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THE (HIDDEN) RISK OF OPPORTUNISTIC PRECAUTIONS

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UNDER the conventional tort law paradigm, a tortfeasor behaves unreasonably when two conditions are met: the tortfeasor could have averted the harm by investing in cost-effective precautions and failed to do so, and other, more cost-effective precautions were not available to the victim. Torts scholarship has long argued that making such a tortfeasor responsible for the ensuing harm induces optimal care. This Article shows that by applying the conventional analysis, courts create incentives for opportunistic investments in prevention. In order to shift liability to others, parties might deliberately invest in precautions even where such investments are inefficient. The Article presents two possible solutions to the problem. By instituting a combination of (1) broader restitution rules and (2) an extended risk-utility standard, legislators and judges can re-

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form tort law to discourage opportunistic precautions and maximize social welfare.

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INTRODUCTION

Torts scholarship has long praised the Hand formula of reasonable behavior for its utility-maximizing nature. The rule, which defines reasonable behavior with reference to efficiency, requires adjudicators to balance the costs and benefits of untaken precautions.¹ According to the conventional application of the Hand formula, an untaken precaution is efficient when its cost is lower than its expected benefit. A party behaves unreasonably if she would have been able to avoid the harm by investing in efficient precaution and did not, while no more efficient precautions were available to other parties.²

¹ See, e.g., Michael D. Green, *Negligence = Economic Efficiency: Doubts >*, 75 *Tex. L. Rev.* 1605, 1612 (1997) (“[T]o employ a risk-benefit test in a tort case, some identified, untaken precaution must exist that, had it been employed by the defendant, would have prevented the plaintiff’s injury. . . . [T]he economic cost of that untaken precaution and the expected accident toll if the precaution is not taken . . . must be compared with each other in a risk-benefit test.”).

² See, e.g., Bruce Chapman, *Corporate Tort Liability and the Problem of Overcompliance*, 69 *S. Cal. L. Rev.* 1679, 1690 (1996) (“[I]n a negligence action the plaintiff is required to show, first, that some untaken precaution would have prevented the injury had it been taken and, second, that it was reasonable to require that such a precaution be taken (for example, that the taking of the precaution would pass . . . a Learned Hand test)”); see also Mark F. Grady, *Discontinuities and Information Burdens: A Review of *The Economic Structure of Tort Law* by William M. Landes and Richard A. Posner*, 56 *Geo. Wash. L. Rev.* 658, 661 (1988) (showing that perform-

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Highlighting the economic reasoning underlying the formula, legal theorists have argued that resolving questions of liability on the basis of the efficiency of the litigants' untaken precautions induces optimal care. In order to avoid liability, rational parties will invest in precautions up to the point that no additional, cost-justified precautions exist.³

This Article, however, suggests that the actual picture is more complex. Since precautions taken by one party may impact the effectiveness or the cost of those taken by other parties, exclusive focus on the efficiency of untaken precautions can lead to suboptimal results. A party might strategically invest in prevention solely in order to force other parties to take additional precautions. When the aggregate cost of the parties' precautions exceeds the expected harm or the costs of an alternative way of prevention, conventional application of the Hand formula results in inefficiency.

To be sure, torts scholars have considered the risk of opportunistic behavior in the context of harm prevention. In addressing this risk, however, they have focused primarily on one form of behavior. Given a duty on the part of other parties to anticipate her "unreasonable" behavior, an individual might deliberately *avoid* investing in prevention.⁴ By strategically avoiding precautions, this individual might obligate others to avert the harm.⁵ The analysis

ing risk-utility analysis in tort cases is conventionally understood to require exploring the efficiency of untaken precautions).

³"[T]he injurer is liable under the Hand rule when further precaution is cost-justified. Further precaution is cost-justified when precaution falls short of the efficient level . . ." Robert Cooter & Thomas Ulen, *Law & Economics* 334 (4th ed. 2004) (explaining the efficiency of the Hand formula). For a comprehensive discussion, see John Prather Brown, *Learned Hand Rule*, in 2 *The New Palgrave Dictionary of Economics and The Law* 514, 514–16 (Peter Newman ed., 1998) (demonstrating parties' incentives for optimal care under the Hand formula).

⁴For the duty to eliminate risks created by the unreasonable behavior of others, see, for example, Prosser and Keeton on the Law of Torts 198–99 (W. Page Keeton ed., 5th ed. 1984):

[A] person is required to realize that there will be a certain amount of negligence in the world

The duty to take precautions against the negligence of others thus involves merely the usual process of multiplying the probability that such negligence will occur by the magnitude of the harm likely to result if it does, and weighing the result against the burden upon the defendant of exercising such care.

On the scope of this duty in negligence and nuisance, see *infra* Part II.

⁵For a comprehensive analysis concerning the risk of strategic suboptimal investments in prevention, see generally Steven Shavell, *Torts in Which Victim and Injurer Act Sequentially*, 26 *J.L. & Econ.* 589 (1983); Harold Winter, *Sequential Torts with*

that follows suggests that strategic conduct might also take the opposite form. Parties might opportunistically *invest* in precautions in order to force others to similarly engage in prevention.

Consider the example of a pollution dispute. Torts scholars looking to maximize social welfare urge courts to weigh the social benefit of the pollution-causing activity against the costs of the parties' neglected precautions. As Judge Richard Posner argues, in resolving such cases judges should compare "(1) the cost to the polluter of abating the pollution and (2) the lower of the cost to the victim of either tolerating the pollution or eliminating it himself."⁶ Under this risk-utility test, finding the polluter liable is justified where its prevention costs (of either precautions or ceasing production) are both less than the harm it inflicts and less than the prevention costs of the victim. When this standard is consistently applied, the argument goes, polluters that can efficiently avoid the harm are motivated to take cost-effective precautions.

This article shows, however, that applying such a standard will not always result in the maximization of social welfare. Assume that plaintiffs can show that their neighboring polluting factory could have prevented their damages at a cost lower than the total harm and that no alternative measures of prevention exist. Under the conventional risk-utility test, the factory's failure to avoid the harm renders it liable; welfare maximization apparently mandates that the factory invest in precautions. Suppose, however, that the factory's ability to avert the harm is only made possible as a result of some initial investment in precautions by the plaintiffs. If the total prevention cost (of both the factory and plaintiffs) exceeds the harm, efficiency requires no abatement of the pollution. The self-

Imperfect Information, 14 *Int'l Rev. L. & Econ.* 35 (1994); Donald Wittman, Optimal Pricing of Sequential Inputs: Last Clear Chance, Mitigation of Damages, and Related Doctrines in the Law, 10 *J. Legal Stud.* 65 (1981). See also *infra* notes 64–65 (discussing additional literature addressing the risk of strategic behavior in the context of harm prevention). This scholarship has focused only on parties' incentives to avoid taking precautions in order to shift prevention costs to other parties; no reference, however, is made to the opposite alternative of strategic investments in prevention ("opportunistic precautions").

⁶ Richard A. Posner, *Economic Analysis of Law* 62 (6th ed. 2003); see also William M. Landes & Richard A. Posner, *The Economic Structure of Tort Law* 49 (1987) (explaining that under "the standard of liability in private nuisance cases," liability is imposed where "the defendant (injurer) can eliminate the nuisance at a lower cost than the plaintiff (victim)").

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interested plaintiffs, however, might nevertheless invest in the initial precautions. Following such an investment, the factory, now looking to avoid liability, must act to prevent the harm. Where the costs of the harm outweigh their share of the prevention cost, plaintiffs will be better off investing in the precautions.

The risk-utility analysis employed in the preceding example has been widely applied in both negligence and nuisance cases.⁷ In determining negligence, courts frequently compare the costs and benefits of the contested activity.⁸ In nuisance disputes, courts often take a “balancing” approach, under which they explore the risks and utilities of the alleged nuisance.⁹ Parties in negligence and

⁷ See *Prosser and Keeton on the Law of Torts*, supra note 4, at 630–31, for an explanation of how the plaintiff in intentional nuisance cases, just as in negligence cases, is required to show “unreasonable” interference by the defendant and that “conduct is unreasonable only if the gravity of the harm caused outweighs the utility of the conduct.” Unlike negligence cases, however, where the harm is severe, defendants in nuisance disputes might be required to compensate the plaintiffs even when their behavior is socially desirable. Nevertheless, where defendants’ nuisance is efficient, victims in many cases “may well be required to absorb the loss.” *Id.* at 630. Moreover, cost-benefit analysis is often applied in deciding a plaintiff’s right for injunctive relief. See, e.g., Dan B. Dobbs, 1 *Law of Remedies* 763 (2d ed. 1993) (“[E]ven though the defendant is clearly maintaining a nuisance, the injunction may still be denied because of the ‘relative hardship’ it may impose upon the defendant. . . . Economic analysis of the relative costs and incentives also may become especially significant in balancing hardships and equities.”).

⁸ See *Clay Elec. Coop. v. Johnson*, 873 So. 2d 1182, 1204 (Fla. 2003) (“[M]any courts have found a cost-benefit analysis helpful in determining whether to impose a duty.”); *Myers v. Dronet*, 801 So. 2d 1097, 1109 (La. Ct. App. 2001) (“To determine whether [a person] breached a duty or, in other words, acted unreasonably, courts often use Judge Hand’s *Carroll Towing* balancing test, most commonly referred to as the ‘Hand formula’”); James A. Henderson et al., *The Torts Process* 179 (5th ed. 1999) (“The proper balancing of costs and benefits suggested by Learned Hand in *Carroll Towing* has come to be recognized as the central inquiry in determining whether an actor has been negligent.”); *Prosser and Keeton on the Law of Torts*, supra note 4, at 173 (referring to Judge Hand’s decision in *United States v. Carroll Towing*, 159 F.2d 169 (2d Cir. 1947), and concluding that “negligence is usually determined upon a risk-benefit form of analysis”).

⁹ See, e.g., *Fashion 21 v. Coal. for Humane Immigrant Rights of L.A.*, 12 Cal. Rptr. 3d 493, 504–05 (Ct. App. 2004) (“In order to recover damages for nuisance the plaintiff must prove the defendant’s . . . interference [with the use and enjoyment of his property is] ‘ . . . unreasonable.’ The test . . . ‘is whether the gravity of the harm outweighs the social utility of the defendant’s conduct.’” (quoting *San Diego Gas & Elec. Co. v. Superior Court*, 55 Cal. Rptr. 2d 724, 752 (Ct. App. 1996)); *Rattigan v. Wile*, 841 N.E.2d 680, 687 (Mass. 2006) (“The general rule is that a trier of fact may find an intentional invasion of another’s interest in the use and enjoyment of land to be unreasonable if the ‘gravity of the harm’ caused thereby ‘outweighs the utility’ of the actor’s conduct.” (quoting Restatement (Second) of Torts § 826(a) (1979))). Risk-utility

nuisance are therefore exposed to the risk of strategic investments in prevention. The following analysis focuses on both categories to demonstrate the risk of opportunistic precautions in tort law.

This Article unfolds as follows: Part I first presents the conventional approach—endorsed by judges, scholars, and the drafters of the proposed new *Restatement of Torts*—for determining liability in negligence and nuisance disputes. It then demonstrates the incentives that parties may have to invest in prevention, even where such investments are not cost justified. Parties' strategic investments, it is shown, can take several forms and can occur in different settings. Part II argues that courts can remove the incentives for "opportunistic precautions" by applying an "extended" risk-utility standard. As the analysis demonstrates, courts have used a similar standard effectively in negligence and nuisance disputes that involve a related risk of opportunistic behavior. Implementing the extended risk-utility standard, however, requires information about parties' behavior that is not always available. Part III suggests an alternative solution. It shows that the incentives for investments in precaution can be aligned with economic efficiency by accepting broader restitution rules, under which parties could collect for their prevention costs. Such restitution rules, although not prevalent, have been adopted by legislatures and courts in several other contexts. The risk of opportunistic investments provides a rationale for their application in additional cases. Finally, discussing parties' obligations under the American with Disabilities Act, the Conclusion demonstrates the implications of the opportunistic-precautions analysis for the law beyond torts.

The enduring academic and political debate regarding tort reform reflects increasing doubts regarding the incentives that current rules of liability provide for optimal prevention. This Article supports this skepticism. It shows that existing tort rules, overlooking the risk of opportunistic investments, allow plaintiffs as well as defendants to avoid desirable investments in precautions. Address-

analysis is also applied in public nuisance cases. See, e.g., *County of Santa Clara v. Atlantic Richfield Co.*, 40 Cal. Rptr. 3d 313, 325 (Ct. App. 2006) (holding that public nuisances are substantial and unreasonable offenses against the exercise of rights common to the public and that public nuisance is unreasonable if "its social utility is outweighed by the gravity of the harm inflicted").

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ing this concern, this Article demonstrates how tort doctrine can be reformed to enhance optimal prevention of harms.

I. OPPORTUNISTIC INVESTMENTS IN PRECAUTION

Welfare maximization requires parties to invest optimally in prevention. Determining the optimal level of care in a particular case, however, demands data that courts are frequently unable to obtain. Legal scholarship has assumed that by focusing on the efficiency of neglected precautions, courts can overcome these informational hurdles. Section A describes the conventional perception concerning the ability of courts to maximize social welfare by assessing liability on the basis of litigants' untaken precautions. Section B demonstrates that, contrary to this accepted wisdom, the untaken-precautions approach may encourage strategic behavior that is socially undesirable. Section C shows that legal scholarship has largely overlooked the risk of opportunistic investments in prevention.

A. Informational Hurdles and Efficient Prevention

Minimizing the social costs that stem from harm-causing activities may require investments by different parties.¹⁰ In some cases, unilateral prevention by either the plaintiff or the defendant is most efficient; in other contexts, social welfare is maximized when more than a single party invests in precautions. Against this backdrop, torts scholarship has demonstrated the economic advantage of reasonable-conduct regimes. Whereas no-liability and strict-liability regimes are effective only in cases that require unilateral investment by one party,¹¹ reasonable-conduct standards can also

¹⁰ As torts scholarship has shown, activities that may inflict harm generate two major types of social loss: (1) the costs of care taken by the parties to decrease the risk of harm and (2) the damage suffered by the victims when the risk of harm materializes. Parties' investment in prevention is thus efficient when it allows the sum of these costs to be minimized. For the first comprehensive analysis of the costs of tort-related behaviors, see Guido Calabresi, *The Costs of Accidents: A Legal and Economic Analysis* 20 (1970) (arguing that tort liability must primarily minimize the costs of accidents and of accident avoidance and discussing other possible related social costs).

¹¹ Strict liability makes the defendant internalize the full costs of the harm irrespective of the behavior of the victim. No liability makes the victims bear the full costs of the harm irrespective of the behavior of the injurer. Under either regime, therefore, only one of the parties is incentivized to invest in precautions. Where optimal prevention requires investments by both parties, strict liability and no liability are inefficient.

achieve optimal investment in precautions where efficiency demands investment by multiple parties.¹²

The economic argument in support of reasonable-conduct standards can be demonstrated by showing parties' incentives under a rule of simple negligence. In a negligence regime, the defendant must compensate the victim only if the damage suffered results from the defendant's unreasonable behavior. The defendant thus has an incentive to satisfy the prescribed standard in order to avoid liability. If the legal standard defining reasonable conduct corresponds to the cost-justified level of precaution, the defendant's investment will be efficient. Since the defendant bears no liability where she meets the legal standard, the victim has a similar incentive to invest in precautions in order to avoid bearing the loss. A rule of simple negligence thus motivates both parties to invest efficiently in precautions.

To illustrate the advantage of reasonable-conduct standards, imagine an activity that yields high benefits to the defendant but causes damages of \$100 to the plaintiff. Suppose first that efficient prevention of the harm requires that the defendant alone invest \$80 in precaution. Because the defendant is better off incurring \$80 of prevention than \$100 of liability, defining investments that are less than \$80 as unreasonable will induce the defendant to invest efficiently in prevention. To avoid liability, the defendant will invest \$80 in prevention, and no precautions will be taken by the plaintiff.

Similar analysis shows that applying a reasonable-conduct standard can also induce optimal prevention where efficiency requires investment by both parties. Assume, for example, that the harm can be avoided if the plaintiff and defendant each invest \$20 and \$30, respectively. If the legal standard is set at \$30, the defendant, looking to avoid paying \$100, will invest \$30 in precaution. The plaintiff then faces harm (\$100) for which she is not entitled to compensation. She will therefore invest \$20 in prevention. Using the same reasoning, torts scholarship has demonstrated that all tort regimes defining liability through reasonable behavior will result in

¹² The first scholar to show how negligence standards can induce efficient levels of care both in unilateral and joint-care cases was John Prather Brown, *Toward an Economic Theory of Liability*, 2 *J. Legal Stud.* 323 (1973). Subsequent writing exploring the efficiency of liability regimes has largely followed Brown's basic model. See, e.g., Landes & Posner, *supra* note 6, at 54-84; Steven Shavell, *Economic Analysis of Accident Law* 54-72 (1987).

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optimal care, provided that the legal standard is set properly (for example, \$80 in the first case and \$30 in the second).¹³

Identifying the optimal legal standard, however, is often not feasible given courts' limited resources and restricted access to information. Acknowledging this complication, scholars argue that courts are nevertheless able to efficiently incentivize the parties. Rather than trying to determine the efficient legal standard in the abstract, it has been argued, courts should merely examine the precautions in which the parties could have invested but in fact did not.¹⁴ As Professor Mark Grady explains, the

untaken-precaution approach . . . reduces courts' need for technical information because they no longer have to identify the precautions that produce the global minimum of social cost; they need only examine the costs and benefits of the precautions that the plaintiff has actually alleged that the defendant failed to take.

¹³ In addition to the rule of simple negligence, reasonable-conduct regimes include negligence and strict liability with either contributory or comparative negligence. Under any of these regimes, one of the litigants can avoid liability by behaving according to the legal standard. An efficient legal standard, therefore, will make this litigant invest efficiently in prevention. Consequently, the other litigant faces the risk of bearing the harm and therefore also profits from investment in efficient precautions. So long as the legal standards correspond to efficient precaution, reasonable-conduct rules provide the incentives for optimal investment in avoidance. See, e.g., Landes & Posner, *supra* note 6, at 54–84; Brown, *supra* note 12, at 341–43; Shavell, *supra* note 12, at 5–32.

¹⁴ In his article, Brown himself indicates courts' possible difficulty in obtaining the necessary information for establishing efficient levels of care. Brown, *supra* note 12, at 343–47 (exploring the “Limited Information” model “where the court no longer knows what the social optimum is”). Addressing this concern, the law and economics literature that followed Brown has suggested that courts can solve the problem by a process in which the utility of untaken precautions is continuously evaluated. See, e.g., Landes & Posner, *supra* note 6, at 87 (describing courts' actual application of the Hand formula as “focus[ing] on the particular accident and on the particular inputs that could have prevented it” and arguing that such an approach allows courts to achieve optimal investment in precautions); Robert Cooter et al., *Liability Rules, Limited Information, and the Role of Precedent*, 10 *Bell J. Econ.* 366, 370 (1979) (arguing that under such a process “[t]he court eventually reaches the efficient standard by successive revisions”); Mark F. Grady, *A New Positive Economic Theory of Negligence*, 92 *Yale L.J.* 799, 814–18 (1983) (explaining that consistently applying a risk-utility test with respect to parties' neglected precautions allows courts to reach utility maximization without first identifying the efficient levels of care); Claus Ott & Hans-Bernd Schäfer, *Negligence as Untaken Precaution, Limited Information, and Efficient Standard Formation in the Civil Liability System*, 17 *Int'l Rev. L. & Econ.* 15 (1997) (demonstrating that deciding liability based only on the utility of the parties' untaken precautions enables courts to maximize utility despite having no preexisting knowledge as to the efficient level of care).

Untaken precautions beyond the efficient set appear cost-beneficial only when the injurer has used less precaution than due care. When the injurer has used the most efficient precautions, as he has an incentive to do, no further precaution will appear cost-beneficial.¹⁵

Furthermore, scholars have contended that consistently applying a risk-utility analysis to parties' untaken precautions enables courts to eventually identify the efficient level of investment in prevention. Parties' investments correspond to the optimal level when no more efficient untaken precautions can be found. In their influential text, Professors Cooter and Ulen describe this process:

Repeated application of the Hand rule enables adjudicators to discover the efficient level of care. In a series of cases, the adjudicators ask whether further precaution was cost-justified. If the answer is "yes," then the injurer has not satisfied the legal standard and the injurer is liable. Injurers will presumably respond to this decision by increasing their level of precaution. Eventually a case will reach the adjudicators in which further precaution is not cost-justified. Just as a climber can reach the peak of a smooth mountain in a fog by always going up, so the

¹⁵ Grady, *supra* note 2, at 661; see also Robert D. Cooter, *Decentralized Law for a Complex Economy: The Structural Approach to Adjudicating the New Law Merchant*, 144 U. Pa. L. Rev. 1643, 1679 (1996) ("According to [the Hand] rule, a defendant's untaken precaution is negligent if the burden of precaution is less than the expected savings in liability . . ."); Grady, *supra* note 14, at 824 (explaining the informational and efficacy-based advantages of the untaken-precautions approach); Reid Hastie & W. Kip Viscusi, *What Juries Can't Do Well: The Jury's Performance as a Risk Manager*, 40 Ariz. L. Rev. 901, 907 (1998) (explaining that, according to the Hand formula, "[i]f an accident's cost multiplied by its probability of occurrence exceeds the cost of untaken precautions, then in the event of a mishap, the defendant should be judged at least negligent"). In his recent writing, Brown seems to have accepted this answer, explaining that

[t]o decide a case, it is not necessary to identify the standard of care; it is sufficient to determine whether or not the standard was met. Of course, one way for a plaintiff to meet his responsibility and show that a duty was breached is to find a precaution untaken, which, if taken, would have had a greater marginal benefit than its marginal cost.

Brown, *supra* note 3, at 516.

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court can discover the efficient level of care by holding defendants liable for failing to take cost-justified precautions.¹⁶

The untaken-precautions approach can be demonstrated by its application to the preceding example. Consider again the case in which optimal prevention of \$100 harm requires investment of \$30 by the defendant and \$20 by the plaintiff. Assume that the harm can also be prevented if the defendant invests \$70 unilaterally. Even if courts cannot identify the efficient level of investment and set the standard of reasonable behavior accordingly, application of cost-benefit analysis to the parties' neglected precautions will result in efficient prevention. In this case, the plaintiff will be able to show that a unilateral increase in precaution-taking by the defendant could efficiently avoid harming the plaintiff only as long as the defendant's investment in prevention is under \$30; once the defendant increases his investment and reaches this level, the untaken-precautions approach will indicate that further investment should be made by the victim. The defendant will not be required to invest an additional \$40, since the plaintiff can avert the harm by investing only \$20. More generally, where welfare maximization requires investment in prevention, any investment that is less than the optimal level of care by either of the parties will result in efficient un-

¹⁶ Cooter & Ulen, *supra* note 3, at 335. Schäfer and Schönenberger have also argued that courts should use the untaken-precautions approach to determine the appropriate level of care:

[I]t is very difficult for courts . . . to identify the efficient level of care in order to establish it as the legal standard Therefore, an alternative to decide whether an injurer was negligent or not without a specific standard of care would be, first, to ask what an injurer could have done (alternatively or in addition) to prevent the damage or to reduce the probability that it occurs. Then, the costs of the alternative or of the additional precaution activity are determined. If either the difference between the actual precaution costs and the costs of the alternative precaution activity or the costs of the additional precaution activity are less than the reduction in the total amount of expected damages as a result of the alternative or additional activity, the injurer will be liable.

Hans-Bernd Schäfer & Andreas Schönenberger, *Strict Liability Versus Negligence*, in 2 *Encyclopedia of Law and Economics* 602 (Boudewijn Bouckaert & Gerrit De Geest eds., 2000); see also Richard Craswell, *Offer, Acceptance, and Efficient Reliance*, 48 *Stan. L. Rev.* 481, 503 n.66 (1996) (arguing that in negligence cases, "rather than trying to assess the entire range of possible precautions" courts should "consider the efficiency of [the] untaken precaution" that the parties claim would have avoided the harm).

taken precautions. Parties seeking to avoid liability or bearing the loss will invest in avoidance such that social utility is maximized.

Legal scholarship shows that in practice, courts' risk-utility analysis corresponds to the described process.¹⁷ In their decisions, courts do not attempt to ascertain the optimal level of precaution that would minimize social costs and then compare it to the parties' actual precautions. Instead, "the actual conduct of actors is evaluated . . . in terms of particular precautions they could have taken to avoid the accident in question."¹⁸ Where the cost of a precaution is lower than its expected benefit in reducing the harm and no alternative, less costly prevention measure exists, a party's failure to invest in the precaution is considered unreasonable behavior.

In sum, tort law scholarship has claimed to demonstrate a fundamental correspondence between courts' conventional cost-benefit analysis and the maximization of social welfare. The next Section, however, demonstrates that the efficiency of the untaken-precautions approach is qualified. Where inefficient precautions exist, its application encourages strategic behavior.

B. Opportunistic Precautions and Inefficiency

Investment in precautions can have different effects. It can affect the risk of harm by reducing the expected magnitude of such harm or the likelihood of its occurrence. It can also affect the availability

¹⁷ See, e.g., Richard A. Epstein, *Cases and Materials on Torts* 154–55 (Aspen Publishers 7th ed. 2000) ("[T]he skillful lawyer typically [proves unreasonable behavior] by pointing to some specific 'untaken precaution' that, if taken, could have prevented the accident that actually occurred."). Professor Philip G. Peters has shown that the same approach characterizes jury decisions:

Plaintiffs typically narrow the scope of the jury's inquiry by focusing upon an "untaken precaution" and alleging that a reasonable person would have undertaken it. With the task so confined, the jury need not determine the precise combination of safety precautions that would optimize social welfare. Instead, jurors examine the defendant's failure to take the specific precaution recommended by the plaintiff.

Philip G. Peters, Jr., *The Role of the Jury in Modern Malpractice Law*, 87 *Iowa L. Rev.* 909, 948 (2002) (quoting Mark F. Grady, *Untaken Precautions*, 18 *J. Legal Stud.* 139 (1989)); see also Timothy D. Lytton, *Rules and Relationships: The Varieties of Wrongdoing in Tort Law*, 28 *Seton Hall L. Rev.* 359, 375 (1997) (explaining that in practice "[t]he Hand formula . . . evaluates the cost-effectiveness of an untaken precaution").

¹⁸ Stephen G. Gilles, *The Invisible Hand Formula*, 80 *Va. L. Rev.* 1015, 1028–29 (1994).

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of other parties' prevention measures. As the following examples show, once these diverse effects are considered, the efficiency of the untaken-precautions approach is undermined. Using some stylized hypotheticals, the analysis demonstrates the different types of inefficiencies that the untaken-precautions approach can produce. Most importantly, it shows that parties can strategically invest in precautions for the sole purpose of forcing other parties to invest in prevention.

1. Hypothetical 1: Inefficient Care

Assume a factory produces goods with a social benefit of \$1000. The production process generates pollution which harms Pete, a homeowner downwind of the pollution. Pete's harm from the pollution costs \$90. Neither the factory nor Pete can unilaterally avoid the harm. If, however, Pete paints his house with pollution-resistant paint costing \$70, the factory can avoid the harm by installing a filter costing \$50.

Assume first that Pete did not paint his house. Under the conventional unreasonable behavior standard, will a court find the factory liable for not installing the filter? Now assume that Pete has painted his house. Will a court now find the factory liable for not installing the filter?

While in the first case the factory will probably not be held liable, in the second case it likely will. Under the conventional risk-utility test, courts compare the cost of a potential precaution with its expected benefit. If the first component (the cost) is lower than the second (the expected reduction in accident costs)—and no other more efficient precautions exist—a party who fails to invest in the precaution is considered unreasonable. Where this precaution could have avoided the harm, liability is imposed. In the second scenario, once Pete has painted his house, the factory can invest in a precaution that costs less than the expected benefit it produces ($\$50 < \90); the factory's failure to do so will result in a duty to compensate Pete for his damages.

From an economic perspective, however, painting the house and installing the filter is socially undesirable. The total cost of these precautions ($\$70 + \50) outweighs their expected benefit ($\$90$). Yet application of the conventional risk-utility analysis provides incentives for both parties to make such investments. Consider first

Pete's position. Looking to avoid a harm of \$90, Pete can benefit by investing \$70 in painting his house. Such behavior benefits him regardless of the behavior of the factory. If the factory reacts by installing the filter, Pete's house will not be harmed (thus saving Pete \$90, for a net benefit of \$20). If the factory does not install the filter, Pete will be entitled to compensation, as the factory will be declared liable. The factory, aiming to avoid paying \$90 in damages, is likely to install the filter, at a cost of only \$50.¹⁹ To be sure, *after* the painting of Pete's house, the installation of the filter is cost effective. Once Pete has made an investment in prevention (painting), society is better off having the filter installed than allowing the pollution to occur. It is, however, a second-best alternative. Efficiency is maximized where no precautions are taken and harm materializes.

Stated more generally, the inefficiency illustrated in Hypothetical 1 arises whenever (1) an expected harm can be avoided by bilateral investment in precautions and (2) the investment required by *each* party is *smaller* than the expected harm, but (3) the *sum* of the investments required by both parties is *higher* than the expected harm. In such scenarios, the untaken-precautions approach encourages strategic behavior resulting in socially undesirable levels of care.

Minimizing accident costs requires not only cost-justified precautions but also efficient levels of activities.²⁰ For example, in addition

¹⁹ Absent transaction costs, the factory can save investing \$50 in the filter by "bribing" Pete to abstain from painting the house; any amount that is above Pete's expected net benefit of \$20 and less than \$50 will make both parties better off. In the context of tortious behaviors, however, transaction costs are prevalent and often prohibitive. Possible harm-doers in many cases cannot identify their potential victims *ex ante*; in other cases, the large number of parties makes negotiation especially costly. Even in our example, involving a single victim and a single defendant who might know each other prior to the occurrence of the harm, transaction costs characterizing such a "bilateral monopoly" situation may thwart the bargain. For discussion of possible transaction costs in such cases and for some empirical illustrations, see, for example, Ward Farnsworth, *Do Parties to Nuisance Cases Bargain After Judgment? A Glimpse Inside the Cathedral*, 66 U. Chi. L. Rev. 373 (1999) (examining twenty nuisance cases and finding no bargaining between the parties).

²⁰ See Steven Shavell, *Strict Liability Versus Negligence*, 9 J. Legal Stud. 1, 2 (1980) (explaining that "level of care" defines the extent of a party's carefulness in carrying out his activity, whereas "level of activity" refers to the party's "*choice of whether to engage in his activity or, more generally, . . . the level at which to engage in his activity*"). Although both care and activity levels determine the number of accidents, Pro-

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to making investments in safety (for example, installing better railroad tracks), a common carrier using trains can also reduce accident costs by running fewer trains or avoiding trains altogether.²¹ Hypothetical 1 illustrates how application of the conventional risk-utility test results in strategic behavior by the *victim* and *inefficient levels of care*. A small alteration of the example shows that the untaken-precautions approach can also result in strategic behavior on the part of the *injurer* and *inefficient levels of activity*.

2. Hypothetical 2: Inefficient Activity

As in the previous hypothetical, assume that the harm to Pete's house can be prevented if Pete paints his house with pollution-resistant paint, and the factory installs a filter. The costs of the paint and the filter are, as before, \$70 and \$50 respectively. Assume now that the possible harm to Pete's house is \$130 (rather than \$90) and that the social benefit of the goods produced by the factory is \$100 (rather than \$1000).

From an economic perspective, investment in the precautions may appear desirable; the expected harm to Pete's house is higher than the cost of avoidance ($\$130 > \$120 (\$50 + \$70)$). Considering the low social value of the factory's goods (\$100), however, efficiency is best served if the factory simply refrains from production. Nonetheless, a self-interested factory would install the filter and continue operating. Subsequent to the installation of the filter, Pete can avoid the damage at a lower cost than the factory as painting is less costly than stopping production ($\$70 < \100). Because the most efficient untaken precaution is painting, the factory will not be considered liable if the harm occurs. Looking to avoid bearing \$130 of loss, Pete will paint his house at a cost of \$70. By operating and installing the filter, the factory profits \$50 ($\$100 - \50). In the final tally, however, society loses \$20.²²

fessor Shavell shows that courts usually focus only on the parties' level of care. As Shavell explains, to evaluate parties' level of activity, "courts would likely have to know much more than would normally have to be known to decide whether care, conventionally interpreted, was adequate." Id. at 23.

²¹ See Posner, *supra* note 6, at 178 (using the example of trains that may inflict harm to illustrate investments in "care" and "activity").

²² The \$20 loss on the part of society is arrived at by subtracting the total social utility from the total social cost. The social cost is the cost of the precautions, which totals

Hypothetical 2 demonstrates the second type of inefficiency that may arise under the current application of the untaken-precautions approach. It occurs when (1) an expected harm can be avoided by a bilateral investment in precautions and (2) the investment required by *each* party is *smaller* than the *benefit* generated by the activity, but (3) the *sum* of the investments in precautions by both parties is *higher* than the social value generated by the activity.²³

Both Hypotheticals 1 and 2 involve cases in which maximization mandates that no precautions (paint or filter) be taken. Similar inefficiencies may also arise in contexts in which investment in precautions is necessary to maximize utility. Due to the strategic behavior of one of the litigants, however, the overall investment in prevention is excessive.

3. Hypothetical 3: Excessive Care

As in Hypothetical 2, assume that the possible damage to Pete's house is \$130 and that the paint and filter cost \$70 and \$50 respectively. As in Hypothetical 1, assume that the factory produces goods with a social benefit of \$1000. Finally, assume that Pete may avoid the harm *unilaterally* by erecting a high wall that would block the pollution at a cost of \$95.

Considering these values, social utility is maximized when Pete builds the wall at a cost of \$95. Pete, however, is not likely to do so. Given courts' focus on untaken precautions in determining unreasonable behavior, a better strategy from Pete's perspective would be to paint the house at a cost of \$70. After the house is painted, the factory can prevent the harm with an investment of only \$50. Since the filter is cheaper than the wall ($\$50 < \95), failure to install it will render the factory liable. Although investment in precautions is justified, the actual expected avoidance costs are exces-

\$120. Because the factory only produces \$100, society loses \$20, assuming that Pete behaves as a rational maximizer. If he does not and fails to invest in the precaution (painting), the social cost will be \$180, which is the sum of the damage to his house (\$130) and the (useless) filter (\$50).

²³ As noted earlier, conventional scholarship attributes courts' incompetence in determining the efficient level of activity to information insufficiency. See *supra* note 20. Hypothetical 2, however, suggests that parties' strategic behavior may also lead to socially undesirable levels of activity. At least in this context, courts might be able to provide the parties with incentives for efficient behavior by adjusting their conventional risk-utility analysis. See *infra* Part II.

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sive. Rather than \$95, the parties' investments total \$120 (\$50 + \$70).

This third hypothetical illustrates the third form of disutility resulting from the problem of opportunistic precautions. It occurs when (1) an expected harm can be avoided *unilaterally* by litigant *X*, (2) this harm can also be avoided by litigants *X* and *Y*'s *bilateral* investments, (3) *X*'s required investment under the unilateral alternative is *higher* than her required investment under the bilateral alternative, and (4) each investment required by *X* and *Y* is *smaller* than the expected harm, but (5) the *sum* of *X* and *Y*'s investments is *higher* than the required investment by *X* under the *unilateral* alternative.

Using the terms of the Hand formula (*B*, *P*, *L*), the three hypotheticals describe cases in which the investment of one litigant strategically affects the "burden of precaution" (*B*) of another litigant. As the next example demonstrates, similar strategic behavior (resulting in the same three types of inefficiency) may also involve investments intended to impact the *effectiveness*—rather than the costs—of litigants' possible precautions.

4. Hypothetical 4: Effectiveness of Precautions

Suppose that the possible damage to Pete's house is \$200 and that the factory produces goods with a social value of \$1000. Assume that the factory pollution creates a 60% risk of harming Pete's house, with an expected harm of \$120. Finally, assume that the factory can install a filter at a cost of \$50. Independently, this filter reduces the risk of harm to 50%. If, however, Pete paints his house at a cost of \$25, installation of the filter reduces the risk by half, to only 30%. Thus, if the filter alone is installed, the expected damage equals \$100 (50% × \$200); if the house is painted, installation of the filter reduces expected harm to \$60 (30% × \$200).

Pete's investment in this case does not affect the factory's burden of precaution. It does not enable the factory to apply a safety measure not available in the first place. Nor does it reduce the factory's costs of implementing the precaution. Rather, Pete's investment increases the effectiveness of the factory's filter. After Pete has painted his house, the installation of the filter substantially diminishes the *probability* (*P*) of damage. Independently, the factory's filter reduces the risk by only 10%; its benefit is thus lower

than its cost ($\$20 < \50). An omission on the part of the factory to install the filter will therefore not be considered unreasonable. Pete's investment in precautions (painting the house), however, renders the filter cost effective ($\$60 > \50). The factory will now be expected to install the filter in order to avoid liability. From an economic perspective, total investment in precautions is inefficient ($\$60 < \$50 + \$25$).²⁴ From Pete's perspective, however, painting the house is profitable; his expected accident costs are reduced by \$60 through an investment of \$25. Similar analysis shows that parties can strategically enhance the effectiveness of possible precautions by affecting the *degree of loss* (L) these precautions may prevent.²⁵

As these examples indicate, the untaken-precautions approach induces optimal investment only when inefficient precautions are unavailable. Once parties can also invest in inefficient prevention, the conventional approach may result in social waste. The expected inefficiency, as demonstrated, may occur under different settings and take several forms: it may result from the behavior of the plaintiffs as well as that of the defendants; it may manifest itself in both suboptimal levels of care and suboptimal levels of activity; it may occur in cases where harm should be avoided and circumstances where utility maximization requires no prevention; and it may involve investments aimed at increasing the effectiveness of possible precautions or at reducing their costs.²⁶

²⁴ As for the type of inefficiency, this example is an extension of the first hypothetical; the factory's production is socially desirable, and no investment in precautions should be made. Strategic investments aimed at increasing the effectiveness of other litigants' precautions may similarly involve the other two types of inefficiency (production is inefficient; investment in precautions is justified but excessive).

²⁵ Assume, for example, that the damage to Pete's house is worth \$200, the filter's cost is \$50, and that the filter independently reduces the expected harm to Pete's house by \$40. If Pete paints his house at a cost of \$70, however, the filter is able to reduce the harm by \$100. Painting the house and installing the filter is socially undesirable ($\$50 + \$70 > \$100$). Yet, once Pete paints his house, the filter becomes cost-justified. By painting his house, Pete avoids a harm of \$100 by investing only \$70.

²⁶ The hypotheticals of Pete and the factory demonstrate the risk that plaintiffs and defendants may attempt to shift prevention costs to one another. Strategic investments in prevention can also occur among potential harm-doers. See *infra* text accompanying note 95.

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C. Overlooking the Problem of Opportunistic Investments

The preceding analysis has demonstrated the disutility that may result from the conventional test for reasonable behavior. Although concerned with the economic viability of the untaken-precautions approach, scholars have failed to consider its possible effects where parties' prevention costs are interrelated.²⁷ Most importantly, torts scholarship has largely disregarded the incentives it creates for strategic investments.²⁸ This neglect is reflected in

²⁷ Professor Alan J. Meese discusses cases where investment in precaution by one party affects the prevention costs of other parties. See Alan J. Meese, *The Externality of Victim Care*, 68 U. Chi. L. Rev. 1201 (2001). Focusing on instances where the marginal costs and benefits of possible precautions or activity levels are not fixed, Meese shows that "no regime of tort liability will cause injurers or victims to make proper activity choices in a joint care setting." *Id.* at 1229 (emphasis added). As the various hypotheticals concerning Pete and the factory have illustrated, where parties' prevention costs are interrelated, social disutility can also occur as a result of parties' inefficient levels of care where marginal costs and benefits are fixed and where unilateral investment or no investment is most efficient. Professors Dharmapala and Hoffman have also analyzed cases where parties' prevention costs are correlated, showing that parties may often choose among several "technologies," each of which is considered "due care" (for example, driving an SUV safely or driving a small car safely). Dharmika Dharmapala & Sandra A. Hoffman, *Bilateral Accidents with Intrinsically Interdependent Costs of Precaution*, 34 J. Legal Stud. 239, 240–41 (2005). Every such technology affects the prevention costs of other parties differently (the driver of a car behind an SUV has less visibility and hence must incur extra precaution costs). As Dharmapala and Hoffman demonstrate, since each party bears only his costs of prevention—the SUV driver does not consider the costs he imposes on other drivers—inefficiency may occur. Dharmapala and Hoffman thus discuss the possible problem of parties who may take precautions that inefficiently *increase* the prevention costs of other parties. *Id.* In contrast, as the above hypotheticals demonstrate, the risk of opportunistic precautions shows that parties may have an incentive to invest in precautions that *reduce* other parties' costs of prevention.

²⁸ In their recent article, Professors Feldman and Kim discuss a case in which the defendant's conduct creates a 10% risk of \$1000 harm (that is, expected damage of \$100) that the plaintiff can reduce by half at a cost of \$40, and the defendant can unilaterally eliminate at a cost of \$60. Allan M. Feldman & Jeonghyun Kim, *The Hand Rule and United States v. Carroll Towing Co. Reconsidered*, 7 Am. L. & Econ. Rev. 523, 530–31 (2005). Using this example, Feldman and Kim show that under the conventional untaken-precautions approach (termed by Feldman and Kim the "conditional application"), defendants may escape liability despite their negligence. In this example, utility requires the defendant to invest \$60 in prevention and the plaintiff to invest nothing. If the plaintiff invests \$40, however, the defendant's precaution appears inefficient (\$60 > \$50); thus, where the plaintiff invests beyond the efficient level, the untaken-precautions approach may protect negligent defendants. *Id.* While highlighting the latter problem, Feldman and Kim do not discuss the alternative possibility where plaintiff's *excessive* investment may force the defendant to invest in in-

judges' rhetoric, in courts' actual decisions, and in the new draft of the *Restatement of Torts*.

Judge Hand himself, for example, appears to have been unconcerned with the risk of opportunistic precautions. While emphasizing that his formula is aimed at welfare maximization, Judge Hand described the formula such that it refers only to the parties' neglected precautions. In *Conway v. O'Brien*, Judge Hand presented the components of the formula in its nonalgebraic form.²⁹ Judge Hand explained that the level of caution

demanded of a person . . . is the resultant of three factors: the likelihood that his conduct will injure others, taken with the seriousness of the injury if it happens, and balanced against the interest which *he* must sacrifice [or the cost of the precaution *he* must take] to avoid the risk.³⁰

As this language suggests, in deciding whether a person should have taken a certain precaution, and assuming no negligence on the part of other persons, courts should evaluate only the costs and benefits associated with that specific precaution. Similar formulations appear in other decisions in which Judge Hand articulated his risk-utility test.³¹

Richard Posner, both as a scholar and a judge, also appears to have disregarded the risk of strategic investments. As in the case of

efficient precautions. Furthermore, Feldman and Kim's hypothetical does not explain the incentive for the plaintiff to take precautions beyond the efficient level. The preceding analysis concerning the risk of opportunistic precautions shows why, and under what circumstances, such behavior is likely.

²⁹ 111 F.2d 611 (2d Cir. 1940).

³⁰ Id. at 612 (emphasis added); see also Steven Shavell, Foundations of Economic Analysis of Law 191 n.22 (2004) ("Hand said that a party is negligent if he failed to take a *precaution* when its *cost*, which he called its 'burden,' was *less* than its *expected benefit* . . .") (emphasis added). Shavell argues that the Hand formula is an exception from courts' general inclination not to think "in terms of the mathematical goal of minimizing" social costs. Id. at 191. Shavell, at any rate, does not discuss the problem of opportunistic precautions.

³¹ For an overview of these decisions, see Stephen G. Gilles, *United States v. Carroll Towing Co.*: The Hand Formula's Home Port, in *Torts Stories* 11, 18–19 (Robert L. Rabin & Stephen D. Sugarman eds., 2003). In none of the discussions of his risk-utility test did Hand consider the risk that parties might strategically invest in inefficient precautions. As his decision in *Carroll Towing* indicates, in evaluating the behavior of one party, Judge Hand applied his test "contingent on the *actual* behavior of the other party." Feldman & Kim, *supra* note 28, at 537–38.

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nuisance, Judge Posner's definition of negligent conduct and his interpretation of the Hand formula focus on the utility of precautions that the parties could have adopted to avoid the injury. As Judge Posner has written in a recent decision,

[i]n Learned Hand's influential negligence formula, . . . failure to take a precaution is negligent . . . if [and only if] the cost of the precaution (what he called the "burden" of avoiding the accident) is less than the probability of the accident that the precaution would have prevented multiplied by the loss that the accident if it occurred would cause; hence the formula: $B < PL$.³²

Similar language is used by Judge Posner in other places as well.³³ Most importantly, in none of his discussions of the Hand formula does Judge Posner address the case in which the efficient prevention of one party is made possible by the inefficient (and possibly strategic) investments of other parties.³⁴

³² *Mesman v. Crane Pro Servs.*, 409 F.3d 846, 849 (7th Cir. 2005) (quoting *United States v. Carroll Towing Co.*, 159 F.2d 169, 173 (2d Cir. 1947)).

³³ See, e.g., *Bhd. Shipping Co. v. St. Paul Fire & Marine Ins. Co.*, 985 F.2d 323, 327 (7th Cir. 1993) (holding that a litigant is negligent where "the burden (cost) of the precautions that he could have taken to avoid the accident . . . is less than the loss that the accident could reasonably be anticipated to cause . . . , discounted . . . by the probability that the accident would occur unless the precautions were taken"); see also Richard A. Posner, *Tort Law: Cases and Economic Analysis* 4 (1982) (explaining that under the Hand formula, assuming no more efficient precautions are available to the victim, "the injurer is liable only for those accidents that he could have avoided at a lower cost than the expected accident cost"). *Black's Law Dictionary*, citing Judge Posner, defines the "Hand formula" as "[a] balancing test" under which "the defendant is guilty of negligence if the loss caused by the accident, multiplied by the probability of the accident's occurring, exceeds the burden of the precautions that the defendant might have taken to avert it." *Black's Law Dictionary* 732 (8th ed. 2004).

³⁴ Judge Posner's oversight is especially conspicuous considering his analysis of the opposite scenario, namely, cases where a party may take an efficient precaution after another party has failed to invest in prevention. Judge Posner and Professor Landes show that the former party often has a duty to eliminate the risk and explain the economic advantages of such a duty. See Landes & Posner, *supra* note 6, at 76 ("[W]here care is sequential and the injurer acts first—a defense of contributory negligence provides an incentive for the victim to take due care even though the injurer has been negligent."); see also *infra* note 67 (addressing Judge Posner and Landes's economic explanation of the scope of the duty to eliminate risks created by others). In contrast, Judge Posner and Landes do not discuss anywhere in their analysis the case in which efficient prevention of one party becomes possible only as a result of others' strategically inefficient investments.

Other judges' definitions of what constitutes unreasonable behavior reflect similar neglect. In their risk-utility analysis, judges tend to examine only the utility of precautions that could have averted the harm. For example, in resolving a case where no fault was attributed to the victim, one court explained that "liability depends upon whether the burden on the defendant of adopting adequate precautions is less than the probability of harm . . . multiplied by the gravity of the injury."³⁵ This efficiency standard disregards possible earlier investments by the plaintiff. More generally, courts' ultimate test seems to be that "[i]f a person neglects to take precautions that cost less than the injury[,] . . . discounted by the improbability that there will be an injury, that person has behaved unreasonably."³⁶

Exploring actual cases involving sequential investments in prevention shows that in practice, courts' risk-utility analysis indeed encourages strategic behavior. The following cases provide several illustrations. In these tort claims, defendants' ability to prevent the harm was made possible by, or resulted from, some initial investments in precautions on the part of the plaintiffs. Nonetheless, courts evaluated the behavior of the defendants without investigating the efficiency of the plaintiffs' precautions.

In *Peacock's, Inc. v. Shreveport Alarm Co.*, the owner of a burglarized jewelry store brought a negligence suit against the managers of the shopping center in which the store was located.³⁷ Evidence showed that the burglars had compromised the store's alarm system by manipulating a telephone wire in one of the shopping center's utility rooms. The plaintiff argued that the shopping center was negligent in not properly blocking access to the utility room. The defendants explained that they had "abandoned all efforts to

³⁵ *Braun v. Soldier of Fortune Magazine*, 968 F.2d 1110, 1115 (11th Cir. 1992). For similar language, see, for example, *Trusiani v. Cumberland & York Distributors*, 538 A.2d 258, 264 (Me. 1988) ("[The risk-benefit] method of analysis requires a balancing of the importance of the societal interest and the probability and burden of potential injury to a plaintiff against the burden placed on a defendant if he were required to take precautions to prevent injury.").

³⁶ *Gen. Foods Corp. v. Valley Lea Dairies*, 771 F.2d 1093, 1103 (7th Cir. 1985); see also *McCall v. Wilder*, 913 S.W.2d 150, 153 (Tenn. 1995) ("[A] risk is unreasonable and gives rise to a duty to act with due care if the foreseeable probability and gravity of harm posed by defendant's conduct outweigh the burden upon defendant to engage in alternative conduct that would have prevented the harm.").

³⁷ 510 So. 2d 387, 387-88 (La. Ct. App. 1987).

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do so after the locks and replacement locks were ‘continuously broken.’”³⁸ Applying risk-utility analysis, the court concluded that the defendants’ costs of avoiding the harm (providing better locks) were lower than the expected damage to the plaintiff and thus decided in favor of the plaintiff.³⁹

In *Ohio Bell Telephone Co. v. John Fithian Contracting Co.*, the defendant, a construction company, was sued after it cut a cable belonging to the plaintiff.⁴⁰ To decrease the risk of harm, the telephone company had installed the cable underground. The damage was caused when the defendant performed some digging in the area, allegedly without applying proper precautions. Referring to Judge Hand’s decision in *Conway*, the court contrasted the risk of harm with the defendant’s possible preventive measures. Finding that the defendant could have avoided the harm at a cost lower than the expected damage, the court decided for the telephone company.⁴¹

The plaintiff in *Farlow v. Gagner* sued his neighbor (White) and a logger (Gagner) for damages caused to the plaintiff’s cows after they escaped from their pasture via a hole in a line fence.⁴² The hole was caused by Gagner’s alleged negligence in not properly protecting the fence while cutting timber.⁴³ In resolving the case, the court compared the expected harm with White’s costs had he eliminated the risk of damaging the fence. Based on the court’s determination that defendant White’s burden of prevention was less

³⁸ Id. at 392.

³⁹ Id. at 402 (“Under the circumstances of this record, we recognize . . . the duty of the shopping center owner to undertake reasonable efforts to shut and lock the door of the utility equipment room of the shopping center. The cost of reasonably maintaining a locked door is insignificant when compared to the injury that the open and unlocked door facilitated or contributed to.”).

⁴⁰ No. 88 C.A. 181, 1990 Ohio. App. LEXIS 2747, at *1–2 (Ohio Ct. App. June 29, 1990).

⁴¹ Id. at *4–5 (citing *Thompson v. Ohio Fuel Gas Co.*, 224 N.E.2d 131, 136 (Ohio 1967)). *Thompson*, in turn, cited *Conway v. O’Brien*, 111 F.2d 611 (2d Cir. 1940). The *Ohio Bell* court implied that the burden on the plaintiff in drilling “test holes” to verify the location of the cable was lower than the possible damage. 1990 Ohio. App. LEXIS 2747 at *5.

⁴² No. 91-1695, 1992 WL 50196, at *1 (Wis. Ct. App. Jan. 14, 1992).

⁴³ Id. at *1, *3.

than the expected harm, the case was decided in favor of the plaintiff.⁴⁴

In each of these decisions, although prevention involved investments by both parties, the court's analysis focused only on the efficiency of the defendant's investments in precautions. In the first case, locks on the doors of the utility room alone could not have avoided the harm; only given the expensive alarm system that the plaintiff installed would proper locks have prevented the burglary. Similarly, in the second and third cases, prevention costs included not only those of the defendants but also the costs of the initial precautions taken by the plaintiffs (installing the cable underground and building the fence). To be sure, even if one accounted for the costs of plaintiffs' precautions, it is possible that in each of these cases the expected damage would have outweighed the overall costs of prevention (of both the victim and the injurer). Since the decisions do not reveal the exact costs these plaintiffs incurred, no evaluation can be made as to whether plaintiffs' precautions were efficient or strategic. To the extent that the form of analysis the courts used in these cases is representative, however, it demonstrates the benefit that parties may derive from strategic investments in prevention.⁴⁵

The general oversight concerning the risk of strategic investments is also manifested in the proposed draft of the new *Restate-*

⁴⁴ Id. at *1–3. The actual pruning was done by Gagner, who had been hired by White and failed to appear in the lawsuit. The court found White liable for not taking cost-effective precautions to avoid the harm and for not inspecting the actual work (in addition to his negligence for failing to find out whether Gagner had the required insurance). Id. at *3.

⁴⁵ In a recent article, Professors Robert Cooter and Ariel Porat have demonstrated another oversight in courts' conventional risk-utility analysis. Robert Cooter & Ariel Porat, Does Risk to Oneself Increase the Care Owed to Others? *Law and Economics in Conflict*, 29 *J. Legal Stud.* 19, 20–21 (2000). Cooter and Porat show that in calculating the benefit from a precaution that a party failed to take, courts only consider how this precaution could reduce the risk to others. Since many risky activities also incur "self risk," Cooter and Porat argue that a proper assessment of the precaution's utility also requires considering any benefit to the injurer himself. In failing to incorporate this benefit into the analysis, Cooter and Porat show that courts bring about suboptimal investment in precautions. At the same time, Cooter and Porat themselves appear to disregard the risk of opportunistic investments. Following the conventional articulation, Cooter and Porat urge courts to compare the costs of possible neglected precautions and their corresponding expected reduction in the risk of harm (including "risk to oneself"). See id.

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ment of Torts.⁴⁶ Embracing a consequentialist approach, the new *Restatement* defines reasonable behavior on the basis of cost-benefit analysis.⁴⁷ Unreasonable behavior is equated with the failure to take cost-justified precautions.⁴⁸

The draft proposes standards to determine both reckless and negligent behaviors. Under Section 2 of the draft, a person recklessly engages in conduct when the following criteria are met:

- (a) the person knows of the risk of harm created by the conduct . . . and
- (b) the precaution that would eliminate or reduce the risk involves burdens that are so slight relative to the magnitude of the risk as to render the person's failure to adopt the precaution a demonstration of the person's indifference to the risk.⁴⁹

⁴⁶ See Restatement (Third) of Torts: Liability for Physical Harm §§ 1–3 (Proposed Final Draft No. 1, 2005).

⁴⁷ See Steven Hetcher, *The Jury's Out: Social Norms' Misunderstood Role in Negligence Law*, 91 *Geo. L.J.* 633, 648 (2003) (“[T]he proposed *Restatement* explicitly evinces a utilitarian or economic conception of balancing . . . [and] explicitly equates its suggested balancing approach with the Hand Test”); Kenneth W. Simons, *The Hand Formula in the Draft Restatement (Third) of Torts: Encompassing Fairness as Well as Efficiency Values*, 54 *Vand. L. Rev.* 901, 902 (2001) (arguing that the drafters of the new *Restatement* have adopted the Hand formula as the definition for negligence).

⁴⁸ The *Restatement*, following the conventional division in tort law, distinguishes between intentional harms (in which the wrongdoer desires to cause harm) and unintentional harms (in which harm is an unwanted result of the wrongdoer's behavior); recklessness and negligence comprise the category of unintentional harms. Under the proposed new draft of the *Restatement*, both recklessness and negligence are analyzed according to a cost-benefit analysis. Negligence refers to cases where the expected costs of certain conduct are higher than the expected benefits, and recklessness refers to cases where the costs are substantially higher. See Restatement (Third) of Torts: Liability for Physical Harm §§ 1–3 (Proposed Final Draft No. 1, 2005). Negligence is generally sufficient for the imposition of liability. In several contexts, however, courts and legislatures have established recklessness as the appropriate standard of tort liability. See, e.g., Kenneth W. Simons, *A Restatement (Third) of Intentional Torts?*, 48 *Ariz. L. Rev.* 1061, 1082 (2006) (discussing the conventional tort doctrine that absolves participants in recreational and sporting activities “from liability for ordinary negligence, and to permit liability only if they have acted ‘recklessly or intentionally.’”). Finding the behavior of the injurer “reckless” is also often the basis for the imposition of over-compensatory damages. See, e.g., Victor E. Schwartz et al., *Toward Neutral Principles of Stare Decisis in Tort Law*, 58 *S.C. L. Rev.* 317, 356–57 (2006) (noting that since the late 1960s “[r]eckless disregard [has become] a popular standard for punitive damages liability”).

⁴⁹ Restatement (Third) of Torts: Liability for Physical Harm § 2 (Proposed Final Draft No. 1, 2005).

Like Section 2, the draft's definition of "negligence" in Section 3 adopts a balancing approach, under which conduct is unreasonable where the risk involved in the conduct outweighs its expected benefit. In specifying the factors to be considered, the draft explains that "the 'risk' is the overall level of the foreseeable risk created by the actor's conduct and the 'benefit' is the advantages that the actor or others gain if the actor refrains from taking precautions."⁵⁰ As the preceding analysis has demonstrated, subjecting the parties to such standards encourages strategic behavior. In Hypothetical 1, for example, social utility mandates that both Pete and the factory abstain from investing in prevention. Applying the *Restatement's* standards to determine the liability of the factory, however, provides an incentive for Pete to paint his house. If Pete were to do so, the factory could then install a filter at a cost substantially lower than the expected damage. Failure to install the filter would render the factory negligent. To the degree that the cost of the filter is considered a "slight burden" relative to the "magnitude of the risk," such a failure might even be considered recklessness.

The drafters' inattentiveness to the risk of strategic investments is also reflected in their apparent endorsement of the untaken-precautions approach. In describing the application of the risk-utility test in practice, the drafters explain that the plaintiff can "identify the precaution the defendant might have taken, and then . . . compare the situation of the defendant's actual conduct to what the situation would have been had the defendant implemented the proposed precaution."⁵¹ If the court determines that "this precaution is desirable when compared to the defendant's actual conduct, then the plaintiff's proof of negligence is adequate."⁵² The analysis discusses several economic aspects of the untaken-precautions approach, including the incentive it provides for efficient investment in prevention. No reference is made, however, to the risk it creates of opportunistic precautions.⁵³

Judges' and scholars' consistent endorsement of the untaken-precautions approach reflects their failure to identify the risk of premeditated investments in inefficient prevention. The next Part,

⁵⁰ Id. § 3 cmt. e.

⁵¹ Id. § 3, Reporter's Note, cmt. i.

⁵² Id.

⁵³ See id.

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however, shows that torts scholarship has explored a related risk of strategic conduct. While overlooking the possibility of strategic *investments*, courts have successfully addressed the risk of deliberate *omissions* to take efficient precautions. As the following analysis suggests, courts' response to the latter risk demonstrates they can also remove the incentives for opportunistic precautions.

II. IDENTIFYING STRATEGIC BEHAVIOR

Courts can eliminate the incentives for strategic investments in prevention by extending the conventional cost-benefit analysis. Rather than exclusively evaluating the utility of parties' neglected precautions, judges should also examine the utility of the precautions in which the parties have already invested. Courts should consider exempting a "negligent" litigant if the cost of her untaken precaution makes *overall* avoidance costs exceed any of the following: the reduction in expected accident costs (as in Hypothetical 1), the benefit from either of the parties' activities (as in Hypothetical 2), or the costs of alternative preventive measures (as in Hypothetical 3).

This extended analysis requires courts to explore whether investments in prevention were opportunistic. To discourage strategic conduct, courts should release parties from the duty to invest in efficient precautions where these become available only by the deliberately inefficient investments of other parties. In other cases, where the evidence shows that the parties' initial (inefficient) investments were not motivated by strategic thinking, subsequent (efficient) investments should be encouraged. In Hypothetical 1, for example, wealth maximization mandates that no investment in precautions be made by either of the parties. Once the house is painted, however, installation of the filter becomes cost effective. Exempting the factory from installing the filter is thus warranted only as a means to induce Pete to avoid acting opportunistically (painting the house) *ex ante*. Where the circumstances indicate that Pete did not behave strategically, the factory should be induced to abate the harm.⁵⁴

⁵⁴ The hypotheticals in Part I assume a simple prevention model, in which parties' possible strategic behavior may occur in only a single stage. Harm prevention may involve more complicated cases, with a longer causal sequence of potential strategic in-

The extent to which judges can determine whether an investment in prevention was motivated by strategic thinking has yet to be explored. Courts, however, appear to be successful in identifying a closely related type of strategic behavior involving intentional *avoidance* of investment in prevention. In some negligence and nuisance cases, parties who fail to invest in efficient prevention are nevertheless entitled to a remedy.⁵⁵ Trying to exploit this state of affairs, parties may deliberately avoid taking cost-effective precautions. Torts scholarship demonstrates, however, that such attempts are not likely to succeed in practice. As reflected in their decisions, courts have distinguished between parties' accidental and premeditated failures to invest in precautions.

Consider first the duty to eliminate risks created by others' negligence. Tort rules generally require parties to invest in prevention only to the degree that is necessary under the assumption that other parties exercise due care.⁵⁶ In some cases, however, this assumption proves false, and parties may realize that others have behaved negligently. In such cases, if the negligent behavior does not immediately result in the materialization of the expected harm, parties acting after the negligence has occurred may still be able to avert the harm. Acknowledging this reality, tort law often requires parties to compensate for the risky behavior of others.⁵⁷ This duty

vestments; in such cases, courts' exploration regarding the character of the parties' investments may seem prohibitively costly. Complicated cases involving multiple stages of investments are, however, unlikely to raise the risk of strategic behavior. For illustration, consider an elaboration of Hypothetical 1: Assume that Pete must invest in two stages (rather than in only one) in order to allow the factory to prevent the harm by installing a filter. Assume, for example, that Pete cannot paint his house unless the nearby electric poles are relocated further from the house. Assume that if Pete invests \$1 in moving the pole on his side, the factory may also move its pole at a cost of \$1. Since Pete's investment in moving his pole does not yet allow the factory to prevent the harm, no efficient untaken precaution exists, and the factory has no incentive to make a similar investment. Moreover, a profit-maximizing factory would avoid moving its electric pole to ensure that Pete will not be able to paint his house.

⁵⁵ See *infra* text accompanying notes 56–60.

⁵⁶ See Posner, *supra* note 6, at 173 (“The law defines due care . . . as the care that is optimal if the other party is exercising due care.”).

⁵⁷ For example, § 466(a) of the *Restatement (Second) of Torts* states that “[t]he plaintiff's contributory negligence may be . . . intentional and unreasonable exposure of himself to danger created by the defendant's negligence, of which danger the plaintiff knows or has reason to know.” Section 302 A similarly holds that “[a]n act or an omission may be negligent if the actor realizes or should realize that it involves an unreasonable risk of harm to another

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to compensate has been invoked both with respect to putative victims and to harm-doers.⁵⁸ For example, employers and workers are required to look out for the unsafe behavior of employees or co-workers and to take necessary precautions to prevent them from injuring themselves or other parties.⁵⁹ In the context of car accidents, drivers are required to avoid collisions with careless fellow drivers or negligent pedestrians.⁶⁰ Courts have imposed similar duties across different categories where precautions taken by one party could have compensated for the risky behavior of the other.⁶¹

through the negligent or reckless conduct of the other or a third person.” See also Judge Posner’s decision in *Davis v. Consolidated Rail Corp.*, which expresses the same principle:

[W]e were careful to qualify our statement of the rule that a potential injurer is entitled to assume that potential victims will exercise due care, by saying that this was true “in general.” A certain amount of negligence is unavoidable Potential injurers may therefore be required to take *some* care for the protection of the negligent, especially when the probability of negligence is high or the costs of care very low.

788 F.2d 1260, 1266 (7th Cir. 1986).

⁵⁸ For an overview of cases in which courts imposed such a duty, see generally David W. Barnes & Rosemary McCool, *Reasonable Care in Tort Law: The Duty to Take Corrective Precautions*, 36 *Ariz. L. Rev.* 357 (1994).

⁵⁹ See, e.g., *Bd. of Water Works Trustees v. Alvord, Burdick & Howson*, 706 F.2d 820, 825 n.6 (8th Cir. 1983) (“A defendant who owes a duty of care to another is often required to anticipate that the other will be negligent, and the defendant often has a duty to take precautions against the negligence of the other.”).

⁶⁰ See, e.g., *Turner v. Roesner*, 549 N.E.2d 1287, 1291 (Ill. App. Ct. 1990) (“[E]ven though he was within his own lane and driving at less than the posted speed limit, the defendant was under a duty to exercise due care under the circumstances to avoid a collision with a driver proceeding on the wrong side of the road.”); Recommended Arizona Jury Instructions (Civil) 41 (2d ed. 1991) (“A driver is entitled to assume that another motorist will proceed in a lawful manner . . . unless it should become apparent to him, acting as a reasonably careful person, that the other motorist is not going to obey the laws of the road.”). For more examples, see Barnes & McCool, *supra* note 58, at 362 n.12, 373 n.46.

⁶¹ The decision of the court in *United States v. Carroll Towing Co.*, 159 F.2d 169 (2d Cir. 1947), discusses such a duty in the maritime context. Judge Hand found the plaintiff (the company that owned the barge) liable after it failed to take compensating precautions, given the expected negligence of the defendant:

[B]arges were being constantly ‘drilled’ in and out. Certainly it was not beyond reasonable expectation that, with the inevitable haste and bustle, the work might not be done with adequate care. In such circumstances we hold . . . that it was a fair requirement that the Connors Company should have a bargee aboard

Id. at 174; see also *Garr v. Union Carbide Corp.*, 589 F.2d 147, 150 (3d Cir. 1978) (discussing the responsibility of a municipality for injuries resulting from a defective sidewalk and holding that a person has a duty to foresee the negligence of others “where the injured party had prior knowledge of the defendant’s negligence”).

In such cases, the party's failure to compensate for the risk makes her jointly liable (together with the party who created the risk) or even solely responsible for the entire damage.⁶²

This duty to invest in compensating precautions increases utility. In cases where party *A* inadvertently misses an opportunity for efficient prevention, yet party *B* can still avoid the harm at a lower cost than the expected damage, inducing party *B* to avert the harm enhances social welfare.⁶³ The imposition of the duty, however, enables parties to shift prevention costs through "strategic negligence." Aware of the duty, parties may deliberately forgo efficient precautions. For example, where employers can compensate for the risky behavior of their workers, strategic negligence can occur on the part of the employees. A self-interested employee might take excessive risks or avoid investing in precautions. If the prevention costs of the employee are lower than those of the employer, the latter's duty to invest in harm prevention will result in social waste.⁶⁴

⁶² Under jurisdictions that apply the doctrine of "last clear chance," parties who fail to eliminate risks created by others often shoulder the entire liability. In most jurisdictions, last clear chance was replaced by the general doctrine of "comparative negligence." Under the latter doctrine, the exact division of liability depends on the relative fault of the parties. See Prosser and Keeton on the Law of Torts, *supra* note 4, at §§ 66–67 (discussing the distribution of liability under last clear chance and comparative negligence).

⁶³ Landes and Judge Posner describe this advantage:

But there is an important (and efficient) exception to the principle that the victim's duty of due care is limited to taking the care that would be optimal to prevent injuries by non-negligent injurers: if the danger posed by the injurer's activity is very conspicuous, the potential victim may not ignore the danger without being deemed contributorily negligent.

Landes & Posner, *supra* note 6, at 90.

⁶⁴ For an early observation concerning the risk of strategic conduct under the duty to take "compensatory precautions," see Gary T. Schwartz, *Contributory and Comparative Negligence: A Reappraisal*, 87 *Yale L.J.* 697, 708 (1978) (commenting that under a duty to avert a risk created by the negligence of another party, "the party with the earlier opportunity, knowing of the rule, might deliberately err so as to shift the safety expense to the party with the subsequent opportunity" and concluding that where the costs of prevention of the first party are lower, such a rule results in inefficiency (footnote omitted)). For a detailed recent economic analysis of the risk, see Thomas J. Miceli, *Sequential Care Torts and Strategic Behavior*, in *Economics of the Law* 58–70 (1997).

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As torts scholarship shows, courts “have limited the doctrine of compensating precaution in ways that reduce strategic behavior.”⁶⁵ Under the prevailing approach, courts have held that “the first party’s state of mind largely determines whether the second party will be liable for failing to use compensating precaution.”⁶⁶ Specifically, courts require parties to reduce or eliminate risks created by the unreasonable behavior of others where evidence shows this behavior resulted from mere inattention or mistake.

In contrast, courts decline to impose the duty of compensating precautions where circumstances suggest there was an *intentional* attempt by the negligent party to pass on prevention costs.⁶⁷ In some cases, judges have simply refused to impose the duty in the face of deliberate, unreasonable behavior.⁶⁸ In other cases, courts have applied the doctrine of proximate cause, holding that where one party willfully creates a risk, other parties cannot be held liable

⁶⁵ Mark F. Grady, *Common Law Control of Strategic Behavior: Railroad Sparks and the Farmer*, 17 J. Legal Stud. 15, 18 (1988); see also Miceli, *supra* note 64, at 64–65 (demonstrating how courts have limited the application of the duty to take compensatory precautions only to cases where risk was created inadvertently).

⁶⁶ Grady, *supra* note 65, at 19.

⁶⁷ See, e.g., Mark F. Grady, *Multiple Tortfeasors and the Economy of Prevention*, 19 J. Legal Stud. 653, 665 (“A purely legal control on strategic behavior was for the courts to make the second party’s obligation to use corrective precaution dependent on the first party’s having been inadvertently rather than willfully negligent.”); see also Landes & Posner, *supra* note 6, at 90 (“The temptation of potential injurers deliberately to create palpable dangers in order to induce potential victims to take excessive precautions is held in check by the fact that contributory negligence is not a defense to intentional or reckless conduct.”).

⁶⁸ See, for example, *Anderson v. Payne*, 54 S.E.2d 82, 86 (Va. 1949), in which the court refused to find a negligent driver liable as “[t]he plaintiff, possessing the full use of her faculties, was at all times able to prevent the mishap by the exercise of ordinary prudence.” Rather than acting to prevent the accident, “she deliberately and knowingly elected to walk on the forbidden side of the road, and thus actively exposed herself to danger.” *Id.*; see also *Westbrook v. Washington Gas & Light Co.*, 748 A.2d 437, 441–42 (D.C. 2000) (rejecting restaurant owner’s negligence case against gas company based on the claim that the gas company’s employee saw the owner in the restaurant during the gas leak and did not make him leave, as there was “no evidence that he was physically unable to leave the restaurant, . . . or that someone instructed him to remain inside the restaurant”); *Watson v. White*, 298 S.E.2d 174, 176 (N.C. Ct. App. 1982), *rev’d*, 308 S.E.2d 268 (N.C. 1983) (discussing the various factors of last-clear chance and holding that a defendant-driver has a duty to eliminate a risk created by the plaintiff-pedestrian only when the latter put himself in “a position of peril to which he was inadvertent”).

as their involvement is considered too “remote” from the harm.⁶⁹ In still other cases, the deliberate conduct of the strategic party has been classified as a case of “assumption of risk,” thus barring recovery even where other parties could have eliminated the risk at reasonable cost.⁷⁰ Torts scholarship has shown that courts successfully prevent willful, inefficient cost shifting under these doctrinal alternatives.

Given the duty to take “compensatory precautions,” parties in the context of negligence claims might avoid taking precautions *ex ante* in order to force other parties to invest in prevention *ex post*. In the context of nuisance claims, the risk that parties will deliberately forgo efficient prevention exists even where no such duty applies. This risk occurs where parties to a potential nuisance have the ability to select among different locations. Because the legal standard in nuisance requires granting preference to the conduct with the higher value, parties who anticipate that risk-utility analysis will favor their side may disregard alternative sites for their activities, even when such a choice on their part is socially desirable.⁷¹

To illustrate this concern, suppose that an entrepreneur can build a highly productive farm either next to a city or in an isolated area. The former location maximizes his profits but also stifles the ability of the city to expand in the future. Conflict arises when a developer tries to build on land adjacent to both the city and the proposed site of the farm. If at that point the balance of utilities (*ex post*) suggests that the value of the farm’s production would be greater than the discomfort to the residents of the proposed neighborhood, the farmer has no incentive (*ex ante*) to opt for the alternative site. The conscious disregard of an alternative, superior

⁶⁹ See, e.g., *Venzor v. Santa Barbara Elks Lodge No. 613*, 128 Cal. Rptr. 353, 359 (Ct. App. 1976) (holding that the defendant has a duty to take compensatory precautions only where the plaintiff “is totally unaware of his danger” and that where the plaintiff created the risk deliberately, the defendant’s negligence is not a proximate cause when injury occurs (internal citation omitted)).

⁷⁰ See, e.g., *Sinai v. Polinger Co.*, 498 A.2d 520, 524 (D.C. 1985) (explaining that under assumption of risk doctrine, where a plaintiff “elects to proceed in the face of a known danger, the plaintiff is regarded as having consciously relieved the defendant of any duty which he otherwise owed the plaintiff”).

⁷¹ See Donald Wittman, *First Come, First Served: An Economic Analysis of “Coming to the Nuisance,”* 9 *J. Legal Stud.* 557, 566 (1980) [hereinafter Wittman, *First Come*]; see also Donald Wittman, *Coming to the Nuisance*, in 1 *The New Palgrave Dictionary of Economics and the Law* 292 (1998).

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location could also characterize the behavior of the developer. Assume that there is only one possible site for the farm while the neighborhood could be built in several places. Suppose that the tables are turned and that the benefit to the residents of the developer's preferred site, next to the farm, would most likely exceed the benefit to the entrepreneur from the farm's operation. Suppose also that the neighborhood could be built in another place, at little added cost, where it would not be affected by the farm. In this alternative scenario, the risk of strategic behavior shifts to the developer. Expecting to prevail in court, the developer is likely to build the neighborhood in the vicinity of the farm and force it to cease its operations.⁷²

As with the duty of taking compensatory precautions, torts scholarship shows that courts are aware of the risk of strategic conduct in nuisance disputes.⁷³ As a rule, courts give priority to the party whose activity bears the higher social value. In cases where the circumstances suggest *conscious* disregard of alternative, better locations, however, courts have refused to endorse the conduct despite its evident greater utility. For example, in *Prah v. Maretti*, the owner of a solar-heated residence sued to enjoin his neighbor's proposed construction of a residence that would interfere with his access to unobstructed sunlight.⁷⁴ While affirming the balancing standard, the court inquired as to whether the plaintiff could have situated his house such that it would be unaffected by future residences.⁷⁵ *Prah* exemplifies a case in which the risk of strategic behavior lies with the party who makes the first choice concerning the location of his activity. Courts' awareness of the possibility of strategic behavior is similarly manifested in cases where strategic thinking may underlie the behavior of the party who approaches an existing activity. Where parties have *knowingly* purchased land

⁷² For a similar discussion, see Landes & Posner, *supra* note 6, at 50–51 (discussing a nuisance dispute involving homeowners moving next to a factory and demonstrating that applying an ex post risk-utility analysis, where homeowners could have located elsewhere, might encourage strategic behavior on the part of the homeowners).

⁷³ See, e.g., Wittman, *First Come*, *supra* note 71, at 558–66 (demonstrating that courts' adjudication in nuisance disputes deters strategic behavior on the part of both potential plaintiffs and defendants).

⁷⁴ 321 N.W.2d 182, 184–85 (Wis. 1982).

⁷⁵ *Id.* at 192 (holding that whether the “plaintiff could have avoided any harm by locating his own house in a better place” is a relevant factor in deciding the case).

next to a nuisance despite the availability of possible alternatives, courts tend to accept the defense of “coming to the nuisance.” In such cases, courts have favored the party with the priority of location even if the rival activity was shown to bear greater social value.⁷⁶

Present negligence and nuisance cases thus indicate that the risk of opportunistic precautions is real but so is the ability of the courts to solve it. Tort law adjudication is rife with cases in which courts have rejected claims regarding defendants’ failure to take compensatory precautions after concluding that victims’ risky behavior was deliberate. In these cases (as in the cases of “coming to the nuisance”), plaintiffs have attempted to shift liability to the defendants by *avoiding investments* in efficient precautions. One may well suspect that victims similarly attempt to shift liability by *investing* in inefficient prevention.⁷⁷ Courts’ experience in identifying parties’ deliberate failure to invest in prevention suggests that they are equally capable of determining when parties’ investments in prevention are opportunistic. Under both forms of strategic behavior, courts must consider applying a second-best solution *ex post*, without providing incentives for inefficient behavior *ex ante*. To this extent, adjustment of the conventional risk-utility analysis—such that it will eliminate the incentives for strategic investments in precautions—does not require judges to develop new analytical paradigms. In the context of harm-inflicting activities, judges have long made the imposition of prevention duties dependent upon whether parties’ initial conduct was strategic.⁷⁸

⁷⁶ See Wittman, *First Come*, *supra* note 71, at 564 (“[W]hen economic efficiency dictates that the prior activity should not have the right, the courts often reject the doctrine of coming to the nuisance and give little weight to priority of occupation [W]hen economic efficiency dictates that the prior activity should have the right to continue, priority of occupation is given substantial weight in the court’s deliberations.”).

⁷⁷ In both cases of strategic conduct (avoiding investments in efficient precautions and investments in inefficient precautions), the information that the plaintiff must possess to undertake her strategic behavior is identical. The plaintiff is only required to anticipate that, subsequent to her own strategic behavior, the defendant will be able to avert the harm at least cost.

⁷⁸ Courts’ decisions with respect to another related form of opportunistic behavior lend further support to their ability to discourage strategic conduct. The preceding analysis has demonstrated parties’ incentives in making inefficient investments in precaution in order to affect other parties’ burden of avoidance. Potential litigants, how-

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To be sure, determining whether parties' investments in inefficient precautions were intended to force other parties to invest in prevention might be complicated. Even assuming that courts can identify such strategic behavior, it may not be sufficient. Where involved parties cannot similarly identify the character of the investment, incentives for strategic behavior may still remain. In Hypothetical 1, for example, not only the court but also the factory must be able to identify whether or not the painting of the house was strategic. An erroneous decision that painting the house was not strategic will force the factory to install the filter in order to avoid liability. To the extent that available evidence permits a correct determination by the courts and the parties, however, the extended cost-benefit analysis enables tort law to maximize social utility. It allows litigants to assist the courts in overcoming informational hurdles concerning the optimal level of precaution. Under the extended cost-benefit analysis, victims and harm-doers will still be able to show unreasonable behavior by suggesting cost-effective, untaken precautions. To discourage strategic conduct, however, it will also permit litigants to show that efficient prevention was only made possible by deliberately inefficient investments. Allowing both types of claims will incentivize parties to make efficient investments in precautions.

The extended cost-benefit analysis requires the determination of whether parties' investments were strategic. In some contexts, this determination might be too costly or even infeasible. The next Part addresses this concern by presenting a new way to discourage deliberate inefficient investments. Under this suggested solution, liability is always imposed for a failure to take cost-effective precautions, irrespective of the possible strategic character of previous

ever, may also attempt to avoid responsibility by manipulating their own prevention costs. Consider, for illustration, the facts of a recent nuisance case, *Penland v. Redwood Sanitary Sewer Service District*, 965 P.2d 433 (Or. Ct. App. 1998). The defendants, district officials, ran a composting operation at a sewage treatment facility. The composting operation resulted in an unpleasant odor. The plaintiffs, nearby residents, demanded that the facility be relocated. Given the large size of the facility, relocation costs were especially high. Nevertheless, and despite its support for a balancing test, the court decided in favor of the plaintiffs. As it turned out, the defendants anticipated the risk of nuisance claims and therefore augmented their prevention costs by expanding their original investments in the facility. Finding no objective justifications for defendants' additional investments, the court disapproved the nuisance. *Id.* at 439–40.

investments. In contrast to the conventional model, however, parties are entitled to collect compensation for expenses they incur in taking such precautions. The proposed combined regime of liability and compensation presents a novel approach to deterring opportunistic precautions.

III. RESTITUTION AND OPTIMAL PREVENTION INCENTIVES

In the typical case, a potential tortfeasor who invests in prevention cannot recover his expenses from potential victims who otherwise might have suffered harm. Similarly, where his investment benefits another potential harm-doer by reducing (or eliminating) her cost of prevention, this harm-doer is usually not required to reimburse the former for his expenses. Investments made by potential victims are subject to the same principle. Parties are required to bear their own prevention costs.⁷⁹

Assuming optimal prevention incentives, restitution for investments in precaution has only distributional consequences. Since a rule that permits restitution will increase the volume of litigation, a system that bars such claims is cheaper to administer and hence appears more desirable.⁸⁰ Considering the risk of opportunistic investments, however, a regime that allows restitution in combination with liability may also affect parties' level of care. Making investments in efficient precautions subject to reimbursement claims may assist in calibrating parties' incentives for efficient prevention.

To illustrate this claim, imagine a legal system under which cost-justified investments in prevention are fully recoverable. Parties who invest in efficient precautions thus not only escape liability or harm but are also entitled to compensation for their costs. Such a combined regime, as the next example shows, removes the incentives for strategic investments.

⁷⁹ See, e.g., Dharmapala & Hoffman, *supra* note 27, at 242 (“[T]ort rules allow for accident losses to be shifted between the parties but make no such provision for shifting precaution costs. In particular, there is no cause of action for one party to recover its precautions costs, or part thereof, from the other.”).

⁸⁰ See, e.g., Emily Sherwin & Maimon Schwarzschild, *Epstein and Levmore: Objections from the Right?*, 67 *S. Cal. L. Rev.* 1451, 1460–61 (1994) (“[A] restitution remedy would come into play more often than a damage remedy, and hence would be more costly to administer in the long run. With a damage rule in place, most actors would take precautions as required by the rule, and so avoid legal sanctions. Under a regime of restitution, many would take precautions and claim reimbursement . . .”).

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Consider again Hypothetical 1 but this time under a regime that allows restitution for efficient investment. Recall that painting the house does not, on its own, affect the expected harm. Pete, therefore, cannot claim restitution for investment in a cost-effective precaution and must bear his prevention costs of \$70. In contrast, the factory, which must install the filter to avoid liability, may show that its investment is cost-justified; by investing \$50, it eliminates an expected harm of \$90. No other available precautions are more efficient. Under the suggested regime, the factory will be entitled to restitution. Allowing the factory to collect its prevention costs from Pete eliminates the risk that Pete will strategically paint his house. Pete is better off avoiding prevention costs of \$120 (\$70 + \$50) to avoid a harm of only \$90. Similar analysis shows that the incentives for opportunistic investments are also removed in Hypotheticals 2 and 3.

Stated more generally, a rule of restitution makes the party that invests strategically internalize the *full* costs of avoidance. Under the untaken-precautions approach, parties' potential strategic behavior involves investments that do not efficiently reduce the expected harm but rather affect the costs or the effectiveness of other parties' precautions. Given a rule of restitution for cost-justified prevention, these opportunistic investments would not be subject to reimbursement. In contrast, precautions that the other party was forced to take would be compensable because they efficiently diminish the expected harm. By enabling the second party to collect his prevention costs, a rule of restitution would cause the entire cost of prevention to be shouldered by the "strategic" party.⁸¹

⁸¹ While discouraging strategic behavior, applying a rule of restitution does not affect parties' incentives to take precautions where prevention is efficient. In such cases, it affects only the distribution of the prevention costs between the parties. Consider first a simple case in which efficient prevention requires that the defendant invests \$30 unilaterally to avoid a harm of \$100. The combined regime increases the incentive of the defendant to avoid the harm, not only because he escapes liability, but also because the defendant may also collect for his investment. Similarly, the combined regime will lead to efficient prevention in bilateral precaution cases. Consider a case where a harm of \$100 can be prevented if the plaintiff and the defendant invest \$20 and \$30, respectively. Courts' focus on the utility of untaken precautions mandates that the plaintiff invest in prevention. Only if the plaintiff invests the \$20 can she show that the defendant is able to prevent the harm at a cost lower than the expected harm. Under the combined regime the defendant will be entitled to recovery, given that his \$30 investment in precautions eliminates \$100 of harm. From the plaintiff's perspec-

The untaken-precautions approach, supplemented with a restitution rule, provides incentives for optimal care. Given the existing paradigm of no reimbursement, though, the suggested regime may appear conceptually incompatible with the basic principles of liability. However, scholars have explored and recommended such a regime in other contexts. Moreover, in several doctrinal areas, existing law enables parties to recover their investments in prevention.

Judge Guido Calabresi and Professor Douglas Melamed's seminal article provides an illustration for the proposal to apply a combined liability and restitution rule.⁸² Judge Calabresi and Melamed analyze four alternative resolutions of a nuisance dispute involving a polluting property owner and his neighbor. Theorizing about the differences between property and liability rules, Judge Calabresi and Melamed show the potential symmetry in protection that the law may provide to plaintiff and defendant. Specifically, they demonstrate that courts may apply not only property but also liability protection to either of the parties. Most importantly, Judge Calabresi and Melamed highlight the possibility of a liability regime under which a victim could stop the pollution but would be required to compensate the polluter for his costs ("rule four").⁸³ This possible resolution is a rule under which a party (the defendant) could recover from another party (the plaintiff) for his investment in prevention (ceasing pollution).⁸⁴

Judge Calabresi and Melamed's analysis suggests one advantage in requiring the victim to pay for the prevention costs of the defendant: where courts can evaluate the benefit the polluter derives from her activity but cannot assess the value of clean air to the victim, demanding that the victim pay for abatement of the pollution

tive, however, paying the defendant is not prohibitive. The plaintiff is better off paying \$50 (\$20 + \$30) in prevention than suffering \$100 in harm.

⁸² Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 *Harv. L. Rev.* 1089 (1972).

⁸³ *Id.* at 1116–20.

⁸⁴ Judge Calabresi and Melamed's example involves a case where the defendant refrains from his harm-causing activity. Rule four may equally be applied in cases where the plaintiff is entitled to force the defendant to take precautions (rather than stopping the activity) while reimbursing the defendant for the costs of the precautions. For such an extension of rule four, see, for example, Saul Levmore, *Unifying Remedies: Property Rules, Liability Rules, and Startling Rules*, 106 *Yale L.J.* 2149, 2152 (1997).

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allows courts to maximize utility despite their limited information. Under such a rule, the victim (who must compensate the defendant) will look to stop the pollution only if her damage outweighs the polluter's benefit.⁸⁵ Judge Calabresi and Melamed's discussion, however, emphasizes only one type of informational hurdle (the parties' benefits and damages). Uncertainty with respect to parties' motives in taking precautions provides another rationale for a restitution rule. Under such a regime, the court is exempted from exploring whether and for what cause the plaintiff has invested in prevention. Given the duty to compensate the other party for his efficient precautions, a party has no incentives to invest strategically.

This combined regime has also been raised as a possible solution for the problem of "dilution of liability."⁸⁶ Where a potential harm can be avoided at the same cost by each of several parties, current tort rules may discourage efficient harm prevention. For example, consider a case in which any individual in a group of 100 people can single-handedly prevent an expected harm of \$50 by investing \$10 in precautions.⁸⁷ Since the cost of prevention for each individual (\$10) is higher than the expected cost each would have to bear should the damage occur ($\$50 / 100 = \0.50), no individual is induced to avert the harm. Scholars have claimed that "the conflict could be resolved by adopting both of the following two principles: one, liability can be imposed on all potential injurers; and two, a particular potential injurer should be reimbursed for her 'exces-

⁸⁵ Calabresi & Melamed, *supra* note 82, at 1117–21 (demonstrating the advantage of rule four).

⁸⁶ See generally Alon Harel & Assaf Jacob, An Economic Rationale for the Legal Treatment of Omissions in Tort Law: The Principle of Salience, *in* 3 *Theoretical Inquiries in Law* 413, 448–49 (2002) (discussing the incentives structure in cases in which efficient prevention can be carried out by one of many individuals and demonstrating the risk of dilution of liability).

⁸⁷ Rescue cases (such as a drowning person at the beach) provide a paradigmatic example of circumstances in which any of several individuals can efficiently, and with equal costs, prevent the harm. As Professor Harel and Jacob show, the problem of "dilution of liability" in such cases may explain the special treatment of omissions in tort law. Because making *all* potential rescuers responsible for the harm may provide insufficient incentives, tort rules avoid imposing liability on all rescuers. Instead, different tort doctrines identify a "salient" individual and make only her liable for the harm. *Id.* at 432–45.

sive' prevention costs by all other potential injurers."⁸⁸ Under this regime, parties' incentives to refrain from investing in prevention are removed.⁸⁹

More directly related to our analysis, scholars have suggested a restitution regime in the context of "compensatory precautions."⁹⁰ Addressing the risk of strategic negligence, scholars have proposed requiring the negligent party to repay the party who actually averts the harm. The suggested regime requires parties who can eliminate risks created by the negligent behavior of others to prevent the expected harm; failure to eliminate the risk may result in the imposition of liability. These same parties, however, could subsequently sue the negligent parties to recover their costs.

In practice, restitution for investments in prevention is uncommon. In the context of pollution cases, for example, Judge Calabresi and Melamed's rule four has apparently been applied only once.⁹¹ Parties who are required to anticipate the risky behavior of others and to take compensatory precautions are also seldom entitled to reimbursement.⁹² The application of restitution regimes

⁸⁸ Id. at 449.

⁸⁹ "If both these principles are adopted, the actual rescuer's cost will be only 0.1, which will be equal to the cost borne by every other individual potential rescuer. If all potential injurers fail to take preventive measures, the cost to each one of them will be 0.5." Id. The combined regime creates incentives for each party to eliminate the risk. Risk abatement still might not happen, however, if each of the individuals on the beach assumes that (given the incentives) others will save the drowning person.

⁹⁰ Wittman, *supra* note 5, at 72–74 (demonstrating that imposing a duty on the first party to compensate the second party for her "compensatory precautions" costs removes the risk of deliberate risky behavior by the first party); see also Susan Rose-Ackerman, *Dikes, Dams, and Vicious Hogs: Entitlement and Efficiency in Tort Law*, 18 J. Legal Stud. 25, 27–33 (1989) (discussing reimbursement for investments in efficient precautions as a means to solve the risk of deliberate negligent conduct).

⁹¹ In *Spur Industries v. Del E. Webb Development Co.*, 494 P.2d 700, 708 (Ariz. 1972), the Arizona Supreme Court required the plaintiff developer to pay damages to the defendant feedlot that would be shut down by an injunction in its nuisance suit. Yet, "Rule 4 has never been used in a nuisance case since *Spur*." Henry E. Smith, *Exclusion and Property Rules in the Law of Nuisance*, 90 Va. L. Rev. 965, 1010 (2004).

⁹² See Wittman, *supra* note 5, at 77–82 (showing that, as opposed to contract law, conventional tort doctrines require individuals to compensate for the unsafe behavior of others but grant them no right to reimbursement). Nevertheless, Professor Wittman argues that the existence of criminal sanctions removes the risk of strategic behavior in the context of sequential conduct. Although the first party is not required to compensate the second party for his prevention costs, she might well be required to pay a fine for her negligent behavior. According to Wittman, this combination of criminal sanctions on the one hand and a duty to take compensatory precautions on

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for investment in prevention is often too complicated. For example, as Judge Calabresi and Melamed explain, in the case of pollution it is often impossible to identify all the individuals who benefit from the pollution abatement.⁹³ Even when identification is possible, the costs involved in collecting the compensation from the relevant parties make restitution prohibitive.⁹⁴

Identification and collection concerns might therefore require restricting the application of the combined regime only to cases involving a manageable number of parties. The following analysis suggests one such possible context. Restitution for investments in prevention can be used to discourage strategic behavior among potential joint tortfeasors.

The hypotheticals involving Pete and the factory have demonstrated how, in a setting of a single harm-doer and a single victim, both the plaintiff and the defendant might invest opportunistically. Given courts' focus on the utility of untaken precautions, strategic behavior might also occur in cases involving multiple harm-doers. Potential defendants may attempt to shift prevention costs to one another through investment in inefficient precautions. Consider, for example, a case in which the expected \$90 harm to Pete's house results from the combination of smoke emitted by *two* factories, *X* and *Y*. The smoke from any one factory would be insufficient to cause any damage. Assume that while the social benefit from *Y*'s produc-

the other hand creates an optimal incentives system. The risk of criminal sanctions serves to encourage the first party to behave with due care. Where the first party acts unreasonably, tort liability motivates the second party to invest in prevention. *Id.* at 80–82. While correct, Wittman's argument again illustrates the oversight in tort law scholarship concerning the risk of opportunistic precautions. The first party's negligent behavior may trigger criminal liability only when it involves a failure to invest in efficient precautions; in contrast, criminal liability is unlikely where the first party deliberately invests in inefficient precautions. Wittman's argument therefore is relevant only in the case of strategic negligence.

⁹³ Calabresi & Melamed, *supra* note 82, at 1119 (discussing the difficulty of applying rule four in cases involving multiple victims).

⁹⁴ The combined regime might also be opposed on corrective justice grounds. Under the suggested regime, victims might be required not only to bear their harm but also to reimburse the defendants for their investments in efficient precaution. From an efficiency perspective, however, fair distribution concerns are postponed to a second stage. After implementing rules ensuring the maximum social utility, lawmakers are free to redistribute wealth as they please. See Louis Kaplow & Steven Shavell, *Fairness Versus Welfare*, 144 *Harv. L. Rev.* 961, 1028–38 (2001) (arguing that tort doctrines should maximize social welfare before addressing fairness considerations).

tion is very high, the benefit from *X*'s activity is only \$70. Finally, assume that once *X* raises its smokestack at a cost of \$50, *Y* can prevent the harm by installing a filter at a cost of \$35. This example is essentially similar to Hypothetical 2. Utility is maximized where *X* refrains from production. Given courts' application of the untaken-precautions approach, however, *X* is likely to raise its smokestack and force *Y* to install a filter. A restitution regime discourages such strategic behavior. Since *Y* can show that its precaution is cost effective, *X* will have to bear the entire cost of prevention. As such, *X* will avoid raising its smokestack and instead cease production.⁹⁵

In the context of potential joint tortfeasors, restitution seems practically attractive. In a usual case, a small number of injurers are responsible for the creation of the risk. In pollution cases, for example, the group of potential victims can comprise a large number of individuals, whereas polluters are seldom more than a few. Restitution among tortfeasors, therefore, often presents less complicated identification and collection difficulties. Legal practice reflects this reality. As the next examples demonstrate, while restitution claims for prevention costs are generally unavailable, in various areas such claims have been permitted among potential joint tortfeasors.

The Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA") requires that remedial measures be taken with regard to sites containing hazardous material. CERCLA imposes liability for pollution caused by the hazardous material on those responsible for either creating or maintaining the hazardous condition. Therefore, the party who created the risk and the party who currently controls the site are jointly liable in a case of pollution. CERCLA allows parties that engage in efficient prevention to demand restitution from the liable parties for the investments they made. Most importantly, as the U.S. Court of Appeals for the Second Circuit recently decided, such restitution claims can be filed even between parties that are each subject to possible liability under CERCLA.⁹⁶ For example, the current

⁹⁵ Since *X* does not raise its smokestack, the victim can show that *X* ceasing its production, at a cost of \$70, is the most efficient untaken precaution. If *X* does not stop its activity, it will be required to pay \$90 in compensation.

⁹⁶ Rejecting the decisions of previous courts, the Second Circuit held that we find no basis for reading into this language a distinction between so-called "innocent" parties and parties that, if sued, would be held liable under section

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owner of the site who invests in prevention may seek restitution from the party who produced or brought the hazardous material in the past. As such, CERCLA creates a regime under which parties that fail to invest in prevention are jointly liable in the case of harm. When precautions are taken, however, these parties may demand reimbursement from each other for their efficient investments in prevention.⁹⁷

Courts have been willing to apply a similar restitution regime in other contexts even without explicit regulation. In asbestos claims, liable parties may include both the manufacturer of the asbestos and the owner of the premises in which the asbestos was used.⁹⁸ In several jurisdictions, courts have compelled manufacturers to compensate building owners for costs incurred in the process of monitoring and removing asbestos.⁹⁹ Thus, building owners who fail to invest in precaution might be jointly liable together with the manufacturers for harms to individuals exposed to the asbestos. When precautions are taken, however, building owners can claim restitution for their prevention costs.

107(a). Section 107(a) makes its cost recovery remedy available, in quite simple language, to *any* person that has incurred necessary costs of response, and nowhere does the plain language of section 107(a) require that the party seeking necessary costs of response be innocent of wrongdoing.

Consol. Edison Co. of N.Y. v. UGI Utils., 423 F.3d 90, 99–100 (2d Cir. 2005) (citation omitted). Other courts, however, have expressed a different opinion. See, e.g., United Techs. Corp. v. Browning-Ferris Indus., 33 F.3d 96, 100 (1st Cir. 1994) (“[I]t is sensible to assume that Congress intended only innocent parties—not parties who were themselves liable—to be permitted to recoup the whole of their expenditures.”).

⁹⁷ For a similar state law, see Connecticut Water Pollution Control Act—Reimbursement for Containment or Removal Costs: Liability for Certain Acts or Omissions, Conn. Gen. Stat. Ann. § 22a-452 (West 2006) (allowing parties who mitigate the effects of hazardous material to collect for their mitigation costs).

⁹⁸ Lester Brickman, *Ethical Issues in Asbestos Litigation*, 33 Hofstra L. Rev. 833, 894–95 (2005) (“[D]efendants in asbestos litigation may be divided into two classes: 1) manufacturers, installers or sellers of asbestos-containing products; and 2) owners of premises which have asbestos-containing products on their premises, exposures to which have allegedly resulted in injury.” (footnote omitted)).

⁹⁹ See, e.g., 80 S. Eighth St. Ltd. P’ship v. Carey-Canada, Inc., 486 N.W.2d 393, 398 (Minn. 1992) (“We believe that allowing 80 South Eighth to proceed in tort for damages relating to the maintenance, removal and replacement of asbestos-containing fireproofing advances both the rationale and public policy objectives of tort law . . .”). For a comprehensive discussion, see generally Richard C. Ausness, *Tort Liability for Asbestos Removal Costs*, 73 Or. L. Rev. 505 (1994).

Public authorities provide another example. Governmental entities and municipalities are often required to neutralize risks resulting from the careless behavior of private individuals where these risks endanger the life and property of people in their domain.¹⁰⁰ When the public authority fails to fulfill its duty and the risk materializes, both the individual responsible for the creation of the risk and the authority are liable. Public authorities that neutralize such risks, however, do not only escape possible liability. In various categories of cases, public authorities can sue the individual whose conduct created the risk and demand that he repay their reasonable prevention costs.¹⁰¹ Public authorities' right to reimbursement has been recognized both in adjudication and legislation.¹⁰²

These examples thus indicate that the combined regime is not only a theoretical model. Among certain types of potential joint tortfeasors, restitution for efficient investments in prevention is a legal reality. In practice, the combined regime has been applied in only select areas. Legal scholarship, overlooking the risk of opportunistic precautions, has not considered the potential of the combined regime in creating incentives for optimal care. This regime, by allowing parties to collect for their prevention costs in additional contexts, can be applied in a way that will diminish the likelihood of strategic conduct.

CONCLUSION

Standards of reasonable behavior lie at the heart of negligence and nuisance cases. Focusing on these two contexts, the preceding discussion has demonstrated that courts' conventional analysis for

¹⁰⁰ See, e.g., 57 Am. Jur. 2d Municipal, Etc. Tort Liability § 136 (2006) (discussing the duty of municipalities to abate nuisance created by the negligent behavior of private parties).

¹⁰¹ See David C. McIntyer, Note, Tortfeasor Liability for Disaster Response Costs: Accounting for the True Costs of Accidents, 55 Fordham L. Rev. 1001, 1019–34 (1987) (discussing public authorities' right to reimbursement for costs incurred in the process of eliminating risks created by the negligent behavior of private citizens and companies).

¹⁰² For a comprehensive overview, see Timothy D. Lytton, Should Government Be Allowed to Recover the Costs of Public Services from Tortfeasors?: Tort Subsidies, the Limits of Loss Spreading, and the Free Public Services Doctrine, 76 Tul. L. Rev. 727, 731–45 (2002) (discussing common law doctrines and statutes under which public authorities have been able to collect prevention costs from tortfeasors).

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determining reasonable behavior may encourage strategic behavior. Looking to shift prevention costs to others, parties may choose to invest in precautions even where such investments are socially undesirable.

The standard of reasonable behavior applies in legal areas other than negligence and nuisance. To this extent, this Article brings to light an oversight in legal scholarship that may transcend tort law. By applying the insights of the preceding discussion to the Americans with Disabilities Act (“ADA”), this Conclusion demonstrates the potential implications of the opportunistic precautions analysis in areas unrelated to harm prevention.

Title I of the ADA requires employers to undertake affirmative steps to accommodate employees with disabilities.¹⁰³ Against the employers’ general duty to provide such accommodation, courts have required qualified individuals with “correctable” disabilities to utilize available measures that would mitigate their impairments.¹⁰⁴ Scholarly writing, addressing the proper balance between these two duties, has endorsed the use of a negligence-like standard.¹⁰⁵ More specifically, it has been suggested that in cases of “correctable” disabilities, adjudicators should compare the burden on the employer (to provide accommodation) with the onus on the employee (of mitigation).¹⁰⁶ A qualified employee should be re-

¹⁰³ Americans with Disabilities Act, 42 U.S.C. §§ 12101, 12111–12117 (2000). On the employers’ duty to provide accommodation, see Stewart J. Schwab & Steven L. Willborn, Reasonable Accommodation of Workplace Disabilities, 44 Wm. & Mary L. Rev. 1197 (2003); Michael Ashley Stein, The Law and Economics of Disability Accommodations, 53 Duke L.J. 79, 81–102 (2003).

¹⁰⁴ See, e.g., *Van Stan v. Fancy Colours & Co.*, 125 F.3d 563, 570 (7th Cir. 1997) (“A plaintiff cannot recover under the ADA if through his own fault he fails to control an otherwise controllable illness.”); *Siefken v. Vill. of Arlington Heights*, 65 F.3d 664, 667 (7th Cir. 1995) (holding that if an employee’s impairment is “due to his failure to control a controllable disability, he cannot state a cause of action under the ADA”); *Tangires v. Johns Hopkins Hosp.*, 79 F. Supp. 2d 587, 596 (D. Md. 2000) (“A plaintiff who does not avail herself of proper treatment is not a ‘qualified individual’ under the ADA.”). For a review of similar decisions, see Jill Elaine Hasday, Mitigation and the Americans with Disabilities Act, 103 Mich. L. Rev. 217, 237–39 (2004).

¹⁰⁵ See, e.g., Hasday, *supra* note 104, at 219 (claiming that plaintiffs seeking Title I protection should be under a duty to take only “reasonable” mitigating measures); Stephanie A. Fishman, Note, Individuals with Disabilities but Without Mitigating Measures, 46 Wayne L. Rev. 2013, 2041 (2000) (arguing that individuals forfeit ADA protection only if their failure to mitigate is unreasonable).

¹⁰⁶ See, e.g., Debra Burke & Malcolm Abel, Ameliorating Medication and ADA Protection: Use it and Lose it or Refuse it and Lose it?, 38 Am. Bus. L.J. 785, 814

quired to mitigate only if the burden of doing so is less than the employer's burden to provide the necessary accommodation.

While such a rule induces qualified individuals to alleviate their condition and avoid unfair burdens on the employer, the suggested standard also creates the risk of strategic conduct. Self-interested employers may invest in socially undesirable accommodation in an attempt to make individuals with disabilities bear some of the costs through mitigation. Consider, for example, an employer who can invest in either of two types of accommodation: technology that would enable the employee to work from home (costing \$10,000) or a ramp at the workplace (costing \$5000). The technology allows the qualified employee to perform the job with no investment on her part. In contrast, the ramp enables the employee to perform the job only if she invests in a mitigating measure, an expensive electric wheelchair, at a cost of \$7000. Social welfare considerations mandate that the employer invest in the technology. Yet under the suggested standard, employers are likely to strategically invest in the ramp. Subsequent to the employer's investment, the employee may mitigate her condition at a lower cost (\$7000) than the cost of accommodation (\$10,000). A failure on the part of the employee to invest in the wheelchair will deprive her of her ADA privileges.¹⁰⁷

(2001) (suggesting that in "correctable disabilities" cases, courts should apply a test that "balances the burden on the employer versus the responsibility of the employee"); Lisa E. Key, *Voluntary Disabilities and the ADA: A Reasonable Interpretation of "Reasonable Accommodations,"* 48 *Hastings L.J.* 75, 96-98 (1996) (arguing that courts should apply a cost-benefit analysis and require employees seeking the protection of the ADA to invest only in "reasonable" accommodation); Lawrence D. Rosenthal, *Requiring Individuals to Use Mitigating Measures in Reasonable Accommodation Cases After the Sutton Trilogy: Putting the Brakes on a Potential Runaway Train,* 54 *S.C. L. Rev.* 421, 466-67 (2002) (advocating a test that would balance the employees' and employers' interests). But cf. Sarah Shaw, *Comment, Why Courts Cannot Deny ADA Protection to Plaintiffs Who Do Not Use Available Mitigating Measures for Their Impairments,* 90 *Cal. L. Rev.* 1981, 2007-08 (2002) (arguing that employees should not be required to invest in mitigation, even when the employer's cost of accommodation is higher).

¹⁰⁷ A full scale evaluation of the ways the risk of strategic investments under the ADA could be resolved is beyond the scope of this Article, but the preceding discussion does suggest that a version of one of the two alternatives to the untaken-precautions approach could be applied. First, courts could remove the incentives for "opportunistic accommodation" by extending the suggested test in "correctable" disability cases. Under this extended test, courts will evaluate not only the advantages of "untaken accommodation" but also the desirability of the accommodation in which the employers have already invested. Second, requiring the employers to reimburse

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The ADA example shows that opportunistic investments may occur in contexts that share the two basic characteristics of negligence and nuisance disputes. First, the decision of how to allocate duties must depend on efficiency considerations determined by risk-utility analysis. Second, parties must be able to manipulate other parties' costs or benefits through inefficient investments. Where the legal standard employed resembles the liability regime of negligence and nuisance cases, the presence of these characteristics may lead to strategic conduct. Further analysis may reveal other contexts in which similar forms of strategic behavior may occur.

Over the last decade, academics and policymakers have expressed increasing frustration with the rules of liability, claiming that the legal system fails to encourage efficient harm prevention. Various tort reforms have been proposed with the hope of increasing the social net return from investments in precautions. Most of these proposals, however, have failed to achieve a wide consensus, mostly due to questions about their effectiveness.

This Article, in discussing the risk of strategic investments in prevention, has identified an important source for possible social disutility in tort law that has not been addressed by existing tort scholarship. More importantly, it has shown that the legal system can remove this risk in two alternative ways that have already been successfully applied in cases of negligence and nuisance disputes. The preceding analysis also suggests the relative advantages of each alternative. The "extended cost-benefit analysis" is preferable in cases in which the large number of involved parties may raise identification and collection problems. The "combined regime" is attractive in contexts where the courts, the litigants, or both, may find it difficult to determine if investments in prevention were motivated by strategic thinking. The combination of these alternatives provides a useful framework for courts to resolve the risk of opportunistic precautions.

qualified employees for their mitigation costs will make strategic investments in accommodation ineffective. For an exploration of a possible regime of a duty to mitigate with a right to reimbursement, see, for example, Key, *supra* note 106, at 98 (suggesting a rule of reimbursement for certain types of mitigating measures).