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ENVIRONMENTAL CRIME AND PUNISHMENT: LEGAL/ECONOMIC THEORY AND EMPIRICAL EVIDENCE ON ENFORCEMENT OF FEDERAL ENVIRONMENTAL STATUTES*

MARK A. COHEN**

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I. INTRODUCTION

Although the Refuse Act of 1899[1] made it a criminal offense to discharge any refuse into navigable waters, actual criminal enforcement of environmental regulations is a relatively new phenomenon. Few environmental offenses were prosecuted until the early 1970's, when prosecutors "rediscovered" the Refuse Act's strict liability provisions.[2] Even then only twenty-five criminal environmental cases were prosecuted at the federal level in the entire decade of the 1970's.[3]

The 1980's brought about significant changes in criminal enforcement of environmental laws. In 1981, the Environmental Protection Agency (hereinafter "EPA") established an Office of Criminal Enforcement, and the Justice Department established an Environmental Crimes Unit of the Land's Division.[4] In the mid-80's, Congress went further by reclassifying some environmental crimes from misdemeanors to felonies.[5] The number of prosecutions has since skyrocketed, to over 100 per year during the past few years.[6] Perhaps even more significant is the fact that over 150 years of prison time have been served by the 380 individuals convicted in these cases.[7]

There is little controversy surrounding the use of criminal sanctions against "midnight dumpers" who surreptitiously dispose of hazardous wastes in waterways or other areas, thereby putting the public at risk of physical injury. At the other extreme, there is heated debate about the advisability of using the criminal statutes against corporations held vicariously liable for negligent actions taken by employees.[8] There is also considerable debate over the

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1 Rivers and Harbors Appropriation Act of 1899, 33 U.S.C. § 407 (commonly referred to as the Refuse Act of 1899).

2 Richard M. Carter, *Federal Enforcement of Individual and Corporate Criminal Liability for Water Pollution*, 10 MEM. ST. U. L. REV. 576, 583-84 (1980).

3 F. Henry Habicht, II, *The Federal Perspective on Environmental Criminal Enforcement: How to Remain on the Civil Side*, 17 ENVTL. L. REP. 10478, 10479 (1987). Comparable estimates are not available for state criminal enforcement actions.

4 *Id.* at 10479.

5 Judson W. Starr and Thomas J. Kelly, Jr., *Environmental Crimes and the Sentencing Guidelines: The Time Has Come . . . and It is Hard Time*, 20 ENVTL. L. REP. 10096, 10097 n.7 (1990). These new felony provisions were part of the reauthorized Clean Water Act in 1987 and the Resource Conservation and Recovery Act in 1986.

6 Peggy Hutchins, *Environmental Criminal Statistics FY83 Through FY90*, DEPARTMENT OF JUSTICE, ENVIRONMENTAL CRIMES SECTION (Internal Memorandum, February 11, 1991).

7 *Id.*

8 The recent case against Exxon for the Valdez oil spill is an example of holding a firm vicariously liable for the negligent actions of its employees. *See* Stephen Labaton, *Does an Assault on Nature Make Exxon a Criminal?*, N.Y. TIMES, Apr. 23, 1989, at D1.

merits of sending polluters to prison. At the heart of this debate is the purpose of the criminal law.

The debate over the proper role of the criminal law for environmental regulation is of more than academic interest. Guidelines recently issued by the U.S. Sentencing Commission dramatically increased the probability of sentencing an environmental criminal to prison, and they increased the length of average prison sentences for those who are incarcerated.[9] Since federal judges are bound by these guidelines, any further trends towards criminalizing regulatory violations could have dramatic consequences. Recently, the Sentencing Commission also issued guidelines for the sentencing of corporations convicted of federal crimes.[10] Although some of these provisions cover environmental crimes, the Commission determined that it needed more time to draft guidelines for imposing monetary fines on corporations convicted of environmental crimes.

The purpose of this Article is to examine the legal and economic theories of criminal law enforcement and to compare them to recent trends in the criminal enforcement of environmental regulations. One of the issues to be addressed is the extent to which current prosecutorial and sentencing practice are consistent with economic theories of the criminal law.

This Article begins by providing a review of the various legal and economic theories that attempt to explain the need for criminal enforcement of environmental laws as well as the purpose of criminal sanctions. Next, the Article provides a detailed analysis of current prosecutorial and sentencing practice for environmental crimes. Finally, the Article will examine the current debate over the drafting of sentencing guidelines in light of these empirical findings, and will make several policy recommendations regarding the drafting of corporate sentencing guidelines.

II. Theories of Criminal Enforcement

One cannot arrive at an understanding of the reason for criminal enforcement of regulatory offenses without first addressing the more fundamental issue of the purpose of the criminal law. One possible rationale for criminal enforcement stems from the failure of the civil/administrative law to adequately deter violations. Another possibility is that society prefers to call certain actions "criminal" in order to express its moral outrage and to prohibit the activity unconditionally.

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9 *See infra* notes 149-54 and accompanying text.

10 *See infra* notes 158-61 and accompanying text.

A. LEGAL THEORIES

The simplest definition of a "crime" is an activity that society prohibits, and one against which society is willing to enforce—i.e., those things that society deems should fall within the criminal code. This tautological definition is of little use, however, in considering what *should* be labeled a crime, or in trying to explain *why* society labels some activities criminal.

Perhaps the best way to define crime is to compare it to two other legal concepts: torts and civil administrative violations. The fundamental goals of all three bodies of law are essentially the same—to deter individuals from undertaking activities that society deems wrong. Indeed, many activities constitute violations of all three bodies of law: tort, criminal, and administrative. The recent case of the Exxon Valdez[11] illustrates this overlap.

Although they share the fundamental goal of deterrence, each of these areas of the law has its own definitions, standards of proof, procedures, and remedies.[12] Generally, laws defining crimes require intent, are publicly enforced, and do not require that a victim be harmed, while laws defining torts do not require intent, are privately enforced, and require the plaintiff to establish damages.[13] Many legal scholars argue that the single distinguishing characteristic should be "moral culpability."[14] Under this conception, torts involve the "essentially non-moral character of negligence . . . [compared to the] . . . essentially moral aspects of the conditions of responsibility in the criminal law."[15]

In the case of the Exxon Valdez, there was little question that the firm was liable under tort law for damages to private property caused by the spill. The question of criminal liability, however, was

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[11] United States v. Exxon, No. A90-015CR, 1990 U.S. Dist. LEXIS 1821 (D. Alaska filed Feb. 27, 1990).

[12] There are four elements of a crime:

1. Criminal intent.
2. Public harm.
3. Punitive sanctions, and
4. Proof beyond a reasonable doubt.

These elements can be contrasted to the elements of a tort:

1. Breach of duty.
2. Damages.
3. Causation.

ROBERT COOTER & THOMAS ULEN, LAW AND ECONOMICS 326-34, 507-11 (1988).

[13] *See e.g.*, John C. Coffee, Jr., *Does 'Unlawful' Mean 'Criminal'?: Reflections on the Disappearing Tort/Crime Distinction in American Law*, 71 B.U. L. REV. 193 (1991).

[14] Jerome Hall, *Interrelations of Criminal Law and Torts*, 43 COLUM. L. REV. 753, 771, 775-79, 967 (1943).

[15] Jules L. Coleman, *Crime, Kickers, and Transaction Structures*, *in* NOMOS XXVII: CRIMINAL JUSTICE 313, 326 (J. Roland Pennock & John W. Chapman, ed., 1985).

much more controversial. Indeed, the debate focused on whether or not Exxon was morally culpable for the spill. Despite the appearance of the spill as an accident, the government sought criminal charges under the theory that Exxon, "had reports that [Captain] Hazelwood was not competent . . . [and thus] . . . culpability went beyond simple negligence to a much higher degree."[16] Commenting on Exxon's plea to criminal charges, the prosecuting attorney claimed that it "reflected the moral sensibilities of the community."[17]

Torts and crimes also have different remedies. Whereas tort remedies generally involve the compensation of victims and are designed to deter the tortfeaser, criminal convictions generally result in punitive sanctions which are designed primarily to punish. Recent changes in federal law which advise judges to award restitution whenever possible,[18] however, have increased the compensation aspect of criminal enforcement. At the same time, the appearance of increasingly large punitive damage awards in tort cases also diminishes the practical differences between crimes and torts.

The difference between a regulatory crime and a civil administrative violation is very similar to that between crime and tort. Whereas crime generally involves intent, an administrative violation can occur without any degree of culpability. Both regulatory crimes and civil administrative violations, however, are generally enforced through public agencies, and neither requires a showing of actual damages. Administrative remedies are generally designed to restrict (or require) certain future actions and may also involve some compensation to the victim (which is often the government). Although civil penalties might be levied, they are often designed to take the monetary gain away from offenders, and are not generally designed to punish.

Traditional legal theories posit that criminal punishment serves four goals: deterrence, incapacitation, rehabilitation and retribution. All of these goals, however, can just as easily be served through a combination of tort and administrative remedies. Treble damage awards and civil penalties, for example, provide deterrence, while debarments from government contracting and license revocations are forms of incapacitation. Additionally, although many policy makers no longer regard rehabilitation as a realistic goal,

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16 L. Gordon Crovitz, *Justice for the Birds: Exxon Forgot to Get a Hunting License*, WALL ST. J., March 20, 1991, at A23.

17 *Id.*

18 18 U.S.C. §§ 3663-3664 (1988).

examples of sanctions designed to rehabilitate can still be found in certain forms of negotiated remedies, such as environmental audits. Finally, retribution may be exacted through punitive damage awards in tort actions. The only goal of criminal punishment that cannot be achieved with tort and administrative remedies is that of individual incapacitation (aside from professional debarments or license revocations); this goal may be accomplished only through incarceration or some less restrictive alternative, such as home detention.

It might be argued that criminal remedies are superior to civil remedies, which cannot impose sufficiently severe consequences on offenders. There is no reason, however, that civil penalties or punitive damages must be limited. Aside from possible legislative or constitutional limits on punitive damage awards, the only constraint on the use of civil or administrative remedies is the wealth or earning power of the offender. Additionally, such an argument fails to explain the necessity of resorting to the criminal law to enforce standards against corporate behavior. After all, corporations cannot be incarcerated.

Some scholars have argued that the criminal sanction serves another purpose—to shape preferences and "educate" the public (i.e., potential violators) about the moral consequences of their actions. This helps explain why crimes do not require actual harm, but only the intent to do harm.[19] The apparent moral stigma attached to being labeled a "criminal" might also help to explain why the government insists on criminal charges for corporations that could receive identical monetary and non-monetary sanctions under civil and administrative remedies. This is apparently what happened in the case of the Exxon Valdez, which the government reportedly refused to settle without some criminal plea—even though the same sanction could have been imposed through a civil or administrative procedure.

The lines between crimes, torts and administrative violations are often very fuzzy. Recent trends in the criminal law have blurred these distinctions even further, prompting many commentators to wonder if the law has become "overcriminalized."[20] These trends seem to stem from changing ideas about what constitutes morally acceptable behavior,[21] together with a discretionary and politically-based prosecutorial system that responds quickly to the public

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19 *See* Kenneth G. Dau-Schmidt, *An Economic Analysis of the Criminal Law As a Preference-Shaping Policy*, 1990 DUKE L.J. 1, 26-27.

20 *See* Coffee, *supra* note 13.

21 For example, a study of public attitudes found that the public viewed white collar crime more seriously in 1979 than they did in 1972. *See* Francis T. Cullen et al., *The*

mood.[22]

B. ECONOMIC THEORIES

1. The Purpose of the Criminal Law

Taking exception with conventional legal theory, Judge Richard Posner of the Seventh Circuit Court of Appeals has argued that the distinction between crimes and torts is *not* based primarily on intent.[23] Indeed, he argues, there is a whole class of "intentional torts." Instead, Posner argues,

> The major function of criminal law in a capitalist society is to prevent people from bypassing the system of voluntary, compensated exchange—the "market.". . . Much of this market bypassing cannot be deterred by tort law . . . . The optimal damages that would be required for deterrence would so frequently exceed the offender's ability to pay that public enforcement and non-monetary sanctions such as imprisonment are required.[24]

Thus, if a defendant can afford to pay the social cost of its actions (appropriately adjusted to account for the probability of detection), "there is no social gain from using a criminal sanction."[25] Since the criminal law is more costly to enforce, it follows that the criminal sanction should be reserved for only those cases where pure monetary sanctions and civil injunctions are inadequate. More specifically, Posner uses this argument to question the rationale for imposing corporate criminal liability.[26]

In cases of unintentional torts, courts supposedly do not hold defendants liable if the cost of avoiding an accident exceeds the loss multiplied by the probability of the accident's occurrence (the "Learned Hand" formula).[27] For purposes of determining criminal liability (or liability in cases of intentional torts), however, the value to the defendant is irrelevant. Since society wishes to prevent peo-

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Seriousness of Crime Revisited: Have Attitudes Toward White-Collar Crime Changed?, 20 CRIMINOLOGY 83 (1982).

22 For example, following the prosecution of company executives of Film Recovery Systems on murder charges, prosecutors across the country quickly followed with similar cases. In fact, the Los Angeles District Attorney "ordered his staff to investigate all occupational deaths as possible homicides." Jonathan Tasini, *The Clamor to Make Punishment Fit the Corporate Crime*, BUS. WK., Feb. 10, 1986, at 73.

23 RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW § 7.1 (3rd ed. 1986) (discussing the fact that some crimes are not intentional, although a class of unintentional torts does exist).

24 Richard A. Posner, *An Economic Theory of the Criminal Law*, 85 COLUM. L. REV. 1193, 1195 (1985).

25 *Id.* at 1204.

26 POSNER, *supra* note 23, at 398.

27 *See The Economics of Accidents and the Learned Hand Formula of Liability for Negligence*, *in* POSNER, *supra* note 23, at 147-51.

ple from bypassing the market and transferring goods through coercion, it does not consider the benefit to the offender in assessing liability in such cases.[28]

Some crimes, however, are byproducts of activities that society does not wish to prohibit entirely. In such cases, there is a risk that overly harsh sanctions will lead to a less than socially desirable amount of the desired activity. To understand the economist's persistent fear of "overdeterrence," it is useful to distinguish between "conditionally" and "unconditionally" deterred activities:

> (T)he function of legal remedies, viewed in an economic perspective, is to impose costs on people who violate legal rules. This is as true of simple damages for breach of contract as it is of imprisonment for rape. The difference is that the deterrent purpose in the first case is only conditional. We want to deter only those breaches of contract in which the costs to the victim of the breach are greater than the benefits to the breaching party. The correct amount of deterrence is obtained by requiring the breaching party to pay the victim's costs. . . . But society does not want to deter only those rapes in which the displeasure of the victim is shown to be greater than the satisfaction derived by the rapist from his act. A simple damages remedy would therefore be inadequate.[29]

This distinction is of particular importance in the area of regulatory violations. These violations are generally "conditionally deterred" crimes, since society benefits from the underlying activity that gives rise to the regulatory violation. The concern is that high penalties will lead to "overdeterrence" of activities that society does not wish to prohibit entirely. We do not, for example, want to raise the "price" of causing an oil spill so high that we deter firms from engaging in the socially beneficial practice of oil transportation. Neither do we want oil transporters to spend more than a socially desirable amount of resources on oil spill prevention safeguards. This problem is especially acute in the case of strict liability crimes for "stochastic externalities," such as oil spills, where the incident itself is not entirely controllable by either the firm or its employees.[30]

The distinction between conditionally and unconditionally deterred crimes, and the resulting concern for overdeterrence, form the basis of a continuing debate between economists and criminal

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[28] POSNER, *supra* note 23, at 192-93.

[29] RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 357-58 (2d ed. 1976). A similar characterization has been made by Robert Cooter, *Prices and Sanctions*, 84 COLUM. L. REV. 1523 (1984), who distinguishes between those actions that society wishes to price versus those it wishes to prohibit or sanction.

[30] *See, e.g.*, Mark A. Cohen, *Optimal Enforcement Strategy to Prevent Oil Spills: An Application of a Principal-Agent Model with Moral Hazard*, 30 J.L. & ECON. 23 (1987).

justice policy makers—whether to base the ultimate monetary sanction on "gain" to the offender or "harm" to society. Since a conditionally deterred crime is one that we want to deter only when the cost to society exceeds the benefit to the offender, we would not want to penalize the offender on the basis of his or her gain. If the fine were based on the gain to the offender (adjusted to account for the probability of detection and conviction), we would deter all such incidents—even those that are socially desirable. Thus, the debate over whether to base sanctions on gain or on harm is essentially a debate over whether or not society wishes to "conditionally deter" some crimes.

2. *The Basic "Optimal Penalty" Model*

Gary Becker's seminal paper on "optimal penalties" is the starting point for virtually all subsequent economic analyses of crime and punishment.[31] The basic conclusion of Becker's analysis is that the penalty should be set equal to the net social cost of the crime divided by the probability of detection. Becker's basic model has been extended by relaxing some of the more restrictive assumptions, such as risk neutrality,[32] full information[33] and a static decision framework.[34]

To many economists, there is no analytical difference between the criminal and the civil remedy. Models of "optimal" enforcement and penalties generally do not distinguish between civil and criminal remedies, since both impose costs on the offender that will be internalized into its decision calculus. The only differences between civil and criminal remedies involve the institutional details concerning the burdens of proof and the nature of the remedies—the most important of which is incarceration.

Thus, considerable attention has been focused on the role of incarceration (or other forms of non-monetary sanctions). As noted by Becker, jail is a socially costly sanction, involving both the lost productivity of an offender who is rendered unable to work, and the diversion of productive resources into building and operating pris-

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31 Gary S. Becker, *Crime and Punishment: An Economic Approach*, 76 J. POL. ECON. 169 (1968).

32 *See, e.g.*, Michael K. Block & Robert C. Lind, *Crime and Punishment Reconsidered*, 4 J. LEGAL STUD. 241 (1975); A. Mitchell Polinsky & Steven Shavell, *The Optimal Tradeoff between the Probability and Magnitude of Fines*, 69 AM. ECON. REV. 880 (1979).

33 *See, e.g.*, Richard Craswell and John E. Calfee, *Deterrence and Uncertain Legal Standards*, 2 J.L. ECON. & ORG. 279 (1986).

34 *See* Siu F. Leung, *How to Make the Fine Fit the Corporate Crime? An Analysis of Static and Dynamic Optimal Punishment Theories*, 45 J. PUB. ECON. 243 (1991).

ons.[35] In contrast, fines are thought of as transfers of wealth, which do not result in socially inefficient allocations of resources.

Steven Shavell identifies five factors that help determine if monetary fines are adequate to optimally deter potential offenders:

(1) size of assets;
(2) probability of detection and conviction;
(3) size of private benefits from illegal activity;
(4) probability that an act will cause harm; and
(5) size distribution of the harm if it occurs.[36]

All else being equal, an optimal penalty policy is more likely to require the use of jail time (or other non-monetary sanctions), the *smaller* the size of the offender's assets and the probability of detection and conviction, and the *larger* the private benefits and the expected harm.

3. Optimal Penalties with "Moral Hazard"

Since corporations are held strictly liable for the actions of their employees, the theory needs to take into account the incentive problems inherent in a principal-agent relationship. Although holding firms vicariously liable for their employees' actions decreases the cost of enforcement to the government, it introduces a new monitoring cost to firms who as a result must act as quasi-enforcement agents for the government.

A recent paper by Kathleen Segerson and Tom Tietenberg uses an optimal penalty framework to examine the circumstances in which it is preferable to hold the employee or the firm criminally liable.[37] In the context of their model, the answer generally depends on whether or not the firm has the ability to provide the correct incentives to its employees to ensure that they do not commit a crime. Corporate and individual penalties are found to be perfect substitutes *if* the employee can bear the full cost of the optimal monetary fine, in which case a penalty imposed on the firm can be passed along to the employee in the form of lower compensation. They may also be substitutes if the firm can observe the level of effort on the part of the employee and can base the employee's compensation on that level. In such cases, where corporate and individual penal-

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35 Becker, *supra* note 31.

36 Steven Shavell, *Criminal Law and the Optimal use of Non-monetary Sanctions as a Deterrent*, 85 COLUM. L. REV. 1232, 1236-37 (1985).

37 Kathleen Segerson & Tom Tietenberg, *The Structure of Penalties in Environmental Enforcement: An Economic Analysis*, *in* INNOVATIONS IN ENVIRONMENTAL LAW (Tom Tietenberg, ed., 1992). A related paper with apparently similar results is A. Mitchell Polinsky & Steven Shavell, *Should Employees be Subject to Fines and Imprisonment Given the Existence of Corporate Liability?* (preliminary draft, Oct. 1991).

ties are substitutes, the penalties may also be divided in some manner between the two parties—as long as they do not sum to more than the "optimal" penalty.

If, however, the two parties are unable fully to shift the penalty between themselves, corporate and employee penalties are not perfect substitutes. Where employers are unable fully to shift the penalty costs onto employees, the penalty must be placed directly on the employee and/or the firm must monitor the employee's action more carefully in order to prevent the occurrence of a violation. Of course, if that employee cannot pay the "optimal penalty," there appears a rationale for incarceration.

Large organizations, in addition to having to contend with the principal-agent conflicts inherent in the manager-worker relationship, may also suffer from an additional principal-agent conflict inherent in the owner-manager relationship. A recent paper by Jonathan Macey examines the likely "causes" of corporate crime in large organizations where such agency costs exist.[38] Macey observed that managers of large organizations tend to be more risk averse than shareholders would prefer. In addition, since managers in large organizations reap only a small portion of corporate profits, they stand to gain only a small portion of illegally obtained gains. On the other hand, managers face a disproportionately large share of the potential cost of criminal activity (i.e., possible prison time and loss to reputation). Accordingly, we do not expect managers of large organizations to engage in criminal activity. Indeed, we expect that the less closely-held the organization, the *lower* the probability of corporate crime being committed.

Macey identifies three possible explanations for criminal activity in large organizations: (1) a desire to protect the firm from bankruptcy; (2) the corporate culture in an industry; and (3) a "mistake" in legal interpretation or in calculation of the likelihood of criminal prosecution.[39] The implication of this analysis for optimal penalties is less than straightforward. In situations where the firm is financially strong, the crime is likely to be related to existing industry norms or to a misunderstanding of criminal liability. In such cases, a penalty equal to the harm divided by the probability of detection is likely to be too high, since managers are likely to be more risk averse than shareholders. Where the firm is on the verge of bankruptcy, however, the manager may be risk preferring. This suggests

[38] Jonathan R. Macey, *Agency Theory and Criminal Liability of Organizations*, 71 B.U. L. REV. 315 (1991).

[39] *Id.* at 325.

the need for a more severe sanction. Of course, if that higher fine cannot be collected, a need for incarceration may arise.

C. SUMMARY

This section has only scratched the surface of the economic and legal theories of criminal sanctions and the debate concerning the proper role of the criminal law for regulatory crimes. For the purposes of this paper, two key points should be emphasized. The first issue is the debate over the need for criminal sanctions. On one hand, economists often assume that the only difference between criminal and civil sanctions is incarceration. After all, a dollar fine costs the firm one dollar whether it is called a "cleanup cost," "restitution," "civil penalty," or "criminal fine."[40] On the other hand, legal theorists often assume that there is a moral component to the criminal law that is absent from civil liability. In theory, one can test these differing views by examining the effect of various sanctions on the firm.[41]

The second issue is the concern that excessive sanctions will lead to overdeterrence. Some offenses are "conditionally deterred" crimes, which society wishes to discourage but not entirely prohibit. Other offenses are subject to uncertain legal standards, while still others involve strict liability for events that are not entirely controllable. In all cases, there is a real risk that very severe sanctions will lead to overly expensive precautionary measures being undertaken by firms that are otherwise acting in good faith to comply with the law. Again, whether this concern is real or merely theoretical is an empirical issue.

III. CRIMINAL LIABILITY FOR ENVIRONMENTAL OFFENSES

Although this paper is not intended to be a legal treatise on criminal liability for environmental offenses, a brief overview of liability issues will assist the reader in understanding the policy implications of criminal enforcement and sanctions.[42] There are two

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[40] Of course, since certain payments may be tax deductible, one would first have to compute the after tax cost of each alternative before comparing them.

[41] One attempt to test for a differential effect between criminal and civil sanctions found no difference between the two. *See* Michael K. Block, *Optimal Penalties, Criminal Law and the Control of Corporate Behavior*, 71 B.U. L. REV. 395 (1991). These results should not, however, be viewed as definitive.

[42] There are many law review articles on criminal liability for environmental offenses. *See, e.g.*, Eva M. Fromm, *Commanding Respect: Criminal Sanctions for Environmental Crimes*, 21 ST. MARY'S L.J. 821 (1990); John F. Seymour, *Individual Criminal Liability of Corporate Officers Under Federal Environmental Laws*, 6 ENVTL. REP. (BNA) No. 6 at 337 (June 9, 1989); Daniel Riesel, *Criminal Prosecution and Defense of Environmental Wrongs*, 15 ENVTL. L. REP.

main bodies of criminal law related to environmental violations. The first type of violation involves the general criminal statutes, such as conspiracies, mail fraud or false statements to the government. In a few instances, firms have also been charged under RICO. The second category includes all of the specific environmental statutes that include criminal provisions.

Virtually all environmental statutes now include criminal provisions. These provisions generally fall into two distinct categories: (1) "strict liability" or "public welfare" offenses; and (2) offenses requiring some degree of "knowing," "willful," or negligent conduct. As discussed earlier, one of the theoretical differences between the two types of crime is the degree of moral culpability. From a more practical standpoint, it is much easier to prove that an incident has occurred than it is to prove intent.

The original Refuse Act of 1899[43] fell under the category of "public welfare" statutes, imposing criminal liability on any party who discharged refuse into navigable waters.[44] Most of the subsequent environmental legislation has failed to impose such a strict liability standard. Instead, the Clean Water Act[45] provides for criminal sanctions when a discharge is "willful" or "negligent."[46] The latter term is broad enough to allow prosecutors to charge firms with criminal negligence for failure to adequately prevent accidental oil discharges, as in the case of the Exxon Valdez. In contrast, the Clean Air Act[47] does not contain a criminal negligence provision. Rather, a violation must be "knowing" in order to be criminal.[48] Not surprisingly, there have been fewer criminal prosecutions under the Clean Air Act than under the Clean Water Act (see Table 1).

The Resource Conservation and Recovery Act[49] (hereinafter "RCRA") also imposes a "knowing" standard for violations such as illegal storage, transportation, treatment, or disposal of wastes and for recordkeeping violations.[50] The Comprehensive Environmental

10065 (March 1985); and Carter, *supra* note 2. Much of the following discussion is taken from these sources., For a comprehensive legal treatise on corporate and executive criminal liability in general, see KATHLEEN F. BRICKEY, CORPORATE CRIMINAL LIABILITY (1984). It is important to note that the following discussion refers primarily to federal law. Although many state laws are patterned after federal laws, differences do exist.

43 33 U.S.C. § 407.

44 *Id. See supra* note 1.

45 33 U.S.C. § 1321 (1988).

46 *Id.*

47 42 U.S.C. § 7401 (1988).

48 *Id.*

49 42 U.S.C. § 6921 (1988).

50 *Id.*

Recovery, Conservation and Liability Act[51] (hereinafter "CERCLA") contains a strict liability standard for failure to notify authorities of either a release of a hazardous substance or the existence of an unpermitted hazardous waste disposal site.[52] This CERCLA provision can be used in hazardous waste cases where proof that the violation was "knowing" is difficult. Since CERCLA violations are only misdemeanors, however, this charge has apparently not been the charge of "choice" for prosecutors. Moreover, recourse to the strict liability provisions has been obviated by a recent development in the case law whereby courts define "knowing" broadly enough to include mere knowledge of the hazardous nature of the pollutant, without requiring knowledge of the occurrence of a violation.[53] In one case, that the defendant did not know (or even have reason to know) that the facility lacked an EPA permit was not accepted as an adequate defense.[54]

Other laws that include criminal provisions are the Toxic Substances Control Act[55] (hereinafter "TSCA"), the Safe Drinking Water Act,[56] and the Federal Insecticide, Fungicide, and Rodenticide Act[57] (hereinafter "FIFRA"). These laws generally require some degree of mens rea, either by applying a "knowing" standard or by requiring falsification of records.[58] FIFRA, however, also "provides that criminal liability may be vicariously imposed upon principals without any additional required mental state, for the acts, omission, or failures of their officers, agents, or employees."[59]

In general, the "knowing" standard requires a lower burden of proof than does the "willful" standard, "since the individual with knowledge need not intend or desire the result to occur, so long as he is substantially certain it will occur. On the other hand, knowledge is a more difficult standard to prove than negligence since the negligent violator need only have known there was a substantial risk that the unlawful conduct would occur, or have failed to exercise due care to avoid the unlawful result."[60]

Under federal law, corporations can be held criminally liable for

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51 42 U.S.C. § 9601 (1988).

52 *Id.*

53 *See infra* note 54.

54 U.S. v. Hoflin, 880 F.2d 1033 (9th Cir. 1989), *cert. denied*, 110 S. Ct. 1143 (1990), *cited in* Stanley S. Arkin, *Crime Against the Environment*, N.Y.L.J., August 9, 1990, at 3.

55 15 U.S.C. 2601 (1988).

56 42 U.S.C. § 300(f) (1988).

57 7 U.S.C. § 136 (1988).

58 15 U.S.C at § 2614(TSCA); 42 U.S.C sec. 300(f); 7 U.S.C. § 136 (2) (M) (FIFRA).

59 Riesel, *supra* note 42, at 10070.

60 *Id.* at 10072.

virtually any illegal actions of their agents or employees that take place within the scope of their employment—even if the employee's actions were in direct conflict with company policy or management orders. The only requirement is that the "corporation exerts some control over persons or events responsible for a criminal violation."[61]

Corporate officers may also incur criminal liability for the actions of their employees, regardless of whether they participated in the criminal activity. Under "public welfare" (i.e., strict liability) or "negligence" statutes, individual criminal liability may be established solely on the basis that the officer was ultimately responsible for the activity—even if that responsibility was delegated.[62] Even under statutes that require some degree of "knowledge" or "willful" conduct, individual liability will generally be applied to corporate officers who somehow fail to prevent a crime or who authorize or tacitly acquiesce in the commission of one.[63]

The leading case in this area is *United States v. Park*,[64] where the president of a supermarket chain was held criminally liable for his firm's failure to clean up rodent-infested food warehouses. Criminal liability was imposed despite evidence that Park, after receiving civil citations from FDA inspectors, personally sent a memo to subordinates ordering them to remedy the situation. His employees' failure to follow orders was not a defense. Instead, the court ruled, essentially, that Park had ultimate responsibility to ensure that the warehouses were cleaned up.[65]

Judson Starr, the former head of the Justice Department's Environmental Crimes Unit, has revealed that "it was his policy while in the government to prosecute the highest-ranking corporate officer with any responsibility for overseeing environmental compliance."[66] Consistent with this policy, three corporate officers working at the Philadelphia headquarters of Pennwalt Corporation were indicted in 1988 following an accidental tank rupture and chemical spill at Pennwalt's plant in Tacoma, Washington. Although the charges were later dropped, the government prosecutor observed that "the nature of the charge was somewhat novel, in the sense that we were charging corporate officers for passive negligence as distinguished

61 *Id.* at 10073.

62 Seymour, *supra* note 42, at 340.

63 *Id.*

64 421 U.S. 658 (1975).

65 Seymour, *supra* note 42, at 341-42.

66 Jill Abramson, *Government Cracks Down on Environmental Crimes*, WALL ST. J., Feb. 16, 1989, at B7.

from active negligence—they failed to take a proactive role in establishing preventative maintenance plans for their facilities adequate to protect against this kind of situation."[67]

Virtually all environmental crimes can also be dealt with through civil or administrative actions. Although parallel cases may be pursued, this course is generally reserved for instances "where both injunctive relief or remedial action and criminal sanctions are warranted. Where injunctive relief is not needed, and where the conduct warrants criminal sanctions, an administrative or civil proceeding seeking punitive penalties would generally be held in abeyance . . . pending the resolution of the criminal investigation."[68]

As a former U.S. Attorney noted, "the decision whether to proceed criminally or civilly is a discretionary judgment." The key factors prosecutors have allegedly used in determining which approach to take are (1) knowledge or intent, (2) harm associated with the offense, (3) gain to the offender, (4) continued violations after repeated EPA notifications, and (5) strength of the evidence.[69] More recently, the Justice Department has issued prosecutorial guidelines for environmental crimes, which list various factors to be considered when deciding whether or not to prosecute. These factors include (1) whether the disclosure was voluntary, (2) degree of cooperation, (3) extensiveness of the compliance program and efforts to prevent violations, (4) pervasiveness of noncompliance, (5) internal disciplinary action, and (6) subsequent compliance efforts.[70]

IV. Empirical Evidence on Sanctions for Environmental Crimes

Given that criminal enforcement of environmental regulation is a relatively recent phenomenon, it is not surprising that few if any empirical analyses of criminal sanctions have been undertaken. The dearth of empirical analyses may also reflect the difficulty encountered by outsiders in collecting data on environmental prosecutions. There is virtually no readily available data at the state level. Although the EPA publishes a summary of all federal indictments stemming from its referrals to the Justice Department,[71] that listing

67 *Corp. Crime Rptr.*, Aug. 14, 1989, at 16.

68 Riesel, *supra* note 42, at 10076 n.136.

69 Habicht, *supra* note 3, at 10481.

70 U.S. Department of Justice, Factors in Decisions on Criminal Prosecutions for Environmental Violations in the Context of Significant Voluntary Compliance or Disclosure Efforts by the Violator (July 1, 1991).

71 U.S. Environmental Protection Agency, Office of Enforcement and Compliance Monitoring, Summary of Criminal Prosecutions Resulting from Environmental Investigations (May 31, 1991).

does not include many environmental criminal prosecutions initiated by the FBI. It also excludes significant amounts of factual information on the nature of offenses and offenders that would be of interest to researchers.

To date, the only comprehensive summary statistics available on environmental criminal enforcement at the federal level are quarterly summaries provided by the Justice Department's Environmental Crimes Section.[72] These statistics are often reported in the popular press through Justice Department press releases and speeches. The raw data used to generate these statistics, however, are not available to researchers, as they come directly from Justice Department enforcement databases that include data concerning pending investigations and other confidential information on offenders. As a result, the summary is of limited value in analyzing the potential impact of criminal sanctions. The summary reveals, for example, that in fiscal year 1989, there were 107 convictions resulting in $12.7 million in fines and about thirty-seven years of prison sentences. The summary does not disclose, however, how many of those 107 convictions were of corporations and how many were of individuals, nor does it indicate how many individuals received prison sentences.

This paucity of solid data on corporate criminal prosecutions and sanctions is not unique to the environmental area. Indeed, there is a dearth of information on corporate crime and punishment in general.[73] This gap in the empirical literature became evident to the U.S. Sentencing Commission when it began the task of drafting guidelines for sentencing organizations convicted of federal crimes. In order to support its drafting effort, the Commission collected court documents on corporations and their individual codefendants from U.S. District Courts around the country. The first stage of this data collection project involved firms sentenced between 1984 and 1987,[74] with a later follow-up of 1988 cases added. More recently, I

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72 Hutchins, *supra* note 6.

73 One exception is the area of antitrust, which has been studied extensively. *See, e.g.*, Richard A. Posner, *A Statistical Study of Antitrust Enforcement*, 13 J.L. & ECON. 365 (1970); JAMES M. CLABAULT & MICHAEL K. BLOCK, SHERMAN ACT INDICTMENTS, 1955-1980 (1981); WILLIAM BREIT & KENNETH G. ELZINGA, ANTITRUST PENALTY REFORM: AN ECONOMIC ANALYSIS (1986); Mark A. Cohen & David T. Scheffman, *The Antitrust Sentencing Guideline: Is the Punishment Worth the Cost?* 27 AM. CRIM. L. REV. 331 (1989); and Mark A. Cohen, *The Role of Criminal Sanctions in Antitrust Enforcement*, 7 CONTEMP. POL'Y ISSUES 36 (Oct. 1989).

74 For a description of the data set and summary statistics see Mark A. Cohen, *Corporate Crime and Punishment: A Study of Social Harm and Sentencing Practice in the Federal Courts, 1984-1987*, 26 AM. CRIM. L. REV. 605 (1989) [hereinafter Cohen, *Corporate Crime: 1984-1987*]. Additional summary statistics can be found in Mark A. Cohen, et al., *Organizations*

collected publicly available information on 1989-90 cases, and compared them to the two earlier time periods.[75]

The remainder of this section will summarize these data on criminal sanctions for environmental crimes. It will provide, in addition, some comparative data on corporations sentenced for other federal crimes. Before proceeding, two caveats are in order. First, since these data were originally collected to analyze corporate sanctions, information concerning individuals convicted of environmental crimes is included here *only* if the individuals were indicted along with a corporate co-defendant. At this point, we do not know whether the offenses charged and the sanctions imposed upon individuals indicted by themselves are any different from those imposed upon individuals who are indicted along with their corporate entities. Second, the data's focus on federal convictions does not necessarily imply that sanctions are less stringent for criminal offenses prosecuted at the state level. Although we do not have any summary data on state prosecutions or sanctions, significant prison terms have been reported in the press.[76]

A. DISTRIBUTION OF OFFENSES AND OFFENDERS

1. Types of Offenses

The distribution of corporate criminal offenses prosecuted at the federal level has remained fairly constant throughout the entire 1984-90 time frame. About twenty to thirty percent of all offenses involve antitrust violations. Government fraud accounts for an additional twenty to twenty-five percent of the cases. Environmental crimes and private fraud each account for another ten to fifteen percent, while the remainder involve violations such as currency reporting, tax fraud, import or export violations, and food and drug violations. Most cases are settled by guilty pleas. Trials constitute about twelve percent of all convictions, and pleas of nolo con-

as Defendants in Federal Courts: A Preliminary Analysis of Prosecutions, Convictions and Sanctions, 1984-1987, 10 WHITTIER L. REV. 103 (1988) [hereinafter Cohen, *Organizations as Defendants*].

[75] Mark A. Cohen, *Corporate Crime and Punishment: An Update on Sentencing Practice in the Federal Courts, 1988-90*, 71 B.U. L. REV. 247 (1991) [hereinafter Cohen, *Corporate Crime: 1988-1990*].

[76] For example, "In Pennsylvania, nine executives were sent to prison in 1989 for jail terms of up to five years after convictions involving hazardous-waste violations. And three years ago, a Pennsylvania judge ordered one of the stiffest environmental sentences ever. William Fiore, a landfill operator in Allegheny County, was fined $200,000 and sentenced to six to twelve years in prison for sixty environmental crimes, including dumping one million gallons of water tainted with hazardous waste into a river." Michael A. Verespej, *The Newest Environmental Risk: Jail*, INDUS. WK., Jan. 22, 1990, at 47.

tendere about five percent—for both corporate crime in general as well as environmental crimes.

The great diversity in the type of cases does not stop with the broad categories outlined above. For example, government fraud includes such diverse crimes as product substitution, contract overcharges, false Medicaid billing and false indication of minority contractor status. Similarly, environmental crimes can be categorized in many ways. Some obvious categorizations include media (e.g. air, water, land) and statutory provision. Table 1 provides a percentage breakdown of all Justice Department prosecutions since 1983. Approximately fifty percent of the prosecutions involved RCRA or CERCLA violations—primarily the illegal disposal of hazardous wastes. The second largest category (25%) comprises Clean Water Act violations. The remaining categories include false statements (12%) and violations of the TSCA (5%), the Clean Air Act (4%) and FIFRA (3%).

TABLE 1
JUSTICE DEPARTMENT PROSECUTIONS FOR ENVIRONMENTAL CRIMES BY TYPE OF OFFENSE, 1983-1990[a]

Statutory Violation	Number	Percent
RCRA and/or CERCLA	347	50%
Clean Water, Safe Drinking Water, Refuse Act	184	25%
Title 18 (e.g. false statements)	83	12%
Toxic Substances Control Act	40	5%
Clean Air Act	26	4%
FIFRA (Pesticides)	18	3%
Misc.	5	1%
TOTAL	703	100%

[a] Peggy Hutchins, *Environmental Criminal Statistics FY83 Through FY90,* U.S. DEPARTMENT OF JUSTICE, ENVIRONMENTAL CRIMES SECTION, MEMO (Feb. 11, 1991).

2. *Types of Offenders*

Most federal criminal prosecutions of organizations involve small, closely held corporations. During the 1984-1988 time period, only about fifteen to twenty percent of these companies were large enough to be listed in the Standard and Poor's Register, which requires annual sales of at least $1 million and a minimum of fifty employees. Only about three to five percent had publicly traded

stock.[77]

It appears that the average firm charged with an environmental crime is larger than the average firm charged with other federal crimes. Of the firms sentenced for environmental offenses in 1988, 42% were large enough to pass S&P's $1 million sales and/or fifty employee threshold, while only twenty percent of the firms sentenced for non-environmental offenses passed the test. Although publicly traded firms were prosecuted in a disproportionately high number of environmental crimes (14% versus 6.5% for non-environmental cases), this difference is not statistically significant.

There appears to be a recent trend towards the prosecution and conviction of larger companies for corporate crime.[78] Since a good portion of this trend can be attributed to recent cases involving major defense contractors, it is difficult to determine if it will continue. Based on recent statements by Justice Department officials concerning their prosecutorial objectives,[79] however, and given the appearance of a trend towards criminalizing and prosecuting regulatory noncompliance and strict liability offenses, it would not be surprising to see the proportion of large companies increasing even further. Although there does not appear to be any such trend in environmental cases, the small sample size renders the detection of such a trend virtually impossible.

As shown in Table 2, about seventy percent of indictments for federal environmental crimes are against individuals, the remainder being against corporations. Of those corporations sentenced for environmental crimes, seventy percent were accompanied by individual co-defendants.[80] The majority of individuals indicted for environmental crimes are high level corporate officials either owners or presidents (35%), or corporate officers, vice presidents or directors (17%). Management and supervisory personnel constituted another 29%, and the remaining 19% consisted of nonsupervisory personnel.

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77 Cohen, *Organizations as Defendants*, *supra* note 74.

78 Cohen, *Corporate Crime: 1988-1990*, *supra* note 75, at 251-52.

79 *See supra* note 70 and accompanying text.

80 Corporations indicted for crimes other than environmental violations have a similar individual co-defendant rate—70%. These estimates are taken from U.S. Sentencing Commission data on firms sentenced in 1988.

TABLE 2
JUSTICE DEPARTMENT PROSECUTIONS FOR ENVIRONMENTAL CRIMES BY TYPE OF OFFENDER, 1983-1990[b]

Offender Position in Company	Total	Ave. Per Year	% of Indictments	% of Individuals
Corporations	222	28	32%	—
President/Owners	168	21	26%	35%
V.P./Director/Corp. Officers	82	10	12%	17%
Management	68	9	8%	14%
Supervisory	71	9	10%	15%
Nonsupervisory	92	12	13%	19%
TOTAL	703	88	100%	100%

[b] Peggy Hutchins, *Environmental Criminal Statistics FY83 Through FY90*, U.S. DEPARTMENT OF JUSTICE, ENVIRONMENTAL CRIMES SECTION, MEMO, (Feb. 11, 1991).

B. CRIMINAL SANCTIONS FOR CONVICTED ORGANIZATIONS AND INDIVIDUAL CO-DEFENDANTS

1. Introduction

This section will examine the empirical evidence on criminal sanctions imposed upon organizations and their individual co-defendants convicted of environmental crimes.[81] Although criminal sanctions are the primary focus of this paper, an analysis of criminal enforcement would be incomplete if it did not attempt to characterize the full panoply of sanctions imposed upon convicted firms. Without a full accounting of the sanctions, it would be impossible to evaluate their impact or deterrent effect on firms. In addition, many of these other sanctions have already been imposed, or are part of the overall criminal plea agreement, when a court sentences an organization. Thus, it is reasonable to assume that courts take into account the entire sanctions "package" when fixing the criminal sanction. (A later section will provide anecdotal evidence in support of this assumption.)

Firms convicted of environmental crimes may still be fined by the EPA or an analogous state agency. They may also make monetary payments to those who are affected by the environmental haz-

[81] It should be noted that, throughout this paper, the data regarding fines include only those fines actually imposed by the court. Thus, where a portion of a fine was suspended, the suspended portion was not included in the fine calculation. Further, the data do not reflect which fines were actually collected, nor do they indicate whether the suspended portions of any fines were ever reinstated upon findings of violation of the terms of probation.

ard. In some cases, the firms make these payments voluntarily. In others, the payments take the form of "restitution" or are otherwise accepted by the firm as part of a plea agreement. Accordingly, the study analyzed two types of monetary sanctions—criminal fines and the "total sanctions" imposed upon firms convicted of environmental crimes.

The term "total sanction" is defined here to include all *government*-imposed sanctions, such as federal criminal fines, restitution, administrative penalties, state criminal or civil fines, court-ordered cleanup costs, voluntary restitution disclosed to the judge prior to sentencing, *and* court-ordered payments to victims or other third parties. It does *not* include nonmonetary sanctions or private settlements that are not part of the criminal settlement agreement. Nor does it include costs incurred by the offender that are not part of the overall legal settlement, such as legal fees and cleanup costs not ordered by the sentencing court.

The above definition of "total sanction" is less than satisfactory, since it does not reflect the total monetary cost to firms convicted of crimes. These estimates, however, are nearly always impossible to obtain. Two cases of interest involving oil spills will illustrate the difficulty of estimating the total monetary sanction.

In 1988, Ashland Oil accidentally discharged more than 500,000 gallons of oil in the Monongahela River near Pittsburgh. The firm was ordered to pay $2.25 million in federal criminal fines and agreed to pay $4.66 million to the state of Pennsylvania. The latter amount included reimbursement for state cleanup expenditures as well as civil penalties. Thus, using the above definition, the "total sanction" imposed upon Ashland was $6.91 million. Reportedly, however, Ashland also paid over $44 million in civil settlements, $11 million in direct cleanup costs, and over $5.25 million in legal and administrative fees.[82] If one were interested in the true monetary impact of the spill on Ashland, one would have to consider these latter costs.

In June 1989, Ballard Shipping and the captain of one of its oil tankers pleaded guilty to the negligent discharge of 300,000 gallons of heating oil after a tanker ran aground. Apparently, the tanker "did not have on board the required harbor pilot, someone who is

82 As of November 1989, Ashland reported spending $30 million on costs other than the criminal fine, including $14 million to settle more than 5,000 third-party claims; $11 million in direct cleanup costs; and $5.25 million in legal and administrative fees to handle the class action suits. Patrick Lee, *Ashland to Pay $4.7 Million in Spill*, L.A. TIMES, Nov. 23, 1989, at D1. More recently, the firm settled a class action lawsuit filed by nearby residents for $30 million. *See In Brief*, CORP. CRIME REP., Mar. 12, 1990, at 14.

familiar with local waters."[83] The federal court imposed a criminal fine of $1 million, $500,000 of which was to be suspended if paid to the state of Massachusetts. The sentence also required Ballard to reimburse the Coast Guard for cleanup expenditures, estimated at $2 million. The State agreement called for a payment of $3.2 million in compensation for natural resource damages, $1 million to reimburse the State for cleanup costs, and $500,000 to fishermen who lost business due to the spill.[84] Thus, although the federal criminal fine was only $500,000, the "total sanction" was $7.7 million. Unlike the Ashland case, I have included payments to third parties here, since they were part of the plea agreement with the government.

2. *Monetary Sanctions for Organizations*

Table 3 reports on the monetary sanctions for 116 firms sentenced for environmental crimes between January 1, 1984 and September 30, 1990. These firms represent all sentenced organizations in my corporate crime dataset—over 75% of all corporations sentenced for environmental offenses at the federal level during this time span.[85] Crimes committed after January 1, 1985 are subject to substantially higher statutory maximum penalties.[86] Since there is some evidence that courts responded to these higher statutory maximum fine levels by increasing the average criminal sanction,[87]

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[83] Matthew Brelis, *Guilty Pleas in Oil Spill; Agreement Means $500,000 for R.I.*, BOSTON GLOBE Aug. 17, 1989 at 33.

[84] *Id.*

[85] According to Hutchins, *supra* note 6, there were 477 pleas and convictions between FY84 and FY90. The data also reveal that 179 of the 559 defendants convicted between FY83 and FY91, or about 32%, were corporations. Assuming that the proportion of corporate to individual defendants was roughly the same in FY83 and FY91 as it was between FY84 and FY90, approximately 150 of the 477 defendants convicted between FY84 and FY90 were corporations. Thus, the 116 firms in my sample account for approximately 77% of all convicted firms. *Id.*

[86] Criminal Enforcement Act of 1984, P.L. 98-596, 98 Stat. 3134 (1984) which took effect for crimes committed after January 1, 1985, increased the statutory maximum penalty for corporate offenders to $100,000 for each misdemeanor count and $500,000 for each felony count (or misdemeanors resulting in death). The Act limited the maximum penalty, however, to twice the maximum penalty for the most serious offense arising out of a single course of conduct. The Act also allowed courts to impose fines of up to twice the pecuniary loss or twice the pecuniary gain. In most cases, these changes represented significant increases in statutory maximum fines, which prior to the Act were often set at $5,000 to $10,000.

The Criminal Fines Improvement Act of 1987, P.L. 100-185, 101 Stat. 1279, further increased statutory maximum fines effective December 11, 1987. The Act increased the maximum fine for misdemeanors not resulting in death to $200,000, and it eliminated the provision limiting fines to twice the maximum penalty for the most serious offense arising out of a single course of conduct.

[87] *See* Cohen, *Corporate Crime: 1988-1990*, *supra* note 75, at 256-61.

Table 3 distinguishes between those firms sentenced under each statutory maximum regime.

TABLE 3
CRIMINAL FINES FOR ORGANIZATIONS CONVICTED OF ENVIRONMENTAL OFFENSES PRE- AND POST- CRIMINAL FINE ENFORCEMENT ACT OF 1984
(FIRMS SENTENCED BETWEEN 1984 AND 1990)

	Pre-1984 Fine Act	Post-1984 Fine Act
FINE Up to $10,000	11 (34%)	22 (26%)
$10,001 - $25,000	5 (16%)	9 (11%)
$25,001 - $50,000	11 (34%)	17 (20%)
$50,001 - $100,000	3 (9%)	9 (11%)
$100,001 - $500,000	2 (6%)	19 (23%)
$500,001 - $1,000,000	0	5 (6%)
Over $1,000,000	0	2 (2%)
Total Number of Firms	32	84
Mean Criminal Fine	$49,986*	$182,332*
Median Criminal Fine	$27,500*	$50,000*
Maximum Criminal Fine	$600,000	$2,250,000
Mean Total Sanction	$108,786*	$443,882*
Median Total Sanction	$35,725	$63,859
Maximum Total Sanction	$1,000,000	$7,700,000
Number of Firms with Convicted Individuals	15 (47%)	46 (55%)
Number of Firms with Jailed Individuals	7 (44%)	18 (38%)
Number of Individuals Jailed	10	22
Average Months Jail Time for Jailed Individuals	3.5	6.75

* Difference is statistically significant at $p < .05$

As shown in Table 3, firms sentenced under the Criminal Enforcement Act of 1984[88] received more punitive sanctions than firms sentenced under the old law. The average corporate fine increased from $49,986 to $182,332, while the median fine increased from $27,500 to $50,000. Similarly, mean total sanctions increased from

[88] P.L. 98-596, 98 Stat. 3134 (1984).

$108,786 to $443,882, and median total sanctions increased from $35,725 to $63,859. All of these differences (except that in median total sanctions) are statistically significant to the 95% confidence level.

That mean fines and total sanctions are several times their respective medians illustrates the skewed distribution of sanctions—especially those imposed in the past few years. Although the bulk of the cases (nearly 60%) involve relatively small fines of $10,000 to $50,000, the data show a significant number of fines of over $500,000.

In order to put environmental criminal sanctions into some perspective, it is useful briefly to compare them to criminal sanctions for organizations convicted of other federal crimes. This can best be done for the year 1988, a year in which we have comparable information about virtually all firms sentenced at the federal level. As shown in Table 4, the average fine levied against firms sentenced in 1988 for environmental crimes was $74,715, compared to $253,437 for antitrust and $141,351 for other crimes. Median fines were $12,500 for environmental offenses, $65,000 for antitrust and $20,000 for other offenses. The differences between antitrust fines and other criminal fines (nonantitrust and environmental) are statistically significant. These differences virtually disappear, however, when comparing total sanctions. All three types of crimes have average total sanctions of approximately $350,000 to $400,000. Although median total sanctions vary somewhat from $30,000 to $100,000, these differences are not statistically significant.

TABLE 4
COMPARISON OF CRIMINAL SANCTIONS FOR ORGANIZATIONS ENVIRONMENTAL, ANTITRUST AND ALL OTHER CRIMES ALL FIRMS SENTENCED IN 1988 AND SUBJECT TO POST-84 FINE ACT

	Environment	Other (Non-Antitrust)	Antitrust
ALL FIRMS: Mean Fine	$74,715	$141,351	$253,437
Median Fine	$12,500	$20,000	$65,000
Mean Total Sanction	$381,608	$413,524	$360,226
Median Tot Sanction	$50,000	$30,000	$100,000
Number of Firms	28	151	65
FIRMS W/HARM ESTIMATES WHO CAN AFFORD TO COMPENSATE Mean Harm	$506,961	$888,134	$2,276,758
Median Harm	$269,132	$58,921	$455,000
FINE MULTIPLE Mean	0.19	0.58	0.66
Median	0.15	0.17	0.25
Overall	0.18	0.32	0.10
TOTAL SANCTION MULT Mean	1.01	1.18	0.70
Median	0.62	1.06	0.25
Overall	1.12	1.02	0.11
Number of Firms	8	30	26

A more meaningful comparison of the punitiveness of sanctions can be made by controlling for monetary harm. Unfortunately, monetary harm cannot be estimated in all cases. Since courts often fail to impose financial penalties on firms that are bankrupt or that are without sufficient assets to pay a substantial fine, one can further restrict the sample to those who can afford to pay for the harm they caused.[89] For environmental offenses, this results in a sample size of only eight firms.

For those offenses that resulted in estimable monetary harm for which the firm could afford to compensate, the mean harm ranged from $506,961 for environmental crimes to $2.3 million for antitrust offenses. The median harm level was considerably smaller—

[89] It should be noted that firms imposing the largest harms are the least likely to be able to afford to compensate for those harms. *See* Cohen, *Corporate Crime: 1984-1987*, *supra* note 74, at 618-19.

$269,132 for environmental offenses, $455,000 for antitrust and $58,921 for other non-antitrust crimes. One way to summarize this information is to compute "fine multiples"—the ratio of fines to monetary harm-and "total sanction multiples"—the ratio of total sanctions to monetary harm. For the eight firms convicted of environmental offenses, the mean fine multiple is 0.19, while the median is 0.15. The mean total sanction multiple is 1.01, while the median is 0.62.

Another way to compare harms to sanctions is to compute an "overall" ratio—the sum of all fines (or total sanctions) divided by the sum of all monetary harm. Unlike the mean and median multiples, the overall ratios weight cases by their harm level. For example, if most firms causing small amounts of harm receive fines equal to those amounts, but firms causing very large amounts of harm receive fines that are much less than those amounts, the overall multiple will be considerably less than the harm, whereas the median multiple might equal the harm. For the eight firms convicted of environmental offenses, the overall fine multiple is 0.18, while the overall total sanction multiple is 1.12. That is, firms convicted of federal environmental crimes that resulted in estimable monetary harm for which the firm could afford to compensate can expect to pay total sanctions equal to about 100% of the harm, about 20% of which takes the form of federal criminal fines.

As noted above, there is some preliminary evidence that fine levels have increased since 1988. Although this increase was shown for environmental crimes in Table 3, it is unclear whether the increased fines and total sanctions are due to the increased severity of offenses or to the increased punitiveness of sanctions. In theory, one could examine these suspected trends by controlling for the nature of the offense and offender. Unfortunately, the data set is too small to undertake such a rigorous regression analysis or even a simple statistical test comparing mean multiples. Indeed, as noted above, there were only eight firms sentenced in 1988 for environmental crimes that resulted in estimable harm for which the firm could afford to compensate, and there were only four such firms sentenced in 1989-90. Nevertheless, it is worth noting that if we simply compare mean multiples for these firms, they are considerably higher in 1989-90 (mean fine multiple of 0.51 and total sanction multiple of 1.54). This is consistent with the preliminary evidence on multiples found for all non-antitrust cases in 1989-90.[90]

[90] Cohen, *Corporate Crime: 1988-1990*, *supra* note 75, at 262 (Table 9).

3. *Nonmonetary Criminal Sanctions for Organizations*

Corporate probation has proven to be one of the most controversial issues confronting policymakers.[91] Discussion has centered both on the types of violations which ought to result in the imposition of probation (i.e., repeat violations, particularly egregious violations, violations involving top level management, etc.), and on the appropriate *terms* of probation (i.e., the degree to which the court should be involved in overseeing the firm's future compliance).

About 20-30% of convicted corporations are placed on probation. Most of these companies are placed on probation in order to allow for the collection of a fine over time or for the reinstatement of a suspended sentence in the case of a repeat criminal violation. Indeed, courts frequently suspend significant portions of fines for just such a purpose.

Supervised probation, which is more controversial, is imposed only occasionally—generally in less than 10% of the cases. In such cases, the EPA and the Department of Justice may seek to include environmental audits as part of the terms of probation. Whether supervised probation ever involves active participation in the company's affairs is not known.

Other forms of nonmonetary sanctions such as community service or public apologies are rarely used. Additionally, although firms convicted of crimes may be debarred or suspended from federal contracting, these sanctions do not appear to be prevalent in the case of environmental offenses.[92] Nevertheless, the EPA apparently intends to pursue such actions against firms convicted of environmental crimes in the future.[93]

Judges have employed "nontraditional" sanctions in an increasing number of environmental cases. In several instances, firms were ordered to give money to various state or local environmental programs. Some of these funds went to state environmental cleanup

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91 For two differing views on corporate probation, see Victornia Toensing, *Corporations on Probation: Sentenced to Fail*, LEGAL TIMES, Feb. 12, 1990, at 21; John C. Coffee, *For Some Companies, Supervision Is the Best Form of Punishment*, LEGAL TIMES, Feb. 19, 1990, at 23. *See also* John C. Coffee et al., *Standards for Organizational Probation: A Proposal to the United States Sentencing Commission*, 10 WHITTIER L. REV. 77 (1988).

92 It should be noted that suspensions and debarments are generally imposed by government agencies, not directly by the courts. It is estimated that suspensions and debarments are imposed in at least 25% of government procurement cases, and 20% of government program fraud cases. *See* Cohen, *Corporate Crime: 1984-1987*, *supra* note 74, at 615. However, this may be an underestimate since it is based solely on the information contained in the presentence investigation reports.

93 *DOJ, EPA Enforcement Officials Outline Plans to Bolster Against Corporate Polluters*, 20 ENVTL. REP. 2012 (1990).

funds, and others went to fund community environmental programs. For example, when the Transit Mix Concrete Company pleaded guilty to knowingly discharging pollutants into a tributary of the Arkansas River without a permit, the court suspended all but $50,000 of the $500,000 fine and ordered the firm to spend $55,000 on a community service project, with the "suggestion" that the money be spent on improving hiking trails near the river.[94] When the Sellen Construction Company of Seattle pleaded guilty to negligently discharging pollutants without a permit, a $100,000 fine was suspended in lieu of a payment of $50,000 to be made to "an Environmental Trust Fund, [of] which the Seattle YMCA is the trustee," for expansion of community hazardous waste collection facilities.[95]

In at least two recent cases of note, firms were ordered to place advertisements in local newspapers to apologize for their actions. In one case, Valmont Industries and two of its managers pleaded guilty to tampering with a water quality monitoring device. The firm received a $450,000 fine, of which all but $150,000 was suspended contingent upon future compliance. The court also ordered the firm to publish a public apology in a local newspaper.[96] The second case involved the General Wood Preserving Company of Leland, N.C., which was ordered to publish apologies in local newspapers after pleading guilty to knowingly disposing of hazardous wastes without a permit. The firm was also fined $150,000 and placed on three years' probation.[97]

One unique sanction was the widely publicized requirement in the Pennwalt case that the chief executive officer of the corporation personally appear in court to enter a guilty plea on behalf of the company—even though there was no personal involvement by the executive. According to a Justice Department memo, "This action forced an admittance of personal responsibility for the corporation's adherence to the [laws protecting the] environment. . . ."[98]

Another seldom-used sanction is forfeiture of corporate assets. Although forfeiture is commonplace in RICO convictions, there has been to date only one case involving RICO convictions for environmental crimes, and the defendants in that case have not as of this

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94 U.S. Environmental Protection Agency, *supra* note 71, at 99.

95 *Id.* at 112.

96 *Corp. Crime Rep.* 16 (Aug. 7, 1989). Note that the new federal sentencing guideline for organizations includes a provision for this type of sanction as a condition of probation. *See* U.S. SENTENCING COMMISSION, GUIDELINES MANUAL, § 8D1.3(c) (1991) [hereinafter U.S.S.G].

97 U.S. ENVIRONMENTAL PROTECTION AGENCY, *supra* note 71, at 105.

98 *Corp. Crime Rep.* 17 (Nov. 13, 1989).

writing been sentenced.[99] At least one state prosecutor has reportedly used forfeiture statutes to confiscate property such as garbage trucks and bulldozers used in illegal waste disposal operations.[100]

Finally, the new sentencing guidelines mandate the ultimate sanction of "capital punishment" (divestiture of all net assets) for organizations that "operated primarily for a criminal purpose or primarily by criminal means."[101] Although this form of punishment has rarely been used, at least one company was essentially shut down by a court after pleading guilty to a hazardous waste violation. Chemical Commodities of Olathe, Kansas was "engaged in the business of chemical brokering. In December 1988, a truck containing hazardous waste caught fire, triggering the evacuation of residents from a Kansas City neighborhood."[102] The firm was fined $500,000 plus $5,760 for the cost of probation. That sentence was suspended on condition that the firm shut down operations within one year with the assistance of a qualified contractor/consultant selected by the EPA. All costs of liquidation, cleanup, and disposal were to be paid by the firm.

4. Criminal Sanctions for Individual Co-Defendants

Table 5 reports on the sanctions imposed upon 84 companies and all of their individual codefendants sentenced between 1985 and 1990 (under the post-1984 Fine Act provisions). These firms represent all organizations sentenced during this time span about which I have complete information concerning the nature of the offense and sanctions for *both* firms and their co-defendants. The average criminal fine levied against these firms was $182,332, and the median fine was $50,000. The average total sanction was $443,882, and the median was $63,859. These mean and median sanctions are identical to those shown in Table 3.

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99 A & A Land Development and seven co-defendants were convicted of RICO and conspiracy charges in connection with illegal waste disposal operations. U.S. ENVIRONMENTAL PROTECTION AGENCY, *supra* note 71, at 114.

100 *DOJ, EPA Enforcement Officials Outline Plans to Bolster Against Corporate Polluters*, 20 ENVTL. REPT. 2012 (1990).

101 U.S.S.G, *supra* note 96, at § 8C1.1.

102 U.S. ENVIRONMENTAL PROTECTION AGENCY, *supra* note 71, at 119-20.

TABLE 5
MONETARY SANCTIONS AND JAIL SENTENCES FOR ENVIRONMENTAL CRIMES 84 ORGANIZATIONS AND THEIR 74 CODEFENDANTS SUBJECT TO POST-1984 FINE ACT (1985-1990)

	Mean	Median	Maximum	Observations
COMPANY FINE	$182,332	$50,000	$2,250,000	84
TOTAL COMPANY SANCTION*	$443,882	$63,859	$7,700,000	84
INDIVIDUALS (AVERAGED OVER ALL COMPANIES):				
Fine	$12,876	0	$200,000	84
Total Sanction	$13,465	0	$214,472	84
Community Service Hrs	84	0	1000	84
Jail in Months	1.8	0	18	84
INDIVIDUALS (AVERAGED OVER ALL WHO RECEIVE THAT SANCTION):				
Fine	$17,168	$10,000	$200,000	61
Total Monetary Sanction	$17,953	$10,000	$214,472	61
Community Service Hrs	245	200	1000	29
Jail in Months	6.75	6.0	18	22

* Defined to include payments to private parties if part of plea or other agreement with federal, state of local officials. This excludes approximately $55 million paid by Ashland Oil for their own direct cleanup costs and private settlements made independent and subsequent to the criminal sentence. However, it does include about $4.7 million paid by Ballard Shipping for cleanup and environmental damage to the State of Massachusetts and to local fisherman as part of an agreement with the State. Also, total sanctions for organizations excludes one sentence of 2,000 hours of community service imposed upon Orkin Exterminating Company. That firm was also fined $350,000 plus 2 years probation.

Of the 84 companies listed in Table 5, 48 of them (57%), were accompanied by individual co-defendants who were also convicted. Since many companies had multiple individual co-defendants, a total of 74 individuals were convicted. About 30% of the convicted individuals (22 out of 74) received prison sentences, the average length of which was 6.75 months. This represents an increase of almost 100% over the average duration of pre-1984 Fine Act sentences, which was 3.5 months. The incarceration rate, however, did not vary considerably between the two periods. It is noteworthy that, since the Sentencing Guidelines substantially increased the likelihood of a prison sentence, current sanctions against individual

offenders are likely to be even more punitive than those reported here.[103]

These incarceration rates are probably lower than the average rate for all individuals convicted of environmental crimes. A tabulation of individuals *not* accompanied by co-defendant organizations who were convicted during the same time period (and listed in EPA's most recent criminal prosecution summary)[104] reveals that 54.5% of these individuals received prison time, and that the average sentence was eighteen months. Without a thorough analysis of the type of crime committed, it is not possible to determine the reasons for this difference. It is possible, however, that crimes of pure negligence are more likely to involve corporations, and hence less likely to result in the imposition of prison sentences upon individual co-defendants, than are other types of crimes.

5. Criminal Liability, Culpability and Judicial Discretion

It is clear from reading many of the cases involving both corporations and their individual codefendants that courts do not consider each party in isolation. Nor do courts ignore the source of individual and corporate liability. The following examples illustrate some of the tradeoffs that appear to be prevalent.

a. Vicarious Corporate Liability and Ex Post Firm Response

Many in the business community have expressed considerable concern about vicarious liability for corporations under federal criminal laws.[105] It is difficult to test empirically whether or not courts take this concern into account when sentencing organizations, as the issue of corporate involvement and top level knowledge is often in dispute. Two cases in particular, however, indicate that sentencing courts may consider this factor if the circumstances warrant. One case of particular note involved a hazardous waste dumping by an environmental engineer working for Eagle Picher. The

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103 As far as I know, only four of the individuals represented in Table 5 received sentences under the Sentencing Guidelines. One received a 15-month prison sentence, and the other three (all of whom are partial owners of Finishing Corp. of America) received no prison time. The government appealed the latter sentences on the basis that the Guidelines required imposition of prison time. The case was won by the government on appeal and was sent back to the district court for resentencing. U.S. v. John W. Rutana, 1991 U.S. App. LEXIS 8968 (1991).

104 U.S. ENVIRONMENTAL PROTECTION AGENCY, *supra* note 71, at 38.

105 *See, e.g.*, "Preliminary Comments of General Electric Company on the United States Sentencing Commission's Proposed Organizational Sanctions," (Sept. 11, 1989) (on file with U.S. Sentencing Commission) (arguing that imputed criminal liability requires adjustments to organizational sanctions).

dumping was against company policy, and the firm removed the barrels immediately upon learning of the violation. After the company pleaded guilty to a CERCLA violation for failure to notify, the court levied a fine of $3,500.[106] A similar violation resulted in the levying of a fine of $1,000 against Keebler Corporation.

Sentencing courts also appear to take into account the immediate response of the firm upon learning of an incident. One example was the case of Ashland Oil, which, as noted above, was fined $2.25 million for an accidental discharge of more than 500,000 gallons of oil in the Monongahela River near Pittsburgh. The spill reportedly cost Ashland Oil $60 million or more in direct cleanup costs, government sanctions and private settlements.[107] Ashland Oil originally pleaded not guilty, and protested its indictment for an unintentional spill, particularly "in light of Ashland's efforts to mitigate the spill's impact and the fact that the company quickly accepted responsibility for the incident."[108] The company later changed the plea to nolo contendere, which the judge accepted after a six hour hearing.[109]

The government claimed documented damages of at least $6 million. The prosecution, relying on provisions of the Alternative Fine Act[110] which allowed for the levying of fines in twice the amount of the pecuniary loss,[111] requested a criminal fine of $12 million. The judge instead imposed a fine of $2.25 million, noting that "if Ashland had not acted so responsibly after the spill, he would have imposed the maximum fine."[112]

b. Individual Criminal Liability for Strict Liability Crimes

Courts appear reluctant to impose prison sentences on individuals convicted under statutes premised upon theories of strict liability or negligence (as opposed to those premised upon intent or gross negligence). For example, Pennwalt and the manager of its Tacoma, Washington plant were charged with the negligent discharge of a hazardous substance and with failure immediately after its discovery to notify the Coast Guard of the discharge. According to the prosecutor, "although a call was made the evening of the tank

106 U.S. ENVIRONMENTAL PROTECTION AGENCY, *supra* note 71, at 39. *See also* Eagle Picher's 10-K filing for 1985 which discusses this incident.

107 *Supra* note 82 and accompanying text.

108 Ruth Marcus, *Ashland Oil Is Indicted In Pennsylvania Oil Spill*, WASH. POST, Sept 16, 1988, at A4.

109 Sheila Mullan, *Ashland Convicted of Environmental Violations*, UPI, Feb. 8, 1989.

110 18 U.S.C sec. 3571(b)(2)(d).

111 *Id.*

112 *Corp. Crime Rep.* 15 (Apr. 3, 1989).

rupture to the local office of the U.S. Coast Guard, it transmitted to the government the information that there had been a spill of sodium chlorate solution but there was no mention of the fact that the material contained sodium dichromate, which was required by law to be reported."[113] Although the plant manager faced up to nine years in prison and a fine of $650,000,[114] the court fined him $5,000 and sentenced him to two years' probation.[115]

c. Fines versus Prison for Owners of Closely Held Businesses

There is some evidence that, when the offender is a small, closely held company, sentencing courts are willing to trade off monetary sanctions imposed upon the firm for prison time served by the owner. Two cases illustrate this point: In the first case, the Spartan Trading Company, a Georgia chemical company, was convicted of storing, transporting and disposing of hazardous wastes without a permit. The EPA reportedly spent $138,265 cleaning up one of the illegal dump sites. The firm was ordered to pay restitution to the EPA, but was fined only $10,000—about 7% of the cost of cleanup. The firm's owner, however, in addition to being held liable for additional restitution to the EPA for costs incurred beyond the estimated amount, was sentenced to one year in prison.[116]

In the second case, Welco Plating, a firm in Woodville, Alabama, pleaded guilty to various hazardous waste violations. The firm was ordered to pay cleanup costs estimated at $1.3 million, but was not fined beyond that amount. However, "J.C. Collins, Jr . . . president, stockholder and [officer] in charge of operations . . . was sentenced to pay a $200,000 fine, serve 18 months imprisonment, five years probation, 300 hours community service . . . (and) . . . pay $14,472.20 restitution to the State of Alabama Department of Environmental Management."[117]

6. Empirical Analysis of Current Monetary Sanctions

Most of the above discussion has been based on broad summary statistics and anecdotal evidence. This section will examine more rigorously some of the factors that are used to sentence organizations convicted of environmental crimes. Table 6 reports on several regression equations where the dependant variable is either the criminal fine imposed on the organization or the total monetary

113 *Corp. Crime Rep.* 14 (Aug. 14, 1989).
114 Abramson, *supra* note 66, at B1.
115 U.S. Environmental Protection Agency, *supra* note 71, at 84-85.
116 *Id.* at 81-83.
117 *Id.* at 78-79.

sanction (converted to constant dollars and expressed in natural logs).[118] As shown in the first four equations, fines and total sanctions have increased over time and also following the passage of the higher statutory fine levels, although the coefficients of these variables are not overwhelmingly significant.[119] It should be noted that both of these variables were highly significant when fines and sanctions were expressed in current dollars. Thus, sentencing courts have increased fines and sanctions over time at a rate faster than inflation.

Table 6 provides some insight into how courts currently sentence corporations convicted of environmental crimes. In earlier analyses of corporate sanctions in general, the level of monetary harm has proven the most consistent and significant explanatory variable.[120] Unfortunately, however, the harm caused by environmental crimes is not as easy to quantify as the harm caused by monetary crimes such as tax evasion or fraud. The harm associated with environmental crimes is generally thought of as the sum of cleanup costs and the costs of any residual environmental damage. It may also be expressed in terms of additional risk of future injuries or illnesses. In either case, monetary valuations of the relevant costs are seldom available, and are rarely reported in either public or private court documents.

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118 Although both linear and log-linear models were tested, the log linear specification is clearly a better fit and is reported here.

119 Since the sentence year was highly correlated with the zero-one dummy used to represent cases subject to the post-1984 Fine Act, it was not possible to include them both in one equation. The sentence year had more explanatory power than did the temporal relationship of the sentence to the Fine Act, suggesting that environmental sanctions have increased over time.

120 *See* Cohen, *Corporate Crime: 1984-1987, supra* note 74; Cohen, *Corporate Crime: 1988-1990, supra* note 75.

TABLE 6
REGRESSION ANALYSIS OF FINES AND TOTAL SANCTIONS ENVIRONMENTAL OFFENSES, 1984-1990

	Ln(Fine)	Ln (Total Sanction)	Ln (Fine)	Ln(Total Sanction)
Constant	8.82 (0.54)**	9.08 (16.39)	−9.35 (8.51)	−8.00 (8.88)
Pre-1984 Fine Act	−0.55 (0.37)	−0.42 (0.38)	—	—
Year of Sentence	—	—	0.21 (0.10)**	0.19 (0.10)**
Large Monetary Loss	2.12 (0.98)**	3.47 (0.88)**	1.98 (0.97)**	1.62 (0.42)**
Hazardous Waste	1.53 (0.53)**	1.62 (0.56)**	1.41 (0.53)**	1.50 (0.56)**
Toxic Substances	1.08 (0.77)	1.44 (0.81)*	1.23 (0.77)	1.60 (0.80)**
Clean Water Act	1.03 (0.56)*	1.08 (0.59)*	0.94 (0.56)*	0.96 (0.58)*
Pesticides	0.76 (0.73)	0.44 (0.77)	0.71 (0.72)	0.42 (0.76)
Individual Convicted	0.68 (0.32)**	0.59 (0.33)*	0.67 (0.32)**	0.57 (0.33)*
Vicarious Liability	−0.36 (0.47)	0.04 (0.80)	−0.40 (0.75)	0.03 (0.78)
Testing Violation	0.94 (0.74)	.57 (0.78)	0.74 (0.75)	0.34 (0.79)
False Statement	−0.43 (0.62)	−0.34 (0.65)	−0.18 (0.63)	−0.10 (0.66)
Not Guilty Plea (Trial)	−0.24 (0.51)	0.01 (0.54)	−0.27 (0.51)	−0.02 (0.53)
Large Firm	1.52 (0 41)**	1.63 (0.42)**	1.50 (0.40)**	1.62 (0.42)**
Adjusted R^2	0.22	0.29	0.23	0.31
Number of Firms	109	113	109	113

Standard errors in parentheses.
* $p < 0.10$ ** $p < 0.05$
NOTE: Since the fine and total sanction equations were estimated as log-linear models, cases where the fine or total sanction was zero were excluded from this analysis. However, in most cases, it appears that no fine was given due to special circumstances such as bankruptcy of the firm.

For purposes of the regressions reported in Table 6, a zero-one dummy was constructed to account for crimes that caused significant monetary losses—usually in the form of required cleanup costs. This variable was coded one when there was an apparent loss in

excess of $1 million, and zero otherwise. The "large loss" variable was highly significant and positive, as expected. Although a continuous monetary loss variable would have been preferable, I had detailed data on monetary loss for only about twenty cases.

The type of pollutant also had an important effect on sanctions. Hazardous waste violations resulted in the largest fines. TSCA and Clean Water Act violations generally resulted in higher fines than did violations of the Clean Air Act or violations involving pesticides, false statements or testing.

Somewhat surprisingly, firms found guilty after trial did not receive higher sanctions than did those that pled guilty. This finding seems at odds with those of most studies of sentencing behavior, which generally find that defendants are given "discounts" for pleading guilty.[121] One possible explanation is that sentencing courts, aware of the uncertain legal standards in this area, may be relatively lenient on offenders that contest criminal charges out of a good-faith belief in their innocence. On the other hand, it is possible that the added expense of going to trial is itself enough of a financial penalty to the firm that there is no need for additional monetary sanctions.

A variable labeled "vicarious liability" was included in the regression equations in Table 6, but it was not significant. This is due partly to the fact that only six firms out of 116 could be identified as being clearly subject to this legal standard. Two of these six firms (Texaco and Helmerich & Payne) received relatively large fines for a violation involving the falsification of safety test reports on an oil drilling platform by an employee. The other four firms received relatively small fines.

The final issue is that of individual versus corporate penalties. Optimal penalty theory suggests that individual criminal liability and prison should be used primarily in instances where the firm cannot provide adequate incentives to employees, or where firm assets are inadequate to pay the "optimal" fine.[122] Unfortunately, these explanatory variables are not easy to measure. Accordingly, I attempted a few less direct tests of this hypothesis.

Although information on firm size and financial ability was not available for all convicted companies, I was able to identify relatively large firms. I constructed a zero-one dummy variable to indicate

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121 *See, e.g.*, Steven Klepper, Daniel Nagin, and Luke-Jon Tierney, *Discrimination in the Criminal Justice System: A Critical Appraisal of the Literature, in* A. BLUMSTEIN, et. al, RESEARCH ON SENTENCING: THE SEARCH FOR REFORM (National Academy of Sciences 1983).

122 *See supra* notes 31-39 and accompanying text.

"large" organizations—generally those with more than one establishment, and more than 500 employees or $50 million in sales. This variable proved to be highly significant and positive.

That monetary sanctions increase with firm size is somewhat troubling, especially if it is simply the case of judges or juries charging more to firms that have "deep pockets."[123] If anything, the "optimal penalty" model might suggest just the opposite, as large firms are likely to suffer other non-monetary losses, such as losses in reputation or increased scrutiny of facilities (e.g., environmental audits). Large firms might also be more likely to incur civil liabilities, once again due to their "deep pockets." On the other hand, if larger firms are able to hire better lawyers and can afford to engage in lengthy legal maneuverings, the probability of detection and conviction might be lower for large firms, necessitating a higher penalty.

One reason large firms might incur larger fines is that they have fewer individual employees/officers going to jail. Recall that the optimal penalty theory argues that the main reason for imprisonment is to overcome the incentive problem when the firm cannot afford the "optimal penalty." Thus, we expect fewer jailed offenders in large, financially secure firms than in firms that have a higher chance of bankruptcy when facing large criminal sanctions. Indeed, the data are consistent with this approach to sentencing, as large firms convicted of environmental crimes are no more likely than small firms to be accompanied by individual co-defendants. More importantly, the individuals from large firms that are convicted are *less* likely to be sentenced to prison.[124]

One possible explanation for the finding that larger firms are less likely to have individual codefendants who are subsequently incarcerated, is that large firms are not convicted of the same crimes as smaller, closely-held firms. This seems to be a plausible explanation, since the smaller firms in the sample who had individual codefendants sent to jail were more likely to be primarily illegal organizations or involved in instances of criminal violations beyond the actual polluting activity itself (such as perjury, grand jury tam-

[123] For evidence that this "deep pocket" approach to criminal sanctions extends to other types of corporate crimes, see Mark A. Cohen, *The New Corporate Sentencing Guidelines: The Beginning or the End of the Controversy?*, paper presented at Cato Institute (Oct. 31, 1991).

[124] Of the 116 firms, 23 are classified as "large." The individual conviction rate is about 50% in both small and large firms. However, individuals associated with only about 9% of the large firms were sentenced to prison, compared to 25% for small firms. Of those individuals convicted, the chance of going to prison is 18% in a large firm and 43% in a small firm.

pering, bribery and conspiracy) than were the larger firms. The larger firms that did *not* have individual codefendants sent to jail were more likely than their small firm counterparts to be convicted of strict liability crimes such as accidental discharges of oil or chemicals, or instances of vicarious liability where an employee dumped a few barrels of hazardous waste against company policy. Once these "outliers" are removed from the data, there is little difference between the large and small firm incarceration rates.[125]

Even if smaller firms have a higher incarceration rate, it does not necessarily follow that firms that cannot afford to pay the optimal penalty have higher incarceration rates. Unfortunately, there was no data on financial ability for these 116 companies. However, in a study of all corporate crimes (of which environmental crimes are only one small part), I found that firms that *cannot* afford to compensate for the harm they caused are *more* likely to have individual co-defendants convicted of the same underlying crime.[126] That study, however, did not utilize data on the frequency of prison sentences, but only data on individual convictions themselves.

Since individual and corporate penalties are supposed to be substitutes,[127] I made several attempts to include variables on individual penalties in the regression equations explaining the corporate fine. One such variable is reported in Table 6—a dummy variable equal to one when an individual was convicted along with the firm. Contrary to theory, the sign of that coefficient is positive, indicating that individual and corporate liability are complements, not substitutes. It is possible that this reflects some unobservable measure of the severity of the offense.[128]

Table 7 reports on a few attempts to model individual sanc-

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125 Of the ninety-three "small" firms, individuals were sent to jail in twenty-three cases. However, ten of those twenty-three cases were primarily illegal operations or involved additional criminal activities. If these ten cases are eliminated, the incarceration rate for small firms becomes 15.6% (thirteen out of eighty-three cases). Of the twenty-three "large" firms, individuals were sent to jail in only two instances. However, of the twenty-one firms that did not have individuals incarcerated, three were accidental discharges and two were cases of vicarious liability for small hazardous waste burials. If these five cases are eliminated from the sample, the incarceration rate for large firms becomes 11.1% (two out of eighteen cases). Having adjusted the sample for these outliers, there is no statistically significant difference between the 11.1% and 15.6% incarceration rates.

126 Mark A. Cohen, *Optimal Penalty Theory and Empirical Trends in Corporate Criminal Sanctions*, (July 1991) (unpublished manuscript, on file with the Owen Graduate School of Management).

127 *See supra* note 36 and accompanying text.

128 I attempted to utilize in the regression equations in Table 6 other individual variables such as fines, imprisonment and community service. None of these proved significant unless the dummy variable for individual conviction was excluded. These variables

tions. The first column is a probit regression equation, where the dependant variable is equal to one if there were any individuals convicted within the organization. The only significant variables (both of which are positive) indicate (1) whether the conviction involved a trial; and (2) whether the firm is closely held. The conviction rate was generally unrelated to the level of corporate sanctions[129] or to the magnitude of the harm.

TABLE 7
INDIVIDUAL FINES AND JAIL SENTENCES FOR ENVIRONMENTAL CRIMES (INDIVIDUALS CONVICTED WITH THEIR COMPANIES) 1984-1990

	Was Individual Convicted? (Probit)	Jail if Convicted? (Probit)	Monetary Sanction if Convicted (Tobit)
Constant	−1.24 (0.66)*	−2.51 (1.31)	−38927 (31278)
Pre-84 Fine Act Case	−0.01 (0.30)	0.41 (0.44)	6138 (12440)
Ln(Company Sanction)	0.07 (0.06)	0.04 (0.07)	3529 (2055)*
Hazardous Wastes	0.25 (0.27)	0.28 (0.41)	16410 (11511)
Testing Violation	0.85 (0.59)	1.58 (0.81)**	−3888 (19751)
False Statements	0.87 (0.58)	0.33 (0.62)	−15588 (18212)
Guilty by Trial	0.98 (0.47)**	0.33 (0.52)	−7945 (13990)
Closely Held Firm	1.01 (0.30)**	0.30 (0.39)	9750 (10985)
Large Firm	−0.34 (0.37)	−0.60 (0.58)	−11879 (16276)
Large Monetary Harm	0.42 (0.89)	0.28 (0.97)	62138 (25615)**
Owner/Top Management	—	1.66 (0.88)**	23243 (18959)
High Level Executive	—	1.39 (0.94)	−16080 (20874)
Plant Manager	—	0.54 (0.94)	−573 (21311)
Sample Size	116	64	64
Pseudo R-squared	0.17	0.09	

Note: standard errors shown in parentheses.
* $p < 0.10$
** $p < 0.05$

The second column of Table 7 reports on a probit regression equation on the subset of cases with individual convictions. The dependent variable is a dummy to indicate whether or not any individual was sentenced to prison (conditional on a conviction). Once again, closely held companies tend to have higher incarceration

are highly correlated with the conviction dummy. Moreover, they did not explain as much of the variance in corporate penalties as did the conviction dummy itself.

129 Other specifications of the corporate fine, including total sanction and natural logs of each were also tried.

rates (although the coefficient is only significant at the 80% level). The most significant explanatory variable, however, is a dummy variable equal to one when the highest individual convicted is either the owner or among the top management of the firm.

The third column of Table 7 reports on a tobit regression equation, where the dependant variable is equal to the total monetary sanction paid by individuals within the corporation. Once again, it appears that individual sanctions are complements to corporate sanctions. Unlike the conviction and prison equations, the magnitude of monetary sanctions appears to be related to the level of harm, increasing with hazardous waste and water violations and with incidents that caused more than $1 million in monetary harm.

It is possible that individual and corporate fines are considered to be complements in large organizations but substitutes in closely-held firms. Whether a fine is paid out of personal or company funds makes little difference to the individual owner of the small company—it is ultimately the same pocket. Sanctions imposed upon the owners and employees of large corporate entities, however, may serve very different purposes. Table 8 reports on two regression equations that isolate forty companies known to be small and closely held. Although the evidence is not overwhelming, it appears that corporate fines and total sanctions are *negatively* related to prison sentences imposed upon the owners of such companies. This *is* consistent with the optimal penalty model, as imprisonment and fines are seen as substitutes.

TABLE 8
JAIL VERSUS FINES FOR 40 CLOSELY HELD COMPANIES CONVICTED OF ENVIRONMENTAL CRIMES, 1984-1990

	Ln (Corporate Fine)	Ln (Total Monetary Sanction)
Constant	9.90 (0.98)**	9.62 (0.82)**
Hazardous Waste	0.19 (1.22)	1.14 (1.03)
Large Monetary Harm	−2.41 (2.78)	4.68 (2.35)**
Jail for Owner (0-1 dummy)	−2.38 (1.30)*	−1.61 (1.10)
Sample Size	40	40
Adjusted R-squared	0.04	0.13

Note: standard errors shown in parentheses.
* $p < 0.10$
** $p < 0.05$

C. NONCRIMINAL SANCTIONS FOR CORPORATE CRIMES

This section will briefly review the empirical evidence on the totality of sanctions for corporate crime—not just those imposed directly by the sentencing court. Since data are unavailable for many types of sanctions, much of this section relies on anecdotal evidence.

1. *Marketplace Penalties Against Organizations*

Firms convicted of crimes may suffer a loss in reputation and future business. There is growing evidence that the marketplace does indeed penalize firms for fraudulent activity.[130] This reputation loss is expected to be more prevalent where the victims of the crime were customers, such as is the case in private or government fraud, than in cases of regulatory violations such as pollution.

It is nonetheless possible that certain types of environmental offenses will result in a marketplace penalty. For example, a firm convicted of falsifying documents might be viewed by customers as untrustworthy. Likewise, a firm convicted of negligently discharging hazardous wastes due to improper safety precautions may be viewed with some concern by customers who are in need of a high quality, safe product. "Green investing" may also reduce the demand for a firm's stock, as investment funds specializing in "socially responsible" companies refuse to buy stock in firms convicted of environmental crimes.[131] There is even a possibility of consumer boycotts of companies with a bad environmental record.[132]

2. *Private Tort Settlements*

It is extremely difficult to obtain reliable information on the fre-

130 Several studies have found significant share price drops following announcement of an antitrust case. *See* Kenneth D. Garbade et al., *Market Reaction to the Filing of Antitrust Suits: An Aggregate and Cross-Sectional Analysis* 64 REV. ECON. & STAT. 686 (1982); James L. Straachan et al., *The Price Reaction to (Alleged) Corporate Crime* 18 FIN. REV. 121 (1983); and Dale O. Cloninger et al., *Price Fixing and Legal Sanctions: The Stockholder-Enrichment Motive* 19 ANTITRUST L. & ECON. REV. 1 (1987). More recently, seventy-one firms which were engaged in fraudulent activity were examined and a 3.5% loss in market share in 30 days following public announcements of investigations or prosecutions was found. However, the largest losses were suffered by firms that reported fraudulent financial statements. Losses for government and consumer fraud were smaller, although still significant. Regulatory offenses did not result in significant reputation losses, however. Jonathan Karpoff & John R. Lott, Jr., *The Reputational Penalty Firms Bear from Committing Criminal Fraud*, ECON. INQUIRY (forthcoming).

131 John M. Holcomb, *How Greens Have Grown*, BUS & SOC'Y REV. 20, 24-25 (Fall 1990).

132 According to an article in FORTUNE , "Not long after the March accident in Valdez (Exxon), Alaska, 41% of Americans were angry enough to say they'd seriously consider boycotting the company." David Kirkpatrick, *Environmentalism: The New Crusade*, FORTUNE, Feb. 12, 1990, at 44.

quency and magnitude of private tort cases related to corporate criminal offenses. In the rare cases involving physical injury to victims, it is likely that these sanctions will far exceed any criminal penalty imposed by the sentencing court. In my earlier study of 288 cases of corporate crime from 1984-1987, I found two instances of victim deaths, both of which resulted in minimal fines but substantial (and unreported) private settlements.[133] A more recent study reported similar results.[134]

The only federal environmental prosecution of which I am aware that resulted in physical harm to individuals was the case against Orkin. After the misuse of a pesticide by employees that resulted in two deaths, the manufacturer was found guilty of violating FIFRA. Orkin was fined $350,000 and ordered to perform 2,000 hours of community service. Reportedly, Orkin also entered into a large private settlement with the victims' family.[135] In addition, two employees who had earlier pleaded guilty in state court to unlawful use of a pesticide were each sentenced to two years' probation, a $1,000 fine and 200 hours of community service. Apparently, both the district attorney and the victims' family were satisfied with this outcome, since they felt "that the company and its policies were more responsible than were the individuals following the direction of supervisors or company policy."[136]

3. Other Government-Imposed Sanctions

In many instances, a firm found guilty of a federal crime may be subject to ancillary sanctions imposed by other government agencies. (Civil and administrative monetary penalties were discussed earlier in Section IV. B. 2.)

In at least one well publicized incident, the SEC issued a complaint against Allied Chemical Corp. for

> discharging toxic chemicals, including Kepone, into the environment from its own facilities and from the facilities of others. During the time that Allied was discharging toxic chemicals, it knew that tests showed that animal and marine life which ingested Kepone suffered adverse effects. As a result, Allied was exposed to material potential financial liabilities from companies, individuals, and state and local governments exposed to significant amounts of Kepone. Allied failed to disclose such potential material financial exposure in its reports to shareholders and the investing public in violation of the anti-fraud and

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133 Cohen, *Corporate Crime: 1984-1987*, *supra* note 74, at 627.

134 Cohen, *Corporate Crime: 1988-1990*, *supra* note 75, at 270.

135 PEST CONTROL COMPANY FINED $500,000 IN DEATH OF COUPLE, *N.Y. Times*, Nov. 18, 1988, at B7.

136 Mary Ellin Arch, *Plea Bargain Abruptly Ends Orkin Trial*, UPI, July 30, 1987.

reporting provisions of the securities law.[137]

This injunction required Allied to undergo an independent environmental audit and to report to the SEC on the state of its compliance programs and any other outstanding environmental risks. It also permanently enjoined Allied from failing to report to shareholders about environmental risks. Perhaps the most unusual and troubling aspect of the order is that it was originated and enforced by the Securities and Exchange Commission. Presumably, the Environmental Protection Agency would be in a much better position to monitor an environmental compliance program.

There is virtually no data available on the extent to which these ancillary sanctions are used. Further study of this issue would no doubt be of interest. Without some understanding of the extent to which these sanctions are used *and* some coordination between government agencies and the courts, the threat of overdeterrence becomes even greater.

4. Corporate and Officer Liability to Investors

Shareholders of companies may file derivative lawsuits seeking to recover the loss in share values or to recoup fines and other costs associated with criminal prosecutions. A few years ago, for example, a group of investors filed a class action suit claiming that "Waste Management, Inc. and several of its managing officers misrepresented or withheld information concerning the company's compliance with environmental regulations and disputes with regulatory authorities."[138] The firm reportedly settled the case for $11.4 million.[139] Several such suits are apparently pending in the Exxon Valdez case.[140]

A recent ruling in the U.S. District Court for the Southern District of New York refused to dismiss a class action securities fraud and RICO suit against the board of directors of Par Pharmaceuticals, a generic drug manufacturer that had earlier pleaded guilty to falsifying test results and bribing FDA officials in order to obtain early approval for new drugs.[141] The firm was suspended from dealings with the federal government for three years, and the plaintiffs

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137 SEC v. Allied Chemical Corporation, Litigation Release No. 7811 [1976-77 SEC Docket] (U.S. Gov't Printing Office) (Mar. 4, 1977).

138 Grossman v. Waste Management, Inc., 589 F. Supp. 395, 399 (N.D. Ill. 1984). For a summary of director liability for environmental hazards in general, see Dan A. Bailey, *Legal Liabilities: The Director as Polluter*, 15 DIRECTORS & BOARDS 40 (1991).

139 *Waste Firm Settling Class Action*, CHI. TRIB., May 30, 1985, at sec. 3, p.1.

140 Michelle Galen & Vicky Cahan, *Getting Ready for Exxon vs. Practically Everybody*, BUS. WK., Sept. 25, 1989, p. 190.

141 *Fraud Suit Based on Bribery Scheme Largely Withstands Dismissal Motion*, [Jan.-June] SEC.

claimed that, "After the bribes ceased, the rate of approvals slowed, earnings and sales declined, and the market price of Par securities fell sharply."[142] The plaintiffs are seeking treble damages for loss in share value, under the theory that investors were first misled about the firm's special expertise in obtaining speedy FDA approval of new drug applications and later misled about the FDA investigation and the firm's role in bribing FDA officials. Although I am unaware of any similar cases resulting from environmental offenses, this type of lawsuit might be applied to such cases in the future.

In some cases, courts have apparently shifted monetary sanctions to responsible individuals so as to lessen the impact on innocent shareholders, thereby obviating expensive derivative lawsuits. For example, Rice Aircraft and its President, Bruce Rice, pleaded guilty to several counts of fraud and bribery and admitted paying $155,000 in kickbacks and falsifying certifications of product quality.[143] The firm was fined $50,000 and might also share some of the cost of restitution. Bruce Rice was fined $750,000, given a four year prison term, and was ordered to pay court costs and restitution. According to the U.S. Attorney handling the case, Bruce Rice requested that the bulk of the fine be imposed on him personally, as he was in the process of being sued by minority shareholders.[144]

V. IMPACT OF SENTENCING GUIDELINES ON ENVIRONMENTAL SANCTIONS

The Crime Control Act of 1984[145] established the U.S. Sentencing Commission ("Commission") as an independent regulatory body to write guidelines for the sentencing of federal offenders. The Commission published its first set of guidelines in November 1987. Since one of the law's basic purposes was to reduce judicial disparity,[146] sentencing courts are essentially bound to apply the guideline sentence range to crimes committed after that date. Any departures from the guideline range must be explained in writing and are subject to appeal by either the government or the defendant.

Following a Congressional mandate to increase sentences for

REG. & L. REP. (BNA)No. 15, at 551 (Apr. 13, 1990) [hereinafter *Fraud Suit*]. *See, In re* Par Pharmaceutical, Inc., 733 F.Supp 668 (S.D.N.Y. 1990).

142 *Fraud Suit, supra* note 141, at 552.

143 James E. Lalonde, *Aerospace Exec Given Four-Year Prison Term*, SEATTLE TIMES, March 10, 1990, at B8.

144 Phone conversation with Assistant U.S. Attorney Bruce Carter, June 15, 1990.

145 Comprehensive Crime Control Act of 1984, Public Law 98-473, Oct. 12, 1984.

146 *See* 18 U.S.C. 3553(a)(6).

white collar offenders,[147] the Commission specifically set prison terms for individuals convicted of many white collar offenses, including environmental crimes, at levels above prior practice. In particular, the Commission significantly increased both the probability of imprisonment and the length of the sentence for most white collar offenses.

Under the sentencing guidelines, the mandatory prison term for a person convicted of an "ongoing, continuous, or repetitive discharge, release or emission of a pollutant into the environment . . . without a permit or in violation of a permit" is twenty-one to twenty-seven months.[148] If the pollutant is hazardous, toxic or a pesticide, this minimum is increased to twenty-seven to thirty-three months.[149] Further, if substantial cleanup expenditures are required, another twelve to eighteen months are added to this range.[150] Other aggravating factors, such as prior criminal history, may also increase the sentence.

In some cases, it is possible to reduce the sentence below the minimum levels mentioned above. If the defendant "clearly demonstrates a recognition and affirmative acceptance of personal responsibility for his criminal conduct," the guideline sentence range is reduced by about six months.[151] It is also possible to obtain a reduction of from six months to one year if the defendant was only a minor or minimal participant in a larger group committing the criminal offense.[152] Finally, sentencing courts are permitted to depart from the guidelines if they desire in cases "involving negligent conduct" as opposed to "knowing conduct."[153] Given the broad construction that courts have given to the term "knowing conduct," however,[154] this departure will not likely be available in many cases.

On balance, the new guidelines will not only significantly in-

147 *See* U.S. Sentencing Commission, *Supplemental Report on the Initial Sentencing Guidelines and Policy Statements*, 1987, p. 18.

148 U.S.S.G., *supra* note 96, at sec. 2Q1.3(b)(1)(A),4. The base offense is six, with a six level increase for ongoing discharge and four level increase for failure to obtain a permit. The total score of eighteen translates into a twenty-one to twenty-seven month jail sentence.

149 *Id.* at sec. 2Q1.2(b)(1)(A),4.

150 *Id.* at § 2Q1.2(b)(3). *See also*, Starr & Kelly, *supra* note 5. Note that the Commission has proposed some revisions in this Guideline that *might* reduce the length of jail sentences in some instances. However, at the same time this provision was proposed, the Commission also requested public comment on the advisability of increasing the base sentence for environmental crimes—which would have the effect of vitually offsetting the reduction being proposed. *See* 57 *Federal Register* 90 (Jan. 2, 1992).

151 U.S.S.G., *supra* note 96, at § 3E1.1.

152 *Id.* at § 3B1.2.

153 *Id.* at § 2Q1.2, cmt., note 4.

154 *See supra* note 57, 67-69 and accompanying text.

crease the incarceration rate, but will also likely result in a substantial increase in the average length of imprisonment, shown in Table 3 to be three to seven months. These higher incarceration rates and lengthy prison sentences have become extremely controversial. To see why, consider the case of John Pozsgai, who "was charged with forty-one counts of systematically filling a forteen-acre tract of land despite repeated warnings by inspectors of the Corps of Engineers that such activity required a permit under the Clean Water Act." The court, following the sentencing guidelines, sentenced Pozsgai to twenty-seven months in prison with no parole. According to one critic of this sentence, Mr. Pozsgai's landfill was probably beneficial from an environmental standpoint. "The government does not dispute that the tiny stream adjacent to the property actually runs clearer due to Mr. Pozsgai's cleanup efforts."[155] Further, "before the guidelines were promulgated, no person ever was imprisoned for discharging nontoxic, non-hazardous pollutants."[156]

Aside from any philosophical qualms over whether such sentences are "just," the prospect of overdeterrence is a real concern, particularly in light of the Justice Department's interest in attaching criminal liability to "responsible corporate officials" whenever they fail to prevent a violation.[157] Under this approach, corporate officials at Exxon could have received prison sentences of about two and one-half years for failing to prevent the Valdez oil spill.

The Sentencing Commission has recently adopted guidelines for the sentencing of organizations.[158] These guidelines require full restitution and base the monetary fine on a multiple of the loss or gain associated with the offense. The resulting fine levels will likely represent substantial increases over current practice—at least five to ten times, and perhaps as much as ten to twenty times current levels.[159] The guidelines also allow for the increased use of corporate probation and court-ordered apologies paid for by the defendant and published in appropriate media.[160]

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155 Paul D. Kamenar, *Proposed Corporate Guidelines for Environmental Offenses*, 3 FED. SENTENCING REP. 146, 47 (1990).

156 *Id.*

157 *See* Beth Olanoff & John S. Summers, *Polluting Is Now More of a Crime Than Ever Before*, (unpublished manuscript on file with author). The authors argue that Justice Department officials are looking to pursue cases of this nature in the future.

158 U.S.S.G., *supra* note 96, at 347. These guidelines went into effect on November 1, 1991 and apply to crimes committed after that date.

159 *See* Cohen, *supra* note 123. The Commission has estimated that fines will likely increase by only 2 to 4 times current levels. *See* U.S. SENTENCING COMMISSION, SUPPLEMENTARY GUIDELINES FOR ORGANIZATIONS 22-3 (1991).

160 *See* U.S.S.G., *supra* note 96, at § 8D1.3.

The new corporate guidelines call for fines that are partially based on "culpability" scores, which are derived using a system that incorporates strong financial incentives for firms to enact compliance programs in order to prevent crimes. These scores apparently require a higher standard of care for large organizations. How courts will interpret these factors, and whether or not the system will prove to be a burden to firms that are already showing a good faith effort to comply, remain to be seen.

Although environmental crimes are included in most of the organizational guideline provisions, the Commission did *not* include environmental crimes in the section dealing with monetary fines. Thus, at this writing, sentencing courts still have complete discretion in setting monetary fines. The Commission did, however, express its desire to include fine provisions for environmental crimes in the near future.[161] As discussed below, the impact of any new fine provisions will depend crucially on how "loss" or "harm" is defined. Given fine "multiples" of up to four times the loss, and the prosecution of strict liability offenses, the potential exists for enormous increases in monetary criminal sanctions for corporate environmental offenders.

VI. CONCLUSION

The criminal sanction can be a powerful vehicle for bringing about positive social change. It also has the potential of causing significant social harm. Unlike traditional street crime, which serves no socially useful purpose, many types of white collar and corporate crimes are outgrowths of legitimate business activities. Uncertain legal standards, coupled with the principal-agent conflicts inherent in any large organization, increase the possibility that legitimate firms acting in good faith to comply with existing regulations will find themselves on the wrong side of the criminal law. If criminal sanctions are too onerous, these legitimate "good actors" will undertake excessive and socially costly preventive activities to ensure that they are never charged with a crime.

This concluding section will explore several policy implications of the empirical evidence presented in this paper. It will also identify a few areas for future research.

A. ARE WE "OVERCRIMINALIZING" ENVIRONMENTAL LAW?

The problem of overcriminalization is one of the most impor-

161 *See Commission Excludes Environmental Crimes from Sentencing Guidelines Sent to Congress*, 22 ENVTL. REP. 11 (1991).

tant and difficult issues that must be addressed before one can begin to implement a rational criminal enforcement program. Some corporate crimes are committed by owners of closely held companies, essentially for personal gain. Other crimes are knowingly committed by employees or management in furtherance of company policy to break the law through regulatory noncompliance. Finally, some crimes are committed by companies or their employees through negligence or through strict or vicarious liability.

There is growing concern about this last category—firms and corporate officers held criminally liable for incidents that are not intentional or not controllable by the party being held liable. Although few would argue against strict liability for reasonable cleanup costs and third party damages, punitive sanctions in such cases are another matter. Indeed, the data suggest that sentencing courts currently view these crimes differently. In such cases, courts appear reluctant to impose fines as punitive as would be appropriate to cases of intentional conduct, gross negligence, or lack of appropriate or timely management follow-up.

Prior to the advent of the sentencing guidelines, prosecutors who brought "bad" cases were "punished" by courts through the levying of small fines and the refusal to resort to imprisonment. Thus, Eagle Picher was given a slap on the wrist and fined $3,500 after being charged with a crime for an act of one of its employees that was clearly against company policy.[162] Similarly, the plant manager at Pennwalt who immediately notified the Coast Guard upon learning of an accidental spill, but who unintentionally failed to report the precise contents of the spill, was given a suspended sentence and a $5,000 fine by the sentencing court.[163] Presumably, these sentences give important signals to prosecutors about which cases they should pursue in the future. Under the current sentencing guidelines, however, the Pennwalt manager would likely have been sentenced to a term of about two years in jail.

Sentencing guidelines that do not explicitly account for vicarious and strict liability increase the risk of future prosecutions of this sort *and* the imposition of very punitive sanctions on these types of "offenders." If the judicial hand is tied while that of the prosecutor remains free, overdeterrence becomes inevitable.

The guidelines for prosecuting environmental crimes recently issued by the Justice Department[164] do little to reduce the problem

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162 *See supra* note 106 and accompanying text.

163 *See supra* note 115 and accompanying text.

164 *See* U.S. DEPARTMENT OF JUSTICE, *supra* note 70.

of overcriminalization or overdeterrence. For example, although the guidelines acknowledge that prosecutors might decline to prosecute a company that immediately notifies government authorities of a violation (if that factor is coupled with other "mitigating" factors), they exclude this factor from being considered when the law requires notification. Since such notification requirements are explicitly included in both the Clean Water Act[165] and CERCLA[166], firms discharging oil or any hazardous substance into the environment will not qualify for this consideration.

The Justice Department guidelines do require consideration of "preventive measures and compliance programs."[167] It appears, however, that the only firms likely to be given such consideration are those whose compliance efforts go well beyond the requirements of the law and include regular audits and employee performance appraisals based on environmental compliance. Such a restrictive definition of compliance programs is likely to preclude most small firms from consideration.

Aside from the potential negative consequences of overcriminalization mentioned above, there are two more fundamental problems associated with this current trend. First, criminalization of regulatory behavior might trivialize the criminal law itself. If every action that harms society is a crime, the criminal law loses its one distinguishing characteristic—the moral stigma associated with being labeled a criminal. Second, focusing attention on "corporate crime" is likely to lead to misplaced priorities in environmental protection. A significant portion of our environmental ills are due to technological constraints and to behavior on the part of individual consumers. Instead of concentrating efforts on the few corporate actors who do not comply with existing laws, policymakers should place more emphasis on providing incentives for firms to develop less polluting production processes and products. Some of the largest sources of pollution come from farmers and consumers who do not utilize simple, relatively inexpensive environmentally sound practices for the disposal of hazardous products.[168] Thus, education and enforcement programs targeting these sources might have significant benefits.

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165 33 U.S.C. § 1321 (b)(5) (1988).

166 42 U.S.C. § 9603(b) (1988).

167 *See* U.S. DEPARTMENT OF JUSTICE, *supra* note 70, at 4.

168 For example, it is estimated that over one-half of all solid and hazardous waste generation in the U.S. comes from farmers. *See* Michael Rusin, Robert C. Anderson & Thomas J. Lareau, *Managing the Environment: A Review of Present Programs and Their Goals and Methods*, DISCUSSION PAPER #57, AM. PETROLEUM INST. 47-8 (Feb. 1989).

B. CRIMINAL SANCTIONS SHOULD BE BASED ON HARM

Although the theory behind the utilization of sentencing guidelines is laudable, guidelines can in practice produce more harm than good. To date, most sentencing guideline proposals have based the corporate fine on a multiple of either "loss" or "gain." Section II briefly discussed the potential overdeterrence problem associated with the use of a gain-based standard, and argued that conditionally deterred crimes should be penalized on the basis of the social harm (i.e. loss) they cause. Basing fines primarily on harm also has the advantage of forcing prosecutors to eschew prosecution of crimes that cause little social harm in favor of the prosecution of more significant crimes.

As mentioned earlier, the Sentencing Commission did not include environmental offenses in the fine provisions of the organizational sanctions guideline. The main impediment to the inclusion of environmental crimes in these guidelines is the difficulty of quantifying harm. Particularly in the environmental area, commentators have expressed concern that requiring the government to prove monetary harm will burden the sentencing process.[169] The extent to which this is true will depend on the standards of proof required. There is no doubt that basing fines on harm will be a boon to environmental economists, who will be called upon to monetize a whole host of environmental hazards. In at least one recent case, prosecutors brought in an expert economist to place a monetary value on birds killed by an offender. Although this may not be necessary in many cases, permitting such testimony should be seen as a positive step towards making the punishment fit the social harm caused by the crime.[170]

A potentially more important problem is that estimates of monetary loss can vary widely depending on how one defines the term "loss." For example, recall that the prosecution in the case of Ash-

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169 *See e.g.*, John C. Coffee Jr., *Crime and Punishment in the Boardroom: Let's Not Shield Corporations From Criminal Penalties*, LEGAL TIMES, Feb. 13 1989, at 19.

170 For a general discussion of monetizing losses in criminal cases, see Cohen, *Corporate Crime: 1984-1987, supra* note 74, at § IV; Jeffrey S. Parker, *Criminal Sentencing Policy for Organizations: The Unifying Approach of Optimal Penalties*, 26 AM. CRIM. L. REV. 513, 576-68, 584-85 (1989). There is an extensive literature on estimating the monetary value of environmental harms. *See, e.g.*, V. KERRY SMITH & WILLIAM H. DESVOUSGES, MEASURING WATER QUALITY BENEFITS (1986); ROBERT CAMERON MITCHELL & RICHARD T. CARSON, USING SURVEYS TO VALUE PUBLIC GOODS: THE CONTINGENT VALUATION METHOD, RESOURCES FOR THE FUTURE (1989); MEASURING THE DEMAND FOR ENVIRONMENTAL QUALITY (John B. Braden & Charles D. Kolstad eds. 1991). For a summary of the various techniques permitted by the government in CERCLA cases, see Natural Resource Damage Assessments, 43 C.F.R. § 11 (1990).

land Oil claimed documented losses of $6 million, thereby providing one measure of the loss.[171] If, however, all of the cleanup costs and private settlements were included in the loss calculation, the monetary loss could easily have exceeded $60 million. A sentencing guideline that imposed a fine of twice the loss would require a $120 million fine in this case—far in excess of what either the prosecutors or the sentencing court thought appropriate. Thus the use of a sentencing guideline that specifies a fine "multiple" without clearly defining the base to which it should be applied could result in enormous disparity as well as fines that are far in excess of their intended levels.

Perhaps even more troubling is that a guideline based on a multiple of losses might hinder cleanup and victim compensation efforts. If Ashland Oil knew that it would be fined a multiple of losses, the firm might have been much less inclined to clean up as much of the spill as it did or to settle private claims for monetary losses.

Admittedly, some crimes involve harms that are not amenable to monetary estimation. Examples include falsified test or monitoring results, obstruction of justice, and cases of significant risk to the national security or to public confidence in institutions. These cases are the exception rather than the rule, however, and they can be handled with separate guideline provisions not tied to monetary losses.

C. CRIMINAL SANCTIONS SHOULD BE BASED ON THE PROBABILITY OF DETECTION

Since the primary goal of enforcement is to deter firms from engaging in illegal activity, criminal sanctions for environmental crimes should be inversely related to the probability of detection. Offenses that are always detected do not require large punitive multiples, while those that are difficult to detect may require fines that are multiples of losses in order to account for the possibility that some offenders will not be caught. Additionally, those offenses that are most likely to be detected will also be most likely to be subject to private remedies such as tort liability. In the context of environmental crime, it is relatively easy to detect large accidental spills of oil or chemicals, while it is much more difficult to detect falsified monitoring records. Of course, since the harm in these cases might differ considerably, the ultimate penalty for an accidental oil spill might still exceed that of a falsified monitoring report.

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171 *See supra* notes 107-12 and accompanying text.

D. CRIMINAL SANCTIONS ARE ONLY ONE PART OF THE TOTAL PICTURE

A million dollar fine has the same effect on a firm as a million dollar private settlement or a comparable loss in reputational capital (after appropriate adjustments for the tax consequences of these various payments). There is some evidence that sentencing courts currently consider civil sanctions and private settlements in determining appropriate criminal sanctions. At a minimum, sentencing guidelines should allow the court to consider other direct monetary costs incurred by the firm, including private settlements, cleanup costs, and remedial action to ensure future compliance. Sentencing courts might also be permitted to consider reputation effects that significantly affect firms found guilty of corporate crime. If the goal is to ensure that firms have incentives to take the optimal level of care, then sentencing courts must consider the overall effect of sanctions on the firm.

E. FUTURE RESEARCH ISSUES

Although we know more about corporate crime and punishment than we did a few years ago, there is still a lot we do not know. We still do not fully understand the motives and complex interrelationships among the various actors in the criminal justice arena. We do not know, for example, whether judges are an effective or misguided check on prosecutorial behavior. We also need a better understanding of the relationship between civil and criminal sanctions. We need to know, that is, why some cases are pursued through administrative remedies while others end up in criminal court.[172]

The need for more research on the ultimate effect of sanctions on corporate behavior is as great as the need for a greater understanding of current sentencing practice. Which sanctions are effective at deterring unlawful behavior while not stifling innovative and productive business behavior? What are the costs and benefits of imposing environmental audits as a condition of probation? Do reputational losses apply to small closely held firms? What effect do adverse publicity and court-ordered public apologies have on firm sales and profitability? What effect has the increased likelihood of imprisonment of environmental offenders had on corporate compli-

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[172] To date, the EPA has not coordinated its civil and criminal enforcement programs. More surprisingly, it is still virtually impossible for the EPA to determine the overall compliance record of a company. For example, the air office does not know the compliance history of the firm with the water office. Both of these shortcomings are being addressed by the current EPA Administrator, and future enforcement actions are likely to be more targeted. *See e.g.*, Jonathan Z. Cannon, John S. Guttmann & Margaret Lattin Bazany, *EPA Enforcers Adopt a Coordinated Approach*, NAT'L L.J., Sept. 2, 1991, at 29.

ance? Although many commentators believe that the overdeterrence issue is a red herring, there is sufficient historical evidence that law-abiding corporations take socially costly actions when confronted with uncertain legal standards and high penalties.[173] We need to study this issue further before dismissing overdeterrence as a figment of the economist's imagination. This is particularly important in light of current trends towards the prosecution of regulatory offenses and strict liability crimes.

[173] For example, a study of Fortune 500 companies found that a majority of those surveyed had instituted antitrust compliance programs that included provisions to avoid *legal* activity that might prompt a government antitrust investigation. For example, many firms require that price discounts be approved by several management levels and that they never fall below fully allocated costs even if geographic competition is intense. Other policies include the frequent rotation of sales personnel and prohibiting employee membership in trade associations. *See* Alan R. Beckenstein, H. Landis Gabel and Karlene Roberts, *An Executive's Guide to Antitrust Compliance*, 1983 *Harv. Bus. Rev.* 94, 96-8 (1983).