

Winter 2022

The Limits of Regulation by Insurance

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Recommended Citation

Abraham, Kenneth S. and Schwarcz, Daniel Benjamin (2022) "The Limits of Regulation by Insurance," *Indiana Law Journal*: Vol. 98: Iss. 1, Article 5.

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The Limits of Regulation by Insurance

KENNETH S. ABRAHAM* & DANIEL SCHWARCZ**

Insurance is an enormously powerful and beneficial method of spreading risk and compensating for loss. But even insurance has its limits. A new and misleading aspiration for insurance—that it also can and often does substitute for or significantly complement health and safety regulation—is increasingly in vogue. This vision starts from the uncontroversial recognition that insurers typically adopt measures designed to counteract “moral hazard,” the tendency of insurance to blunt policyholders’ incentives to take care. But proponents of this vision go on to contend that the risk-reducing potential of insurance is significantly more extensive than is traditionally imagined, because insurers are strategically positioned to induce their policyholders to embrace precautions, procedures, policies, or training regimens that decrease the incidence of loss. Proponents of this new “regulation thesis” often dramatically summarize these points by describing insurance as a form of private “regulation” or “loss prevention,” attempting to trade on the positive optics of these notions. Enamored with this idea, commentators, activists, and lawmakers have advanced various proposals to mandate the purchase of insurance or otherwise intervene in insurance markets to address a broad range of modern social ills, including police misconduct, gun violence, cyberattacks, and harms caused by artificial intelligence. Building on emerging criticism of this regulation thesis as well as increasing empirical evidence questioning its accuracy, this Article argues that these regulatory aspirations for insurance are over-optimistic. Creating less loss than insurance otherwise might have created is not regulation or loss prevention. Rather, it is damage-control, and that is what insurance devices designed to combat moral hazard almost always involve. Insurers face a daunting set of obstacles to further reducing policyholder risk below what it would be in the absence of insurance. In short, insurance has substantial limits as a solution for the failures of regulation.

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INTRODUCTION

When all else fails, fall back on insurance. For many decades, that strategy has addressed a number of important social problems, including postretirement income insecurity,¹ healthcare for the elderly,² and compensation for auto accident injuries.³ Now, a new vision for insurance—what we will call the “regulation thesis”—is increasingly in vogue. The regulation thesis is our term for the cluster of viewpoints, proposals, and aspirations converging on the idea that insurance can and should serve as a substitute for, or significant complement to, health and safety regulation. Commentators of course vary in the extent to which they embrace this thesis: while some outliers suggest that insurance can and should completely replace the regulatory state,⁴ many offer a more moderated version of the thesis that emphasizes the untapped or underappreciated regulatory potential of insurance.⁵

1. Federal Old Age, Survivors, and Disability Insurance (OASDI)—“social security”—provides financial benefits to U.S. workers in “old” age. 42 U.S.C. § 402(a); *see also* THEODORE R. MARMOR, JERRY L. MASHAW & JOHN PAKUTKA, *SOCIAL INSURANCE: AMERICA’S NEGLECTED HERITAGE AND CONTESTED FUTURE* 187–93 (Olivia Weber-Stenis & Judy Selhorst eds., 2014).

2. *See* MARMOR ET AL., *supra* note 1, at 121–24; 42 U.S.C. § 1395c.

3. *See* KENNETH S. ABRAHAM & DANIEL SCHWARCZ, *INSURANCE LAW & REGULATION* 708, 765–70 (7th ed. 2020).

4. *See, e.g.*, ROBERT P. MURPHY, *CHAOS THEORY: TWO ESSAYS ON MARKET ANARCHY* (2002), https://cdn.mises.org/Chaos%20Theory_2.pdf [<https://perma.cc/JW9Y-PTJ2>].

5. *See, e.g.*, Angela N. Aneiros, *The Unlikely Pressure for Accountability: The Insurance Industry’s Role in Social Change*, *TEX. J. CIV. LIBERTIES & CIV. RTS.* (forthcoming 2022); Troy Herr, *Cyber Insurance and Private Governance: The Enforcement Power of Markets*, 15 *REGUL. & GOVERNANCE* 98 (2021); ANJA SHORTLAND, *KIDNAP: INSIDE THE RANSOM BUSINESS* (2019); Deborah Ramirez, Marcus Wraight, Laurym Kilmister & Carly Perkins, *Policing the Police: Could Mandatory Professional Liability Insurance for Officers Provide a New Accountability Model?*, 45 *AM. J. OF CRIM. L.* 407 (2019); Anat Lior, *Insuring AI: The Role of Insurance in Artificial Intelligence Regulation*, 35 *HARV. J. LAW & TECH.* 467 (2022); Alexander B. Lemann, *Coercive Insurance and the Soul of Tort Law*, 105 *GEO. L.J.*

In recent years, however, various cracks have emerged in the foundations of the regulation thesis. For instance, a number of influential scholars have developed increasingly nuanced versions of the thesis, emphasizing that insurers often fail to reduce risk in socially-beneficial ways for a variety of reasons.⁶ Some have gone even further, arguing that insurers may attempt to increase risk so as to expand long-term demand for their products.⁷ Meanwhile, various empirical studies have demonstrated that insurers frequently do not live up to the lofty aspirations of the regulation thesis, either doing little to induce their insureds to mitigate risk or encouraging behavior that merely limits the prospect of their policyholders' liability without effectuating the deterrence goals underlying the imposition of liability itself.⁸

55 (2016); John Rappaport, *How Private Insurers Regulate Public Police*, 130 HARV. L. REV. 1539 (2017); Omri Ben-Shahar & Kyle D. Logue, *Outsourcing Regulation: How Insurance Reduces Moral Hazard*, 111 MICH. L. REV. 197 (2012); Peter Kochenburger, *Liability Insurance and Gun Violence*, 46 CONN. L. REV. 1265 (2014); TIMOTHY D. LYTTON, *OUTBREAK: FOODBORNE ILLNESS AND THE STRUGGLE FOR FOOD SAFETY* 147–52 (2019); Jan Martin Lemnitzer, *Why Cybersecurity Insurance Should be Regulated and Compulsory*, 6 J. CYBER POL'Y 118 (2021); see Andrew Verstein, *Changing Guards: Improving Corporate Governance with D&O Insurer Rotations*, 108 VA. L. REV. 983 (2022).

6. See, e.g., Tom Baker & Rick Swedloff, *Regulation by Liability Insurance: From Auto to Lawyers Professional Liability*, 60 UCLA L. REV. 1412, 1412 (2013) (suggesting various theoretical mechanisms by which insurers can shape the riskiness of their policyholders' actions, while encouraging systematic empirical investigation of the extent to which these theoretical possibilities are realized); Tom Baker & Thomas O. Farrish, *Liability Insurance & the Regulation of Firearms*, in *SUING THE GUN INDUSTRY* 292 (Timothy D. Lytton ed., 2005) (arguing that liability insurance can have a regulatory effect on gun risk, but that this risk is contingent on the underlying liability regime); Shauhin A. Talesh, *A New Institutional Theory of Insurance*, 5 U.C. IRVINE L. REV. 617 (2015) [hereinafter *A New Institutional Theory of Insurance*]; Shauhin A. Talesh, *Data Breach, Privacy, and Cyber Insurance: How Insurance Companies Act as "Compliance Managers" for Business*, 43 LAW & SOC. INQUIRY 417 (2018) [hereinafter *Data Breach*]; Shauhin A. Talesh, *Insurance Companies as Corporate Regulators: The Good, the Bad, and the Ugly*, 66 DEPAUL L. REV. 463, 479–84 (2017) [hereinafter *Insurance Companies as Corporate Regulators*]; Kyle D. Logue, *Encouraging Insurers to Regulate: The Role (If Any) for Tort Law*, 5 U.C. IRVINE L. REV. 1355, 1369–70 (2015) (emphasizing that insurers often fail to live up to their regulatory potential); Kyle D. Logue & Adam B. Shniderman, *The Case for Banning (and Mandating) Ransomware Insurance*, 28 CONN. INS. L.J. 247 (2021) (arguing that insurance could reduce the risk of ransomware if states prohibited coverage for ransom payments, while permitting (or mandating) coverage for the non-ransom related costs of ransomware attacks); Tom Baker & Anja Shortland, *Government and Insurance: Lessons for Ransomware*, REGUL. & GOVERNANCE (forthcoming 2023) (exploring various ways in which government can facilitate risk reduction in insurance markets). See generally *infra* Part I.A.

7. See Ronen Avraham & Ariel Porat, *The Dark Side of Insurance*, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4203765 [<https://perma.cc/N9ZT7LD>].

8. See, e.g., Tom Baker & Sean J. Griffith, *The Missing Monitor in Corporate Governance: The Directors' & Officers' Liability Insurer*, 95 GEO. L.J. 1795 (2007) (demonstrating that D&O insurers often fail to take measures that can meaningfully limit the risk of corporate malfeasance); Shauhin Talesh, *Legal Intermediaries: How Insurance Companies Construct the Meaning of Compliance with Antidiscrimination Laws*, 37 LAW &

This Article builds on this theory and evidence to argue that, although insurance is a powerful and enormously beneficial method of spreading risk and compensating for loss, it has significant limits as a regulatory device. These limits, moreover, are often far more powerful than many of the more optimistic versions of the regulation thesis contemplate. In advancing this argument, we not only highlight the mounting evidence that insurers often fail to act as the regulation thesis imagines, but also explain the forces behind this reality.⁹ By systematically cataloguing the flaws in the regulation thesis, we show that, while there is some truth to the regulation thesis, there is much less than is often suggested.

These conclusions should not be surprising, since the regulation thesis is in tension with a primary purpose of insurance: to encourage productive and valuable risk-taking by promising compensation for fortuitous losses that result from such risk-taking.¹⁰ As a consequence, insurance has for centuries been understood to dampen the incentives of insured parties to take care. This effect is known as “moral hazard.”¹¹ Dating back at least to the eighteenth century, legislatures and courts were so concerned about moral hazard that they banned certain forms of insurance entirely in the name of promoting public safety.¹² Today, concern about moral hazard remains at the heart of several foundational rules of insurance law, including requirements that an insured party have an “insurable interest” in the subject matter insured¹³ and prohibitions of insurance against liability for punitive damages.¹⁴

Completely unmanageable moral hazard is not, however, an inevitable byproduct of insurance, or insurance as we know it would not exist.¹⁵ Insurers routinely adopt

POL'Y 209, 232–33 (2015) [hereinafter *Legal Intermediaries*] (finding that insurers' risk management efforts focus predominantly on coaching employers to avoid being sued rather than on promoting the underlying goals of liability, such as fostering a healthy workplace environment); Shauhin Talesh & Bryan Cunningham, *The Technologization of Insurance: An Empirical Analysis of Big Data and Artificial Intelligence's Impact on Cybersecurity and Privacy*, 5 UTAH L. REV. 967, 975 (2021) (“Although reliance on technology and data are increasingly transforming the way insurers advertise, underwrite, and price insurance, the actual impact on insurer behavior seems to have remained minimal and is largely symbolic.”); Marcos Antonio Mendoza, *The Limits of Insurance as Governance: Professional Liability Coverage for Civil Rights Claims Against Public School Districts*, 38 QUINNIPIAC L. REV. 375, 416–26 (2020). See generally *infra* Part I.B.

9. See *infra* Parts II & III.

10. See, e.g., HANNAH FARBER, UNDERWRITERS OF THE UNITED STATES: HOW INSURANCE SHAPED THE AMERICAN FOUNDING 31–32 (2021) (showing how maritime insurance in the eighteenth century supported commerce when governments failed to reduce risk on the high seas).

11. See ABRAHAM & SCHWARCZ, *supra* note 3, at 8; Tom Baker, *On the Genealogy of Moral Hazard*, 75 TEX. L. REV. 237 (1996).

12. For example, courts deemed liability insurance to violate public policy until the 1880s, at which point they began to recognize that its risk-spreading benefits could outweigh the costs of moral hazard. KENNETH S. ABRAHAM, *THE LIABILITY CENTURY: INSURANCE AND TORT LAW FROM THE PROGRESSIVE ERA TO 9/11*, at 19–26 (2008).

13. ABRAHAM & SCHWARCZ, *supra* note 3, at 229.

14. *Id.* at 102; see Catherine M. Sharkey, *Revisiting the Noninsurable Costs of Accidents*, 64 MD. L. REV. 409 (2005).

15. Kenneth J. Arrow, *Insurance, Risk and Resource Allocation*, in *ESSAYS IN THE*

measures that counteract moral hazard well enough for insurance to function effectively. A foundational literature in economics in the 1960s and '70s emphasized this point by highlighting insurers' use of risk-based pricing and partial insurance for this purpose. Insurers employing risk-based pricing can reduce moral hazard by setting premiums based on the risk an insured¹⁶ poses at the initial underwriting stage, or by increasing premiums if an insured incurred a preventable loss in prior coverage periods.¹⁷ Similarly, insurers can increase an insured party's incentives to avoid loss by including loss-sharing provisions in their policies like deductibles, co-insurance, and monetary limits on coverage.¹⁸

The overall tone of these early studies was that insurers can mitigate, but not eliminate, the tendency of their products to induce moral hazard by creating countervailing incentives for insureds to take care. In subsequent decades, however, an influential strain of legal and sociological scholarship generated ideas that developed into the regulation thesis, suggesting that economists failed to fully appreciate just how well insurance can, and often does, counteract moral hazard.¹⁹ According to this work, there is a broad array of tools beyond risk-based pricing and loss-sharing provisions that insurers can use to mitigate moral hazard, many of which can affirmatively assist insureds in reducing risk and preventing the occurrence of loss.

Much of this socio-legal scholarship on the regulatory potential of insurance implicitly acknowledged that due to moral hazard, insurance typically has what we call a *net-negative* effect on loss prevention. In other words, in the aggregate there are more losses when there is insurance than there would be in the absence of insurance. But more modern strains of the regulation thesis often go further, implicitly or even explicitly suggesting that insurance can, and often does, have a *net-positive* effect on loss prevention by reducing losses below the levels that would occur in the absence of insurance against the losses in question.²⁰

THEORY OF RISK BEARING 134, 137–42 (Julius Margolis ed., 1971); Baker, *supra* note 11, at 237.

16. We will use the terms “policyholder” and “insured” interchangeably, although technically the policyholder is the party who purchases an insurance policy (and is also ordinarily an insured party), whereas an “insured” is simply a party covered by the policy, whether or not a purchaser.

17. See KENNETH S. ABRAHAM, *DISTRIBUTING RISK: INSURANCE, LEGAL THEORY, AND PUBLIC POLICY* 15 (1986).

18. *Id.*; Steven Shavell, *On Moral Hazard and Insurance*, 93 Q. J. ECON. 541, 541–42 (1979); Bengt Holmstrom, *Moral Hazard and Observability*, 10 BELL J. ECON. 74, 80 (1979).

19. See CAROL A. HEIMER, *REACTIVE RISK AND RATIONAL ACTION: MANAGING MORAL HAZARD IN INSURANCE CONTRACTS* (1985); François Ewald, *Insurance and Risk*, in *THE FOUCAULT EFFECT: STUDIES IN GOVERNMENTALITY* 197 (Graham Burchell et al. eds., 1991); RICHARD V. ERICSON & AARON DOYLE, *UNCERTAIN BUSINESS: RISK, INSURANCE AND THE LIMITS OF KNOWLEDGE* (2004); Tom Baker, *Risk, Insurance, and the Social Construction of Responsibility*, in *EMBRACING RISK: THE CHANGING CULTURE OF INSURANCE AND RESPONSIBILITY* 33 (Tom Baker & Jonathan Simon eds., 2002).

20. See, e.g., Ben-Shahar & Logue, *supra* note 5, at 199 (“This Article develops the opposite proposition—that insurance can reduce and in some cases solve, rather than create or exacerbate, the moral hazard and related incentive problems.”); Lemann, *supra* note 5, at 55 (“Insurance can now, in many cases, deter risky conduct more effectively than tort law.”);

This would be an attractive story if it were accurate, but it is inaccurate in two respects. First, it risks being misleading by using terminology in a figurative way and thereby exaggerating what insurance accomplishes. Creating less danger than insurance might otherwise have created, by employing risk-based pricing or loss-sharing, for example, is not “regulation” or “loss prevention” in the sense that these terms are likely to be understood by the targeted audience. Unlike government regulation or even regulation by private parties who are delegated governmental authority, insurers principally “govern” the behavior of their insureds through contract terms and pricing strategies that attempt to counteract the problems that their more fundamental risk-protection products create. This is hardly “loss prevention” or “regulation.” Rather, it is damage control, and that is what insurance devices designed to combat moral hazard generally involve.²¹

The second, and more fundamental, inaccuracy in the story involves the dream that insurance can go beyond merely mitigating moral hazard to have a net-positive effect on loss prevention. Enamored with this possibility, and perhaps even misled by their own figurative language, commentators, activists, and policymakers have advanced various proposals to mandate the purchase of insurance or otherwise intervene in insurance markets to address a broad range of modern social ills. These include police misconduct,²² gun violence,²³ cyberattacks,²⁴ food safety,²⁵ corporate diversity initiatives,²⁶ and harms caused by artificial intelligence.²⁷

In fact, however, insurers’ ability to completely overcome moral hazard through incentive structures and the provision of affirmative guidance and services is more

Aneiros, *supra* note 5, at 4 (arguing that “D&O insurers hav[e] the power to hold boards accountable, thereby placing insurance companies in a unique position to advance social justice”); Lior, *supra* note 5, at 467 (“Insurance has the power to better handle AI-inflicted damages, serving both a preventive and compensatory function.”); Lemnitzer, *supra* note 5, at 131 (arguing that if “every SME in the EU was insured, the Digital Single Market would be a much safer environment for all companies and their customers . . . where hacks are rarer, losses to cybercrime are lower and customer and client data is safer than anywhere else in the world.”).

21. See *infra* Part IV.

22. See, e.g., Ramirez et al., *supra* note 5; Suzanne Barlyn & Alwyn Scott, *Insurers Exploring ‘New World’ of Police Officer Professional Liability*, INSURANCE J. (July 24, 2020) <https://www.insurancejournal.com/news/national/2020/07/24/576789.htm> [<https://perma.cc/3ZUQ-QHFN>] (because officers would pay any premium increases arising from their misconduct, premium increases “would force an officer to either change their behavior or leave the field of law enforcement”).

23. Kochenburger, *supra* note 5, at 1265; Baker & Farrish, *supra* note 6, at 292.

24. See Cybersecurity and Infrastructure Agency, *Cybersecurity Insurance Industry Readout Reports*, <https://www.cisa.gov/publication/cybersecurity-insurance-reports> [<https://perma.cc/F4EB-5JEA>] (“A robust cybersecurity insurance market could help reduce the number of successful cyber attacks by: (1) promoting the adoption of preventative measures in return for more coverage; and (2) encouraging the implementation of best practices by basing premiums on an insured’s level of self-protection.”). See also Logue & Shniderman, *supra* note 6.

25. See Lytton, *supra* note 5.

26. See Aneiros, *supra* note 5.

27. See Lior, *supra* note 5.

theoretical than real.²⁸ And in most cases, there is little or no reason to think that experience would be any different under proposals to use insurance as a solution to the above problems. This is because insurers in most markets face a dizzying array of economic impediments to effectively reducing risk, including collective action problems, information asymmetries, competing long-term and short-term incentives, and limitations in their ability to manage the impact of insurance on third parties.²⁹

None of this is to suggest that insurance can never have a net-positive effect on loss. Perhaps most notably, there is a long-term possibility that a brave new world of telematics, in which insurers will be able to monitor the conduct of their policyholders in real time and charge them for coverage accordingly, will multiply the regulatory potential of insurance.³⁰ But this is not our world, and it is not the world of the near future.³¹ More importantly, the potential power of telematics in auto insurance does not translate easily to most other insurance settings because driving risk can in theory be almost perfectly observed by technology at zero marginal cost, the causal determinants of auto accident risk are well understood, insureds have strong non-pecuniary reasons to avoid losses, and auto liability insurance is legally mandated in most states. These factors are weaker or completely missing in many other insurance settings.³²

We develop these arguments beginning in Part I, with a review and analysis of the theoretical and empirical literature on insurance, moral hazard, and loss prevention. This review not only analyzes the contending theories, but also uncovers the fact that the most convincing evidence of substantial insurer involvement in loss prevention programs involves some atypical, niche insurance markets populated by what we call “genuine” mutual insurers, or by a small number of commercial insurers operating in a narrow specialty, such as Lloyds’ maritime insurance for arctic shipping. In sharp contrast, studies focused on insurance in more typical commercial markets suggest that insurers generally rely on conventional and relatively passive measures to counteract moral hazard that cannot plausibly wholly reverse the net-negative effect of insurance on loss prevention. Whether the glass is half-empty or half-full, the important point is that, for the reasons we will identify, it would be difficult to pour more water into the glass. As we indicate at many points below, there is a considerable amount of effective mitigation of losses by insurance—just not as much as some authors think there is, or imagine there could be.

In order to show why, Part II focuses on the *conventional* techniques that insurers can and do use to help mitigate moral hazard, and on the substantial limitations of these techniques. We define conventional techniques as those that can be

28. See *infra* Part I.

29. See *infra* Parts II & III.

30. See Yizhou Jin & Shoshana Vasserman, *Buying Data from Consumers: The Impact of Monitoring Programs in U.S. Auto Insurance* (2021), <https://shoshanavasserman.com/files/2022/JV.pdf> [<https://perma.cc/QYD4-Z6JW>].

31. See Mitchell Scrimgeour-Brown, *Telematics “a Total Game Changer” for Auto Insurers*, INSURANCE BUS. (June 30, 2021), <https://www.insurancebusinessmag.com/us/news/commercial-auto/telematics-a-total-game-changer-for-auto-insurers-259488.aspx> [<https://perma.cc/S4PN-D7E8>] (noting that only six percent of consumers in the United States are enrolled in telematics programs).

32. See *infra* Part II.

operationalized through traditional processes that insurers must typically maintain as an ordinary incident of transferring and spreading policyholder risk.³³ For the most part, these techniques create incentives for policyholders to engage in loss prevention or loss reduction on their own. Examples include not only risk-based pricing and loss-sharing through partial insurance, but also the use of coverage exclusions and ex post loss management. In each instance, we show that insurers' practical capacity to effectively deploy these tools in ways that combat moral hazard is often quite limited. And rarely, if ever, can these tools go beyond combatting moral hazard by having a net-positive effect on loss prevention.

Part III then analyzes *unconventional* techniques that insurers can employ to combat moral hazard and promote loss prevention. We define risk-mitigation tools as unconventional if they operate outside the confines of traditional insurance functions that are necessary to transfer risk from policyholders to insurers. These techniques tend not to rely on incentive creation for policyholders in the manner of conventional techniques. Rather, they often consist of the direct provision of loss prevention services to policyholders. Examples include direct insurer efforts to coach safer conduct, advise policyholders on loss-mitigation strategies, provide ongoing risk-detection services, and influence public policy regarding loss prevention and cost spreading. Although much recent literature has touted the potential for these methods both to counteract moral hazard and reduce risk more generally, we show that their frequency of use and effectiveness is limited, because they are often not profit-maximizing for commercial insurers to embrace. And just like their conventional counterparts, these unconventional techniques usually do not result in insurance having a net-positive impact on risk. Only highly exceptional, niche insurers stand out as an exception to this proposition.

Finally, Part IV identifies the lessons of our analysis. We do not oppose insurer involvement in loss prevention when it is effective. But that is much less common than many entries in the regulation-thesis literature suggest. To support our position, we first elucidate the differences among avoiding moral hazard, combatting moral hazard, loss prevention, and regulation. Focusing on these distinct categories, we then explain how our analysis supports the conclusion that insurance will rarely have a net-positive impact on loss prevention.

I. INSURANCE, MORAL HAZARD, AND LOSS PREVENTION: THEORY AND EVIDENCE

The literature on insurance, moral hazard, and loss prevention naturally divides itself into theory on the one hand, and evidence on the other. For the most part, the theory came first and was largely the province of economists and socio-legal scholars. Section A reviews this theoretical work. Section B surveys the empirical evidence examining how insurance manages moral hazard and promotes loss prevention, much of which has been produced by legal scholars and sociologists.

33. There are, of course, other ways of sub-dividing insurers' loss prevention strategies. For instance, conventional loss prevention by insurers is typically passive, whereas unconventional loss prevention is often active. But because these trends are not universal, an alternative approach is to subdivide loss prevention strategies based on the extent to which they require active engagement by insurers.

A. Theory

Because economists came first to the subject, their early work developed simple, general models of insurance in the face of moral hazard. Subsequent legal and sociological theory-building elaborated and refined earlier work based in part on anecdotal observations of how insurance operates in practice.

1. The Economic Literature on Moral Hazard and Loss Prevention

The second half of the twentieth century was a fruitful period for scholarship regarding the economics of information, and a significant branch of this theory focused on insurance and moral hazard.³⁴ Moral hazard can be understood to be a byproduct of incomplete information because it could be completely eliminated by an insurer that was able to costlessly and perfectly monitor an insured party's conduct. Knowing the risks that the insured took during the policy period, the insurer could adjust premiums at the end of the policy period on that basis. Anticipating having to pay a premium calculated in this manner, the insured would invest in loss prevention so as to minimize the sum of loss-prevention costs and risk-adjusted premiums, thereby eliminating moral hazard.³⁵

In the absence of complete information,³⁶ however, insurance threatens to create moral hazard, because the insured incurs the full cost of loss prevention, but only some of the benefits. The extent to which moral hazard in fact occurs depends on various factors, including the extent to which policyholders have control over loss-producing behavior and whether monetary insurance payouts can fully compensate for a loss.³⁷ It is also sometimes worthwhile to distinguish (as we do at various points in Parts II and III) between moral hazard manifested in conscious decisions to take risk because of the availability of insurance to cover resulting losses, and moral hazard generated when the insured does not know whether its conduct is risk-increasing, but is less concerned than it otherwise would be of this prospect, precisely because it has insurance.

Any moral hazard that insurance does generate, the mid-twentieth century insurance economists emphasized, could be partly counteracted by risk-based pricing and partial insurance. Premiums reflecting the insurer's *ex ante* estimate of policyholders' risk levels, based on each policyholder's observable characteristics or loss experience, could counteract moral hazard by allowing policyholders who take care to pay lower insurance premiums.³⁸ In addition, partial insurance, in the form of deductibles, coinsurance, and monetary coverage limits, could give policyholders

34. See Joseph E. Stiglitz, *The Contributions of the Economics of Information to Twentieth Century Economics*, 115 Q. J. ECON. 1441, 1454–55 (2000).

35. See *supra* note 14.

36. See *infra* Part II (noting that the advent of telematics could solve some but far from all aspects of the problem of incomplete information, but its capacity to do that is not likely to be realized in the near future).

37. See Baker, *supra* note 11, at 267–81.

38. See ABRAHAM, *supra* note 17, at 67–68.

direct financial incentives to limit risk, while preserving insurance protection against substantial losses.³⁹

In the early phases of moral hazard and loss prevention theory, these devices for combatting moral hazard were understood to create incentives for the insured to engage in loss prevention without directly mandating this investment or dictating how it should proceed. Instead, the policyholder would compare the cost of engaging in additional loss prevention with the decreased costs of insurance that could be expected to result from doing so and determine the optimal balance to strike.⁴⁰

In this simple model of the relation among insurance, moral hazard, and loss prevention, the insurer and insured did not interact outside of the processes of insurance purchase and claims management. Moreover, the assumed sequence of events at the time of insurance purchase was relatively straightforward: the policyholder applied for coverage by disclosing requested information to the insurer, after which point the insurer offered a policy at a specific price or else declined to provide any coverage at all. In this model, the insurer did not provide the insured with information about how insurance premiums would vary in the future depending on loss experience or the different forms of loss prevention the insured adopted. In practice, however, interactions between policyholders and insurers are rarely this simple.

2. Legal and Sociological Theory on Moral Hazard and Loss Prevention

It was only in later phases of academic research into moral hazard and loss prevention—much of which has been produced by legal academics and sociologists—that more explicit attention has been paid to the manner in which insurers and insureds interact before, during, and after the purchase of coverage.⁴¹ For example, prior to the purchase of coverage, insurers may attempt to attract business by proving themselves capable of affirmatively assisting their insureds with loss prevention. The closer to an optimal reduction of losses an insurer can assist its insureds in accomplishing, the lower the premiums that insureds can expect to be charged.⁴² Once an individual or entity purchases an insurance policy, the parties' incentives may change, though the end result does not: insurers can profit by promoting loss prevention among existing insureds to reduce their claim payouts.⁴³

A significant contribution of this research consists of identifying different forms of potential insurer involvement in loss prevention. Many of these involve particularized use of conventional techniques for limiting moral hazard, such as risk-

39. See *supra* Part I.A.

40. See, e.g., Isaac Ehrlich & Gary S. Becker, *Market Insurance, Self-Insurance, and Self-Protection*, 80 J. POL. ECON. 623, 633–34 (1972).

41. Carol Heimer has suggested that these interactions resemble a continuing “game” between insurer and policyholder rather than a single transaction. HEIMER, *supra* note 19, at 3.

42. Ben-Shahar & Logue, *supra* note 5, at 207–08; STEVEN SHAVELL, *ECONOMIC ANALYSIS OF ACCIDENT LAW* 199 (1987) (“When parties can influence risks, insurers often supply advice about risk reduction and include in policies a great variety of features that serve to induce insured parties to lower risk.”).

43. Ben-Shahar & Logue, *supra* note 5, at 207–08.

based pricing. Insurers, for instance, can base premiums on policyholder characteristics, such as the type of car insured or the building materials out of which an insured property is constructed. Such “feature rating”⁴⁴ may even involve explicit premium discounts for specific policyholder precautions. Another form of risk-based pricing, known as “experience rating,” involves explicit or implicit promises of reduced premiums for future policies if insureds avoid losses in the present period.⁴⁵

Recent contributions have emphasized that insurers can also mitigate risk through contract terms that limit or condition coverage for losses or practices associated with moral hazard.⁴⁶ Claims-handling processes offer insurers yet another opportunity to mitigate loss, both by preventing small losses from growing larger and by ensuring that efforts to remediate and/or address losses operate efficiently.

In addition to these conventional loss prevention techniques, this new wave of research emphasizes that insurers also can take proactive steps to reduce policyholder risk, which operate independently of ordinary insurance mechanisms that are necessary to effectuate the transfer of risk. Such “unconventional” loss prevention techniques can include insurer-provided services that “coach” safer conduct through customized training sessions with policyholder personnel, insurer support for the development and adoption of policyholder rules and procedures, and insurer advice on specific safety questions.⁴⁷ Insurers’ unconventional loss prevention strategies can also extend beyond their interactions with policyholders; insurers may promote risk-reducing technologies, knowledge, or public policies.⁴⁸

Ben-Shahar and Logue’s recent work has been particularly influential in emphasizing the broad array of loss prevention devices available to insurers.⁴⁹ Drawing from various sources—including academic articles, insurance marketing materials, and regulatory materials—Ben-Shahar and Logue highlight the power of various conventional loss prevention techniques, such as experience rating in workers’ compensation insurance,⁵⁰ feature rating and extensive underwriting in environmental liability insurance,⁵¹ and claims management by auto insurers.⁵² They also provide examples of insurers using unconventional techniques to help prevent loss, such as claims by a products liability insurer that it advises policyholders regarding prevention of malicious tampering, appropriately labeling products, and

44. ABRAHAM, *supra* note 17, at 71–72.

45. *Id.*

46. *See, e.g.,* Ben-Shahar & Logue, *supra* note 5, at 215. Homeowners’ insurers, for instance, exclude coverage for the freezing of plumbing, heating, and air conditioning systems unless the insured used reasonable care to maintain heat in the building or shut off the water supply. ABRAHAM & SCHWARCZ, *supra* note 3, at 211.

47. *See, e.g.,* Rappaport, *supra* note 5, at 1573–86.

48. *See, e.g.,* Baker & Swedloff, *supra* note 6.

49. *See* Ben-Shahar & Logue, *supra* note 5, at 202–15. Various other articles have also highlighted the array of loss prevention devices that insurers can use. *See* Baker & Swedloff, *supra* note 6, at 1418–23; George M. Cohen, *Legal Malpractice Insurance and Loss Prevention: A Comparative Analysis of Economic Institutions*, 4 CONN. INS. L.J. 305, 324–27 (1997); Daniel W. Woods & Tyler Moore, *Does Insurance Have a Future in Governing Cybersecurity?*, IEEE SEC. & PRIV. MAG., Jan./Feb. 2020, at 21, 22–23.

50. *See* Ben-Shahar & Logue, *supra* note 5, at 219–20.

51. *See id.* at 225–26.

52. *Id.* at 213–14.

issuing recalls.⁵³ Logue also observes that many large insurers have a division devoted to educating insureds on risk reduction.⁵⁴ Additionally, Ben-Shahar and Logue emphasize auto insurers' role in developing and promoting auto safety information through the Insurance Institute for Highway Safety, a nonprofit entity that insurers founded and continue to fund.⁵⁵

However, not all recent studies are sanguine about insurers' capacity to reduce moral hazard. Baker and Shortland have suggested that, in many cases, insurers can only combat moral hazard in tandem with government regulation that facilitates this process by, for instance, setting minimum safety or insurance standards.⁵⁶ Prior work by Baker and several different coauthors emphasizes both the potential of the regulation thesis as well as various impediments to insurers effectively counteracting risk, ranging from agency problems within corporate policyholders, to limited insurer market power, to disconnects between liability-reducing measures and risk reduction.⁵⁷ Similarly, work by Talesh has suggested various potential limits to the regulation thesis, including the prospect that insurers may attempt to alter policyholder behavior in ways that do less to reduce the risk of socially undesirable results than to reduce liability for those results.⁵⁸ Logue has also explored why affirmative insurer involvement in loss prevention is "surprisingly uncommon," highlighting the prospect that such involvement may expose insurers to liability.⁵⁹

Even less optimistically, Avraham and Porat have contended that insurers often attempt to promote, or at least quietly favor, increases in long-term aggregate losses so as to preserve or expand long-term demand for their products.⁶⁰ Insurers then compete individually either to reduce their own insureds' losses or to shift them onto third parties that they do not insure. To substantiate these claims, they cite various examples of insurers encouraging insureds to shift losses to other parties rather than reduce risk, such as education programs designed to prevent employers from being

53. *Id.* at 219.

54. Logue, *supra* note 6, at 1364 ("Most large property/casualty insurance companies have a division whose primary job is to educate insureds about how to reduce risks.").

55. *See* Ben-Shahar & Logue, *supra* note 5, at 222.

56. *See* Baker & Shortland, *supra* note 6, 3–8.

57. *See* Baker & Shortland, *supra* note 6; Baker & Swedloff, *supra* note 6; BAKER & FARRISH, *supra* note 6;

58. *See* Talesh, *Legal Intermediaries*, *supra* note 8, at 232–33; Talesh, *A New Institutional Theory of Insurance*, *supra* note 6, at 650 (suggesting that insurers may "foster forms of compliance that tend to be more symbolic than substantive and thus unable to adequately protect insureds, consumers, and the public at large"). This possibility that insurers may induce perfunctory compliance that fails to effectuate the underlying purposes of the law is a theme in the broader compliance literature. *See, e.g.*, LAUREN B. EDELMAN, *WORKING LAW: COURTS, CORPORATIONS, AND SYMBOLIC CIVIL RIGHTS* (John M. Conley & Lynn Mather eds., 2016).

59. Logue, *supra* note 6, at 1357–58.

60. Avraham & Porat, *supra* note 7. This idea has been previously suggested by others. *See, e.g.*, Gary T. Schwartz, *The Ethics and the Economics of Tort Liability Insurance*, 75 CORNELL L. REV. 313, 357 (1990) (noting that insurers might not have incentives to offer loss prevention services because doing so could force them to charge lower premiums in the future); Harris Schlesinger & Emilio C. Venezian, *Ex Ante Loss Control by Insurers: Public Interest for Higher Profit*, 4 J. FIN. SERVS. RSCH. 83, 83 (1990).

held liable for discriminatory behavior by their employees.⁶¹ In addition, Avraham and Porat interpret insurers' support for certain tort reforms and apology policies as designed to promote increased losses.⁶²

Even when insurers can combat moral hazard associated with policyholders' conduct, insurers may be less able to prevent insurance from encouraging wrongdoing by third parties that are not bound by the insurance policy. As Parchomovsky and Siegelman have argued, such "third-party moral hazard" can occur when parties outside the insurance relationship cause a potentially covered loss so as to benefit from the insurance payout.⁶³ This form of moral hazard materializes, for instance, when kidnappers target corporate executives that are likely to be protected by kidnapping insurance, or when hackers launch ransomware on entities likely to have cyber insurance.⁶⁴ The third parties who are influenced by the presence of insurance may not be responsive to ordinary methods of combatting moral hazard, which typically rely on the contractual relationship between insurer and insured.⁶⁵

B. Evidence

Those who study insurers' involvement in loss prevention do not merely propound theory. Rather, theory is often allied with efforts to demonstrate insurers' actual involvement in loss prevention. Only a few of these studies find substantial insurer involvement in combatting moral hazard in ways that extend beyond risk-based pricing and loss-sharing provisions, and these studies disproportionately focus on insurance markets where nontraditional insurers predominate. In contrast, a number of scholars have found that insurers either are not heavily involved in affirmatively helping insureds to prevent loss or that their involvement is ineffective in limiting the risk of loss.

1. Economic Studies

Not surprisingly, a significant economics literature has attempted to identify and measure moral hazard in different insurance markets. This task is substantially complicated by potential correlations between risk preferences and precautions⁶⁶ as

61. See Avraham & Porat, *supra* note 7; see also *Legal Intermediaries*, *supra* note 8.

62. Avraham & Porat, *supra* note 7.

63. Gideon Parchomovsky & Peter Siegelman, *Third-Party Moral Hazard and the Problem of Insurance Externalities*, 51 J. LEGAL STUD. 93, 93 (2022).

64. Cf. SHORTLAND, *supra* note 5 (describing ways in which kidnap and ransom insurers attempt to limit the third-party moral hazard by, for instance, making the availability of such coverage difficult to detect and by drawing out ransom negotiations to limit the attractiveness of this strategy to kidnappers).

65. See generally Parchomovsky & Siegelman, *supra* note 63.

66. See David de Meza & David C. Webb, *Advantageous Selection in Insurance Markets*, 32 RAND J. ECON. 249 (2001) (describing possibility that there is correlation between risk preferences and risk-avoiding activities, which can create advantageous selection); Daniel Osberghaus, *The Effect of Flood Experience on Household Mitigation—Evidence From Longitudinal and Insurance Data*, 43 GLOB. ENV'T CHANGE 126, 126 (2017) (showing those who have flood insurance are also more likely to attempt to mitigate flood risk); Daniel R.

well as the difficulty of disentangling adverse selection and moral hazard effects.⁶⁷ Attempts to overcome these difficulties suggest that while moral hazard is often significant, its magnitude varies across different types of insurance markets and institutional settings.⁶⁸ Perhaps for this reason, few of these empirical studies examine the prevalence or effectiveness of specific insurer loss prevention strategies.

Economic studies that do focus on specific insurer loss prevention strategies suggest that certain techniques for mitigating moral hazard can be effective.⁶⁹ The most significant such recent study found that auto insurers' use of telematics can substantially decrease auto accidents.⁷⁰ Telematic programs provide policyholders with plug-in devices that employ GPS and on-board diagnostics to monitor such driving behavior as braking, speed, and time of day. Policyholders then receive discounts for safe driving.⁷¹ Depending on how the telematics program is structured, it can more closely resemble feature rating, experience rating, or a combination of the two. A recent study of telematic programs finds that they can cause drivers to become thirty percent safer than conventionally-insured drivers, at least while drivers in the former category are being actively monitored.⁷² The study also found, however, that many consumers experience significant privacy-related costs from telematic monitoring, which have to date substantially impeded broad adoption of these technologies.⁷³

Various additional economic studies have also documented the capacity of conventional insurer techniques to limit moral hazard. For instance, one study showed a reduction in risk when Taiwanese insurers introduced a deductible that increased during a policy year in the event of a car accident.⁷⁴ A number of other

Petrolia, Joonghyun Hwang, Craig E. Landry & Keith H. Coble, *Wind Insurance and Mitigation in the Coastal Zone*, 91 LAND ECON. 272, 272 (2015) (finding that those who buy wind insurance also invest more in wind risk mitigation).

67. See, e.g., Pierre-André Chiappori & Bernard Salanié, *Testing for Asymmetric Information in Insurance Markets*, 108 J. POL. ECON. 56 (2000) (exploring empirical techniques for disentangling moral hazard and adverse selection).

68. Compare Jaap H. Abbring, Pierre-André Chiappori & Jean Pinquet, *Moral Hazard and Dynamic Insurance Data*, 1 J. EUR. ECON. ASS'N 767 (2003) (finding limited evidence of moral hazard in French auto insurance markets), with Shiyi Chen, Xiaoxiao Ding, Pingyi Lou & Hong Song, *New Evidence of Moral Hazard: Environmental Liability Insurance and Firms' Environmental Performance*, 89 J. RISK & INS. 581 (2022) (finding that firms' purchase of environmental liability insurance in China significantly reduces their efforts in treating water pollution), and Jennifer L. Wang, Ching-Fan Chung & Larry Y. Tzeng, *An Empirical Analysis of the Effects of Increasing Deductibles on Moral Hazard*, 75 J. RISK & INS. 551 (2008) (finding significant evidence of moral hazard in Taiwan auto insurance market).

69. See, e.g., Haitao Yin, Howard Kunreuther & Matthew W. White, *Risk-Based Pricing and Risk-Reducing Effort: Does the Private Insurance Market Reduce Environmental Accidents*, 54 J.L. & ECON. 325, 326–27 (2011).

70. See Jin & Vasserman, *supra* note 30, at 19.

71. See, e.g., Get Snapshot from Progressive, PROGRESSIVE, <https://www.progressive.com/auto/discounts/snapshot/> [<https://perma.cc/G7M7-XYTH>].

72. Jin & Vasserman, *supra* note 30, at 2.

73. See *id.* at 3–4.

74. Wang, Chung & Tzeng, *supra* note 68 (finding that individuals who saw their deductible increase in a policy year due to an accident filed fewer claims during the remainder

studies also demonstrate that risk-based pricing can reduce losses, particularly in workers' compensation insurance, where experience rating appears to significantly promote safety.⁷⁵ There is also some evidence that traditional risk-based pricing in auto insurance markets can induce safer driving.⁷⁶ To similar effect are some survey studies that suggest that respondents would be willing to take precautions in exchange for premium discounts.⁷⁷ A much older, but quite prominent, study employed a large-scale, randomized experiment in loss-sharing provisions for health insurance, finding that increased loss sharing significantly decreased health care consumption.⁷⁸

2. Empirical Studies in Law and Sociology

In addition to economic studies, an increasing number of qualitative studies have extensively investigated insurers' loss prevention efforts. These studies typically rely principally on interviews with industry professionals operating in insurance markets like municipal liability, legal malpractice, and cyber insurance.⁷⁹ Frequently, these interviews are supplemented with various other sources, such as insurer marketing materials, conference materials, and insurance policies.

These studies reach decidedly mixed conclusions about the pervasiveness and effectiveness of insurers' loss prevention efforts, particularly with respect to unconventional strategies. To be sure, a number of these studies document extensive insurer involvement in loss prevention. For instance, John Rappaport found that some police liability insurers for municipalities and counties influenced departmental policy, provided education and training, performed audits of police departments, considered accreditation in pricing, identified problematic personnel, and encouraged structural reform.⁸⁰ Rappaport emphasized, however, that

of the policy year).

75. See Ben-Shahar & Logue, *supra* note 5, at 219–20; Michael M. Barth, Robert W. Klein & Gregory Krohm, *Workers' Compensation Insurance Experience Rating and Subsequent Employer Claims: The Wisconsin Experience*, 31 J. INS. ISSUES 16, 16 (2008); John W. Ruser, *Workers' Compensation Insurance, Experience-Rating, and Occupational Injuries*, 16 RAND J. ECON. 487, 488 (1985); see also Logue, *supra* note 6, at 1369 (“[A]necdotal evidence suggests that workers' compensation insurers are among the most active direct regulators of their insureds' risky activities.”).

76. See, e.g., Richard A. Derrig & Sharon Tennyson, *The Impact of Rate Regulation on Claims: Evidence from Massachusetts Automobile Insurance*, 14 RISK MGMT. & INS. REV. 173, 197 (2011).

77. See, e.g., W.J.W. Botzen, J.C.J.H. Aerts & J.C.J.M. van den Bergh, *Willingness of Homeowners to Mitigate Climate Risk Through Insurance*, 68 ECOLOGICAL ECON. 2265 (2009) (reporting survey data showing that homeowners are willing to undertake measures to mitigate flood risk in exchange for premium discounts on flood insurance policies); Jantsje M. Mol, W.J. Wouter Botzen & Julia E. Blasch, *Behavioral Motivations for Self-Insurance Under Different Disaster Risk Insurance Schemes*, 180 J. ECON. BEHAV. & ORG. 967 (2020) (presenting similar findings).

78. Aviva Aron-Dine, Liran Einav & Amy Finkelstein, *The RAND Health Insurance Experiment, Three Decades Later*, 27 J. ECON. PERSPS. 197, 220 (2013).

79. See, e.g., Baker & Swedloff, *supra* note 6, at 1450; Rappaport, *supra* note 5, at 1540.

80. Rappaport, *supra* note 5, at 1564–86.

intergovernmental insurance pools—cooperative groups of governmental entities that join together to pool risk—seemed to be more actively involved in these loss prevention activities than commercial insurers.⁸¹ Similarly, Tom Baker and Rick Swedloff found that legal malpractice mutual insurers provided expert “support and assistance” to “varying degrees,” which law firm policyholders reported valuing highly.⁸² To similar effect is recent work by Tom Baker and Anja Shortland, which found that kidnapping insurers and maritime insurers of arctic shipping engaged in significant cooperation to implement risk-reducing safety standards.⁸³ In both cases, though, the number of insurers providing coverage was limited, and they operated out of Lloyds and a few other niche markets, thus facilitating cooperation through tight-knit organizations like the International Union of Maritime Insurers.⁸⁴

But other studies using qualitative techniques have found much more limited insurer involvement in loss prevention generally, and in unconventional loss prevention in particular. Most notably, in a series of articles and a subsequent book, Tom Baker and Sean Griffith found that Directors and Officers (D&O) insurers engage in little loss prevention and minimal monitoring of corporate governance by their insureds.⁸⁵ Additionally, Baker and Griffith found that D&O insurers do not offer premium discounts for specific loss prevention efforts.⁸⁶ Marcos Mendoza similarly found that the liability insurers of public schools do little to influence the civil rights policies of their insured school districts or to otherwise engage in “assertive loss prevention requirements” to limit the risk of civil rights violations and resulting liability claims.⁸⁷ Like Baker and Griffith, he also found that there were few premium discounts offered for risk-reducing measures by liability insurers of public schools and no premium penalties imposed on insureds who refused to take risk-mitigating measures.⁸⁸

Research on cyber insurance has also found uneven and limited evidence of insurers’ involvement in unconventional forms of loss prevention. Shauhin Talesh, for instance, concluded in earlier work that cyber insurers frequently provide “scanning” and “cyber health checks” aimed at preventing and detecting data breaches,⁸⁹ as well as providing written training materials and hotlines.⁹⁰ He also found that cyber insurers were highly involved in managing policyholders’ incident-

81. *Id.* at 1564.

82. Tom Baker & Rick Swedloff, *Mutually Assured Protection Among Large U.S. Law Firms*, 24 CONN. INS. L.J. 1, 39–40 (2017).

83. See Baker & Shortland, *supra* note 6.

84. See Baker & Shortland, *supra* note 6, at 7, 13.

85. Baker & Griffith, *supra* note 8, at 1799.

86. See TOM BAKER & SEAN J. GRIFFITH, ENSURING CORPORATE MISCONDUCT: HOW LIABILITY INSURANCE UNDERMINES SHAREHOLDER LITIGATION 112 (2010). As one insurance executive explained, “we couldn’t show the discount” for following loss prevention advice. Baker & Griffith, *supra* note 8, at 1811. It seems highly likely that interviews with industry professionals would have uncovered evidence of premium savings that could be obtained from following insurers’ loss prevention advice, if such savings were actually available.

87. Mendoza, *supra* note 8, at 389.

88. *Id.* at 422–24.

89. Talesh, *Data Breach*, *supra* note 6, at 429; Talesh, *Insurance Companies as Corporate Regulators*, *supra* note 6, at 478.

90. Talesh, *Data Breach*, *supra* note 6, at 430–32.

response efforts in the wake of an attack so as to ensure future regulatory compliance and limit the risk of lawsuits. But Talesh, along with Bryan Cunningham, subsequently found much more limited evidence that cyber insurers can actually limit firms' risk of experiencing a cyberattack or the losses that stem from such an incident.⁹¹ In particular, Talesh and Cunningham found that cyber insurers' use of big data to prevent loss did not improve overall cybersecurity and was sometimes used instead to nudge clients toward purchasing more insurance.⁹² Insurers' role as "quasi-regulators," they concluded, was "largely ineffective,"⁹³ an assessment that many experts in the cyber insurance field share.⁹⁴ In another study, these same authors concluded that "[a]lthough reliance on technology and data are increasingly transforming the way insurers advertise, underwrite, and price insurance, the actual impact on insurer behavior seems to have remained minimal and is largely symbolic."⁹⁵

Other studies have also offered pessimistic assessments of cyber insurers' loss prevention strategies. For instance, MacColl, Nurse, and Sullivan recently concluded that cyber insurers' "contribution to improving cyber security practices is more limited than policymakers and businesses might hope," in part because insurers rarely use financial incentives to encourage better cybersecurity.⁹⁶ And while the evidence does indeed suggest that cyber insurers provide policyholders with various post-incident services,⁹⁷ these services are typically outsourced to third-party firms,

91. See Talesh & Cunningham, *supra* note 8, at 976. In other work, Talesh has also found mixed evidence of effective governance among employment practices liability insurers. See *Legal Intermediaries*, *supra* note 8, at 218; *Insurance Companies as Corporate Regulators*, *supra* note 6, at 499 ("Thus, similar to the D&O context, [EPLI] risk management services may merely encourage employers to reduce their exposure and liability rather than prevent discrimination, improve work culture, and cultivate a discrimination-free work environment.").

92. See Talesh & Cunningham, *supra* note 8, at 976.

93. *Id.* at 59.

94. JOSEPHINE WOLFF, CYBERINSURANCE POLICY: RETHINKING RISK IN AN AGE OF RANSOMWARE, COMPUTER FRAUD, DATA BREACHES, AND CYBERATTACKS (2022) (suggesting that cyber insurers have played a limited role in helping to reduce the risk of cyber incidents).

95. Talesh & Cunningham, *supra* note 8, at 975.

96. Jamie MacColl, Jason R. C. Nurse & James Sullivan, *Cyber Insurance and the Cyber Security Challenge*, RUSI (June 28, 2021), <https://rusi.org/explore-our-research/publications/occasional-papers/cyber-insurance-and-cyber-security-challenge> [<https://perma.cc/X8DH-WNYZ>].

97. See Daniel W. Woods & Rainer Böhme, *How Cyber Insurance Shapes Incident Response: A Mixed Methods Study*, (June 7, 2021), https://informationsecurity.uibk.ac.at/pdfs/DW2021_HowInsuranceShapes_WEIS.pdf [<https://perma.cc/8LH4-XQCQ>]. These authors found that cyber insurers typically outsource cyber-responses to computer forensic teams, legal experts, and public relations firms, all of which have preexisting arrangements with the insurer. For discussion of how this incident response process may impede long-term cybersecurity, see Daniel Schwarcz, Josephine Wolff & Daniel W. Woods, *How Privilege Undermines Cybersecurity*, 36 HARV. J. LAW & TECH (forthcoming 2023).

at least some of whom the insurer selects because they are willing to accept limited compensation rather than because they offer the best incident response options.⁹⁸

Empirical work examining Employer Practices Liability Insurance (EPLI) has also critically assessed insurers' loss prevention efforts. In particular, Talesh found that while EPLI insurers do attempt to coach policyholders in certain risk-management practices, these efforts are often directed predominately at limiting the risk that employers will be sued rather than at preventing the toxic workplace environments that the law intends to target.⁹⁹ This occurs, Talesh explains, when insurers transform multifaceted legal rules into simple formulas that result in merely symbolic compliance. The result, he finds, is that EPLI insurers ultimately "undermine formal legal rights" by causing employers to become "lethargic" with respect to the goals of employment law.¹⁰⁰

3. Assessing the Evidence: Ordinary Commercial Insurers vs. Genuine Mutual Niche Insurers

Examining the preceding evidence, it seems clear that there is significant variation in both the incidence and effectiveness of insurers' loss prevention efforts from market to market and across different types of insurance entities. With respect to conventional loss prevention efforts, this variation is quite dramatic. Insurers in some markets, such as auto insurance and workers' compensation, do indeed make significant and quite effective use of conventional loss-prevention methods like feature and experience rating.¹⁰¹ But insurers in other markets, such as D&O and cyber insurance, often make minimal use of the most highly touted conventional loss prevention efforts, such as offering premium savings that are conditioned on the insured following insurers' loss-prevention advice.¹⁰² Meanwhile, insurers in EPLI markets make some efforts to influence policyholder behavior, but these efforts focus less on reducing social harm than at limiting policyholder liability for this harm.

The evidence suggests that unconventional loss-prevention efforts are even more limited and are concentrated in markets dominated by mutual insurers founded by their policyholders, or in niche markets for kidnap or arctic shipping insurance.¹⁰³ The outsized role that such insurers seem to play in pursuing unconventional loss prevention strategies is consistent with the theoretical literature and some older evidence. For instance, over two decades ago, George Cohen noted that "many,

98. Woods & Böhme, *supra* note 97.

99. *See Legal Intermediaries*, *supra* note 8, at 232–34.

100. *Id.* at 233–34; *see* Amelia Miazad, *Sex, Power, and Corporate Governance*, 54 U.C. DAVIS L. REV. 1913, 1955–57 (2021) (concluding that after #MeToo, EPLI insurers focused more on corporate culture as opposed to compliance).

101. *See supra* Part I.B.

102. *See supra* Part I.B.

103. *See* Rappaport, *supra* note 5, at 1555–58; Baker & Swedloff, *supra* note 82, at 13. *But see* Mendoza, *supra* note 8, at 416–26 (reporting that the niche insurers that cover school boards engage in little such loss prevention). The identity of insureds, in addition to insurers, may also plausibly influence the effectiveness of insurers' loss prevention efforts. For instance, certain insureds—such as non-profits or public entities—may be more receptive to insurers' loss prevention efforts than other policyholders.

though not all, legal malpractice insurers that offer loss prevention services are mutuals.”¹⁰⁴ He explained this observation by suggesting that mutual insurers in the legal malpractice sphere—like Attorneys’ Liability Assurance Society (ALAS), which lawyers formed exclusively for the purpose of providing legal malpractice insurance—can more effectively monitor policyholder care levels than ordinary insurers because they can draw on and synthesize their members’ expertise.¹⁰⁵ By contrast, there is little evidence of unconventional loss prevention undertaken by ordinary profit-driven insurers, including the nominally mutual insurers that operate in many large, property and casualty insurance markets.¹⁰⁶ Indeed, most studies of such insurance markets suggest that insurers often view these efforts as inconsistent with maximizing profits.¹⁰⁷

Although these findings are in some tension with insurers’ frequently professed focus on helping policyholders to prevent losses,¹⁰⁸ what insurers say on their websites and marketing materials, and what they actually do on a day-to-day basis, are not necessarily the same. On the contrary, insurers have strong reasons to contend that they provide significant risk mitigation services to policyholders irrespective of the accuracy of this claim. Most obviously, such contentions suggest that their insurance products provide value to policyholders that extends beyond the mere payment of claims in the event of a loss. Additionally, emphasizing the risk-mitigation services they provide may help insurers to attract actual or potentially low-risk policyholders: the very same policyholders who are swayed by insurer claims that they can help to reduce risk may be likely, on average, to have actual or potentially favorable risk profiles in ways that would not be easy for the insurer to identify independently. Finally, such claims help to promote a more favorable public image of insurance as a tool not only to protect individual policyholders, but also to promote broader social goals.

In short, there is limited evidence supporting the regulation thesis and considerable evidence suggesting that the thesis is misleading. There is no question that most insurers routinely employ some conventional loss-prevention techniques that help to combat certain types of moral hazard. And some insurers, particularly some genuine mutual insurers, provide their policyholders with more direct and unconventional loss mitigation services. But the scope, impact, and breadth of these different types of risk-mitigation efforts all appear to be varied and, in many settings, quite limited.

104. See Cohen, *supra* note 49, at 340.

105. *Id.*

106. Many large property and casualty insurers have a mutual legal form but operate in much the same manner as stock insurers. See ABRAHAM & SCHWARCZ, *supra* note 3, at 2–3. See generally Erik F. Gerding, *Remutualization*, 105 CORNELL L. REV. 797, 823–34 (2020) (exploring explanations for the prominent use of the mutual form in insurance markets).

107. See *supra* Part I.B.

108. See, e.g., Ben-Shahar & Logue, *supra* note 5, at 210 n.34 (reporting contentions made on insurers’ websites).

II. THE NATURE AND LIMITS OF CONVENTIONAL LOSS-PREVENTION METHODS

Having described both the theory and evidence regarding regulation by insurance, we now move to analysis and explanation. This Part focuses on the nature and limits of conventional loss-prevention methods—those that can be operationalized through traditional processes that insurers must typically maintain as an ordinary incident of transferring risk. These strategies are often subdivided into four categories: risk-based pricing and underwriting, partial insurance, coverage restrictions, and ex post loss management.

Because conventional loss-prevention strategies rely on relatively limited engagement between insurers and policyholders outside of the ordinary touchpoints of the insurance relationship, almost all insurers make some use of these techniques. But as this Part argues, these methods often face significant obstacles to meaningfully reducing the risk of loss and often serve alternative purposes for insurers, such as enabling them to price coverage in ways that increase underwriting profits or limit coverage for small claims that are relatively costly to process. And even when, as is no doubt the case in some settings, these approaches reduce the risk of loss, they are generally not capable of enabling insurance to have a net-positive effect on loss prevention; despite the net-positive contentions in the literature,¹⁰⁹ these approaches almost always merely reduce the size of the net-negative effect of insurance on loss prevention.

A. Risk-Based Pricing and Underwriting

Risk-based pricing and underwriting are fundamental features of virtually all forms of insurance. Insurers generally attempt to price coverage based on the risk that applicants may incur insured losses and on the projected magnitude of such losses.¹¹⁰ And insurers typically refuse to offer coverage to applicants that pose excessive risks or risks that are too hard to measure.¹¹¹ To accomplish these rating and underwriting functions, insurers evaluate a broad range of information.¹¹² For instance, commercial general liability insurers may vary the rate that they charge and

109. See, e.g., *Bicking v. City of Minneapolis*, 891 N.W. 2d 304 (Minn. 2017) (describing a Minneapolis ballot-initiative that would have required the purchase of liability insurance by all police officers); Ben-Shahar & Logue, *supra* note 5, at 199 (“This Article develops the opposite proposition—that insurance can reduce and in some cases solve, rather than create or exacerbate, the moral hazard and related incentive problems.”); Lemann, *supra* note 5, at 56; Lemnitzer, *supra* note 5, at 131; Lior, *supra* note 5; Kochenberger, *supra* note 5, at 1274; Ramirez et al., *supra* note 5, at 439.

110. ABRAHAM, *supra* note 17, at 67–68.

111. Some entries in the literature separately analyze rating and underwriting. We choose to combine them because they ultimately impact loss prevention in similar ways; excessively expensive insurance is often functionally equivalent to the unavailability of insurance.

112. Although much of this information is provided by applicants to insurers directly, insurers also increasingly rely on external data sources about individual applicants’ risk that are sold by third-party vendors. See Anya E.R. Prince & Daniel Schwarcz, *Proxy Discrimination in the Age of Artificial Intelligence and Big Data*, 105 IOWA L. REV. 1257, 1273 (2020).

their willingness to offer coverage based on an applicant's industry, size, geographic location, and loss history, among many other factors.¹¹³ One of the collateral benefits of risk-based pricing is that, in order to engage in this practice, insurers must collect and aggregate loss and claims data, which sometimes sheds light on the level and variation of risks that previously were not well-understood or quantifiable.

The principal purpose of risk-based pricing, however, is not generally to reduce the risk of loss. Instead, risk-based pricing is typically directed principally at helping insurers achieve other goals. Most obviously, risk-based pricing helps insurers to charge premiums that will, over a large number of policyholders, ensure that premiums collected will exceed claim payouts and thereby produce an underwriting profit. It also helps insurers to attract comparatively "good risks"—those being charged excessive premiums by competitors—and thereby to increase market share and profits. By contrast, insurers that charge premiums that depart from each applicant's expected risk effectively force low-risk policyholders to cross-subsidize comparatively high-risk policyholders. This creates the risk of adverse selection, as those who believe they are being charged rates significantly in excess of their expected risk choose to purchase coverage from a competitor, purchase less coverage than they otherwise would, or forego insurance entirely.¹¹⁴

Two forms of risk-based pricing do, however, have the potential to impact loss prevention.¹¹⁵ First, insurers can set rates based on features of the applicant's *current* operations or conduct at the time the insurer makes its underwriting and pricing decision.¹¹⁶ This is "feature rating." Second, insurers can take into account the insured's loss experience in *past* policy periods, either in the form of insurance claims or events associated with claims, such as speeding tickets. This is "experience rating."¹¹⁷

Both feature rating and experience rating have the potential to mitigate risk by creating incentives for insureds to take measures that will reduce their insurance premiums. With respect to feature rating, this can occur if applicants alter their activities or adopt precautions prior to a policy period based on the expectation that doing so will decrease premiums. Experience rating, by contrast, can induce insureds to take increased care so as to avoid losses while they are insured, in order to secure favorable insurance rates in the future. But as we show below, feature rating and experience rating often have limited capacity to induce these changes in the behavior of insureds.

113. See JOSEPH F. MANGAN & CONNOR M. HARRISON, UNDERWRITING COMMERCIAL LIABILITY 49–67 (2d ed. 2000) (surveying the factors used in classifying commercial liability insurance risks).

114. See ABRAHAM & SCHWARCZ, *supra* note 3, at 6–7. See generally Peter Siegelman, *Adverse Selection in Insurance Markets: An Exaggerated Threat*, 113 YALE L.J. 1223 (2004).

115. There are other factors that insurers employ to vary their rates across the board—for example, changes in demand for coverage or in the scope of underlying tort law liabilities—but the categories of feature and experience rating capture all the significant forms of risk-based pricing that *differentiate* among policyholders.

116. See ABRAHAM, *supra* note 17, at 71–72.

117. *Id.*

1. The Limits of Feature Rating as a Loss-Prevention Tool

The capacity of feature rating to promote loss prevention is much touted in the regulation-thesis literature.¹¹⁸ In large part, this is because feature rating may be able to leverage the superior information of insurers relative to policyholders about the effectiveness of specific precautions. Whereas an uninsured individual or company may know little about which precautions are likely to meaningfully reduce their risk, insurers may have quite good information on this front, given their access to reams of data about policyholder characteristics and losses.¹¹⁹ For example, a property insurer may have much more specific information about the fire-resistant properties of different kinds of roofing material—metal, slate, shingle, etc.—than an insured property owner. And a liability insurer may have more information about the safety of certain kinds of parking lot designs than the developer of a small shopping center. Insurers that set rates based in part on such policyholder features can, in theory, induce policyholders to adopt relatively effective risk-mitigating measures in order to reduce their insurance premiums.

Feature rating can also plausibly reduce risk by transmitting information to policyholders about the risks of insured behavior that cannot be mitigated through effective precautions. Such information can impact activity levels by causing insureds to shift away from risky behavior. For instance, significant insurance costs for homes in disaster-prone regions can induce individuals to purchase homes elsewhere.¹²⁰ Thus, recent indications that property insurers in Florida are likely to raise their rates significantly in the wake of increasingly strong hurricanes linked to climate change have led many to speculate that demand for coastal real estate in the state may plummet.¹²¹ This type of information-forcing effect of insured activity is particularly significant when it comes to individuals, who often underestimate the risk of disasters.¹²²

However, there are several key obstacles to these risk-mitigating benefits of feature rating actually occurring, which collectively help to explain why there is such mixed evidence documenting these effects.

118. See, e.g., Ben-Shahar & Logue, *supra* note 5, at 206.

119. See *id.* at 200 (“[Insurance] supplies both the incentive and the know-how that individuals and firms often lack, resulting in a more efficient level of accidents.”).

120. See Omri Ben-Shahar & Kyle D. Logue, *The Perverse Effects of Subsidized Weather Insurance*, 68 STAN. L. REV. 571, 611–16 (2016); Martin F. Grace & Robert W. Klein, *The Perfect Storm: Hurricanes, Insurance, and Regulation*, 12 RISK MGMT. & INS. REV. 81, 106–07 (2009).

121. See, e.g., *Did Hurricane Ian Bust Florida’s Housing Market?*, N.Y. TIMES (Oct. 18, 2022), <https://www.nytimes.com/2022/10/18/podcasts/the-daily/hurricane-ian-florida-housing-market-insurance.html> [<https://perma.cc/RDU9-G76Z>].

122. Howard Kunreuther, *Mitigating Disaster Losses Through Insurance*, 12 J. RISK & UNCERTAINTY 171, 171–72 (1996).

a. Rating Factors Are Based on Correlation Rather Than Causation

Insurers typically have significant expertise in identifying correlations between policyholder characteristics and the risk of loss.¹²³ Indeed, one of the principal ways that insurers compete in most markets is by using these correlations to help craft underwriting and rating models.

But insurers can only use feature rating to induce specific precautions when they can identify policyholder features that are causally connected to risk and reliably estimate the magnitude of this effect.¹²⁴ This type of expertise is quite different than the ordinary expertise insurers must develop to identify correlations between policyholder characteristics and loss expectations. In fact, identifying and estimating such causal connections typically requires scientific, rather than actuarial, expertise. It is for precisely this reason that the core actuarial standards governing risk-based pricing specify that “it is not necessary for the actuary to establish a cause and effect relationship between the risk characteristic and expected outcome in order to use a specific risk characteristic.”¹²⁵

This difficulty is well illustrated by auto and homeowners insurers’ use of credit-based information as a rating factor. Because there is a correlation between credit ratings and the tendency to incur insured losses, many insurers use this information to generate rates.¹²⁶ But the causal pathways that underlie this correlation are highly contested: some research suggests that individuals who are more careful are both more likely to pay their bills when due and to avoid covered accidents, while others claim that credit scores are predictive of claims because they proxy for income or wealth.¹²⁷ Either way, insurers’ use of credit information to price coverage cannot reduce risk: to illustrate, a person who takes quick measures to improve their credit score so as to achieve insurance savings is no less likely to be in a car accident.

Even when insurers do offer discounts to policyholders that adopt precautions, that practice does not necessarily promote loss prevention. To be sure, insurers will only offer discounts for precautions if policyholders who adopt those measures have lower average losses than policyholders who do not. But this can occur even if the precautions in question do not actually reduce the risk of loss. That is because policyholders who adopt such precautions may be less likely to experience a claim for reasons that are merely revealed, but not caused, by their actions. For instance, an insured’s installation of an alarm system might not reduce the risk of loss, but instead simply signal that they are the type of homeowner who takes care to prevent home burglaries in a variety of ways. If so, then this use of feature rating would merely facilitate the insurer’s identification of relatively low-risk homeowners without actually reducing the risk of loss.

123. See generally Prince & Schwarcz, *supra* note 112.

124. A causal connection between policyholder features and risk is not necessary for insurance premiums to impact activity levels of risky behavior.

125. E.g., ACTUARIAL STANDARD OF PRAC. NO. 12 § 3.2.2 (ACTUARIAL STANDARDS BD. 2005). See also JUDEA PEARL, CAUSALITY: MODELS, REASONING, AND INFERENCE (2000).

126. See Darcy Steeg Morris, Daniel Schwarcz & Joshua C. Teitelbaum, *Do Credit-Based Insurance Scores Proxy for Income in Predicting Policyholder Risk?*, 14 J. EMPIRICAL LEGAL STUD. 397, 398 (2017).

127. See *id.*

b. Secrecy and Non-Communication of Rating Factors

A second obstacle to reducing risk through feature rating is that insurers typically have strong financial incentives to maintain the confidentiality of their risk assessment formulas. Doing so allows insurers to retain their own low-risk policyholders and to attract similarly low-risk policyholders from competitors. By contrast, any insurer that disclosed detailed underwriting and rating information would soon find its competitors exploiting this information to “skim” low-risk policyholders and shield themselves from competition.¹²⁸ This reality undermines the capacity of feature rating to reduce risk: keeping risk-based information confidential prevents insurers from communicating to prospective or current policyholders what specific measures they can take to reduce their premiums.¹²⁹

Of course, insurers are less likely to be secretive regarding discounts they offer for intuitive precautions whose effectiveness is broadly appreciated. The availability of such discounts reveals no information that the insurer had to invest in to produce.¹³⁰ For precisely that reason, however, such feature rating cannot plausibly produce a net-positive effect on losses, as that possibility depends on insurers leveraging their superior information to incentivize effective precautions that uninsured policyholders would overlook.¹³¹

128. See Ronen Avraham, Kyle D. Logue & Daniel Schwarcz, *Understanding Insurance Antidiscrimination Law*, 87 S. CAL. L. REV. 195, 208 (2014).

129. See, e.g., Daniel Schwarcz, *Transparently Opaque: Understanding the Lack of Transparency in Insurance Consumer Protection*, 61 UCLA L. REV. 394, 432–35 (2014). Of course, this tendency toward secrecy can be overcome through collective action. For instance, industry-wide rating organizations such as the Insurance Services Office publish rating factors. See MANGAN & HARRISON, *supra* note 113, at 49–51. Additionally, states often require insurers to publicly disclose their use of certain rating factors. See, e.g., Morris, Schwarcz, & Teitelbaum, *supra* note 126, at 404 (discussing state laws requiring disclosure of insurer’s use of credit information in rating and underwriting).

130. See Anthony T. Kronman, *Mistake, Disclosure, Information, and the Law of Contracts*, 7 J. LEGAL STUD. 1, 16–18 (1978) (exploring how nondisclosure of information protects a party’s investment in learning that information).

131. Even when insurers do publicly disclose discounts that they offer for specific policyholder precautions, insurance intermediaries may not always inform applicants that these discounts are available. Insurance agents and brokers are almost universally compensated by commissions that are calculated as a percentage of premiums. See Daniel Schwarcz & Peter Siegelman, *Insurance Agents in the 21st Century: The Problem of Biased Advice*, in RESEARCH HANDBOOK ON THE ECONOMICS OF INSURANCE LAW (Daniel Schwarcz & Peter Siegelman eds., 2015). Because riskier activities generate higher premiums, they also generate higher commissions for agents and brokers. Moreover, insurance intermediaries generally have no legal obligation to advise policyholders regarding loss mitigation measures that might decrease premiums. See, e.g., *Langwith v. Am. Nat’l Gen. Ins. Co.*, 793 N.W.2d 215, 226 (Iowa 2010) (“There is a material distinction between insuring risk and avoiding risk, and there are no circumstances present here that support a finding the parties agreed [the agent] would advise the [policyholders] on risk avoidance.”). Taken together, these considerations suggest that brokers and agents may sometimes have financial incentives not to inform customers of potential discounts. Woods & Moore, *supra* note 49, at 24 (suggesting that brokers’ interest in maximizing commissions militated against insurers’ incorporating cyber insurance policy provisions designed to prevent loss). Of course, they may well have the

c. Verification and Persistence Difficulties

Feature rating can reduce risk only when it focuses on precautions that are likely to persist throughout the policy period. But many precautions are relatively easy for policyholders to abandon or relax after a policy is issued, particularly if they were adopted principally to reduce premiums. Consider a cyber insurer that discovers that policyholders with certain software settings are at decreased risk of a ransomware attack. That insurer could only offer a discount to insureds who changed their settings if it were confident that insureds would not alter those settings after coverage was bound. But policyholders may well abandon costly or inconvenient precautions; for example if the software settings that limit ransomware attacks also impede easy access to data, then policyholder personnel might over time seek work-arounds.

To be sure, insurers can reduce the risk that precautions adopted at the outset of a policy period will thereafter be abandoned. Some precautions, for instance, may be hard to reverse once they are adopted: a person who elevates her home in part to secure lower flood insurance premiums is hardly likely to thereafter reverse this safeguard. When this is not the case, insurers can condition coverage on policyholders retaining precautions,¹³² or can audit policyholders at the end of each policy period and adjust premiums accordingly.¹³³ But both of these strategies may be costly or only partly reliable as they require the insurer to assess policyholder information not just at the underwriting stage, when policyholders have a natural incentive to share information, but at the claims or policy expiration stages, when insureds' incentives to reveal information may be reduced. Yet another option is for insurers to use technology that directly tethers rates to ongoing policyholder behavior or precautions, as with telematics in auto insurance.¹³⁴ However, only a limited set of policyholder activities or precautions can be reliably measured in real time via technology in this way.¹³⁵

d. Feature Rating and Control of Risk

A final obstacle to reducing risk through feature rating is that policyholders often do not have a meaningful capacity to adjust features on which their premiums are based.¹³⁶ In some cases, for instance, these features turn on fundamental characteristics of policyholders or their operations. For example, chainsaw manufacturers may be charged higher premiums than pillow manufacturers, but this

opposite incentive depending on the circumstances, as informing policyholders of potential discounts may earn insurance intermediaries long-term business.

132. For instance, the insured might be required to warrant that gasoline is not stored on the premises.

133. Workers' compensation insurers routinely audit policyholders' payroll at the end of the policy period and adjust premiums accordingly. *See, e.g., Workers' Comp Audit*, THE HARTFORD, <https://www.thehartford.com/workers-compensation/audit> [<https://perma.cc/4WA7-XSRW>].

134. *See* Panos Desyllas & Mari Sako, *Profiting from Business Model Innovation: Evidence from Pay-As-You-Drive Auto Insurance*, 42 RSCH. POL'Y 101 (2013).

135. *See infra* Part II.A.3.

136. *See* Abraham, *supra* note 17, at 89–92.

surely will not cause them to stop producing chainsaws. Similarly, policyholders' rates may depend in part on their gross revenue or number of employees,¹³⁷ but this fact will infrequently cause insureds to limit their operations or payroll.

Admittedly, feature-rating may influence risk over the long term even if policyholders do not have significant control over their riskiness when they initially purchase coverage. Businesses and individuals engaging in an activity that is costly to insure may seek exit strategies. Thus, the owner of a coastal home that is destroyed in a hurricane may choose not to rebuild in part because of the anticipated costs of insuring that property.¹³⁸ Additionally, persistently high insurance rates for certain activities may become general knowledge, which can, in turn, influence decisions about whether to engage in that activity. As noted above, a prospective homebuyer, might be aware that insurance prices are high for coastal homes, causing them to purchase elsewhere.¹³⁹

This is particularly likely when insurance costs are large relative to the broader costs and benefits of the underlying activity, or when insurance is a practical necessity to engage in the underlying activity. Returning to the homeownership example, because purchasers of a home typically must finance their purchase with a mortgage and annual homeowners insurance rates are an increasingly significant cost of homeownership in areas like Florida, rate changes for such coverage can become particularly salient even for prospective purchasers.¹⁴⁰ In many other settings, however, it seems unlikely that the signals sent by insurance premium-levels will be sufficiently well-known in advance of most decisions about whether to engage in particular long-term activities to have a substantial effect on those decisions.

2. The Limits of Experience Rating as a Loss-Prevention Tool

In contrast to feature rating, experience rating does not assess the riskiness of a policyholder's current operations or conduct. Instead, experience rating merely predicts the policyholder's future losses based on their past claims or loss experiences that are highly correlated with such claims. When policyholders have generalized awareness that future premiums will be calculated in this way, they will have an incentive to avoid taking risks that could impact their future insurance rates.

This incentive effect of experience rating may cause policyholders to adjust their safety levels, activity levels, or both.¹⁴¹ Adjusting safety levels involves increasing the care with which a particular activity is conducted. The drivers of a company's delivery trucks, for example, may be instructed to drive three miles per hour under the speed limit on highways. In contrast, adjusting activity levels involves modifying the amount or kind of an activity in which a policyholder engages. Thus, that same company may decide to ship its goods via FedEx to locations farther than twenty miles from its stores instead of delivering these orders directly. But just as with

137. See MANGAN & HARRISON, *supra* note 113, at 59.

138. See Alexander B. Lemann, *Assumption of Flood Risk*, 51 ARIZ. ST. L.J. 163, 212–14 (2019).

139. See *id.* at 214–17.

140. See ABRAHAM & SCHWARCZ, *supra* note 3, at 162.

141. See generally STEVEN SHAVELL, *ECONOMIC ANALYSIS OF ACCIDENT LAW* 5, 21 (1987) (distinguishing between activity level and safety level effects produced by tort rules).

feature rating, the incentives created by experience rating will not always translate into less risky behavior, for the following reasons.

a. Immediate Precaution Costs Must Be Compared to Uncertain Future Premium Savings

Unlike feature rating, experience rating relies on insureds identifying modifications of their activities or operations that may reduce future loss, and hence result in lower future insurance premiums. Consequently, experience rating will reduce the risk of loss only to the extent that insureds can (1) identify (perhaps with their insurer's assistance) adjustments to their activities or operations that may reduce the risk of loss, and (2) determine that expected future premium savings outweigh the present cost of making these adjustments. Experience-rating will thus not cause a company to alter its delivery practices as imagined above if the company does not believe that slower truck driving or increased use of third-party shipping will reduce losses, or if it believes that these shifts in its practices would produce costs that outweigh any future premium savings that they would generate.

The extent to which insureds can, in fact, identify precautions whose benefits (in the form of decreased future premiums) exceed their costs is highly context specific. But several factors make such scenarios likely to be uncommon. First, the costs of adopting new precautions are certain, whereas the future premium savings they may produce are highly contingent. In our experience, insurers rarely commit to reducing premiums if losses are lower than expected, nor do they specify the magnitude of anticipated reductions. Conversely, increased losses will not necessarily trigger future premium increases. After all, insurers that experience-rate do not necessarily do so for all claims; many auto insurers, for instance, increase rates only for accidents in which their insured was at fault.¹⁴² Meanwhile, numerous other factors, such as premium changes resulting from insurance underwriting cycles,¹⁴³ can mitigate or even entirely offset the impact of loss experience on premiums.

Second, whereas the costs of adopting precautions are immediate, the benefits of future premium savings are delayed. Because most policies are annually renewable, premium savings from precautions or adjustments in activities will ordinarily not be realized for at least a year. Even then, only a small percentage of potential savings may be realized, as premium savings may be spread over multiple future policy years. Consequently, the potential savings from experience rating may be quite distant for policyholders when they choose whether to adopt precautions. This is significant as individuals often disproportionately weigh immediate costs and benefits relative to future payouts.¹⁴⁴

Even when these hurdles can be overcome, experience rating is unlikely to cause insurance to produce a net-positive effect on risk. In the absence of insurance, a loss

142. See Emily Delbridge, *When a Not-at-Fault Claim Can Raise Your Insurance Costs*, THE BALANCE (May 3, 2022), <https://www.thebalance.com/can-a-not-at-fault-claim-raise-my-insurance-rates-527469> [<https://perma.cc/92LZ-ADCH>].

143. See Sean M. Fitzpatrick, *Fear is the Key: A Behavioral Guide to Underwriting Cycles*, 10 CONN. INS. L.J. 255 (2003).

144. See, e.g., Ted O'Donoghue & Matthew Rabin, *Present Bias: Lessons Learned and to Be Learned*, 105 AM. ECON. REV. 273 (2015).

would produce immediate and certain costs for a firm or individual. Insurance with experience rating, by contrast, means that an accident will produce a delayed and contingent loss for the policyholder. As such, uninsured firms and individuals would tend to have even better reason to adopt effective precautions than insured policyholders with experience-rated coverage. To the extent that such precautions are suggested or implemented with the assistance of an experience-rating insurer, then uninsured firms could purchase similar expertise from non-insurer consultants.

b. Experience-Rating Is Uncommon in Many Coverage Lines

Insurers in many lines of coverage make only limited use of experience rating. In some cases, this is because a single claim may provide only limited evidence about the likelihood of future losses. This is particularly common when claims are relatively rare and frequently influenced by factors beyond policyholders' control, as is the case in medical malpractice insurance markets where experience rating has historically been rare.¹⁴⁵ In other cases, insurers may not experience-rate because claims may actually *decrease* the risk of future claims by revealing vulnerabilities that can be remediated. This might plausibly be the case in some cyber insurance settings, for example, where firms that experience a cyberattack can potentially benefit from the advice of sophisticated technology consultants to help them diagnose how their cyber defenses were breached and how they can prevent such intrusions in the future.¹⁴⁶

Even when past claims are indeed reliable indicators of future risk, insurers may have good reasons to limit experience rating. For instance, significant premium increases of any type are likely to cause insureds to shop elsewhere for coverage.¹⁴⁷ But retaining legacy business is often profitable because of the onetime costs associated with new policyholders, such as underwriting expenses. Insurers selling multiple forms of coverage to a policyholder may also worry that increasing rates for one type of coverage due to a claim may result in their losing all of the policyholder's business.¹⁴⁸ In addition, insurers can sometimes attract insureds by promising not to

145. See Michelle M. Mello, Michael D. Frakes, Erik Blumenkranz & David M. Studdert, *Malpractice Liability and Health Care Quality: A Review*, 323 JAMA 352, 364 (2020); Gary M. Fournier & Melayne Morgan McInnes, *The Case for Experience Rating in Medical Malpractice Insurance: An Empirical Evaluation*, 68 J. RISK & INS. 255 (2001).

146. See Daniel Schwarcz, Josephine Wolff & Daniel Woods, *Do the Legal Rules Governing the Confidentiality of Cyber Incident Response Undermine Cyber Security?*, LAWFARE (Jan. 5, 2022, 8:01 AM), <https://www.lawfareblog.com/do-legal-rules-governing-confidentiality-cyber-incident-response-undermine-cybersecurity> [<https://perma.cc/5U4W-N3G8>].

147. See Maddy Varner & Aaron Sankin, *Suckers List: How Allstate's Secret Auto Insurance Algorithm Squeezes Big Spenders*, THE MARKUP (Feb. 25, 2020, 5:00 AM), <https://themarkup.org/allstates-algorithm/2020/02/25/car-insurance-suckers-list> [<https://perma.cc/D96B-DZJU>] (describing how Allstate's "customer retention" model delayed price increases to limit the risk of policy cancellation or switching from "sticker shock").

148. See Tina Harrison & Jake Ansell, *Customer Retention in the Insurance Industry: Using Survival Analysis to Predict Cross-Selling Opportunities*, 6 J. FIN. SERV. MKTG. 229 (2002).

experience-rate, and thus to protect them against the risk of future premium increases.¹⁴⁹ This practice is most explicit where insurers issue guaranteed renewable policies, which restrict premium increases based on individualized loss experience.¹⁵⁰ But it can also occur in other settings; for instance, some auto insurers sell policies with “accident forgiveness,” meaning that they will not increase their rates due to a single accident.¹⁵¹ Similarly, some insurers cap the impact of very large losses on future premiums or spread out the impact of large losses over multiple years in order to smooth out premium changes.¹⁵²

c. Questionable Impact Where Demand is Limited

A third impediment to effective experience rating is that policyholders may not need to purchase insurance in the future if their rates increase significantly. To be sure, some policyholders may not view dropping coverage in response to price increases to be practical or desirable. Even so, these policyholders can partially offset increased premiums from experience rating in other ways, such as by purchasing less coverage or increasing their deductible.

3. Reevaluating the Evidence

The significant obstacles to effective loss prevention through risk-based pricing help to explain why there is such mixed evidence that ordinary profit-maximizing insurers use these techniques to effectively promote loss prevention.¹⁵³ They also help to explain the settings in which risk-based pricing has been shown to help prevent losses. Consider experience rating first: as Part I noted, significant evidence suggests that experience rating in workers’ compensation insurance helps to reduce workplace accidents.¹⁵⁴ This makes sense given that workers’ compensation claims are relatively common; consequently, increased loss rates for an insured can provide a statistically reliable indicator of future losses.¹⁵⁵ Additionally, employers that implement effective workplace precautions and procedures can thereby receive a significant and immediate benefit independent of future premiums savings: a healthier and more reliable workforce.¹⁵⁶ Finally, for all but the largest employers,

149. See Kenneth S. Abraham & Pierre-André Chiappori, *Classification Risk and its Regulation*, in RESEARCH HANDBOOK ON THE ECONOMIC OF INSURANCE LAW (Daniel Schwarcz & Peter Siegelman eds., 2015); Bradley Herring & Mark V. Pauly, *Incentive-Compatible Guaranteed Renewable Health Insurance Premiums*, 25 J. HEALTH ECON. 395 (2006).

150. See ABRAHAM & SCHWARCZ, *supra* note 3, at 352.

151. See *Accident Forgiveness*, ALLSTATE, <https://www.allstate.com/auto-insurance/accident-forgiveness.aspx> [perma.cc/L2RP-DG63].

152. See, e.g., CONNOR & GALLAGHER ONESOURCE, *How Experience Modification Factor Impacts Work Comp Insurance Premium*, <https://www.gocgo.com/blog/experience-modification-factor> [perma.cc/J7UQ-XQHW].

153. See *supra* Part I.B.

154. See *id.*

155. See Jeff Biddle & Karen Roberts, *Claiming Behavior in Workers’ Compensation*, 70 J. RISK & INS. 759 (2003).

156. See Christopher Henry, *Death by Dicta: The Life of the Sophisticated User Doctrine*

specific amounts of workers' compensation insurance are typically mandated by state law; employers that experience significant rate increases due to past losses cannot, therefore, simply drop or reduce coverage.¹⁵⁷

Risk-based pricing in the form of feature rating, rather than experience rating, can also help to prevent losses where the obstacles described above are limited. The best examples involve settings where policyholder features have an intuitive causal connection to short-term risk, are relatively hard for policyholders to change during the policy period in ways that can be hidden from insurers, and are within the practical capacity of the insured to alter. Thus, a property insurer may offer a discount to insureds that install an automatic sprinkler system,¹⁵⁸ or an environmental liability insurer may offer discounts to policyholders that use storage tanks that are less prone to corrosion over time.¹⁵⁹ Similarly, an auto insurer may increase prices when teenage drivers are added to a policy, thus reducing the incidence of teenage driving.¹⁶⁰ But such intuitive and presumptively effective loss-prevention measures are much less likely to be available in lines like cyber and D&O insurance, where risk is more complicated and dynamic.

Another important example where the obstacles to feature rating described above are likely to be minimal involves scenarios in which premiums can have significant long-term effects on activity levels. Importantly, this may well be the case with respect to property investment in areas impacted by climate change, like Florida. Increasing insurance premiums for coastal property in that state may, over the next several years or decades, decrease development in those regions, particularly since homeowners insurance is a prerequisite to securing a mortgage.

Finally, and perhaps most importantly, understanding the barriers insurers face in using risk-based pricing to reduce risk helps to illuminate the contexts in which technological innovations really do have the potential to significantly reduce risk, perhaps even in ways that could produce net positive results. The key example here involves the use of telematics by auto insurers. As noted in Part I, available evidence suggests that telematics can indeed significantly reduce risky driving behavior.¹⁶¹ The promise of telematics in auto insurance stems from its particular capacity to overcome virtually all of the challenges to using risk-based pricing to reduce risk that we identified above. Most obviously, telematics can provide insurers with significant information regarding policyholders' driving behavior at essentially zero marginal cost.¹⁶² This allows insurers to overcome verification and precaution-

in *South Carolina Products Liability Law*, 69 S.C. L. REV. 1039, 1059 (2018).

157. See Shauhin Talesh, *Insurance Law as Public Interest Law*, 2 U.C. IRVINE L. REV. 985, 1000 (2012).

158. See Ben-Shahar & Logue, *supra* note 5, at 224 (reporting that some insurers offer such a discount).

159. Yin, Kunreuther & White, *supra* note 69, at 327.

160. Auto insurers can charge more to cover families with teenage drivers in part because they can easily identify whether a teenager was driving when an accident occurred. See, e.g., Rose Anne Devlin, *Liability Versus No-Fault Automobile Insurance Regimes: An Analysis of the Experience in Quebec*, in CONTRIBUTIONS TO INSURANCE ECONOMICS 499 (Georges Dionne ed., 1992).

161. See *supra* Part I.B.

162. By contrast, telematic technology cannot plausibly provide key risk-based

persistence problems with respect to feature rating. Auto insurers that use telematics also retain ownership and control over the data they collect, which helps them to avoid problems associated with maintaining the secrecy of their risk-based formulas while nonetheless communicating risk-based information to policyholders.¹⁶³ Telematics also can largely solve the problem of effective experience rating typically requiring insureds to compare the costs of precautions to uncertain future benefits, because telematics programs can provide prompt and reliable information to insureds about the cost savings that their behaviors will generate.

The promise of telematics, moreover, stems not just from the power of technology to eliminate information asymmetries and time lags, but also from several distinctive characteristics of driving risk. For instance, many of the causal elements of driving risk, such as speeding, sudden acceleration, and driving routes, are well understood and mostly within the control of insureds. Additionally, certain forms of auto insurance are legally required as a condition of driving in most states,¹⁶⁴ making demand for such coverage relatively inelastic. Finally, insureds have significant nonpecuniary reasons to want to avoid auto accidents, given the obvious noneconomic harms that serious auto accidents can produce. All of this suggests that efforts to expand telematics to other settings that lack these characteristics, such as in identifying police misconduct,¹⁶⁵ will face significant obstacles.

Of course, the potential for telematics to significantly reduce risk is just that: potential. Telematics are currently voluntary and only a small percentage of insureds opt for insurance programs that employ telematics.¹⁶⁶ In large part, drivers' reluctance to embrace telematics involves privacy concerns,¹⁶⁷ posing the question whether the benefits of round-the-clock behavioral observation of policyholder behavior are worth its costs.

Ultimately, insurers can and do use both feature rating and experience rating to help limit the risk of moral hazard. But these tools have important limits. And, in most cases, these limits mean that even when risk-based pricing can partially counteract moral hazard, it cannot reduce risk levels below those that would obtain

information to insurers in most lines of insurance. For instance, telematics cannot deliver observations of a corporate officers' decision-making process. Even in the auto insurance setting, telematics may not fully communicate relevant information, such as drivers' awareness of deterioration of their vehicles' parts or handling.

163. See Jin & Vasserman, *supra* note 30, at 2.

164. ABRAHAM & SCHWARCZ, *supra* note 3, at 713–14.

165. See *Special Order of the Chief of Police No. 13*, https://lapdonlinestrgeacc.blob.core.usgovcloudapi.net/lapdonlinemedia/2021/09/SO-13-2020_Telematics-System-Established.pdf [perma.cc/M8F4-DC8E].

166. See Mitchell Scrimgeour-Brown, *Telematics “A Total Game Changer” for Auto Insurers*, INS. BUS. AM. (June 30, 2021), <https://www.insurancebusinessmag.com/us/news/commercial-auto/telematics-a-total-game-changer-for-auto-insurers-259488.aspx> [https://perma.cc/2GC5-RH9M] (noting that only six percent of consumers in the US are enrolled in telematics programs).

167. The phrase is borrowed from a 1977 law review article that refers to the nightmare of total legal indeterminacy and the dream of total determinacy. H.L.A. Hart, *American Jurisprudence Through English Eyes: The Nightmare and the Noble Dream*, 11 GA. L. REV. 969 (1977).

in the absence of insurance. Insurance will still have a net-negative effect on loss prevention.

B. Partial Insurance: Loss Sharing Provisions

A second conventional approach to loss prevention is “partial” insurance. This is loss sharing by the insured, consisting of deductibles, coinsurance, or maximum monetary limits on coverage.¹⁶⁸ Partial insurance can limit moral hazard by requiring the policyholder to bear some of the risk of loss, and thus partially removing the underlying source of moral hazard. In that sense, partial insurance does not “combat” moral hazard at all, but simply limits its creation in the first place. For this reason, partial insurance cannot have a net-positive effect on loss prevention—it cannot plausibly reduce risk levels below those that would obtain in the absence of insurance, because partial insurance is *itself* the absence of insurance.

As with risk-based premiums, even the capacity of partial insurance to reduce moral hazard depends on several conditions that are not always satisfied. First, partial insurance limits moral hazard only when precautions that reduce the policyholders’ risk of incurring uninsured expenses simultaneously reduce the insurer’s risk of incurring covered losses. In most cases, this condition is met. To illustrate, a property insurance policy containing a deductible may increase the care that an insured would take to avoid a fire of any type, as small fires can easily become much larger. However, occasionally a policyholder can differentiate among precautions that impact loss-sharing expenses and those that impact insurance payouts. For example, a homeowner covered by flood insurance might place sandbags in front of their doors during a hurricane to prevent leakage under the sills. Doing so might prevent small amounts of water damage falling within the policy’s deductible, but not prevent major insured damage if flood waters rose several feet and flooded the home through other avenues of entry. In such cases, partial insurance is less effective in causing the policyholder to avoid insured loss. But this kind of bifurcation is probably rare.

Second, insurers may sometimes be reluctant to make significant use of partial insurance. Most individual liability insurance does not include any deductible or coinsurance, probably because such provisions might cause policyholders to delay reporting potential suits to insurers.¹⁶⁹ Property insurance coverage, meanwhile, often includes deductibles that are quite small compared to coverage limits, in large part because individuals prefer small deductibles.¹⁷⁰ More generally, large loss-sharing provisions can undermine the principal benefit of coverage: protecting insureds against the risk of significant financial loss.¹⁷¹

Even when insurance policies do include loss-sharing provisions, the primary purpose of these provisions may not be to combat moral hazard. For instance, the

168. See *supra* Part I.A.

169. See Baker & Swedloff, *supra* note 6, at 1429–30.

170. See, e.g., Justin Sydnor, *(Over)insuring Modest Risks*, 2 AM. ECON. J.: APPLIED ECON. 177 (2010).

171. This concern has been particularly salient in the health insurance context, where loss sharing can impose huge costs on even those with coverage. See Melissa B. Jacoby & Mirya Holman, *Managing Medical Bills on the Brink of Bankruptcy*, 10 YALE J. HEALTH POL’Y, L. & ETHICS 239 (2010).

relatively small deductibles included in property insurance policies may do little to combat moral hazard, but nonetheless serve the valuable purpose of limiting coverage for small losses.¹⁷² Doing so is economically sensible given the fixed costs of claims processing and the limited value to policyholders of insurance against relatively small losses.¹⁷³ Similarly, coverage limits in property insurance policies typically are not designed to induce care, but instead to specify the value or replacement cost of insured property so as to cap insurer liability.¹⁷⁴ Liability insurance coverage limits often serve a similar purpose, as evidenced by how few litigants seek to (or could) collect against insureds' personal assets.¹⁷⁵

Third, the capacity of partial insurance to combat moral hazard depends on the policyholder's ability to identify cost-effective measures that reduce the risk of loss. For many of the same reasons we discussed earlier, this will often be difficult or impossible.¹⁷⁶ Consider, for instance, the health insurance context. As noted in Part I, compelling evidence shows that cost-sharing provisions in health insurance reduce insureds' use of health care in part because such cost sharing is often quite expansive and salient.¹⁷⁷ What is much less clear, however, is the extent to which these short-term reductions in healthcare consumption limit wasteful or unnecessary care or instead cause insureds to forego medically necessary care.¹⁷⁸ In the latter scenario, cost-sharing provisions may actually increase long-term losses by causing minor health problems to increase in severity before they are treated.¹⁷⁹

172. As noted in Part I, there is some evidence suggesting a reduction in risk in Taiwan when insurers introduced a deductible that increased during a policy year when the insured was in a car accident. *See supra* Part I.B. However, the deductible in these cases was more significant as a percentage of total loss than is common in the United States. Additionally, increased deductibles facing drivers who experienced an accident were salient and recent in this setting.

173. *See* Tom Baker & Peter Siegelman, "You Want Insurance with That?"; *Using Behavioral Economics to Protect Consumers from Add-on Insurance Products*, 20 CONN. INS. L.J. 1, 4 (2013); Daniel Schwarcz, *Regulating Consumer Demand in Insurance Markets*, 3 ERASMUS L. REV. 23, 26–27 (2010).

174. *See* Peter Molk, *Playing with Fire? Testing Moral Hazard in Homeowners Insurance Valued Policies*, 2018 UTAH L. REV. 347.

175. *See* Tom Baker, *Blood Money, New Money, and the Moral Economy of Tort Law in Action*, 35 L. & SOC'Y REV. 275, 304–08 (2001); David A. Hyman, Bernard Black & Charles Silver, *Settlement at Policy Limits and the Duty to Settle: Evidence from Texas*, 8 J. EMPIRICAL LEGAL STUD. 48 (2011). Enterprises with substantial assets do face the risk of above-limits liability, but in our experience this risk is minimal because coverage limits typically are quite high (often in the hundreds of millions of dollars).

176. *See supra* Part II.A.

177. *See supra* Part I.B. As of 2022, the legal cap on cost sharing was approximately \$8,700 for individuals and \$17,400 for families. *Out-of-Pocket Maximum/Limit*, HEALTHCARE.GOV, <https://www.healthcare.gov/glossary/out-of-pocket-maximum-limit> [perma.cc/5R5Q-LJFG]. The salience of such cost sharing is also impacted by the fact that insureds must incur such cost sharing each time they receive care, which is quite typical.

178. *See* Thomas Rice & Karen Y. Matsuoka, *The Impact of Cost-Sharing on Appropriate Utilization and Health Status: A Review of the Literature on Seniors*, 61 MED. CARE RSCH. & REV. 415 (2004).

179. *See* Geetesh Solanki & Helen Halpin Schaffler, *Cost-Sharing and the Utilization of Clinical Preventive Services*, 17 AM. J. PREVENTIVE MED. 127 (1999).

C. Coverage Restrictions and Exclusions

Restrictions on and exclusions from coverage have long been emphasized as potential methods of combating moral hazard.¹⁸⁰ Most insurance policies, however, do not attempt to achieve this result through general negligence exclusions or provisions conditioning coverage on the insured exercising reasonable care to avoid a loss.¹⁸¹ Such provisions would be self-defeating in liability insurance, the major purpose of which is to insure against liability for negligence. Similarly, neither property, life, nor health insurance policies typically contain such provisions because policyholders demand coverage against loss caused by their own carelessness and are willing to pay for it.¹⁸² Instead, the approach insurance typically employs is to incorporate restrictions directed at specific forms of risky conduct.¹⁸³

Like partial insurance, specific coverage exclusions principally reduce moral hazard by limiting its creation in the first place rather than by affirmatively counteracting moral hazard. For example, an insured whose property insurance excluded damage to a garage would not therefore exercise more care to avoid such damage than they would have exercised without coverage. Rather, the insured simply never experiences any reduction in their baseline incentive to protect the garage. Meanwhile, the garage exclusion does nothing to combat the moral hazard created by insuring the insured's house.

Unlike partial insurance, however, specific coverage provisions can, in principle, reduce risk in ways that extend beyond merely not creating moral hazard in the first place. Such risk reduction can occur if these coverage restrictions indirectly convey to policyholders the insurer's superior information about effective precautions and cause the insured to alter their behavior accordingly. Consider, for instance, the exclusion in homeowners' policies for frozen pipes in vacant homes when heat is not maintained and the water is not shut off.¹⁸⁴ This exclusion might alert otherwise unsuspecting insureds to the desirability of shutting off their water when they leave their home for extended periods of time.

In order for such coverage restrictions to prevent losses at all, however, insureds must understand or anticipate these restrictions when they make decisions relevant to risk. When such coverage restrictions are not appreciated by insureds, the net effect is simply to shift the risk of loss onto insureds without reducing that risk at all.¹⁸⁵ A homeowner who is unaware of the frozen-pipe exclusion, for example, will not be influenced by its existence.¹⁸⁶ The extent to which policyholders are aware of

180. See, e.g., George W. Goble, *The Moral Hazard Clauses of the Standard Fire Insurance Policy*, 37 COLUM. L. REV. 410, 415 (1937).

181. See Daniel Schwarcz, *Reevaluating Standardized Insurance Policies*, 78 U. CHI. L. REV. 1263, 1284–85 (2011).

182. See, e.g., ABRAHAM & SCHWARCZ, *supra* note 3, at 274.

183. See Schwarcz, *supra* note 181, at 1284–85.

184. See ABRAHAM & SCHWARCZ, *supra* note 3, at 274–75.

185. Daniel Schwarcz, *Transparently Opaque: Understanding the Lack of Transparency in Insurance Consumer Protection*, 61 UCLA L. REV. 394, 425 (2014).

186. The only economic study examining how policy terms impacted moral hazard that we could locate was Georges Dionne & Robert Gagné, *Replacement Cost Endorsement and Opportunistic Fraud in Automobile Insurance*, 24 J. RISK & UNCERTAINTY 213 (2002), which

coverage restrictions when they make risk-relevant decisions varies. In most settings, however, any such awareness usually will not take the form of continuous and explicit knowledge of coverage details before a loss occurs or becomes relatively likely; even the most sophisticated policyholders only examine the details of their insurance coverage when they purchase coverage or a loss occurs.¹⁸⁷

Instead, the mechanisms by which coverage restrictions are likely to influence risk-relevant behavior will tend to take one of three more indirect forms. First, policyholders may be vaguely aware that their insurance limits coverage if they take specific risks but have no concrete sense of exactly how such coverage restrictions work. This type of limited awareness could well influence policyholder care levels: for instance, a homeowner might be careful to turn off their home's water when they leave it unoccupied simply because they anticipate the possibility that failing to do so could result in uncovered losses.¹⁸⁸ On the other hand, the unconscious moral hazard, which we mentioned in Part I, might operate in the other direction, discouraging the insured from bothering with this type of precaution. Second, policyholders may become aware of specific coverage restrictions or conditions after a loss occurs or appears relatively likely, triggering policyholder efforts to limit ultimate losses. Policyholders are, of course, more likely to inquire about the details of their coverage after property has been damaged or a loss appears likely.¹⁸⁹ Third, policyholders operating with the advice of insurers may take note of coverage limitations or conditions at the outset of a policy term and implement procedures or policies designed to preserve coverage if a loss does occur. For instance, a catering company may train its employees to dispose of all unconsumed food after an event due to limitations in its liability insurance for food poisoning resulting from consumption of food after a catered event. Such preemptive precautions are particularly likely to be adopted by policyholders who are advised by sophisticated brokers or intermediaries who specialize in advising insureds about how to manage their risks in light of their insurance coverage.

Among these three pathways, only the third—in which insureds translate coverage restrictions into routinized practices or policies—can plausibly cause insurance to have a net-positive impact on loss prevention. To illustrate, the catering

found that replacement cost coverage in automobile insurance policies increases the probability of theft claims. They conclude that their findings suggest opportunistic fraud rather than ex ante moral hazard. Insureds committing such fraud have an opportunity to carefully consult their policy terms beforehand.

187. See generally Michelle Boardman, *Penalty Default Rules in Insurance Law*, 40 FLA. STATE UNIV. L. REV. 305, 305 (2013); Molk, *supra* note 174, at 352 (showing that valued policy laws do not influence losses, presumably because most insureds are not aware of these laws). Unlike in health insurance, losses in most lines of property/casualty insurance are relatively uncommon, meaning there are limited opportunities for policyholders and their personnel to learn over time about the features of this coverage.

188. Such generalized awareness of coverage limitations may also cause policyholders facing unusual circumstances to check the terms of their coverage by contacting their insurer or agent.

189. See Boardman, *supra* note 187, at 330; Daniel Schwarcz, *Coverage Information in Insurance Law*, 101 MINN. L. REV. 1457, 1471–76 (2017). It is for precisely this reason that most property/casualty policies impose heightened duties of care on policyholders at or after the time of a loss. See ABRAHAM & SCHWARCZ, *supra* note 3, at 212.

company's instructions to employees may reduce the risk of food poisoning compared to a scenario where the caterer was uninsured and failed to appreciate the risk of food poisoning from the consumption of leftovers.¹⁹⁰ By contrast, a policyholder who moderates their risk-taking due to a generalized awareness of coverage restrictions would presumably take even greater precautions if they were uninsured and thus bear the full cost of their lack of care. There is no opportunity, in this scenario, for coverage terms to indirectly convey the insurer's expertise about effective precautions. Similarly, coverage restrictions that an insured discovers after a loss are unlikely to cause them to take greater care than they would have taken if they were uninsured; an uninsured person who discovers a potential or ongoing loss has strong reason to mitigate that loss and the capacity to hire an expert to help them with that effort if necessary.

Ultimately, then, coverage restrictions can prevent losses, sometimes in ways that may even go beyond merely counteracting moral hazard. But in order to reduce risk at all, policyholders must have some knowledge of these policy provisions when they make relevant decisions, and that often will not be the case.

D. Ex Post Loss Management

The final category of conventional loss-prevention techniques involves loss-management services that insurers provide or facilitate once policyholders inform them that a potentially covered loss has occurred. This is a conventional form of loss prevention (or reduction) because it is part of an insurer's typical claims-management operations. But unlike other conventional loss-prevention techniques, loss-management services are principally concerned with combatting ex post moral hazard, which arises when insureds do not make sufficient efforts to limit the magnitude of loss once it has begun to occur.¹⁹¹ By contrast, these services do little to help insureds reduce the risk of suffering a loss in the first place.

The extensiveness of insurer-provided loss-management services varies across lines of insurance. In our experience, property insurers, for instance, typically provide only limited loss-management services, such as supplying policyholders with information about the appropriate cost of repairs and preferred service providers. Cyber insurers, by contrast, often offer extensive post-breach services that include helping policyholders restore lost data, negotiate with ransomware hackers, and navigate regulatory and legal requirements.¹⁹² And, of course, loss management is a core feature of liability insurance: most liability insurance policies provide the

190. Even relatively obscure coverage exclusions might reduce risk in this way. Commercial General Liability (CGL) policies, for instance, exclude coverage for liability that an insured voluntarily assumes via contract. See ABRAHAM & SCHWARCZ, *supra* note 3, at 468. For that reason, an insured might plausibly alter its contracting practices to only accept indemnification when doing so would not jeopardize its insurance coverage, while it might not have adopted this practice in the absence of insurance.

191. See Ronen Avraham, *The Economics of Insurance Law—A Primer*, 19 CONN. INS. L.J. 29, 66 (2012).

192. See WOLFF, *supra* note 94; Woods & Böhme, *supra* note 97, at 19–21.

insurer with substantial control over the defense and settlement of a suit against the insured.¹⁹³

There is little doubt that these types of insurer-provided loss-management services frequently help to limit ex post moral hazard. In the absence of such services, policyholders would often fail to mitigate the costs of an insured loss, given that it would be their insurer's money, rather than their own, that was on the line. Because insurance coverage looms large after a covered loss has occurred, policyholders typically appreciate this reality. These dynamics are most obvious in the liability insurance setting where policyholders in control of defense and settlement might immediately settle a case at their coverage limits or direct their insurance defense counsel to spend exorbitant resources to defend the claim, though the prospect of experience-rating in subsequent years might minimally reduce this risk.¹⁹⁴

Not all loss-management efforts by insurers, however, are in fact designed to combat ex post moral hazard. Perhaps just as often—as we indicate below—their purpose is to shift losses onto policyholders or third parties or to avoid litigation rather than to reduce the magnitude of these losses.¹⁹⁵ The prospect that insurers' loss-management services may inappropriately shift losses onto others has resulted in various legal and regulatory strategies designed to safeguard policyholder and public interests. Market forces can also restrict insurers' capacity to push loss-management efforts too far: a D&O insurer, for instance, may agree to settle a questionable claim against its insured because failing to do so could impede future demand for its products.¹⁹⁶

The inevitable need for legal, regulatory, and market forces to ensure that insurers' loss-management efforts do not inappropriately shift losses onto policyholders or third parties blunts insurers' capacity to effectively limit ex post moral hazard. This is because the boundary line between these two characterizations of insurers' loss-management efforts is so contestable. Do auto insurers' efforts to steer policyholders to favored repair shops and Non-Original Equipment Manufactured ("Non-OEM") parts combat moral hazard or unreasonably limit policyholder recovery? How often do health insurers deny coverage for care that they claim is not medically necessary despite convincing evidence to the contrary? And when should liability insurers accept settlement offers in cases they believe their policyholder is likely to win when there is a significant risk of an excess judgment if they are wrong? Because answering such questions is notoriously difficult, legal, regulatory, and market forces often limit insurers' capacity to aggressively fight ex post moral hazard in an effort to prevent inappropriate shifting of losses onto others.

Even when insurers successfully overcome these barriers to ex post loss management, these efforts generally will not reduce risk below levels that would

193. ABRAHAM & SCHWARCZ, *supra* note 3, at 615, 651–52; see Charles Silver, *Basic Economics of the Defense of Covered Claims*, in RESEARCH HANDBOOK ON THE ECONOMICS OF INSURANCE LAW (Daniel Schwarcz & Peter Siegelman, eds., 2015).

194. Douglas R. Richmond, *Liability Insurers' Right to Defend Their Insureds*, 35 CREIGHTON L. REV. 115 (2001).

195. See Avraham & Porat, *supra* note 7, at 8–18.

196. See ABRAHAM, *supra* note 17, at 193 (discussing the incentives for settlement created by the threat of insurers' liability for judgments in excess of their policy limits).

exist in the absence of insurance. To be sure, insurers may well develop expertise in loss management that they can share with their insureds.¹⁹⁷ But, as suggested above, uninsured parties who experience a loss have good reason to manage the resulting costs efficiently on their own. And to the extent that they do not have the expertise to do this, they can hire others to assist them in this endeavor when they experience an actual or potential loss. Indeed, this is exactly what many insurers do.¹⁹⁸ Moreover, while insurers may have an incentive to shirk on loss mitigation or repair services because the benefits of such services flow partially to policyholders, uninsured individuals and entities have good incentives to balance cost and quality considerations when selecting loss mitigation and repair services in the wake of a loss.

III. THE NATURE AND LIMITS OF UNCONVENTIONAL LOSS-PREVENTION METHODS

This Part turns to unconventional loss-prevention methods, which operate outside the confines of ordinary insurance processes that are required to transfer risk from insured to insurer. These loss-prevention methods tend to require repeated interactions between insurers and policyholders during the policy period or long-term insurer efforts to coordinate and influence third parties such as scientists, engineers, and policymakers. Often, they consist of the direct provision of loss-prevention services rather than the conventional creation of economic incentives for the policyholder to prevent losses from occurring. Much of the literature canvassed in Part I emphasizes the (purported) capacity of insurers to effectively deploy such unconventional methods of loss-prevention. In theory, such loss-prevention efforts can benefit policyholders and insurers alike: by decreasing losses, effective loss prevention can drive down covered losses, which can both reduce premiums and attract more future customers. As we saw, however, the actual evidence suggests that unconventional loss-prevention efforts by insurers are uncommon, especially for insurers that operate outside of niche markets and are not genuine mutuals.¹⁹⁹

This Part explains the gap between the theory underlying the regulation thesis and empirical reality by showing that insurers operating in competitive commercial markets typically face significant, and often insurmountable, obstacles to effectively implementing unconventional loss-prevention methods. In many contexts, these efforts would be costly, have an uncertain impact on claims (and hence future premiums), expose insurers to potential tort liability, and risk generating significant policyholder pushback. In addition, the widespread dissemination of these methods is not often in insurers' collective interest because they would risk blunting aggregate demand for coverage.

To advance the analysis, we divide unconventional loss-prevention methods into two categories based on the identity of the parties with whom insurers must engage to reduce the risk of loss. Section A focuses on direct insurer engagement with

197. See Ben-Shahar & Logue, *supra* note 5, at 210.

198. In many settings, insurers do not provide loss mitigation advice directly but through independent third-party experts such as lawyers, forensic experts, or engineers. See, e.g., Woods & Böhme, *supra* note 97, at 19–21 (exploring how cyber insurers use third-party providers to help policyholders respond to a cyber incident).

199. See *supra* Part I.B.

policyholders outside of the conventional touchpoints of the insurance relationship. Such possible loss-prevention efforts include providing policyholders with risk-related information, advising or coaching policyholders, and providing risk-mitigation and early detection services to policyholders. Section B then turns to potential loss-prevention mechanisms that bypass policyholders entirely, such as insurer influence of public policy or production of risk-reducing technologies. Ultimately, we conclude, ordinary insurers' practical capacity to profitably deploy either set of strategies is limited, an assessment that helps to explain the evidence finding minimal use of unconventional loss-prevention strategies by most insurers.

A. Direct Insurer Engagement with Policyholders

The most highly touted unconventional mechanisms for insurers to reduce the risk of loss involve direct and repeated interactions between insurer and policyholder.²⁰⁰ These interactions are often described as sophisticated consulting services that the insurer provides in conjunction with coverage and which policyholders accept, at least in part, because of the implicit or explicit threat that insurers will otherwise raise rates or limit coverage.

In theory, such direct risk-mitigation efforts have the capacity to allow insurance to generate net-positive effects on loss prevention.²⁰¹ This potential arises from insurers' relative sophistication in understanding and managing risk, which they can leverage to advise policyholders on new precautions, policies, or practices. By contrast, even uninsured firms and individuals that have strong financial reasons to manage risk may lack the sophistication, data, and awareness necessary to accurately assess which policies and precautions are likely to accomplish this goal cost-effectively.

The literature provides some evidence that such unconventional methods have the potential to reduce the risk of loss in some contexts.²⁰² And there are even indications that these efforts can help policyholders to adopt precautions that they might neglect in the absence of insurance. But the relative dearth of such evidence reflects several key limitations on direct efforts by insurers to limit policyholder risk.²⁰³

200. See *supra* Part I.A.

201. See, e.g., DAVE JONES ET AL., THE NATURE CONSERVANCY & WILLIS TOWERS WATSON, WILDFIRE RESILIENCE INSURANCE: QUANTIFYING THE RISK REDUCTION OF ECOLOGICAL FORESTRY WITH INSURANCE 2–8 (2021), <https://www.nature.org/content/dam/tnc/nature/en/documents/FINAL.wildfireresilienceinsurance6.27.21.pdf> [<https://perma.cc/Y8UT-QBBV>] (concluding that insurers could substantially reduce wildfire risk and insurance premiums by encouraging appropriate ecological forestry approaches in California while acknowledging that private insurers have not, to date, done much to advance this goal).

202. See *supra* Part I.B.

203. See Logue, *supra* note 6, at 1357 (noting that direct insurer regulation of policyholders, consisting of, for instance, inspecting insured's premises and offering customized advice about reducing risks, is "surprisingly uncommon").

1. Directly Influencing Policyholder Behavior is Costly for Insurers

The cost to insurers of directly providing loss-prevention services to policyholders is directly related to the potential effectiveness of these efforts. It is relatively inexpensive for insurers to periodically provide policyholders with general information about how they can reduce their risk of incurring losses. For this reason, insurers and agents regularly engage in these efforts: homeowner insurers send emails about keeping a fire extinguisher handy,²⁰⁴ cyber insurers periodically remind policyholder personnel not to click on suspicious email links,²⁰⁵ and workers' compensation insurers provide employees with access to online safety information and presentations.²⁰⁶

Although these mass communications to policyholders may marginally limit risk, their primary purpose and effect are often directed just as much to marketing. Such communications can help policyholders feel that their insurer is "on their side" while reminding them of the ongoing protection their coverage supplies. Policyholders can easily neglect this security if they do not experience a covered loss for an extended period of time, which can decrease their willingness to pay for that protection.²⁰⁷ But we were unable to identify any evidence that these generalized insurer communications meaningfully limit the risk of policyholder loss.²⁰⁸ We tend to doubt that such an effect is common because policyholders have limited incentives to carefully review this information and act upon it, especially in settings where the risk of loss is principally financial (and hence compensable by insurance) rather than non-pecuniary.

Unlike generalized communications from insurers about risk management, there is reasonably good evidence that customized advice, coaching, or consulting services from insurers can meaningfully influence policyholder behavior.²⁰⁹ But this is hardly a certainty; in practice, insurers' efforts to provide loss-prevention services often fail to translate into reduced losses or premiums.²¹⁰

204. See, e.g., Travelers Risk Control, *Types of Fire Extinguishers*, TRAVELERS, <https://www.travelers.com/resources/home/fire-safety/types-of-fire-extinguishers> [perma.cc/SBE8-KUNE].

205. See, e.g., Richard Seiersen, *How to Manage Cybersecurity Risk: Series Introduction*, RESILIENCE INS. (Dec. 13, 2021), <https://www.resilienceinsurance.com/how-to-manage-cybersecurity-risk-series-introduction> [perma.cc/P7KN-TWFU]; see also MacColl, Nurse & Sullivan, *supra* note 96, at 15.

206. *Best Loss Control Programs*, INS. BUS., <https://www.insurancebusinessmag.com/us/best-insurance/a/244399/> [perma.cc/4EUU-GT9A] (noting that it is common for workers' compensation insurers to provide policyholders with online resources for improving safety).

207. See HOWARD KUNREUTHER WITH RALPH GINSBERG, LOUIS MILLER, PHILIP SAGI, PAUL SLOVIC, BRADLEY BORKAN & NORMAN KATZ, *DISASTER INSURANCE PROTECTION: PUBLIC POLICY LESSONS* 236–43 (1978).

208. See, e.g., MacColl, Nurse & Sullivan, *supra* note 96, at 15 (noting that while cyber insurers communicate information to policyholders about emerging cyber risks, "both the extent to which organisations act on that advice and the extent to which they are contractually obligated to do so are unknown").

209. See *supra* Part I.B.

210. See, e.g., Baker & Griffith, *supra* note 8, at 1811.

Whether or not loss-prevention services actually reduce losses, they are costly for insurers to provide. Because they are not necessary to effectuate the transfer of risk, insurers supplying these loss-prevention services must hire additional personnel and generate new systems for developing, implementing, and managing these efforts or else pay third parties to supply these services on their behalf.²¹¹ Even assessing the impact of such loss prevention programs requires expertise that is outside the conventional domain of actuaries, such as fluency with statistical techniques that can control for differences in policyholders who receive these interventions and those who do not.²¹²

While robust loss prevention services are costly for insurers to supply, they do not directly generate any revenue or necessarily increase customer demand. Loss-prevention services are generally provided by insurers to policyholders free of charge, an approach that is typically deemed necessary to induce policyholders to take advantage of them.²¹³ Yet most policyholders, and even more importantly the brokers who advise them on purchasing coverage, do not focus on the scope of such loss-prevention services when selecting coverage.²¹⁴ The net result is that some commercial insurers simply opt not to provide robust direct loss prevention services so that they can offer cheaper coverage upfront.²¹⁵ For this reason, states have occasionally found it necessary to mandate that insurers in certain lines of business provide loss-prevention services to insureds.²¹⁶

211. A variety of firms provide loss-prevention services that insurers can purchase for their policyholders. *See, e.g., Loss Control Services*, SAFETYRESOURCES, <https://www.safetyresources.com/loss-control-services> [<https://perma.cc/53RM-DNTR>].

212. *See* MacColl, Nurse & Sullivan, *supra* note 96, at 28 (“[D]ue to the lack of reliable cyber risk data, underwriters are still developing a robust evidence base for whether a particular security control leads to a measurable reduction in cyber risk.”).

213. *See, e.g.,* Erin E. Meyers & Joni Hersch, *Employment Practices Liability Insurance and Ex Post Moral Hazard*, 106 CORNELL L. REV. 947, 965 (2021).

214. *Best Loss Control Service Programs*, INS. BUS., <https://www.insurancebusinessmag.com/us/best-insurance/a/244399/> [perma.cc/FE9L-KHPF] (“[M]itigation offerings were not highly rated at all by brokers—coming second last out of six factors they rated.”).

215. *See* Meyers & Hersch, *supra* note 213, at 965 (noting significant variation among employer practices liability insurers in their provision of loss-prevention measures, such as 800 numbers for employee complaints, hotlines for insured businesses to call with legal questions, assistance crafting employment policies, and training on employment best practices).

216. *See* Bob Wagner, *Insurers Facing Needs to Adjust: Loss Control Services in the New Era*, LAB. MGMT. DECISIONS (1994), https://are.berkeley.edu/~howardrr/pubs/lmd/html/spring_94/losscontr.html [perma.cc/CXM8-C5DC] (discussing a state mandate that workers’ compensation insurers provide loss prevention services); Stephen D. Sugarman, *California’s Insurance Regulation Revolution: The First Two Years of Proposition 103*, 27 SAN DIEGO L. REV. 683, 694 (1990) (noting that insurers are required by California law to offer a “good driver discount” of at least twenty percent to drivers who meet the statute’s definition of a good driver); Press Release, Cal. Dep’t Ins., Commissioner Lara Announces New Regulations to Improve Wildfire Safety and Drive Down Cost of Insurance (Feb. 25, 2022), <https://www.insurance.ca.gov/0400-news/0100-press-releases/2022/release019-2022.cfm> [perma.cc/6J9C-2MQ5] (describing proposed regulations by California’s Insurance Commissioner that would require “insurance

Of course, as Part I suggested, some insurers buck these trends, promising cheaper coverage upfront in exchange for policyholders accepting continuous loss-prevention services. But to be successful, this approach requires not only that the insurer's loss-prevention services decrease aggregate expected risk but also that the insurer can capture a sufficient amount of the resulting benefits to offset the costs of its risk-management services. It is to this issue that we now turn.

2. The Value of Individualized Services Can be Appropriated by Policyholders and Competitors

Given the cost of providing individualized advice, training, and services to policyholders, insurers will tend to have limited incentives to invest in these efforts when they can only partially capture any resulting benefits. But in many settings, any risk-mitigation benefits that insurer-supplied services create can be appropriated by competitors or policyholders.²¹⁷

This is because virtually all property/casualty insurance policies provide coverage only for one year. A policyholder who experiences reduced losses due to direct insurer services can thus demand correspondingly reduced premiums in future years. If their insurer refuses to accede to these demands, then the policyholder can purchase coverage from a competitor that reflects their improved risk profile, at least if that competitor can observe reductions in risk that are attributable to an earlier insurer's provision of loss-prevention services. Policyholders that benefit from an insurer's loss-prevention advice can thus "sell" that benefit to competing insurers by purchasing cheaper coverage from those competitors in future years.

To be sure, not all insurers that reduce policyholder risk through direct interventions will see the fruits of their labor captured by their competitors or policyholders. This possibility depends on several factors. First, insurers operating in relatively non-competitive markets will, of course, face less risk of this result. This helps to explain why extensive direct risk mitigation is more common in niche insurance markets and among genuine mutual insurers,²¹⁸ which tend to be more active in less competitive markets.²¹⁹

Second, insurers are more likely to profit from direct risk mitigation efforts that principally reduce short-term, rather than long-term, risk; these benefits are harder for competitors to appropriate because their effect will diminish once the underlying loss services are no longer supplied. Thus, the risk-mitigating effect of an insurer-operated safety hotline that supplies short-term and immediate risk-mitigating benefits may be relatively hard for competitors to appropriate. By contrast, insurer guidance on a policyholder's internal policies may be relatively easy for competing

companies . . . to factor consumers' and businesses' wildfire safety actions into their pricing of residential and commercial coverage").

217. This obstacle is similar to the prospect that insurers will see their feature-rating mimicked by competitors. *See supra* Part II.A.

218. *See supra* Part I.B.3.

219. *See supra* Part I.B.3. Genuine mutuals often arose from the collective efforts of entities in need of coverage who could not find reliable options in the private market due to periodic insurance availability crises. *See supra* Part I.B.3.

insurers to appropriate because such policies impact long-term risk extending well beyond the insurer's annual policy period.

Third, insurers will better be able to capture the benefits of their risk-mitigation services if competing insurers cannot easily observe the impacts of these efforts. In that event, insurers would be unable to offer reduced premiums to applicants that have benefited from the risk-mitigation efforts of their competitors. This result is less likely to be obtained in settings where claims are common even for low-risk policyholders, as effective risk mitigation in such settings will be observable from the policyholder's loss experience trends. By contrast, in contexts where claims are relatively uncommon, it may be harder for an insurer to verify the impact of a prior insurer's risk-mitigation efforts. In the end, insurers' willingness to invest in costly measures to directly reduce risk thus depends on complicated market dynamics.

3. Direct Engagement Exposes Insurers to Potential Tort Liability

The prospect of incurring tort liability for their efforts also discourages insurers from directly attempting to limit policyholder risk. As Kyle Logue has explored at length, under ordinary tort law principles, businesses and individuals that "voluntarily undertake" to assist others may have an affirmative duty to exercise reasonable care when doing so.²²⁰ Courts have routinely applied this principle to hold insurers liable for injuries sustained at a policyholder's place of business after the insurer "negligently inspected" those premises.²²¹ These suits most commonly involve workers' compensation insurers that are alleged to have negligently overlooked dangerous working conditions during inspections or boiler and machinery insurers that plaintiffs claim negligently failed to detect problems with machinery that subsequently malfunctioned and injured the plaintiff.²²² But the principle behind these decisions applies more broadly.

The underlying doctrine in these cases incentivizes insurers only to use information about policyholder risks for conventional risk-mitigation purposes, such as setting rates and limiting coverage. Going further, by providing individualized risk-mitigation advice or services, risks triggering tort liability exposure. That is because insurers are liable under this doctrine only if the policyholder or a third party reasonably relies on them to reduce the underlying risk.²²³ Insurers can therefore avoid liability by demonstrating that any inspection of an insured's premises or scrutiny of its operations was conducted solely to facilitate the decision about whether to offer coverage and on what terms to do so. In that event, no policyholder

220. See generally Logue, *supra* note 6, at 1382. See also Daniel Woods & Andrew Simpson, *Policy Measures and Cyber Insurance: A Framework*, 2 J. CYBER POL'Y 209, 218 (2017) (reporting that some cyber insurers resisted communicating best practices to policyholders because of the risk that doing so would expose them to liability); John Dwight Ingram, *Liability of Insurers for Negligence in Inspection of Insured Premises*, 50 DRAKE L. REV. 623, 635 (2002).

221. See Logue, *supra* note 6, at 1360–76 (surveying this caselaw).

222. See *id.*

223. See RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL AND EMOTIONAL HARM § 42 (AM. L. INST. 2012).

or third party could reasonably rely on those efforts.²²⁴ The extent to which this characterization is factually accurate is the key issue on which most reported caselaw turns.²²⁵

At least some insurers are aware of this caselaw and cite it to help explain why they do not provide individualized risk-mitigation services to policyholders. Logue, for instance, interviewed some personnel at large property-casualty insurers who “stated that they are reluctant to get too involved in the safety-related decisions of their insureds because of the concern that their involvement will expose them to direct tort liability.”²²⁶ Rappaport reported similar concerns among police liability insurers’ employees.²²⁷ And cyber insurer personnel have also reported in interviews that liability risk discourages affirmative interventions in policyholder operations.²²⁸

4. Backlash from Customers

Another significant obstacle to direct risk-mitigation efforts by insurers is that these efforts can, and often do, antagonize policyholders who do not want insurers to tell them what to do.²²⁹ Insurers that nonetheless attempt to encourage or require policyholders to accept risk-mitigation services and advice thus may antagonize policyholders and lose their business.

The risk that insurers will antagonize their customers if they push them to accept significant risk-mitigation services depends on several variables. The first, as noted above, is the competitiveness of the underlying insurance market. Insurers operating in markets with only a few competitors may have the leverage necessary to insist that policyholders accept services or advice that helps to limit the risk of an insured loss. By contrast, insurers operating in highly competitive markets may feel constrained in their capacity to demand significant time and attention from policyholders and their personnel.²³⁰ For similar reasons, the condition of an insurance market is also significant: insurers have more leverage to insist on affirmative risk-mitigation measures during “hard markets,” when insurance is relatively costly and unavailable, as opposed to during “soft markets,” when insurance pricing loosens.²³¹

224. See Logue, *supra* note 6, at 1370 (surveying published caselaw and noting that the “insurer typically argues that the safety inspection was not made ‘for the benefit’ of the employer-insured or for the benefit of the employees of the insured” but was instead engaged in “solely to determine whether to offer the insurance and, if so, under what terms”).

225. *Id.*

226. *Id.* at 1366.

227. Rappaport, *supra* note 5, at 1610.

228. See Woods & Simpson, *supra* note 220, at 218.

229. Mendoza, *supra* note 8, at 426–34 (explaining the reluctance of public schools’ liability insurers to engage in robust loss-prevention efforts as arising from insurers’ “appreciation of and sensitivity towards their members’ operational and political concerns”); BAKER & GRIFFITH, *supra* note 86, at 127 (highlighting D&O insurers’ reluctance to interfere with corporate governance matters of their policyholders); Talesh, *Legal Intermediaries*, *supra* note 8, at 229.

230. See MacColl, Nurse, & Sullivan, *supra* note 96, at 26 (describing how competitive conditions in cyber insurance markets have some carriers to resist imposing significant burdens on policyholders).

231. See Baker & Shortland, *supra* note 6.

A second key factor is more subjective but just as real: the level of trust between insurers and policyholders. Policyholders often resist insurer loss-management advice when trust levels are low. Ordinary directors and officers, for instance, have limited trust of D&O insurer recommendations regarding corporate governance.²³² Similarly, local school boards have limited trust of their liability insurers' recommendations on civil rights issues. The result is that the loss-prevention advice of these insurers tends to be unwelcome, even though they operate in niche insurance markets.²³³ And many businesses have limited trust in their cyber insurer's cybersecurity advice.²³⁴ Trust between policyholders and genuine mutual insurers is much more common—though certainly not universal—because policyholders play a comparatively large role in advising, managing, and directing these insurers' operations.²³⁵

Finally, an important factor influencing policyholder willingness to accept risk-mitigation advice, counseling, and services from insurers is the extent to which coverage protects against most of the losses a policyholder is likely to suffer. When policyholders are largely insulated from loss due to insurance, they receive little direct benefit from insurers' risk-mitigation efforts, which may operate purely as a cost or nuisance.²³⁶ This may help explain why directors and officers resist corporate governance advice from their insurers: D&O insurance is very broad and is subject to only a few exclusions, mainly pertaining to egregious wrongdoing.²³⁷ By contrast, policies in other insurance lines do not or cannot significantly protect insureds from non-pecuniary losses associated with the insured activity. In these settings, policyholders are more likely to value their insurer's advice about how to reduce their risk of an insured loss, at least where doing so also reduces the risk of uninsured loss. It is for this reason that employers are often relatively amenable to workplace-safety advice from their workers' compensation insurers:²³⁸ workplace accidents produce various uncovered costs for employers, including physical pain for employees, diminished employee morale, and undermined future recruiting efforts.²³⁹ These uninsured costs can be reduced by following insurers' advice about how to reduce insured costs.

B. Insurers' Influence of Aggregate Risk Levels

In addition to attempting to directly influence policyholders' risk levels, insurers can also attempt to reduce aggregate risk levels through means that bypass policyholders entirely. There are two distinct ways in which this can occur. First, insurers can advocate for public policies that may decrease the aggregate risk of loss

232. Baker & Griffith, *supra* note 8, at 1811, 1831.

233. Mendoza, *supra* note 8, at 427–32.

234. MacColl, Nurse, & Sullivan, *supra* note 96, at 25.

235. *See, e.g.*, Rappaport, *supra* note 5, at 1563–64.

236. *Cf.* Baker, *supra* note 11, at 277–79 (noting that moral hazard is less likely to occur where a loss creates non-financial harms that are not covered by insurance).

237. ABRAHAM & SCHWARCZ, *supra* note 3, at 571–72, 591 (indicating that there is blanket coverage of liability for “wrongful acts” and specifying exclusions from coverage).

238. *See supra* Part I.B.

239. *See supra* Part II.A.

facing policyholders, or society generally. For instance, auto insurers played a role in encouraging states to adopt mandatory seat belt laws²⁴⁰ and property insurers have advocated for updated building codes that would require new construction to include “safe rooms” to protect individuals from deadly tornados.²⁴¹

Second, insurers may seek to reduce aggregate risk levels by developing socially useful information or technologies for this purpose, a strategy that typically requires sustained engagement with outside experts or professional organizations.²⁴² For example, medical malpractice insurers played an important role in developing techniques to limit the risks associated with general anesthesia.²⁴³ Similarly, auto insurers played an important role in producing auto-safety standards and safety evaluations of individual vehicles, which have helped to increase the safety of modern vehicles.²⁴⁴

A key feature of these unconventional loss-prevention strategies is that they are not intended to combat moral hazard at all, as they are not geared towards policyholder behavior. For this reason, lobbying and technology development by insurers can potentially allow insurance to have a net-positive effect on loss prevention.

But the capacity of insurers to meaningfully reduce risk in this way is more constrained than many accounts suggest. First, as with certain types of feature-rating,²⁴⁵ insurers’ efforts to reduce aggregate risk are a public good; such efforts often therefore require collective insurer action. Second, insurers’ long-term interest does not always lie in reducing aggregate risk. On the contrary, insurers may benefit when aggregate risk increases. Insurers consequently influence risk in both directions, promoting the reduction of certain risks while increasing others.

1. Efforts to Reduce Aggregate Risk Are a Public Good

Insurer efforts to reduce aggregate risk are a paradigmatic example of a public good.²⁴⁶ The benefits of these efforts are not limited to individual insurers or their

240. See generally David J. Houston & Lilliard E. Richardson Jr., *Traffic Safety and the Switch to a Primary Seat Belt Law: The California Experience*, 34 ACCIDENT ANALYSIS & PREVENTION 743 (2002).

241. See Christopher Flavelle, *How the Building Industry Blocked Better Tornado Safeguards*, N.Y. TIMES (Dec. 22, 2021), <https://www.nytimes.com/2021/12/22/climate/tornados-building-codes-safety.html> [perma.cc/TV5E-6ZUP].

242. For an account of some of the ways in which insurers historically attempted to do this, see CALEY HORAN, *INSURANCE ERA: RISK, GOVERNANCE, AND THE PRIVATIZATION OF SECURITY IN POSTWAR AMERICA* 59–69 (2021).

243. Kenneth S. Abraham & Paul C. Weiler, *Enterprise Medical Liability and the Evolution of the American Health Care System*, 108 HARV. L. REV. 381, 411 (1994) (citing John H. Eichhorn, *Prevention of Intraoperative Anesthesia Accidents and Related Severe Injury Through Safety Monitoring*, 70 ANESTHESIOLOGY 572, 575–77 (1989)).

244. See Ben-Shahar & Logue, *supra* note 5, at 222–23.

245. See *supra* Part II.A.

246. Public goods are defined by the fact that they are non-rivalrous and non-excludable, meaning that the benefit they produce cannot be limited to the producer or to those who benefit from it initially. See Russell B. Korobkin & Thomas S. Ulen, *Law and Behavioral Science:*

policyholders, nor do the receipt of these benefits by some limit their availability to others. For these reasons, insurer efforts to reduce aggregate risk suffer from the conventional public good problem: individual insurers ordinarily have limited incentives to invest in these efforts because they cannot capture most of the benefits of doing so.

As with any collective action problem, one potential solution to this dilemma is for insurers to coordinate their efforts. But the impediments to such efforts are well known: to be successful, private actors must agree on their collective goals and enforce individual contributions to achieving those goals through verifiable benchmarks.²⁴⁷ Otherwise, individual actors in the collective enterprise will have an incentive to cheat by shirking their efforts to advance social reductions in aggregate loss.²⁴⁸ Additionally, these collective efforts must, of course, pass legal and regulatory scrutiny that is designed to prevent anticompetitive collective private efforts.²⁴⁹

Insurers can sometimes overcome these hurdles to collectively promoting social risk reduction. Perhaps the best example is the Insurance Institute for Highway Safety, which is wholly funded by insurers and has long played a prominent role in promoting motor vehicle safety.²⁵⁰ Insurers also played a role in founding and supporting other important safety-oriented organizations, such as Underwriters Laboratories, which tests a variety of products for safety.²⁵¹ And maritime insurers covering arctic shipping have similarly acted collectively to develop safety standards.²⁵²

But such collective efforts by insurers to reduce aggregate risk are hardly the norm, as they require a broad coalition of insurers to have similar views as to the proper course of their collective action. If insurers face heterogeneous risks or risk levels, they may have different interests and find collective action unattractive. To

Removing the Rationality Assumption from Law and Economics, 88 CAL. L. REV. 1051, 1139 (2000).

247. See MANCUR OLSON, JR., *THE LOGIC OF COLLECTIVE ACTION: PUBLIC GOODS AND THE THEORY OF GROUPS* 1–52 (1965).

248. See *id.*

249. See Amelia Miazad, *Prosocial Antitrust*, HASTINGS L.J. (forthcoming 2022) (exploring how current antitrust laws are a barrier to prosocial coordination among competitors to address issues like climate change, income inequality, and pandemic response).

250. That organization was founded in 1959 by three insurance industry groups representing more than 500 auto insurers and continues to be wholly funded by insurers. See *Member Groups*, INS. INST. FOR HIGHWAY SAFETY, <https://www.iihs.org/about-us/member-groups> [perma.cc/DE84-HSQK].

251. Underwriters Laboratories (UL) was initially founded with economic support of several insurers. But UL's growth has largely transcended these insurance-focused origins; it is not funded principally through other sources of revenue, such as fees paid by manufacturers who acquire one of UL's safety certifications. See *Underwriters Laboratories Names Dr. Christopher J. Cramer as Chief Research Officer*, UNDERWRITER LABORATORIES (Mar. 8, 2021), <https://ul.org/news/underwriters-laboratories-names-dr-christopher-j-cramer-chief-research-officer> [perma.cc/4LQX-82S4] (“We fund our work through grants, the licensing of standards documents and the business activities of UL Inc., our wholly owned subsidiary . . .”).

252. See Baker & Shortland, *supra* note 6, at 6.

illustrate, insurers that do not sell property insurance on the Florida coast, for example, may be unwilling to invest much to support hurricane-loss prevention research.²⁵³ It is for precisely this reason that the Insurance Institute for Highway Safety has proven so successful: virtually all auto insurers benefit in a relatively evenly distributed way from the production of better vehicle-safety information and evidence-based safety reforms. Consider, however, how often insurers may have fragmented views about the appropriate scope of aggregate loss prevention. Such fragmentation can arise for political reasons, concerns that reforms may reduce future demand for insurance, beliefs that individual insurers can avoid exposure to the risks at issue through underwriting or rating, apprehensions about the legal or regulatory implications of collective action, or worries that collective action may be publicly perceived as serving the selfish interest of the insurance industry rather than the public.

Together, these considerations help to explain the numerous contexts in which insurers have not acted collectively to reduce aggregate risk. For instance, U.S. property insurers have done relatively little to collectively push for policies to fight climate change, principally operating as the subject of such regulatory efforts rather than the driving force behind these initiatives. Insurers' lack of leadership in this domain can be explained by the politicization of the issue, insurers' capacity to drop coverage in areas that become excessively risky as a result of climate change, the differential impact of climate change in different regions of the United States, some insurers' capacity to profit in the short term from anti-climate policies, and insurers' fear that any such efforts could trigger public backlash.²⁵⁴ Similarly, cyber insurers have done little to promote public policies to address cybersecurity.²⁵⁵ Explanations for this failure to tackle the accelerating risks of cybersecurity may be attributable to some cyber insurers' belief that they may not benefit from standardized security standards because they can limit risk through underwriting, variation among cyber insurers regarding the extent to which they believe their collective action would be effective in meaningfully limiting cyber risk, and the relatively immature and unsettled state of the cyber-insurance industry.

2. Reduction of Aggregate Risk May Decrease Demand for Insurance

Even when the collective action problems described above can be overcome, it is not at all clear that insurers would always wish to do so in a way that decreased aggregate risk. On the contrary, insurers may sometimes have a collective incentive to increase aggregate social risk because doing so could increase demand for their product.²⁵⁶ By contrast, the more that aggregate losses decrease, the less insurance

253. We are grateful to Peter Siegelman for this point.

254. See Sean B. Hecht, *Climate Change and The Transformation of Risk: Insurance Matters*, 55 UCLA L. REV. 1559 (2008) (exploring limitations to insurers playing a quasi-regulatory role with respect to climate change).

255. See *supra* Part I.

256. See Harris Schlesinger & Emilio C. Venezian, *Ex Ante Loss Control by Insurers: Public Interest for Higher Profit*, 4 J. FIN. SERVS. RSCH. 83, 83 (1990); Gary T. Schwartz, *The Ethics and the Economics of Tort Liability Insurance*, 75 CORNELL L. REV. 312, 357 (1990) (noting that insurers might not have incentives to offer loss-prevention services because doing

anyone needs to purchase, and the less they will be willing to pay for this protection. For these reasons, some commentators, including most recently Avraham and Porat, have argued that insurers typically promote aggregate increases in losses, while then competing individually to either prevent their own insureds from suffering losses or to shift those losses onto uncovered third parties.²⁵⁷

We agree that insurers sometimes have a collective interest in seeing insurable risk increase rather than decrease. Even when insurers' incentives on this matter diverge, a subset of insurers with this perspective may scuttle any collective effort to decrease aggregate risk, as we suggested above.²⁵⁸ In addition, certain insurers—those covering loss caused by ransomware attacks, for example—may have a particular interest in preserving risks arising from third-party moral hazard²⁵⁹ because they can do so without sending mixed messages to their policyholders about taking appropriate precautions. Thus, for example, cyber insurers have actively resisted proposals to ban or limit ransomware payments, which would surely help to decrease the financial appeal to hackers of launching such attacks.²⁶⁰ This resistance to prohibitions on ransomware payments is, of course, perfectly consistent with insurer efforts to encourage their own policyholders to limit their vulnerability to a ransomware attack.

At the same time, Avraham and Porat's analysis misses several key points that can lead insurers to have a collective interest in taming risk. First, and most importantly, their analysis does not sufficiently recognize insurers' interests in encouraging *predictable* changes in aggregate future losses. Insurers have extensive experience pricing coverage appropriately in response to gradual changes in loss rates.²⁶¹ But changing risk landscapes that cause insured losses to fluctuate unpredictably across short periods of time raise fundamental supply-side problems for all insurers, and particularly reinsurers.²⁶² In some cases, the best way for insurers to increase the predictability of risk over time is to encourage targeted reductions in risk. Appreciating this point helps to explain insurers' support for tort reforms—ceilings on pain and suffering damages, for example—that reduce insured loss and enhance the predictability of liability. By contrast, Avraham and Porat's explanation for insurers' role in tort reform—which distinguishes between insurers' short-term

so could force them to charge lower premiums in the future).

257. See generally Avraham & Porat, *supra* note 7.

258. See *supra* Part III.B.1.

259. See Parchomovsky & Siegelman, *supra* note 65.

260. See, e.g., Logue & Shniderman, *supra* note 6, at 256; Andrew G. Simpson, *P/C Insurers Defend Ransomware Reimbursements in New Cyber Principles*, *INS. J.* (July 2, 2021), <https://www.insurancejournal.com/news/national/2021/07/02/621178.htm> [perma.cc/2XB2-UG7H].

261. See, e.g., Michelle E. Boardman, *Contra Proferentem: The Allure of Ambiguous Boilerplate*, 104 *MICH. L. REV.* 1105, 1118 (2006) (describing the appeal to insurers of retaining ambiguous policy language that the courts have ruled provides coverage and simply repricing coverage accordingly).

262. See *Hartford Fire Ins. Co. v. California*, 509 U.S. 764, 773–74 (1993) (recounting efforts of reinsurers to secure revision of standard-form CGL insurance policy); ABRAHAM & SCHWARCZ, *supra* note 3, at 179 (presenting hypothesis that these efforts were designed to avoid covering unpredictable, long-tail liabilities).

and long-term interests in the enactment of damage ceilings—is far too complex to explain insurers’ actual motivations, which seem to us much more simply attributable to a preference for the predictability that ceilings enhance.²⁶³ This preference for predictability also helps to explain why some insurers, and particularly reinsurers in the EU, have played a meaningful role in addressing climate change;²⁶⁴ climate change dramatically limits the predictive power of catastrophe models built on historical data.²⁶⁵

Second, Avraham and Porat’s analysis also neglects the importance of whether there is a legal or practical mandate for the purchase of insurance. Insurers operating in effectively mandatory lines of coverage, such as auto liability, homeowners, and workers’ compensation, have strong reasons to see aggregate risk decrease, at least in the short- and medium-term. That is because demand for their insurance products is already artificially assured, at least until the underlying laws or market expectations adjust. Additionally, while premiums in these lines of coverage are often regulated, it is much easier for insurers to avoid regulatory demands that they decrease their rates than to convince regulators that they need to raise their rates because of increased losses.²⁶⁶

Yet a third important factor is the character of the underlying insurance market. Insurers operating in less competitive insurance markets may have a stronger incentive to see aggregate risk decrease because they will be able to capture some of the resulting benefits before premiums adjust downward. This is particularly true in insurance markets subject to significant rate regulation, which can—perhaps counterintuitively—inhibit reductions in premiums even when losses decrease.²⁶⁷ Also relevant is whether the market is significantly populated by genuine mutual insurers, which have a strong interest in reducing aggregate losses even if they can only partially capture the resulting financial benefits.²⁶⁸

Finally, insurers may have an interest in seeing aggregate risk levels decrease or remain stable to promote the long-term loyalty of their policyholders. This may occur, for instance, because stable insurance premiums decrease policyholders’ incentive to shop for new coverage.²⁶⁹ Alternatively, insurers may earn loyalty from policyholders by touting their efforts to reduce aggregate social loss, particularly when those efforts have a moral valence that appeals to a significant subset of policyholders.

263. See Avraham & Porat, *supra* note 7, at 23–25.

264. See *Net-Zero Insurance Alliance*, UNITED NATIONS <https://www.unepfi.org/net-zero-insurance/> [perma.cc/KYC3-EP8L] (alliance of twenty of the world’s leading insurers and reinsurers, most of which are based in Europe, to accelerate transition to net-zero emissions).

265. See Howard C. Kunreuther & Erwann O. Michel-Kerjan, *Climate Change, Insurability of Large-Scale Disasters, and the Emerging Liability Challenge*, 155 U. PENN. L. REV. 1795, 1812–13 (2007).

266. Scott E. Harrington, *Effects of Prior Approval Rate Regulation of Auto Insurance, in DEREGULATING PROPERTY-LIABILITY INSURANCE* 285, 309–10 (J. David Cummins ed., 2002).

267. See Harrington, *supra* note 266, at 309.

268. See *supra* Part I.B.3.

269. Varner & Sankin, *supra* note 147.

IV. LESSONS OF THE ANALYSIS

The preceding Parts examined the limited capacity of conventional and unconventional insurer practices to reduce moral hazard and prevent losses more generally. This Part pulls together the main insights of this analysis. Section A begins by disentangling several key concepts that are often conflated or confused in the literature: avoiding the creation of moral hazard, combating moral hazard, preventing loss, and regulation by insurance. Rigorously defining these terms is essential to understanding the relationships between insurance and the risk of loss. Section B moves from terminology to broader principles. It first highlights the distinction between a net-negative and net-positive impact of insurance on loss prevention. It then identifies three general principles governing the relationship among insurance, moral hazard, and loss prevention.

A. The Relation Among Moral Hazard, Loss Prevention, and Regulation

Insurers can engage in various strategies to combat or avoid moral hazard, prevent loss, and “regulate” policyholder conduct. Although the literature sometimes conflates these concepts, they are distinct, albeit often overlapping, in ways that can have important implications. Keeping the concepts straight is therefore a crucial prerequisite to careful analysis.

1. Combatting Versus Avoiding the Creation of Moral Hazard

Moral hazard is traditionally defined as the tendency of an insured party to exercise less care to avoid incurring an insured loss than the party would have exercised if the loss were not insured.²⁷⁰ The literature, however, often conflates insurer efforts to combat moral hazard with measures designed to avoid creating it in the first instance. The former seeks to neutralize moral hazard, in whole or in part, in ways that go beyond simply shifting risk back onto insureds. By contrast, the latter simply consists of not insuring certain risks in order to avoid creating moral hazard to begin with.

Insurer strategies vary regarding the extent to which they attempt to combat moral hazard or to avoid creating it. Risk-based pricing is principally designed to combat moral hazard, not to avoid creating it, as evidenced by the fact that it does not limit the protection against risk afforded by coverage. Partial insurance, on the other hand, primarily impacts risk by avoiding the creation of moral hazard through partial noninsurance. But we earlier noted that the insured’s resulting incentive to avoid an uninsured loss may lead it to take measures that simultaneously reduce the risk of insured losses.²⁷¹ Partial insurance may consequently have the potential to combat moral hazard as well as to avoid creating it.

Like partial insurance, coverage conditions and exclusions are principally geared toward avoiding the creation of moral hazard, though they may in some cases also combat moral hazard. Strictly speaking, policy exclusions are noninsurance; they

270. ABRAHAM & SCHWARCZ, *supra* note 3, at 8.

271. *See supra* Part II.B.

limit insurance and any resulting moral hazard. For example, property insurance exclusions for damage to vacant property avoid creating moral hazard by not covering this type of loss. Coverage restrictions may, however, also combat moral hazard by inducing policyholder precautions that extend beyond the risk at issue. For instance, an exclusion for vacant buildings may affirmatively cause the insured to rent out a portion of their building as a residence, which might counteract a broad set of insured risks not unique to vacancy.²⁷²

Similarly, some forms of ex post loss management have the potential to combat moral hazard, while others merely avoid creating moral hazard. Providing policyholders with advice about how to mitigate loss once it has occurred or begun to occur, for example, can combat moral hazard; rather than limiting the scope of insurance, it helps to counteract the potential price insensitivity for repair that insurance can generate.²⁷³ On the other hand, liability insurance provisions granting insurers the right to defend and settle suits falling within the terms of coverage do not combat moral hazard.²⁷⁴ They avoid creating it in the first instance by taking control of defense and settlement away from insureds, since such control would create moral hazard.

Finally, unconventional forms of insurer loss prevention usually do not seek to avoid creating moral hazard, as they do not restrict protection against risk. Instead, they either combat the moral hazard that insurance has created or operate in ways that are largely unrelated to moral hazard. Providing policyholders general loss-prevention advice or individualized coaching, for example, combats (or has the potential to combat) moral hazard.

2. Loss Prevention

All efforts to combat or avoid moral hazard are directed at loss prevention. But only some efforts at loss prevention attempt either to combat or avoid the creation of moral hazard. Many other loss-prevention efforts are largely unrelated to moral hazard. For example, neither lobbying for risk-reducing public policies nor supporting research that reduces the prospect of loss have anything to do with either combatting moral hazard or avoiding it. It is for precisely this reason that these efforts can plausibly have a net-positive effect on loss prevention by reducing risk below levels that would exist in the absence of insurance.

Although insurers' efforts to combat or avoid moral hazard are loss prevention in a general sense, the accuracy of this label depends on the baseline employed. Insurer strategies that simply avoid or partially combat moral hazard reduce the incidence of loss compared to a baseline in which insurance is supplied without these devices being employed. But calling this "loss prevention" is a peculiar use of that term; insurance in that situation merely attempts to decrease its net-negative effect on loss prevention, a result that seems more aptly labeled damage control.²⁷⁵

272. See *Vlastos v. Sumitomo Marine & Fire Ins. Co.*, 707 F.2d 775, 776, 779 (3d Cir. 1983) (policyholder "[w]arranted that the 3rd floor is occupied as Janitor's residence" in part because of insurer's assessment that building would be less at risk of damage in that event).

273. See *supra* Part II.D.

274. *Id.*

275. Some losses occur regardless of insurance because they are not worth avoiding even

Insurers' efforts to combat or avoid creating moral hazard can more properly be termed loss prevention when they prevent losses relative to a scenario in which no insurance protection exists. This can occur when, for instance, feature-rating or coverage exclusions and conditions enable insureds to benefit from their insurers' particular expertise in risk mitigation. For example, an insured who sees a sixty-day vacancy exclusion in its policy might be more careful about vacancies than it would have been if it were not insured at all. Similarly, liability insurers' right to defend suits may constitute loss prevention, as an uninsured defendant would sometimes handle its own defense less effectively than the insurer.²⁷⁶

In short, assessing whether many of the devices that insurers use to combat or avoid creating moral hazard constitute loss prevention requires asking the question, "Compared to what?" In many cases, these devices moderate loss *increases*, rather than prevent losses.

3. Regulation

If "regulation" simply means that one party influences another's conduct, then insurance, admittedly, involves considerable regulation.²⁷⁷ But so capacious a definition of regulation yields little insight in our view, for it suggests that most contracts, among other things, are regulation, in that they involve "governance" of a counterparty's behavior.²⁷⁸ Rather, a more meaningful definition of insurance as regulation focuses on the extent to which insurers impose constraints on insureds, like command-and-control directives and licensing, that are akin to paradigmatic government regulation.

Most insurance mechanisms for combatting or avoiding moral hazard or reducing loss more generally do not plausibly resemble such paradigmatic government regulation. Neither providing advice, taking risk into account in pricing, nor refusing to cover certain types of risks can helpfully be analogized to coercive rules that are backed by the power of the state. In other cases, however, the "regulation" characterization is a plausible fit. Perhaps most obviously, an insurer that refuses to cover an excessively risky insured performs a function akin to licensing. This is particularly true if coverage is legally mandated, in which case the state effectively

by an uninsured party. Ex post loss management may well reduce the amount of such losses once they have begun to occur.

276. Uninsured defendants would, in the aggregate, likely settle suits against them for less than the insurer, simply because, in the aggregate, they have fewer assets. But this would not constitute loss prevention, and would only shift the loss to the plaintiff/victim.

277. Much of the early literature on the capacity of insurance to act as a form of governance or private regulation does indeed seem to employ this rather capacious definition of insurance. See, e.g., Baker, *supra* note 19, at 47–48; Ewald, *supra* note 19; HEIMER, *supra* note 19, at 20–21.

278. The insurance as "governance" literature of recent decades, for example, makes use of the governance metaphor in useful ways without relying on regulation analogy. See, e.g., RICHARD V. ERICSON, AARON DOYLE & DEAN BARRY, INSURANCE AS GOVERNANCE 43–65 (2003); TOM BAKER & SEAN J. GRIFFITH, ENSURING CORPORATE MISCONDUCT: HOW LIABILITY INSURANCE UNDERMINES SHAREHOLDER LITIGATION 9 (2010).

outsources the traditional licensing function to insurers.²⁷⁹ Similarly, coverage conditions and exclusions that cause policyholders to incorporate certain practices into their operations are akin to regulation.²⁸⁰ Like traditional regulatory rules, failure to follow the terms and conditions of coverage may result in the “fine” of being denied coverage for a loss, having coverage cancelled or nonrenewed, or facing increased premiums.

Efforts to characterize other insurance tools as regulation due to their parallels to “Pigouvian” taxes are unpersuasive. Pigouvian taxes aim to make private parties bear the full costs of activities that create negative externalities, like pollution.²⁸¹ Unlike traditional command-and-control regulation, however, these taxes allow regulated entities, rather than government bureaucrats, to decide how to adjust their operations in response to these incentives. Experience rating has a similar flavor, as it too aims to induce policyholders to select conduct modifications of their own choosing by causing them to better internalize the costs of their risk-taking. But this is a curious use of the term “regulation,” as Pigouvian taxes have long been understood as an alternative to traditional command-and-control regulation and licensing. To turn around now and call experience rating “regulation” because of its similarities to Pigouvian taxes ignores the fact that these taxes have long been considered an *alternative* to traditional regulation.

Ultimately, most insurer strategies designed to combat or avoid moral hazard or to prevent loss more generally are quite distinct from regulation. Only when government requires the purchase of insurance directly or indirectly, or when insurers adopt coverage terms akin to paradigmatic command-and-control regulation, does it make sense to label these techniques “regulation.”

B. General Principles

This Part first focuses on the distinction between the net-negative and net-positive impact of insurance on loss. It explains why insurance will rarely have a net-positive impact on loss prevention and why most proposals centered on using insurance to achieve this goal are unlikely to succeed if adopted. This Part then identifies three factors that influence the capacity of insurance to combat moral hazard, avoid creating moral hazard, or reduce the risk of loss more generally.

1. Net-Negative Versus Net-Positive Impacts on Loss and Insurance Mandates

At least some of the regulation-thesis literature elides the important distinction between mechanisms that reduce the net-negative impact of insurance on loss and insurance mechanisms that generate a net-positive impact on loss. Insurance, in most cases, cannot in fact decrease overall risk. Parts II and III canvassed at length the reasons that both the conventional and unconventional methods of combatting moral

279. See TOM BAKER, KYLE D. LOGUE & CHAIM SAIMAN, *INSURANCE LAW AND POLICY* 10 (5th ed. 2021) (indicating how insurers act as “gatekeepers” and “private regulators” when insurance must be purchased).

280. See *supra* Part II.C.

281. See, e.g., Bruce A. Ackerman & Richard B. Stewart, *Reforming Environmental Law: The Democratic Case for Market Incentives*, 13 COLUM. J. ENV'T. L. 171 (1988).

hazard are limited in their effectiveness. If, as we have argued, insurance can rarely fully reduce its net-negative impact on loss prevention to as great an extent as the regulation-thesis literature suggests, then, *a fortiori*, insurance cannot often have a net-positive impact on loss prevention: you have to walk before you can run, and on the whole, insurance does not even walk quickly. The few exceptions documented in the literature—involving certain (though not all) forms of genuine mutual insurance, highly unusual niche markets populated by a small number of insurers, and (to a certain extent) workers' compensation and auto insurance telematics—underscore the constraints that operate in most standard commercial insurance markets.

Attempting to overcome these constraints by requiring insurers to promote regulatory objectives risks foisting on them a role that—as the analysis in Parts II and III revealed—is not likely to be profit-maximizing. This will raise the cost of insurance for those policyholders who already have coverage and decrease insurers' willingness to offer coverage more generally. Efforts to use policy levers to induce insurers to reduce risk may therefore not be worth the candle even in the narrow set of instances in which insurance could have a net-positive impact on loss prevention.

The normative implications of the distinction between the net-positive and net-negative impact are significant. Most notably, proposals to mandate or expand the scope of insurance to achieve regulatory objectives often depend crucially on the net impact of insurance on loss.²⁸² If insurance will have a net-negative impact on loss, then such proposals will rarely be sensible. The key exception is that insurance mandates may be practically necessary to facilitate the ability of liability to deter misconduct. This might be the case for three interrelated reasons.

First, new or expanded forms of liability might require mandating or encouraging new forms of liability insurance in order to avoid exposing individuals or firms to excessive risk. For instance, a proposal to impose liability on firms or individuals that misuse AI might only be feasible as a practical matter if potentially liable actors could purchase liability coverage. Otherwise, the threat of liability could excessively deter the use of AI by threatening to financially ruin anyone who engages in that activity.²⁸³

Second, mandating liability insurance might help facilitate the deterrent force of liability by displacing other forms of risk protection that are even less likely to reduce risk than insurance. The best example here involves recent proposals to require police officers to purchase liability insurance against the risk of being held liable for excessive force or other forms of official misconduct.²⁸⁴ Such a proposal has the potential to reduce risk only because officers currently are almost entirely protected from any form of personal liability as a result of indemnification practices of cities and municipalities.²⁸⁵ Relative to blanket indemnification, liability insurance might

282. Proposals to mandate insurance raise a host of supply-side issues. See, e.g., ABRAHAM, *supra* note 17, at 51 (discussing the likely reluctance of police liability insurers to offer universal coverage to individual police in the event of such a mandate).

283. See Lior, *supra* note 5, at 525–26.

284. See Martin Kaste, *To Change Police Practices, A Push for Liability Insurance in Minneapolis*, NPR (June 27, 2016, 6:11 PM), <https://www.npr.org/2016/06/27/483420607/to-stop-police-lawsuits-reformers-want-officers-to-get-insurance> [perma.cc/N4TT-LGNUM].

285. Currently, the limited risk that officers face of personal liability is almost entirely

well do a good job at preventing police misconduct. Meanwhile, merely prohibiting indemnification without allowing for any insurance backstop would raise the first problem mentioned above by exposing officers to excessive liability risk, which could undermine departments' capacity to recruit and retain officers.

Third, and perhaps most significantly, mandating the purchase of liability insurance could enhance the prevention of losses by individuals who would otherwise be judgment proof.²⁸⁶ Standing alone, the threat of liability can do little to influence the incentives of judgment-proof individuals. By contrast, the threat of an increase in future liability insurance premiums, or even of a future denial of insurance leading to loss of the right to engage in the previously insured activity, could well impact a policyholder's incentives.²⁸⁷ Thus, for example, judgment-proof drivers who do not otherwise fear incurring tort liability might nonetheless fear increased insurance costs or loss of the right to drive that accompanies a liability insurance requirement and consequently drive more safely.

Notably, each of these three scenarios in which mandatory liability insurance might reduce losses notwithstanding significant limitations in insurers' capacity to induce care are narrow. For instance, many of the entities and organizations that are the subject of proposals for mandatory liability insurance are likely to have assets that exceed the amount of liability insurance that any realistic proposal would require them to purchase.²⁸⁸ Meanwhile, judgment-proof individuals will often have strong incentives to avoid loss that are likely to dominate any marginal incentive effect of personal liability. For instance, drivers are already influenced by two powerful forces to avoid negligent driving: the threat of conviction for violating traffic laws and the interest in self-preservation that accompanies unsafe driving. Moreover, drivers do not face the prospect of losing their driving privileges when their insurers refuse to sell them coverage. In every state, there are mechanisms in place to ensure that liability insurance is available to drivers as long as they hold valid licenses.²⁸⁹

2. Three Determinative Factors

With these considerations in mind, three factors emerge from our analysis as determinative of the impact of insurance on moral hazard and loss prevention: (a) the costs and benefits to policyholders of loss prevention efforts; (b) the information

offset via indemnification by police departments of individual officers who are found civilly liable for misconduct. See Joanna C. Schwartz, *Police Indemnification*, 89 N.Y.U. L. REV. 885, 895 (2014).

286. S. Shavell, *The Judgment Proof Problem*, 6 INT'L REV. L. & ECON. 45, 54 (1986); see also Kyle D. Logue, *Solving the Judgment-Proof Problem*, 72 TEX. L. REV. 1375, 1394 (1994).

287. Of course, potentially judgment-proof individuals are unlikely to purchase liability insurance unless they are required to do so. It is for precisely this reason that auto liability insurance is required in virtually every state, with limited exceptions. See ABRAHAM & SCHWARCZ, *supra* note 3, at 713–14.

288. Companies required to purchase cyber insurance, for example, ordinarily would not be judgment proof and therefore would not find their loss-prevention incentives enhanced by requirements that they purchase liability insurance. See Lemnitzer, *supra* note 5, at 131.

289. These mechanisms are admittedly contingent—they could be eliminated—but, as a practical matter, that is extraordinarily unlikely.

about premiums, safety, and the scope of coverage that insurers communicate to policyholders; and (c) the costs and benefits to insurers of mitigating insured risks.

a. The Costs and Benefits to Policyholders of Loss-Prevention Efforts

Whether or not a party is insured, they will engage in loss-prevention efforts only to the extent that the resulting benefits predictably exceed their costs. The costs of safety precautions or adjustments in activity levels typically remain the same when a party is insured, but the benefits of these changes are reduced, since the insurer is responsible for insured losses. That is the source of moral hazard.

The benefits of loss prevention, however, do not disappear once a party is insured. Rather, loss-prevention efforts may still generate benefits of two sorts. First, whenever insurance protection is limited, loss-prevention efforts may benefit policyholders by reducing uninsured loss.²⁹⁰ Uninsured losses may be explicitly carved out from coverage, as with deductibles, exclusions, or conditions. Or they may arise from the fact that certain losses do not fall within the affirmative grant of coverage, either because they are not monetary or are too attenuated from an accident. Workers' compensation insurance, for instance, does not cover the costs of decreased employee morale from a workplace accident. Second, loss-prevention efforts may help to keep future premiums lower than they would otherwise be if the insurer engages in experience rating. But this benefit is muted for policyholders that face limited downsides from reducing or eliminating their coverage in future years. Policyholders will also discount the cost of premium increases that occur well into the future and are contingent on extraneous factors, like broader insurance market dynamics.²⁹¹

The potential costs to policyholders of loss-prevention efforts, meanwhile, are not simply monetary. As we saw earlier, some corporate managers prefer to purchase D&O insurance that is accompanied by limited insurer efforts to interfere with corporate governance matters.²⁹² Similarly, school boards often prefer liability coverage that involves little insurer involvement in policy matters.²⁹³ Potential interference with governance and management resulting from insurer encouragement of loss prevention, while difficult to monetize, is a cost to such policyholders that apparently sometimes outweighs the potential benefits of these efforts. Insurer loss-prevention efforts may also impose significant privacy-related harms on policyholders, a fact that helps to explain the limited prevalence of telematics.²⁹⁴

b. Imperfect Information

Even assuming that some degree of loss prevention could produce net policyholder benefits, loss prevention may not occur because either the insurer or the policyholder does not have the information necessary to conclude that this is the case.

290. *See supra* Part II.

291. *See supra* Part II.A.

292. *See supra* Part I.B.

293. *See supra* Part I.B.4.

294. *See supra* Part II.A.1.

Insurers seeking to induce policyholder loss-prevention efforts must have appropriate risk-based information to do so. Insurers collect reams of information to measure risk, but they cannot always use this information to encourage policyholder loss prevention. Measuring risk is the traditional domain of insurance actuaries and requires only identifying correlations between information and expected loss. By contrast, encouraging loss prevention requires insurers to identify and measure causal connections between precautions and activities on the one hand and expected loss on the other hand, and that is a much harder task than traditional actuarial risk assessment.²⁹⁵ Insurers that identify and quantify such causal linkages have an incentive to keep this information secret from policyholders and competitors alike, which minimizes the extent to which it can be employed to limit risk.²⁹⁶ It is for precisely these reasons that insurers engage in much less feature rating or unconventional loss-prevention efforts than is often suggested.

Policyholders, like insurers, may also have insufficient information to adopt loss-prevention strategies that would benefit them. Experience rating, partial insurance, and coverage restrictions—three of the principal conventional devices to encourage loss prevention—rely on policyholders to respond to the incentives that these devices create. For this to happen, however, policyholders must possess two distinct forms of information. First, they must be aware of their insurance product's structure when they make relevant risk-based decisions. Second, they must be able to identify the precautions or changes in activities that will mitigate the risk of loss and (in the case of experience rating) the impact that adopting these measures will have on future premiums. These informational requirements will often not be met; insurers do not routinely clearly communicate the terms of coverage, the impact of loss on future premiums, or the future premium reductions that policyholders can anticipate from avoiding losses.²⁹⁷ Although certain precautions can be embedded within the terms of the insurance product in the case of exclusions or conditions that target risky behaviors, this is not the case for simple loss-sharing provisions or experience rating.

Unconventional forms of loss prevention that are directed at policyholders only partially avoid these informational problems. Obviously, insurer efforts to advise policyholders on appropriate precautions or policies or to train policyholder employees require insurers to communicate information to insureds. But insurers typically do not quantify how much these measures will reduce expected losses or future premiums.

It is only a slight exaggeration, therefore, to suggest that many putative loss-prevention devices leave insureds in the dark about how to reduce their risk of loss or what benefits will result from adopting specific precautions or adjusting activity levels. Instead, insurers often provide only general signals that loss-prevention efforts may be worthwhile. This is hardly the brave new world that many proponents of the regulatory thesis envision.

295. *See id.*

296. *See id.*

297. *See supra* Part II.

c. The Costs and Benefits to Insurers of Loss Prevention

Insurers will not promote loss prevention by their policyholders unless the benefits to the insurer of doing so exceed their costs. The benefits to insurers of loss prevention are straightforward. Having provided insurance coverage, their short-term profits will increase to the extent that policyholder losses decrease.

As with policyholders, however, even in the short term, there is a limit to the benefits insurers can obtain from investing in loss prevention. Identifying effective precautions and quantifying their causal impact can be costly for insurers, as these efforts require expertise distinct from actuarial risk measurement. Communicating this information to policyholders may also be costly. Yet such efforts will not reliably produce benefits for insurers; the cost of communicating loss-prevention recommendations that fall on deaf ears is a pure loss to the insurer.

Moreover, the prospect of increasing short-term profits is in potential tension with two countervailing long-term considerations. First, loss-prevention insights that an insurer communicates to its applicants and insureds are likely to become available to competing insurers in short order. And even if competitors cannot identify these insights directly, they may be able to appropriate them indirectly simply by offering lower premiums to firms that have benefits from this advice. Second, insurer investments in loss prevention can have the long-term effect of decreasing demand for insurance. To be sure, this effect may be muted when coverage is legally mandated, and it may produce benefits by making losses more easily predictable for insurers. But steady increases in risk are often in insurers' collective interest; the \$200 billion per year auto insurance industry would be a much smaller enterprise, for example, if auto injuries had not increased more than a thousand-fold during the twentieth century.²⁹⁸

CONCLUSION

Insurance creates moral hazard. The fundamental purpose of insurance, after all, is to encourage productive and socially desirable risk-taking, and risk-taking necessarily sometimes leads to loss. Even when insurer efforts to mitigate moral hazard are successful, these efforts typically constitute damage control, not the regulation by insurance that many proponents of the regulation thesis describe. And frequently, even these efforts are only partly successful. Neither the conventional nor the unconventional methods that insurers employ to reduce risk can, in most circumstances, produce a net-positive effect on loss. For these reasons, policy proposals to deploy insurance to achieve broader regulatory aims will often prove to be unsuccessful.

298. See Kenneth S. Abraham & G. Edward White, *Rethinking the Development of Modern Tort Liability*, 101 B.U. L. REV. 1289, 1307–10 (2021) (chronicling increases in auto liability insurance premiums during the twentieth century).