

Beyond APA Section 553: Hayek’s Two Problems and Rulemaking Innovations

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ABSTRACT

Section 553 of the Administrative Procedure Act of 1946 is hailed as “one of the greatest inventions of modern government.” One reason for this commendation is that section 553 addresses a fundamental problem in policy-making that is famously attributed to F.A. Hayek: the problem of decentralized knowledge in society. Because the notice-and-comment rulemaking procedure allows a rulemaking agency to collect information from the public, it serves as an ex ante information aggregation mechanism. Despite its innovative nature, section 553 is known to have certain defects in facilitating balanced and comprehensive information aggregation. In addition, there is a second problem Hayek identified, which section 553 is not designed to address: the limits of constructivist rationality. As Hayek and others have forcefully argued, this problem is best addressed through ex post adaptive learning. A proper understanding of Hayek’s two problems has implications for how regulators, commenters, and courts ought to view notice-and-comment rulemaking: section 553 should be viewed not as a deterministic process for identifying the “correct” regulatory solution to a given problem, but as a deliberative process for agreeing upon a reasonable first step that can trigger an adaptive process for addressing the problem in gradual steps. Over the years, innovative rulemaking mechanisms have been suggested by legal scholars to address these limitations of section 553. These mechanisms can build in ex post adaptive learning—through contingency specifications—or allow for more comprehensive ex ante information aggregation. This Article discusses these rulemaking innovations. Some of these ideas have been put into practice; all of them should be employed more routinely.

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INTRODUCTION

Section 553 of the Administrative Procedure Act ("APA"),¹ more commonly known as the notice-and-comment rulemaking process, is hailed as "one of the greatest inventions of modern government."² One reason for this commendation is that section 553 is designed to address a fundamental problem in policymaking—one that is attributed to economist Friedrich A. von Hayek.³ This is the problem of decentralized knowledge in society. As Hayek keenly noted, a major problem with central planning is that the knowledge necessary for planning is never "'given' to a single mind."⁴ As a result, any policymaker will inevitably suffer from an informational deficiency.⁵ This is perhaps the most famous idea attributed to the Nobel laureate. This Article will refer to this problem as Hayek's Problem I.

¹ 5 U.S.C. § 553.

² KENNETH CULP DAVIS, ADMINISTRATIVE LAW TREATISE § 6.15, at 283 (Supp. 1970).

³ See *infra* Part I.

⁴ F.A. Hayek, *The Use of Knowledge in Society*, 35 AM. ECON. REV. 519, 519 (1945).

⁵ See *id.*

Given this problem, the notice-and-comment rulemaking process is a commendable solution: it requires a rulemaking agency to issue a public notice to announce the rule it is proposing and to invite all interested parties to submit pertinent information.⁶ The process serves as a mechanism to aggregate information that is in the hands of countless individuals in society.⁷ When used appropriately, the process can promote evidence-based, empirically informed, and democratic rulemaking.⁸

Nevertheless, there are limitations to what section 553 can achieve. It is useful to consider them as coming in two categories. One category of limitations is institutional: the setup of the rulemaking process that tends to lead to imperfect or biased aggregation of information.⁹ For instance, to the extent that comments submitted can introduce an intrinsic bias, such limitations indicate a design failure of the notice-and-comment process.¹⁰

The second category, however, has nothing to do with the process or the institutions involved. It has to do with the limits of what is termed as “constructivist rationality.”¹¹ This is the idea that even if the government could aggregate all decentralized information—including all individual preferences—and had the computing power to process it, there will still be a challenge of identifying the right solution to society’s problem because some information is undiscoverable at the time of rulemaking.¹²

Indeed, one feature that is conspicuously missing from the notice-and-comment rulemaking process is ex post adaptive learning based on new information or unanticipated events.¹³ A need for ex post adaptive learning does not necessarily require a dramatic event—such as an economic crisis or the development of a new technology. It can concern a

⁶ 5 U.S.C. § 553(b)–(c).

⁷ MICHAEL SANT’AMBROGIO & GLEN STASZEWSKI, PUBLIC ENGAGEMENT WITH AGENCY RULEMAKING: FINAL REPORT FOR THE ADMINISTRATIVE CONFERENCE OF THE UNITED STATES 9–11 (2018).

⁸ *Id.* at 9–16.

⁹ *See infra* Part II.

¹⁰ *See infra* Part II.

¹¹ Vernon L. Smith uses “constructivist rationality” to refer to what Hayek refers to as “constructivist rationalism” or “constructivism.” *See* Vernon L. Smith, *Constructivist and Ecological Rationality in Economics*, 93 AM. ECON. REV. 465, 466 (2003); *see also infra* note 72 and accompanying text. This Article uses “constructivist rationality” to refer to rationality grounded on constructivism and uses “constructivist rationalism” to refer to the belief in the infallibility of constructivist rationality.

¹² *See infra* Part III.

¹³ To be sure, the APA does allow some degree of ex post modification. As one study noted, “[t]he [APA] . . . does provide a means for agencies to make some adjustments to existing rules without invoking the elaborate requirements of notice and comment” and thus allows ex post rule revision under certain circumstances. Wendy Wagner, William West, Thomas McGarity & Lisa Peters, *Dynamic Rulemaking*, 92 N.Y.U. L. REV. 183, 198 (2017).

simple but difficult question, such as how society and individuals will react to, adjust to, or evolve with the government's regulation.¹⁴ Remarkably, Hayek was greatly troubled by this problem as well.¹⁵ This Article will refer to this problem—the limits of constructivist rationality—as Hayek's Problem II.¹⁶ While well-known among Hayek scholars, Problem II is not as famously attributed to Hayek as Problem I. Instead, it was mostly popularized by economist Vernon L. Smith, himself a Nobel laureate.¹⁷ In his Nobel Prize lecture, Smith highlights the distinction between “constructivist rationality” and what he terms “ecological rationality,”¹⁸ and credits Hayek with pioneering both concepts.¹⁹

Any administrative process intended to design rules for society must contend with both Problem I and Problem II. If Problem I can be thought of as a *spatial* problem—information is decentralized across society—Problem II is a *temporal* problem—information becomes discoverable only in the future. With imperfect information aggregation, a regulator may design a rule that fails to address the core problem. At the same time, any effort to improve the rulemaking process must go beyond merely ensuring adequate *ex ante* information collection. Even with perfect information aggregation, the limits of constructivist rationality would suggest that the rulemaking process needs to include a mechanism consciously designed to incorporate *ex post* adaptive learning.²⁰ The most obvious method is to require a retrospective regulatory analysis after a rule has been implemented for some time. There are indeed statutory provisions and executive orders that require agencies to conduct such regulatory reviews.²¹ A more efficient and practical method, however, is to design the rule at inception to accommodate *ex post* adaptive learning—to have the rule evolve in response to new information.

The purpose of this Article is to analyze the notice-and-comment rulemaking process from the lens of Hayek's two problems and review certain rulemaking innovations that have been introduced over the years to address these deficiencies of section 553. These are process mechanisms—going beyond APA section 553—that have been implemented by agencies, or otherwise proposed by legal academics, to address Problems I and II.

¹⁴ See *infra* Sections IV.B–D.

¹⁵ See *infra* Part III.

¹⁶ See *infra* Part III.

¹⁷ See Smith, *supra* note 11, at 468.

¹⁸ See *id.* at 466–71.

¹⁹ See *id.* at 465 (noting that “Hayek . . . identifies both kinds of rationality”).

²⁰ See *infra* Part IV.

²¹ See *infra* notes 172–75 and accompanying text.

The rest of this Article is organized as follows. Part I describes the nature of Hayek's Problem I and his proposed solution. Part II considers APA section 553 as a limited solution to Problem I in the rulemaking context. Part III discusses Hayek's Problem II and its implications for agency rulemaking. Part IV discusses a variety of ways in which Problem II can plague agency rulemaking. Part V discusses rulemaking innovations that have either been implemented or proposed to address Problems I and II. Many of the examples come from securities regulation, technology regulation, financial regulation, and environmental regulation, where the challenges of Hayek's two problems are particularly rampant. Part VI discusses the implications of Hayek's two problems and the rulemaking innovations that seek to address them.

I. HAYEK'S PROBLEM I: DECENTRALIZED KNOWLEDGE IN SOCIETY

In his landmark 1945 essay "*The Use of Knowledge in Society*," Hayek begins with the following insightful observation:

What is the problem we wish to solve when we try to construct a rational economic order? On certain familiar assumptions the answer is simple enough. *If* we possess all the relevant information, *if* we can start out from a given system of preferences and *if* we command complete knowledge of available means, the problem which remains is purely one of logic. . . . This, however, is emphatically *not* the economic problem which society faces. And the economic calculus which we have developed to solve this logical problem . . . does not yet provide an answer to it. The reason for this is that the "data" from which the economic calculus starts are never for the whole society "given" to a single mind which could work out the implications, and can never be so given. The peculiar character of the problem of a rational economic order is determined precisely by the fact that the knowledge of the circumstances of which we must make use never exists in concentrated or integrated form, but solely as the dispersed bits of incomplete and frequently contradictory knowledge which all the separate individuals possess. The economic problem of society is thus not merely a problem of how to allocate "given" resources—if "given" is taken to mean given to a single mind which deliberately solves the problem set by these "data." It is rather a problem of how to secure the best use of resources known to any of the members of society, for ends whose relative importance only these individuals know. Or, to put it briefly, it is a

problem of the utilization of knowledge not given to anyone in its totality.²²

With these opening paragraphs, Hayek raises one of the most important critiques of the discipline of economics. Consider the standard economics curriculum. A typical first-year student might begin his study by learning to solve constrained optimization problems, such as aggregate welfare maximization problems with resource constraints. Those problems may involve complicated mathematics, but ultimately, they presuppose complete knowledge on the planner's part, and the solutions would explain "how to allocate 'given' resources."²³ In the real world, those advanced techniques are only secondarily useful for policymakers who are most often struggling to understand the nature of the problem and to gather enough information—in the possession of a variety of individuals and institutions across society—on which to base their policy decisions.²⁴ Hayek is thus emphasizing a policymaker's need to come to terms with the inherently dispersed nature of knowledge in society.²⁵

How does Hayek propose to deal with this problem? He urges policymakers to exercise greater reliance on the price system.²⁶ He writes: "We must look at the price system as such a mechanism for communicating information if we want to understand its real function—a function which, of course, it fulfills less perfectly as prices grow more rigid."²⁷ This is now a familiar idea to most economists. In markets, price serves two functions: it (1) clears markets and (2) conveys and aggregates information.²⁸

Exactly what Hayek meant by relying on the price system is subject to debate.²⁹ But it should be noted that one can accept Hayek's insight without rejecting government regulation altogether. For one thing, Hayek did not "claim[] that the government should never interfere in the economy."³⁰ As Professor Andrew Koppelman clarifies:

Hayek's view did not entail minimal government. It rather imposed strict conditions on intervention in the economy.

²² Hayek, *supra* note 4, at 519–20.

²³ *Id.* at 520.

²⁴ *See id.*

²⁵ *See id.* at 521.

²⁶ *See id.* at 526.

²⁷ *Id.*

²⁸ Joseph E. Stiglitz, *The Allocation Role of the Stock Market: Pareto Optimality and Competition*, 36 J. FIN. 235, 244 (1981) ("In financial markets, prices serve two roles; not only do they clear markets, they also convey and aggregate information.").

²⁹ *See, e.g.*, JAMES BERNARD MURPHY & GRAEME GARRARD, *HOW TO THINK POLITICALLY: SAGES, SCHOLARS AND STATESMEN WHOSE IDEAS HAVE SHAPED THE WORLD* 239–46 (2019) (discussing complex facets of Hayek's philosophy).

³⁰ *Id.* at 240.

He thought that regulation is appropriate to deal with what economists call “externalities,” side effects on third parties that aren’t reflected in prices, such as pollution. It should prohibit fraud and manipulation. It should fund public goods that the private sector will not adequately provide, such as roads, education, social services, and basic scientific research. But the state should act only on a clear showing of market failure.³¹

Indeed, later economists devoted significant resources to understanding the variety of ways in which a market can fail.³² Nevertheless, Hayek’s keen observation regarding the informational challenges facing the regulator has stood the test of time.³³

II. APA SECTION 553 AS A LIMITED SOLUTION TO PROBLEM I

If Hayek’s proposal to rely on the price mechanism signaled a libertarian solution, the drafters of the APA apparently had a different idea. They envisioned a rulemaking process that invites bearers of information to supply relevant information to the regulator.³⁴ Accordingly, section 553 requires a rulemaking agency to issue a notice of proposed rulemaking, open a comment period, adopt a final rule, and publish it on the Federal Register.³⁵ Although notice-and-comment rulemaking is rudimentary as a mechanism, section 553 was nonetheless groundbreaking in that the drafters tacitly acknowledged the need for the regulator to gather information from dispersed sources.³⁶

³¹ ANDREW KOPPELMAN, *BURNING DOWN THE HOUSE: HOW LIBERTARIAN PHILOSOPHY WAS CORRUPTED BY DELUSION AND GREED* 15 (2022).

³² See, e.g., Kenneth J. Arrow, *Uncertainty and the Welfare Economics of Medical Care*, 53 AM. ECON. REV. 941 (1963); Garrett Hardin, *The Tragedy of the Commons*, 162 SCI. 1243 (1968); George A. Akerlof, *The Market for “Lemons”: Quality Uncertainty and the Market Mechanism*, 84 Q.J. ECON. 488 (1970); Stephen A. Ross, *The Economic Theory of Agency: The Principal’s Problem*, 63 AM. ECON. REV. 134 (1973); Joseph E. Stiglitz & Andrew Weiss, *Credit Rationing in Markets with Imperfect Information*, 71 AM. ECON. REV. 393 (1981). For an excellent survey of market failures, see generally JOHN CASSIDY, *HOW MARKETS FAIL: THE LOGIC OF ECONOMIC CALAMITIES* (2009).

³³ When the Royal Swedish Academy of Sciences announced Hayek’s Nobel Prize in 1974, it highlighted in its press release Hayek’s contribution in recognizing the dispersed nature of information and the need for decentralization. See Press Release, Royal Swedish Acad. of Sci., Econ. Prize for Works in Econ. Theory & Inter-Disciplinary Rsch. (Oct. 9, 1974), <https://www.nobel-prize.org/prizes/economic-sciences/1974/press-release/> [<https://perma.cc/YV3Y-LQK7>]; see also Lynne Kiesling, *Knowledge Problem*, in *THE OXFORD HANDBOOK OF AUSTRIAN ECONOMICS* 45, 45 (Christopher J. Coyne & Peter Boettke eds., 2015) (“F. A. Hayek’s elaboration of the difficulty of aggregating diffuse private knowledge is the best-known articulation of the knowledge problem and an example of the difficulty of coordinating individual plans and choices in the unavoidable presence of dispersed, private, subjective knowledge.”).

³⁴ TODD GARVEY, CONG. RSCH. SERV., R41546, *A BRIEF OVERVIEW OF RULEMAKING AND JUDICIAL REVIEW* 2–3 (2017).

³⁵ 5 U.S.C. § 553(a)–(d).

³⁶ See DAVIS, *supra* note 2, § 6.15 at 283; GARVEY, *supra* note 34, at 2.

Together with section 706,³⁷ which specifies the scope of judicial review of agency action, section 553 also promotes administrative accountability: the comments submitted by the public can be used as a basis to hold an agency accountable under the “arbitrary [and] capricious” review.³⁸ Whether or not the drafters of the APA were aware of Hayek’s article—published just a year before the APA was enacted³⁹—is not important. What is significant is that the notice-and-comment rulemaking process was intentionally designed to facilitate information aggregation in an attempt to address the very problem Hayek recognized.

This is, of course, not to suggest that the notice-and-comment rulemaking process always operates efficiently to achieve its purpose. Indeed, despite its innovative nature, section 553 is far from perfect. What could possibly go wrong with gathering information for policy-making purposes? One structural problem with the process is that there is no meaningful way to control or police the informational influx from the public. In an important article, Professor Wendy E. Wagner explains the effect of this defect:

There are no provisions in administrative law for regulating the flow of information entering or leaving the system, or for ensuring that regulatory participants can keep up with a rising tide of issues, details, and technicalities. Indeed, a number of doctrinal refinements, originally intended to ensure that executive branch decisions are made in the sunlight, inadvertently create incentives for participants to overwhelm the administrative system with complex information, causing many of the decisionmaking processes to remain, for all practical purposes, in the dark. As these agency decisions become increasingly obscure to all but the most well-informed insiders, administrative accountability is undermined as entire sectors of affected parties find they can no longer afford to participate in this expensive system.⁴⁰

To understand Professor Wagner’s observations about the notice-and-comment rulemaking dynamics, one need only consider the incentives of those parties submitting comment letters—more specifically, those that choose to invest a great deal of time and resources to prepare their comment letters.⁴¹ First, to the extent a rulemaking agency

³⁷ 5 U.S.C. § 706.

³⁸ *Id.* § 706(2)(A); see *Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 52 (1983).

³⁹ See Hayek, *supra* note 22, at 519; APA, Pub. L. No. 79-404, 60 Stat. 237 (1946).

⁴⁰ Wendy E. Wagner, *Administrative Law, Filter Failure, and Information Capture*, 59 DUKE L.J. 1321, 1321 (2010).

⁴¹ See *id.* at 1362–63.

is required to consider all comments received and to choose a rational course of action thereafter,⁴² a well-drafted substantive comment letter has the potential to affect the final rule outcome in a manner that significantly benefits the party submitting the letter.⁴³ Second, as mentioned already, to the extent the agency does not structure the final rule to sufficiently reflect the concerns raised by the commenter, the submitted comment letter can be used as a basis for a legal challenge on the ground that the rulemaking agency did not sufficiently consider an important factor raised in the letter, and thus acted arbitrarily and capriciously.⁴⁴ Because it is much easier for a private party to try to influence the rule outcome in the rulemaking stage rather than to make a post hoc effort to repeal the rule,⁴⁵ a party that is likely to be affected by an agency's proposed rule has all the more reason to invest resources and time to draft an effective and persuasive comment letter.⁴⁶

These incentives are augmented by two additional factors. First, industry participants who will be subject to the agency's new rule are also those that tend to possess important private information regarding the nature of the problems and how the industry operates.⁴⁷ Second, there is no legal requirement for a comment letter to present a well-balanced and comprehensive view.⁴⁸ The end result is that comment letters can disproportionately represent the views of powerful interest groups that can afford the costs of preparing such letters.⁴⁹ Unfortunately, there is also no easy way to encourage submission from those whose interests are underrepresented.⁵⁰

This "filter failure"⁵¹ can allow interest groups to steer an agency's rule through information production and the threat of litigation.⁵² Those with strong interests in the rulemaking outcome can try to overload

⁴² See *id.* at 1357–58.

⁴³ See *id.* at 1363.

⁴⁴ See 5 U.S.C. § 706(2)(A); see also *Motor Vehicle Mfrs. Ass'n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 52 (1983).

⁴⁵ See JASON A. SCHWARTZ & RICHARD L. REVESZ, *PETITIONS FOR RULEMAKING: FINAL REPORT TO THE ADMINISTRATIVE CONFERENCE OF THE UNITED STATES* 41–43 (2014).

⁴⁶ It is widely believed that interest groups spend significant resources preparing these comment letters. For example, Professor Brian D. Libgober explains that "[a] single comment letter can cost \$100,000 or more," and "the undisclosed costs associated with rulemaking advocacy could exceed all reported lobbying expenditures." Brian D. Libgober, *Strategic Proposals, Endogenous Comments, and Bias in Rulemaking*, 82 J. POL. 642, 642 (2020).

⁴⁷ See Wagner, *supra* note 40, at 1346.

⁴⁸ See *id.* at 1364.

⁴⁹ See *id.* at 1325.

⁵⁰ See *id.* at 1388–89.

⁵¹ *Id.* at 1329 (defining "filter failure" as "a basic failure of the administrative process to force participants to ensure that the information they provide meets the needs of the audience and situation").

⁵² See *id.* at 1332.

the agency with as much technical information in their favor as possible in order to advance their position.⁵³ This also implies that ordinary citizens will be unable to participate in the process effectively as they may be crowded out by technical arguments.⁵⁴ Consequently, administrative rulemaking can become susceptible to the same fundamental problem of regulatory capture⁵⁵ that the legislative process invites but through a different mechanism—an overload and overproduction of information.⁵⁶ Professor Wagner refers to this dynamic as “information capture.”⁵⁷

To be fair, this is just one possible depiction of how a given rulemaking can play out. It would be too simplistic to conclude therefore that every agency rulemaking is dominated by comments that are biased toward industry groups—just as it would be incorrect to assume that every piece of legislation is a product of heavy lobbying efforts by special interest groups. In some cases, there are nonprofit organizations that submit comment letters that can counterbalance industry groups’ efforts.⁵⁸ Some of those organizations may also be effective in generating the public’s interest in a given rulemaking.⁵⁹ Agencies also typically have in-house experts and professionals, such as scientists or economists, who can absorb and process comment letters without being unduly swayed by their technical contents.⁶⁰

Nevertheless, given the filter failure, the potential effect on agency rulemaking of the imbalance of resources among various interest groups cannot be ignored. The upshot of all this is that the rulemaking process, while well intentioned, can fail not only as a democratic policymaking

⁵³ See *id.* at 1353 (describing “various incentives caused by the ‘rulemaking review game’ that not only tolerate excessive information but also produce incentives for players . . . to overload the system with information or otherwise gain an edge through their superior access to key information”). For an example of how interested parties can shape a final rule through their comments, see Kimberly D. Krawiec, *Don’t “Screw Joe the Plummer”: The Sausage-Making of Financial Reform*, 55 ARIZ. L. REV. 53 (2013) (providing an in-depth empirical analysis of the comment letters submitted to the Financial Stability Oversight Committee in connection with implementing the Volcker Rule).

⁵⁴ See Wagner, *supra* note 40, at 1326. See generally WENDY WAGNER & WILL WALKER, *INCOMPREHENSIBLE!: A STUDY OF HOW OUR LEGAL SYSTEM ENCOURAGES INCOMPREHENSIBILITY, WHY IT MATTERS, AND WHAT WE CAN DO ABOUT IT* (2019) (discussing how legal institutions can promote incomprehensible information exchanges).

⁵⁵ For an economic theory of regulatory capture, see George J. Stigler, *The Theory of Economic Regulation*, 2 BELL J. ECON. & MGMT. SCI. 3 (1971).

⁵⁶ See Wagner, *supra* note 40, at 1340.

⁵⁷ See *id.* at 1329–34.

⁵⁸ Krawiec, *supra* note 53, at 84; see also *id.* at 71–78 (describing the critical role played by three public interest groups in the “Volcker Rule” rulemaking).

⁵⁹ See, e.g., *id.* at 72–73 (noting how three public interest groups were able to “rally public interest” resulting significant numbers of letters being submitted by members of the public during consideration of the Volcker Rule).

⁶⁰ See *id.* at 83.

mechanism but also as an ex ante information aggregation mechanism. The process can lead to information aggregation that is neither complete nor balanced.⁶¹ Hayek's Problem I is only partly addressed, and an agency's final rule design can often prove to be inefficient, or otherwise suboptimal, from the perspective of the general public.⁶²

One saving grace is that, according to a recent empirical study, agency rules are not always carved in stone.⁶³ After reviewing the rulemaking process in three separate agencies, the study finds that "agencies face a variety of incentives to revise and update their rules" including "pressure from those groups that are affected by their regulations."⁶⁴ The study concludes that "[t]here is in fact a vibrant world of informal rule revision that occurs voluntarily and through a variety of techniques."⁶⁵

III. HAYEK'S PROBLEM II: THE LIMITS OF CONSTRUCTIVIST RATIONALITY

The issues discussed in Part II pose challenges to notice-and-comment rulemaking in that they interfere with an agency's ability to collect accurate and unbiased information from the public, which section 553 is designed to facilitate. Information capture is, of course, not the only problem exhibited by notice-and-comment rulemaking. Challenges will remain even if a more balanced, comprehensive, and democratic information aggregation mechanism can be designed. The reason is that there is an entirely different category of problems in policymaking, which section 553 is not designed to address.

Recall the opening sentence from Hayek's 1945 article: "What is the problem we wish to solve when we try to construct a rational economic order?"⁶⁶ As of 1945, Hayek was still—ostensibly—concerned with the project of *constructing a rational economic order for society*.⁶⁷ His chief contribution was recognizing the dispersed nature of knowledge, which would compromise the government's ability to construct a rational economic order.⁶⁸

Eventually, Hayek would come to question the whole enterprise of constructing a rational economic order but on different grounds: regardless of how well informed a regulator is, there are certain limits that we—as individuals and institutions—cannot overcome in constructing

⁶¹ See Wagner, *supra* note 40, at 1333.

⁶² See *id.* at 1349–51.

⁶³ See Wagner et al., *supra* note 13, at 260.

⁶⁴ *Id.* at 183.

⁶⁵ *Id.*

⁶⁶ Hayek, *supra* note 4, at 519.

⁶⁷ See *id.*

⁶⁸ See *id.*

a rational economic order. Hayek fleshes out this idea in a number of his articles written between 1965 and 1978.⁶⁹ His view is given its fullest treatment in an essay titled “Kinds of Rationalism.”⁷⁰ In that essay, Hayek credits rational philosophers such as Francis Bacon, Thomas Hobbes, and René Descartes with advancing the notion of “the Cartesian *esprit géométrique*, a capacity of the mind to arrive at the truth by a deductive process from a few obvious and undoubtable premises.”⁷¹ Hayek goes on to define “constructivism” or “constructivist rationalism” as a particular belief in rationality:

[Constructivist rationalism] assumes that all institutions which benefit humanity have in the past and ought in the future to be invented in clear awareness of the desirable effects that they produce; that they are to be approved and respected only to the extent that we can show that the particular effects they will produce in any given situation are preferable to the effects another arrangement would produce; that we have it in our power so to shape our institutions that of all possible sets of results that which we prefer to all others will be realized; and that our reason should never resort to automatic or mechanical devices when conscious consideration of all factors would make preferable an outcome different from that of the spontaneous process.⁷²

Hayek goes on to critique this view of rationalism:

[Constructivist rationalism] implies the claim that man’s intelligence is adequate to order his life successfully without resorting to the aid which general rules or principles give him, in other words, the claim that man is capable of coordinating his activities successfully through a full explicit evaluation of the consequences of all possible alternative decisions and in full knowledge of all the circumstances. This involves,

⁶⁹ See, e.g., Friedrich A. von Hayek, *Kinds of Rationalism*, 15 *ECON. STUD. Q.* 1, 8 (1965) [hereinafter Hayek, *Kinds of Rationalism*]; F.A. Hayek, *The Errors of Constructivism*, translated in *NEW STUDIES IN PHILOSOPHY, POLITICS, ECONOMICS AND THE HISTORY OF IDEAS* 3 (1978) [hereinafter Hayek, *The Errors of Constructivism*]; F.A. Hayek, *The Results of Human Action but Not of Human Design*, in 15 *THE COLLECTED WORKS OF F. A. HAYEK: THE MARKET AND OTHER ORDERS* 293, 299–300 (Bruce Caldwell ed., 2014) [hereinafter Hayek, *The Results of Human Action but Not of Human Design*]; F.A. Hayek, *Der Wettbewerb als Entdeckungsverfahren*, 56 *KIELER VORTRÄGE* 1 (1968), translated in *Competition as a Discovery Procedure*, 5 *Q.J. AUSTRIAN ECON.* 9, 9 (Marcellus S. Snow trans., 2002) (explaining that the value of competition comes from “our *not* knowing the essential circumstances that determine the behavior of the competitors”).

⁷⁰ Hayek, *Kinds of Rationalism*, *supra* note 69.

⁷¹ *Id.* at 3.

⁷² *Id.* at 3–4. Hayek initially describes constructivist rationalism as a form of “Cartesian rationalism” but then says “constructivism” is the best label for this philosophy. *Id.* at 3. In the rest of the essay, he refers to the concept as “constructivist rationalism.” See, e.g., *id.* at 5, 7, 10, 11.

of course, not only a colossal presumption concerning our intellectual powers, but also a complete misconception of the kind of world in which we live. It treats our practical problems as if we knew all the facts and the task of coping with them were a purely intellectual one. . . . The crucial fact of our lives is, however, that we are *not* omniscient, that we have from moment to moment to adjust ourselves to new facts which we have not known before, and that we can therefore not order our lives according to a preconceived detailed plan in which every particular action is beforehand rationally adjusted to every other.⁷³

Thus understood, Hayek's disagreement with constructivist rationalism begins at the threshold: he considers the basic premise of the Cartesian *esprit géométrique*—that “we have it in our power so to shape our institutions that of all possible sets of results that which we prefer to all others will be realized”—as a flawed assumption because such a philosophy does not comport with how our society has actually progressed.⁷⁴

Note also the similarity between Problem I and Problem II. On the one hand, in critiquing central planning, Hayek notes that the knowledge needed for constructing a rational economic order is never given to a single mind, and that “*if* we command complete knowledge of available means, the problem which remains is purely one of logic.”⁷⁵ On the other hand, Hayek's chief criticism of constructivist rationalism is that “[i]t treats our practical problems as if we knew all the facts and the task of coping with them were a purely intellectual one.”⁷⁶

Of significance, Hayek believes there are severe consequences to subscribing to this worldview. In “The Errors of Constructivism,” Hayek notes that “this constructivistic interpretation of social formations is by no means merely harmless philosophical speculation, but an assertion of fact from which conclusions are derived concerning both the explanation of social processes and the opportunities for political action.”⁷⁷

Along the way, Hayek makes another important observation that “what has long been regarded as the invention of reason was in fact *the outcome of a process of evolution and selection very similar to that which we find in the biological field.*”⁷⁸ Accordingly, Hayek emphasizes the “nature of . . . spontaneous order” and relays the importance of

⁷³ *Id.* at 7–8.

⁷⁴ *Id.* at 4.

⁷⁵ Hayek, *supra* note 22, at 519.

⁷⁶ Hayek, *Kinds of Rationalism*, *supra* note 69, at 7.

⁷⁷ Hayek, *The Errors of Constructivism*, *supra* note 69, at 6.

⁷⁸ Hayek, *Kinds of Rationalism*, *supra* note 69, at 4 (emphasis added).

improving “abstract rules” with which individuals and institutions respond to unforeseen circumstances.⁷⁹ Of this process, he says:

This will require not only a much closer collaboration between the specialists in economics, law, and social philosophy than we have had in recent times; but even after we have achieved it, all we can hope for will be a *slow experimental process of gradual improvement* rather than any possibility of drastic change.⁸⁰

In other words, Hayek takes a decidedly evolutionary and spontaneous perspective when it comes to how institutions and markets evolve. Professor James Bernard Murphy summarizes Hayek’s understanding as follows:

Hayek distinguished two kinds of order: the spontaneous order we find in both nature and in culture and then the designed order we find in artefacts or armies. Spontaneous order grows up organically, as does language or morals, while designed order is always deliberately made or imposed. In a spontaneous order, such as the formation of a crystal or a market, we can predict patterns of growth but not where any particular individual element will end up. According to Hayek, this explains why economics will never have the predictive power of physics. Economics is more like biology, which cannot predict the survival of any particular organism but can predict patterns of speciation and extinction. Economists, says Hayek, cannot even predict economic performance, let alone plan for economic targets.⁸¹

Despite Hayek’s forceful argument, Problem II has not attracted the kind of traction Problem I has. Nevertheless, its implication for agency rulemaking cannot be overstated. Given an agency rule, for example, there may be information that can play a pivotal role in shaping the future of the market and determining the effectiveness of the rule, which cannot be discovered or learned until after the rule is adopted and society is given an opportunity to adjust to the new rule and the ensuing institutional arrangements.⁸² Such information can only be obtained through ex post adaptive learning, and no amount of well-intentioned ex ante deliberation may unlock it.⁸³ Viewed from this perspective, the distinction between Problem I and Problem II is also clear: Problem I is concerned with aggregating all the dispersed information that market

⁷⁹ *Id.* at 9.

⁸⁰ *Id.* (emphasis added).

⁸¹ MURPHY & GARRARD, *supra* note 29, at 242–43.

⁸² See Hayek, *Kinds of Rationalism*, *supra* note 69, at 8–9.

⁸³ See *id.*

participants possess at the time of rulemaking; Problem II has to do with information that cannot be discovered through aggregation at the time of rulemaking.

If Hayek is correct, there are significant implications for how regulators, commenters, and courts ought to view notice-and-comment rulemaking. Section 553 should be viewed not as a deterministic process for identifying the “correct” regulatory solution to a given problem, but merely as a deliberative process for agreeing upon a reasonable first step that can trigger an adaptive process for addressing the problem in gradual steps. Indeed, as one study noted, because “[l]arge, complicated rules are apt to contain errors and to be based on information and assumptions that can change over time[,] [t]o be durable, regulatory policies must be able to correct those errors and be adaptable to a changing environment.”⁸⁴ Although it is theoretically possible for an agency to “get it right” the first time, such success stories will be few and far between, and in any case, should not be expected as the norm.⁸⁵ As Hayek would argue, to the extent we have successful institutions, they are “the results of human action but not of human design.”⁸⁶

None of this suggests that rulemaking agencies should be cavalier about information collection during the comment process or about considering the potential economic effects of their rules. Hayek never intended his critique of constructivist rationalism as a ground for nihilism in policymaking.⁸⁷ He is instead positing a need for “abstract rules” and “principles” that ought to guide our courses of action at each turn.⁸⁸ The proper takeaway is that our rulemaking philosophy must be characterized by reverence for reason’s power as well as its limitations.⁸⁹ The next Part will discuss specific manifestations of Problem II in the context of administrative rulemaking.

IV. PROBLEM II IN ADMINISTRATIVE RULEMAKING

Part II discussed the challenges of administrative rulemaking given the inevitability of Problem I. This Part will now consider the challenges of administrative rulemaking given the inevitability of Problem II. The challenges stemming from the limits of constructivist rationality can be summed up as the problem of *equilibrium prediction*—i.e., anticipating

⁸⁴ Wagner et al., *supra* note 13, at 194.

⁸⁵ *See id.*

⁸⁶ Hayek, *The Results of Human Action but Not of Human Design*, *supra* note 69.

⁸⁷ *See id.* at 300.

⁸⁸ Hayek, *Kinds of Rationalism*, *supra* note 69.

⁸⁹ An extreme form of reverence for the limitations of reason is an argument that in the absence of information it can be “rational” for a rulemaking agency to be “arbitrary” in its decision-making. *See* Adrian Vermeule, *Rationally Arbitrary Decisions in Administrative Law*, 44 J. LEGAL STUD. S475, S478 (2015).

the state of the economy that will be realized once the rule is in effect.⁹⁰ Even if Problem I can be successfully addressed, a discrepancy can still arise between a rule's anticipated effect and its realized effect.

This type of discrepancy is not limited to cases involving *shocks*—such as cases in which unforeseen events take place that alter the course of history. Indeed, the more interesting aspect of Problem II is how such a problem can arise even in the absence of significant shocks.

In most cases, the crux of Problem II is undiscoverable information. But there are a number of different manners in which information may be undiscoverable. This Part appeals to concepts from economics literature to illustrate these different manners.

A. *Intrinsic Randomness: Uncertainty and Risk*

The first and the most obvious source of undiscoverable information is intrinsic randomness. Intrinsic randomness can come in two categories: uncertainty and risk. Long before Hayek formulated his criticism of constructivist rationalism, economist Frank Knight—Hayek's contemporary and critic—formalized the distinction between the two categories of randomness as follows:

The practical difference between . . . risk and uncertainty[] is that in the former the distribution of the outcome in a group of instances is known (either through calculation *a priori* or from statistics of past experience), while in the case of uncertainty this is not true, the reason being in general that it is impossible to form a group of instances, because the situation dealt with is in a high degree unique. The best example of uncertainty is in connection with the exercise of judgment or the formation of those opinions as to the future course of events, which opinions (and not scientific knowledge) actually guide most of our conduct.⁹¹

This type of uncertainty is often termed “Knightian uncertainty.”⁹² According to Knight's conception, then, situations characterized by uncertainty cannot be dealt with in a scientific or empirical manner—i.e., in the manner of the “Cartesian *esprit géométrique*”⁹³—but instead must be dealt with using an exercise of judgment or opinion.⁹⁴ Knightian

⁹⁰ Ariel Pakes, *Firm Learning and Market Equilibrium*, NAT'L BUREAU ECON. RSCH. REP., June 2018, at 20, 20, <https://www.nber.org/sites/default/files/2019-08/2018number2.pdf> [<https://perma.cc/LJ89-GG79>].

⁹¹ FRANK H. KNIGHT, RISK, UNCERTAINTY, AND PROFIT 233 (1921).

⁹² See, e.g., Vermeule, *supra* note 89, at S476.

⁹³ See Hayek, *Kinds of Rationalism*, *supra* note 69, at 3.

⁹⁴ See KNIGHT, *supra* note 91, at 233.

uncertainty thus poses a direct challenge to any program grounded on constructivist rationalism.

The relevance of Knightian uncertainty in policymaking—especially in the context of financial regulation—is explained clearly by Professors Roberta Romano and Simon A. Levin.⁹⁵ In their recently published work, they explain that Knightian uncertainty is “of special concern for . . . financial legislation” because such instances entail “future states for which we cannot assign a probability because we cannot imagine them.”⁹⁶ Consequently, “financial institutions and regulators cannot be expected to anticipate and thereby manage events that they cannot even imagine.”⁹⁷ Elsewhere, Professor Romano also notes that “financial firms operate in a dynamic environment in which there are many unknowns and unknowables,” and as such, “even the most informed regulatory response . . . will be prone to error, and is likely to produce backward-looking regulation that takes aim at yesterday’s perceived problem, rather than tomorrow’s.”⁹⁸

Compared to situations involving uncertainty, those involving risk are admittedly easier to manage. In these latter situations, the agency is able to reasonably assign a probability to each future state.⁹⁹ These scenarios can be formalized using random variables.¹⁰⁰

For example, consider the following simple scenario. Suppose you are about to roll a fair die and there are consequences attached to your roll: you will receive \$1,000 times the number you roll. Prior to your roll, the expected face value of a roll is the average of one through six, which is 3.5. Even if you happen to roll a one, it does not change the fact that your *ex ante* calculation was correct. As such, if you are risk neutral, you could not be faulted for arranging your life in expectation of receiving about \$3,500. There was no overestimation on your part. That said, it would be foolish not to acknowledge the element of randomness in this game.

One implication of this is that when rulemaking entails these types of risks, there should be no expectation that the future result of a financial regulation can be “figured out” through a deterministic process.

⁹⁵ Roberta Romano & Simon A. Levin, *Sunsetting as an Adaptive Strategy*, 118 PROC. NAT’L ACAD. SCIS. 1, 2 (2021).

⁹⁶ *Id.*

⁹⁷ *Id.*

⁹⁸ Roberta Romano, *Regulating in the Dark and a Postscript Assessment of the Iron Law of Financial Regulation*, 43 HOFSTRA L. REV. 25, 27 (2014).

⁹⁹ See KNIGHT, *supra* note 91, at 233–34.

¹⁰⁰ In statistics, a random variable is a function that assigns a value to an experiment’s outcome. See *Random Variables and Probability Distributions*, ENCYCLOPEDIA BRITANNICA, <https://www.britannica.com/science/statistics/Random-variables-and-probability-distributions> [https://perma.cc/Y9S4-2DHM].

At a minimum, it must be recognized that an element of randomness plays a significant role in the market's equilibrium determination.

Risk poses a different type of challenge to constructivist rationalism. For instance, a constructivist rationalist approach to agency rulemaking might suggest that an agency should adopt a rule only if it passes a thoroughly conducted cost-benefit analysis.¹⁰¹ However, when the future state can only be ascertained probabilistically over multiple possible states, the economic value of a given regulation will itself be a random variable, and the agency's calculation of the net benefit will be akin to ascertaining the variable's mean. If the variable comes with a high variance, the mean will bear no meaningful relation to any realized value. As such, the distance between the realized value and the prediction should reveal nothing about whether the regulator's calculation of the mean was correct, just as rolling a one with a fair die does not undermine the fact that its expected value was—and still is—3.5. What the distance would reveal instead is a need to reassess and adapt to the realized outcome.

B. *Strategic Behavior*

Constructivist rationality can also fail when there are too many strategic responses to regulation. Here is a stylized problem that may illustrate the point. Suppose you are playing a game of chess with \$1,000 at stake: if you win, your opponent pays you \$1,000; if you lose, you must pay your opponent \$1,000. Both you and your opponent are familiar with the rules of chess, and you are deliberating your opening move. This means each move you make, in theory, will either increase or decrease your probability of winning. To that extent, with some assumptions, it would be theoretically possible to assign a value to any given move.

Query: What is the expected value of King's Pawn Opening strategy? This is not a question that admits an easy response. The difficulty has nothing to do with valuation: it is certain that the outcome will be either winning \$1,000 or losing \$1,000. It also has nothing to do with hidden preferences or motives: it is not as though you lack information about your opponent's goal. He is playing to win as much as you are. The difficulty instead has to do with the myriad of ways in which your opponent can respond to not only your opening move but to all your subsequent moves. In fact, the outcome of the game is so far from the opening move that there is effectively no value to conducting any

¹⁰¹ Cf. Hayek, *Kinds of Rationalism*, *supra* note 69, at 7 (arguing constructivist rationalism claims that decisions can be made "through a full explicit evaluation of the consequences of all possible alternative decisions and in full knowledge of all the circumstances").

cost-benefit analysis of your opening move. Given that few of us can plan more than two or three steps ahead, a more practical approach to playing chess is the one everyone in fact takes: make the move that seems reasonable at each turn, keeping in mind a few possible responses in advance, and see how the game plays out. In other words, for most people, a reasonable approach to playing chess is to rely on an adaptive strategy, not one based on meticulous planning.

To what extent can this analogy be used to describe agency rulemaking? At least in the context of financial regulation, the analogy seems appropriate. Noting that “[f]inancial institutions respond to regulation . . . in ways that confound regulatory efforts,” Professors Romano and Levin argue that “[w]hile regulators are aware that such responses are likely to occur, it is difficult, if not impossible, to predict the precise form they will take, and hence, the location in the financial system where responses or their consequences will emerge.”¹⁰² Similarly, in his testimony before Congress, economist Richard Bookstaber made the following remark regarding financial modeling:

The analogy of . . . models related to risk to models used in other engineering and physical systems—I think there is a critical distinction between financial systems and other engineering systems, because financial systems are open to gaming. If I discover a valve that is poorly designed in a nuclear power plant and design a new valve to replace it, and install that valve, the valve doesn’t sit there and try to figure out if it can fool me into thinking it is on when it is really off. But in the financial markets, that is what happens. So any engineering solution or any analogy to physical processes is going to be flawed when they are applied to the financial markets, because those in the financial markets can game against the system to try to find ways around any regulation, and to find other ways to do what they want to do. . . . So . . . no model can work completely in the financial markets the way they can in other physical systems¹⁰³

Bookstaber’s intuition regarding financial modeling suggests that in the realm of financial regulation, Hayek’s Problem II will be exceptionally difficult to address. With a given regulation, there is an entire industry trying to figure out all the different ways to behave strategically around the rule—e.g., by finding ways to avoid compliance and

¹⁰² Romano & Levin, *supra* note 95, at 2.

¹⁰³ *The Risk of Financial Modeling: VAR and the Economic Meltdown: Hearing Before the Subcomm. on Investigations and Oversight Comm. on Sci. & Tech.*, 111th Cong. 58–59 (2009) (statement of Dr. Richard Bookstaber, Financial Author).

thwarting the agency's regulatory objective—such that the regulation can bring about unanticipated benefits and costs.¹⁰⁴

Strategic behavior can also arise in other well-known settings. For example, as Goodhart's Law states, "When a measure becomes a target, it ceases to be a good measure."¹⁰⁵ In the context of agency rulemaking, this means that a regulator must be careful in rewarding one metric, as doing so will create incentives to manipulate the metric to receive the reward. In a similar vein, Campbell's Law says that in social policy settings, "[t]he more any quantitative social indicator is used for social decision making, the more subject it will be to corruption pressures and the more apt it will be to distort and corrupt the social processes it is intended to monitor."¹⁰⁶ All of these general principles suggest that, when possible, individuals will tend to react in an opportunistic manner to new rules and regulations. Even when such behaviors can be anticipated, it can be extremely difficult to predict the particular economic outcome that will materialize.

Relatedly, behavioral adjustments can be introduced even in a nonstrategic setting based on people's changed expectations. Economist Robert E. Lucas, Jr.—who won the Nobel Prize in Economics for his pioneering work on the hypothesis of rational expectations¹⁰⁷—formulated the Lucas critique as follows:

[G]iven that the structure of an econometric model consists of optimal decision rules of economic agents, and that optimal decision rules vary systematically with changes in the structure of series relevant to the decision maker, it follows that any change in policy will systematically alter the structure of econometric models.¹⁰⁸

Lucas would thus argue that effective forecasting based on a policy change cannot be conducted by relying on historically observed data because when government policies change, so will people's expectations.¹⁰⁹ More generally, the Lucas critique can be interpreted to mean that "[s]hifts in economic policy often produce a completely

¹⁰⁴ See *id.*

¹⁰⁵ Marilyn Strathern, 'Improving Ratings': Audit in the British University System, 5 EUR. REV. 305, 308 (1997).

¹⁰⁶ Donald T. Campbell, *Assessing the Impact of Planned Social Change*, 2 EVALUATIONS & PROGRAM PLAN. 67, 85 (1979) (emphasis omitted).

¹⁰⁷ Press Release, The Royal Swedish Acad. of Scis., The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 1995 (Oct. 10, 1995), <https://www.nobelprize.org/prizes/economic-sciences/1995/summary/> [<https://perma.cc/VCC5-NWBX>].

¹⁰⁸ Robert E. Lucas, Jr., *Econometric Policy Evaluation: A Critique*, 1 CARNEGIE-ROCHESTER CONF. SERIES ON PUB. POL'Y 19, 41 (1976), <https://www.sciencedirect.com/science/article/pii/S0167223176800036/pdf> [<https://perma.cc/6ZHS-2HLS>].

¹⁰⁹ See *id.*

different outcome if the agents adapt their expectations to the new policy stance.”¹¹⁰

C. *Multiple Equilibria*

Consider now an even simpler scenario where there are no opportunistic responses to regulation. Nevertheless, when an agency adopts a rule, it can often have an economic impact on a large number of market participants, and their payoffs can in turn depend on how other market participants behave. In other words, market participants themselves may have to adapt to how other participants choose to behave. One way to conceptualize the market equilibrium that materializes is to consider the equilibrium as a Nash equilibrium¹¹¹ among market participants in a game of coordination—i.e., a game whose outcome will depend on the actions taken by all the players together.¹¹² In theory, such a strategic game may exhibit multiple equilibria—meaning there is not necessarily a unique outcome when the game is played.¹¹³ Often, the problem of equilibrium prediction with a given rule can play out as a game with multiple equilibria, in which the regulator will be unable *ex ante* to pin down a unique equilibrium that will result from the rule.

In the context of agency rulemaking, multiple equilibria are especially likely where a rule’s efficacy depends on individuals’ and entities’ collective reactions to new opportunities, costs, or information. Previously, the present Author made the following observation regarding speculation as to how a rule might be implemented:

For questions such as these, disputing parties can indulge in hypothetical discussions about motives and incentives as much as they want, but these are ultimately *empirical* questions. Economic theory and behavioral psychology to date provides only limited *ex ante* insights as to how people would behave in entirely new situations. Norms and customs often supplement or sometimes even negate economic incentives. A rule may prove to be highly effective because citizens behave responsibly and cooperatively, or highly ineffective because

¹¹⁰ Press Release, The Royal Swedish Acad. of Scis., *supra* note 107.

¹¹¹ In game theory, a Nash equilibrium is “an outcome in a noncooperative game for two or more players in which no player’s expected outcome can be improved by changing one’s own strategy.” *Nash Equilibrium*, ENCYCLOPEDIA BRITANNICA, <https://www.britannica.com/science/Nash-equilibrium> [<https://perma.cc/UVM2-2VM6>].

¹¹² For a description of coordination games, see *Coordination Game*, WIKIPEDIA, https://en.wikipedia.org/wiki/Coordination_game [<https://perma.cc/4ZRB-9294>].

¹¹³ *Multiple Equilibrium*, OXFORD REFERENCE, <https://www.oxfordreference.com/display/10.1093/oi/authority.20110803100215916;jsessionid=D80030A9BD8084E3F8A718019A60C991> [<https://perma.cc/E48K-ZTV8>]. A strategic game may exhibit a unique Nash equilibrium, multiple Nash equilibria, or no pure-strategy Nash equilibrium. *See id.*

citizens deviate and strategically avoid compliance. Perceptions as well as how opportunities are presented can also be relevant.¹¹⁴

In the context of financial regulation, for example, economists have analyzed the occurrence of multiple equilibria that arise from the self-fulfilling nature of currency attacks.¹¹⁵ Determining how to pin down the likely equilibrium in the presence of multiple equilibria has long been a favorite pastime amongst game theorists.¹¹⁶ Nevertheless, the applicability of these equilibrium refinement criteria from game theory to real-world agency rulemaking remains unclear. In any event, because the effect of a rule can be impacted by both the subsequent actions and reactions of market participants, in practice, the regulator will have a difficult time predicting *ex ante* the outcome of a new rule but can only observe its effect after it is enacted.

D. Ecological Rationality

The next example illustrates that even in a world where we are aware of all institutional details, there is still undiscoverable information in the form of unanticipated preferences. The relevant concept here is “ecological rationality,” which is attributed to Vernon L. Smith.¹¹⁷

Smith is possibly the greatest entrepreneur of Hayek’s Problem II. Hayek’s skepticism of constructivist rationalism through human institutions profoundly influenced Smith’s research agenda.¹¹⁸ Indeed, it is not insignificant that Smith won his Nobel Prize for pioneering the field of *experimental* economics, in which much of learning happens not through high-level mathematical calculations but through exposing a group of participants to an artificially designed environment to elicit information.¹¹⁹

In his Nobel Prize lecture,¹²⁰ Smith appeals to the limits of constructivist rationality as a call for recognizing a new type of rationality:

¹¹⁴ Yoon-Ho Alex Lee, *An Options Approach to Agency Rulemaking*, 65 ADMIN. L. REV. 881, 908 (2013) (footnotes omitted).

¹¹⁵ See, e.g., Stephen Morris & Hyun Song Shin, *Unique Equilibrium in a Model of Self-Fulfilling Currency Attacks*, 88 AM. ECON. REV. 587, 590 (1998) (analyzing the multiple equilibria nature of the standard currency attack game).

¹¹⁶ See, e.g., In-Koo Cho & David M. Kreps, *Signaling Games and Stable Equilibria*, 102 Q.J. ECON. 179, 180–82 (1987); Jeffrey S. Banks & Joel Sobel, *Equilibrium Selection in Signaling Games*, 55 ECONOMETRICA 647, 647 (1987).

¹¹⁷ See Smith, *supra* note 11, at 469.

¹¹⁸ See, e.g., *id.* at 465.

¹¹⁹ See Press Release, The Royal Swedish Acad. of Scis., The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2002 (Oct. 9, 2002), <https://www.nobelprize.org/prizes/economic-sciences/2002/press-release/> [<https://perma.cc/XN5X-8RKH>].

¹²⁰ See Smith, *supra* note 11, at 465.

These considerations lead to the second concept of a rational order, as an undesigned ecological system that emerges out of cultural and biological evolutionary processes: home-grown principles of action, norms, traditions, and “morality.” Ecological rationality uses reason—rational reconstruction—to examine the behavior of individuals based on their experience and folk knowledge, who are “naïve” in their ability to apply constructivist tools to the decisions they make; to understand the emergent order in human cultures; to discover the possible intelligence embodied in the rules, norms, and institutions of our cultural and biological heritage that are created from human interactions but not by deliberate human design.¹²¹

In his writing, Smith credits Hayek with advancing both types of rationality¹²² and goes on to discuss historical policymaking examples that highlight the importance of ecological rationality.¹²³ Particularly compelling is Smith’s description of the effect of airline route deregulation from the 1970s:

Airline route deregulation brought an unanticipated reorganization of the network, called the hub-and-spoke system. This is an ecologically rational response, apparently anticipated by none of the . . . arguments for deregulation, and predicted by no one. *Nor could it have been uncovered, I submit, in 1978 by surveys of airline managers, or by marketing surveys of airline customers. Unknown to both managers and customers was the subsequently revealed decision preferences of customers who unknowingly favored frequency of daily departure and arrival times—a preference that had to be discovered through market experimentation.* Nonstop service between secondary cities was simply not sustainable in a deregulated world of free choice. The only way to achieve efficiency . . . among secondary cities was for the flights to connect through hubs.¹²⁴

The concept of ecological rationality thus rests on the idea that our institutional learning is inherently an organic and adaptive process.¹²⁵ This is consistent with Hayek’s evolutionary perspective on how institutions and markets evolve and his notion of spontaneous order.¹²⁶ Notably, Romano and Simon also appeal to observed

121 *Id.* at 469–70 (footnotes omitted).

122 *See id.* at 465.

123 *See id.* at 472–74.

124 *See id.* at 472 (emphasis added) (citation omitted).

125 *See id.* at 469–70.

126 *See* Hayek, *supra* note 86, at 298.

patterns in evolutionary biology to advocate for adaptive strategies in legislation.¹²⁷

Smith's point in the above passage is not just that the innovation that came with the route deregulation—the hub-and-spoke system—could not have been anticipated by anyone prior to deregulation.¹²⁸ Smith raises a more radical idea: even airline managers and customers could not have predicted whether they would favor frequency of daily departure and arrival times to nonstop service because their preference could only be discovered through market experimentation.¹²⁹ The same can be said of administrative rulemaking: even well-informed industry participants and commenters cannot be expected to predict whether they will in fact appreciate or loathe a proposed rule because their preference will be revealed only through experience of the rule.

E. Cognitive Biases

Finally, there is a form of error that can be introduced in agency rulemaking without any lack of information. Behavioral economics has identified a number of biases that can affect individuals' and institutions' decision-making processes. Cognitive biases pose different challenges to constructivist rationalism. Because these errors can arise even with full information, their dangers can be more difficult to recognize in advance.

In a well-developed article, Professor Mark Seidenfeld catalogs a number of different cognitive biases that can plague agency rulemaking.¹³⁰ He notes that “[a]lthough expertise and the group nature of agency decisionmaking can alleviate many such [cognitive] biases, it can also amplify some biases.”¹³¹ To be sure, there are some common biases that arise in individual decision-making that expertise is likely to mitigate.¹³² Among those, Seidenfeld lists technical errors and the availability heuristics.¹³³ But there are also biases that expertise is likely to exacerbate, including the egocentrism bias and overconfidence.¹³⁴ Furthermore, there are biases unaffected by expertise, including

¹²⁷ See Romano & Levin, *supra* note 95, at 1 (describing their adaptive strategy for legislation as “ha[v]ing parallels in evolutionary biology, in which a central issue is the ability to adapt to changing environments”).

¹²⁸ See Smith, *supra* note 11, at 472.

¹²⁹ *Id.*

¹³⁰ Mark Seidenfeld, *Cognitive Loafing, Social Conformity, and Judicial Review of Agency Rulemaking*, 87 CORNELL L. REV. 486, 492–506 (2002).

¹³¹ *Id.* at 492.

¹³² *Id.*

¹³³ *Id.* at 499–502.

¹³⁴ *Id.* at 496–98.

confirmation bias, and attraction and compromise biases.¹³⁵ Likewise, Seidenfeld explains that there are biases that the institutional rulemaking process can exacerbate, including group polarization, groupthink, and group confirmation bias.¹³⁶

Importantly, cognitive biases do not just plague agency officials. Commenters are just as likely to suffer from them. For example, comments submitted during the process can be shaped by early assessments of a policy, based largely on interested parties' short-term reactions to the terms of the proposed rule.¹³⁷ As such, comments can be reactionary—rather than properly thought through—responses that are prone to cognitive biases.¹³⁸ Unfortunately, this means that even judicial review to hold the rulemaking agency accountable—based on the rulemaking record—may be misguided in terms of the policy outcome.

V. RULEMAKING INNOVATIONS

Parts II and IV discussed how Hayek's two problems can plague agency rulemaking. This Part now examines some rulemaking innovations¹³⁹—including those that have already been implemented by rulemaking agencies and others that have been proposed by legal academics—that are aimed at addressing Problems I and II in the context of section 553 rulemaking. Many of these innovations seek to build in *ex post* learning through contingency specifications; these specifications would allow the rule to evolve together with market conditions. The last innovation also involves learning but is primarily concerned with promoting more comprehensive *ex ante* information aggregation. While these innovations vary greatly in how they operate and when they apply, the common denominator is that they are all designed to render the rulemaking process more adaptive and evolutionary.

¹³⁵ *Id.* at 504–06.

¹³⁶ *Id.* at 535–41.

¹³⁷ See, e.g., Yoon-Ho Alex Lee, *Sarbanes-Oxley Section 404 and Its Administrative Legacy*, 78 BUS. LAW. 741, 763 (2023) (“[C]omments submitted during the rulemaking process will always represent an early assessment of the rule” and “[c]ommenters may be driven by the sticker-shock of high start-up costs and may underestimate the rule’s long-term benefits.”); Cindy R. Alexander, Scott W. Bauguess, Gennaro Bernile, Yoon-Ho Alex Lee & Jennifer Marietta-Westberg, *The Economic Effects of SOX Section 404 Compliance: A Corporate Insider Perspective*, 56 J. ACCT. & ECON. 267, 268–69 (2013) (documenting how corporate insiders’ views on section 404 compliance may have changed postimplementation).

¹³⁸ See Lee, *supra* note 137, at 22–23.

¹³⁹ While not the focus of this Article, there are also similar innovations in legislation that allow legislative products to “automatically update without further action by Congress.” Rebecca M. Kysar, *Dynamic Legislation*, 167 U. PA. L. REV. 809, 813 (2019).

A. Regulatory Experimentation

The most prominent innovation that has been implemented by several regulatory agencies is regulatory experimentation. Under this approach, a rulemaking agency adopts a trial rule on a smaller scale or on a temporary basis as a pilot program, at the conclusion of which the agency can gather and analyze data that would be relevant for its decision to proceed with a more permanent version of the rule.¹⁴⁰ After the agency concludes the pilot program, it can decide whether to adopt the rule permanently, adopt a modified version, or abandon the rule altogether based on what it learns through experimentation.¹⁴¹ Given Smith's focus on experimental economics as a means to account for ecological rationality,¹⁴² regulatory experimentation is the natural innovation in rulemaking.

For years, legal scholars have advocated for greater experimentation in policymaking.¹⁴³ In 2017, the Administrative Conference of the United States ("ACUS") adopted regulatory experimentation as an official recommendation for administrative agencies.¹⁴⁴ The report even recommended that agencies "seek legal authority from Congress to take advantage of this recommendation."¹⁴⁵

A prominent example of regulatory experimentation is the Securities and Exchange Commission's ("SEC") approach to amending Regulation SHO in 2007.¹⁴⁶ This rule involved the elimination of the SEC's then-existing "uptick" rule.¹⁴⁷ The uptick rule sought to address abusive naked short selling in equity securities by "prevent[ing] traders

¹⁴⁰ See *What Is Regulatory Experimentation?*, GOVERNMENT OF CANADA, <https://www.canada.ca/en/government/system/laws/developing-improving-federal-regulations/modernizing-regulations/regulatory-experimentation.html> [<https://perma.cc/GY7J-PPZZ>] ("A regulatory experiment is a trial or test of a new product, service, approach or process designed to generate evidence or information that can inform the design or administration of a regulatory regime.").

¹⁴¹ See *id.*

¹⁴² See Smith, *supra* note 11, at 470–71.

¹⁴³ See, e.g., Yair Listokin, *Learning Through Policy Variation*, 118 YALE L.J. 480, 553 (2008); Michael Abramowicz, Ian Ayres & Yair Listokin, *Randomizing Law*, 159 U. PA. L. REV. 929, 1005 (2011); Romano, *supra* note 98, at 28; Zachary J. Gubler, *Experimental Rules*, 55 B.C. L. REV. 129, 179 (2014); Zachary J. Gubler, *Making Experimental Rules Work*, 67 ADMIN. L. REV. 551, 593 (2015) [hereinafter Gubler, *Making Experimental Rules Work*]; Matthew Spitzer & Eric Talley, *On Experimentation and Real Options in Financial Regulation*, 43 J. LEGAL STUD. S121, S121 (2014); Colleen V. Chien, *Rigorous Policy Pilots: Experimentation in the Administration of the Law*, 104 IOWA L. REV. 2313, 2348–49 (2019).

¹⁴⁴ ACUS Recommendation 2017-6: Learning from Regulatory Experience, 82 Fed. Reg. 61,738, 61,741 (Dec. 29, 2017).

¹⁴⁵ *Id.* at 61,742.

¹⁴⁶ See Regulation SHO and Rule 10a-1, Exchange Act Release No. 55,970, 72 Fed. Reg. 36,348, 36,349 (July 3, 2007) (to be codified at 17 C.F.R. pts. 240, 242). For a detailed discussion of this regulatory experiment, see Gubler, *Making Experimental Rules Work*, *supra* note 143.

¹⁴⁷ See Gubler, *Making Experimental Rules Work*, *supra* note 143, at 574–75.

from short selling (or, in other words, betting that a stock would decline in price) at successively lower prices in a declining market.”¹⁴⁸ In 2004, in response to widespread criticism of the uptick rule,¹⁴⁹ the SEC established a pilot program, which halted the uptick rule’s application to a *subset* of traded equity securities.¹⁵⁰ In so doing, the SEC effectively created two groups of securities: the control group, which would continue to be subject to the “uptick” rule, and the treatment group, which would no longer be subject to the “uptick” rule.¹⁵¹ Initially, this program was heavily opposed by the securities exchanges—such as the New York Stock Exchange—who believed that the uptick rule was necessary to prevent dangerous levels of market volatility.¹⁵² After the conclusion of the experimental period, the SEC permanently eliminated the uptick rule in 2007.¹⁵³ For this policy decision, the data from the SEC’s pilot program played an instrumental role: the data and the ensuing analysis persuaded several interest groups, such as the New York Stock Exchange, who initially opposed the program to accept the change.¹⁵⁴

Notably, in 2010, the SEC permanently reinstated a modified version of the uptick rule, which “restrict[s] short selling from further driving down the price of a stock that has dropped more than 10 percent in one day.”¹⁵⁵ In adopting this version, then-Chairman Mary L. Schapiro remarked that “[t]he rule is designed to preserve investor confidence and promote market efficiency, recognizing short selling can potentially have both a beneficial and a harmful impact on the market.”¹⁵⁶ Although the SEC did not run another regulatory experiment before adopting this alternative uptick rule, the evolution of the uptick rule can be considered as an example of adaptation, showing a need for continually updating rules, even when a version was adopted after experimentation.

Another well-known example of regulatory experimentation is the U.S. Patent and Trademark Office’s (“USPTO”) Post-Registration Proof-of-Use Pilot Program. In the United States, the trademark register “is a use-based register”: “Registrations are entitled to be

¹⁴⁸ *Id.* at 552–53.

¹⁴⁹ *See id.* at 563–64.

¹⁵⁰ Short Sales, Exchange Act Release No. 50,103, 69 Fed. Reg. 48,008, 48,012–13 (Aug. 6, 2004) (to be codified at 17 C.F.R. pts. 240–42).

¹⁵¹ Gubler, *Making Experimental Rules Work*, *supra* note 143, at 554.

¹⁵² *See id.* at 567.

¹⁵³ *See* Regulation SHO and Rule 10a-1, Exchange Act Release No. 55,970, 72 Fed. Reg. 36,348, 36,348 (July 3, 2007) (to be codified at 17 C.F.R. pts. 240, 242).

¹⁵⁴ Gubler, *Making Experimental Rules Work*, *supra* note 143, at 555.

¹⁵⁵ Press Release, U.S. SEC, SEC Approves Short Selling Restrictions (Feb. 24, 2010), <https://www.sec.gov/news/press/2010/2010-26.htm> [<https://perma.cc/9LA6-FV4Z>].

¹⁵⁶ *Id.*

maintained only for goods or services for which the trademark is in use in commerce” and “[i]naccurate or improper use claims in registration maintenance filings jeopardize the validity of [one’s] registration.”¹⁵⁷ In 2012, the USPTO launched a two-year pilot program “to assess the accuracy and integrity of the trademark register.”¹⁵⁸ The agency randomly audited 500 registrations to determine if the marks themselves remained “in use,” as the registrants had claimed via sworn affidavit upon filing.¹⁵⁹ The agency required all participants “to submit proof of use of their marks for two additional goods and/or services per class” in addition to proof of the use of the mark for which the registration was originally submitted.¹⁶⁰ At the end of the pilot program, the agency concluded that “[i]n just over half of the registrations selected for the pilot, the trademark owners failed to meet the requirement to verify the previously claimed use on particular goods and/or services.”¹⁶¹ In part due to these findings,¹⁶² the USPTO proposed and adopted a permanent program where “it would conduct random audits of up to approximately 10%” of section 8 and section 71 affidavits filed each year “in which the mark is registered for more than one good or service per class.”¹⁶³

These two examples illustrate the promise and the feasibility of regulatory experimentation. When a rulemaking agency has a clear regulatory agenda and an identified problem, a well-designed pilot program can be immensely useful. Pilot programs are especially useful in cases where ecological rationality can be expected to clash with constructivist rationality. Nevertheless, certain limitations should also be acknowledged. First, it is difficult to experiment on rules that come with high start-up costs, especially if they are to be borne by private entities. There are fairness considerations that must be taken into account. For such instances, it may make sense to set aside government funding to pay for such experiments. Second, it is difficult to carry out experimentation for rules whose full effects will not be realized until some point in the future. Third, it is difficult to experiment

¹⁵⁷ *Post Registration Audit Program*, USPTO, <https://www.uspto.gov/trademarks/maintain/post-registration-audit-program#:~:text=Proof%20of%20use%20is%20evidence,label%20affixed%20to%20the%20goods> [https://perma.cc/9T4J-HJDP] (last modified Mar. 3, 2022).

¹⁵⁸ USPTO, *POST REGISTRATION PROOF OF USE PILOT FINAL REPORT 1* (Aug. 25, 2015), https://www.uspto.gov/sites/default/files/documents/Post_Registration_Proof_of_Use_Pilot_Final_Report%20.doc [https://perma.cc/SP39-XTMH].

¹⁵⁹ *Id.*

¹⁶⁰ *Id.*

¹⁶¹ *Id.*

¹⁶² *See id.* at 2.

¹⁶³ Changes in Requirements for Affidavits or Declarations of Use, Continued Use, or Excusable Nonuse in Trademark Cases, 82 Fed. Reg. 6259, 6261–24 (Jan. 19, 2017).

when rules are irreversible and there is no option of reverting to the status quo.

Finally, an agency's effort to run an experiment is subject to judicial limitation. A reviewing court can set aside an agency's pilot program if it believes Congress did not delegate such authority.¹⁶⁴ A cautionary tale comes from the SEC's effort to conduct a pilot program in 2018 to "study the effects that exchange transaction fee and rebate pricing models may have on order routing behavior, execution quality, and market quality."¹⁶⁵ The SEC stated upfront that "[d]ata from the Pilot will be used to facilitate an empirical evaluation of whether the exchange transaction-based fee and rebate structure is operating effectively to further statutory goals and whether there is a need for any potential regulatory action in this area."¹⁶⁶ When the New York Stock Exchange challenged the SEC's rule structuring the pilot program, the D.C. Circuit vacated the rule—a significant blow to the SEC.¹⁶⁷ The court referred to the SEC's pilot program as "a rule that imposes significant, costly, and disparate regulatory requirements on affected parties merely to allow the Commission to collect data to determine whether there *might* be a problem worthy of regulation."¹⁶⁸ In vacating the rule, the court reasoned that "unless an agency's authorizing statute says otherwise, an agency regulation must be designed to address identified problems" and rules should not be "adopted in search of regulatory problems to solve."¹⁶⁹ In so holding, the court left room for the SEC to conduct a pilot program where the agency has an identified problem to address.¹⁷⁰

B. *Contingent "Repeal": A Real-Options Approach*

Part II discussed several ways in which Problem II may arise in agency rulemaking, including rulemakings characterized by intrinsic randomness or exhibiting multiple equilibria.¹⁷¹ In the presence of such uncertainty regarding how a rule may play out, one prudent approach for the rulemaking agency is to adopt a rule according to the agency's

¹⁶⁴ See *N.Y. Stock Exch. LLC v. SEC*, 962 F.3d 541, 559 (D.C. Cir. 2020).

¹⁶⁵ Press Release, U.S. SEC, SEC Adopts Transaction Fee Pilot for NMS Stocks (Dec. 19, 2018), <https://www.sec.gov/news/press-release/2018-298> [<https://perma.cc/D2JM-2XFQ>].

¹⁶⁶ *Id.*

¹⁶⁷ *N.Y. Stock Exch. LLC*, 962 F.3d at 545–46.

¹⁶⁸ *Id.* at 545.

¹⁶⁹ *Id.* at 556.

¹⁷⁰ *Id.* at 561 ("The issue here is not whether the Commission has statutory authority to promulgate test or pilot rules to help inform its efforts to solve identified problems in the equities markets. It assuredly does.")

¹⁷¹ See *supra* Part II.

best judgment, but also build in a mechanism to ensure the rule would be properly repealed in the event it proves to be inefficient or ineffective.

Ideally, a well-designed retrospective regulatory analysis should ensure that such rules are repealed. There are indeed executive orders and statutory requirements that require such retrospective reviews. For example, Executive Order 13,563 requires executive agencies to “facilitate the periodic review of existing significant regulations”¹⁷² and Executive Order 13,610 similarly highlights the importance of “conduct[ing] retrospective analyses of existing rules to examine whether they remain justified and whether they should be modified . . . in light of changed circumstances.”¹⁷³ In addition, section 610 of the Regulatory Flexibility Act¹⁷⁴ requires federal agencies to periodically review existing rules “which have or will have a significant economic impact upon a substantial number of small entities.”¹⁷⁵

Nevertheless, there can be obstacles for an agency to conduct an effective regulatory review. For example, having spent resources and adopted a rule, absent any commitment device, the agency may be less interested in revisiting the rule. It may be more interested in tending to new problems that require new rules. To the extent the agency is required to conduct a retrospective review, it may conduct one as a mere formality, without devoting significant resources. In addition, administering the adopted rule may require a core group of agency staff members, who may be more interested in keeping their jobs and less interested in repealing the rule out of efficiency concerns.¹⁷⁶ Perhaps not surprisingly, one empirical study of agency implementation rates of section 610 of the Regulatory Flexibility Act found that “federal regulators have often ignored section 610 and have not conducted periodic reviews of their rules” and “[e]ven those agencies which review some of their existing rules . . . rarely act in response to their reviews.”¹⁷⁷

¹⁷² Exec. Order No. 13,563, 76 Fed. Reg. 3821 (Jan. 21, 2011).

¹⁷³ Exec. Order No. 13,610, 77 Fed. Reg. 28,469 (May 14, 2012).

¹⁷⁴ 5 U.S.C. § 610.

¹⁷⁵ *Id.* § 610(a). There are also agency-specific statutory provisions requiring periodic regulatory reviews. For example, the Clean Air Act requires the Environmental Protection Agency to review its air quality standards periodically. *See* Clean Air Act, 42 U.S.C. § 7408(e).

¹⁷⁶ *See* James Q. Wilson, *The Politics of Regulation*, in *THE POLITICS OF REGULATION* 357, 374 (James Q. Wilson ed., 1980) (explaining how “careerists” at an agency “do not expect to move on to other jobs outside the agency” and thus their “paramount concern” is “[t]he maintenance of the agency and of their position”); *see also* W. KIP VISCUSI, JOSEPH E. HARRINGTON, JR. & JOHN M. VERNON, *ECONOMICS OF REGULATION AND ANTITRUST* 373 (4th ed. 2005) (“Not surprisingly, the careerist frowns on deregulation.”).

¹⁷⁷ Michael R. See, *Willful Blindness: Federal Agencies' Failure to Comply with the Regulatory Flexibility Act's Periodic Review Requirement—And Current Proposals to Invigorate the Act*, 33 *FORDHAM URB. L.J.* 1199, 1200 (2006). A recent study, however, challenges this received wisdom. *See* Wagner et al., *supra* note 13, at 183 (discussing various incentives agencies face in revisiting and revising rules).

Likewise, ACUS notes that “a system of ‘self-review’ . . . can only succeed if agencies promote a ‘culture of retrospective review’” and “[w]ithout a high-level commitment, any regulatory lookback initiative runs the risk of devolving into an exercise of pro forma compliance.”¹⁷⁸

For these reasons, it is more efficacious to design a rule with a *contingent* repeal provision—e.g., a mechanism that would ensure the rule would be repealed if it proves to be too costly. There is, however, no expedient legal method to repeal a rule based on an external factor. Formally, under the APA, repealing an existing rule would also require the agency to go through a rulemaking process.¹⁷⁹ As such, the easiest way to operationalize a contingent “repeal” is by inserting a sunset provision. For example, the agency can adopt a rule and provide that the rule is to remain in effect for a specified time—say, two to three years—but would automatically be terminated unless the agency chooses to readopt it.¹⁸⁰ An administrative sunset would effectively force the rulemaking agency to reinitiate another rulemaking if it wanted to keep the rule in place. But the difference is that at the time of readopting, the agency will have the benefit of hindsight based on the industry’s compliance experience.¹⁸¹ Therefore, its rulemaking deliberation will be more empirically informed.¹⁸² Based on the data collected, the agency may decide that the rule should be readopted in its original form, should be modified, or should be repealed for being inefficient or ineffective. From this perspective, inclusion of a sunset provision can operate in a similar manner as a regulatory experiment—except on a wider scale. Among legal scholars, there has been a growing support for the idea that complex administrative rules and legislations should come with sunset provisions.¹⁸³

A contingent repeal approach is particularly well-suited for rules that present a multiple equilibria problem. For example, suppose a rule under deliberation can lead to either a good outcome—accruing significant benefits each year—or a bad outcome—entailing significant costs each year—and it is difficult to ascertain *ex ante* which equilibrium will emerge. In that case, by inserting a sunset provision, the agency can claim the *option value* of repealing the rule in the event the bad outcome would materialize while preserving the possibility of reaping

¹⁷⁸ *Retrospective Review of Agency Rules*, ACUS (Dec. 9, 2014), <https://www.acus.gov/recommendation/retrospective-review-agency-rules> [<https://perma.cc/VLY6-6BRG>].

¹⁷⁹ APA defines “rule making” as the “agency process for formulating, amending, or repealing a rule.” 5 U.S.C. § 551(5). Therefore, repealing a rule is subject to the same procedural requirement as formulating a rule.

¹⁸⁰ See Romano & Levin, *supra* note 95, at 1.

¹⁸¹ See Lee, *supra* note 114, at 909.

¹⁸² See *id.*

¹⁸³ See, e.g., Listokin, *supra* note 143, at 536; Lee, *supra* note 114, at 909; Spitzer & Talley, *supra* note 143, at S131; Romano & Levin, *supra* note 95, at 1.

benefits annually if the good outcome were to materialize.¹⁸⁴ For this reason, it has also been argued that, in the case of a rule with uncertain outcomes, including a sunset provision should increase the economic value of moving forward with the rule.¹⁸⁵

Although federal agencies do not include sunset provisions in their rules as a matter of routine, at the state level, eleven state APAs *require* their agencies to include sunset provisions in their rules and two other states have sunset provisions that apply in certain circumstances.¹⁸⁶

One example of a federal administrative rule that came with a sunset provision is the SEC's rule delegating authority to the Director of its Division of Enforcement.¹⁸⁷ In 2009, the SEC delegated to the director authority to issue formal orders of investigation.¹⁸⁸ The purpose of the rule was to "expedite the investigative process by removing the need for enforcement staff to seek Commission approval prior to performing routine functions."¹⁸⁹ Given the uncertainty as to how this delegation would play out, the SEC decided to adopt the rule with a one-year sunset provision.¹⁹⁰ At the end of the one-year term, the Commission issued another rule which removed the sunset provision, thus keeping the rule change permanently.¹⁹¹ Presumably, had the Commission determined that the transfer of authority led to an inappropriate use of power by the director, it could have decided not to extend the rule and the subdelegation rule would have been effectively "repealed."

The contingent "repeal" model, too, comes with limitations. Given the similarity between regulatory experimentation and the contingent "repeal" model, the latter approach faces similar challenges as the former approach. Where a rule is irreversible once implemented, it cannot effectively sunset. Instead, the effect of the rule will persist even after the rule is repealed. In such instances, there is also no way for

¹⁸⁴ For a formal analysis of this option value approach, see Lee, *supra* note 114, at 907–23.

¹⁸⁵ *See id.* at 917.

¹⁸⁶ *Agency Dynamics: States with Sunset Provisions for Administrative Rules*, BALLOTPEDIA, https://ballotpedia.org/Agency_dynamics:_States_with_sunset_provisions_for_administrative_rules [https://perma.cc/UEL5-3745].

¹⁸⁷ Delegation of Authority to Director of Division of Enforcement, 74 Fed. Reg. 40,068 (Aug. 11, 2009) (codified at 17 C.F.R. pt. 200).

¹⁸⁸ *Id.*

¹⁸⁹ *Id.* For a detailed discussion behind the SEC's decision to "subdelegate" this authority, see Jennifer Nou, *Subdelegating Powers*, 117 COLUM. L. REV. 473 (2017).

¹⁹⁰ In a later release, the SEC states that "[t]he sunset provision was included to permit the Commission to evaluate the Division's use of the delegation and to consider whether extension of the delegation was appropriate." Delegation of Authority to the Director of Its Division of Enforcement, 75 Fed. Reg. 49,820 (Aug. 16, 2010) (codified at 17 C.F.R. pt. 200).

¹⁹¹ *See id.*

the agency to economize on the option value of repeal.¹⁹² In addition, one inevitable cost to society—especially to the industry subject to the rule—of a real-options approach is the uncertainty regarding the future of the rule. It may be difficult for industry participants to make business plans when they are unsure whether the agency will let the rule lapse in a few years or will renew it. This is a genuine economic cost that ought to be acknowledged by the agency in its economic analysis.¹⁹³ Nevertheless, this cost also ought to be recognized as an incidental and necessary cost of the regulator's attempt to address an identified problem, which likely presents an even greater uncertainty.

C. *Contingent Effectiveness/Ineffectiveness*

A contingent effectiveness model shares similarities with the contingent repeal model. Under this approach, an agency formally adopts a rule but conditions its effectiveness—or ineffectiveness—on external factors, such as a future state of the world, that are beyond the agency's control. While similar, this approach is not exactly the same as repealing the rule: the rule technically stays in place and its effectiveness may potentially be triggered again depending on the specified external condition. The benefit of the contingent effectiveness model is that it can be used to ensure that a rule would not apply in a future state where its application would prove to be costly.

Although there have been examples of rules with contingent effectiveness provisions, in most of the existing cases, the specified contingencies were motivated by federalism considerations rather than efficiency considerations. One famous example is the Department of Transportation's 1984 regulation requiring car makers to begin equipping cars with airbags or automatic seatbelts by 1989.¹⁹⁴ Although the Department adopted the rule, the regulation specifically provided that it would *not* go into effect if two-thirds of the U.S. population were

¹⁹² See Lee, *supra* note 114, at 909–10 (“The [real options] approach, however, only makes sense when a rule is reversible, or the resulting equilibrium is, at least partly, remediable. The agency must be able to restore the status quo at a reasonable cost if the rule proves to be inefficient.”).

¹⁹³ For example, regulated entities may want to structure their business plans specifically to account for the future uncertainty of the regulation. In some cases, regulated entities may want to take out an insurance. In other cases, they may not invest heavily in complying with the current regulation.

¹⁹⁴ SIDNEY A. SHAPIRO & JOSEPH P. TOMAIN, *REGULATORY LAW AND POLICY: CASES AND MATERIALS* 32 (3d. ed. 2003). For more background on this regulation, see *id.* at 29–33. For the Department of Transportation's regulatory impact analysis, see U.S. DEPARTMENT OF TRANSPORTATION, *FINAL REGULATORY IMPACT ANALYSIS: AMENDMENT TO FEDERAL MOTOR VEHICLE SAFETY STANDARD 208 PASSENGER CAR FRONT SEAT OCCUPANT PROTECTION* (July 11, 1984), available at <http://www-nrd.nhtsa.dot.gov/Pubs/806572.pdf> [<https://perma.cc/M494-YK72>].

subject to state laws requiring seat belt use by April 1, 1989.¹⁹⁵ Thus, in this example, the rule was scheduled to go into effect *unless* a certain specified state was realized.

Another example is the Environmental Protection Agency's ("EPA") 2015 carbon pollution emission guidelines. In adopting the guidelines "for states to follow in developing plans to reduce greenhouse gas (GHG) emissions from existing fossil fuel-fired electric generating units (EGUs),"¹⁹⁶ the EPA specified a "reliability safety valve."¹⁹⁷ This provision provided the conditions under which an "EGU will *not* be required to meet the emission standard established for it under the state plan but rather will meet an alternative standard" and the period during which "the reliability-critical affected EGU may be required to continue to operate under an alternative standard rather than under the original state plan emission standard, as needed in light of the emergency circumstances . . ."¹⁹⁸ As such, the EPA's default emission guidelines would be ineffective if the specified circumstances were to materialize.¹⁹⁹

A contingent effectiveness model can be used more broadly than merely to address the division of authority between the federal government and state governments. Indeed, it can be applied to improve a rule's efficiency. This model may be particularly useful when an agency can specify ahead of time an empirically verifiable condition that is a clear indication that the rule is not functioning as it should or that the rule is proving to be too costly. Alternatively, contingency specification may be modeled after certain types of legislations known as "dynamic legislation."²⁰⁰ These are legislations whose applications are conditioned on "evolving and external inputs, like macroeconomic aggregates."²⁰¹ All in all, agencies should consider more innovative uses of contingent effectiveness in rulemaking.

¹⁹⁵ SHAPIRO & TOMAIN, *supra* note 194, at 32.

¹⁹⁶ Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662, 64,662 (Oct. 23, 2015) (codified at 40 C.F.R. pt. 60).

¹⁹⁷ *Id.* at 64,671.

¹⁹⁸ *Id.* at 64,877 (emphasis added).

¹⁹⁹ There are also a number of other EPA emission rules whose effectiveness and applicability to particular states would depend on state actions. *See, e.g.*, Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,510, 64,633–35 (Oct. 23, 2015) (codified at 40 C.F.R. pts. 60, 70, 71, 98).

²⁰⁰ *See* Kysar, *supra* note 139, at 813.

²⁰¹ *Id.* at 828. Professor Kysar gives an example of a proposed bill which provided that "certain tax cuts [would] be automatically ratcheted down if the bill failed to generate sufficient economic growth and that delayed tax increases [would] not go into effect if revenue hurdles were met." *Id.* at 810.

D. *Contingent Ex Post Exemption: Costly Opt-Outs*

In certain rulemakings, an agency may be reasonably sure that a rule will be beneficial or otherwise suitable for a majority of regulated entities, but not for all. In some of these cases, if the rulemaking agency can ex ante identify the set of regulated entities for which the rule may be inefficient, the agency should grant them exemption from the rule. For example, the SEC often takes this approach with respect to certain disclosure rules that could be disproportionately costly for smaller issuers.²⁰² However, if such a set cannot be ascertained ex ante by the agency and would depend on private information in the hands of these entities—not possessed by the agency—or ex post determinable conditions, the agency can adopt the rule with a proviso that it will post hoc allow firms to opt out of the rule as long as they meet certain conditions.²⁰³

Consider one approach recommended by the ACUS: “if a regulated entity can present some evidence to suggest that it can meet the purpose of the regulation using an alternative approach, the agency might grant a waiver to that entity with the condition that the entity uses that alternative approach.”²⁰⁴ This would be a costly opt-out approach in that it does not freely allow a firm to opt out. The burden lies with the firms to establish that they meet certain specified conditions or requirements. Ideally, the conditions for opting out would be designed in such a way that those who choose to opt out are the entities whose compliance with the rule would be socially inefficient. If the opt-out conditions can be correctly specified, the benefit of a costly opt-out is that the rule on the whole will apply to the industry in an efficient manner, and a properly designed costly opt-out provision can act as a screening requirement that can distinguish between entities for whom the rule would be particularly costly versus those entities that can afford to comply with the rule. Over time, the scope of the rule that emerges will be one that is efficient for society.

²⁰² See, e.g., Lee, *supra* note 137, at 6–7 (discussing the SEC’s approach toward implementing section 404, which was considered disproportionately costly for smaller issuers).

²⁰³ Professor Yehonatan Givati uses the term “licensing” to describe a policy instrument under which all entities that seek to undertake a particular action—including, say, exemption from a rule—must first seek the agency’s advance ruling. See Yehonatan Givati, *Game Theory and the Structure of Administrative Law*, 81 U. CHI. L. REV. 481, 502 (2014). Costly opt-outs can be seen as a form of licensing. Professor Givati describes the benefit of licensing when an agency would like to prohibit a particular act for most firms but allow it for some: “Licensing allows administrative agencies to prohibit the act to most firms in a relatively efficient way, as these firms will not request a license knowing that their request will be denied, while still maintaining the ability to permit it to some firms, who will request a license.” *Id.* at 505; see also Yehonatan Givati, *An Incomplete Contracting Approach to Administrative Law*, 18 AM. L. & ECON. REV. 176, 200–04 (2016) (discussing benefits of licensing from the perspective of the hold-up problem).

²⁰⁴ ACUS Recommendation 2017-6: Learning from Regulatory Experience, 82 Fed. Reg. 61,738, 61,740 (Dec. 29, 2017).

In addition to ensuring that the adopted rule can efficiently evolve, an ex post exemption model offers another advantage. This approach can work together with regulatory experimentation. Once waivers or exemptions are granted, there would be two groups of entities to compare: those that were subject to the rule and those that were exempted. For instance, Professor Romano in an early work on this topic notes that “regulatory exemptive or waiver powers” can “create flexibility in implementation and encourage, where possible, small-scale, discrete experimentation to better inform and calibrate the regulatory apparatus.”²⁰⁵ The ACUS in its recommendation likewise notes that “[a]fter granting a certain number of waivers, the agency could then test the effectiveness of its rule by comparing entities that have selected different approaches.”²⁰⁶

To be sure, ex post costly exemptions are relatively common. For instance, a number of financial regulators permit regulated entities to seek exemptive reliefs through “no-action” letters.²⁰⁷ No-action letters are typically requested by regulated entities in areas where a rule has already been implemented but its applicability is uncertain.²⁰⁸ Regulated entities therefore seek an—informal—advance ruling that they would not face any sanction from the agency for proceeding with their plans.²⁰⁹ But no-action letters are not specifically about ensuring a rule’s efficient application; issuers who request no-action letters from the SEC are often seeking clarification from the agency.²¹⁰ Ex post costly exemptions that are intended to promote efficiency, on the other hand, can include rules that come with “comply-or-pay” provisions—such as a Pigovian tax approach to pollution—or “comply-or-explain” provisions,²¹¹ which are more commonly used in Europe.²¹²

²⁰⁵ Romano, *supra* note 98, at 28.

²⁰⁶ ACUS Recommendation 2017-6: Learning from Regulatory Experience, 82 Fed. Reg. at 61,740.

²⁰⁷ For example, the SEC posts the agency’s no-action letters on its webpage. See *Staff No Action, Interpretive and Exemptive Letters*, U.S. SEC. & EXCH. COMM’N, <https://www.sec.gov/regulation/staff-interpretations/no-action-letters> [<https://perma.cc/RYX9-Q5RU>]. The Consumer Financial Protection Bureau also issues such letters. See, e.g., CFPB Issues Order to Terminate Upstart No-Action Letter, CONSUMER FIN. PROT. BUREAU (June 8, 2022), <https://www.consumerfinance.gov/about-us/newsroom/cfpb-issues-order-to-terminate-upstart-no-action-letter/> [<https://perma.cc/9NQU-FHW9>].

²⁰⁸ See *FinCEN Seeks Public Comments on a “No-Action” Letter Process*, SIDLEY AUSTIN LLP (June 9, 2022), <https://www.sidley.com/en/insights/newsupdates/2022/06/fincen-seeks-public-comments-on-a-no-action-letter-process> [<https://perma.cc/7N9K-SQDP>].

²⁰⁹ See *id.*

²¹⁰ See *id.*

²¹¹ One example of a comply-or-explain rule is the SEC’s recently adopted insider trading policy disclosure rule. See *Insider Trading Arrangements and Related Disclosures*, 87 Fed. Reg. 80,362, 80,384 (Dec. 29, 2022) (to be codified at 17 C.F.R. pts. 229, 232, 240, 249) (requiring issuers to either disclose their insider trading policy or explain why it has not adopted one).

²¹² See Maria E. Sturm, *Corporate Governance in the E.U. and U.S.: Comply-or-Explain Versus Rule 52* (Stan.-Vienna Transatlantic Tech. L. F., Eur. Union L. Working Papers No. 16, 2016).

An innovation in this area is a *contingent* ex post exemption model: a rule that ex ante specifies the ex post determinable conditions under which exemptive reliefs would be granted.²¹³ A clever example of this kind is Professor Scott Hirst's recommendation for the SEC's pending climate disclosure rule.²¹⁴ In 2022, the SEC proposed an ambitious rule that would require climate-related disclosure by companies.²¹⁵ The SEC sought to justify such a rule on the ground that there is "investor demand" for such disclosure.²¹⁶ Nevertheless, the SEC has received significant pushback from opponents of the proposed rule.²¹⁷ To make the case more difficult, the Supreme Court has since handed down *West Virginia v. EPA*,²¹⁸ an important decision that may be seen as discouraging agencies from interpreting their statutory authority broadly.²¹⁹ As of this writing, the SEC has not yet adopted the rule. Professor Hirst suggests that the SEC can potentially save the climate disclosure rule by allowing firms to opt out through a majority shareholder vote—an approach that would also be consistent with the "investor demand" rationale.²²⁰ This recommendation can be characterized as a contingent ex post exemption model because firms cannot freely opt out of the rule. Firms can only opt out upon meeting a condition specified by the rule, and they would not know whether they will meet this condition until a later date.²²¹

As usual, there are costs and limitations to permitting opt-outs. First, to the extent that regulated entities must bear the burden of persuading agencies that they should be allowed to opt out, those burdens are costs to such entities.²²² But presumably, such costs would be significantly less than the costs of complying with the rule. Second, to the extent that there are positive externalities of an entity's compliance with the rule, allowing opt-outs would indicate foregoing the benefits

²¹³ See, e.g., Lee, *supra* note 114; *supra* Section II.C.

²¹⁴ See generally Scott Hirst, *Saving Climate Disclosure*, 28 STAN. J.L. BUS. & FIN. 91, (2023).

²¹⁵ See The Enhancement and Standardization of Climate-Related Disclosures for Investors, 87 Fed. Reg. 21,334, 21,334 (proposed Apr. 11, 2022).

²¹⁶ See *id.* at 21,340–43.

²¹⁷ See, e.g., Lawrence A. Cunningham et al., Comment Letter on SEC Climate Disclosure Proposal by 22 Law and Finance Professors 1–2 (April 25, 2022), <https://ssrn.com/abstract=4109278> [<https://perma.cc/8K7W-GPKT>].

²¹⁸ 142 S. Ct. 2587 (2022).

²¹⁹ For a discussion of how *West Virginia v. EPA* may affect the SEC's ability to adopt rules of broad scope, see Whitney Cloud, Eric Forni, Paul Lewis & Madeline Cordray, *More Signs that the Major Questions Doctrine from West Virginia v. EPA May Impact the SEC's Authority on Proposed Climate and Cybersecurity Disclosure Rules*, DLA PIPER (Oct. 31, 2022), <https://www.dlapiper.com/en/insights/publications/2022/10/more-signs-that-the-major-questions-doctrine-from-west-virginia-v-epa> [<https://perma.cc/5AHK-Z3JJ>].

²²⁰ Hirst, *supra* note 214, at 93–94.

²²¹ See *id.* at 94.

²²² See Lee, *supra* note 114, at 924.

that others may derive from those entities' compliance. This is one of the reasons as to why most financial disclosure rules are mandatory and do not allow for opt-outs: disclosure of information by one firm can provide benefits to investors of other firms, which are not internalized by the investors of the disclosing firm.²²³ Finally, it is possible that in certain cases ex post determinable opt-out conditions may be difficult to correctly specify ex ante, precisely because of Problem II. The agency may not know ex ante what condition would signal inefficient application of the rule. Thus, it may be that opt-out conditions may themselves need to be adapted over time.

E. Contingent Adoption: A Model of Stock-Market-Based Rulemaking

The final innovation is a stock-market-based rulemaking model.²²⁴ This model is based on the Efficient Capital Market Hypothesis: because a company's stock price is assumed to reflect all publicly available information about the company at any given time, in certain rulemaking situations, the regulator can study stock price movements to inform her policymaking decisions.²²⁵ Specifically, consider the following. A rulemaking agency issues a notice of proposed rulemaking, and the stock market reacts to the issuance of the notice. This is itself an event, and an event study examining the market's reaction to the rule proposal can convey information to the agency regarding the expected value of its proposed rule for the affected firms. For example, if the market reacts positively—controlling for other conditions—this is a sign that investors see the rule as adding value to their firms. On the other hand, if the market reacts negatively, the agency may deduce that investors see the rule as destroying value for their firms. This may be new information, and the agency may eventually decide to abandon the rule in light of its learning. In addition, if a rule is expected to have different effects across firms, the agency can also examine a subset of firms and the stock price movements of those firms to gather information about how its rule is expected to affect those firms in particular. In short, the agency can rely on the market data to deliberate whether and how to move forward with the rule.

A stock-market-based rulemaking can be considered as a contingent *adoption* model in that the regulator's decision to adopt the

²²³ See Hirst, *supra* note 214, at 115. For this reason, Professor Scott Hirst also explains why taking an opt-out approach would not significantly compromise the climate disclosure rule. See *id.* at 115.

²²⁴ See Yoon-Ho Alex Lee, *Incorporating Market Reactions into Agency Rulemaking*, 54 WAKE FOREST L. REV. 1361, 1363–64 (2019) [hereinafter Lee, *Incorporating Market Reactions*]; Yoon-Ho Alex Lee, *A Model of Stock-Market-Based Rulemaking*, 23 AM. L. & ECON. REV. 1, 4–5 (2021).

²²⁵ See Lee, *Incorporating Market Reactions*, *supra* note 224, at 1375.

proposed rule can be made contingent on observing positive stock price movements of a specified set of firms to the agency's rule proposal. This rulemaking model is motivated by the finance literature that analyzes the feedback effects from stock market reactions.²²⁶

The stock-market-based rulemaking mechanism would be especially effective in addressing Problem I and the existing limitations of section 553. First, the stock market naturally aggregates countless investors' assessments of the proposed rule.²²⁷ Second and relatedly, this approach is less likely to suffer from the type of selection bias that the comment period may invite.²²⁸ In other words, reliance on stock price movements can facilitate both less biased views and greater engagement by the broader investing public.²²⁹ As such, under this approach, the agency can gather information regarding the expected value of a proposed rule by examining the market reaction to the proposal, as reflected in any changes in stock price.²³⁰

The idea that a well-designed event study can provide valuable information in policymaking is not new. For example, in the case of the SEC's long drawn out process of implementing section 404 of the Sarbanes-Oxley Act (spanning nearly a decade),²³¹ the agency's own section 404 study cited several prominent event studies published in peer-reviewed journals, including event studies examining the SEC's rule proposal.²³² To the best of this Author's knowledge, however, no agency has conducted an event study based on its own rule proposal to deliberate on its rule adoption decision. In a previous work, this Author explains how the SEC's 2008 "proxy access" rulemaking presented

²²⁶ See, e.g., Philip Bond & Itay Goldstein, *Government Intervention and Information Aggregation by Prices*, 70 J. FIN. 2777, 2803–04 (2015); Philip Bond, Itay Goldstein & Edward Simpson Prescott, *Market-Based Corrective Actions*, 23 REV. FIN. STUD. 781, 782 (2010); James Dow & Gary Gorton, *Stock Market Efficiency and Economic Efficiency: Is There a Connection?*, 52 J. FIN. 1087, 1089 (1997); James Dow, Itay Goldstein & Alexander Guembel, *Incentives for Information Production in Markets Where Prices Affect Real Investment*, 15 J. EUR. ECON. ASS'N. 877, 896 (2017); Alex Edmans, Itay Goldstein & Wei Jiang, *Feedback Effects, Asymmetric Trading, and the Limits to Arbitrage*, 105 AM. ECON. REV. 3766, 3767 (2015); Alex Edmans, Itay Goldstein & Wei Jiang, *The Real Effects of Financial Markets: The Impact of Prices on Takeovers*, 67 J. FIN. 933, 936 (2012); Antoine Faure-Grimaud, *Using Stock Price Information to Regulate Firms*, 69 REV. ECON. STUD. 169, 172 (2002); Itay Goldstein & Alexander Guembel, *Manipulation and the Allocational Role of Prices*, 75 REV. ECON. STUD. 133, 134 (2008); Avanidhar Subrahmanyam & Sheridan Titman, *The Going-Public Decision and the Development of Financial Markets*, 54 J. FIN. 1045, 1047–49 (1999).

²²⁷ Lee, *Incorporating Market Reactions*, *supra* note 224, at 1389.

²²⁸ See *id.*; *supra* Part II.

²²⁹ Lee, *Incorporating Market Reaction*, *supra* note 224, at 1389.

²³⁰ See *id.*

²³¹ See generally Lee, *supra* note 137 (discussing the SEC's administrative history of section 404 implementation).

²³² See OFFICE OF ECON. ANALYSIS, U.S. SEC, STUDY OF THE SARBANES-OXLEY ACT OF 2002 SECTION 404 INTERNAL CONTROL OVER FINANCIAL REPORTING REQUIREMENTS 22 n.36 (2009), http://www.sec.gov/news/studies/2009/sox-404_study.pdf [<https://perma.cc/XAF3-D2YH>].

an opportunity that could have benefited from a stock-market-based rulemaking approach.²³³

Finally, with this last rulemaking model, we have in fact made a full circle and come back to Hayek's original proposal. For Problem I, Hayek's proposed solution was to exercise greater reliance on the price mechanism.²³⁴ From this perspective, a stock-market-based rulemaking model can be seen as applying Hayek's insight about price—as an information aggregation tool²³⁵—to the need for an agency to correct for potential biases in section 553 rulemaking.

VI. IMPLICATIONS

The foregoing discussions of Hayek's Problems I and II, and the rulemaking innovations intended to address them, have several implications for regulators, commenters, and courts. In particular, it is helpful to frame the inquiry as follows: if all involved parties were to concede the salience of Problems I and II in agency rulemaking and the availability of rulemaking innovations, what would agency rulemaking look like? This Part briefly discusses these implications. It must be noted, however, that given that there is no such shared understanding among all parties, some of the implications discussed in this Part may be premature.

A. Regulators

One implication for regulators is that in proposing and adopting rules, they need not exhibit any pretense of certitude with respect to the benefits or costs of their rules or their equilibrium predictions. In fact, as a threshold matter, regulators should readily acknowledge that cost-benefit analysis is challenging given the informational issues implied by Problems I and II, and that a range rather than a single estimate may be more appropriate. As such, regulators should be forthcoming in acknowledging the information they lack and the uncertainties they face, and an agency's rationale for a rule ought to be merely plausible. This is not to say that regulators should be given free rein when it comes to rulemaking. For every plausible version of a rule, there will always be an implausible version, and regulators should be mindful of the potential consequences of their actions, as suggested by comment letters and the best available science.

Regulators also should not consider taking a hard line approach—for example, an approach that does not permit ex post exemptions—as

²³³ See Lee, *Incorporating Market Reactions*, *supra* note 224, at 1375–82; Lee, *A Model of Stock-Market-Based Rulemaking*, *supra* note 224, at 2–4.

²³⁴ See Hayek, *supra* note 22, at 526.

²³⁵ See *id.*

signaling a rulemaking victory. Instead, they should be open to revising and modifying the rule, as well as allowing exemptions liberally, as circumstances arise. A one-size-fits-all approach is rarely the right solution in this complex world. Exemptions may be liberally permitted as long as regulators have a fair and clear guiding principle for determining when and how to grant exemptive reliefs. Similarly, repealing a rule that turns out to be inefficient *ex post* need not necessarily be an indication that the agency had exercised poor judgment. There are times when regulators must make judgment calls. In particular, in any area that presents Knightian uncertainty, judgment calls may be the only option in decision-making.²³⁶ Likewise, in the presence of Knightian uncertainty, it may be sensible to present a cost-benefit analysis as a random variable with multiple possible realized values, rather than presenting a single average dollar value without any qualification.²³⁷ An inefficient outcome then can be interpreted as a particular realization of a random variable whose mean may have been properly calculated.²³⁸

One implication of the availability of rulemaking innovations is that when an agency is responding to commenters, it should be mindful that there are two different dimensions of modifying the proposed rule. First, if the agency is persuaded that its initial understanding of the identified problem was incorrect, then it can and should modify the substance of the rule to better address the problem. That is precisely the purpose of the comment period, and modifying the proposed rule's substance is itself an adaptive approach to rulemaking. But if the main issue concerns one of uncertainty or is a highly disputed point, then instead of modifying the proposed rule's substance, the agency should employ an innovative approach to acknowledge the challenges and to capitalize on the option value of the rule.

That said, there is no indication that every rulemaking should come equipped with one of the aforementioned rulemaking innovations. As discussed above, each rulemaking innovation serves a particular purpose and has its own costs and limitations. These innovations should be considered carefully, and there may be instances where no particular innovation is a good fit for the specific problem that needs to be addressed. In such cases, being generally open to an incremental and adaptive approach may be the most salutary approach.

B. Commenters

Commenters, including those who stand to be affected by a proposed rule and those who otherwise have a certain view of the rule,

²³⁶ See KNIGHT, *supra* note 91, at 233.

²³⁷ See *supra* Section IV.A.

²³⁸ See *supra* Section IV.A.

should also be mindful that they, too, are commenting in the face of uncertainty and incomplete information. As Hayek mentioned, “the ‘data’ from which the economic calculus starts are never for the whole society ‘given’ to a single mind.”²³⁹ This principle applies to commenters as much as it does to regulators.

Applied to commenters, the principle would suggest that the most important role that commenters can play in a rulemaking is not necessarily expressing an opinion about the proposed rule, but providing relevant data or information, such as detailed descriptions of the identified problem. Commenters who feel particularly convinced that the proposed rule will be inefficient should be especially aggressive in gathering relevant data to refute the agency’s understanding of the problem. For example, in 2022, there was a flurry of rules proposed by the SEC that faced significant opposition from the industry for being too costly.²⁴⁰ The SEC’s former deputy chief economist Kathleen Hanley was quoted as saying, “[f]rankly, it’s up to these commenters to not just whine about it, but to actually put some numbers behind it.”²⁴¹

Applied to commenters, the principle would suggest that commenters should consider how they can effectively communicate with and persuade the rulemaking agency. In particular, various rulemaking innovations that are available can also be used to serve the interests of those who would be affected. Just as regulators should be mindful that there are two different dimensions of making changes to a proposed rule, commenters should also be mindful of these innovative techniques to structure rules. In some instances, their comments may be more effective if they ask the regulator to insert a sunset provision or an ex post exemptive relief provision, rather than asking the regulator to change the rule’s substance.

C. Courts

Under section 706 of the APA, a reviewing court may “set aside agency action, findings, and conclusions found to be . . . arbitrary[] [or]

²³⁹ Hayek, *supra* note 22, at 519.

²⁴⁰ See Paul Kiernan, *Wall Street Rails Against Costs of Chairman Gary Gensler’s Regulatory Agenda at SEC*, WALL ST. J. (Aug. 27, 2022, 5:30 AM), <https://www.wsj.com/articles/wall-street-rails-against-costs-of-chairman-gary-genslers-regulatory-agenda-at-sec-11661592600> [<https://perma.cc/YM8D-8G3D>] (“Brokerages, hedge funds, private-equity firms, mutual funds, high-frequency trading firms and public companies have argued in comment letters filed this year that the costs of many of the [SEC’s] proposals would outstrip the benefits”). Chairman Gary Gensler’s rulemaking agenda, facing significant opposition from these industry groups, includes “requiring public companies to disclose information related to climate change, bringing more transparency to private equity and hedge funds, imposing stricter rules for investment products advertised as environmentally or socially responsible, and overhauling the way stock trades are executed.” *Id.*

²⁴¹ *Id.*

capricious.”²⁴² The Supreme Court in *State Farm* explained this standard as follows: “a reviewing court may not set aside an agency rule that is rational, based on consideration of the relevant factors, and within the scope of the authority delegated to the agency by the statute.”²⁴³ The Court further explained “the agency must examine the relevant data and articulate a satisfactory explanation for its action including a ‘rational connection between the facts found and the choice made,’”²⁴⁴ and the Court will consider “whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment.”²⁴⁵ Although the *State Farm* standard as articulated is sensible, it is believed that courts have been requiring more from agencies in recent times. For example, the D.C. Circuit’s standard of review articulated in *Business Roundtable v. SEC*²⁴⁶ is largely considered to be more demanding than the *State Farm* standard.²⁴⁷

Hayek’s Problems I and II and the availability of rulemaking innovations have implications for reviewing courts as well. First, *State Farm*’s requirement of a “rational connection between the facts found and the choice made”²⁴⁸ should be understood with the caveat that the outcome will be determined in large part by the spontaneous order of nature.²⁴⁹ This would imply that, as a general principle, a rule that is designed to initiate “a slow experimental process of gradual improvement”²⁵⁰ should be especially favored. Second and relatedly, to the extent a rulemaking agency employs a rulemaking innovation—leaving sufficient room for the future adaptation of the rule—the hurdle should be lowered. This means, for example, that rules with sunsets or with conditions for ex post exemption should be given more leeway than those without such provisions. This approach is also consistent with the idea that agencies should be able to claim the option values of these provisions in their cost-benefit analysis.²⁵¹ Third, conditional on agencies having authority to conduct regulatory experiments, such as pilot programs, courts should be deferential to the manner in which experiments are designed. For example, a randomized trial would require an agency to treat two

²⁴² 5 U.S.C. § 706(2)(A).

²⁴³ *Motor Vehicle Mfrs. Ass’n of U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 42 (1983).

²⁴⁴ *Id.* at 43 (quoting *Burlington Truck Lines, Inc. v. United States*, 371 U.S. 156, 168 (1962)).

²⁴⁵ *Id.* (quoting *Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402, 416 (1971)).

²⁴⁶ 647 F.3d 1144 (D.C. Cir. 2011).

²⁴⁷ See Lee, *supra* note 114, at 885 (“*Business Roundtable* is thought by many to have raised the bar for rulemaking for *all* agencies whose substantive economic analyses could be subject to judicial review.”).

²⁴⁸ *State Farm Mut. Auto. Ins. Co.*, 463 U.S. at 43 (citing *Burlington Truck Lines*, 371 U.S. at 168).

²⁴⁹ See *supra* Part III.

²⁵⁰ Hayek, *Kinds of Rationalism*, *supra* note 69, at 9.

²⁵¹ See *supra* note 184 and accompanying text.

similarly situated entities differently, leading to some parties bearing greater costs than other parties. While this design may raise a question of fairness, there is nothing “arbitrary or capricious” about such an intentional design.

CONCLUSION

This Article has considered section 553 rulemaking in light of two fundamental problems in policymaking identified by Hayek. A proper understanding of Hayek’s two problems has implications for how regulators, commenters, and courts ought to view notice-and-comment rulemaking. A constructivist rationalist approach to rulemaking might view section 553 as a deterministic process for identifying the “correct” regulatory solution to a given problem. Hayek’s ideas, however, suggest that we ought to view agency rulemaking as a deliberative process for agreeing upon a reasonable first step that can in turn trigger an adaptive process for addressing the problem in gradual steps. When we acknowledge the dispersed nature of knowledge and the limits of constructivist rationality, the resulting regulatory dialogues will likely be more constructive and productive.

Over the years, innovative rulemaking mechanisms have been suggested by legal scholars to address Problems I and II in the context of section 553 rulemaking. The mechanisms examined in this Article can build in *ex post* adaptive learning or allow for more comprehensive *ex ante* information aggregation. This Article has also considered the implications of these rulemaking innovations for regulators, commenters, and courts in terms of their roles in agency rulemaking. Some of the rulemaking innovations discussed in this Article have been put into practice with promising results. All of them should be employed more routinely.