liability costs are clearly high.[15] Shipowners have subdivided their fleets into single-vessel companies to protect the rest of their operations from single-vessel casualty risks by isolating such risks through corporate defenses.[16] In 1980, single-vessel companies owned approximately 29 percent of the ocean-going tankers trading in U.S. waters. The percentage increased to approximately 45 percent in 1991. The potential for unlimited liability under OPA 90 and state legislation has catalyzed this trend.[17] This reorganization is occurring on a massive scale, although there is no guarantee that the strategy to hide true vessel ownership by split shipowning will succeed in the U.S. judicial system.[18]

Many shipping companies have reorganized their corporate structures by transferring tankers to new shipping subsidiaries to protect parent companies from the potential for unlimited liability risks under OPA 90.[19] For example, Leif Hoegh & Company, one of Norway's largest

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14. *See* James Boyd, *"Green Money" in the Bank: Firm Responses to Environmental Financial Responsibility Rules*, 18 MANAGERIAL & DECISION ECON. 491, 491 (1997).

15. *See* Lynn M. Lopucki, *The Death of Liability*, 106 YALE L.J. 1, 26 (1996).

16. *See* Gotthard Gauci, *Limitation of Liability in Maritime Law: An Anachronism?*, 19 MARINE POL'Y 65, 68-69 (1995); *Certificates of Financial Responsibility under the Oil Pollution Act: Hearing Before the Subcomm. on Coast Guard and Navigation of the House Comm. on Merchant Marine and Fisheries*, 102d Cong. 49 (1991) (statement of Andreas K.L. Ugland, Chairman, Ugland Group of Grimstad, Norway, on behalf of the International Association of Independent Tanker Owners (INTERTANKO)); *id.* at 150 (statement of the International Association of Independent Tanker Owners); *id.* at 160 (statement of Bjorn Wilhelmsen, Board Member, Senior Shipping Advisor, I.M. Skaugen of Oslo, Norway); Robin Buckner Price, *U.S. Oil Spill Law to Cause Growing Tanker Problem*, OIL & GAS J., Sept. 30, 1991, at 21; Allanna Sullivan, *Oil Firms, Shippers Seek to Circumvent Laws Setting No Liability Limit for Spills*, WALL ST. J., July 26, 1990, at B1; U.S. COAST GUARD, REGULATORY IMPACT ANALYSIS FINANCIAL RESPONSIBILITY FOR WATER POLLUTION (VESSELS) 44 (1994); Antonio J. Rodriguez & Paul A.C. Jaffe, *The Oil Pollution Act of 1990*, 15 TUL. MAR. L.J. 1, 28 (1990); *Oil Pollution Liability and Compensation Act: Hearing and Markup on Title III of H.R. 1465 Before the Subcomm. on Human Rights and International Organizations of the House Comm. on Foreign Affairs*, 101st Cong. 46 (1989) (statement of Brian Hoyle, Director, Office of Ocean Law and Policy, Bureau of Oceans and International Environmental and Scientific Affairs, U.S. Dept. of State).

17. *See Oil Spill Liability and Compensation: Hearing Before the Subcomm. on Water Resources of the House Comm. on Public Works and Transportation*, 101st Cong. 80 (1989) (statement of Brian Hoyle, Director of Ocean Law and Policy Bureau of Oceans and International Environmental and Scientific Affairs, U.S. Dept. of State); Kusum W. Ketkar, *Protection of Marine Resources: The U.S. Oil Pollution Act of 1990 and the Future of the Maritime Industry*, 19 MARINE POL'Y 391, 395 (1995).

18. *See* PETROLEUM INDUS. RESEARCH FOUND., INC., *supra* note 7, at 70; Janet Porter, *Tanker Industry Divided on Restructuring*, J. COM., Oct. 21, 1992, at 1B.

19. *See* PETROLEUM INDUS. RESEARCH FOUND., INC., *supra* note 7, at 70.

shipowners, transferred its tankers to a new subsidiary, Bona Shipping, at the end of 1992. In August 1991, I.M. Skaugen, another large Norwegian shipping group, decided to establish a separate company for its oil lightering activities, which dominated the lightering business in the U.S. Gulf. Exxon Corporation reorganized its shipping subsidiary, Exxon Shipping Company, partially to avoid the impact of OPA 90.[20] Some parent corporations have also sold off tank barge companies to avoid increased liability under OPA 90. Inland tank barges frequently traverse the waters of states and are thus subject to unlimited liability under state laws. Influenced by the unlimited liability under state laws, New York-based Sequa Corporation sold its tank barge company.[21] Ashland Oil Company also sold its Great Lakes tank barge operation to avoid unlimited liability under several state laws along the Great Lakes.[22] This disposal of tank barge operations might eventually contribute to an increase in undercapitalized shipping companies.

The strategic restructuring of corporate entities will produce undercapitalized, substandard tanker companies and remove assets from the reach of potential claimants.[23] The proliferation of single-vessel companies might result in a poor set of tankers in U.S. waters, reducing the quality of operations such as contingency planning and manning.[24] Corporate restructuring might also impede close links between shipowners and vessel operations and undermine vessel operation safety.[25] Firms undercapitalized relative to the liability incurred from their market operations do not internalize the full social costs of pollution undermining the incentive to avoid or reduce oil pollution risk.[26]

3. Rationale

The implications of liability limits are twofold. While these limits represent the maximum amount for which responsible parties can be liable, they also represent the minimum amount of financial responsibility required of the parties. The financial responsibility program ensures that

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20. *See* Janet Porter, *supra* note 18, at 1B; Janet Plume, *1990 Law Transforms Oil Barge Industry; Companies Sell Off Units to Avoid Risk*, J. COM., Aug. 19, 1991, at 1A; Joel Glass, *Exxon Plans U.S. Shipping Unit Shake-Up*, LLOYD'S LIST, Mar. 3, 1993, at 1; Morgan, *supra* note 9, at 9-10.

21. *See* Plume, *supra* note 20; Morgan, *supra* note 9, at 10.

22. *See* Plume, *supra* note 20; Morgan, *supra* note 9, at 10.

23. *See* Morgan, *supra* note 9, at 11.

24. *See* 102d Cong., *supra* note 16, at 49 (statement of Andreas K.L. Ugland, Chairman, Ugland Group of Grimstad, Norway, on behalf of International Association of Independent Tanker Owners (INTERTANKO)); id. at 49-50 (statement of Bjorn Wilhelmsen, Board Member, Senior Shipping Advisor, I.M. Skaugen of Oslo, Norway).

25. *See* Porter, *supra* note 18, at 1B.

26. *See* Boyd, *supra* note 14, at 492; U.S. COAST GUARD, *supra* note 16, at 21; STEVEN SHAVELL, ECONOMIC ANALYSIS OF ACCIDENT LAW 279-80 (1987).

parties are identified and are aware of their responsibility for oil pollution costs. The program implements the principle of OPA 90 that the polluter should pay for oil pollution costs.[27] By internalizing costs, financial responsibility requirements encourage the shipping and insurance industries to focus on managing risks, selectively forcing out financially unsound firms and ultimately playing a crucial role in restructuring the shipping industry.[28] Financial responsibility overcomes the weakness of liability as a regulatory mechanism, judgment proof due to its ex post nature.[29] Financial responsibility gives firms the flexibility to reduce risks under their own conditions. It further reduces the regulator's need for continuous monitoring, as firms obtain better information than regulators on the risks posed by firm activities.[30]

B. Implementation

The owner, operator, and demise charterer are strictly, jointly, and severally liable for oil pollution costs, but together they need only establish and maintain an amount of financial responsibility equal to the single limit of liability per incident. A certificate of financial responsibility (COFR) is issued to a vessel operator that demonstrates the required financial responsibility. The certificate is effective for no more than three years.[31] Financial responsibility regulations under OPA 90 provide the following:

> An operator of a vessel may establish and maintain, for itself, and, where the operator is not the owner or demise charterer, for the owner and demise charterer of the vessel, evidence of financial responsibility to cover [oil pollution] liability of the owner, operator, and demise charterer arising under...the Oil Pollution Act of 1990....[32]

The Coast Guard's interim rule established three compliance dates in accordance with the types of vessels (see Table I).[33]

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27. *See* U.S. COAST GUARD, *supra* note 16, at 20-25.

28. *See id.* at 74; Nicole Roberts & Leslie White, *Insurance Planning and Alternatives for Business*, (unpublished manuscript) (on file with author); 103rd Cong., *supra* note 11, at 226 (statement of Lisa Speer, Senior Policy Analyst, Natural Resources Defense Council); 104th Cong., *supra* note 7, at 81 (statement of Daniel F. Sheehan, Director of National Pollution Funds Center).

29. *See* Boyd, *supra* note 14, at 492.

30. *See id.* at 494.

31. *See* 33 C.F.R. §§ 138.30, 138.90 (2001); U.S. COAST GUARD, *supra* note 16, at 5.

32. 33 C.F.R. § 138.10 (2001).

33. *See* Financial Responsibility for Water Pollution (Vessels), 59 Fed. Reg. 34,210; 34,267 (1994); 33 C.F.R. § 138.15 (2001).

Table I. Compliance Dates of Financial Responsibility by Vessel Type

VESSEL TYPE	DATES
Tankers	12/28/94
Barges	07/01/95
Others	expiration date of preexisting COFR

Source: 33 C.F.R. § 138.15 (1996).

The Coast Guard lists five methods of establishing financial responsibility in its final regulation effective March 7, 1996: insurance, surety bond, self-insurance, financial guaranty, or other evidence.[34] Traditionally, financial responsibility has been evidenced mostly by insurance. Protection and Indemnity Clubs (P&I Clubs)[35] have been the primary providers of oil pollution liability insurance, as well as of financial responsibility guaranties (See Appendix II).[36] However, although they remain as insurance providers, they have refused to provide financial responsibility guaranties for the purpose of OPA 90. A bonding company authorized to do business in the United States must issue the bond, and the penal sum of the bond may not be conditioned or dependent upon any contract, agreement, or understanding between a vessel owner or operator and the surety.[37]

To take advantage of the self-insurance method, a responsible party must maintain working capital and net worth equal to or greater than the amount of financial responsibility. Working capital means the amount of current assets located in the United States, less all current liabilities anywhere in the world. Net worth means the amount of all assets located in the United States, less all liabilities anywhere in the world.[38] The Coast Guard requires that the financial guarantor comply with all of the self-insurance provisions and be able to demonstrate that its amounts of working capital and net worth are no less than the aggregate applicable amounts of financial responsibility underwritten as a guarantor and self-insurer.[39] If an applicant for a COFR does not wish to use or is unable to use

34. *See* Financial Responsibility for Water Pollution (Vessels), 61 Fed. Reg. 9,264, 9,307 (1996); 33 C.F.R. § 138.80 (2001).

35. P&I Clubs are mutual associations of shipowners, charterers, ship operators, and managers who have agreed to insure each other's ships on a mutual and non-profit basis.

36. *See* U.S. COAST GUARD, *supra* note 16, at 65; 103d Cong., *supra* note 11, at 233 (statement of Jerry A. Aspland, President, Arco Marine, Inc., and Chairman, API General Committee on Marine Transportation).

37. *See* James A. Hutchinson, *Financial Responsibility Provisions: Are They Sinking the U.S. Maritime Trade?*, 24 LAW & POL'Y INT'L BUS. 223, 246-48 (1992).

38. *See* 33 C.F.R. § 138.80(b)(3) (2001).

39. *See id.* § 138.80(b)(4) (2001).

one of the preceding methods, he can use a different method assuring his ability to meet his liability.[40]

Surety bonds, self-insurance, and financial guaranties as methods of establishing financial responsibility would be available mainly to large oil companies because self-insurance requirements are stringent and surety bonds and financial guaranties are expensive.[41] In practice, insurance and other evidence of financial responsibility are feasible for the small and mid-sized independent tankers that transport approximately 71 percent of all imported crude oil and 57 percent of all refined oil imported to the United States.[42] The small companies cannot pass on the total costs to the consumer in a highly competitive shipping market, even if the costs are built into the freight structure of the industry.[43]

OPA 90 requires the insurer to be sued directly as a guarantor, if he provides evidence of financial responsibility for a responsible party. A direct action for oil pollution costs against the guarantor is allowed not only for the federal government, but also for other potential claimants.[44] When the responsible party is unable or unwilling to pay without direct action, primary responsibility would shift from the guarantor to the OSLTF financed by an oil tax, thus eroding the incentives to reduce risks.[45] Under the Federal Water Pollution Control Act (FWPCA),[46] the insurer could invoke all the defenses between him and the insured as well as those between the insured and the claimant.[47] Under OPA 90, a guarantor may, however, assert only the same defenses available to the responsible party, in addition to the defense of willful misconduct of the responsible party.[48] Defenses available to the responsible parties are an act of God; an act of war; an act or omission of a third party other than an employee, agent, or contractor of the responsible party; or any combination of these three conditions.[49] A guarantor cannot invoke against claimants policy defenses

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40. *See id.* § 138.80(b)(5) (2001).

41. Self-insurance was chosen by a number of states and municipalities as well as some large oil companies. *See* 104th Cong., *supra* note 7, at 69-77 (statement of Daniel F. Sheehan, Director of National Pollution Funds Center).

42. *See* U.S. COAST GUARD, *supra* note 16, at 99-100.

43. *See* 104th Cong., *supra* note 7, at 12, 88-90 (statement of Winthrop Wyman, Vice Chairman, OMI Petrolink Corporation).

44. *See* 33 U.S.C. § 2716(f) (1994 & Supp. IV 1998); 33 C.F.R. § 138.80 (2001).

45. *See USCG Fears over OPA 90 Changes*, Joel Glass, July 20, 1995, Lloyd's List International (on file with author); Morgan, *supra* note 9, at 25-26.

46. Federal Water Pollution Control Act, Pub. L. No. 92-500, 86 Stat. 816 (1972) (codified at 33 U.S.C. §§ 1251-1387 (1994) [hereinafter FWPCA].

47. *See* 33 U.S.C. § 1321(p).

48. *See* 33 U.S.C. § 2716(f) (1994 & Supp. IV 1998); 33 C.F.R. § 138.80 (2001).

49. *See* 33 U.S.C. § 2703 (1994).

it may have against the insured.[50] Therefore, P&I Clubs are unable to invoke the "pay to be paid" clause.[51]

C. Change in Providers of Financial Responsibility Guaranties

1. *P&I Clubs' Refusal to Provide Financial Responsibility Guaranties*

Despite the provisions confirming liability limits for a guarantor under both OPA 90[52] and the COFR regulation,[53] the P&I Clubs and their principal reinsurer, Lloyd's of London,[54] believe that the limits might not be

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50. *See* 33 U.S.C. § 2716(f) (1994 & Supp. IV 1998). Common policy defenses are the following: the vessel operator's failure to pay premiums on time, failure to keep the vessel in class, insolvency, failure to repair critical equipment, and overloading. *See* 104th Cong., *supra* note 7, at 74 (statement of Daniel F. Sheehan, Director of National Pollution Funds Center); John M. Mitchell, Comment, *The United States Coast Guard's Proposed Regulation of Certificates of Financial Responsibility under the Oil Pollution Act of 1990: Fostering a Continuing Market of Insurance for Shipowners?*, 7 ADMIN. L.J. AM. U. 121, 125-26 (1993).

51. The so-called "pay to be paid" rule is the basic principle of indemnity insurance, as opposed to liability insurance: a member must settle the claim against him before indemnification from his P&I Club. *See* T.G. Coghlin, *Protection & Indemnity Clubs*, LLOYDS MAR. & COM. L.Q. 403, 411 (1984); SIMON POLAND & TONY ROOTH, GARD HANDBOOK ON P&I INSURANCE 600 (1996); STEVEN J. HAZELWOOD, P&I CLUBS: LAW AND PRACTICE 283 (2d ed. 1994); 104th Cong., *supra* note 7, at 33 (statement of Richard H. Hobbie, President of Water Quality Insurance Syndicate); Morgan, *supra* note 9, at 12-14.

52. "Nothing in this Act...impose[s] liability with respect to an incident on any guarantor for damages or removal costs which exceed, in the aggregate, the amount of financial responsibility required under this Act which that guarantor has provided for a responsible party...." 33 U.S.C. § 2716(g) (1994 & Supp. IV 1998).

53. "A guarantor that participates in any evidence of financial responsibility...[is] liable...only for the amount and type of costs and damages specified in the evidence of financial responsibility....A guarantor...[is] not...considered to have consented to direct action under any law other than...[OPA 90], or to unlimited liability under any law or in any venue, solely because of the guarantor's participation in providing any evidence of financial responsibility under [the COFR regulation]....In the event of any finding that liability of a guarantor exceeds the amount of the guaranty provided under...[the regulation], that guaranty is considered null and void with respect to that excess." 33 C.F.R. § 138.80(d)(1)(v)(2) (2001).

54. Lloyd's is not a company, but a marketplace of approximately 27,000 individual underwriting members. These members operate through approximately 300 syndicates. Each syndicate decides for itself what risks it will accept. The liability of the members is several, not joint. Each member accepts insurance risks for his personal profit or loss and each is liable to the full extent of his private wealth to meet his own insurance obligations. Lloyd's of London acts as a primary source of reinsurance to back the P&I Clubs and also acted as the primary source of direct pollution coverage under pre-OPA 90 regime for approximately 1,000 vessels (approximately 300 tank vessels) not covered under the P&I Club policies. *See* 102d Cong., *supra* note 16, at 31, 94 (statement of Richard L. Youell, Marine Underwriter, Lloyd's of London, and Chairman, Janson Green Marine, Ltd.); Jason A. Garick, *Crisis in the Oil Industry: Certificates of Financial Responsibility and the Oil Pollution Act of 1990*, 17 MARINE POL'Y 272, 286 (1993).

upheld.[55] In the event of a large spill, U.S. courts would seek to find some reason to impose liability in excess of the amount certified, or even insured by deep-pocketed guarantors who are often foreign insurers. Under OPA 90, the P&I Clubs are forced to respond to a multiplicity of claims under direct action and the expanded scope of recoverable damages. In addition to removal costs, OPA 90 recognizes as compensable the following: natural resource damages, loss of subsistence use of natural resources, real or personal property damages, damages for increased costs of public services, loss of profits and earning capacity, and loss of revenues including taxes.[56] The P&I Clubs also face direct action in many states due to non-preemption of state legislation.[57] In addition, many state laws do not recognize limitation of liability, as reviewed in the preceding section. The guarantor may be exposed to multiple judgments in state and federal courts, in which the aggregate amount of total claims could exceed the liability limit, as reviewed in the preceding section.[58] The P&I Clubs provide the current $500 million coverage on the assumption that the shipowner will be able to hold his limit of oil pollution liability in most cases (see Figure I).[59] Under OPA 90, however, the shipowner might be denied limitation of liability in most major oil spills, as reviewed in the preceding section.[60]

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55. *See* 103rd Cong., *supra* note 11, at 47 (statements of Terence G. Coghlin, Chairman, International Group of P&I Clubs); 104th Cong., *supra* note 7, at 102 (statement of International Group of P&I Clubs); *Just a Ticket for Owners to Trade?*, Zurich Group, Dec. 24, 1996, Lloyd's List International (on file with author); The Sea Shepherd Conservation Society Network Mailing List, *Financial Responsibility of Oil Companies* (on file with author).

56. *See* 33 U.S.C. § 2702(b) (1994).

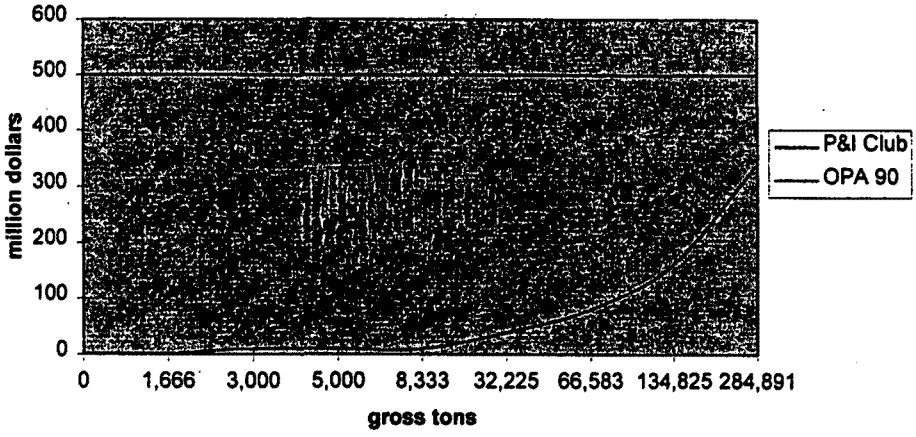
57. *See* 33 U.S.C. § 2718 (1994).

58. *See* Robin Buckner Price, *U.S. Oil Spill Law to Cause Growing Tanker Problem*, OIL & GAS J., Sept. 30, 1991, at 21; Cooney, *supra* note 12, at 370-71; 102d Cong., *supra* note 16, at 32 (statement of Richard J. Youell, Marine Underwriter, Lloyd's of London, and Chairman, Janson Green Marine, Ltd.).

59. The *Seawise Giant* of 569,783 deadweight tons (284,891 gross tons) was the largest tanker so far. In practice, the maximum liability limit for a tank vessel under OPA 90 would, therefore, be approximately $341 million (1200 × 284,891). *See* LANE C. KENDALL & JAMES J. BUCKLEY, THE BUSINESS OF SHIPPING 375 (6th ed. 1994).

60. *See* 102d Cong., *supra* note 16, at 40-41 (statement of Terence G. Coghlin, Chairman Designate, The International Group of P&I Clubs); *id.* at 45 (statement of Billy Tauzin, a U.S. representative from Louisiana, and Chairman, Subcommittee on Coast Guard and Navigation).

Figure I. Liability Limits under OPA 90 and Coverage of P&I Clubs



The policy of the P&I Clubs is not determined by tanker owners trading to the United States because the majority of club members are neither trading to the United States nor tanker owners.[61] The P&I Clubs believe that oil pollution in U.S. waters is not a mutual risk. Although the risk falls on only a minority of the clubs' membership, the entire membership must pay to insure against the risk. This distorts the integrity of the Clubs' globally operated risk-sharing structure by inequitably subsidizing shipowners who trade to the United States at the expense of those who trade elsewhere.[62] The available reinsurance coverage worldwide for oil

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61. *See* 103d Cong., *supra* note 11, at 62, 233 (statement of Jerry A. Aspland, President, Arco Marine, Inc., and Chairman, API General Committee on Marine Transportation).

62. *See Specialist Insurers Offer Real OPA Solution for Shipowners: The Realization that OPA 90 Is Here to Stay Has Prompted Calls from Shipowners for an "Industry Solution" to the Problem of Certificate of Financial Responsibility*, Hugh Bryant, June 21, 1996, Lloyds List International (on file with author); UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT, REVIEW OF MARITIME TRANSPORT 23 (1996); INST. OF SHIPPING ECON. & LOGISTICS, SHIPPING STATISTICS YEARBOOK 55 (1996); 103d Cong. *supra* note 11, at 223 (statement of Miles A. Kulukundis, Chairman, International Association of Independent Tanker Owners (INTERTANKO)); *id.* at 32 (statement of Richard L. Youell, Marine Underwriter at Lloyd's of London); 104th Cong., *supra* note 7, at 18, 41 (statement of Chris Horrocks, Secretary General, International Chamber of Shipping); *id.* at 102 (statement of International Group of P&I Clubs); *id.* at 142 (statement of Donald B. Shea, President, United States Chamber of Shipping); MERCER MGMT. CONSULTING, INC., AN ANALYSIS OF THE SYSTEM OF OIL POLLUTION CONTROL IN CALIFORNIA MARINE WATERS V-11 (1993).

pollution risks is limited. The existing reinsurances of the P&I Clubs are based on the assumption that the clubs do not provide financial guaranties under OPA 90.[63] In addition, direct action would undermine indemnity characteristics of the P&I Clubs. Thus, the P&I Clubs have refused to provide evidence of financial responsibility required under OPA 90.[64]

The P&I Clubs have provided guaranties to other governments under the 1969 International Convention on Civil Liability for Oil Pollution Damage (CLC).[65] They also provided guaranties to the United States under the pre-OPA 90 regime because the insured risk was predictable since liability was limited in scope to federal cleanup costs and in amount to $150 per gross ton under the FWPCA, and policy defenses were available.[66] This implies that the real reason for the refusal to provide evidence of financial responsibility under OPA 90 is distrust of the U.S. courts. The other reasons, erosion of mutuality and indemnity, were ignored under CLC and pre-OPA U.S. laws.[67]

Despite the refusal of the P&I Clubs to provide financial responsibility guaranties, the compliance dates of financial responsibility passed neither with disruption in the flow of U.S. oil imports nor with obvious impact on oil prices (see Appendices III, IV).[68] This implies that, in practice, the P&I Clubs can exercise no effective control over the shipping interests that are prone to competition. The tanker industry is suffering from worldwide surplus capacity, with resulting pressure for competition.[69] At

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63. *See* 102d Cong., *supra* note 16, at 89-90 (statement of Terence G. Coghlin, Chairman Designate, The International Group of P&I Clubs).

64. *See* Charles S. Donovan & Elizabeth M. Miller, *How Is OPA 90 Faring from the Vessel Interests' Perspective? A Look at the MORRIS J. BERMAN Oil Spill and the Current Rule on Certificates of Financial Responsibility*, 7 U.S.F. MAR. L.J. 23, 53 (1994); Michael P. Donaldson, *The Oil Pollution Act of 1990: Reaction and Response*, 3 VILL. ENVTL. L.J., 283, 295-96 (1992).

65. CLC entered into force on June 19, 1975. As of June 30, 2002, the number of contracting states is 49 and the percentage of world tonnage is six percent. *See* INT'L MAR. ORG., *About IMO*, *at* http://www.imo.org/home.asp (2002) (last visited Aug. 5, 2002).

66. *See* 104th Cong. *supra* note 7, at 100 (statement of International Group of P&I Clubs); 102d Cong., *supra* note 16, at 86 (statement of Terence G. Coghlin, Chairman Designate, The International Group of P&I Clubs); Donovan & Miller, *supra* note 64, at 53; WU CHAO, POLLUTION FROM THE CARRIAGE OF OIL BY SEA: LIABILITY AND COMPENSATION 270 (1996); PETROLEUM INDUS. RESEARCH FOUND., INC., *supra* note 7, at 44.

67. *See Just a Ticket for Owners to Trade?*, Zurich Group, Dec. 24, 1996, Lloyd's List International (on file with author).

68. *See* 104th Cong., *supra* note 7, at 17 (statement of Chris Horrocks, Secretary General, International Chamber of Shipping); *Oil Spills: COFR Rule Did Not Trigger Cost, Supply Disruption, Coast Guard Official Says*, June 27, 1996, Daily Environment Report (on file with author).

69. *See* U.S. COAST GUARD, *supra* note 16, at 68; *Shetland Island Oil Spill: Oversight Hearing Before the Subcomm. on Oversight and Investigation of the House Comm. on Natural Resources*, 103d Cong. 38 (1993) (statement of Nina Sankovitch, senior attorney, Natural Resources Defense Council).

the end of 1990, surplus capacity was calculated at 56.4 million deadweight tons.[70] Despite the potential of unlimited liability on tanker owners with respect to oil transportation in U.S. waters, the majority of tanker owners have no other choice for commercial survival but to continue to trade to the U.S. market, which is the largest in the world.[71]

2. *The Development of New Financial Responsibility Guarantors*

The magnitude of the U.S. oil market has created alternative commercial guarantor schemes in the market place vacated by the refusal of P&I Clubs to provide financial guaranties. The Water Quality Insurance Syndicate (WQIS) has continued to provide financial guaranties, and new major commercial instruments include Shoreline Mutual, First Line, Shipowners' Insurance and Guaranty Company Ltd. (SIGCo), ARVAK, and Syndicate 724.[72] In particular, independent of the P&I Clubs' position, the Lloyd's market has changed its position to provide financial guaranties through Syndicate 724 despite continuation of its earlier reasons for not having done so, such as direct action, reduced policy defenses, and the potential of unlimited liability under OPA 90.[73] The invisible hand of the U.S. oil market has produced a sub-insurance market for financial responsibility purposes only, without direct connection with the P&I Clubs. As the P&I Clubs failed to produce an "industry solution," the non-captive portion of the world's marine liability insurance industry developed a "market-based solution" for the risk of potentially unlimited liability.[74] However, membership in a P&I Club is required in most cases as a condition of subscribing to the new guarantors' coverage in real markets.[75]

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70. *See* Derek Bamber, *Never up for Long*, 58 PETROLEUM ECONOMIST, Aug. 1991, at 15.

71. *See Oil Spill Prevention Measures: Hearing Before the Subcomm. on Coast Guard and Maritime Transportation of the House Comm. on Transportation and Infrastructure*, 105th Cong. 184 (1997) (International Association of Independent Tanker Owners, INTERTANKO, U.S. Port & Terminal Safety Study, a discussion paper).

72. *See* 104th Cong., *supra* note 7, at 31 (statement of Richard H. Hobbie, III, President, Water Quality Insurance Syndicate); Hobbie, *supra* note 13.

73. *See Syndicate to Write Risk on US Oil Spill Rules*, Joel Glass, Mar. 9, 1996, Lloyd's List International (on file with author).

74. A captive insurance company means a company formed to insure the risks of their parent corporations. "Non-captive" means "non-P&I Club." *See* PRICE WATERHOUSE, A GUIDE TO THE UK INSURANCE INDUSTRY 36-7 (1990); 104th Cong., *supra* note 7, at 55 (statement of Daniel F. Sheehan, Director of National Pollution Funds Center); Paul S. Edelman, *International Convention for Oil Spills*, N.Y.L.J., Sept. 30, 1996, at 3; *OPA 90 Spill Risk Bodies Lose Out*, Joel Glass, June 3, 1995, Lloyd's List International (on file with author).

75. *See* 104th Cong., *supra* note 7, at 93 (statement of Charles J. DiBona, President, American Petroleum Institute); *Financial Rules on Pollution Still Spark Strong Feelings*, Joel Glass, June 28, 1996, Lloyd's List International (on file with author); *Oil Spills: COFR Rule Did Not Trigger Cost, Supply Disruption, Coast Guard Official Says*, June 27, 1996, Daily Environment Report (on file with author).

D. The Premiums for the Financial Responsibility Guarantors

The Coast Guard's Regulatory Impact Analysis (RIA) estimated that premiums to commercial financial responsibility guarantors would be $2.03 per gross registered ton (grt) per voyage and that it would be translated into $0.145/barrel of crude oil ($0.00345/gallon of refined product). It also projected the annual total premiums of the commercial insurers for 1994 at $415 million.[76] The actual annual cost of obtaining commercial financial responsibility guaranties for seagoing vessels was approximately $60–70 million, below the estimate of the RIA.[77] This cost translates into $0.02 per barrel of crude oil (0.145 X 70/415). Because the international reinsurers assume most of the premiums and thus set the cost of financial responsibility coverage accordingly, the P&I Clubs' participation in the COFR program would not have reduced the shipowner's costs in obtaining the financial guaranties.[78] Under a hypothetical scheme that the P&I Clubs contemplated devising to meet financial responsibility requirements in 1994, the annual surcharge of the P&I Clubs was about $80 million.[79]

The P&I Clubs continue to provide coverage for oil pollution liability under OPA 90, with an additional premium in accord with the

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76. The RIA had estimated that the premiums assessed by Shoreline and First Line were, at worst, seven times the P&I Clubs' surcharge under OPA 90 that was 29 cents per grt per voyage. *See* U.S. COAST GUARD, *supra* note 16, at 80-82; Financial Responsibility for Water Pollution (Vessels), 59 Fed. Reg. 34,210; 34,226 (1994); Donovan & Miller, *supra* note 64, at 55; Benjamin H. Grumbles & Joan M. Manley, *The Oil Pollution Act of 1990: Legislation in the Wake of a Crisis*, NAT. RESOURCES & ENV'T, Fall 1995, at 35, 40; 103d Cong., *supra* note 11, at 82 (statement of Robert E. Kramek, Commandant, U.S. Coast Guard); *id.* at 141 (statement of Hugh Bryant, Chairman, Mutual Management Ltd.); 104th Cong., *supra* note 7, at 14, 29 (statement of John J. Gallagher, Chairman of the Board, Gallagher Marine Systems, Inc.).

77. The Coast Guard estimated the combined premiums for First Line and Shoreline to be $70 million for 1995 and expected them to be less in 1996. First Line was more expensive. *See* U.S. COAST GUARD, *supra* note 16, at 82; 103rd Cong., *supra* note 11, at 82 (statement of Robert E. Kramek, Commandant, U.S. Coast Guard); 104th Cong., *supra* note 7, at 46 (statement of Dagfinn Lunde, Managing Director, the International Association of Independent Tanker Owners (INTERTANKO)); *id.* at 20 (statement of Svein Ringbakken, Chief Counsel, the International Association of Independent Tanker Owners (INTERTANKO)); *id.* at 54 (statement of Daniel F. Sheehan, Director of National Pollution Funds Center); *id.* at 18 (statement of Chris Horrocks, Secretary General, International Chamber of Shipping); *id.* at 142 (statement of Donald B. Shea, President, U.S. Chamber of Shipping).

78. Shoreline Mutual, *Shoreline Surpasses the 2,000 Milestone, at* http://www.mutrisk.com/shoreline/circulars/c031297.html (Mar. 12, 1997); *Congress Setback for OPA 90 Hopes*, Joel Glass, June 28, 1996, Lloyd's List International (on file with author); 104th Cong., *supra* note 7, at 58 (statement of Daniel F. Sheehan, Director of National Pollution Funds Center, U.S. Coast Guard).

79. *See* 104th Cong., *supra* note 7, at 21 (statement of Chris Horrocks, Secretary General, International Chamber of Shipping).

increase in the P&I Clubs' reinsurance costs for risks in U.S. waters under OPA 90.[80] In 1991, the Clubs imposed a surcharge for the first time on tankers trading to the United States.[81] An additional $200 million oil pollution coverage is obtainable for tankers through their P&I Clubs from the commercial market, underwriters at Lloyd's of London. The combined cost of the surcharge of the P&I Clubs[82] and the optional additional coverage[83] was estimated at 57.33 cents (29 cents + 28.33 cents) per grt per voyage in 1994. It would be translated into less than $0.04/barrel of crude oil.[84] The total cost of the surcharge and the optional coverage to the United States was estimated at less than $117 million in 1994.[85] The cost of the commercial guaranties was close to that of the surcharge.[86]

The sum of the costs of the commercial guaranties and those of the P&I Clubs' surcharge and the optional coverage is $0.06 per barrel of crude oil ($0.02 + $0.04). This is very close to the oil tax, $0.05 per barrel of oil under the OSLTF.[87] The P&I Clubs' reinsurance premium rose by nearly seven percent from approximately $360 million to approximately $387 million in the period 1993 to 1994.[88] There was a substantial increase in insurance costs to shipowners during the early 1990s. However, cost reductions for shipowners with good records were observed in the latter half of 1994. The costs have been reduced from 1995 to 1998.[89] The increase in the size of tankers and tanker surplus have led to lower transportation costs, approximately $1.00 per barrel, or between five and ten percent of the

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80. *See* U.S. COAST GUARD, *supra* note 16, at 28-30, 33; POLAND & ROOTH, *supra* note 51, at 33, 365, 482, 625, 628.

81. *See* Robin Buckner Price, *U.S. Oil Spill Law to Cause Growing Tanker Problem*, OIL & GAS J., Sept. 30, 1991, at 21, 26; *P&I Clubs and the Oil Pollution Act*, Ann Moore, Aug. 23, 1994, Lloyd's List International (on file with author); Aviva Freudmann, *Oil Tanker Owners Adjust to Risks under Pollution Law*, J. COM., Feb. 21, 1991, at 9A.

82. The oil pollution surcharge of the P&I Clubs was 29 cents per grt per voyage in 1994, 32 cents in 1991, 41 cents in 1992, and 23 cents in 1993. *See* U.S. COAST GUARD, *supra* note 16, at 75.

83. The premium for the additional coverage for an oil tanker was estimated at 28.33 cents per grt per voyage in 1994, 17.50 cents in 1991, 20 cents in 1992, and 24 cents in 1993. *See id.* at 77.

84. *See id.* at 78.

85. *See id.* at 80.

86. *See* 104th Cong., *supra* note 7, at 21 (1996) (statement of Winthrop Wyman, Vice Chairman, OMI Petrolink Corporation).

87. *See* I.R.C. § 4611 (c)(2)(B) (1994).

88. *See* Janet Porter, *Shipowners Face 7% Rate Increase for Reinsurance*, J. COM., Feb. 1, 1994, at 7A.

89. *See* Drewry Shipping Consultants Ltd., *Marine Insurance: Issues, Practices and Costs* (on file with author).

landed price.[90] The cost of P&I insurance accounts for five to seven percent of a tanker's non-fuel operating costs (see Table II, Appendix V).[91] This implies that the increase in transportation costs caused by OPA 90 would have insignificant impact on the imported oil price to the United States.[92]

Table II. Oil Transportation Cost, Insurance Cost and Oil Tax Per Barrel

Oil Transportation Cost	$1.00
Commercial Guarantors' Premiums	$0.02
P&I Clubs' Surcharge	$0.02
Optional $200 million Coverage's Premiums	$0.02
Oil Tax	$0.05

Source: United States Coast Guard, Regulatory Impact Analysis Financial Responsibility for Water Pollution (Vessels) (1994); and National Research Council, Double-Hull Tanker Legislation (1998).

Oil prices in the United States started to increase considerably in August 1990 when OPA 90 was signed into law. Oil prices peaked in October 1990 and stabilized from February 1991. Even in December 1994, when the financial responsibility regulation for oil tankers was implemented, there was no symptom of unstable oil prices in the United States.[93] The cost-push effect from the regulation has been diluted by low prices of imported oil in the world oil market. Crude oil import costs worldwide declined from 1990 until 1994.[94] Changes in the oil prices in the United States have paralleled those in the rest of the world except at the time just after the enactment of OPA 90, which led to the visible increase in oil prices coupled with the threat of the Persian Gulf crisis (see Appendix IV).

Prolonged U.S. energy policy based on low priced, imported crude oil generates economic and environmental implications. There is a concern that the United States is dependent on imported oil for nearly 50 percent of its oil consumption and needs to develop policies to reduce oil imports by

90. Marine oil transportation costs represented almost half the price of oil delivered to a destination in the early 1950s. *See* DREWRY SHIPPING CONSULTANTS, THE INTERNATIONAL OIL TANKER MARKET: SUPPLY, DEMAND AND PROFITABILITY TO 2000 65 (1994); NAT'L RESEARCH COUNCIL, *supra* note 1, at 14-15.

91. *See* 101st Cong., *supra* note 16, at 33 (Temple, Barker & Sloane, Inc., Analysis of Alternative Approaches to Tanker Oil Spill Liability and Compensation).

92. *See* NAT'L RESEARCH COUNCIL, *supra* note 1, at 15.

93. *See* OIL & GAS JOURNAL PUBLICATIONS ENERGY DATABASE, ENERGY STATISTICS SOURCEBOOK 411 (Sandra Meyer et al., eds., 12th ed. 1997).

94. *See* INT'L ENERGY AGENCY, ENERGY PRICES AND TAXES: THIRD QUARTER 1997, at 36-37 (1997); INT'L ENERGY AGENCY, OIL INFORMATION 1996, at II.33 (1997).

encouraging domestic oil production.[95] The policies to boost domestic oil production, accompanied by a concurrent decrease in imports would result in economic growth through increased domestic investment. However, the policy based on low priced imported oil could not be easily abandoned because of the impact on the economy and its political implications.[96] Taking into account the need to foster favorable conditions for domestic oil production and sufficiently low world oil prices, the United States would risk an increase in oil prices resulting from the implementation of the financial responsibility regulations as long as it did not result in a negative impact on the U.S. economy.

E. The Need for Coordination of Coverage by the P&I Clubs and the New Financial Responsibility Guarantors

The new guarantors require the membership of the vessel in a P&I Club and expect P&I Clubs to cover oil pollution costs with little real risk of liabilities on themselves. Despite their refusal to provide financial guaranties, the P&I Clubs have continued to provide oil pollution coverage in the United States and have so far assumed oil pollution costs in most cases without sharing the financial burden with the new guarantors. The new guarantors assume the costs only in the event a P&I Club chooses not to provide coverage.[97] However, there have been a few cases in which the P&I Clubs invoked their policy defenses or refused oil pollution coverage in U.S. waters, so the financial responsibility guarantors were exposed to liability.[98] It is not certain whether the P&I Clubs in their political environ-

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95. *See DOE Unveils Oil and Gas Plan; Industry Finds Little to Praise,* OIL & GAS J., Nov.-Dec. 1993, at 21, 22; IPAA, *A Sign that America Is Losing Control over Its Energy Future,* Fact Sheet, U.S. Energy Information Administration, *United States of America* (on file with author).

96. *See DOE Unveils Oil and Gas Plan; Industry Finds Little to Praise, supra* note 95, at 21.

97. *See Owners Spend up to $100 M to Stay in Line with US Oil Pollution Law,* Jim Mulrenan, Jan. 20, 1995, Lloyd's List International (on file with author); 104th Cong., *supra* note 7, at 89-90 (statement of Winthrop Wyman, Vice Chairman, OMI Petrolink Corporation).

98. The *Syabus Singpura* was found stranded 14 miles off Honolulu in Oct. 1996. The Coast Guard held First Line responsible for indemnifying the costs. First Line was ordered to pay the cost of removing a tanker with a potential threat of pollution from U.S. waters. First Line had to pay approximately $300,000 for removing the ship outside the United States following the bankruptcy of the owners. *See Just a Ticket for Owners to Trade?,* Zurich Group, Dec. 24, 1996, Lloyd's List International (on file with author); *First Line Raises COFR Cost Worries,* Liz Shuker, Dec. 9, 1996, Lloyd's List International (on file with author). In the *Jahre Spray* incident, the Gard P&I Club sought to avoid the oil spill liabilities. *See Just a Ticket for Owners to Trade,* Zurich Group, Dec. 24, 1996, Lloyd's List International (on file with author); *Gard and the Jahre Spray,* Liz Shuker, Jan. 8, 1997, Lloyd's List International (on file with author). The *Cibro Savannah* exploded at the pier in Linden, New Jersey, on Mar. 6, 1990, spilling approximately 2380 barrels of heating oil. In the incident, a policy defense was employed against the insured. *See* 102d Cong., *supra* note 16, at 64 (statement of Rear Admiral Richard A. Appelbaum,

ment would seek to avoid liability for an oil spill in case of a member's bankruptcy because it would require balancing their two contradicting tasks, to present a responsible profile to U.S. regulators and to preserve their mutuality by not providing undue subsidy to a bankrupt member.[99] The new guarantors also bear the financial burden for claims in excess of the P&I Clubs' $500 million coverage, generating a net increase in coverage available to shipowners.[100] The financial responsibility guarantors are assuming rare but substantial risks to foot the bill for oil pollution costs[101] and have paid approximately $66 million annually in removal costs and damages.[102] To provide extended oil pollution coverage rather than duplicate coverage, it is necessary to coordinate the coverage provided by both the P&I Clubs and the new guarantors.[103] The coordination needs to be conducted in a manner that considers whether the whole insurance coverage can meet the real oil pollution risk rather than the liability limits under OPA 90. This may be decided by considering benefits to the shipowners, service consumers, and U.S. society.[104]

F. Impact on the Structures of the Shipping Industry and the P&I Clubs

The effectiveness of financial responsibility as a form of environmental regulation is decided by the strategic response of responsible parties. Insurers in a compulsory liability insurance system would select persons to participate in liability-generating economic activity by insuring only those who demonstrate financial responsibility.[105] An appropriate level of financial responsibility is essential, preventing persons from judgment-

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Commander, National Pollution Funds Center, U.S. Coast Guard); U.S. Minerals Management Service (on file with author); Roberts & White, *supra* note 28.

99. *See* MERCER MGMT. CONSULTING, INC., *supra* note 62, at V-18.

100. *See* 104th Cong., *supra* note 7, at 24-25 (testimony of Chris Horrocks, Secretary General, International Chamber of Shipping); 103d Cong., *supra* note 11, at 258 (statement of Jeffrey N. Shane, Counsel to Shoreline Mutual Insurance).

101. *See* 104th Cong., *supra* note 7, at 46 (statement of Dagfinn Lunde, Managing Director, the International Association of Independent Tanker Owners (INTERTANKO)); *id.* at 89-90 (statement of Winthrop Wyman, Vice Chairman, OMI Petrolink Corporation).

102. *See* Steve Carpenter, *Mitigating the Financial Risks of an Oil Spill: Certificates of Financial Responsibility*, 53 PROCEEDINGS OF THE MARINE SAFETY COUNS., Apr.-June 1996, at 50, 53.

103. *See Specialist Insurers Offer Real OPA Solution for Shipowners: The Realization that OPA 90 Is Here to Stay Has Prompted Calls from Shipowners for an "Industry Solution" to the Problem of Certificate of Financial Responsibility*, Hugh Bryant, June 21, 1996, available at WESTLAW, Lloyds List International (on file with author); James P. Walsh, *Environmental Coverage Issues under Marine Insurance Policies*, 7 U.S.F. MAR. L.J. 1, 7 (1994).

104. *See* 104th Cong., *supra* note 7, at 143 (letter from Duncan C. Smith III, Counselor at Law, Dyer, Ellis, and Joseph, to Howard Coble on behalf of the Greek Shipping Co-Operation Committee).

105. *See* Lopucki, *supra* note 15, at 84-89.

proofing and not excluding persons demonstrating moderate financial responsibility. The financial responsibility rule has the effect of a two-edged sword on the shipping industry. While relatively small shipping companies that cannot self-insure have to assume premiums for the financial responsibility guarantors, relatively large shipping companies that can self-insure do not have to bear the additional premiums. Financial responsibility is costlier for small firms to demonstrate and may cause small firms to cease operation.[106] However, this is an intended consequence of financial responsibility because it selectively forces from the market place financially unsound firms unable to satisfy the requirements.[107]

Financial responsibility may face significant political opposition if many small firms are adversely affected. On the other hand, the enforcement of financial responsibility particularly in small firms would maximize its social utility.[108] Rather than judgment-proofing themselves,[109] large firms would assume full responsibility for pollution costs to facilitate public relations and smooth future trading operations with regulatory authorities.[110] Little political opposition to financial responsibility has been observed from the industry regulated under OPA 90 as compared with other schemes such as the underground petroleum storage tanks program, partly because relatively deep-pocketed oil and shipping firms can self-insure.[111] As risk management is a critical factor in the oil business world, insurance plays a crucial role in restructuring the shipping industry.[112]

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106. *See* 104th Cong., *supra* note 7, at 73 (statement of Daniel F. Sheehan, Director of National Pollution Funds Center); *id.* at 12, 88-90 (testimony of Winthrop Wyman, Vice Chairman, OMI Petrolink Corporation).

107. *See* U.S. COAST GUARD, *supra* note 16, at 74.

108. *See* Boyd, *supra* note 14, at 503.

109. Liability for the *Exxon Valdez* oil spill amounted to about $9 billion. The *Exxon Valdez* was owned and operated by Exxon Shipping Company, a $100 million subsidiary of Exxon USA, a subsidiary of Exxon Corporation. Even though liability for the spill could have been confined to Exxon Shipping Company, Exxon Corporation assumed responsibility for it. Exxon Corporation settled the natural resource damage lawsuit with the Environmental Protection Agency and the state of Alaska for $1 billion ($900 million in civil damages and $100 million in criminal fines). *See* Lopucki, *supra* note 15, at 52; Ketkar, *supra* note 17, at 394; GIBSON, *supra* note 11, at 63.

110. *See* N.J. Colton, *The Underwriting of Oil Pollution Risks, in* LIABILITY FOR DAMAGE TO THE MARINE ENVIRONMENT 149, 152 (Colin M. de la Rue ed., 1993).

111. Underground petroleum storage tanks are a common method used by fuel distributors, municipalities, and firms for petroleum storage. The United States has about 1.4 million tanks. The tanks are regulated under the Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901-6992k (1994). *See* Boyd, *supra* note 14, at 503; 103d Cong., *supra* note 11, at 15 (statement of Daniel F. Sheehan, Director, National Pollution Funds Center, U.S. Coast Guard); 102d Cong., *supra* note 16, at 47 (statement of Mark R. Buese, Vice President Administration, Dixie Carriers, Inc., Member, American Waterways Operators).

112. *See* Roberts & White, *supra* note 28.

The P&I Clubs are facing unfavorable legal, political, and economic conditions. Competition among new guarantors has led to premium reduction and to distribution of company shares to participants. This trend could weaken the P&I Clubs' assertion regarding dissipation of financial resources of the shipping industry.[113] It is understandable that the United States would favor new entities that generate positive economic implications over the P&I Clubs, which are traditionally based exclusively in the United Kingdom or in Scandinavian countries. This situation, triggered by P&I Clubs' failure to address financial responsibility requirements of OPA 90 and coupled with the European Commission's demand for fair competition on premium fixing and transfers between P&I Clubs, could eventually increase the flexibility of the P&I market.[114] Independent of the P&I Clubs' position, the Lloyd's market has changed its position to provide financial guaranties, as reviewed in the preceding section. Some new commercial guarantor schemes are supported by some P&I Clubs, though the risk from operation of the new schemes is separated from the P&I Clubs.[115]

The P&I Clubs are under substantial pressure from shipowners either to formulate an "industry solution" to the problem of compliance with the financial responsibility regulation or to at least help them to use new guarantors. Shipowners are reluctant to assume the additional cost of

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113. *See Bermudian Reinsurer May Cut Cost of COFRs*, Liz Shuker, Nov. 5, 1996, Lloyds List International (on file with author).

114. The P&I Clubs pool claims. The International Group Agreement (IGA), a non-competition agreement among the P&I Clubs, seeks to discourage unreasonable competition of rate reduction because the reduction can be derived by reducing essential reserves. The IGA coordinates premium rates and transfers between clubs in members' first year of entry with a club. The European Commission's opinion is that the IGA might be inconsistent with the commission's regulations relating to free competition because it prevents or restricts competition on premium fixing and transfers between clubs. *See* HAZELWOOD, *supra* note 53, at 359-70; POLAND & ROOTH, *supra* note 51, at 33; Jonathan Faull, *Article 85(3)-Exemption-Insurance-Protection and Indemnity Clubs*, 12 EUR. L. REV. 275, 276 (1987). The IGA was exempted from the European Union's competition policy until 1995. With the P&I Clubs' renewal request for the exemption, the Competition Directorate of the European Commission challenged the necessity of the IGA. The clubs insist that continuation of the IGA for pooling claims is indispensable. With respect to pressure from the European Commission, many shipowners switched clubs, which may imply a gradual change toward flexible P&I Clubs. *See* Marine Log, *P&I Clubs Yield to European Pressure and Splash Individual Owners' Exposure to Overspill Calls* (on file with author); *Club Managers Try to Hold the Premium Line*, Jim Mulrenan, Feb. 22, 1995, Lloyd's List International (on file with author); Nicos Coronis, *Cartels Do Not Bring the Benefits Claimed*, Sept. 29, 1997, Lloyd's List International (on file with author).

115. The creation of SIGCo was supported by UK P&I, Steamship Mutual, and Gard P&I Clubs. *See Just a Ticket for Owners to Trade*, Zurich Group, Dec. 24, 1996, Lloyd's List International (on file with author).

the COFR in addition to their traditional insurance expenses.[116] Furthermore, financial resources for the guaranties are flowing out of the industry.[117] Shipowners who bear the cost of the financial guaranties have sought to offset the cost by achieving a reduction in their P&I costs.[118] Sufficient pressure from shipowner members who wish to trade to the United States would motivate selective reversals of the P&I Clubs' position to offer some form of guaranty in the future. The P&I Clubs are expected to be restructured through merger and consolidation or informal cooperation, with greater market share occupied by the fixed premium market, thus expanding choice for shipowners.[119] On the other hand, the business of the new guarantors is not likely to be so lucrative because they have paid about $66 million annually in oil pollution costs against about $70 million for annual premiums. This also enhances the possibility for cooperation between the P&I Clubs and the new guarantors.

G. The Sustainability of the New Financial Responsibility Guarantors

The new financial responsibility guarantors are a fast-growing segment of the insurance market, eroding the market share of alternative methods of obtaining COFRs, such as self-insurance and surety bonds.[120] Many shipowners have changed from self-insurance to new guarantors because the latter enables the shipowners to avoid risking their own assets (see Appendices VI, VII).[121] However, the share of financial guaranty remained approximately the same because financial guaranty enables the shipowners to limit their risk exposure. Under the financial guaranty method establishing a subsidiary special purpose company as a separate legal entity to serve as guarantor, direct action could be taken against the

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116. *See* Russ Banham, *The P&I Club Saga*, Sept. 1, 1995, *available at* 1995 WL 12528260; Jim Mulrenan, *Owners Spend up to $100 M to Stay in Line with U.S. Oil Pollution Law*, Jan. 20, 1995, Lloyd's List International (on file with author).

117. *See* Liz Shuker, *Dry Cargo Operators Seek OPA Rules Action*, June 21, 1996, Lloyd's List International (on file with author).

118. *See* Jim Mulrenan, *Club Managers Try to Hold the Premium Line*, Feb. 22, 1995, Lloyd's List International (on file with author).

119. *See* Drewry Shipping Consultants Ltd., *Marine Insurance: Issues, Practices and Costs* (on file with author).

120. *See* SHORELINE MUTUAL LTD., ANNUAL REPORT 2-13 (1995); Liz Shuker, *Shoreline Predicts Price Fall*, Oct. 11, 1996, Lloyd's List International; Shoreline Mutual, *supra* note 78; Joel Glass, *Congress Setback for OPA 90 Hopes*, June 28, 1996, Lloyd's List International (on file with author); Joel Glass, *OPA 90 Spill Risk Bodies Lose Out*, June 3, 1995, Lloyd's List International (on file with author); 104th Cong., *supra* note 7, at 55 (statement of Daniel F. Sheehan, Director of National Pollution Funds Center).

121. *See* Jim Mulrenan, *LOOP Discounts Offered on Oilspill Certificates*, Feb. 8, 1995, Lloyd's List International (on file with author); U.S. COAST GUARD, *supra* note 16, at 98.

subsidiary, not against the parent company.[122] Inflexibility of the P&I Clubs has led to structural changes of the insurance industry in the U.S. oil transportation market. The new guarantors expand choices of the insurance coverage and the premiums for the shipowners.[123] Similar rules to the U.S. COFR scheme are expected to expand beyond the United States in the coming years.[124]

The shipping industry remains skeptical about the long-term sustainability of the new instruments and questions whether their coverage and the reinsurance coverage would be sufficient to cover claims from a major spill in U.S. waters as compared with the P&I Clubs' coverage.[125] It is premature to project their performance because they have not so far been tested in a major oil spill.[126] It remains to be seen whether the new instruments will provide continuous and stable services for the shipowners and U.S. society, whether the P&I Clubs will change their position to comply with the financial responsibility rules and be restructured among themselves, and whether the operations of the P&I Clubs and the new instruments will be coordinated without unnecessary duplication in insurance coverage and premiums.[127]

H. Limitations of the Financial Responsibility Rule in Generating Incentives and Internalizing Oil Pollution Costs

If the financial responsibility rule is properly enforced, it will alleviate concerns about incentives and internalization of oil pollution costs in the shipping sector up to the extent to which financial responsibility is required by the rule. Many firms cannot self-insure and must therefore

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122. *See* 104th Cong., *supra* note 7, at 77 (statement of Daniel F. Sheehan, Director of National Pollution Funds Center).

123. *See* Hugh Bryant, *Specialist Insurers Offer Real OPA Solution for Shipowners: The Realization that OPA 90 Is Here to Stay Has Prompted Calls from Shipowners for an "Industry Solution" to the Problem of Certificate of Financial Responsibility*, June 21, 1996, Lloyds List International (on file with author).

124. *See* John J. Dwyer, *Scandinavian Re and Terra Nova Announce New COFR Facility*, June 12, 1997, PR Newswire (on file with author).

125. *See* 103d Cong., *supra* note 11, at 234 (statement of Jerry A. Aspland, President, Arco Marine, Inc., and Chairman, API General Committee on Marine Transportation); 104th Cong., *supra* note 7, at 18, 42 (statement of Chris Horrocks, Secretary General, International Chamber of Shipping).

126. *See* 104th Cong., *supra* note 7, at 68 (responses to post hearing questions of Daniel F. Sheehan, Director, National Pollution Funds Center, U.S. Coast Guard); EDGAR GOLD, GARD HANDBOOK ON MARINE POLLUTION 176 (2d ed. 1998).

127. *See* CHAO, *supra* note 66, at 270-71; Hugh Bryant, *Specialist Insurers Offer Real OPA Solution for Shipowners: The Realization that OPA 90 Is Here to Stay Has Prompted Calls from Shipowners for an 'Industry Solution' to the Problem of Certificate of Financial Responsibility*, June 21, 1996, Lloyds List International (on file with author).

acquire insurance to satisfy financial responsibility requirements. Compulsory liability insurance can solve the problem of the responsible party's insufficient financial resources to cover oil pollution costs and mitigate excessive engagement in risky activities.[128] When financial responsibility is demonstrated through insurance, insurers have an incentive to monitor the behaviors of insured firms to prevent moral hazard.[129] Substandard vessels are discouraged from trading in U.S. waters as a result of increased vigilance by the insurance sector resulting from the financial responsibility program.[130] Insurance works as a form of environmental regulation by generating financial incentives to reduce environmental risks. Increasing the incentive for better risk management depends on both the selective premiums and the corresponding strategic response of tanker owners.[131]

However, the insurers fail to provide a proper control over the shipping sector. Discriminating between the individual risks requires collection, assessment, and upgrading of information regarding the risks. This is hindered by market imperfections in the insurance industry, due to information costs caused by the information asymmetry between the shipping sector and insurers.[132] Insurers cannot closely monitor the behaviors of the shipping sector and make the connection between the firms' risk management and premiums or other policy terms.[133] Insurance premiums might not reflect the shipping sector's risk factors.[134] Because the insurance industry is competitive and fragmented, insurers also fail to conduct proper inspections before underwriting. The insurers thus fail to reasonably consider shipowners' safety records.[135] The P&I Clubs also have limitations resulting from their mutuality and non-profit character. The premiums, or calls, are calculated on an ex post basis for the entire fleet of an individual shipowner, not on an ex ante basis for an individual vessel. As a result, the P&I Clubs do not collect information about safety features

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128. *See* Steven Shavell, *The Judgment Proof Problem*, 6 INT'L REV. L. & ECON. 45, 46 (1986); Volkmar J. Hartje, *Oil Pollution Caused by Tanker Accidents: Liability Versus Regulation*, 24 NAT. RESOURCES J. 41, 47 (1984).

129. *See* Boyd, *supra* note 14, at 494; U.S. COAST GUARD, *supra* note 16, at 87.

130. *See* 104th Cong., *supra* note 7, at 81 (statement of Daniel F. Sheehan, Director of National Pollution Funds Center).

131. *See* Hartje, *supra* note 128, at 50.

132. *See* 102d Cong., *supra* note 16, at 42-43, 48 (statement of Terence G. Coghlin, Chairman Designate, The International Group of P&I Clubs).

133. *See* Di Jin & Hauke L. Kite-Powell, *Environmental Liability, Marine Insurance and An Optimal Risk Sharing Strategy for Marine Oil Transport*, 10 MARINE RESOURCE ECON. 1, 5 (1995); Shavell, *supra* note 128, at 54; Steven Shavell, *On Liability and Insurance*, 13 BELL J. ECON. 120, 127, 131 (1982).

134. *See* STEVEN L. CROOKSHANK, MODIFYING SINGLE-HULL TANKERS: COSTS AND BENEFITS 3 (1998).

135. *See* CHARLES PERROW, NORMAL ACCIDENTS 186-87 (1984).

of individual vessels.[136] The insurers thus fail to efficiently control the shipping sector. In turn, this undermines incentives to take safety steps in the shipping sector.

Financial responsibility is also poorly enforced. As reviewed in the preceding section, new financial responsibility guarantors have superseded P&I Clubs in providing financial responsibility guaranties under OPA 90. In compulsory liability insurance systems such as financial responsibility guarantor schemes, insurers compete to reduce premiums by externalizing the risk they contract to assume and tend to offer minimum coverage.[137] Because financial responsibility is costly for shipping companies to demonstrate, they use a method of compliance that externalizes as much risk as possible.[138] In practice, even though coverage is higher than stipulated liability limits under OPA 90, new guarantors generally offer lower coverage ranging from $395 to $400 million than P&I Clubs' coverage, $500 million (see Figure I).[139] While it may be premature to project the performance of new guarantors, as reviewed in the preceding section, lower coverage obviously aggravates a concern about the adequacy of coverage for claims from major oil spills.[140] In voluntary insurance systems such as P&I Clubs, policy defenses to coverage cause the insured to control the quality of maintenance and management of insured ships and cooperate in determining insurability and risk rating.[141] By contrast, the cooperation of the insured is not expected in compulsory insurance. This market failure to provide cost-effective insurance coverage leads to an increased burden of insurance regulation.[142] The growth of new financial responsibility guarantors in the insurance market exposes potential for this market failure, externalizing oil pollution costs and thus undermining incentives.

Additionally, there is concern about insurance market capacity. There were two recent crises in the insurance market that constricted insurance market capacity: the 1984 liability insurance crisis and the 1992

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136. *See* Hartje, *supra* note 128, at 51.

137. *See* Lopucki, *supra* note 15, at 80.

138. *See* Boyd, *supra* note 14, at 502.

139. *See* 104th Cong., *supra* note 7, at 68 (responses to post hearing questions of Daniel F. Sheehan, Director, National Pollution Funds Center, U.S. Coast Guard); GOLD, *supra* note 126, at 176.

140. *See* 103d Cong., *supra* note 11, at 234 (statement of Jerry A. Aspland, President, Arco Marine, Inc., and Chairman, API General Committee on Marine Transportation); 104th Cong., *supra* note 7, at 18, 42 (statement of Chris Horrocks, Secretary General, International Chamber of Shipping).

141. *See* 102d Cong., *supra* note 16, at 43 (statement of Terence G. Coghlin, Chairman Designate, The International Group of P&I Clubs).

142. *See* Lopucki, *supra* note 15, at 80-84.

catastrophe reinsurance crisis.[143] In particular, catastrophic natural disasters had inflicted losses to insurers and reinsurers worldwide including Lloyd's, London, European, American, and Japanese insurance companies from 1988 to 1991.[144] The crisis in the catastrophe reinsurance market returned to normal quickly, but the crisis persisted for years in the liability insurance market.[145] OPA 90 exacerbated the insurance market contraction by generating demand for higher levels of pollution insurance, increasing pressures on the reinsurance markets. Over 80 percent of the first layer of the P&I Clubs' reinsurance contract is placed in London, less than 10 percent in the United States.[146] Unless the U.S. reinsurance market assumes a major role in the oil pollution liability business, reinsurance market capacity constraints will be a long-term problem given the amount of coverage sought by traders to the United States.[147]

Even with a properly enforced financial responsibility rule, substantially unlimited liability results in the potential of incomplete compensation for large oil pollution costs from major oil spills because financial responsibility is required only up to a limited amount. Because of these limitations in financial responsibility, the financial responsibility rule cannot be considered a complete solution for oil pollution risk management. Solutions such as introducing cargo owner liability must be explored beyond financial responsibility rules in the shipping sector.

III. CONCLUSION

The number and volume of oil spills from ships in U.S. waters has fallen considerably since the enactment of OPA 90 and the implementation of the financial responsibility regulations (see Appendix VIII).[148] The shipping and oil industries have increased vigilance due partly to the

143. *See* Anne Gron & Andrew Winton, Risk Overhang and Market Behavior (unpublished manuscript) (on file with author).

144. *See* MERCER MGMT. CONSULTING, INC., *supra* note 62, at V-14.

145. *See* Gron & Winton, *supra* note 143, at 1.

146. *See* U.S. COAST GUARD, *supra* note 16, at 28-30; 102d Cong., *supra* note 16, at 89 (1991) (statement of Terence G. Coghlin, Chairman Designate, The International Group of P&I Clubs); 103d Cong., *supra* note 11, at 135 (statement of Richard L. Youell, Marine Underwriter at Lloyd's of London); 101st Cong., *supra* note 16, at 31 (Temple, Barker & Sloane, Inc., Analysis of Alternative Approaches to Tanker Oil Spill Liability and Compensation); Di Jin & Hauke L. Kite-Powell, *On the Optimal Environmental Liability Limit for Marine Oil Transport*, 35 TRANSP. RES. 77, 78 (1999).

147. *See* PETROLEUM INDUS. RESEARCH FOUND., INC., *supra* note 7, at 77.

148. *See U.S. Logs 7 Years without Massive Oil Spill*, OIL & GAS J., Aug. 19, 1996, at 36.

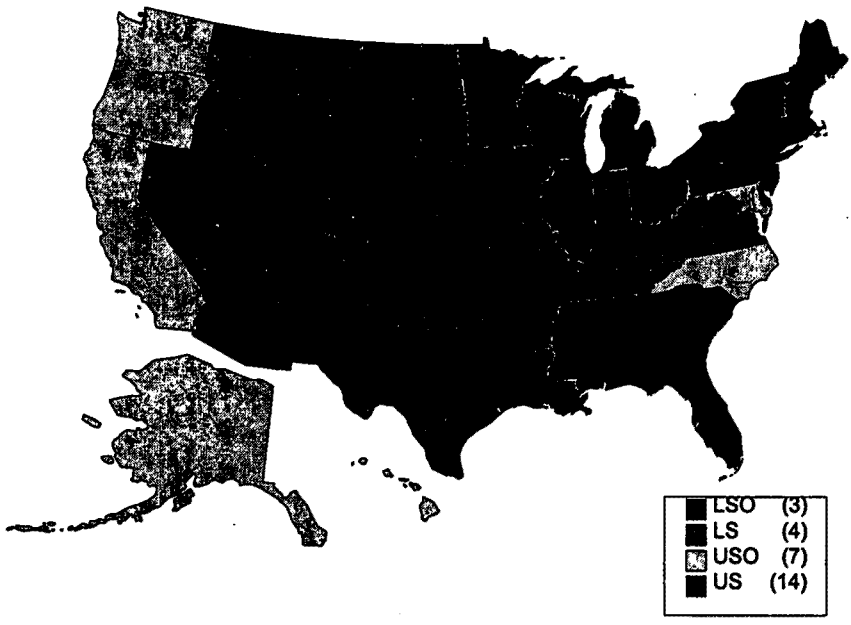
liability provisions of OPA 90.[149] The COFR program has proceeded without any serious problems in the flow of oil to the United States and in cost to U.S. consumers. Remaining complexities will involve coordination between P&I Clubs and new financial responsibility guarantors with respect to insurance coverage and premiums. It remains to be seen, however, whether the reduction of oil spills in U.S. waters will be sustained in the future. Persisting oil spills, even since the enactment of OPA 90, might imply that a certain rate of oil spills is an inevitable and irreducible risk associated with waterborne oil transportation under any legislation.[150]

149. *See Just a Ticket for Owners to Trade?*, Zurich Group, Dec. 24, 1996, Lloyd's List International (on file with author); ROBERT V. PERCIVAL ET AL., ENVIRONMENTAL REGULATION LAW, SCIENCE, AND POLICY 143 (2d ed. 1996).

150. *See* PERROW, *supra* note 135, at 180; Garick, *supra* note 54, at 292; Francis J. Gonynor, *Six Years before the Mast: The Evolution of the Oil Pollution Act of 1990*, 9 U.S.F. MAR. L. J. 105, 140 (1996).

APPENDIX I

STATE OIL POLLUTION LIABILITY REGIMES BY LIMITATION OF LIABILITY AND CATEGORY OF RESPONSIBLE PARTIES

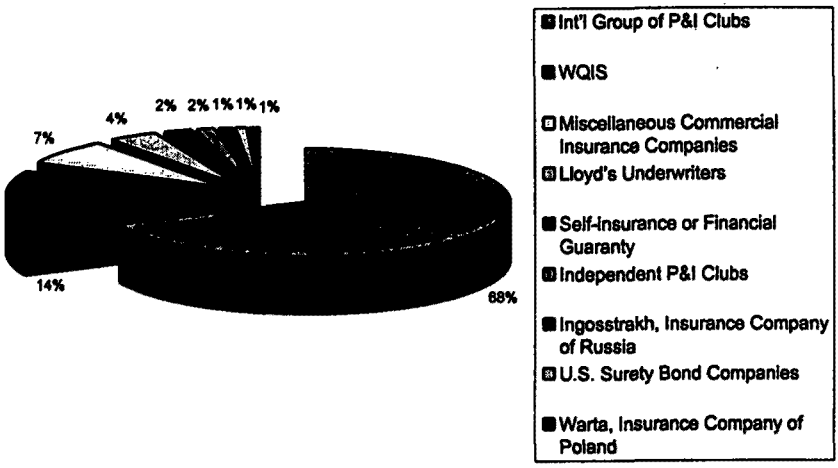


- LSO: limited liability on the shipping sector (vessel owner or operator) and the oil cargo sector (oil cargo owner); FL, NJ and NY.
- LS: limited liability on the shipping sector; DE, LA, TX and VA.
- USO: unlimited liability on the shipping sector and the oil cargo sector; AK, CA, HI, MD, NC, OR and WA.
- US: unlimited liability on the shipping sector; AL, CT, GA, IL, ME, MA, MI, MN, MS, NH, OH, PA, RI and SC.

Source: Petroleum Industry Research Foundation, Inc., Transporting U.S. Oil Imports: The Impact of Oil Spill Legislation on the Tanker Market Prepared for the U.S. Department of Energy (1992); Mercer Management Consulting, Inc., An Analysis of the System of Oil Pollution Control in California Marine Waters (1993); and Oil Pollution Liability: Hearing Before the Subcomm. on Coast Guard and Navigation of the House Comm. on Merchant Marine and Fisheries, 99th Cong. (1985) (Coast Guard, Oil Spill Liability and Compensation Legislation Preemption Considerations).

APPENDIX II

METHODS OF VESSEL FINANCIAL RESPONSIBILITY GUARANTY (as of Fall 1993)

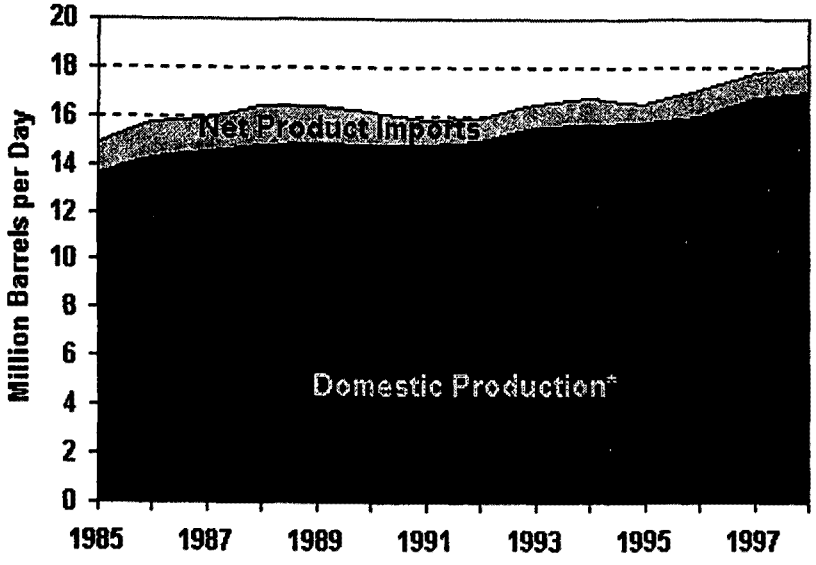


- Number of financial responsibility guaranty by International Group of P&I Clubs: 15,319
- Total number of financial responsibility guaranty: 22,496

Source: United States Coast Guard, Regulatory Impact Analysis Financial Responsibility for Water Pollution (Vessels) (1994).

APPENDIX III

U.S. OIL PRODUCTION AND IMPORTS



- Domestic production includes crude oil, natural gas liquids, and other hydrocarbons and alcohol production, but does not include refinery gain.

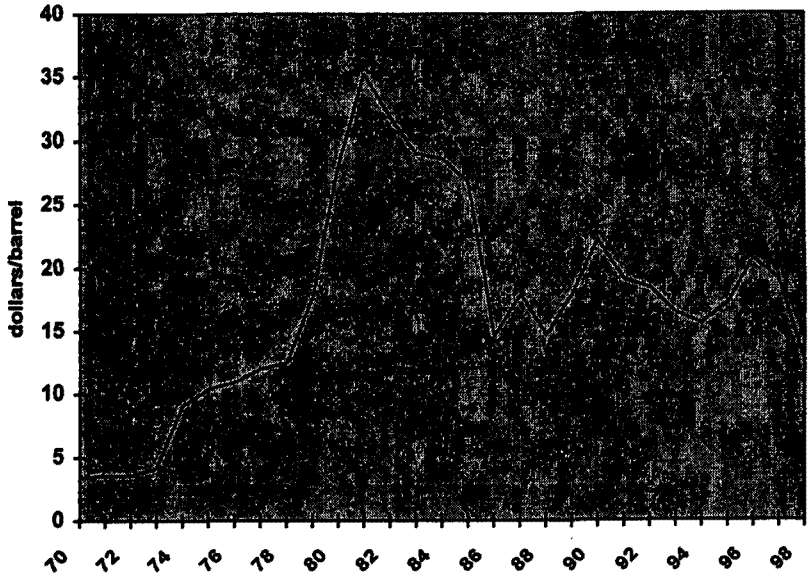
Source: United States Energy Information Administration, *United States of America* (visited Oct. 11, 1999) <http://www.eia.doe.gov/emeu/cabs/usa.htm>.

APPENDIX IV

CRUDE OIL REFINER ACQUISITION COSTS PER BARREL, 1970-1998

(Y: YEAR, P: PRICE)

Y	P	Y	P	Y	P	Y	P	Y	P
70	3.40	76	10.89	82	31.87	88	14.67	94	15.59
71	3.60	77	11.96	83	28.99	89	17.97	95	17.23
72	3.58	78	12.46	84	28.63	90	22.22	96	20.71
73	4.15	79	17.72	85	26.75	91	19.06	97	19.04
74	9.07	80	28.07	86	14.55	92	18.43	98	12.52
75	10.38	81	35.24	87	17.90	93	16.41		

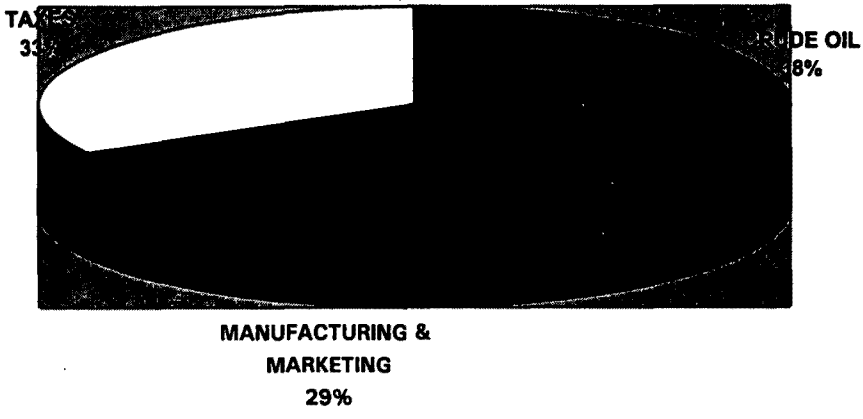


Source: Energy Information Administration, Annual Energy Review (1992); and Energy Information Administration, Petroleum Marketing Annual 1998 (1999).

APPENDIX V

COMPONENTS OF RETAIL REGULAR GASOLINE PRICES PER GALLON, 1997

CRUDE OIL	MANUFACTURING & MARKETING	TAXES	RETAIL PRICE
$0.453	$0.347	$0.399	$1.199



Source: Energy Information Administration, Petroleum: An Energy Profile 1999 (1999).

APPENDIX VI

METHODS OF VESSEL FINANCIAL RESPONSIBILITY GUARANTY

METHOD OF GUARANTY	05/02/95		08/22/97				09/01/98				01/01/99			
	Total		Total		Tanker		Total		Tanker		Total		Tanker	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Insurance	2560	46.8	11606	70.6	1413	69.1	13878	74.7	1594	73.4	14715	78.3	1677	75.2
Financial Guaranty	1415	25.9	2451	14.9	534	26.1	2794	15.0	504	23.2	2202	11.7	512	22.9
Self-insurance	1345	24.6	2279	13.8	44	2.1	1648	8.9	26	1.2	1604	8.5	18	0.8
Surety Bond	141	2.5	84	0.5	51	2.4	262	1.4	47	2.2	263	1.4	24	1.1
Total	5461	100.0	16420	100.0	2042	100.0	18582	100.0	2171	100.0	18784	100.0	2231	100.0

Source: National Pollution Funds Center, *COFR STATISTICS* (visited Mar. 18, 1999) <http://www.cofr.upfc.gov/stats.html>; and OPA 90 Spill Risk Bodies Lose Out, Joel Glass, June 3, 1995, available at WESTLAW, Lloyd's List International.

APPENDIX VII

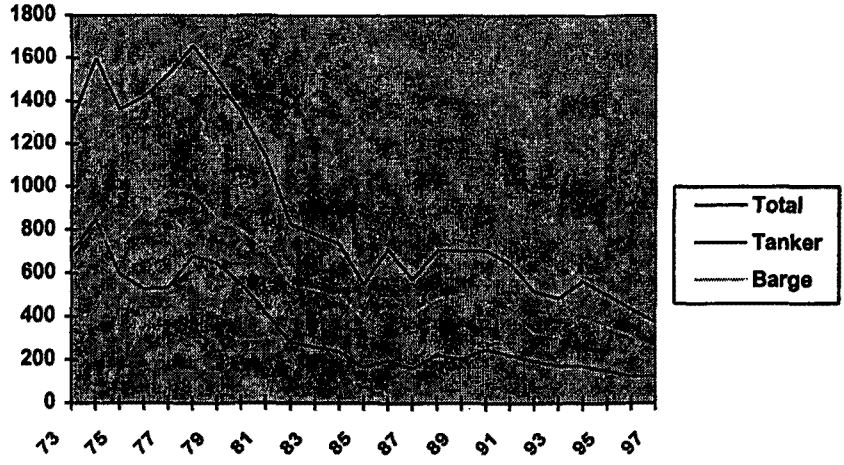
BREAKDOWN OF INSURERS PROVIDING FINANCIAL RESPONSIBILITY GUARANTIES

INSURER	05/02/95		01/28/97		03/05/97		08/22/97				09/01/98				01/01/99			
	Total		Total		Total		Total		Tanker		Total		Tanker		Total		Tanker	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Sigco			433	8.6	995	18.6	3201	27.5	680	48.1	5491	39.5	890	55.8	5637	38.3	929	55.3
Shoreline	469	18.3	1954	39.1	2040	38.2	2348	20.2	524	37.0	2542	18.3	538	33.7	2535	17.2	562	33.5
Arvak			44	0.8	82	1.5	256	2.2	107	7.5	423	3.0	118	7.4	433	2.9	127	7.5
Cofrsure							13	0.1	0	0	200	1.4	31	1.9	277	1.8	38	2.2
WQIS	1101	43.0					3496	30.1	26	1.8	3605	25.9	13	0.8	3533	24.0	13	0.7
Underwriters at Lloyds							324	2.7	1	0.0	496	3.5	1	0.0	1183	8.0	5	0.2
Ocean Marine Mutual							217	1.8	0	0	187	1.3	0	0	180	1.2	0	0
HIH											17	0.1	0	0	15	0.1	0	0
First Line	779	30.4	2555	51.2	2215	41.5	882	7.5	69	4.8								
Sphere Drake							22	0.1	1	0.0								
Others							847	7.2	5	0.3	917	6.6	3	0.1	922	6.2	3	0.1
Total	2560	100	4986	100	5332	100	11606	100	1413	100	13878	100	1594	100	14715	100	1677	100

Source: National Pollution Funds Center, *COFR STATISTICS* (visited Mar. 18, 1999) <http://www.cofr.upfc.gov/stats.html>; and Shoreline, *Shoreline Surpasses the 2,000 Milestone* (visited Dec. 31, 1997) <http://www.mutrisk.com/shoreline/circulars/c031297.htm>.

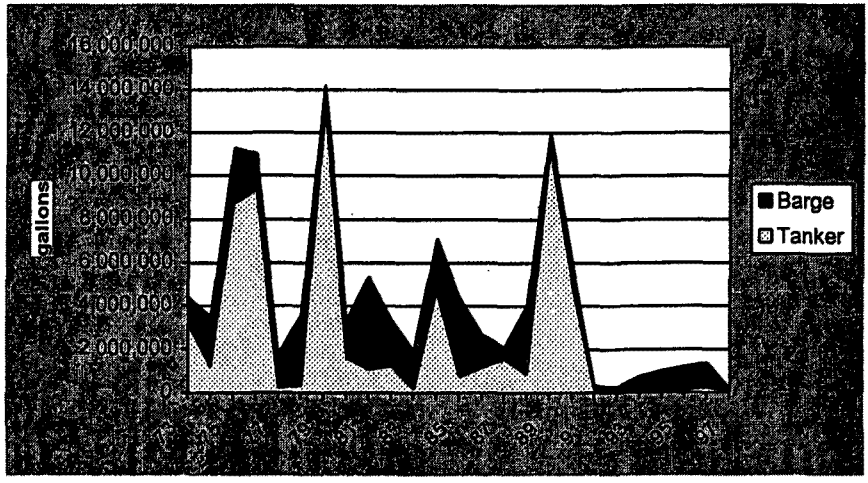
APPENDIX VIII

NUMBER OF OIL SPILLS FROM TANK VESSELS IN U.S. WATERS, 1973-1997



Source: U.S. Coast Guard, *Pollution Incident Compendium* (visited Oct. 7, 1999) <http://www.uscg.mil/hq/g-m/nmc/response/stats/Summary.htm>.

VOLUME OF OIL SPILLS FROM TANK VESSELS IN U.S. WATERS, 1973-1997



Source: U.S. Coast Guard, *Pollution Incident Compendium* (visited Oct. 7, 1999) <http://www.uscg.mil/hq/g-m/nmc/response/stats/Summary.htm>.