COST INTERNALIZATION, INSURANCE, AND TOXIC TORT COMPENSATION FUNDS

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The relationship between tort law and insurance has long been recognized, but it has been little explored.1 Many proposals for tort reform, including reform of environmental law, fail to address the insurance mechanisms that will affect such reforms. This article discusses how the uses and limitations of insurance can affect the structuring of one prominent reform device: the toxic tort compensation fund.2

Typically, such compensation funds are created to deal with a particular type of environmental hazard. They are financed, at least in part, by assessments against firms engaged in the industry that poses the hazard.3 The funds pay for clean-up operations,4

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1 For example, the relatively early observations of Fleming James, Jr. have not been built upon as much as might have been expected. See James and Thornton, The Impact of Insurance on the Law of Torts, 15 Law & Contemp. Probs. 431, 440-42 (1950); James, Accident Liability Reconsidered: The Impact of Liability Insurance, 57 Yale L.J. 549 (1948) [hereinafter cited as Accident Liability Reconsidered]; James, Contribution Among Joint Tortfeasors: A Pragmatic Criticism, 54 Harv. L. Rev. 1156 (1941). The most important and detailed recent discussion can be found in G. Calabresi, The Costs of Accidents: A Legal and Economic Analysis (1970).


provide compensation to the victims of the industry's operations, or both. Some funds are also empowered to obtain reimbursement for their expenditures from offending firms.

One important feature of many of these funds is the way their goals parallel those of the traditional tort liability system that they partially replace. Not only are the funds designed to compensate those injured by exposure to toxic substances; many are also intended to promote appropriate levels of care and safety by the manufacturers, handlers, and transporters (hereinafter referred to collectively as handlers) of such substances. The funds attempt to achieve this deterrence goal by fostering "cost internalization," placing ultimate responsibility for the costs of toxic substances damage on the enterprises that have caused the damage.

There is nothing theoretically objectionable about pursuing deterrence as a goal. Indeed, other things being equal, a system that encourages appropriate levels of deterrence is likely to be preferable to one that does not. But if toxic tort compensation funds are to promote deterrence, the constraints under which such funds labor must be recognized. Two principal constraints deserve special consideration: the confounding effects of liability insurance on the

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* More precisely, this goal is to achieve "optimal" deterrence by minimizing the sum of accident costs and accident prevention costs. See Calabresi, Optimal Deterrence and Accidents, 84 Yale L.J. 656 (1975).

* For an explanation of the economic rationales militating in favor of cost internalization, see generally Dahlman, The Problem of Externality, 22 J.L. & Econ. 141 (1979).

10 James & Thorton, The Impact of Insurance on the Law of Torts, supra note 1, at 444.
behavior of the enterprises in question;\textsuperscript{11} and the limits in the capacity of insurance mechanisms to adjust to a regime that relies on a single device—a "compensation" fund—to provide both compensation and a measure of deterrence.\textsuperscript{12}

The following discussion explores the problems that arise when toxic tort compensation funds are used both to provide compensation and to promote optimal deterrence. The article first examines the relation between cost internalization and insurance, especially as the issue arises in the toxics field. It then analyzes the role that may be played by toxic tort compensation funds in fostering deterrence. Finally, the discussion illustrates the demands that might have to be made upon the insurance industry if we were serious about trying to achieve optimal levels of compensation and deterrence through one system.

In a sense the very notion of such an ideal is illusory. Compensation and liability systems rarely strive to maximize achievement of all their possible goals. The goals of such systems are usually mixed; systems trade off one goal against another.\textsuperscript{13} The following analysis therefore examines the available choices by comparing the ideal with the price that would have to be paid to achieve it.

\section{I. Cost Internalization and Insurance}

The old world in which tortfeasors paid their victims out of their own pockets was a comparatively simple one. In that world, the deterrent effect of tort liability seemed straightforward. In theory, a potential tortfeasor could calculate the cost of liability, discounted by the probability of its imposition, and thereby determine whether the benefit derived from the risky activity was worth seeking.\textsuperscript{14} Private law thus could realistically strive to promote optimal levels of safety and risk.

That world has been eclipsed by the advent of widespread liabil-

\textsuperscript{11} For example, the insured retains control over factors that determine the riskiness of the insured event(s); yet the risk of loss lies with the insurer. Since the insured is insulated from the risk of loss, it loses an incentive to optimize risk. Thus, this moral hazard may encourage the insured to engage in activities that it might have avoided had the insulating effect of insurance been absent. See N. Doherty, Insurance Pricing and Loss Prevention 1-2 (1976). See also infra notes 15-18 and accompanying text.

\textsuperscript{12} See infra notes 48-51 and accompanying text.

\textsuperscript{13} See G. Calabresi, supra note 1, at 46-50. (1970)

\textsuperscript{14} See United States v. Carroll Towing Co., 159 F.2d 169, 173 (2d Cir. 1947) (Hand, J.); Conway v. O'Brien, 111 F.2d 611, 612 (2d Cir. 1940), rev'd on other grounds, 312 U.S. 492 (1941); see also Calabresi & Hirschfeld, Toward a Test for Strict Liability in Torts, 81 Yale L.J. 1055, 1057 (1972); Posner, A Theory of Negligence, 1 J. Legal Stud. 29 (1972).
ity insurance. The deterrence of risky conduct is no longer simply a matter of imposing liability under the right circumstances. Tortfeasors are now likely to be protected by prepaid liability insurance that is not priced precisely in accordance with the individual tortfeasor’s loss-producing experience. Under these circumstances, only if the cost of liability insurance is periodically revised in order to reflect more accurately the insured’s liability record will accurate cost internalization be achieved. Absent such “experience-rating,” insured enterprises may be able to elude some of the costs of their activities and to avoid reducing their risky activities to appropriate levels.

A. The Problem of Predicting Costs

In order to achieve the goals underlying cost internalization, an enterprise must be able to predict the costs that it will eventually have to internalize because of today’s (or this month’s or this year’s) activities. Internalization is desirable because it encourages choice of the lesser of safety precaution costs and future liability costs. Where both of these costs are predictable, cost-internalizing enterprises will usually be able to make this choice accurately. On the other hand, where the cost of future liability is highly speculative, many enterprises will inaccurately calculate the comparative costs and benefits of more precautions versus more liability.

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18 Liability insurance was relatively unknown until the end of the nineteenth century. See Accident Liability Reconsidered, supra note 1, at 551.

19 See Accident Liability Reconsidered, supra note 1, at 560 (where the effect of any insured’s conduct on the general rate structure is minimal, insured has little motive to be careful).

In Great Britain and some countries on the European continent, some liability insurance has no policy limits. The absence of such limits obviously impedes deterrence more than does insurance in limited amounts. Of course, insurance can be used to spread losses intertemporally even when it does not spread them on an inter-personal or inter-enterprise basis. See G. Calabresi, supra note 1, at 42, 47-48. In such instances, it will still protect insureds against the disruption resulting from the concentration of liability in a limited period of time.

17 See G. Calabresi, supra note 1, at 91.

19 I do not mean to ignore whatever moral element there may be in cost internalization or enterprise liability. Even apart from their resource allocation effects, in a sense these notions reflect the idea that enterprises “ought” to pay for certain of the costs that they impose on society. See G. Calabresi, supra note 1, at 100-02; Schwarts, Economics, Wealth Distribution, and Justice, 1979 Wis. L. Rev. 799, 803-13; Keeton, Conditional Fault in the Law of Torts, 72 Harv. L. Rev. 401 (1959). But see Demsetz, When Does the Rule of Liability Matter?, 1 J. Legal Stud. 13, 28 (1972). Nevertheless, cost internalization is best viewed not as an ultimate goal but as a means of optimizing accident costs.
Such inaccuracies plague the toxics field today. For many reasons, the amount of damage that current and past uses of toxic substances ultimately will cause cannot be predicted. Scientific uncertainty is one such reason; knowledge of the carcinogenic properties of toxic chemicals is in its infancy.\textsuperscript{19} The synergistic effects of chemicals that have been mixed together during storage in waste dumps are even less clear. In addition, since the latency period between exposure to chemicals and manifestation of disease is frequently long—twenty years is not unusual\textsuperscript{20}—it is very difficult to predict how risky a particular activity that uses toxic substances will turn out to be.

Compounding the difficulty of prediction is the “long-tail” on claims. A large portion of the claims arising out of current exposures will not be made for many years. Thus, even if the frequency and severity of future claims were predictable in current dollars, inflation over such a long period would make assessment of ultimate financial exposure extremely speculative. Attempts to promote cost internalization by handlers of toxic substances, therefore, promise only limited success for some time. There are, of course, two ways to approach the task: to prohibit or limit liability insurance against damage caused by toxic substances or to try to tailor the price of liability insurance to the actual riskiness of an enterprise’s activities.

1. Prohibiting or Limiting Insurance Coverage

One way to attempt to encourage cost internalization would be to prohibit, or, more realistically, to limit the amount of liability insurance available to the handlers of the toxic substances.\textsuperscript{21} Such an approach could produce an in terrorem prospect of uncertain but possibly great future liability. This threat might induce cautious behavior by the affected enterprises. It might also induce excessively cautious behavior. But the argument for this approach is weakened by the fact that many of the largest chemical manufacturers already voluntarily operate under such a scheme. Their lia-

\textsuperscript{20} S. Epstein, The Politics of Cancer 39 (1978) (latency period for cancer induced by smoking may be 20 to 40 years; similar latency period for asbestosis); Comment, Liability Insurance for Insidious Disease: Who Picks up the Tab?, 48 Fordham L. Rev. 657, 658-59 & nn.6-7 (1980).
\textsuperscript{21} A “limitation” on insurance could be achieved by requiring large deductibles or coinsurance, for example.
bility insurance is subject to enormous deductibles (in the millions annually). Yet they do not know and will not know for some time whether their predictions about potential future liability (and the optimal amount of precautions necessary to avoid liability) have been economically sensible.

In addition, in the case of small enterprises—the "ma and pa" hazardous waste dump or the small business handling small amounts of various toxic substances and operating at the margin of profitability—prohibition or limitation of permissible insurance could have catastrophic consequences. Such firms would be encouraged to "externalize" to the future by avoiding safety precautions that would reduce costs, if at all, only in the long run. At some point in the future, perhaps after these businesses ceased operating, injuries caused by their failure to take safety precautions would begin to show themselves.

2. Risk Classification and Insurance Pricing

The second and more attractive way to promote cost internalization and safety—through rate classification of liability insurance—is less promising than might be hoped. Effective cost internalization depends on accurate insurance pricing. The insurance industry, however, suffers from the same acute lack of information that troubles the rest of us. The plight of the insurance industry is similar to that of firms that must self-insure where liability insurance is prohibited or limited. The absence of detailed, reliable data makes it difficult to evaluate risk and, accordingly, to price premi-

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" This dangerous tendency is obviously one of the factors that has prompted "financial responsibility" requirements. See, e.g., Superfund Act § 108(a)(1), (b)(1), 42 U.S.C. § 9608(a)(1), (b)(1) (Supp. IV 1980) (requiring insurance, guarantee, surety bonding or qualification as self-insurer for vessels that carry hazardous substances; similar requirements may be imposed on other facilities beginning in 1985); see also Resource Conservation and Recovery Act § 7(h), 42 U.S.C. § 6922(a) (Supp. IV 1980) (requiring permit for owner or operator of facility for the treatment, storage, or disposal of hazardous waste, as defined in the Act, for operators of chemical facilities).


" See N. Doherty, supra note 11, at 18 ("Where insurance premiums are completely independent of the expected claims cost . . . and the individual is fully insured, there is no incentive to install [sic] safety devices.").
ums for insurance against liability for claims to be filed in the distant future. Under these circumstances there is certainly no reason to be confident that liability insurance pricing will result in accurate cost internalization.

Recent developments in tort law may also hinder accurate insurance pricing. Such doctrinal innovations as shifting burdens of proof as to causation\(^{25}\) and apportionment of damages,\(^{27}\) the market share liability concept,\(^{28}\) and joint and several liability by independent tortfeasors\(^{29}\) are not merely alterations in the traditional burdens of proof. In practice, the doctrines enable some plaintiffs to recover damages from defendants who have not actually caused the loss (or the entire loss) in question. Minimally culpable defendants, for example, may be held liable for all damages suffered by

\(^{25}\) See L. Cheek, Hazardous Substance Liability Insurance for Vessels and Facilities 17 (1981) (unpublished manuscript on file with Virginia Journal of Natural Resources Law) (At present, premiums “are based on a combination of judgment, guesswork, prayer, and the ancient principle of charging what the traffic will bear.”); Comment, Compensating Hazardous Waste Victims: RCRA Insurance Regulation and a Not so “Super”fund Act, 11 Envtl. L. 689, 710 n.144 (1981) (Premiums may be based on a combination of factors, including hazard potential of the waste, characteristics of population at risk, site characteristics, and the insured’s waste management policies and safety record.).


a victim when, in fact, the injuries resulted from the combined activities of many other actors.\textsuperscript{30} Insurance premiums will have to take account of this liability exposure.

Some of the factors that support shifting evidentiary burdens and imposing market share or joint and several liability may be fairly accurate proxies for the loss-causing potential of an enterprise. A firm that has produced twenty percent of a particular chemical may be responsible for twenty percent of all the injuries caused by exposure to the chemical. But the causal link between liability and riskiness of activity may not always correlate this well. Under such circumstances, the imposition of liability on some firms and the concomitant evasion of liability by otherwise culpable firms may tend to distort the premium-setting process. In fact, the premiums charged to all members of the industry may gravitate toward the same level, notwithstanding significant disparities in safety precautions or in operating procedures. Thus, although innovative legal doctrines may facilitate victim compensation, to the extent that they impose liability out of proportion to the loss-causing potential of each insured, they may distort the desired effects of insurance pricing.\textsuperscript{31}

\textbf{B. The Move to Claims-Made Coverage}

The insurance industry frequently reacts to such difficulties in risk prediction by shifting to a form of insurance that is easier to price. Insurers of enterprises that deal with toxic substances have increasingly adopted this strategy by replacing the conventional form of pollution liability insurance—"occurrence" coverage—with "claims-made” coverage.\textsuperscript{32} The contrast between the two forms of

\textsuperscript{30} Cf. Landes and Posner, Joint and Multiple Tortfeasors: An Economic Analysis, 9 J. Legal Stud. 517, 540-41 (1980) (market share liability may have misallocative effects); Comment, Market Share Liability for Defective Products: An Ill-Advised Remedy for the Problem of Identification, 76 Nw. U.L. Rev. 300, 311-12 (1981) (Market share liability may impose liability "on defendants who are wholly innocent of any wrongdoing towards plaintiff.").

\textsuperscript{31} See Superfund Compensation Study, supra note 3, at 262 (recommending against wholesale adoption of burden-shifting devices in toxics cases); cf. Calabresi, Concerning Cause and the Law of Torts: An Essay for Harry Kalven, Jr., 43 U. Chi. L. Rev. 69, 85 (1975) (cause in fact requirement for imposition of tort liability simply serves as a useful way of calculating some of the costs that should be considered when making risk/safety tradeoffs).

coverage can be significant. *Occurrence* policies cover liability for activities that take place during the policy period, regardless of the timing of a suit that seeks to impose liability for these activities.\textsuperscript{43} The insurer's obligation to indemnify the insured for activities occurring during the policy period may extend to claims filed years after the expiration of that period.\textsuperscript{44} Occurrence policies thus charge in the present for all the eventual results of present activities. This form of policy is, therefore, very difficult to price accurately, especially when claim frequency and severity increase at unpredictable rates.

In contrast, *claims-made* policies insure against liability for claims that are filed during the policy year, regardless of when the allegedly tortious activity took place. A claims-made policy would provide coverage during the policy year for injuries caused by activities occurring in the past.\textsuperscript{45} An insurer selling claims-made coverage need only predict the extent of its insured's exposure to claims actually made during the forthcoming policy period. Because the insurer need not predict long-term claim exposure, claims-made policies can be priced more accurately than occurrence policies.

Although the shift from occurrence to claims-made coverage solves many of the insurance industry's prediction problems, it does little to solve the prediction problems that hinder attempts to produce safety incentives through cost internalization. If anything, such a shift may be a step in the opposite direction. A claims-made pricing system forces insured enterprises to internalize costs. But


\textsuperscript{45} Typically the first claims-made policy purchased by the insured contains a retroactive date and covers only claims arising out of activities occurring after that date. See Pollution Liability Policy, supra note 32. As subsequent policies are purchased, however, the length of the covered period increases.
they are mainly not the future costs of today's activities; they are the costs that will occur this year as a result of activities that took place in both the recent and the distant past.

Increases in claims-made premiums are, in effect, increases in installment payments for coverage against losses caused by past activities. To the extent that those activities still continue, a premium increase may signal the insured to recalculate the costs and benefits of possible safety precautions. Increases in occurrence premiums provide a similar signal. Where the number of claims remains stable, the difference is likely to be marginal. But in a period when claims frequency and severity seem likely to increase at unpredictable rates, claims-made and occurrence premiums send different sorts of signals. An increase in claims-made premiums signals only the increase in costs caused by past activities expected next year. An increase in occurrence premiums signals not only next year's costs but all costs ultimately expected from current activities.

Thus, a negative feature of claims-made coverage is that it can send imprecise signals to insureds. An insured desiring to calculate the aggregate liability that today's activities will produce over the next twenty years receives very little guidance by looking at the amount of this year's claims-made premium. A claims-made pricing system may induce an enterprise to underestimate the cost of prospective liability, as compared to the cost of safety precautions that would avoid some of that liability. This, in turn, will encourage the insured to favor insurance over safety precautions. The magnitude of this tendency is difficult to estimate. In a period of

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If an increase in liability exposure causes the insurer to increase premiums significantly, a rational insured will compare that added premium cost against the costs necessary to reduce the premium. The insured will add additional units of safety so long as they produce reductions in the insurance premium that exceed the cost of that safety. Once the added precautions fail to produce an offsetting decrease in premiums, the firm will no longer increase its investments in safety. In this sense, the insurance premium acts as a signal to the insured, encouraging the insured to adopt the least cost approach.

See Munch, Causes of the Medical Malpractice Insurance Crisis: Risks and Regulations, The Economics of Medical Malpractice 147 (S. Rottenberg ed. 1978); Light supra note 32, at 193.

It should be noted that effective pricing of occurrence policies may depend in part on the acquiescence of state insurance regulators. Where statutes or regulations require that rate increases be justified by reference to past experience, occurrence pricing will be unable to incorporate projections about future losses that are not based on trending of past losses. However, in some states pollution liability policies may be sold mainly on the "surplus" market, which is normally not subject to such rate regulation constraints.
steeply increasing claims, \(^8\) it is at least fair to suggest that a claims-made system probably will be less effective than occurrence pricing in encouraging optimal amounts of safety precautions. \(^9\)

This does not necessarily mean that the move to claims-made coverage has been inappropriate. The accuracy and fairness of claims-made rates are easier to evaluate and police through administrative regulation. Further, under claims-made coverage the insured is always at risk that its coverage will not be renewed and that it will be exposed to claims caused by past activities that have not yet been reported. This threat creates incentives for safety that occurrence coverage does not produce. Finally, if pricing occurrence premiums is hopelessly speculative, then the move to claims-made may be warranted. Certainly, current market activity suggests that claims-made is more efficient than occurrence pricing. The point, however, is that such a move probably will not advance, and may hinder, the goals of a program that is designed to encourage comparison of the cost of safety precautions with the cost of liability in both the immediate and distant future.

In sum, the capacity of any system of liability to promote optimal deterrence depends on how predictable liability is. At present, accurate prediction of liability for toxic substance damages is more difficult than that for many other forms of civil liability. Individual firms that bear financial responsibility for such damage will be able to assess accurately the costs and benefits of their operations only if they can predict the ultimate cost of liability for damages caused by those operations. Barring such predictability, insurance premiums and the costs of self-insurance protection will, at best, only roughly reflect the cost side of the cost-benefit calculation.

Of course, there are other reasons for imposing liability: the

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\(^8\) Because the frequency of environmentally-caused cancers is increasing, see S. Epstein, supra note 20, at 11-20, the number of claims is also likely to increase.

\(^9\) The move to claims-made, however, might have a different and beneficial effect. In a market where sound estimates of future exposure are available, gross disparities in premium rates from company to company are unlikely. Actuarial and regulatory constraints are likely to impede the growth of such disparities. Shifting Sands Liability Company's rates will probably be roughly the same as Old Reliable's, although there may be some variation in relation to individual insureds. But where sound estimates of future exposure are not available, actuarial and regulatory constraints may be weaker. Shifting Sands may then display a tendency to cut premiums in order to capture paper profits now. Practices like this would make it difficult for Old Reliable to insist on pricing coverage in accordance with its own crude estimates of costs to be incurred far in the future. Whether these competitive pressures would affect mutual insurance companies in precisely the same way is less clear. See generally Hetherington, Fact v. Fiction: Who Owns Mutual Insurance Companies, 1969 Wis. L. Rev. 1068.
threat of liability may create incentives to obtain currently unavailable information and may encourage research into safer methods of behavior. Furthermore, it may make sense to initiate a system that will be in place when information sufficient to promote more accurate cost-benefit calculations does become available. The role that might be played by the insurance industry in achieving both these objectives is an important consideration. But in order to understand that role, we must consider first the possible functions of toxic tort compensation funds.

II. COMPENSATION FUNDS, INSURANCE, AND SUBROGATION

Governmentally operated, privately financed compensation funds are curious hybrids. A purely "public" system of controlling toxic substances and compensating their victims traditionally would pay victims out of general revenues\textsuperscript{41} and control behavior through direct regulation.\textsuperscript{42} A purely "private" approach would rely on civil liability both to provide compensation and to deter unsafe activity. The distinction between the pure types of public and private legal devices, however, has never been sharp.

Toxic tort compensation funds tend to blur the public-private law distinction even further by borrowing very liberally from both realms. Compensation for specific environmental injuries has traditionally been obtained through legal action between private parties. Now compensation also often can be obtained from a governmentally operated fund. In the past, when governments intervened directly to alleviate an environmental problem, as in the cleanup of waste discharges or oil spills, such activities were financed with

\textsuperscript{41} Social Security is one example of the many "public" approaches to compensation. For a delineation of the various sources of compensation available to those injured by exposure to toxic substances, see Pfennigstorf, Environment, Damages and Compensation, 1979 Am. B. Found. Research J. 347. See also Trauberman, Compensating Victims of Toxic Substance Pollution: An Analysis of Existing Federal Statutes, 5 Harv. Envtl. L. Rev. 1 (1981).

general revenues. Although governments may continue to carry out cleanup operations, such activities now can be financed not by broad-based taxation but by specific surcharges on the industries against whose activities the funds protect.\textsuperscript{43}

Granting or denying subrogation rights can critically affect the ability of compensation funds to perform these mixed public and private law functions. A non-subrogated fund would relieve a tortfeasor of liability once the victim has received compensation from the fund for injuries caused by the tortfeasor. A subrogated fund would not relieve the tortfeasor of liability. Instead, the fund would acquire the victim’s rights against the tortfeasor to the extent of any payment to the victim from the fund. Thus, a subrogated fund could sue the tortfeasor to obtain reimbursement for the fund’s payments.\textsuperscript{44}

\textsuperscript{43} Other developments in the environmental field also call the public-private distinction into question. Administrative determination of the proper or improper way to conduct an activity has been a recurring theme in environmental regulation. Yet such regulation is becoming increasingly more flexible by relying less on mandates that prohibit certain kinds of undesirable activity and more on industry discretion about the best way to meet publicly determined goals. A number of EPA’s new policies that were initiated during the Carter administration, (e.g., allowing enterprises to write their own substitute regulations, providing for controlled trading or banking of pollutions rights, and instituting the “bubble” concept as a means of regulating an enterprise’s overall environmental impact) are premised on the notion that regulatory flexibility can be achieved without sacrificing public goals even if certain decision-making powers are delegated to non-governmental entities. Under these initiatives, the discretion that private enterprises traditionally enjoyed only under private law is now increasingly available under public control mechanisms. For a discussion of these new policies, see R. Lioeff, Air Pollution Offsets: Trading, Selling, and Banking (1981); Rhinelander, The Bubble Concept: A Pragmatic Approach to Regulation Under the Clean Air Act, 1 Va. J. Nat. Res. L. 177 (1981); Drayton, Getting Smarter About Regulation, Harv. Bus. Rev., July-Aug. 1981, 38; Recommendation for Alternative Emission Reduction Options Within State Implementation Plans, 44 Fed. Reg. 71,779 (1979); see also Ackerman & Hassler, Beyond the New Deal: Coal and the Clean Air Act, 89 Yale L. J. 1466, 1566-68 (1980) (contrasting environmental legislation dictating only ends with that also prescribing means of achieving ends). But see Maloney & McCormick, A Positive Theory of Environmental Quality Regulations, 25 J.L. & Econ. 99, 121-23 (1982) (technology-specific regulations may correct resource misallocations and simultaneously enhance or produce wealth, at least for some firms in the regulated industry).

\textsuperscript{44} The description here is simplified for the purposes of analysis. Funds might actually mix subrogation and non-subrogation features. For example, a fund might have subrogation rights only against enterprises guilty of negligence, or only against those guilty of reckless disregard of safety precautions. It should also be stressed that neither subrogated nor non-subrogated funds necessarily make recovery from the fund the victim’s sole avenue of recovery; the victim’s cause of action against the tortfeasor is normally preserved and may be exercised if the victim is willing to forego recovery from the fund. A recent proposal advocates a two-tiered approach, in which some victims would be entitled to recover on a non-duplicative basis from both the fund and the tortfeasor. See Superfund Compensation Study, supra note 3, at 158-283. Thus, not even a non-subrogated fund directly insulates
The choice between subrogation and non-subrogation is not so clear-cut as it might seem. That choice should depend very much on the goals that the designers of the fund seek to achieve. The predominant goal of non-subrogated funds should be to assure that victims of toxic substances receive compensation. Subrogated funds not only provide compensation; they also attempt to promote deterrence through the imposition of civil liability. In practice, a fund that primarily seeks to compensate victims will achieve its goal more easily than a fund that seeks to compensate victims and deter risky conduct.

A. Non-Subrogated Funds

Theoretically, a non-subrogated fund can pursue its goal with ease. Enterprises engaging in risky activities are assessed surcharges to finance the fund and victims receive compensation in accordance with fund procedures. After payment, the claimant’s cause of action against the responsible enterprise or enterprises is extinguished. A non-subrogated fund operating in this way could accomplish inter-enterprise risk spreading in much the same fashion as does private liability insurance. Unlike most private liability insurance schemes, however, compensation funds usually set their “premiums” in the form of surcharges that bear no close relation to risk. Another important difference is that liability insurance in this country always has dollar limits; the insured, therefore, is liable for amounts in excess of the policy limits. Enterprises contributing to a non-subrogated fund would be completely relieved of liability to any victim recovering from the fund.

46 See supra note 24. For discussion of similar issues in assessing the deterrence effects of using different notions of causal responsibility in imposing tort liability, see Calabresi, supra note 31, at 77-91 (1975).

47 However, if damages recoverable from the fund are limited, then the cost of internalizing effects of even highly rated surcharges may be diminished.
not be individualized. For instance, surcharges based on volume or toxicity ignore differences in the safety precautions taken by individual enterprises. And basing surcharges on observable features of an enterprise's operations would not incorporate actual loss experience in the pricing decision. Even if an enterprise were made safer, rates would not change unless the observable features themselves were changed. In short, differentiation between relatively safe and relatively unsafe enterprises would not be very precise.

B. Subrogated Funds

In contrast to non-subrogated funds, subrogated funds have the right to recover damages from the enterprises causing injuries to the fund's claimants. Consequently, these funds might have the potential to produce much greater deterrence of risky activities than non-subrogated funds. Indeed, they might have more influence on behavior than the tort system they would partially replace. Once freed from many of the obstacles inherent in the traditional adversarial system, claimants could receive speedy compensation for their losses. The fund could then bring a subrogation action unencumbered by the difficulties faced by the small claimant suing a large enterprise. With financing of investigation and other litigation costs readily available, the pressure to settle would be reduced. A body of experts could be retained to deal with recurring scientific issues.

Nevertheless, the same factors that hinder the pricing of insurance against toxic tort liability will undermine a subrogated fund's capacity to promote optimal deterrence. The fund's subrogation rights will help optimize deterrence only if liability to the fund forces handlers of toxic substances to compare the ultimate costs of today's activities with the cost of safety precautions that would reduce these costs. This comparison will be encouraged in the same manner as that achieved under conventional forms of direct liability to injured parties. Insurance against liability to the fund will be one of the costs that an insured enterprise compares with the cost

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*5 Creating a compensation fund, of course, is not the only or necessarily the most efficient way to facilitate settlement of claims and swift compensation. Professor O'Connell's proposals for achieving these goals, for example, would not require the creation of new institutions or bureaucracies. See O'Connell, supra note 2; O'Connell, A Proposal to Abolish Defendants' Payment for Pain and Suffering in Return for Payment of Claimants' Attorneys' Fees, 1981 U. Ill. L.F. 333.
of precautions that would help reduce these costs.

Yet, as described earlier, estimates of the total cost of liability will remain uncertain for some time to come. Neither the risky enterprises themselves nor the companies insuring them against liability to a subrogated fund could have justifiable confidence in the accuracy of their estimates. Under such conditions, claims-made insurance against liability to the fund will predominate, and the new burden-shifting and liability-sharing doctrines will further confound efforts to optimize deterrence.\(^{80}\)

Unless subrogation actions are necessary simply to finance the fund—a goal that can be achieved much more easily by increasing surcharges—the result could be a good deal of unnecessary administrative expense. Since a subrogated fund would have already surcharged potential defendants, perhaps in rough proportion to the perceived riskiness of each enterprise’s operations, it could easily end up double-charging the legally responsible enterprises without obtaining much additional deterrence for the effort. Unless an enterprise’s insurance against subrogation liability were priced quite differently from the fund’s surcharges, insurance premiums would simply spread the cost of subrogation liability to the same pool of firms and on the same basis as did the surcharges already paid. Therefore, until the pricing of liability insurance advances to a more refined stage, it may be worth asking whether this cost-internalization-through-subrogation approach is worth the effort. Nearly the same degree of internalization might be achieved by a non-subrogated fund that rates its surcharges in accordance with risk estimates \textit{ex ante} and disregards \textit{ex post} fine-tuning. Especially with regard to exposures that occurred before the dangers of toxic substances were known, charging an entire industry may make more sense than tracing responsibility for individual injuries on an enterprise-by-enterprise basis.

Nevertheless, other factors may also legitimately influence the decision whether to seek marginally more precise cost internalization by granting subrogation rights to a fund. The high visibility of a lawsuit may have more symbolic effect than a low visibility decision about surcharge pricing.\(^{81}\) A finding of liability to a fund has punitive overtones that even surcharge assessments possessing

\(^{80}\) See supra notes 26-29 and accompanying text.

equivalent cost-internalization effects would lack. Further, in order to promote deterrence, all tort law relies on delayed imposition of liability and on a very rough measure of the costs imposed by tortious activity. Liability to a subrogated fund may simply be slightly more delayed and a bit more roughly measured.

Even if a subrogated fund were considerably more successful at promoting deterrence than a non-subrogated fund, the utility of the former approach should be assessed in light of alternative means of deterring risky activities involving toxic substances. Inspection of facilities, levying of fines for violations of standards and other forms of exacting regulation represent such an alternative. If such direct controls are both feasible and effective, creating a non-subrogated fund and focusing mainly on the fund's compensation objectives until insurance pricing becomes more refined may be a sensible approach. The weaker these regulatory activities, the stronger the argument for using subrogation to promote safe operations. Undoubtedly the current prospect of less stringent regulatory involvement at the federal level at least partially explains the strength of support for using compensation funds not only to compensate victims but also to promote deterrence.

III. SURROGATE REGULATION: SOLUTION OR DISASTER?

For many of the reasons discussed above, the relation between liability insurance and toxic tort compensation funds may render the cost internalization goal of such funds difficult to achieve. Nevertheless, existing funds probably will maintain this goal and newly created funds probably will be granted subrogation rights in order to promote cost internalization. Relieving toxic substance handlers of financial responsibility for their actions would in all likelihood be politically unpalatable, even where the net benefits of subrogation after payment by a fund do not otherwise warrant the effort. In addition, as knowledge about the effects of exposure to toxic substances increases, as insurers perfect their inspection and risk-management techniques, and as the number of claims arising out of past exposure stabilizes or becomes more predictable, the feasibility of achieving more accurate cost internalization through liability insurance pricing may increase.

All of this, however, may imply a very active role for insurers—a role as "surrogate regulators" that may be excessively burdensome.
I am not advocating such a role for the insurance industry. But it is important to understand what that role would entail, and to assess the validity of the insurance industry’s opposition to it. Some of the industry’s opposition to its changing status undoubtedly stems from institutional inertia. But industry opposition to the growing demands being placed upon it is not necessarily irrational or exclusively self-interested. Any attempt to appoint the insurance industry as a surrogate regulator would affect three features of its conventional role: 1) the choice between claims-made and occurrence coverage; 2) the possible shift in its position as relatively passive risk-spreader to more active risk-manager; and 3) limitation on the industry’s traditional right to reject uninsurable risks and to fashion policy provisions that exclude coverage of unreasonably dangerous activities.

A. Claims-Made or Occurrence Coverage?

So long as toxic tort claims and damages increase at unpredictable rates, neither claims-made nor occurrence coverage will effectively promote precise cost internalization. Occurrence coverage, however, at least attempts to estimate the long-term costs that should be internalized, while claims-made pricing requires predicting exposure only during the year the policy is in effect. Claims-made coverage deliberately postpones calculation of and responsibility for most of the consequences of present risky behavior. The insured, therefore, receives little feedback about the estimated riskiness of today’s activities. Instead, the insured receives information about the estimated cost, next year, of past activities. In short, claims-made pricing provides the insured with little incentive to compare the full costs of its activities with the costs of potential safety precautions. Thus, instead of promoting internalization of the costs of current activities, the claims-made approach shirks the task until these costs begin to manifest themselves. The disappearance of occurrence coverage would mean that attempts to calculate aggregate future exposure need no longer take place. The

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*83 Established insurers often decline to offer coverage for new and unknown risks; innovation thus comes from high-risk insurers such as the Lloyd’s syndicates or from newly-established companies. See Pfennigstorf, supra note 41, at 441-42.

*84 See supra note 35 and accompanying text.
insurance industry, strategically positioned to encourage research and experimentation that would eventually yield data on which to calculate risk in the distant future, has begun to abdicate this potentially key responsibility. The natural tendency of the handlers of toxic substances to “externalize” to the future—a reaction that occurrence coverage partially checks—may now proceed unimpeded. In a period of increasing claims this could prove to be a dangerous trend.

These factors suggest the disadvantages of claims-made coverage. Even if policy makers could legally force or strongly encourage insurers to write occurrence coverage, however, such action could be unwise. Market forces are not now preventing the disappearance of occurrence coverage. This may well indicate that the allocation of responsibility produced by claims-made coverage is economically optimal at present. Requiring the insurance industry to bear the risk of a very uncertain toxics future merely because it may be strategically positioned to encourage research in the area may place the burden on the wrong party. And from a moral perspective, placing that risk on the shoulders of chemical manufacturers and handlers may be more appropriate. Until insurers develop a sufficient statistical base to support refined price differentiation, pricing occurrence coverage will remain highly speculative. As such data accumulate, the natural desire of insured enterprises for security of future expectations should encourage insurers to begin offering occurrence coverage again. Insurers are risk spreaders, not risk takers. Forcing them to write occurrence coverage would place them in the latter role. The risk that future toxic claims may be far more numerous and severe than expected is one that the insurance industry should not have to bear alone.

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55 An enterprise that is not causally responsible for one or more injuries may, nevertheless, be in the best position to ensure that the optimal mix of those injuries and safety precautions is adopted. See Calabresi & Hirschoff, supra note 14. If the insurance industry occupies such a position, prohibiting claims-made coverage might well encourage insurers to make such assessments.

56 See Pfennigstorf, supra note 41, at 447.

57 One last feature of the difference between claims-made and occurrence coverage also reflects poorly on the former. Closed or abandoned hazardous waste sites present special problems regarding compensation for those injured by exposure to materials stored in the sites. See generally Light, supra note 32. Claims-made coverage may exacerbate these problems. A site whose operator has carried occurrence coverage will have insurance against liability for pre-closure exposure forever, even following closure or abandonment. Claims-made coverage will cease its protection the year after closure, unless a special post-closure policy has been purchased.
B. Risk-Spreader or Risk-Manager?

As budgetary constraints reduce the scope of direct governmental involvement in managing the dangers of toxic substances, toxic tort compensation may become an increasingly attractive method of filling the breach. But as noted earlier, a fund’s effectiveness in promoting deterrence depends on the refinement of the insurance mechanisms used to protect handlers from liability to subrogated funds.\(^{58}\) If compensation funds are to become an integral part of surrogate regulation, then other devices besides pricing differentiation will have to be developed to promote careful operations by insureds. Yet implementing this idea could begin to transform the industry from a relatively passive risk-spreader to a more active risk-manager.\(^{59}\) While this move may be warranted, it appears to be a second-best way of controlling dangerous conduct.

In some contexts, insurers may well be better placed than insureds to make risk management decisions or to hire independent consultants for this purpose.\(^{60}\) When insurers are, in fact, strategically placed to choose the “cheapest cost avoider,”\(^{61}\) they will have to place much emphasis on pre-insurance inspections, periodic regulatory compliance audits, subjective evaluation of the applicant’s operations, and continuing involvement by the insurer in risk management. Although insurers have traditionally participated in the assessment and management of their insureds’ risks,\(^{62}\) such involvement has generally been a secondary insurance function. Given the potentially enormous risk, however, an insurer’s interest in having risks properly managed could elevate this from a lesser to a principal function. Moreover, coaxing insurers into active risk management—something that the prevailing use of outside chemical safety and engineering consultants indicates they are not now equipped to handle—would leave surrogate regulation incomplete. At least one further set of devices would be required.

\(^{58}\) See supra notes 45-51 and accompanying text.

\(^{59}\) See Cheek, supra note 52, at 149.

\(^{60}\) Insurers will certainly be in possession of more comprehensive data about claims exposure and the risks that cause it. Where insureds tend to be small- or medium-sized businesses (handlers, as opposed to manufacturers of toxic substances, for example), insurers may also be more capable of financing development of safer procedures.

\(^{61}\) See Calabresi & Hirschoff, supra note 14, at 1060.

C. Policy Defenses and Financial Responsibility Requirements

The insurance industry would be handicapped in its role as surrogate regulator unless it possessed some means of directly influencing its clients' behavior. Insurers need tools to encourage compliance with safety standards in order to reduce the incidence and severity of accidents. One effective device, refined classification of premium rates, will be unavailable for some time.63 Direct risk management activities of the sort described in the preceding section, on the other hand, require some form of sanction for non-compliance in order to be effective. For example, pre-insurance inspections might carry a strict sanction: failure to pass an inspection would result in the denial of coverage.64 To the extent that liability insurance or other proof of financial responsibility is a prerequisite to handling toxic substances, insurers will have considerable leverage.65 Policy defenses would be perhaps the most workable tool for enforcing compliance with the insurer's risk management standards once coverage had attached. Coverage could be excluded, for example, for injuries resulting from breach of existing regulatory requirements66 or the insurer's own safety standards.

1. The Conflict Between Compensation and Deterrence

Coverage exclusions are a fairly standard means of protecting against the moral hazard that arises when a dangerous activity is covered by insurance. Insureds who continually breach safety requirements are denied coverage for losses arising out of the breach, and in addition find that their coverage is not renewed. The fact that the threat of non-renewal may be more effective under a claims-made than under an occurrence system may well be the most notable advantage possessed by claims-made coverage, at least where cancellation and non-renewal are not restricted. However, to the extent that assuring compensation to victims remains a principal goal of the systems, denying coverage for losses caused by breach of safety standards could be viewed as undesirable.67

63 See supra notes 25, 36-37 and accompanying text.
64 See infra notes 70-71 and accompanying text.
65 See supra note 22.
66 See W. Pfennigstorf, supra note 23, at 24.
67 In this regard, Mr. Light suggests that the industry's fear that it may be locked into providing guaranteed insurance without the protection of effective policy defenses may be an even stronger influence on its opposition to changes in this field than concern about its role as surrogate regulator. See Light, supra note 32, at 190.
This conflict between the compensation and deterrence goals of the systems cannot be completely reconciled. Policy provisions denying a handler coverage against liability for injuries due to breach of safety standards could be objectionable primarily because such exclusions might preclude compensation of victims. Compensation would be unavailable if the responsible enterprise were judgment-proof and its insurance policy excluded coverage.

In practice, however, the chances that defendants in most cases will turn out to be judgment-proof are modest. The vast majority of the toxic chemicals in use today are manufactured and handled by very large enterprises. Such enterprises would experience no difficulty in paying judgments; in effect, they often pay them now, because their insurance is subject to enormous deductibles. Nevertheless, even some of these manufacturers and users might not survive the crushing burden of liability posed by a major environmental catastrophe on a scale greater than Love Canal, or a toxic-damage epidemic comparable to the burgeoning asbestos litigation. And while most enterprises manufacturing or using hazardous substances are large, those that are small would surely be bankrupt long before their liability to all the victims of such mis-haps could be satisfied.

Further, placing financial responsibility requirements on handlers of toxic substances renders the insurer's position even more significant. Unless requirements force insurers to extend coverage to all applicants who meet predetermined qualifications, insurers have the power to put individual handlers out of business. That power has not been lightly surrendered to the insurance industry in other contexts. In the field of automobile liability coverage, for example, governmentally operated substitute insurance markets have been instituted to make insurance coverage available to those who are denied it in the private market. But establishing such a

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**Even with coverage, several disasters of the magnitude of the asbestos-related injuries suffered over the past several decades might threaten insurers with bankruptcy as well. Still, a compensation fund with an accumulated surplus might weather the storm even if it could not fully assert its subrogation rights.

*See supra note 22.

*See W. Pfennigstorf, supra note 23, at 20. This could prove problematic where the qualifications established by insurers diverge from those intended by the government. Id. at 31-32.

*Id. at 20; R. Keeton, *supra* note 62, at 581-82.
market in the toxic substances field would both defeat part of the purpose of financial responsibility requirements and bring government back into a field that it has been trying to abdicate in part to the insurance industry.

2. An Alternative

The purposes of financial responsibility requirements and an insurer’s policy defenses are thus essentially at odds with each other. If an insurer is able to avoid liability by invoking exclusion provisions, the compensatory goals of financial responsibility requirements may be frustrated. A rough compromise is available, but it has all the defects of compromises: invalidate exclusions as between the insurer and its insured’s victims, but allow such exclusions as between the insurer and the insured.\textsuperscript{78} In effect, where the insured has violated safety standards that are conditions of coverage, the insurer would serve only as a guarantor of its insured rather than as an indemnifier. This approach assures victims their compensation and reduces the moral hazard at which such policy conditions are directed.\textsuperscript{74} But it neither fully eliminates these hazards nor relieves the insurer of the risk posed by the insured’s insolvency. And the risk of insolvency in these cases could be more real than fanciful, since those operations with the greatest incentive to take safety shortcuts that would otherwise invalidate coverage would probably be the smaller firms operating closest to the margin of solvency.

D. The Insurer’s New Role

The three possible developments canvassed here threaten to cast the insurance industry in a role quite different from that which it has traditionally occupied. First, requiring the industry to offer oc-

\textsuperscript{78} This seems to be the intention of the most recent EPA regulations implementing the financial responsibility requirements of the Resource Conservation and Recovery Act, \textit{supra} note 22. Insurers are required to provide “first-dollar” coverage, even where a policy is issued subject to a deductible, but are entitled to reimbursement from the insured where the liability in question is excluded in the policy. 47 Fed. Reg. 16,548 (1982). This also has been the effect of certification of automobile liability insurance as meeting state and financial responsibility requirements. \textit{See} R. Keeton, \textit{supra} note 62, at 235. Since most financial responsibility laws require only $20,000 of automobile liability coverage, the insurer’s risk that it will not be reimbursed in any single case is not as great as it could be in the toxics field, where financial responsibility requirements will sometimes be in the millions.

\textsuperscript{74} For a general discussion of the moral hazard dilemma, see N. Doherty, \textit{supra} note 11, at 12-21.
currence coverage would force insurers to underwrite currently unpredictable risks. In effect, the insurance industry would be the vehicle for pooling a highly speculative risk. Normally, regulation of an insurance company's investments serves to protect the community of insureds against that very sort of speculation. Second, appointing the industry as a frontline risk manager would require it to play an authoritative role in making decisions about the way other businesses conduct their operations. This role more typically belongs to a corporate parent or major creditor than to an insurer. Third, making insurers guarantors of the financial responsibility of their clients, even when the insureds have violated express conditions of coverage, would be almost unprecedented. A firm having a major stake in the solvency of another normally is an investor or creditor whose downside risk is counterbalanced by a speculative position in the risky firm's profitability. Yet insurers in such cases normally would have no significant equity investment in their insureds. Their risk would be large, but their profit-making potential in any individual case would be actuarially small.

The insurance industry will obviously prefer not to assume the risks associated with any of these new roles. Insurers are not risk-takers, but risk-spreaders. In most situations they avoid excessive risks by relying on the statistical certainty of the law of large numbers, by charging very high premiums for coverage against uncertain exposure, or by declining to offer coverage at all. But these devices would be unavailable to them in the new roles discussed above. Charging high occurrence premiums is not really a useful option, because the present unpredictability of future claims renders insuring even with high premiums very speculative. Similarly, declining coverage, at least in some cases, will be difficult if securing a license to handle toxic substances depends upon proof of financial responsibility. New surrogate regulatory responsibilities might even expand the liability that insurers traditionally bear by exposing the industry to liability for its own faulty risk-management decisions. In this instance, the burdens of the industry's

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76 See R. Keeton, supra note 62, at 273-74.
76 Early in the 1970's, for example, insurers announced that their policies would no longer cover claims for damages that resulted from the discharge or dispersal of toxic chemicals or waste materials unless the event was sudden and accidental. See Pfennigstorf, supra note 41, at 440. Newer policies have begun offering such coverage again.
77 Cf. Connor v. Great Western Savings and Loan Ass'n., 69 Cal. 2d 850, 447 P.2d 609, 73 Cal. Rptr. 369 (1968) (savings and loan held liable for personal injuries caused by breach of "duty" to supervise construction of housing development it financed); Nelson v. Wire Rope
new role would outweigh the benefits to it. Some might argue that
the extra business generated from the spread of insurance against
toxic tort liability could provide adequate returns to the industry.
But if it is thought advisable to cast the industry into a new role,
the traditional methods of paying insurers for their services may
be inadequate. Insurers might justifiably demand new methods of
compensation for taking risks they would prefer to avoid entirely.
None of the available methods, however, seems satisfactory. With
the proliferation of toxic tort litigation, providing insurers ex-
traordinary compensation may be the only way to justify requiring
them to bear extraordinary obligations. Until satisfactory forms of
compensation are developed, the process of surrogate regulation
may not proceed very far.

IV. CONCLUSION

Understanding the relation between cost internalization, insur-
ance, and toxic tort compensation funds is indispensable to any
attempt at structuring an effective system of dealing with the con-
sequences of exposure to toxic substances. The role insurance plays
should not be taken for granted when fashioning new ways to con-
trol and compensate for environmental injury. The key is that tort

Corp., 311 Ill. 2d 69, 199 N.E.2d 769 (1964) (worker's compensation insurer may be held
liable to employee of its insured for negligently conducted safety inspection).

*8 Detailing the form of such compensation is far beyond the scope of this article. One
avenue that might be explored is equity participation. Cf. Coffey, "No Soul to Damn; No
Body To Kick:" An Unscandalized Inquiry into the Problem of Corporate Punishment, 79
dozens years in the future, bonds later convertible to stock, or common shares, for example,
might be employed to allow the insurer to combine the benefits of speculation with the
downside risks it is forced to shoulder. The problems entailed in this approach are great.
For example, the insurance industry would probably oppose such an approach because it
would undoubtedly prefer to keep underwriting and investment functions wholly separate.
Furthermore, the industry probably would rather make the case against writing occurrence
coverage and insuring poor risks on the basis of its traditional role and capacities.

Two particularly acute problems would have to be resolved before thinking about this
matter could proceed. First, each of these devices is simply a form of payment that can be
discounted to present value. Even restricting alienation of these securities or commercial
contracts for a period of time would simply affect the value of the right in question. Valua-
tion—how much stock to issue, for example—would remain the crucial question. Second, to
the extent that the future of a group of insured enterprises will rise or fall in accordance
with factors out of their individual control, such as energy technology or the still-undiscover-
ized carcinogenic properties of their products, then these enterprises are in effect mono-
lithic. Granting insurers profit sharing interests will not provide any of the protections of
diversification, but will simply repay them for taking speculative risks in the event that the
toxic chemical industry as a whole is profitable in the future.
liability, compensation alternatives, and insurance should be considered in conjunction and adjusted so that they may work together, not in opposition. Because of present limitations, the main purpose of toxic tort compensation funds should be exactly what their name implies: to compensate victims. Deterrence of excessively risky activities should be relegated to a secondary position. Direct governmental regulation still should be considered the most effective device for controlling unwarranted risk. In the meantime, we should recognize the drawbacks of placing the insurance industry in the role of surrogate for this more desirable method of deterring unsafe conduct. Only as the issues become more clearly isolated and understood will it be possible to make the hard choices involved in fashioning a more effective system.

The advent of toxic tort compensation funds is an important event in the evolution of our tort and compensation system. The intricacy of that system demands that we recognize the impact of this change on other features of the system. As we respond to emerging environmental problems by fashioning new ways to achieve the old goals of compensation and optimal deterrence, we should not lose sight of the limitations under which the system labors. Only then can workable reform be achieved.