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Filed Electronically

Vanessa A. Countryman
Secretary Securities and Exchange Commission
100 F Street NE
Washington, DC 20549-1090

*Re: File Number S7-22-19 Corporate Governance Scholars against the SEC Proxy
Advisory Reform Dear Chairman Clayton and Members of the Commission*

Dear Ms. Countryman:

We write as legal scholars and economists who conduct research and teach in areas of corporate law, securities law, and administrative law. In addition, one of us has previously worked at the Securities and Exchange Commission (“Commission”) as a financial economist and an attorney advisor between 2007 and 2012, in what is now called the Division of Economic & Risk Analysis. None of us is being compensated or otherwise assisted in developing the opinions articulated below. Every word is our own, drafted solely by the three of us.

We submit this letter pursuant to the notice-and-comment request issued by the Commission related to its proposal to amend proxy solicitation rules, and in particular their applicability to proxy advisory firms (File # *S7-22-19*). As you know, a workable shareholder governance system depends critically on the integrity of the shareholder proxy voting system, and we therefore share the Commission’s concern that this system must operate as smoothly, efficiently and transparently as possible.

For the reasons described below, we support the Commission’s proposal, subject to modest (but important) modifications delineated at the end of this letter.

The prudent design of rules to govern securities markets is not only vital to the public interest, but it is also enormously challenging for regulators to carry out: complexity, sophistication, automation, and the sheer speed and volume of trading pose enormous challenges to regulators, who must stand ready to justify their regulatory decisions against potential judicial review under the arbitrary-and-capricious standard.¹ In our own scholarship, we have advanced the analytic argument that these difficulties need not place a prohibitive roadblock in the way of new financial regulations. To the contrary, they often represent an opportunity for regulatory experimentation—*i.e.*, the embrace of new regimes on a provisional basis, and the concomitant value of information and learning that comes from such experimentation. Moreover, we are of the view that the added wisdom that comes through regulatory learning—along with the value of the “real option” to decide whether to retain the provisional rules—constitute unappreciated benefits in the calculus of cost-benefit analysis (“CBA”). Our more comprehensive views on this subject can be found in the following publications (digital copies of which are attached to this letter²):

- Lee, Yoon-Ho Alex, “An Options Approach to Agency Rulemaking,” 65 ADMIN. L. REV. 881 (2013);
- Spitzer, Matthew & Talley, Eric, “On Experimentation and Real Options in Financial Regulation,” 43 J. LEGAL STUD. S151 (2014).

This brings us to the instant proposal that the Commission has put forth: to extend federal proxy solicitation rules and antifraud provisions to proxy advisers. There is little question that this reform would be significant, as advisory firms have long benefitted from an exemption from federal solicitation rules. As you may be aware, several prominent academics in both law and finance have voiced criticism of the proposed rule change, asserting that it will raise costs and increase concentration in the proxy advisory industry.³ If pressed to conjecture about the matter in the form of a permanent policy change, we might well share their concern and even join their position.

¹ See, e.g., *Business Roundtable v. SEC*, 647 F.3d 1144 (D.C. Cir. 2011).

² In addition, we also recommend Zachary J. Gubler, “Experimental Rules,” 55 B.C. L. REV. 129 (2014); and Zachary J. Gubler, “Making Experimental Rules Work,” 67 ADMIN. L. REV. 551 (2015).

³ See Letter of January 15, 2020 to the Commission by Viral Acharya et al. (available at <https://www.sec.gov/comments/s7-22-19/s72219-6668185-203962.pdf>)

At the same time—and in recognition of the myriad complexities involved—we confess to some epistemic uncertainty on the matter.⁴ There simply is no scientifically reliable way to measure the effects of a reform that has never been attempted. In our opinion, however, this very uncertainty can serve as the linchpin of a *prima facie* case in favor of the Commission’s proposal, as a form of regulatory experimentation. The case in favor would be the most compelling had the proposed rule been advanced on a provisional basis, subject to a mandatory sunset after some number of years, so that it could be re-assessed with the benefit of experience and observation. And indeed, it is in this same spirit that the Commission has conducted its recent tick-size and (pending) transaction-fee pilots.

In our view, then, the Commission’s current proposal still lacks the language and approach that would characterize it as a bona fide piece of experimental regulation. This is unfortunate in two respects. First, as noted above, this area of corporate governance is sufficiently complex and recondite that experimental approaches are bound to be particularly probative for regulatory decision making. Second, it forecloses the Commission from being able to rely on the value of experimental learning and optionality as key pillars of its CBA to defend the rule change. This would leave the Commission navigating a much more perilous path in justifying its proposal under a likely onslaught of criticisms about the reliability of its CBA (many of which have already been enumerated by others⁵).

More specifically, we are concerned with the possibility that, should the Commission’s proposed rule be challenged, courts will feel compelled under existing precedent to vacate it, even though the rule *might well* prove beneficial to investors. Over the past decade, the D.C. Circuit has shown its willingness to second-guess the Commission’s expert judgment calls in several contexts that are analogously complex. For example, with its 2011 decision in *Business Roundtable* (invalidating the Commission’s “proxy access” rule), the D.C. Circuit set a high bar for cost-benefit analysis needed to survive arbitrary-and-capricious review. Notably, the opinion went so far as to fault the Commission for “rel[ying] upon insufficient empirical data” even though the proposed rule was one of first impression.⁶ Given this precedential legacy, we believe that the formulation of the proposed rule at present risks being subjected to similar (and similarly successful) legal challenges.

That said, if the proposed rule were characterized as provisional (and subject to an express sunset provision), the Commission would benefit in three concrete ways:

⁴ For the record, we think the authors of the aforementioned letter should have done so as well.

⁵ See Letter of January 30, 2020 by John Coates and Barbara Roper (available at <https://www.sec.gov/comments/s7-22-19/s72219-6729671-207390.pdf>); see also Letter of January 29, 2020 by William J. Stromberg, President & CEO, T. Rowe Price (available at <https://www.sec.gov/comments/s7-22-19/s72219-6721059-206207.pdf>).

⁶ 647 F.3d at 1150.

- First, including a sunset will allow the Commission to tally as an additional benefit the “option value” associated with a provisional rule. In other words, given the high degree of uncertainty concerning the effects of the proposed rule, the Commission can legitimately recognize expected benefits of information generated from the provisional rule change simply by including a sunset provision.⁷
- Second, the provisional period will allow the Commission to gather data from the industry so that, upon sunset, the Commission will be much better equipped to move forward with a more permanent version (and possibly a better version) of its rule with reliable empirical data.
- Finally, in the case that the rule’s critics prove correct in their fears about the rule’s prohibitive costs, the sunset provision would allow the Commission a more seamless path to repealing the rule.

On the basis of the foregoing analysis, we are of the opinion that the Commission’s proposal is a promising one as measured through the lens a regulatory experimentation lens. At present, however, our support for the proposal is substantially compromised by the non-experimental framing of the proposal.

Fortunately, this infirmity admits a relatively straightforward fix. We urge to Commission to approve the proposal only after inserting language substantially similar to the following:

This proposed rule will automatically cease to have any effect and will be repealed with no additional action by the Commission eight years after the date it becomes effective. Six years after this rule becomes effective, the Commission shall review the effects of this rule. At that time, the Commission will issue a Notice of Inquiry, collecting data and analysis from industry participants, academics, and others. Further Commission action with respect to this rule will be based upon the Commission’s expert analysis of the data and analyses collected pursuant to such Notice of Inquiry.

This language would appropriately compel the Commission to revisit the issue after a reasonable period of time has passed, and it would require the re-authorization of the rule at that time. In our estimation, an eight-year period is sufficient to permit significant regulatory learning prior to the reauthorization time. We stand ready to work with the Commission to create any needed modifications to the above language, as well as to develop necessary metrics for assessing the benefits associated with the modification proposed above.

⁷ In theory, of course, the proposal’s current wording does not forbid the Commission from repealing the rule sometime in the future. Nevertheless, explicitly specifying a sunset provision with the rule has the significant benefit of committing the Commission to take into account the rule’s real-option value.

Respectfully Submitted,



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Cc: The Honorable Jay Clayton, Chairman
The Honorable Robert J. Jackson Jr., Commissioner
The Honorable Hester M. Peirce, Commissioner
The Honorable Elad L. Roisman, Commissioner
The Honorable Allison Herren Lee, Commissioner
Dalia Blass, Director, Division of Investment Management
William Hinman, Director, Division of Corporation Finance
Rick Fleming, Office of the Investor Advocate
S.P. Kothari, Director, Division of Economic and Risk Analysis

Encl:

- Lee, Yoon-Ho Alex, "An Options Approach to Agency Rulemaking," 65 ADMIN. L. REV. 881 (2013);
- Spitzer, Matthew & Talley, Eric, "On Experimentation and Real Options in Financial Regulation," 43 J. LEGAL STUD. S151 (2014).

ESSAY

AN OPTIONS APPROACH TO AGENCY RULEMAKING

YOON-HO ALEX LEE*

Administrative agencies must often engage in rulemaking in the presence of substantial factual uncertainty, mixed empirical findings, and untested claims. Given these challenges, a recent D.C. Circuit case, Business Roundtable v. SEC, 647 F.3d 1144 (D.C. Cir. 2011), is thought to have significantly raised the bar for rulemaking by independent agencies. Under the standard the court applied, many potentially efficient rules may not survive judicial review because agencies lack the hard data required with which to refute speculative comments. In response, this Essay suggests that agencies should take a more outcome-oriented approach to rulemaking by making use of “options.” In particular, when an agency is seeking to adopt a controversial rule against opposition from strong interest groups, it should strategically commit to an efficient ex post modification of the substance or the coverage of the rule and thereby partly relieve itself of its ex ante burden of justification. The agency’s ex ante burden of justification should be reduced because if the rule comes coupled with an enforceable, efficient ex post modification scheme, its net expected benefit will necessarily be higher. Specifically, as compared to the case when the rule is adopted without such a scheme conferring option values, the economic cost of the rule will be reduced by the value of a contingent ex post repeal (under the “real options” approach) or the value of conditional ex post exemptions (under the “menu-of-options” approach). Reviewing courts, in turn, should recognize this higher net expected benefit resulting from the option value of the rule structure, and should

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therefore be more deferential to the agency's policy choice in such instances. As with the case of options generally, this approach is particularly valuable when the variance of the net expected benefit is high. This Essay discusses the theoretical framework of the suggested approach, its proper scope as well as potential pitfalls, and the simplest ways to implement it.

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INTRODUCTION

Consider the following problem:

Problem X. A federal regulatory agency is looking to adopt an aggressive and controversial regulation in an industry with one thousand entities. The market failure the regulation purports to address is well known. The regulation is believed to produce aggregate benefits to society of \$100 million per year (average of \$100,000 per entity per year).¹ The agency, however, is unsure about the average compliance cost per year. As is typical, there may also be unintended consequences. According to the cost estimates submitted by various industry participants during the comment period, the average appears to exceed \$100,000 per entity per year, which would imply an overall social loss.² The agency is skeptical of these estimates. The estimates are based on certain assumptions about the future world, which the agency believes are unlikely. Those submitting the estimates have private incentives to block the regulation. These estimates also may not be representative of the entire industry. The average cost could possibly be much lower. Nevertheless, the agency lacks reliable empirical data of its own to rebut the estimates. None of the existing academic studies are directly on point. Arguably, those examining sufficiently analogous policies favor the regulation. How should the agency proceed?

Problem X is a simplified version of routine problems faced by regulatory agencies. It is, in fact, not unlike the one faced by the Securities

1. In this example, we assume the benefits are known but not the costs. This is not strictly necessary. The important aspect is that the net benefit amount cannot be determined with certainty because there are sufficient disputes among the interested parties.

2. For simplicity, we assume the social cost equals the compliance cost. In actuality, the relationship is not always one-to-one, however.

and Exchange Commission (SEC) when it adopted the “proxy access” rule, the challenge of which led to *Business Roundtable v. SEC*.³ The rule would have required, under certain circumstances, a company’s proxy ballots to include director candidates nominated by a shareholder, or a group of shareholders, with significant ownership.⁴ Many believed the rule would promote better disciplining of corporate managers and mitigate the problem of collective action among shareholders, thereby increasing overall firm values.⁵ But some argued that such a mechanism would be abused by shareholders with special interests, such as union shareholders or pension funds, and would adversely affect firm values.⁶ Many corporate managers, who would have been subject to greater discipline, effectively opposed the rule by arguing that their fiduciary duties would require them to spend millions of dollars each year simply to campaign against candidates nominated by such shareholders.⁷ Undeterred, the SEC went ahead and adopted the rule, considering it an effective means of investor protection.

In adopting the proxy access rule, the SEC was statutorily required to consider the effect of the rule on “efficiency, competition, and capital formation.”⁸ Because proxy access had never been implemented, none of the academic studies could have directly examined the empirical effect of the rule. But there were suggestive studies. Studies looking at proxy contests initiated by dissident shareholders showed weak evidence of *negative* effects on firm values.⁹ On the other hand, studies looking at firms with hybrid boards, containing a minority of dissidents, reported more *positive*

3. 647 F.3d 1144 (D.C. Cir. 2011).

4. See Facilitating Shareholder Director Nominations, 75 Fed. Reg. 56,668 (Sept. 16, 2010) (to be codified at 17 C.F.R. pts. 200, 232, 240, 249).

5. See *id.* at 56,760–63 (“[F]acilitating shareholders’ exercise of these [nomination] rights may have the potential of improving board accountability and efficiency and increasing shareholder value.”).

6. See *id.* at 56,766 (“[I]t may be possible for an investor to submit director nominees through the new rules with the intention of having the nominees, if elected, advocate for board decisions that maximize the investor’s private gains but at the expense of other shareholders.”).

7. The Business Roundtable (a group of over 100 Fortune 500 CEOs) stated in its comment letter to the Securities Exchange Commission (SEC) regarding the SEC’s proposed proxy access rule that corporate directors would have a fiduciary duty to oppose “special interest” nominees, if they believed this was in the best interest of the company. Letter from Alexander M. Cutler, Chair, Corporate Leadership Initiative, Bus. Roundtable, to Elizabeth Murphy, Sec’y, U.S. Sec. and Exch. Comm’n (Aug. 17, 2009), available at http://businessroundtable.org/uploads/hearings-letters/downloads/BRT_Comment_Letter_to_SEC_on_File_No_S7-10-09.pdf.

8. 15 U.S.C. §§ 78c(f), 80a-2(c) (2006) (requiring the SEC to consider “whether the action will promote efficiency, competition, and capital formation” whenever the SEC is “engaged in rulemaking”).

9. For a detailed discussion on these studies, see Bruce Kraus & Connor D. Raso, *Rational Boundaries for SEC Cost Benefit Analysis*, 30 YALE J. ON REG. 289, 308–12 (2013) (discussing the SEC’s treatment of various academic studies as well as their results).

results.¹⁰ The SEC was not persuaded that shareholder abuse would in fact prove to be prevalent.¹¹ As such, it viewed the rule's effect as more akin to requiring a hybrid board, rather than facilitating proxy contests by dissident shareholders.¹²

To what extent was the SEC entitled to rely on its reasoned view? The answers from the bench were discouraging to the agency: first, the court found it impermissible for the agency to disagree with commenters' speculative cost estimates simply by way of disagreeing with their assumptions about the future world, *even as the court viewed the agency's own position as reasonable*;¹³ second, the court disagreed with the agency's technical analysis of expert studies, finding it unpersuasive.¹⁴ The D.C. Circuit's exacting standard of review employed in *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.¹⁵ This ends up including most independent regulatory agencies.¹⁶

A number of legal scholars have criticized the court for demanding too much from agencies.¹⁷ To be fair, the scope of *Business Roundtable*'s holding is not entirely clear. The court's reasoning is arguably limited to the specific rulemaking context presented by the SEC. However that may be, future petitioners will undoubtedly characterize it more broadly as generally placing a greater burden of production on the agency. For this

10. *See id.* (citing studies that link hybrid boards with improved shareholder value).

11. *See* Facilitating Shareholder Director Nominations, *supra* note 4 at 56,762 (questioning studies analyzing the negative impacts of a proxy rule).

12. *See id.* (discussing the increase in shareholder value with a minority of dissident directors).

13. *See* *Bus. Roundtable v. SEC*, 647 F.3d 1144, 1150 (D.C. Cir. 2011) (placing the burden on the SEC to produce evidence to rebut claims and assumptions made by petitioners, while agreeing with the viability of the SEC's logic).

14. *See id.* at 1151 (dismissing the SEC's treatment of competing expert studies submitted by commenters).

15. *See, e.g.*, Jonathan D. Guynn, *The Political Economy of Financial Rulemaking After Business Roundtable*, 99 VA. L. REV. 641, 642 ("*Business Roundtable* is significant because it gives cost-benefit mandates real teeth, at least those that apply to independent agencies.>").

16. Whereas executive agencies perform cost-benefit analysis (CBA) pursuant to Executive Orders and their CBAs are subject to oversight by the Office of Management and Budget (OMB), independent agencies conduct economic analysis or CBA pursuant to a relevant statutory mandate, which the court can review under the Administrative Procedure Act (APA).

17. There is a long list of law review articles criticizing the court's decision. *See, e.g.*, James D. Cox & Benjamin J.C. Baucom, *The Emperor Has No Clothes: Confronting the D.C. Circuit's Usurpation of SEC Rulemaking Authority*, 90 TEX. L. REV. 1811, 1840-41 (2012); Kraus & Raso, *supra* note 9; BETTER MARKETS, INC., SETTING THE RECORD STRAIGHT ON COST-BENEFIT ANALYSIS AND FINANCIAL REFORM AT THE SEC, <http://www.bettermarkets.com/sites/default/files/CBA%20Report%20Fact%20Sheet.pdf>; Michael E. Murphy, *The SEC and the District of Columbia Circuit: The Emergency of a Distinct Standard of Judicial Review*, 7 VA. L. & BUS. REV. 1, 36-37 (2012).

reason, whether the D.C. Circuit got the answer “right” with regard to the proxy access rule is now beside the point. Instead, one can justly wonder whether any rule strongly opposed by interest groups can be supported by a cost-benefit analysis (CBA) that can withstand court challenges. Unless agencies significantly reform their rulemaking approach, the overall effect of *Business Roundtable* will likely be to discourage independent regulatory agencies from adopting economically significant rules.

This Essay responds to the challenge of *Business Roundtable*. Resonating with other scholars, I begin with the assumption that the *Business Roundtable* standard of review possibly requires more than what is reasonably ascertainable for a typical rulemaking agency under the current institutional setup. My main interest lies with rules that may have large benefits to society, but could also impose significant costs on regulated entities.¹⁸ The agency therefore faces an uphill battle against regulated entities as an industry group. The market failure is known, but all forms of aggressive, potentially effective solutions may entail unintended consequences, and the agency lacks data to quell all such concerns. These particular rules, which I simply refer to as “controversial rules,” tend to attract the most number of comments, especially from interest groups who stand to lose from the rule.

In responding to *Business Roundtable*, most scholars either urge the court to relax the standard of review, or suggest in turn ways for agencies to insulate their CBAs and partly shield the substance of their analyses from judicial review.¹⁹ Such protectionist approaches—while possibly rational under the circumstances—cannot hold much promise as long-term solutions, however. Although they may reduce Type II errors (efficient rules that do not survive screening), they can in turn increase Type I errors (inefficient rules that survive screening). This is especially worrisome if we consider the possibility that agencies themselves may turn around and abuse the accorded deference.

This Essay recommends a different approach. My main thesis is that in rulemaking cases involving a high level of uncertainty and widely divergent opinions, agencies should take an *outcome-oriented* approach using “options.” As used in this Essay, an “option” is a specific contingent future right—a right of non-compliance reserved to entities, which is exercisable (or would be preferable) only under certain conditions. By granting options

18. Industry oppositions to such rules are more likely if certain industry members are earning supracompetitive profits and compliance costs will reduce their profits. This is not, however, strictly necessary. Even if the market is competitive, if compliance costs are high, some firms may have to exit the industry altogether, and such firms will oppose the rule.

19. See, e.g., Cox & Baucomb, *supra* note 17, at 1847 (discussing strategies for smoothing the path to future regulation); Kraus & Raso, *supra* note 9 (defending an agency’s right to set its own boundaries on economic analysis).

strategically, the agency can in turn claim the value of *ex post* efficient modification or the value of *ex post* conditional exemptions as mitigating the economic cost of the rule or both.

Let us consider Problem X again. Suppose some form of balancing of benefits against costs plays a role in justifying administrative rules.²⁰ Suppose further the agency is reasonably confident that a rule (Rule *x*) is efficient, but its best effort to justify the rule *based on the record* is a “close call” under the court’s exacting standard.²¹ Can the agency somehow still push through a version of Rule *x* that is substantively consistent and implement without—what it views as—unnecessary delay? One possibility is to adopt Rule *x* while granting entities *state-dependent* options. For example, the agency can adopt Rule *x* with a commitment to modify it after a number of years, *in case Rule x should prove to be inefficient*. Entities (as a whole) are therefore granted an “option” to demand a repeal of the relatively costless rule in certain adverse situations. This “real-options” approach can be accomplished with either an automatic or a conditional sunset provision. Still another possibility is to structure Rule *x* as a “sticky” default rule, whereby each entity is given an “option” for full or partial exemption upon a showing of certain narrowly tailored conditions (e.g., foreseeable adverse conditions or worst-case scenarios). This “menu-of-options” approach is available for rules that allow *ex post* exemptions.

Why would any of these approaches be helpful to the agency? This is because an options approach can increase the net expected benefit of going forward with a rule. A suitably structured option can allow the agency to formally incorporate the value of *ex post* learning into its CBA. In turn, the social cost of the rule can be reduced by the value of a contingent *ex post* repeal (under the real-options approach) or the value of conditional *ex post* exemptions (under the menu-of-options approach). Therefore, properly considered, an options approach should reduce the agency’s *ex ante* burden of justification for a rule as compared to the greater burden it would have without options. For “close calls,” this additional value can tip the scale more favorably to the agency. Because the agency’s commitment would be part of the rule text, it will almost certainly be enforceable by the courts. By granting contingent benefits to entities, the agency also need not pre-

20. This is not always the case. Some statutes granting rulemaking authorities have been interpreted to mean that Congress has relied on technology-based standards, rather than standards that balance costs against benefits. *See, e.g., Am. Textile Mfr. Inst. v. Donovan*, 452 U.S. 490 (1981) (holding that Congress instituted a technology-based standard rather than a cost-benefit analysis standard under the Occupational Safety and Health Act of 1970).

21. Substantiating efficiency “on the record” refers to the burden of justifying the efficiency of the rule exclusively based on the comments and data presented and received through the rulemaking process.

compromise on the rule's substance or *ex ante* coverage.

The possibility of structuring an administrative rule with options has several implications. First, agencies and the reviewing courts should pay greater attention to *policy reversibility*. Such consideration seldom plays a role under the current approach, even though academic scholars have noted its significance.²² If a policy is irreversible, for instance, there is far greater value to waiting than going forward.²³ Thus, agencies should bear the highest burden with respect to an irreversible rule; in fact, *Business Roundtable's* standard is not unreasonable for policy choices with significant costs of reversion.²⁴ Meanwhile, agencies should be permitted to bear a reduced burden for a reversible rule accompanied by specific and enforceable commitments to undertake specific, outcome-oriented *ex post* mitigations. Second, agencies and the reviewing courts should pay greater attention to the possibility of *ex post* conditional exemptions. Agencies should bear a lower burden for a rule that is sufficiently flexible so as to permit *ex post* exemptions than one that is not as flexible, and a still lower burden for a rule that permits *ex post* exemptions coupled with an *ex ante* specified commitment to undertake efficient exemptions for adverse scenarios. Third, variance matters: options are more valuable where variance is higher because a good outcome will persist for many years, while a bad outcome will be corrected after the evaluation phase. Therefore, a rule that is subject to greater outcome variance—i.e., higher potential highs and lower potential lows—should be, all else equal, more favorably reviewed if it is *ex post* modifiable or subject to exemption. Consequently, where the agency receives widely divergent estimates of benefits and costs, the agency's duty under an options approach is less about having to refute the higher end of cost estimates, and more about framing the exhibited variance as indicating a more favorable opportunity for going forward with suitably structured options.

This Essay builds upon the existing literature on the value of experimentation²⁵ and the option value of a policy choice.²⁶ My

22. See, e.g., Yair Listokin, *Learning Through Policy Variation*, 118 YALE L.J. 480, 546 (2008) (“[T]he informational value of a policy that would be analyzed under the [Office of Management and Budget’s] *Circular No. A-4* should include an examination of the potential persistence of a regulation’s effects.”).

23. See, e.g., Robert McDonald & Daniel Siegel, *The Value of Waiting to Invest*, 101 Q. J. ECON. 707 (1986).

24. See *infra* Section II.B.2.

25. See, e.g., Michael Abramowicz et al., *Randomizing Law*, 159 U. PA. L. REV. 929 (2011); Michael Abramowicz, *Information Markets, Administrative Decisionmaking, and Predictive Cost-Benefit Analysis*, 71 U. CHI. L. REV. 933 (2004); Michael Greenstone, *Toward a Culture of Persistent Regulatory Experimentation and Evaluation*, in NEW PERSPECTIVES ON REGULATION 111–26 (David Moss & John Cisternino, eds., 2009), available at http://www.tobinproject.org/sites/tobinproject.org/files/assets/New_Perspectives_Ch5_Greenstone.pdf; Roberta

contributions relative to the literature are threefold. First, I highlight the value of an options approach in the context of agency rulemaking given the institutional setup that generally allows little incorporation of *ex post* learning. Second, I discuss specific ways through which an agency can implement an options approach as a *strategic* response to *Business Roundtable* without otherwise appealing to a change of an existing legal standard. Unlike the literature, my focus is less on what is socially valuable per se. Rather, my principal interest is the strategic value to an agency of a particular rulemaking approach, *given the social value it confers*. Third, I devote considerable space discussing potential pitfalls in using an options approach—a discussion often overlooked in the literature although it is critical for any institution contemplating implementing an options approach. In this sense, this Essay can potentially be seen as a starting place for revising agencies' guidance documents on economic analysis and rulemaking.

A few important and necessary clarifications: first, none of the arguments in this Essay should be taken as pro-regulation. If a rule proves to be inefficient, the suggested approach will lead to more frequent curtailment or repeal. More pertinently, deliberation about deregulation of an industry is also subject to the same type of endless debate and can equally benefit from a deregulating rule with options. Second, this Essay's approach does not unilaterally favor the agency's perspective. Although it is written mostly from the perspective of an agency facing an uphill battle, the approach may also be used effectively by commenters who can demand an options approach when faced with an unduly burdensome regulation. Third, this Essay does not advocate more frequent rule changes across the board. Rather, its recommendation is on the margin, and only for a special set of rules that are deemed controversial, which, but for an options approach, would not survive judicial scrutiny.

The rest of this Essay is organized as follows: Part I makes observations

Romano, *Regulating in the Dark*, in REGULATORY BREAKDOWN: THE CRISIS OF CONFIDENCE IN U.S. REGULATION 86–117 (Cary Coglianese, ed., 2012); Zachary James Gubler, *Experimental Rules*, B.C. L. REV. (forthcoming). Professor Gubler's paper also supports the real-options approach proposed in this Essay, although under a different framework. The main difference between the two papers is that Professor Gubler explicitly suggests creating a new category of rules ("experimental rules") that would by law be subject to a more lenient standard of review; by contrast, this Essay preserves the existing framework of administrative law but justifies the more lenient standard of review by appealing to the economic value of options. See also Tom Ginsburg et al., *Libertarian Paternalism, Path Dependence, and Temporary Law*, (Univ. of Chi. Pub. Law, Working Paper No. 431), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2278992 (highlighting the value of "temporary law" to solve path-dependence problems in society).

26. See, e.g., Cass R. Sunstein, *Irreversible and Catastrophic*, 91 CORNELL L. REV. 841 (2006); Listokin, *supra* note 22.

about the economic structure of agency rulemaking and describes how the institution insufficiently incorporates *ex post* learning. Part II presents various possible ways of designing rules with options and discusses the factors agencies should consider in designing such rules and the factors courts should consider in reviewing such rules. Part III considers practical concerns relating to an options approach. Part IV encourages agencies to make more effective use of the notice-and-comment process to gather information as to whether an options approach might be warranted. The Essay then concludes, followed by a technical proof in the Appendix. Although most of the examples discussed are drawn from SEC rules, the general approach proposed by this Essay is applicable to a wide set of agency rulemaking decisions that require some balancing of costs and benefits.

I. THE ECONOMIC STRUCTURE OF AGENCY RULEMAKING

Agency rulemaking is a dynamic activity. A rulemaking agency must execute, at a minimum, the following three different tasks simultaneously:²⁷ (1) specify the rule's substance and coverage, (2) specify the conditions under which the rule would be in effect, and (3) analyze the rule's likely economic effects. These three tasks are interrelated, with each one affecting the other two. This Part highlights how the current rulemaking process takes little advantage of *ex post* learning. *Ex post* learning refers to any information or knowledge that can only be obtained post-adoption. Specifically, this Part illustrates that: (1) *ex post* reviews leading to significant rule modifications are infrequent; (2) judicial review rarely admits *ex post* findings that shed light on the efficiency of the rule as implemented; (3) there are strategic benefits to structuring a rule contingent upon an *ex post* realization of a future state; and (4) there are strategic benefits to *ex post* specification of a rule's coverage.

Throughout the Essay, I use the term "efficient" (or "inefficient") to describe rules that pass (or do not pass) the CBA under a suitably selected methodology. Most independent agencies are not statutorily required to

27. There is a distinction between *discretionary* rulemaking and *mandated* rulemaking. In a discretionary rulemaking, the agency uses its broad rulemaking authority to address a problem in an industry over which it has jurisdiction. As long as the agency acts within its jurisdiction, it has freedom to design the rule as it sees fit. In a mandated rulemaking, Congress by statute directs the agency to implement a rule and delineates specific elements. The agency has discretion over only certain elements. Regardless of the agency's possible aversion to the rule, it cannot choose to *not* implement the rule; that would be a violation of a Congressional mandate. It can, however, fill in gaps, resolve ambiguities, grant exemptive relief for certain entities or scenarios, or implement the rule in phases. The approach to rulemaking proposed in this Essay can apply to either type of rulemaking, but the discussion is structured as relating to discretionary rulemaking because discretionary rulemaking provides agencies with more choices.

demonstrate that a rule's benefits necessarily *exceed* its costs, but are usually only required to *consider* the costs and benefits.²⁸ Meanwhile, Executive Orders 12,866 and 13,563 prescribe that, to the extent feasible and permitted by law, agencies need to ensure that a rule's benefits *justify* the costs.²⁹ While not directly subject to these Orders, independent agencies are often seen as adhering to the spirit of these Orders.³⁰ Therefore, I refer to a rule as "efficient" if it passes whichever balancing test inquiry the agency and the court are implicitly employing.

A. *The Nature of an Agency's Problem*

Let us take a step back and ask: *What is the problem an agency wishes to solve when it tries to construct a rational rule?*³¹ As F.A. Hayek would answer, it is emphatically *not* a problem of logic.³² Nor is it a problem of simple arithmetic or difficult calculus. Rather, the main difficulty is one of *harnessing* sufficient information so that the government can eventually reduce the problem down to one of logic. Whereas this insight led Hayek to be skeptical of government central planning altogether and to support the price mechanism for establishing market orders, later economists have given greater consideration to various ways by which the market on its own may fail and thus could warrant reasoned intervention.³³ Nevertheless,

28. See, e.g., Securities Exchange Act of 1934 § 23(a)(2), 15 U.S.C. § 78w(a)(2) (2012) (stating that the SEC "in making rules and regulations pursuant to any provisions of this chapter, shall *consider* among other matters the impact any such rule or regulation would have on competition") (emphasis added); Commodity Exchange Act § 15(a), 7 U.S.C. § 19(a)(i) (2012) (stating the Commodity Futures Trading Commission must "*consider* the costs and benefits of the action of the Commission") (emphasis added); Consumer Protection Act § 1022(b)(2)(A), 12 U.S.C. § 5512 (2010) (stating that the Consumer Financial Protection Bureau in establishing certain "standards of rulemaking" "shall *consider*—(i) the potential benefits and costs to consumers and covered persons") (emphasis added).

29. Exec. Order No. 12,866, 58 Fed. Reg. 51,735 (1993) ("Each agency shall assess both the costs and the benefits of the intended regulation and . . . propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs."); Exec. Order No. 13,563, 76 Fed. Reg. 3821, 3821 (2011) (same).

30. See, e.g., *Economic Analysis in SEC Rulemaking: Hearing Before the Subcomm. on TARP, Fin. Servs. and Bailouts of Pub. and Private Programs of the H. Comm. for Oversight and Gov't Reform*, 112th Cong. (2012) (statement of Mary L. Schapiro, Chairman, SEC), available at <http://oversight.house.gov/wp-content/uploads/2012/04/4-17-12-Schapiro-Testimony.pdf> (stating that as an agency, the SEC strives to fulfill the basic elements of good regulatory analysis under OMB Circular A-4 and that the SEC staff's guidance draws upon principles set forth in Executive Orders 12,866 and 13,563).

31. See F.A. Hayek, *The Use of Knowledge in Society*, 35 AM. ECON. REV. 519, 519 (1945) (opening his essay with the now-famous question, "What is the problem we wish to solve when we try to construct a rational economic order?").

32. *Id.*

33. See, e.g., Kenneth J. Arrow, *Uncertainty and the Welfare Economics of Medicare 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": Qualitative Uncertainty and the Market*

Hayek's observation regarding the challenges facing the government remains apposite.

Indeed, in a typical rulemaking, an agency faces several different types of challenges. First, the agency seldom has all the necessary information to understand the intricacies of any industry. We live in a complex, rapidly changing society. For any given industry, there is a vast amount of information that can never be "given" to a single mind.³⁴ Some data are simply unavailable; some data may be available but collecting it may be too costly.³⁵ Second, policies often produce unintended consequences that cannot be predicted.³⁶ Sometimes these may be fortuitous benefits; other times, there can be hazardous consequences. For example, prior to airline deregulation, economists reasonably expected fare prices would come down due to competition; however, *nobody* anticipated the emergence of the hub-and-spoke system in response, which revolutionized the entire industry.³⁷ Third, the process governing rulemaking is subject to abuse. The notice-and-comment process introduces a significant bias in terms of the information reaching the agency.³⁸ The general public fails to participate

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).

34. Hayek, *supra* note 31, at 519. ("[T]he '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.").

35. Recent scholarship highlights a more subtle problem of the divergent interest in collecting information. This line of scholarship argues that an agency would choose to gather information only up to the point where the agency's private marginal cost of information acquisition equals its private marginal benefit. Because the agency's private interest likely diverges from that of society at large, this point will deviate from the social optimum. See, e.g., Matthew C. Stephenson, *Information Acquisition and Institutional Design*, 124 HARV. L. REV. 1422 (2011); Matthew C. Stephenson, *Bureaucratic Decision Costs and Endogenous Agency Expertise*, 23 J.L. ECON. & ORG. 469 (2007); see also Ryan Bubb & Patrick L. Warren, *Optimal Agency Bias and Regulatory Review* (N.Y.U. Law, Pub. Law & Legal Theory Research Paper Series, Working Paper No. 12-69, 2012).

36. For examples of unintended consequences of policymaking, see, e.g., Rob Norton, *Unintended Consequences*, CONCISE ENCYCLOPEDIA OF ECON. available at <http://www.econlib.org/library/Enc/UnintendedConsequences.html>.

37. See Vernon L. Smith, *Constructivist and Ecological Rationality in Economics*, 93 AM. ECON. REV. 465, 472 (2003) (Smith not only argues that *nobody* expected the emergence of the hub-and-spokes system which revolutionized the entire industry, but also, he submits that such innovation could not "have been uncovered . . . in 1978 by surveys of airline managers, or by marketing surveys of airline customers").

38. For an excellent discussion of the flaws and biases in the current notice-and-comment process, see Wendy E. Wagner, *Administrative Law, Filter Failure, and Information Capture*, 59 DUKE L.J. 1321 (2010). See also Marissa Martino Golden, *Interest Groups in the Rule-Making Process: Who Participates? Whose Voices Get Heard?*, 8 J. PUB. ADM. RES. & THEORY 245 (1998). For a general discussion about how to improve the rulemaking process for public participation, see Cary Coglianese et al., *Transparency and Public Participation in the Federal Rulemaking Process: Recommendations for the New Administration*, 77 GEO. WASH. L. REV.

due to either rational apathy or a lack of relevant knowledge, while strong interest groups can hijack the process by presenting costs and benefits in a self-serving manner.³⁹ No mechanism currently exists to filter the comments down to only truthful and useful information.⁴⁰ Fraud is difficult to detect and police when it comes to forward-looking information. Lastly, controversial rulemaking attracts the submission of voluminous documents that the agency cannot fully digest in the prescribed time.

These challenges lead us to question the extent to which agencies can propose and implement appropriate solutions for society based on *ex ante* deliberations only.⁴¹ To what extent then, does the current rulemaking practice allow for incorporation of *ex post* learning? In what follows, I examine several potential avenues that could facilitate such learning but are only rarely taken.

B. *An Agency's Cost-Benefit Analysis: Ex Ante Versus Ex Post*

There are three stages during which an agency can conduct a CBA: at proposal (that is, at issuance of a Notice of Proposed Rulemaking), at adoption, and post-implementation. In practice, the only meaningful CBA is conducted at adoption. The CBA included at proposal is necessarily tentative because the agency is conducting the analysis with little empirical data and with almost no feedback from commenters and interested parties. By contrast, the analysis included at adoption includes more data and documentation, and for good reason: if the rule were to be challenged, this is the analysis the court would review. Even so, the CBA conducted at adoption must remain entirely speculative. The agency must make assumptions about the future state of the world that would materialize post-implementation. Sometimes commenters provide useful information; at other times, commenters are reluctant to share information because it can lead to a rule that would be costly for them; at still other times, commenters are simply not any better informed than the agency. Therefore, in most cases, an accurate CBA can come about only *after* the rule has been

924 (2009); Cynthia R. Farina et al., *Knowledge in the People: Rethinking "Value" in Public Rulemaking Participation*, 42 WAKE FOREST L. REV. 1185 (2012).

39. Cass R. Sunstein, *Cost-Benefit Default Principles*, 99 MICH. L. REV. 1651, 1663 (2001).

40. See Wagner, *supra* note 38 at 1328-34 (discussing the "filter failure" in administrative rulemaking).

41. In fact, there is an argument that when the agency faces too much uncertainty it is in fact "rational" to be "arbitrary" in decisionmaking. See Adrian Vermeule, *Rationally Arbitrary Decisions (in Administrative Law)*, (Harv. Pub. Law, Working Paper No. 13-24), available at <http://ssrn.com/abstract=2239155>; see also Robert L. Glicksman & Sidney A. Shapiro, *Improving Regulation Through Incremental Adjustment*, 52 U. KAN. L. REV. 1179, 1179 (2004) ("Current efforts to rationalize environmental and other health and safety regulation at the 'front end' of the regulatory process are doomed to fail because of moral, methodological, and informational limitations.").

implemented for some time.⁴² As such, one might think that agencies would faithfully take advantage of such opportunities to conduct rigorous retrospective CBAs of their existing regulations and test their effectiveness and efficiency. This would be the surest way of incorporating *ex post* learning in rule implementation. This is far from the truth in practice, however.

To be sure, all federal regulatory agencies are formally required to conduct some form of retrospective regulatory analysis periodically under § 610 of the Regulatory Flexibility Act (RFA).⁴³ This section requires agencies to review all regulations that have or will have a “significant economic impact on a substantial number of small entities” within ten years of rule adoption.⁴⁴ The purpose of these reviews is to determine whether such rules should be continued without change, or should be amended or rescinded, consistent with the stated objectives of applicable statutes, to minimize impacts on small entities. Some agencies also have more specific statutory requirements.⁴⁵ Despite these requirements, careful retrospective regulatory analyses remain sparse. A number of studies document the limited nature and extent of these reviews.⁴⁶ By some count, five agencies issued a total of 309 final rules in 1993, of which thirty-seven were subject to § 610 of the RFA.⁴⁷ But more than ten years later, “*none* of the thirty-seven rules labeled as significant under the RFA promulgated during the sample period were analyzed by the agencies under § 610.”⁴⁸ Although agencies can conduct full-scale retrospective analyses when faced with a

42. For a thorough guidance on measuring regulatory performance, see Cary Coglianese, *Measuring Regulatory Performance: Evaluating the Impact of Regulation and Regulatory Policy*, ORG. FOR ECON. CO-OPERATION AND DEV. (Aug. 2012), http://www.oecd.org/gov/regulatory-policy/1_coglianese_percent20web.pdf.

43. 5 U.S.C § 610 (1982).

44. *Id.*

45. For example, Title 10 of the Dodd-Frank Act requires the Consumer Financial Protection Bureau to conduct a retrospective analysis of all of its rules every five years. Dodd-Frank Wall Street Reform and Consumer Financial Protection Act, Pub. L. No. 111-203, § 1023, 124 Stat. 1985 (2010); *see also* 12 U.S.C § 5513 (2010).

46. In 2007, for example, the Government Accountability Office published a report documenting various agencies’ shortcomings in conducting retrospective reviews of regulation. U.S. GOV’T ACCOUNTABILITY OFFICE, REEXAMINING REGULATIONS: OPPORTUNITIES EXIST TO IMPROVE EFFECTIVENESS AND TRANSPARENCY OF RETROSPECTIVE REVIEWS, (2007), <http://www.gao.gov/new.items/d07791.pdf>; *see also* OFFICE OF MANAGEMENT AND BUDGET, VALIDATING REGULATORY ANALYSIS: 2005 REPORT TO CONGRESS ON THE COSTS AND BENEFITS OF FEDERAL REGULATIONS AND UNFUNDED MANDATES ON STATE, LOCAL, AND TRIBAL ENTITIES, (2005), http://www.whitehouse.gov/sites/default/files/omb/inforeg/2005_cb/final_2005_cb_report.pdf; 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 (2006).

47. *See Willful Blindness*, *supra* note 46, at 1217.

48. *See id.* at 1217–18 (emphasis added).

strong public demand for reforming a rule,⁴⁹ these tend to be the exceptions, rather than the norm.

Why are agencies not eager to perform rigorous retrospective analyses? The chief reason agencies cite is that they lack time and resources.⁵⁰ There are always new demands for rulemaking at the behest of Congress or other interested parties, so agencies usually have enough on their plates.⁵¹ But even with sufficient resources, agencies may not be properly incentivized. They are less likely to be found at fault for not conducting rigorous periodic reviews. Many rules, even those with significant effects, are often not on the public's radar once adopted. Challenging agency regulation under the RFA is more difficult than under the Administrative Procedure Act (APA) because there is no comment process and standing is granted to more limited parties.⁵² The harm to the public resulting from a cursory analysis is also much less clear. If sufficient interests exist to modify the rule, strong interest groups will directly lobby the agency to modify the rule. But in this case, a brand new rulemaking effort emerges.

There are also political reasons and moral hazard concerns associated with performing retrospective analyses. In most cases, retrospective analyses of existing regulations are routine business matters left to be handled by staff members, rather than political appointees. Political appointees, such as agency heads, tend to come with specific regulatory agendas of their own. By contrast, staff members at regulatory agencies are best viewed as career members who have a vested interest in seeing their agencies continue to exist and thrive.⁵³ All else equal, they are not inclined

49. One example of such effort is the SEC's study completed in 2010 of the effect of § 404 of the Sarbanes-Oxley Act. OFFICE OF ECONOMIC ANALYSIS, U.S. SEC. & EXCH. COMM'N, STUDY OF THE SARBANES-OXLEY ACT OF 2002 SECTION 404 INTERNAL CONTROL OVER FINANCIAL REPORTING REQUIREMENTS, (Sept. 2009), http://www.sec.gov/news/studies/2009/sox-404_study.pdf.

50. See REEXAMINING REGULATIONS, *supra* note 46, at 35.

51. For example, the Dodd-Frank Act, passed in 2010, mandated over 100 rules for the SEC to analyze or implement. More than two years later, the SEC is still adopting rules mandated by Dodd-Frank.

52. Agencies typically do not publish notice of § 610 review. See *Willful Blindness*, *supra* note 46, at 1217. Although the Regulatory Flexibility Act (RFA) allows private right of suit, a Westlaw search did not yield a single case that was founded upon litigants' challenge of an agency's failure to fulfill its regulatory review requirement under § 610. See also Connor Raso, *Rulemaking Process Requirements?* (working paper) available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2293455 ("The RFA provides a cause action only to small entities, creating a much smaller pool of potential litigants than the APA.").

More generally, agencies do not seem preoccupied about complying with procedural requirements that do not post major litigation threats. See *generally id.* (empirically testing the hypothesis that compliance with procedural requirements that pose low litigation threats are often avoided by agencies).

53. See JAMES Q. WILSON, *THE POLITICS OF REGULATION* 374–78 (1980). See *generally* Jonathan R. Macey, *Organizational Design and Political Control of Administrative Agencies*, 8 J.L.

to acknowledge that the work of their agency is inefficient or unnecessary, and even less inclined to conduct analyses that may lead to a curtailing of the agency's authority. Whatever the reasons may be, serious *ex post* reviews are few and far between. A majority of rules, once adopted, will likely persist without significant *ex post* modification. As to how many agency rules currently implemented may be costing more resources than yielding benefits is anyone's guess.

An important recent development in this area was the promulgation of Executive Order 13,563 by President Obama in January of 2011.⁵⁴ The Order requires executive agencies to engage in serious retrospective evaluation of their rules.⁵⁵ Meanwhile, it *urges*, but does not formally require, independent agencies to adopt a plan for such evaluations as well.⁵⁶ It is too soon to judge the effectiveness of this Order. At any rate, as I discuss later, if Executive Order 13,563 significantly improves agencies' *ex post* review process, this would certainly strengthen, not weaken, the case for an options approach.

C. *Judicial Review of an Agency Rule: Ex Ante Versus Ex Post*

The previous Section highlighted the danger that inefficient rules may persist due to insufficient retrospective reviews. The agency may routinely accept the absence of positive evidence regarding the rules' *ex post* inefficiency and ineffectiveness as an affirmative sign of their efficiency and effectiveness. Conversely, one may ask: is there at least some assurance that the availability of positive evidence of a rule's *ex post* efficiency would strengthen the rule's continued viability? Not necessarily. At least in the context of rule challenges, this is not the case.

Suppose an agency adopts a rule disfavored by interest groups. Petitioners may not challenge the rule until it is adopted. A mere proposal is not considered a final agency action. But once adopted, the rule may be implemented as early as thirty days after adoption. Litigation, by contrast, takes much longer. Therefore, there is often a significant lapse of time between the time the rule is implemented and when the court reviews the

ECON. & ORG. 93 (1992).

54. Exec. Order No. 13,563, 76 Fed. Reg. 3821, 3822 (Jan. 21, 2011).

55. *Id.*

56. The Executive Order directs that independent regulatory agencies "should" (rather than "shall") comply with it. *Id.*; see Joseph Santo, *Obama Directs Independent Regulatory Agencies*, REG BLOG (July 12, 2011) <https://www.law.upenn.edu/blogs/regblog/2011/07/obama-directs-independent-regulatory-agencies.html> (discussing the potential significance of the word "should" in the Order). The authority of an Executive Order over independent regulatory agencies remains a subject of debate. For an argument that there are no significant legal barriers to applying Executive Order 13,563 to independent agencies, see Kirti Datla & Richard L. Revesz, *Deconstructing Independent Agencies (and Executive Agencies)*, 98 CORNELL L. REV. 769 (2013).

record. This would seem to suggest that, where the rule is being challenged solely on the substance of the agency's claims about efficiency, the court has an ample opportunity to consider empirical evidence that emerges from the rule's early days of implementation. In general, however, the scope of judicial review remains nearly exclusively to the agency's *ex ante* CBA. *Ex post* outcomes or findings are usually not admissible to demonstrate the rule's efficiency. These outcomes or findings have not gone through the comment process, and as a result, are not part of the rulemaking record. In *Chamber of Commerce v. SEC*,⁵⁷ the D.C. Circuit struck down the SEC's rule on the ground that the agency adopted it based partly on information that the SEC discovered after the original comment period was closed.⁵⁸ Likewise, even if a rule proves to be efficient post-implementation, it may be struck down if the court finds the rulemaking record does not demonstrate a properly reasoned analysis.

In fact, circumstances were rather tantalizing in the case of the proxy access rule. A critical event study undertaken by financial economists suggested that the market viewed the rule favorably.⁵⁹ But this study was conducted after the rule was implemented, although its results were known before the briefing was due. Despite the study's direct bearing on the rule's efficiency, the court most likely would not have considered it dispositive. Perhaps anticipating this result, the SEC chose not to cite it in its brief, although an amicus brief did.⁶⁰

The current procedure governing the evidentiary basis for rulemaking may be intuitive for students of constitutional due process. Nevertheless, it need not be accepted as the only *conceivable* mechanism for rulemaking in theory. Consider a regime under which an agency may adopt any rule it desires, with the caveat that if the rule does not deliver a promised result in a specified time period, it must be repealed upon review. This would be an *ex post* review regime: an implemented rule, if petitioned for review, may persist only if the court finds the agency's *ex post* retrospective CBA to be reasonable.

If society cared only about desirable economic outcomes, such a regime may potentially be superior to the current one. First, given that judicial review often takes as long as a year, the marginal difference in

57. 443 F.3d 890 (2006).

58. This case also discusses the extent to which the court will entertain *ex post* evidence. *See id.* at 899–904.

59. *See* Kraus & Raso, *supra* note 9 (citing Bo Becker et al., *Does Shareholder Proxy Access Improve Firm Value? Evidence from the Business Roundtable Challenge* (Harv. Bus. Sch., Working Paper No. 11-052, 2012), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1695666).

60. *See id.* at note 154 (“An amicus brief in the original *Business Roundtable* case cited this study to the court, but it was not mentioned in the opinion.”).

implementation costs between the two regimes may not be significant. Second, when properly conducted, *ex post* retrospective CBAs are far more accurate than *ex ante* speculative CBAs. Since there is hard data from compliance experience, false information is easier to detect. The effects of a rule can be evaluated not just by interested parties but also by neutral academics publishing on peer-reviewed journals. This is a missed opportunity under an *ex ante* review regime. Third, even if the *ex ante* burden for adopting a rule is reduced, it is unlikely that agencies would be inclined to abuse this process. With its reputation at stake, an agency has little interest in adopting a rule only to have it repealed. Doing so will lead to the agency being criticized for wasting society's valuable resources. Given the immense importance to government regulators of their public image and perception,⁶¹ an *ex post* regime could indeed be superior in achieving desirable economic outcomes.

There are, of course, any number of reasons why we as society should not be concerned only with economic outcomes. These include our preference for inherent fairness of the rulemaking procedural mechanism and workings of the government as well as our respect for the virtues of deliberative democracy.⁶² But to say that society should not be concerned only about outcomes is not the same as saying that a rule review should necessarily exclude *ex post* findings. There may be a proper middle ground the law has yet to recognize. However that may be, it stands to reason that if an approach to rulemaking can allow for a systematic incorporation of *ex post* learning without violating the principles of due process, it should be given serious consideration.

D. Rule Adoption: Absolute Versus Contingent

If agencies are not particularly motivated to conduct retrospective analyses, and if courts are not inclined to entertain *ex post* evidence, is it then possible for agencies to adopt a rule *contingently*, whereby its substance or coverage is to be determined subject to *ex post* learning? Nothing in the APA prohibits this manner of adoption,⁶³ although agencies may not prefer

61. See J.R. DeShazo & Jody Freeman, *The Congressional Competition to Control Delegated Power*, 81 TEX. L. REV. 1443, 1454 (2003) (“[A]gency officials are rational actors, who may seek to expand their authority, enlarge their budgets, ensure their survival, improve their future employment prospects, or otherwise pursue interests that may not coincide with those of Congress.”); see also Brian Wingfield, *Watchdog Says U.S. Nuclear Regulator Needs Image Polishing*, BLOOMBERG, Apr. 1, 2013, <http://www.bloomberg.com/news/2013-04-01/watchdog-says-u-s-nuclear-regulator-needs-public-image-polished.html>.

62. In fact, some scholars view cost benefit analysis, traditionally thought to promote efficiency, as serving an important function of furthering good governance and deliberative democracy. See, e.g., Paul Rose & Christopher J. Walker, *Dodd-Frank, Cost-Benefit Analysis, and Agency Capture*, 66 STAN. L. REV. ONLINE 9 (2013).

63. The actual statutory language governing agency rulemaking is remarkably succinct.

it.

For the purposes of this discussion, I will call rule adoption “absolute” if a rule is intended to apply without any specific regard to possible future states. Likewise, I will call rule adoption “contingent” if the rule elements can change depending on the future state. An example of a contingent rule adoption is the Department of Transportation’s 1984 regulation that required automobile manufacturers to install either airbags or automatic seat belts by 1989.⁶⁴ The regulation, however, provided that it would not go into effect if two-thirds of the nation’s population were covered by state laws requiring the use of manual seat belts before April 1, 1989, and if those laws met the minimum criteria set out in the regulation. In other words, the rule was to go *into* effect unless a certain specified state was realized. Similarly, one could easily imagine a rule that is to *remain* in effect unless a certain specified state were to be realized. Contingent adoption thus provides the agency with a relatively straightforward way of incorporating *ex post* learning into rule implementation. Not surprisingly, however, the vast majority of agency rules get adopted absolutely. The Department of Transportation’s regulation was a rare exception—largely a result of political compromises.⁶⁵

Why do agencies typically prefer absolute adoptions over contingent adoptions? Absolute adoption offers a number of attractive features. It provides greater certainty to the industry. From the agency’s perspective, if the agency can survive rule challenges it will have peace of mind in that it need not revisit the issue through future rulemaking. Technically, however, there are—or at least should be—trade-offs between absolute adoption and contingent adoption. If CBA is properly conducted, absolute adoption, all else equal, should require a greater burden of justification than a carefully structured contingent adoption. This is because under absolute adoption, the rule’s substance is expected to remain constant across all possible future states. The average of the expected net benefit across all states, including worst-case scenarios, must be greater than zero. This means, the burden of justifying an absolute rule under the APA will be all the greater when the agency’s and the commenters’ ability to predict the state of equilibrium is

See, e.g., Administrative Procedure Act, 5 U.S.C. § 553 (2012).

64. For more background on this regulation, see SIDNEY A. SHAPIRO & JOSEPH P. TOMAIN, *REGULATORY LAW AND POLICY: CASES AND MATERIALS* 29–33 (3d. ed. 2003); *see also* STEPHEN G. BREYER ET AL., *ADMINISTRATIVE LAW AND REGULATORY POLICY: PROBLEMS, TEXT, AND CASES* 407–12 (2011). An earlier version of this regulation was reviewed under the now-famous case *Motor Vehicle Mfrs. Assoc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29 (1983). For the Department of Transportation’s regulatory impact analysis, see U.S. DEP’T OF TRANSP., *FINAL REGULATORY IMPACT ANALYSIS: AMENDMENT TO FEDERAL MOTOR VEHICLE SAFETY STANDARD 208 PASSENGER CAR FRONT SEAT OCCUPANT PROTECTION*, (July 11, 1984), <http://www-nrd.nhtsa.dot.gov/Pubs/806572.pdf>.

65. *See Final Regulatory Impact Analysis*, *supra* note 64.

limited and commenters express concerns about unlikely worst-case scenarios while at the same time neglecting the probability of such occurrence.⁶⁶ In such instances, a contingent adoption, explicitly incorporating *ex post* learning, may be an attractive option. The CBA of a contingent rule would be a dynamic analysis, taking into account different future states together with the agency's commitment to alter the substance of the rule accordingly.

In the example with the Department of Transportation regulation above, the marginal benefit of the rule would have depended on how many drivers were already wearing seatbelts routinely.⁶⁷ If states adopted effective mandatory seatbelt laws, the benefit could have been relatively small, and the Department's mandatory automobile specification would have been wasteful. By employing a contingent adoption, the Department structured a comparatively more efficient rule. Structuring an efficient rule was not the primary driver for this regulation.⁶⁸ Nevertheless, with this contingent adoption, even those opposing the federal mandatory seatbelt laws had to concede that the regulation was rendered all the more reasonable as a result of contingent adoption.

E. Rule Specification: Ex Ante Versus Ex Post

While contingent adoptions are not widely practiced by agencies, there is one relatively common way agencies currently facilitate *ex post* learning in rulemaking. This is by means of *ex post* rule specification—that is, by adopting a *standard* rather than a *rule*.⁶⁹ Rule specification is the act of providing content to the substance or coverage of a rule. This can be done as a *rule* or as a *standard*: a *rule* is specified *ex ante*, while a *standard* is specified *ex post*. If the law mandates drivers not to exceed sixty miles per hour, this is a *rule*; if it simply requires drivers to drive at a reasonable speed by taking into consideration all relevant risk factors, this is a *standard*.

In general, a *rule* provides a greater degree of precision and thus reduces chilling effects and the cost of learning and enforcement.⁷⁰ Meanwhile,

66. See, e.g., Cass R. Sunstein, *Probability Neglect: Emotions, Worst Cases, and Law*, 112 YALE L.J. 61, 63 (2002) (arguing that both public-spirited political actors and self-interested ones “can exploit probability neglect so as to promote attention to problems that may or may not deserve public concern”).

67. See *Final Regulatory Impact Analysis*, *supra* note 64.

68. For more on this, see BREYER ET AL (2011), *supra* note 64, at 407–12.

69. I track Professor Louis Kaplow's definition of *rules* versus *standards*. See Louis Kaplow, *Rules Versus Standards: An Economic Analysis*, 42 DUKE L.J. 557 (1992). When referencing these specific concepts, I am italicizing the words “rule” and “standard.” A romanized “rule” refers to a general administrative rule. See *id.* for a detailed discussion of *rules* versus *standards*. See also Isaac Ehrlich & Richard A. Posner, *An Economic Analysis of Legal Rulemaking*, 3 J. LEG. STUD. 257 (1974).

70. See Ehrlich & Posner, *supra* note 69, at 272.

there are instances where the cost of ascertaining or formulating a well-defined rule may be prohibitive. This is true, for example, where there is a divergence between the behavior that can be articulated in words and the behavior that can be learned through practice and norms. In such a case, a *standard* may be preferred because a *standard* allows the law to incorporate *ex post* learning. *Rules* and *standards* thus complement each other in addressing different categories of behavior to be regulated. Among administrative rules, there is a mix of both *rules* and *standards*. For example, the SEC's rule requiring individuals who acquire five percent or more of the voting stock to notify the Commission is a *rule*.⁷¹ The SEC rule requiring issuers to disclose entry into a *material* definitive agreement⁷² is a *standard* because materiality is usually determinable only *ex post*.

One area that could merit further experimentation, however, is *ex post* specification of a rule's coverage. This would be the case if the agency were to specify the substance up front but leave the precise coverage to be determined at a later date or to be determined by some other institution, such as the market. For example, an administrative rule is rarely structured as follows: *Comply with Rule x unless it is unreasonable for you to do so; or comply with Rule x or a reasonable alternative*. This may be due to the cost of learning and enforcement. How is a regulated entity to figure out whether compliance is unreasonable or not? Even when compliance is unreasonable, can a regulated entity credibly demonstrate that it does not have to comply? What kind of burden can an agency in turn be expected to bear in proving whether an entity should have reasonably complied with the rule?

But this line of reasoning may explain too much. For one thing, such a burden already exists, to some extent, in any rule structured as a *standard*. If ease of learning and enforcement were the sole criteria of a good administrative rule, we should never observe any type of *ex post* specification. This is not the place to engage in an extended analysis of comparative benefits and costs of *ex post* specification of coverage. Instead, I merely highlight one strategic dimension of *ex post* specification of coverage: by promoting alternative options to full compliance, *ex post* specification of coverage provides a way for the agency to ensure that compliance costs will not be unreasonable.

Suppose Rule *x* is highly controversial, but the agency is confident that,

71. See 17 C.F.R. § 240.13d-1 (2012).

72. See U.S. SEC. & EXCH. COMM'N, FINAL RULE: ADDITIONAL FORM 8-K DISCLOSURE REQUIREMENTS AND ACCELERATION OF FILING DATE [RELEASE NOS. 33-8400; 34-49424; FILE NO. S7-22-02], (2004), <http://www.sec.gov/rules/final/33-8400.htm>P150_16006. Form 8-K arises out of § 13 of the Securities Exchange Act of 1934. See 15 U.S.C. § 78m (2012). In 2004, the SEC revised Form 8-K to include the requirement that issuer's disclose to the SEC when they enter into a *material* definitive agreement.

for a majority of entities, their compliance will be socially net beneficial. If the agency were to specify the rule as “*Comply with Rule x or a reasonable alternative*,” this specification is unlikely to impose high cost burdens on the complying entities because they have the option to comply with a “reasonable alternative.” If such rule specification is enforceable at a low cost and there is a common understanding of the “reasonable alternative”—such as scenarios I consider in Section III.C—the agency may have a far easier time meeting the burden of justifying this rule structure, as compared to imposing the controversial Rule *x* in toto.

If *Business Roundtable* has indeed elevated regulatory agencies’ burden of justifying rules, agencies need to consider not only whether a given rule will be efficient for society but also whether it can justify the rule’s efficiency on the record. After all, the rule must be capable of surviving judicial scrutiny in order to have any beneficial impact. Experimenting with *ex post* specification of a rule’s coverage may provide an alternate avenue in which an agency can strategically reduce the rule’s compliance cost by facilitating incorporation of *ex post* learning.

F. Conclusion

This Part began with the general assumption that agencies draft rules under conditions of substantial factual uncertainty, mixed empirical findings, and untested claims that are not always credible. Indeed, it is seldom possible for agencies to accurately predict a given rule’s costs and benefits, or otherwise craft rules so as to maximize net benefits. In an ideal world, agencies would conduct rigorous *ex post* evaluations of many significant rules and rescind or otherwise modify those that prove to be inefficient. In practice, agencies rarely have enough resources to devote to meaningful *ex post* reviews, and the existing institutions and features of administrative law do not sufficiently motivate such rigorous reviews.

On the other hand, agencies currently devote significant resources to conducting *ex ante* reviews, and almost certainly more so after *Business Roundtable*. Unfortunately, the value of such *ex ante* reviews will be small if there is insufficient empirical evidence and a great deal of disagreement exists about the rule’s likely effect. For rules for which commenters perpetually speculate about unintended consequences, the marginal benefit of the additional effort to improve their *ex ante* review may indeed be very low. For these rules, there may instead be great returns to increasing the effort of incorporating *ex post* learning through monitoring and efficient modification.

Therefore, agencies may not be properly balancing their scarce resources between *ex ante* reviews and *ex post* reviews. As a result, there is considerable scope for shifting some of the burden associated with *ex ante*

evaluation, specification, and justification to *ex post* evaluation, specification, and justification. If the agency can commit to doing so, courts should likewise recognize benefits of incorporating *ex post* learning into the rule. The next Part discusses how an options approach can facilitate this incorporation.

II. AN OPTIONS APPROACH TO AGENCY RULEMAKING

A. *Options as a Way of “Agreeing to Disagree”*

Let us return to Problem X. What problems does the agency face in adopting the rule? The agency cannot tell whether rule opponents are sincere or strategic. The opponents may be opposing because the rule is inefficient for society as a whole, or because the rule is merely inconvenient for them. Further, the agency also cannot tell whether the rule will be inefficient as opponents suggest or efficient as it believes. Opponents may be predicting inefficiencies accurately, but the agency may have its own reasons to be skeptical—perhaps reasons it cannot easily share with or disclose to the public.

At this point, what paths are open for the agency? First, the agency can always compromise the rule’s substance to appease the opposition. Of course, this may not be in the interest of society: it would mean a far less effective regulation, with most of the market failure still persisting. The agency can also wait another year or two and gather more evidence through prolonged experimentation and empirical testing to build a stronger case. But the cost of waiting could be quite high. After all, the greatest demand for controversial regulation usually exists after a crisis when the agency is acting under a great time pressure.

How else can the agency proceed? The agency cannot simply promulgate the rule based on the record without risking a court loss. Neither can it disagree with commenters without facing repercussion. First, the agency may prove to be wrong and opposing commenters right after all. More importantly, after *Business Roundtable*, the agency will likely have a difficult time disagreeing with commenters unless (1) it has specific data or estimates on point (it rarely does) or (2) the results of related published studies consistently point to the rule’s efficacy (they rarely do). As it so happens, where either condition is satisfied, the rule is unlikely to cause any controversy from the outset.

Can the parties then “agree to disagree”? This may be possible if the agency resorts to employing “options.” In finance, an “option” is a type of exercisable right in the future: it is a contract which gives the owner the right, but not the obligation, to buy (“call”) or sell (“put”) a certain asset at a

certain price.⁷³ Because this contract confers a degree of freedom with which to secure or dispose of an asset in the future, it is valuable. The concept of a “call option” may be particularly useful to rulemaking. The following stylized anecdotes are intended to convey this idea loosely.

First, let us begin by observing that regulation itself is a costly investment for society. The cost is the resources society must use up in complying; the return is the net social benefit, probabilistically realized. Now imagine a hypothetical negotiation between *G* (government) and *S* (society), both of whom are ostensibly interested in maximizing *S*'s welfare. Ultimately, *S* bears most of the cost and also reaps most of the benefit. *G* does not have all the information to predict the value of the investment. *G* is optimistic about its value, and wants to convince *S* to undertake this opportunity. *S* is skeptical and concerned about the downside risk. In this case, if *G* can never disagree with *S*, a potentially beneficial investment opportunity is foregone; if *S* can never disagree with *G*, then *S* may be forced to bear an unnecessary cost each time.

But the world of finance and risk is all about how parties can proceed while disagreeing. One way to proceed is for *G* to signal the investment's expected high value by granting *S* a contingent right: *G* assures that if and only if the investment turns out to be net costly, *S* has the right to rescind and recover a substantial fraction of his cost (hence a call option); or alternatively, *G* can purchase *S* an insurance scheme whereby *S* can minimize its loss in case the value of investment turns negative. At this point, although *S* may still disagree with *G* (and may in fact still lose money), one thing is for certain: *S* has much less reason to vigorously oppose the opportunity. *G* can therefore disagree with *S* without being able to prove *S* wrong. From *S*'s perspective, *G*'s offer of option significantly raised *S*'s *ex ante* value of going forward with the investment; from *G*'s perspective, it should have little qualm since it is confident about the investment.

Second, consider another form of a call option—this time as a costly alternative that provides an “out” for the investor. In this anecdote, suppose *G* wants to compel *B*, a subgroup of *S*, to take up an investment project that is beneficial for *S* overall but costly for subgroup *B*. It may be that the cost to *B* is sufficiently small, while the benefit to *S* is quite large, but there is no easy way to transfer *S*'s benefit to *B ex post*. But it is also possible that the cost to *B* is in fact quite large and the investment project is not worth undertaking, even from *S*'s perspective. In either case, *B* alone possesses critical information regarding the cost, and *B* wants to oppose the investment. This is a classic hold-up problem.

73. For an excellent background on the use of options in common law, see IAN AYRES, *OPTIONAL LAW: THE STRUCTURE OF LEGAL ENTITLEMENTS* (2005).

Suppose *B* argues the investment will cost \$200, but *G* has reasons to believe the cost will be well under \$100. One way *G* can choose to disagree with *B* is by giving *B* an alternate option to undertake an investment of known cost, say, \$100. If *B* is correct, then it makes sense for both *B* and *S* to have *B* undertake this alternative investment; however, if *G* is correct, at the end of the dispute, *B* will in fact prefer to undertake the original investment project. Here again, since *B* is given the option of taking up *G*'s offer of an alternative investment, *B* must concede at a minimum that its position is better than without such an "out."

An options approach, executing one or more of these basic ideas, can be useful in rulemaking for several reasons. First, because the agency is limited in its ability to determine a rule's outcome—which may have a high variance—options can allow society to avoid the occurrence or persistence of adverse consequences. Second, if the agency is handicapped in defending a rule even though it believes the outcome will be efficient, society foregoes the value of learning if the agency cannot implement the rule. Options can provide a mechanism to address this problem. Third, options facilitate a more sincere dialogue between the agency and the opposing commenters: in effect, options allow each side to call the other side's "bluff." Fourth, options provide an additional bargaining chip for both parties without pre-compromising on the substance or coverage of the rule. Under the current regime, an agency may be compelled to modify the proposed rule in response to issues raised by commenters or as a way of catering to interest groups. If an interest group were to challenge the rule, the agency is in a better position to respond that it seriously considered the interest group's comment and rationally exercised its discretion to address the concern. But in pre-compromising, society never gets to learn from the true intended effect of the rule. Options thus facilitate another way for interest groups and rulemaking agencies to negotiate. As such, options can be ostensibly beneficial for both parties—that is, *if both parties are indeed sincere in their communications*.

The remainder of this Part discusses particular ways and scenarios in which an agency can effectively employ options in rulemaking. Specifically, the two approaches discussed below allow the agency to build into the benefits two option values not customarily included in current CBAs: the value of a contingent *ex post* repeal and the value of conditional *ex post* exemptions. These two approaches are not mutually exclusive. Both were in fact available for the SEC's failed proxy access rule. Moreover, there are reasons to believe that the SEC could have plausibly succeeded in defending its rule had it taken either of the two approaches.⁷⁴

74. See *infra* Subsections II.B.2 and II.C.2.

B. *The Value of a Contingent Ex Post Repeal: A Real-Options Approach*

1. *Motivation*

There is a common misunderstanding about challenges agencies face in conducting an accurate CBA. The popular discourse often depicts the principal challenge as one of quantifying non-monetary effects or goods—such as the value of a human life—or as one of aggregating utilities across individuals. To be sure, these are tall orders for policymakers and there is no single framework espoused by all parties.⁷⁵ But in practice, the principal challenge is unfortunately even more primitive: it is determining what will actually happen. In other words, how will the future unfold once the rule is implemented?⁷⁶ Without a reasonable answer to this question, no accounting of costs or benefits can even begin.

In reality, rule implementation often comes with unintended consequences, many of which cannot be predicted in advance. In the rare case of complete uncertainty, of course, very little can be done since it is not even clear whether taking any action is in any way superior to taking no action.⁷⁷ And events that are not on *anybody's* radar will obviously not affect the rulemaking process.⁷⁸ More commonly, however, rules come with consequences that can reasonably be anticipated, except there is a sharp dispute as to the likelihood of such consequences. These situations may be analogized to games with multiple equilibria in microeconomics. Multiple equilibria are especially likely where a rule's efficacy depends on individuals' and entities' collective reactions to new opportunities, costs, or information.

Consider the following questions:

75. For a thorough treatment on this controversial topic, see FRANK ACKERMAN & LISA HEINZERLING, *PRICELESS: ON KNOWING THE PRICE OF EVERYTHING AND THE VALUE OF NOTHING* (2005).

76. Some scholars consider the fragility of cost-benefit analysis to be so severe that they recommend a reorientation of agency rulemaking in which the agency's regulatory impact analysis would be a normative, discursive, and problem-oriented analysis rather than a balancing of costs and benefits. See Sidney A. Shapiro & Christopher H. Schroeder, *Beyond Cost-Benefit Analysis: A Pragmatic Reorientation*, 32 HARV. ENV. L. REV. 433 (2008).

77. See Vermeule, *supra* note 41 (discussing how it may be rational to be arbitrary in the presence of very little certainty).

78. See, e.g., *supra* note 37 and accompanying text (discussing how nobody had anticipated the emergence of the hub-and-spoke system prior to airline deregulation).

If the compensation levels of company executives are fully disclosed, will shareholders react by reducing or increasing their executives' compensation levels?⁷⁹ Will there be a race to the top or a race to the bottom?

If a federal agency were to institute a whistleblower program with financial incentives to supplement its enforcement effort, will employees who witness violations bypass their internal compliance programs and report directly to the agency, or will they first exhaust all available options?⁸⁰

If shareholders are granted access to proxy ballots, will they abuse their ballot rights to promote their narrow interests, or will they nominate candidates who will be responsive to the concerns of investors overall?

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.⁸¹ A rule may prove to be highly effective because citizens behave responsibly and cooperatively, or highly ineffective because citizens deviate and strategically avoid compliance.⁸² Perceptions as well as how opportunities are presented can also be relevant.⁸³ Innovations and new technologies may radically

79. See STEPHEN J. CHOI & A.C. PRITCHARD, *SECURITIES REGULATION: CASES AND ANALYSIS* 169 (3d ed. 2012) (describing how the SEC's disclosure requirement, promulgated to address the concerns over "excessive" salaries in the early 1990s, was actually followed by an upward spiral in executive compensation).

80. See 17 C.F.R. § 240.21F (2006) (detailing the Securities Whistleblower Incentives and Protection rule established by the SEC pursuant to Dodd-Frank); see also U.S. Chamber of Commerce, Letter from the U.S. Chamber of Commerce Center for Capital Markets Competitiveness and U.S. Chamber Institute for Legal Reform to Elizabeth Murphy, Sec'y U.S. SEC, Re: Additional Comments in Support of Proposed Protections for the Attorney-Client Relationship and Privileged Communications, File Number S7-33-10, Proposed Rules for Implementing the Whistleblower Provisions of Section 21F of the Securities Exchange Act of 1934, Release No. 34-63237, (Nov. 3, 2010), (May 23, 2011), <http://www.sec.gov/comments/s7-33-10/s73310-316.pdf> (voicing concerns that the SEC's proposed whistleblower rules could create a perverse financial incentive for those with the job of identifying and investigating wrongful conduct, referring to those in legal and compliance roles).

81. See generally ROBERT C. ELLICKSON, *ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES* (1994) (examining how neighbors settle disputes in Shasta County and discussing the role of norms and cooperation in social enforcement of law). See also Cass R. Sunstein, *Empirically Informed Regulation*, 78 U. CHI. L. REV. 1349, 1356 (2011) ("In multiple domains, individual behavior is influenced by the perceived behavior of other people.").

82. Sunstein, *supra* note 81, at 1357 ("In part because of social influences, people are more likely to cooperate with one another, and to contribute to the solution of collective action problems, than standard economic theory predicts.").

83. See Amos Tversky & Daniel Kahneman, *The Framing of Decisions and the Psychology of Choice*, 211 SCI. 453 (1981) (discussing how the effect of frames on individuals' choices challenges the assumption of human rationality).

alter the cost-benefit calculus.⁸⁴

The inconvenient truth is, for many critical issues, both the agency and the public lack sufficient insight to determine the effects of regulation with any certainty. Yet there is no need to insist that the future must be completely determinable for policymakers to move forward. In many instances, a decision to undertake an investment leaves open various other choices that can be decided at a future date. To the extent that these future decisions, if made with sound judgment, can further improve the world, these potential benefits should play *some* role in the initial decisionmaking problem.

A real-options approach⁸⁵ to agency rulemaking would specifically prescribe a future modification of the rule (as applied either to the industry as a whole or to a particular subgroup). This approach is best suited for rules that are *ex post* modifiable (at a reasonable cost) and for which the main source of uncertainty arises from the problem of multiple future states of the world. This approach can be implemented using an automatic sunset provision (e.g., after a specified number of years and for a specified group of entities) or a conditional sunset provision (in which regulated parties bear a pre-specified level of burden of justifying why the rule should indeed sunset), with a commitment to efficient modification. After a rule has been in force for a period, the agency or academic scholars can collect data about the effect of the rule and can better measure its costs and benefits. If such *ex post* evaluation suggests that the rule is, on balance, detrimental—either as a whole or for a specific group of entities—the agency would rescind the rule or modify it as appropriate. In turn, by considering the economic value of this commitment, the agency can legitimately report an increase in the net expected value of *going forward* with the rule, rather than adopting it permanently. For close calls, this approach can tip the scale in favor of the agency.

The suggested 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. What types of rules are reversible? A full taxonomy of reversible and irreversible characteristics of a rule is not possible, but we can consider a few illustrative examples. On one end of

84. See e.g., *FTC Seeks Comment on Children's Online Privacy Protections; Questions Whether Changes to Technology Warrant Changes to Agency Rule*, FED. TRADE COMM'N (Mar. 24, 2010), <http://www.ftc.gov/opa/2010/03/coppa.shtm> (reevaluating the Federal Trade Commission's Children's Online Privacy Protection Act as a result of children's increasing use of mobile phones to access the internet).

85. The term comes from "real-options" valuation of a project, which includes the value of undertaking a project while taking into consideration the economic value of future investment choices that remain available.

the spectrum, a rule that bans federal employees from texting while driving seems easily reversible.⁸⁶ Once the rule is lifted and all federal employees are properly informed, they would be free to return to their preferred texting habit. Most likely, the economy will arrive at the status quo prior to the rule. On the other end, a rule that calls for, say, demolishing the Cathedral of Notre Dame and converting the space into a parking lot is not reversible in any meaningful sense.⁸⁷ In addition to the enormous cost of rebuilding, the authenticity of the artwork is forever destroyed. But this type of rule is largely irrelevant for this Essay, which focuses on government regulation that intends to improve the efficiency of the economy.

Incidentally, SEC's proxy access rule would have been a fully reversible rule. At a later date, the SEC can always stop mandating firms to include shareholder candidates in the proxy ballots. Thus, the SEC could have adopted it for a proxy season or two, and see whether commenters' speculative concerns regarding a potential systematic abuse by "shareholders with narrow interests" were justified. Given the heated disputes about how shareholders might or might not use this mechanism, the proxy access rule presented a genuine opportunity for a real-options approach to rulemaking.

2. *The Setup*

The following example illustrates the concept of dynamic benefit arising from the real-options approach to rule adoption:

Period 0: Agency decides whether to adopt Rule x or Rule y . The current state of the world is State S .

Period 1: If Rule x is adopted, there is a fifty percent chance that State A is realized, and a fifty percent chance that State B is realized. If State A is realized, society derives a benefit of 900 each year. If State B is realized, society incurs a net cost of 1000 each year. If Rule y is adopted, the net benefit to society is 100 in both states.

Period 2: If the agency adopted Rule x in Period 0, and if State B is realized, Rule x is repealed. Starting Period 2, there are neither costs nor benefits associated with Rule x , but the agency adopts Rule y .

Under the static framework, the relevant inquiry is: *Which of the two rules provides a higher net expected value if adopted permanently?* Here, the answer is Rule y . If the yearly discount rate is five percent, for example, adopting Rule y in perpetuity produces an expected net benefit of

$$100/(1.05) + 100/(1.05)^2 + 100/(1.05)^3 \dots = 2000.$$

Meanwhile, the expected benefit in going forward with Rule x in

86. See Exec. Order 13,513, 74 Fed. Reg. 51,225 (Oct. 6, 2009).

87. See Claude Henry, *Investment Decisions Under Uncertainty: The "Irreversibility Effect"*, 64 AM. ECON. REV. 1006, 1006 (1975).

perpetuity is

$$\frac{1}{2}(900/(1.05) + 900/(1.05)^2 + 900/(1.05)^3 \dots) + \frac{1}{2}((-1000)/(1.05) + (-1000)/(1.05)^2 + (-1000)/(1.05)^3 \dots) = -1000 < 0.$$

In fact, even the “no rule” alternative is better than Rule *x*.

Under the dynamic framework, however, the relevant inquiry is: *Which rule is a better candidate to move forward with?* Here, the answer is Rule *x*. Given Period 2, the net expected benefit is:

$$\frac{1}{2}(900/(1.05) + 900/(1.05)^2 + 900/(1.05)^3 \dots) + \frac{1}{2}((-1000)/(1.05) + 100/(1.05)^2 + 100/(1.05)^3 \dots) = 8610 > 2000 > 0.$$

The second parenthesis captures the value of incurring a cost of 1000 in Period 1 (the bad equilibrium) followed by a switch to Rule *y*, which will yield 100 beginning Period 2 and onward. The net expected benefit of going forward with Rule *x* is not only positive, but also larger than that of Rule *y*. Thus, Rule *x* may not be statically efficient, as a one-shot decision, but is still dynamically efficient.⁸⁸ Under the static efficiency criterion, the agency would not survive a judicial review if it were to adopt Rule *x* in perpetuity because it is not justified by CBA; but the agency *should* survive a judicial review if it were to adopt Rule *x* with the contingent specification of revising it to Rule *y* in Period 2, because the CBA would have to take into consideration this dynamic efficiency.⁸⁹ Therefore, the agency’s burden of justifying “moving forward with Rule *x* and modifying as necessary” is much smaller than its burden of justifying “adopting Rule *x* regardless of what happens.”

This dynamic net benefit is justifiable in CBA only insofar as the agency truly commits to repealing Rule *x*. In this sense, regulated entities are being given a “call option” because they have a right, but not an obligation,⁹⁰ to

88. The above case is an example of a rule that is dynamically efficient but not statically efficient. On the other hand, if a rule is statically efficient (in expectation), it is *necessarily* dynamically efficient. This is because the possibility of a future mitigating option in an adverse equilibrium can only increase the net present expected value of the rule.

89. One can also ask accordingly whether the net present value of the expected benefit of *not* adopting Rule *x* should not include the optional value of taking Rule *x* in Period 1 (assuming it is still an available option). Alternatively, the cost of not taking Rule *x* in Period 0 must be discounted by the “benefit” of waiting—i.e., the option of taking Rule *x* in the later period. This is a correct observation. Fortunately, however, this does not complicate the analysis because it turns out the comparison between adopting Rule *x* versus doing nothing is analytically equivalent—up to a constant factor—to a comparison between adopting Rule *x* versus adopting Rule *x* in the later period. Put differently: adopting Rule *x* in Period 0 dominates not adopting Rule *x* if and only if adopting Rule *x* in Period 0 dominates adopting Rule *x* in Period 1. This can be proved as follows. Suppose the value of adopting Rule *x* in Period 0 is *V*. Then adopting Rule *x* in Period 1 is $W = V/(1+d)$ where *d* is the discount rate. Notice that $V > 0$ if and only if $V > W$. Therefore, one need only inquire whether $V > 0$, without separately analyzing whether $V > W$.

90. They are not obligated to exercise this right, however. If they are the principal opponents of the rule, it would be also relatively costless for them to demand continued implementation of the rule.

demand a repeal of Rule *x* at a low cost if State *B* were to occur. The net present value of the expected benefit of adopting Rule *x* in Period 0 can thus include the optional value of taking further courses of actions in Period 1 in ways that are optimal, subject to the realized state in Period 1.⁹¹

The above example, however, has one design flaw: it makes little sense for either party to commit in Period 1 to adopting Rule *y* in Period 2, even if State *B* were to materialize. This is because State *B* may bring about *ex post* learning that reveals not only that Rule *x* is inefficient but also that Rule *y* is inefficient. Therefore, a commitment to adopt Rule *y* will often bring no *additional* expected benefit to Period 1 beyond the simple repeal and reconsideration of Rule *x*. For this reason, probably the only sensible approach is to commit to “sunset Rule *x* and reconsider,” without committing to adopting any particular rule alternative at a future date.

Consider now various specifications of adopting Rule *x*.

Specification A. Absolute Rule. Entities must comply with Rule *x* (indefinitely).

Specification B. Automatic Sunset. Entities must comply with Rule *x* for three years. The agency commits to review the rule in three years, and will then bear the burden of justifying that the rule is efficient before it can continue enforcement.

Specification C. Conditional Sunset. Entities must comply with Rule *x* for at least three years. Any time after three years, upon an external production of evidence of the rule’s inefficiency (including, for example, at least two unsponsored studies published in peer-reviewed journals), the agency bears the burden of justifying that the rule is efficient before it can continue enforcement.

Specification A is the typical approach to rule adoption, at least *in form*. The benefit to the agency of Specification A is that once the agency succeeds in adopting Rule *x* under it, the agency likely need not further justify it later. Of course, this is precisely the danger as well. The difference between Specifications B and C is that it is more costly for entities to initiate a new review under Specification C. Even so, the agency’s burden of justifying Specification C should be smaller than its burden of justifying Specification A because the agency explicitly acknowledges the possibility of *ex post* revision. Because Specification C could also invite interest groups trying to manipulate the evidence, it is best to require objective evidence, such as unsponsored studies published in reputable journals.

Specification C may be a stumbling block to many readers. At first, it might appear as if the agency is deferring its own duty (of *ex post* evaluation of the rule’s effect) to the general public. This is not the case at all. The

91. Listokin makes a similar observation in his essay. See Listokin, *supra* note 22, at 492–95. In fact, he uses this argument to support proxy access rules. See *id.* at 505–12.

argument here is not that the agency can, through a clever rule specification, sidestep its duty of justifying a rule altogether. Rather, the argument states only that *if* the agency were to employ Specification C, the appropriate level of burden of justification *should* be somewhere between that of Specification A and that of Specification B. Likewise, the appropriate level of review should also be somewhere between a permanent rule (high) and an automatic sunset rule (low).

If the agency is confident that Rule *x* will prove to be efficient, then from the agency's own perspective there should be no practical difference between Specification A and Specification C. Yet the agency should face a lower burden of proof at adoption because the agency only needs to justify Rule *x* as dynamically efficient, not statically efficient. On the other hand, if evidence based on real compliance experience demonstrates that Rule *x* is inefficient, it would make sense for the agency to reassess the rule before justifying further enforcement. If the agency is committed to an efficient outcome, it should have little reservation about Specification C. In addition, if Executive Order 13,563 is implemented rigorously, Specification A and Specification C may become essentially equivalent. In this sense, by framing its adoption of Rule *x* as under Specification A, the agency is arguably accepting a greater burden of justification than it does under the more realistic scenario of Specification C. Put differently, the agency's conventional approach of conducting a static CBA will tend to *understate* the net expected benefit of trying Rule *x*.

Economists noted long ago that "the expected benefits of an irreversible decision should be adjusted to reflect the loss of options it entails."⁹² It has thus become a maxim in the business decisions literature that where an investment is irreversible and uncertain, there is a benefit to waiting.⁹³ Perhaps the best defense of *Business Roundtable* may be that given a lack of meaningful *ex post* reviews, agency rules are adopted in practice *as if* they are irreversible. But conversely, the implication is that the *expected cost* of a *reversible* decision should be adjusted to reflect the preservation of options it entails.

Can this proposal be implemented by agencies? In some sense, this proposal is only a slight modification from how agencies currently operate. First, sunset provisions by themselves are quite common, especially among tax rules.⁹⁴ Second, there are instances of rules that have subsequently

92. See Kenneth J. Arrow & Anthony C. Fisher, *Environmental Preservation, Uncertainty, and Irreversibility*, 88 Q. J. ECON. 312, 319 (1974).

93. See, e.g., McDonald & Siegel, *supra* note 23.

94. For example, one of the reasons for the so called "Fiscal Cliff" at end of 2012 was the scheduled expiration of many tax provisions, such as the 2001 and 2003 Bush tax cuts, the expansion of the Earned Income Tax Credit and the creation of the American Opportunity Tax Credit established in the 2009 economic stimulus package, the Payroll tax

been repealed after they have proved to be inefficient. Indeed, any instance of welfare-enhancing deregulation could be seen as such an example. Third, history has already shown an instance of a *contingent* adoption of a rule, as discussed in Part I.D. Fourth, agencies from time to time conduct pilot studies to try a “beta” version of a reversible rule on a small subset of entities.⁹⁵ Because such pilot programs are implemented only temporarily and are intended primarily for information gathering purposes, the agency’s burden of initiating such programs—usually done through seeking an approval from the Office of Management and Budget under the Paperwork Reduction Act⁹⁶—is much smaller than the burden of justifying a permanent rule under the APA. The real-options approach thus presents an expedient middle ground between a pilot program of limited scope and a full-scale rule adopted permanently. It thus makes sense that the agency’s burden should likewise be somewhere in between.

3. *Suitability Analysis*

If the foregoing analysis is correct, the next logical question is: When should a rule be justified because it comes with a committed *ex post* review? To be sure, it cannot be the case that *all* reversible rules should be approved for adoption just because the agency commits to sunset. On the other hand, where a sunset provision (automatic or conditional) is included,

holiday passed in December 2010, the Alternative Minimum Tax patch, and a package of business tax extenders that are renewed annually. See David A. Fahrenthold, *In Congress, Sunset Clauses Are Commonly Passed But Rarely Followed Through*, WASH. POST, Dec. 15, 2012, http://Essays.washingtonpost.com/2012-12-15/politics/35847138_1_expiration-dates-sunset-clauses-tax-cuts.

95. For example, in 2006–2007, the SEC conducted a pilot study to examine the effect of a short-sale price restriction under Regulation SHO. See OFFICE OF ECONOMIC ANALYSIS, U.S. SECURITIES AND EXCHANGE COMMISSION, ECONOMIC ANALYSIS OF THE SHORT SALE PRICE RESTRICTIONS UNDER THE REGULATION SHO PILOT, (2007), <http://www.sec.gov/news/studies/2007/regshopilot020607.pdf>. In addition in 2010, the National Highway Traffic Safety Administration (NHTSA) ran two pilot programs to study the effect of efforts aimed at reducing texting while driving. See *Pilot Programs Reduce Texting While Driving by At Least One Third*, HOMELAND SEC. NEWS WIRE, July 12, 2011, <http://www.homelandsecuritynewswire.com/pilot-programs-reduce-texting-while-driving-least-one-third>.

96. The OMB has set forth guidelines to federal departments and agencies clarifying whether the agency’s burden of collecting information on pilot study participants meets the requirements of the Paperwork Reduction Act of 1980. A 1996 OMB Memorandum states as a principal assumption of the Act: “In order to minimize the cost and maximize the usefulness of government information, the expected public and private benefits derived from government information should exceed the public and private costs of the information.” Memorandum from the Dir. of OMB and Budget to the Heads of Exec. Depts. and Establishments on Mgmt. of Fed. Info. Res., (Feb. 8, 1996), available at http://www.whitehouse.gov/omb/circulars_a130. Further, the application of information resources should support an agency’s strategic plan to fulfill its mission. *Id.*

rational courts *should* accord greater deference to the agency's policy choice, even if it presents a policy whose benefits may not appear to justify costs under a static analysis. But if the rule's net expected benefit under a static CBA can be permitted to be negative, just how negative can it be, and what factors should the reviewing court consider in deciding whether a rule is justified? I explore this question in greater depth with a model in the Appendix. The main insight is similar to the above discussion. Although the model abstracts away many of the nuanced discussions included here, it is still useful for keeping track of various additional elements germane to rulemaking.

The result of the model can be summarized as follows: (1) the socially optimal level of burden to be imposed on the agency of justifying Rule x that comes coupled with a sunset provision is necessarily lower than one of justifying Rule x without any sunset; and (2) the expected value of "going forward" with Rule x is more likely positive the greater the variance of the outcome (s), the smaller the discount rate of the future (d), the smaller the cost of reversion (C), the smaller the start-up cost during Period 1 (F), and the smaller the "cost of learning" (k). More specifically, an appropriate comparison should weigh the product of the social discount rate (d) and a linear sum of the cost factors ($2k + 2F + C$) against the expected variance of the outcome (s). For a reasonable range of values, the agency's justification of going forward with Rule x requires not whether the net expected benefit is positive, but whether it is merely greater than the threshold value $[d(2k + 2F + C) - s]$,⁹⁷ a quantity that may well be *negative* depending on the values assigned to d , k , F , C , and s .

In practice, CBA rarely comes down to ascertaining the numerical difference between costs and benefits or making sure the net benefit is positive. Far more often it is an analysis that takes into consideration various factors that can be deemed either costs or benefits under a particular framework. Likewise, my primary intention in providing a specific formula is to highlight the comparative factors an agency should take into consideration. Not all factors will be relevant at all times for all rules. The rest of this Section discusses circumstances that would affect the parameters these variables are intended to capture and lists several factors for agencies and the court to consider before employing a contingent-sunset approach.

a. *The Cost of Reversion*

A real-options approach only makes sense if a rule allows for a possible

97. The model assumes that two states are equally likely to occur (fifty percent and fifty percent). If there is good reason to believe the distribution is not equal, then the model can be modified by using two values p and q such that $p + q = 1$.

reversion or modification.⁹⁸ Given realization of an inefficient equilibrium, the agency must be able to negate this equilibrium going forward and restore the status quo to some extent, *except for sunk costs* (i.e., costs that are not recoupable as a result of investments already undertaken). In most cases, this restoration requires simply repealing the rule. At other times, the rule may have changed the market's expectation, in which case repealing the rule may not be sufficient to restore status quo; instead, society may need to take proactive steps to restore the equilibrium. The cost of reversion would also include adjustments that the subject entities will have to make to revert back from the rule. This can include, for example, the cost of reassigning the human capital and entity resources devoted to compliance.

One potential subject of debate in practice may be determining *whether* a rule is in fact reversible or not. Such uncertainty existed with the SEC's failed effort to reform the money market fund industry in 2012.⁹⁹ Some argued that any systemic change to the industry intended to reduce the risk of a future run on the funds—such as enforcing a floating net asset value—may itself trigger a run on otherwise stable funds.¹⁰⁰ The industry was concerned that the SEC's contemplated rule may unintentionally—but fundamentally—change the equilibrium.¹⁰¹ That said, the possibility of irreversibility does not mean the rule should never be adopted. Even when rules are irreversible, after a sufficient amount of time elapses, the cost of waiting is no longer justified.¹⁰²

b. The Variance of Projected Net Benefit

In general, the option value of an investment is more valuable when the variance of projected net benefit is greater.¹⁰³ Consider two rules in two

98. Technically, the only necessary condition for a real-options approach to have any value is that the marginal cost of reversion is smaller than the marginal benefit of reversion. In this case, even if complete restoration of status quo ante may not be possible, the agency has preserved an option of partial reversion that can be taken into consideration in rulemaking.

99. A money market fund aims to never lose money by employing a stable net asset value approach. Under this approach, a net asset value that is slightly deviated from \$1.00 will still be represented as \$1.00. While promoting stability and offering a low-risk investment opportunity, the stable net asset value approach can also mask the true value of the fund. *See generally* Press Release, Statement of SEC Chairman Mary L. Schapiro on Money Market Fund Reform (Aug. 22, 2012), *available at* <http://www.sec.gov/news/press/2012/2012-166.htm>.

100. *See* Letter from Lu Ann Katz, Head of Global Liquidity, Invesco Ltd., Letter to Financial Stability Oversight Council, (Feb. 15, 2013), *available at* <http://www.invesco.com/pdf/fsoc.pdf>.

101. *See id.*

102. *See, e.g.,* McDonald & Siegel, *supra* note 23.

103. Those familiar with financial economics may readily recognize this as a corollary of

different settings. With Rule *v*, there is a fifty percent chance that State *A* will result, in which the net benefit is \$100 million each year; and there is a fifty percent chance that State *B* will result, in which the net benefit is negative \$50 million each year. *Ex ante* the expected net benefit of the rule is \$25 million each year. Meanwhile, consider Rule *w* in a different setting, which may lead to State *C* or State *D* with equal probability. In State *C*, the net benefit is \$1 billion each year; and in State *D*, the net benefit is negative \$950 million each year. The expected net benefit of the rule is again \$25 million each year. Both rules provide the same expected net benefit, and therefore they may be seen as equally desirable under the static framework of rule adoption. Now suppose both rules are reversible with a relatively small cost. Suddenly, Rule *v* and Rule *w* differ significantly because the option value of a future repeal is far greater for Rule *w*, than for Rule *v*. Therefore, between the two rules, Rule *w* is a far more valuable policy option when we consider the possibility of repeal.

The actual variance of a rule is not observable in practice. It is a theoretical construct. It seems reasonable, however, to accept the presence of sharp disputes among commenters as a sign of a high variance. This suggests that *where there are greater disagreements as to the net benefits of the rules and commenters evaluations differ widely, the option value of repeal is all the greater, and the agency should be all the more entitled to employ a real-options approach*. Importantly, this propitious bias (towards moving forward with the rule) runs contrary to the bias under *Business Roundtable*. Currently, before the agency can adopt a rule, it may have to *justify* why it disagrees with higher ends of the cost estimates, which is exceedingly difficult when data is not available.

c. Start-Up Cost

Complying with new regulation often entails start-up costs apart from recurrent costs.¹⁰⁴ Rules vary greatly in the ratio of the start-up cost to the recurrent cost. One instinctive reaction against a real-options approach to rulemaking is that start-up costs, usually not recoupable, may dwarf recurrent costs. Therefore, the “try and see” approach may not be warranted. One implication of the model is that the relationship is more subtle than simply a straight comparison between the start-up cost and the recurrent cost. The relevant comparison should analyze the product of the discount rate and the start-up cost (along with other factors) and compare this value against the variance of projected net benefit. Since the discount

the Black-Scholes equation whereby the greater the standard deviation of prices, the greater an option value.

104. For § 404 of the Sarbanes-Oxley Act, this was certainly the case. See, e.g., Cindy R. Alexander et al., *The Economic Effects of SOX Section 404 Compliance: A Corporate Insider Perspective* 57 J. ACCT. & ECON. (forthcoming 2014).

rate is typically between five percent and seven percent, the start-up cost may be significantly larger than the variance and it may still be dynamically efficient to push through Rule x under a real-option approach.¹⁰⁵

d. The Cost of Learning

The cost of learning, though represented only as a single parameter in the model, can be interpreted broadly to bring some realism into the discussion. There are broadly two types of costs of learning. First, *the cost of evaluation* is the cost the agency or some other institution must incur in order to determine the effect of the rule. Second, *the cost of uncertainty* is the social cost of implementing a period of learning.

In terms of the cost of evaluation, the direct cost is associated with conducting an extended study of the economic effect of regulation. This cost will usually be borne by the government—in other words, by taxpayers. But certain private parties may have an incentive to bear this cost as well. For example, even if the agency does not undertake such a study, academic scholars may desire to publish studies examining the effects of agency regulation. Industry groups may also desire to undertake such studies to aid their lobbying efforts. Furthermore, if the agency were to adopt a rule with a contingent specification and a sunset provision from the outset, economists, knowing their research can have a direct policy implication, will be more inclined to empirically examine the effect of the rule.

More importantly, the cost of evaluation can involve high indirect costs. This would be the case if the evaluation period does not faithfully represent the likely future state that will materialize if the rule were to bind permanently. My stylized model does not include this aspect,¹⁰⁶ but this concern merits an extended discussion. If significant and pervasive, this problem could potentially plague not only options approaches but also nearly all manners of evaluations and experimentation in policymaking, including pilot programs and randomized trials. In practice, I believe, several significant mitigating factors are at play in many cases, and they can help make sure learning will occur.¹⁰⁷

105. The precise discount factor will vary depending on how long the rule must be implemented for the agency to evaluate the effect of the rule. If one year is sufficient, then five to seven percent would work. But if it takes more than one year, then the start-up cost would include more than just the initial year's compliance cost.

106. To include this aspect would involve setting up even more states of the future depending on the particular aspect of each rule. Such a setup is unlikely to reveal much more insight than do the discussions in this Section. I omit this aspect from the model in order to make it more tractable and broadly applicable.

107. See also Abramowicz, *supra* note 25, at 942 (concluding that the concern that interested parties may manipulate objective data, in the context of information markets, is

First, the cost of evaluation can be high—it is often said—because during the evaluation phase, entities will not be sufficiently incentivized to make a proper level of investment in its effort to comply with regulation. This may occur, for example, because entities know that there is a real possibility of *ex post* modification as regards the status of regulation in the future. Therefore, their current investment into compliance with regulation may be wasted. In this case, society will neither reap full benefits nor incur full costs. This is an example of the well-known tension between *ex ante* efficiency and *ex post* efficiency, about which much has been written.¹⁰⁸ Although this problem can arise in implementing a real-options approach to regulation, the extent to which this problem will plague the regulatory evaluation phase will vary significantly from rule to rule. To begin with, many rules require little *unobserved* levels of effort or investment beyond what the rule specifies. Examples include certain reporting requirements (such as tender offer rules or disclosure of readily available information) or simple conduct prohibitions (such as bans on certain sales practices, texting while driving, or behaviors amounting to conflicts of interests). For such rules, full compliance can be enforced relatively easily. In addition, the relevant question for a real-options approach is not whether the evaluation phase will identically mimic the equilibrium that will materialize, but whether the evaluation phase will reveal information about the rule's eventual net benefit upon permanent implementation. Even if the industry's compliance experience is not identical to that of the future state, the agency can in many cases learn a great deal about the effect of regulation based on surveys, interviews, and market reactions. Furthermore, the concern about the difference in entity behavior between the evaluation phase and during the permanent adoption may be overstated because this difference is one of degree, rather than of kind. Even when a particular rule is in force, no *a priori* reason dictates that it must remain in place permanently. If market conditions evolve significantly, even without rigorous *ex post* reviews, the rule may be repealed without any prior plan on the part of the agency. To this extent, every industry must constantly be hedging—to some degree—against possible future changes in the legal environment. Therefore, even once the rule is permanently adopted after the sunset, to the extent the agency cannot commit to never repealing the rule, the optimal level of investment effort on the complying entities may always be less than an actual case of permanent adoption. This suggests that the evaluation phase may often produce a

small).

108. See, e.g., Oliver Hart & John Moore, *Incomplete Contracts and Renegotiation*, 56 *ECONOMETRICA* 755, 775 (1988) (identifying the connection between *ex ante* incomplete contracts and *ex post* revisions of terms).

result that is not substantially different from the “permanent” adoption phase.

Second, the cost of evaluation can be high—it is asserted—because entities and other involved parties, knowing that the documented experience of the evaluation phase can affect the future viability of the rule, will intentionally behave in a way that artificially inflates or deflates the cost of compliance. While theoretically possible, the conditions under which such manipulation would be both highly likely *and* undetectable may be somewhat limited in practice. For some rules, the parties with an incentive to manipulate the findings are not in fact positioned to manipulate them. For example, entities may complain that a whistleblower rule would compromise their internal compliance programs.¹⁰⁹ But it is difficult for these entities to fabricate the evidence of such compromise. The likely behavior of an individual witnessing a violation or a crime is usually beyond the control of such entities, and the individual’s decision to report a violation directly to the government will have little to do with the fact that the rule’s effect is being evaluated.

Meanwhile, for those rules for which manipulation is possible, the size of the industry may affect the likelihood of manipulation. If the industry is relatively small or dominated by only a handful of significant entities, the agency may be able to step up its enforcement to detect and prevent attempted manipulation. By contrast, if the industry is characterized by a large number of entities, then as long as the rule is sufficiently efficient, it would take a large scale collusion for the industry to fabricate an overall inefficient state. Hence, there is a collective action problem among the regulated entities.¹¹⁰ Finally, a similar argument as above could suggest that even when a rule is structured as a permanent rule, a positive level of market manipulation may already exist among those who want to bring about changes in the rule. Therefore, the agency may learn a great deal during its trial phase regarding its final adoption phase.

It is not my intention to deny difficult cases altogether. Nonetheless, the present discussion highlights that the common retort that the evaluation phase may not reveal any useful information to the government is at best a

109. See *supra* note 80 and accompanying text.

110. More specifically, suppose a rule is socially efficient. Some firms may still want to fabricate an inefficient outcome, but this is often costly. In addition to demonstrating some documentation that the firm indeed incurred a large cost by complying, there is also a possibility of being penalized for its attempt to defraud the government. Even if it succeeds in such an attempt, at the end of the day, its effort alone may not be sufficient to convince the agency to repeal the rule if a majority of other firms were complying in good faith. In this case, the fabricating firm will be unable to recoup its cost (including the possibility of future prosecution). In anticipating this outcome, the firm may be discouraged from manipulating its compliance experience altogether. Although a more detailed explanation will require a game-theoretic analysis, the main insight remains the same.

contextual proposition. Meanwhile, it is also important to note that, for truly difficult cases, the agency's choice set at sunset is not simply limited to permanent adoption or permanent repeal. In such cases, the agency has the option to extend the rule with *another* sunset. Thus, the agency can choose to extend the sunset provision to enhance the information value of the evaluation period, if necessary. All in all, for typical rules, the agency likely has several courses of actions it can undertake to reduce the indirect cost of evaluation.

The *cost of uncertainty*, on the other hand, is a separate social cost. Here, the concern is that a real-options approach may be counterproductive because it introduces uncertainty to an industry. Businesses may suffer from the uncertainty regarding the future of regulation or its own compliance requirement. Unlike the cost of evaluation, which is more contextual, the cost of uncertainty will be a problem in a wider array of regulation. The relevant inquiry, however, is: *What is the benchmark of comparison germane for measuring this cost?*

Suppose the current state of the world, State *A*, is plagued with a significant market failure. We can imagine an uncontroversial rule, Rule *y*, that will bring about very little net benefit to society, but one that is still better than State *A*. Rule *x* is a controversial rule that may be highly effective, but it also exhibits a large variance. Post-implementation, Rule *x* may be highly efficient (State *C*) or highly inefficient (State *D*). But in adopting Rule *x* under a real-options approach, the economy suffers from having uncertainty about the future of Rule *x* during the evaluation phase. Certain decisions or contractual agreements may have to be put off, perhaps causing the economy to grow at a slower rate than it would otherwise.

Obviously, State *C* is the preferred outcome. However, the fact that an agency is contemplating a real-options approach presupposes two things: (1) State *C* cannot be guaranteed *ex ante*, and (2) the agency faces an institutional obstacle to adopting Rule *x* permanently. Therefore, the available options are limited to (1) adopting Rule *y*, or (2) adopting Rule *x* contingently and having society pay a cost for the uncertainty of facing the prospect of either State *C* or State *D*. Thus, although the cost of uncertainty will be part of the equation, the proper benchmark of comparison is the world in which the agency adopts Rule *y*, a non-controversial rule. If the cost of uncertainty is prohibitively high, then it may mean adopting Rule *y* is more beneficial to society as a whole. But a proper comparison should not be made against a world in which the agency can adopt Rule *x* permanently, rather than contingently. By assumption, the agency faces a significant hurdle in doing so.

* * *

The foregoing discussion can be stated more succinctly as follows. Under a suitably chosen “efficiency” criterion, the set of all rules that can be justified under the CBA on the record *where the agency commits to making efficient ex post modification* is necessarily larger than the set of all rules that can be justified without such commitment. The latter is a proper subset of the former. Therefore, many rules may be dynamically efficient with such commitment, but agencies may not be able to push them through because they are not structuring the rules with such commitments. For such rules, there is a clear advantage to taking a real-options approach. This is a general proposition applying to all “close call” controversial rules that admit *ex post* efficient modification.

Meanwhile, objections to implementing this approach, such as the possibility of evidence manipulation or complying entities’ insufficient investment motives, are propositions based on the specific application of each rule. Many rules suffer from neither of these problems. Collective manipulation may be difficult to coordinate in many instances; some rules involve no particular start-up investment for proper compliance. Thus, these objections do not categorically invalidate the general proposition. Instead, they pose important factors to consider in taking this approach. In addition, even for rules subject to such problems, the value of *ex post* learning will unlikely be zero in such cases. Most likely the agency, perhaps with the help of published studies, may be able to learn a great deal from the industry’s compliance experience and there may still be value to employing a real-options approach. These mitigating factors should be given proper consideration in implementation.

C. The Value of Conditional Ex Post Exemptions: A Menu-of-Options Approach

1. Motivation

The foregoing Part largely dealt with rules that could prove to be either efficient or inefficient as a whole. Frequently, however, there are rules which are thought to be efficient, except as applied to a group of entities that are not *ex ante* identifiable. Rules pertaining to compliance with stringent audit requirements, for example, exhibit a high variance in terms of individual entities’ compliance experiences. Entities come with divergent cost structures due to their sizes, industry-specific characteristics, and various competing regulatory requirements. Interest groups can therefore compete for exemption from the rule. In these cases, the agency may have a rule that is sensible for a majority of its entities, but it still needs to determine the proper scope of the rule so as to justify the overall efficiency of the rule on the record.

In general, entities facing high costs are more likely to submit detailed estimates and lobby against the rule. Even if their estimates are accurate, these estimates may not be representative of the entire population. Yet the agency rarely has the resources to run a sophisticated statistical analysis to correct for such biases.

More perversely, rule opponents may be exaggerating the adverse effect of the rule and downplaying the benefits. Experience has indeed shown that predicted costs usually exceed actual costs. This is because prior to rulemaking, “regulated entities . . . have every incentive to estimate high” but “once the regulation is in place, they have every incentive to figure out a cheaper way[] to comply.”¹¹¹ This is problematic since rulemaking decisions should not be entirely driven by worst-case scenarios, outlier experience, strategic lobbying efforts, exaggerated cost estimates, or irrational fears. To grant wholesale *ex ante* exemptions to all such entities is potentially foregoing efficient mandates as well as the value of learning. To simply disagree with the commenters is to cross precarious ground for the agency. A more judicious approach in this case may be to grant exemptions conditional upon realization of such worst-case scenarios, where such showing is relatively inexpensive.

How might this be accomplished? One approach is to apply a real-options approach at the entity level. The agency can initially require compliance for all entities. After a test phase, the agency can then grant an exemption to each entity based upon its historical cost of compliance. But a call option may be structured even more efficiently: the agency can grant exemption from the outset by structuring the rule with a menu of alternative compliance options with known costs—call it the “menu-of-options” approach to rulemaking. This approach can then facilitate *ex post* specification of a rule’s coverage and is particularly useful if (1) the rule allows *ex post* exemption on an entity-by-entity case, and (2) the rule’s *ex ante* CBA based on the record is likely subject to estimation errors.¹¹²

Structurally, a rule with a menu of options lies somewhere between a mandatory rule and a default rule: it is best described as a “sticky” default.¹¹³ Opting out is possible (or preferable) but only for those entities

111. BREYER ET AL., *supra* note 64, at 148.

112. Situations like these call for a well suited “back-end” incremental approach to regulation. See generally Glicksman & Shapiro, *supra* note 41 (advocating a more back-end, incremental approach to regulation, rather than a front-end rationalization approach); see also Sidney A. Shapiro & Robert L. Glicksman, *The APA and the Back-End of Regulation: Procedures for Informal Adjudication*, 56 ADMIN. L. REV. 1159–77 (2004).

113. A default rule is referred as “sticky” if opting out is allowed but costly. See, e.g., Michael S. Barr et al., FED. DEPOSIT INS. CO. BEHAVIORALLY INFORMED FINANCIAL SERVICES REGULATION 8–9 (2008), <http://www.fdic.gov/about/comein/behaveAprill1a.pdf> (discussing how consumers’ status quo bias can justify a “sticky” default regulation for mortgages making it costlier for lenders to suggest alternative forms of mortgages).

satisfying a specified burden of persuasion or finding themselves in a specified condition. This type of explicit coupling of a default rule with a costly alternative allows the agency to structure its rule as a “liability rule” rather than a “property rule.”¹¹⁴ Law and economics literature highlights the information-forcing quality of a liability rule,¹¹⁵ as compared to a property rule. If properly used, a menu-of-options approach can allow the agency to take advantage of such quality to aid rulemaking.

2. *The Setup*

Consider the following alternate formulation of Problem X. The problem now states costs and benefits in terms of percent of entities’ revenues.

Problem X1. An industry has 1,000 heterogeneous entities. The agency believes each entity’s compliance with Rule x will result in a social benefit of two percent of the entity’s revenue, but compliance will cost about one percent of its revenue. Assume the compliance cost is equal to the social cost. The agency thus believes Rule x will bring about a net social benefit of one percent of the industry-wide revenue.¹¹⁶ Opposing commenters agree with the two percent social benefit, but claim their compliance costs will be three percent of their revenues—implying a net social loss of one percent of the industry-wide revenue.

The agency obviously cannot just ignore the claims that costs can be as high as three percent. Faced with Problem X1, the agency has several different ways of structuring a sticky default rule. This Section considers a handful of examples.

Example 1 (Comply-or-Pay). The agency structures the rule as follows: *Comply with Rule x or pay two percent of revenue in fines each year.*

Under the comply-or-pay regime, if the agency turns out to be correct,

114. See Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089 (1972).

115. See, e.g., Ian Ayres & Eric Talley, *Solomonic Bargaining: Dividing a Legal Entitlement to Facilitate Coasean Trade*, 104 YALE L.J. 1027, 1032 (1995) (illustrating that “liability rules possess an ‘information-forcing’ quality that property rules do not”).

116. Note that even if the agency is correct, Rule x partly effectuates a transfer to the extent that the group bearing the costs is not necessarily the group reaping the benefits.

then the entire industry will find it preferable to comply with Rule *x*. If opposing commenters are correct, then there is no net social loss from those entities because they will not in fact spend three percent of revenues to comply. Instead, they will pay two percent in fines. Fines are a straight transfer of money from non-complying entities to the government. For CBA, we often assume that such transfers, though privately costly for each entity, do not otherwise lead to significant social costs.¹¹⁷ The agency can in turn reasonably assume in its CBA that the per-entity compliance cost will not exceed two percent. Even if the agency's attempt to justify Rule *x* on the record could have failed, the value of Rule *x* under comply-or-pay is, by design, guaranteed to be non-negative.

This rule structure is reminiscent of a Pigouvian tax arrangement. A Pigouvian tax forces firms to internalize the marginal social cost of production and thereby leads the industry to a socially efficient output level.¹¹⁸ In this case, compared to the world of full compliance, an entity's activity of "non-compliance" produces a "negative externality" of two percent of its revenue.¹¹⁹ Therefore, taxing the entity at two percent will force the entity to internalize this externality. Arguably, this structure also provides the benefit of fairness to the market. Each entity can decide for itself which option is less costly. This example is perhaps unique in that, from society's perspective, entities choosing to not comply will not expend society's resources. In most cases, however, a sticky default rule will entail a social cost of opting out.

Example 2 (Comply-or-Spend). The agency structures the rule as follows: *Comply with Rule x or alternatively, spend a minimum of two percent of your entity's revenue to take discretionary measures that otherwise promote the objective to be served by compliance with Rule x.* The agency simultaneously issues a guidance document or an interpretive release to discuss potential measures that can substitute compliance with Rule *x*.

In Example 2, opting out remains costly because the entity needs to spend a minimum of two percent of its revenue. One benefit of the comply-or-spend regime is flexibility.¹²⁰ An entity that may find full

117. See OFFICE OF MGMT. & BUDGET, CIRCULAR A-4 (2003), available at http://www.whitehouse.gov/omb/circulars_a004_a-4 ("Transfer payments are monetary payments from one group to another that do not affect total resources available to society.").

118. See, e.g., ECON. REP. OF THE PRESIDENT 152 (2004) ("One approach to dealing with externalities would be to levy a tax (known to economists as a *Pigouvian tax*) on market participants such that the amount of tax collected equals the incremental cost of the externality.") (emphasis in original).

119. See *id.* at 151 (defining a situation when an involuntary cost is assessed against a third party as a result of a voluntary market transaction between two parties).

120. For a general discussion on the virtues and the concerns of "flexible approaches" to regulation, see Lori S. Benneer & Cary Coglianese, *Flexible Approaches to Environmental Regulation*, in THE OXFORD HANDBOOK OF U.S. ENVTL. POL'Y (Sheldon Kamieniecki & Michael Kraft eds., 2013).

compliance too costly can decide how best to spend its earmarked amount to choose measures that are more tailored for its purpose. In turn, the agency's CBA can cap per-entity cost at two percent. One problem, however, is that unless there is a general consensus for the reasonable alternative, it will be difficult for the agency to provide an *ex ante* measure of the benefit of compliance with the reasonable alternative. For this reason, a comply-or-spend rule structure is most useful when it comes coupled with a guidance document or an interpretive release.

Example 3(a) (Comply-or-Justify). Suppose post-implementation, each entity faces negligible cost of credibly demonstrating to the agency its compliance cost. The agency structures the rule as follows: *Comply with Rule x unless you can credibly demonstrate your compliance cost to be greater than two percent of your revenue.*

In Example 3(a), the agency grants full exemption to entities but only upon a credible showing of the particular inefficiency of Rule *x*'s application. The net benefit to society will be the same as in Example 1 in terms of the entities that will eventually comply with Rule *x*. But the distributional effect may be different from Example 1. In Example 3(a), there is no payment of two percent in fines for those not complying. The agency should have little trouble implementing this rule structure because each entity's cost of persuasion is zero.

This setup does not imply that entities should bear the initial burden of demonstrating the rule's inefficiency. It implies only that to the extent a rule with such conditional exemptions is more efficient than a rule without them, *the agency's own burden* of justifying the former should be lower than its burden of justifying the latter. Nevertheless, the assumption that each entity's cost of persuasion is negligible may be unrealistic. Example 3(b) is a slightly more realistic case of the comply-or-justify structure.

Example 3(b) (Comply-or-Justify). The agency believes that about 100 entities (about ten percent) may actually incur costs of two percent of the entity's value or substantially higher in complying with Rule *x*. About 900 of them, however, will bear around one percent only. Post-implementation, each entity faces a cost of *h* to credibly demonstrate to the agency its compliance cost exceeds two percent. The agency structures the rule as follows: *Comply with Rule x unless you can credibly demonstrate the compliance cost to be greater than two percent of your entity's revenue.*

In this last example, entities will comply as long as the cost of compliance is less than two percent, or if the cost of compliance is greater than two percent but less than *h*; otherwise, entities will spend *h* and choose not to comply with Rule *x*. If $h < \text{two percent of the smallest entity value}$, the agency's burden of justifying this structure of Rule *x* is to show that the benefit of compliance (one percent of 900 entities) is greater than $(100 \times h)$. Depending on the worst-case scenarios presented in the rulemaking record and the cost of persuasion on the entities' part, this conditional structure

can be still easier to justify than Rule *x*.

How do these examples compare to the current practice of rulemaking? The comply-or-pay structure may be analogized to how firms currently make their compliance decisions regarding the Occupational Safety and Health Agency regulations.¹²¹ It is also similar to a suggestion that broadcast television should be allowed to fulfill their “public interest” obligation under the Federal Communications Commission regulation¹²² through a “play or pay” approach.¹²³ More generally, these various menu-of-options approaches make only marginal improvements to the existing institutions. First, agencies often issue interpretive releases or guidance documents without promulgating a specific rule.¹²⁴ Second, agencies already exercise broad exemptive authorities both *ex ante* and *ex post* especially in discretionary rulemaking. A typical rule comes with an *ex ante* determinable set of exemptions (e.g., small businesses, foreign entities, etc.). But post-implementation, if unanticipated circumstances arise, the agency routinely grants exemptions *ex post* through exemptive relief, no action letters, or selective enforcement. Because these are unanticipated, this set is strictly *ex post* determinable. A menu-of-options approach highlights the strategic value of deferring certain exemption decisions from *ex ante* to *ex post*.

Take a more concrete example. For the proxy access rule, a sticky default rule option was not only an available choice but the SEC in fact came close to choosing that option.¹²⁵ One version of the rule the SEC considered was to require proxy access unless issuers opted out of the regime with a majority shareholder vote.¹²⁶ Since obtaining a majority shareholder vote is not costless, such a rule would have been a sticky default rule. Firms would have also faced costs from the market—some investors

121. See W. KIP VISCUSI ET AL., *ECONOMICS OF REGULATION AND ANTITRUST* 847 (4th ed. 2005) (describing firms’ compliance strategies based on their financial incentives). The suggested approach, however, is more explicitly permissive of the straight fines approach than that of the Occupational Safety and Health Agency.

122. Title III of the Communications Act of 1934 confers upon the Federal Communications Commission the authority to approve the assignment of a broadcast license based on public interest, convenience, or necessity. 47 U.S.C. §§ 307(a), 309(a), 310(d) (2006).

123. See Cass R. Sunstein, *Television and the Public Interest*, 88 CALIF. L. REV. 499, 504–05 (2000).

124. See, e.g., U.S. SEC. & EXCH. COMM’N, SEC INTERPRETIVE RELEASES (Aug. 23, 2012), available at <http://www.sec.gov/rules/interp.shtml>.

125. See, e.g., Joseph A. Grundfest, *The SEC’s Proposed Proxy Access Rules: Politics, Economics, and the Law*, 65 BUS. LAW. 361 (2010) (recommending a specific way for the SEC to design an opt-out approach to proxy access).

126. See U.S. SEC. & EXCH. COMM’N, FACILITATING SHAREHOLDER DIRECTOR NOMINATIONS (Nov. 15, 2010), www.sec.gov/rules/final/2010/33-9136.pdf. See also E-mail from Cravath, Swaine & Moore LLP et al. to U.S. SEC (Aug. 17, 2009), available at <http://www.sec.gov/comments/s7-10-09/s71009-212.pdf>.

may condition their investment decisions based on whether firms grant proxy access or not. Had the SEC taken this route, the petitioners likely might not have brought the lawsuit. Certainly, they would have found it far more difficult to argue that the SEC's rule was arbitrary and capricious.

Alternatively, the SEC could have chosen to provide a more specific "out" for entities that meet a certain burden of production. The cardinal concern was that given proxy access, shareholders with narrow interests would nominate director candidates whose interests are not aligned with raising the long-term firm value, and thus managers must spend resources to campaign against such candidates.¹²⁷ But this would obviously be a verifiable event. Either the management will decide to spend millions of dollars campaigning against a particular candidate nominee or not. Management can also establish its case based on the shareholder's and the candidate's background. Therefore, the SEC could have allowed each firm to seek a no-action letter for noncompliance with the rule in certain cases. In short, even if the agency strongly believes the likelihood of such occurrence is low, the agency need not dismiss such scenarios. Instead, it can specify exemptions to be granted *conditionally* upon such situations. This specification will reduce the rule's potential downside risk.

There remains a concern that some entities may attempt to fabricate evidence to show they qualify for such exemptions. But if the agency's confidence in Rule *x* is not utterly unfounded, it is unlikely that all or even a majority would try to evade compliance fraudulently. Ultimately, if Rule *x* is beneficial to society, it is still better to adopt Rule *x*—even if a significant fraction may seek to evade and to learn from adoption—than to fail to adopt it altogether. If such *ex post* determinable exemptions are used aggressively, much of the coverage of the rule could be formulated *ex post*. Eventually the agency can adopt an interpretive release to explicitly memorialize the new coverage of the rule. Nothing stops the agency from later removing the exemption altogether through a new rule. But at that point, the agency's rulemaking decision will be more empirically informed and the agency should properly be expected to bear an appropriate level of burden of removing the exemption. In sum, granting a menu-of-options can allow the agency to move forward with a version of Rule *x*, based on the implementation of which the agency can make a more informed decision in the future for permanent rulemaking.

3. *Suitability Analysis*

A menu-of-options approach makes sense for rules for which: (1) it is possible to grant *ex post* entity-specific exemptions; and (2) the agency can

127. See Cravath Email *supra* note 126, at 10.

show that compliance is socially efficient for at least a majority of entities. In addition, unless the agency takes a comply-or-pay approach, the cost of adjudication and enforcement must be taken into consideration as well. I briefly discuss these factors in turn.

a. Entity-Specific Exemptions

The purpose of granting entities a menu of options is to allow noncompliance or alternate compliance options. This approach is not applicable for rules that must be applied to an entire industry as a whole. This may be the case with a rule for which exempting individual entities would be grossly unfair or would otherwise frustrate the rule's effect. One such example is the SEC's attempted reform of the money market fund industry, as partly discussed in Subsection II.A.3.a.¹²⁸ If the SEC had decided to ban this stable net asset value approach and implement a floating net asset value approach—under which the true value would have to be disclosed—such requirement would have to be applied to *all* money market funds without exception. To allow one or two funds to be exempted from such a requirement may have resulted in investors pulling out their investments from all other money market funds to invest in those exempt from the rule. For a majority of rules, however, exemptions based on individual scenarios are frequently granted.

b. Reasonable Basis for Efficiency for a Significant Fraction of Cases

A menu-of-options approach may reduce an agency's burden of justifying efficiency in certain cases, but it can never be a substitute for justifying its efficiency altogether. The agency will need to have an independent basis for concluding that the rule, on the whole, is sensible for a majority of entities. Otherwise, the agency may end up adopting a rule only to find out that nearly all of the entities end up opting out. This can be socially costly.

What kind of evidence might provide such a reasonable basis? One possible form of evidence is the presence of mixed academic studies or empirical findings. Consider again the proxy access rule. Because it had never been implemented, none of the studies directly addressed its effect. But there were a few suggestive studies.¹²⁹ One study had looked at the effect of proxy contests initiated by dissident shareholders and concluded that share values declined afterwards. Other studies looked at the effect of

128. For more on the money market fund reform effort, see Statement of SEC Chairman Schapiro, *supra* note 99 and accompanying text.

129. For a detailed discussion of the studies referenced in this paragraph, see Kraus & Raso, *supra* note 9.

having a hybrid board and reported more favorable findings. Granting shareholders access to proxy ballots is not exactly like either of these activities. But the SEC concluded that it considered the hybrid board setting to be more analogous to the proxy access.

The agency's reasoning was plausible. But the real story can be more complicated. It may be that for many firms, the likely effect is indeed similar to requiring board independence. At the same time, there may be a few firms out there that have disgruntled shareholders or shareholders with narrow interests who could easily abuse proxy access. In the presence of mixed evidence, the agency may be unable to justify that the rule will be efficient for all entities. Nonetheless, the evidence may still be sufficient to warrant a reasonable basis for concluding that the rule will be efficient for a wide array of entities. If the agency cannot legitimately claim even this level of efficiency for select entities, a menu-of-options approach is not warranted and the agency should not move forward with the rule.

c. The Cost of Adjudication and Enforcement

Depending on how the agency structures the menu of compliance options, it may or may not need to adjudicate—above and beyond the normal enforcement of the rule—whether entities choosing alternate compliance options are justified in doing so. In the case of a comply-or-pay structure, this is unnecessary. In the case of generous *ex post* exemptions upon a showing of hardship, either the agency will need to review the merits of each entity (which may be costly) or it will need to audit a random set of entities each year and impose fines on violating entities in accordance with the rule. In this case, a rule may be structured as follows: *Comply with Rule x, except if you belong to Set A (ex ante determinable) or if you demonstrate that you belong to State S (ex post determinable); entities attempting to fabricate State S will be fined.* If the cost of adjudication for the agency is high, the agency can instead design the rule as: *Comply with Rule x, except if you belong to Set A or if you can demonstrate, upon inspection, that you belong to State S, where attempts to fabricate State S will be heavily fined.* In either case, the cost of adjudication and enforcement will be a relevant factor of consideration in employing a menu-of-options approach.

III. PRACTICAL CONCERNS

In this Part, I discuss some practical concerns with and objections to employing an options approach at large. Because the approaches I propose have not been implemented strategically, I cannot do much better than to offer cursory speculations, coupled with illustrations using examples. I concentrate on five primary concerns: first, whether agencies will be motivated to employ this approach; second, whether agencies can commit

to a future course of action; third, whether agencies can be trusted to conduct unbiased *ex post* evaluations; fourth, whether commenters themselves may behave strategically; and fifth, whether an options approach can increase the adverse likelihood that an agency may be captured.

A. *An Agency's Motivation*

A potential objection to an options approach is that agencies might not be motivated to use it. If an agency head is more invested in seeing a particular *regulation* go through—perhaps for political or ideological reasons—rather than ensuring an efficient *outcome*, an options approach might be seen as only a distraction. Likewise, an agency whose primary interest lies in maximizing its regulatory space would not endorse this approach. Indeed, this approach has little to offer to such regulators. This objection, however, may have been more germane in the pre-*Business Roundtable* world. In the post-*Business Roundtable* world, regulators' primary concern seems to be whether they can move forward at all with *any* controversial rule.¹³⁰

On the other hand, efficiency is not the only basis for promulgating a rule. Society has a legitimate interest in a rule for reasons other than addressing a market failure. Circular A-4 makes clear that government action may either be “intended to address a significant market failure or to meet some other *compelling public need* such as . . . promoting . . . values such as . . . privacy.”¹³¹ But if an agency seeks to adopt a rule to address a “compelling public need,” it is prudent to state this noneconomic rationale upfront and candidly, rather than to pass off the rule as enhancing efficiency.

The proxy access rule was marketed as a rule that would increase efficiency through a better disciplining of board members. Nevertheless, it could also be viewed as promoting shareholder democracy, which may be a noble objective apart from any efficiency consequences. Hence, the SEC could have framed the rule primarily as promoting a compelling public need—increasing democratic value in corporate America—even at the possible expense of overall efficiency. How the court would have treated such a rationale is not clear. But the debates centered on mixed empirical findings or assumptions of the future states almost certainly would have taken a backseat.

130. See, e.g., Haley Sweetland Edwards, *He Who Makes the Rules*, WASH. MONTHLY (Mar./Apr. 2012), available at http://www.washingtonmonthly.com/magazine/march_april_2013/features/he_who_makes_the_rules043315.php?page=6 (discussing the difficulty faced by regulators post-*Business Roundtable*).

131. OMB Circular A-4, *supra* note 117.

B. *An Agency's Ability to Commit*

Another potential objection is that agencies cannot realistically commit to a future course of action. In the case of an automatic sunset, this is not a problem. But the problem of commitment may be an issue in the case of a conditional sunset and also in the case of a menu-of-options approach.

Several reasons lead me to believe that commitment will not be an insurmountable issue in most cases of controversial rulemaking. First, under the proposed design, the rule release would contain specific language regarding the conditions under which an *ex post* review or an *ex post* exemption is warranted in order to establish the rule's continued viability. Without it the agency cannot make any claim to the option value. In this case, the agency will be held liable for its violation of its own rules. For example, the Department of Transportation's 1984 automatic seat belt regulation was designed so that it would not take effect if enough states enacted laws requiring the use of manual seat belts before April 1, 1989.¹³² The number of states that enacted such laws was not sufficient as of 1989, and the regulation eventually took effect. It is, however, difficult to imagine the Department proceeding with its own regulation—contrary to its clear language of contingent adoption—in case such states had enacted the requisite laws.

Second, even apart from any legal liability, the agency would realize that a failure to adhere to its commitment can severely undermine its ability to experiment with future rules. Interest groups and the courts will be skeptical of the agency's future efforts to adopt rules on a conditional basis. The agency's motivation to maintain its public image will often be sufficient reason for it to honor its commitment.

There is also a potential third argument: perhaps an explicit commitment may not even be necessary if agencies begin to faithfully comply with Executive Order 13,563, making systematic retrospective analysis become the norm. However, I find this argument less persuasive given agencies' poor track record of complying with procedural requirements that do not pose serious litigation threats.¹³³

C. *Reliability of an Agency's Ex Post Evaluation*

It is reasonable to ask whether agencies can be trusted to conduct unbiased *ex post* reviews. Arguably, "it is in the nature of staff reports to rationalize agency policies."¹³⁴ Agency staff members might thus be

132. *See supra* Section I.D.

133. OFFICE OF MGMT. & BUDGET, CIRCULAR A-4 3 (2003), available at http://www.whitehouse.gov/omb/circulars_a004_a-4.

134. Roberta Romano, *Does the Sarbanes-Oxley Act Have a Future?*, 26 YALE J. ON REG. 229, 298 (2009) (casting doubt on the likelihood of the SEC's report on the Sarbanes-Oxley Act

tempted to frame their findings in ways that are necessarily more favorable for continuation of the rule. If this is a realistic problem, one solution is to have another government agency, such as the Government Accountability Office (GAO), conduct the *ex post* evaluation. Although the GAO, too, is a federal government agency, GAO's particular incentive is likely not the same as another agency's incentive. But the downside of such an arrangement is that it will be more costly to have GAO or another agency conduct the evaluation. The evaluating agency will generally lack the specific expertise of the original rulemaking agency.

All I need to point out is that to the extent such a biased presentation of a rule's effect is attempted by an agency, it will be far more difficult to do so under an *ex post* review regime than under an *ex ante* review regime. It may be instructive to discuss the case of the SEC's rules pursuant to § 404 of the Sarbanes-Oxley Act.¹³⁵ Adopted soon after the Enron scandal, the Sarbanes-Oxley Act requires, among other things, issuers to disclose whether their internal controls for financial reporting exhibit material weaknesses and have independent auditors attest to this disclosure.¹³⁶ The SEC initially granted an extension for small businesses to comply with the independent auditor attestation requirement out of the concern that the compliance costs may be prohibitive for them.¹³⁷ Although the SEC had planned to extend the rule to cover small businesses eventually, after a few years of compliance and mounting complaints about high compliance costs, the SEC decided to better gauge the rule's efficiency by conducting an extensive survey of managers of firms who had been complying with the rule.¹³⁸ This initiative led to the SEC's most extensive effort to date in conducting retrospective regulatory reviews.¹³⁹ The SEC then published a study documenting the compliance experience of medium and large firms. Partly based on the study's finding, the SEC and Congress together decided it was not necessary to extend the rule to cover small businesses.¹⁴⁰ The study also cited to a long list of existing academic essays that became

having a material impact on the SEC's policy).

135. See Sarbanes Oxley Act of 2002, Pub. L. No. 107-204, § 404, 116 Stat. 745, 789 (codified at 15 U.S.C. § 7262 (2012)).

136. See *id.*

137. See U.S. SEC. & EXCH. COMM'N, FINAL RULE: MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING AND CERTIFICATION OF DISCLOSURE IN EXCHANGE ACT PERIODIC REPORTS (2003), available at <http://www.sec.gov/rules/final/33-8238.htm>.

138. See OFFICE OF ECON. ANALYSIS, U.S. SEC. & EXCH. COMM'N, *supra* note 49, at 1–2 (discussing the background behind the study).

139. See *id.*

140. See Sarbanes Oxley Act of 2002, Pub. L. No. 107-204, § 404(c), 116 Stat. 745, 789 (codified at 15 U.S.C. § 7262(c) (2012)).

available after implementation.¹⁴¹ By then, many of these studies were published in respected peer-reviewed journals.¹⁴²

In this case, the SEC's own study was not so biased as to support extending the § 404 rules to cover small businesses. In addition, even if the staff had wanted to present such a finding, it would have been extremely difficult in light of a number of available studies that already examined the effect or potential effects of the rule on small businesses. It seems reasonable that where a rule is highly controversial and there is great publicity about the rule's compliance experience, the agency will have a difficult time presenting an evaluation that is clearly erroneous or biased.

D. Commenters' Strategic Behavior

There is also a concern that commenters themselves may alter their behavior strategically in response to an options approach to rulemaking. Commenters opposing the rule may be motivated to submit even *higher* cost estimates than if the agency were seeking to adopt a rule permanently. This type of strategic behavior may arise even if the commenters are not informed prior to the comment period that the agency is contemplating an options approach. If the rule is expected to be controversial, the commentators may already have an expectation of an options approach and may alter their behavior accordingly.

If submitted cost estimates are higher, the record would indicate a lower net expected benefit. It may be more difficult for the agency to go forward with the rule. If the agency suspects such additional inflation, one possibility is for it to use a menu-of-options approach and set the fine at a sufficiently high level but still below the high ends of submitted cost estimates. If the agency is correct, most of the entities will end up complying with the rule.

On the other hand, a real-options approach may continue to remain a viable approach. Although the net expected benefit may get reduced with higher cost estimates, there is a countervailing effect: as long as some parties are submitting cost estimates realistically, the presence of higher cost estimates indicates a higher variance (*s*). Unless commenters can strategically coordinate their comments and estimates, in the presence of uninflated submissions, outlier cost estimates will raise the variance at a higher rate than it can raise the average cost estimates. Because a high variance indicates a higher option value of repeal, submitting high cost estimates can have the perverse effect of rendering an options approach *more* favorable, not less favorable. So in this scenario, the error, if anything,

141. See OFFICE OF ECON. ANALYSIS, U.S. SEC. & EXCH. COMM'N, *supra* note 49 (citing a number of academic studies throughout).

142. See *id.*

may be on the side of moving forward with the rule. To affect the outcome the other way—e.g., to submit high cost estimates but ensure there is a lower variance among submission—would be far more difficult and likely require unrealistic coordination among commenters. Therefore, there does not appear be an obvious way to abuse an options approach during the comment process.

E. Likelihood of Agency Capture

What effect might an options approach have on the likelihood of agency capture? Positive political theory and economic theory of regulation highlight the likelihood that regulators may adopt regulation in favor of specialized industry groups, rather than for the benefit of society at large.¹⁴³ Agency capture in this sense can refer to an agency's "responsiveness to the desires of the industry or groups being regulated."¹⁴⁴ Could an options approach exacerbate this concern? Although this Essay's recommendation is for agencies to employ this approach only in "close calls" and where the record exhibits sufficient disagreements as to the rule's efficiency, it is possible to imagine adverse scenarios.

Scenario 1. An agency considers Rule *s*, a meritorious rule whose benefits can be shown to justify the costs on the record. Interest groups pressure the agency to institute a sunset provision nonetheless. The agency feels pressured to adopt it on a contingent basis for political reasons. The interest groups manipulate the evaluation phase so as to justify the rule's repeal after the sunset.

Scenario 2. Interest groups standing to benefit from a certain rule, Rule *t*, submit a rule proposal to the agency. The agency normally would not consider the rule as it is difficult to see how the overall benefits to society can justify its costs. But the interest groups argue the rule will be efficient for society and, at a minimum, merits experimentation. The agency feels pressured to adopt the rule on a contingent basis and the interest groups manipulate the evaluation phase to justify the rule's permanent adoption after the sunset.

How likely will Scenarios 1 and 2 be? The answer will depend on each agency head's preference. It should first be noted, however, that these scenarios are in a sense orthogonal to Problem X. Admittedly, the

143. See generally Michael E. Levine & Jennifer L. Forrence, *Regulatory Capture, Public Interest, and the Public Agenda: Toward a Synthesis*, 6 J.L. ECON. & ORG. 167, 167–70 (1990); George J. Stigler, *The Theory of Economic Regulation*, 2 BELL J. ECON. & MGMT. SCI. 3, 3 (1971).

144. Rachel E. Barkow, *Insulating Agencies: Avoiding Capture Through Institutional Design*, 89 TEX. L. REV. 15, 21 & n.23 (2010); see also ROGER G. NOLL, REFORMING REGULATION: AN EVALUATION OF THE ASH COUNCIL PROPOSALS 99–100 (1971). For a historical perspective on agency capture as well as how other government institutions may also be subject to manipulation by interest groups, see generally Thomas W. Merrill, *Capture Theory and the Courts: 1967-1983*, 72 CHI.-KENT L. REV. 1039 (1997).

presupposition of Problem X is more romantic: An outcome-oriented agency to enact a controversial rule even as it faces an uphill battle against strong interest groups. In contrast, Scenarios 1 and 2 involve an agency giving in easily to political pressures to compromise the rule. This latter type of agency would, in some sense, never face Problem X—it will more readily be persuaded to adopt a non-controversial rule. In reality, few agencies will be found on either extreme. Most of them will fall somewhere in the middle. That said, it still seems plausible that, all else equal, an agency would prefer to adopt a rule without a sunset or extensive exemptions.

In Scenario 1, if the agency can amply justify the rule on the record, it should not seek to adopt it under an options approach, especially if the evaluation phase can be manipulated. Likewise, in Scenario 2, the agency comes close to adopting a rule which will likely prove to be inefficient later and will likely tarnish the agency's reputation. All this is to say that the agency will need to exercise judgment in employing an options approach.

An analogy might be useful to understand the nature of this type of concern. Any innovation to the rulemaking process can be seen as a tool for the agency. Take a tool like a bottle opener. The same bottle opener that can help a person open a bottle can also injure the person's finger if he uses it carelessly. But this is not so much an argument against a bottle opener, as it is an argument against using it carelessly. True, it is possible for a bottle opener to exhibit an inherent design flaw as to injure a majority of users. But the concerns regarding the likelihood of agency capture has more to do with an agency's manner of applying an options approach. An agency choosing to employ an options approach is making a dual statement: it is unable to justify the rule on the record but believes it has met the burden of justifying the rule *as structured with options*. Each agency can expect to be judged by the public and Congress as to how successfully it employs this tool. These checks may be sufficient to ensure that agencies would not be too quick to employ an options approach except where absolutely necessary.

IV. A SUGGESTED USE OF THE COMMENT PERIOD

The foregoing discussions suggest that in a controversial rulemaking decision agencies should use the comment process to deduce various types of information. Currently, agencies typically use the comment process to determine the answers to the following questions:

- What is the effect of the proposed rule?
- What are the natures and estimates of the benefits and the costs?
- What are the start-up and recurrent costs?
- What are some unintended consequences?
- Which group or groups of entities, if any, should be exempt from the rule?
- How can the rule be structured more effectively?

If the agency can successfully defend its analysis based on the responses received, it should proceed under the traditional rulemaking approach. Otherwise, the agency may be well served to try to answer the following additional questions through the comment process.¹⁴⁵ These include:

- Does this rule permit a real-options approach to adoption?
- Are the commenters' disputes about the likely effect of the rule tangible?
- What would be the cost of reversion?
- What would it take to restore status quo?
- Do comments exhibit a high variance of outcomes?
- How does the start-up cost compare as a fraction of the projected variance of outcome?
- If the agency were to commit to a sunset provision, what is the likelihood that entities might collude to produce a bad outcome?
- Is this the type of rule that would benefit from an outpouring of academic publications?
- If the rule is adopted, what would be some testable ways of evaluating the effect of the rule?
- Does this rule permit a menu-of-options approach to adoption?
- Do commenters disagree about estimates because firms have divergent cost structures?
- What are the adverse states commenters are bringing up, and how likely are they?
- Are comments driven by worst-case scenarios that may not represent the entire universe of entities?
- Which entities are commenting, and which entities are not?
- Is there likely a huge variance among firms' compliance experience?
- Does this rule admit ex post exemption?
- Is there sufficient evidence for the agency to conclude that the rule makes sense for at least a significant fraction of entities?
- What kind of externality is expected from each entity's individual compliance?

145. Even if the agency does not announce its intention to take an options approach from the outset, it will likely be able to learn quite a bit from the comment process.

If the agency were to grant contingent exemptions, how easily can entities falsify their states?

Can this problem be addressed through enforcement with sanctions? Can a whistleblower program deter such manipulation?

How costly would it be for each entity to meet the burden of production for conditional exemptions?

This is a lengthy list of questions. There may be serious disagreements even as to the answers. But even if the agency is unable to deduce responses to all of the listed questions, its practice of routinely raising them will lead to more innovative and efficient design of the rule.

CONCLUSION

Each time a new administrative rule is adopted, the industry innovates to work with the new rule. If the predominant view is correct that *Business Roundtable*¹⁴⁶ changed the rules of the game for agency rulemaking, now agencies need to innovate around the heightened standard of judicial review. They must find ways to promote more empirically informed rulemaking without necessarily delaying rule adoption. There is good reason to think agencies are currently not optimally allocating their resources between *ex ante* reviews and *ex post* reviews in certain controversial rulemaking.

Under the balancing of costs and benefits that take into account the dynamic aspects of rulemaking, an agency's burden of justifying a rule should be significantly reduced if the agency commits *ex ante* to undertake an *ex post* efficient modification or to grant *ex post* efficient exemptions. An options approach to agency rulemaking provides several benefits. It can facilitate a more transparent dialogue between the agency and the commenters regarding the intended outcome. It can also respond to the critique of agency rulemaking that economic effects are not quantified and that agencies often employ a "one-size-fits-all" approach. It can provide both the agency and the entities with an additional tool for bargaining and compromise. It can promote consideration of outcomes while remaining faithful to the procedure required under the APA and *Business Roundtable*.

This Essay has also outlined some of the pitfalls of an options approach and the factors that would make this approach more or less desirable. Ultimately, the agency should be engaging in a reasoned analysis of whether to take an options approach or whether to proceed with the more conventional approach of adopting rules. The benefit of an options approach will likely be greater where there is great variance and the rulemaking record itself provides a close but not compelling case for the

146. 647 F.3d 1144 (D.C. Cir. 2011).

rule. Overall, this Essay has argued that this approach provides a promising avenue for agencies to promulgate rules going forward.

APPENDIX. A MODEL OF STRATEGIC SUNSET

This Appendix formalizes the discussion above with a simple model, and discusses how to decide whether a rule coupled with a sunset provision passes the CBA test. Consider the following simple model.

An agency is considering adopting Rule x in Period 0 with the following property. The compliance cost with Rule x is $F + c$ in Period 1, and c in all subsequent Periods in which the Rule x is still in effect. Once implemented, Rule x will result in an *annual* net benefit of z (net of c , but not F). z is unknown in Period 0, and is to be revealed in Period 1, once and for all, determined according to the following distribution: $z = m + s$ with probability $1/2$ and $m - s$ with probability $1/2$, where $s > 0, m \in (-s, s)$. (This range for m assures that Rule x is net beneficial in the good state, but net costly in the bad state). In Period 1, the agency must spend $k > 0$ to determine the value of z . Upon determining $z \in \{m - s, m + s\}$, the agency may choose to continue Rule x as is, or may choose to eliminate Rule x , which costs society $C > 0$, the cost of reversion.¹⁴⁷ If Rule x continues, society continues to earn z year after year; if Rule x is reverted, other than all sunk cost, society neither earns nor loses any further value for all subsequent years. The social discount rate is $d > 0$.

PROPOSITION (DYNAMIC EFFICIENCY OF A REVERSIBLE RULE)

1. *Rule Reversibility.* From Period 0's perspective, Rule x is "reversible" if and only if $C + k < \frac{(s-m)}{d}$. In other words, under this condition, the cost of reversing Rule x in the bad equilibrium is smaller than the benefit of reversal.
2. *Absolute Specification.* For a reversible rule,¹⁴⁸ if the agency can show $m > \frac{dF}{1+d}$, Rule x can be adopted under absolute specification. If $F = 0$, then Rule x should be adopted under absolute specification as long as $m > 0$, i.e., if the annual net benefit is positive.

147. As structured, the model does not allow for the possibility that potential manipulation or the lack of proper incentive to invest fully may distort the realization of the state in Period 1. Although it can be easily adjusted to consider such possibilities stochastically, it greatly complicates the model by introducing various scenarios and a new set of assumptions without adding much informational value to the analysis. For this reason, in the main text, I consider all such deviations and lump them up into the "cost of learning."

148. I do not discuss irreversible rules in this proposition. The threshold value of adopting an irreversible rule depends on additional assumptions, including the value of learning and the time value of waiting. See, e.g., Henry, *supra* note 87; McDonald & Siegel, *supra* note 23.

3. *Small Variance Rules.* If the variance of Rule x 's expected net benefit is low, Rule x can *only* be adopted under absolute specification. Let $s^* = d(2k + C) + \frac{dF}{1+d} \geq 0$. If $s \leq s^*$, then Rule x can only be adopted under absolute specification and the agency bears the burden of showing $m > \frac{dF}{1+d}$.

4. *Large Variance Rules.* If Rule x 's variance of expected net benefit is high, Rule x can also be adopted under a contingent specification with a sunset and the agency will bear a reduced burden of justification. Specifically, if $s > s^*$, then Rule x can be adopted as long as $m > \frac{d(2k+2F+C)-s}{1+2d}$, which is smaller than $\frac{dF}{1+d}$. In case $k = F = C = 0$, Rule x should be adopted on a contingent basis for all negative values of m greater than $\frac{-s}{1+2d}$.

Proof.

1. Under the model's setup, the realized z value will be either $m + s$ or $m - s$ in Period 1. Society will incur F in Period 1 no matter what and will also incur k if it wants to evaluate the rule's effect. If the bad state were to be realized, society *loses* $(s - m) > 0$ in Period 1, and stands to lose $(s - m)$ in all subsequent periods. Society can spend C to reverse the rule. Nevertheless, from Period 1's perspective, the maximum net present value of society's loss from continuing with Rule x is

$$\frac{(s - m)}{(1 + d)} + \frac{(s - m)}{(1 + d)^2} + \dots = \frac{(s - m)}{d}.$$

Therefore, if the cost of reversion (C) is greater than this value, it does not make sense to reverse the rule. Hence, subject to spending k and discovering the realized state, the rule is *de facto* irreversible if $C > \frac{(s-m)}{d}$. On the other hand, if $C + k > \frac{(s-m)}{d}$, a known value, there is no reason to even spend k at this point to learn the state of the world. Therefore, if $C + k > \frac{(s-m)}{d}$, the rule is *de facto* irreversible from Period 0. By contrast, if $C + k < \frac{(s-m)}{d}$, society benefits from reversing the rule in case the bad state materializes.

2. For the rule to be justified on an absolute specification basis, the expected net benefit of having Rule x in perpetuity must be positive. However, in this case, there is no need to spend k to ascertain the state, since it will have no bearing on Rule x 's future. Thus, from Period 0's perspective, an absolute specification will entail incurring F in Period 1, and the net expected benefit of $\frac{1}{2} \frac{(m+s)}{d} + \frac{1}{2} \frac{(m-s)}{d}$, which from Period 0's perspective, sums up to $\frac{m}{d} - \frac{F}{1+d} > 0$.

3 & 4. Given a reversible rule, society will incur $F + k$ in Period 1 no matter what. From Period 0's perspective, there is a fifty percent chance that society will have earned $m + s$ in Period 1 and in all subsequent periods, and a fifty percent chance that society will incur $m - s$ in Period 1, spend C , and neither earn nor lose any more value. Therefore, the net expected value of going forward with Rule x is

$$\frac{-(F + k)}{1 + d} + \frac{1}{2} \frac{(m + s)}{d} + \frac{1}{2} \left(\frac{(m - s)}{1 + d} - \frac{C}{1 + d} \right).$$

Rearranging these terms gives

$$\left(\frac{1 + 2d}{2d(1 + d)} \right) \left(m - \frac{(d(2k + 2F + C) - s)}{(1 + 2d)} \right).$$

which is net positive as long as $m > \frac{(d(2k+2F+C)-s)}{(1+2d)}$. Meanwhile, if this threshold value is greater than $\frac{dF}{1+d}$, then the burden of justifying a contingent rule is higher than the burden of justifying an absolute rule. This happens when $\frac{(d(2k+2F+C)-s)}{(1+2d)} > \frac{dF}{1+d}$, which reduces to $s < s^* = d(2k + C) + \frac{dF}{1+d}$. *Q.E.D.*

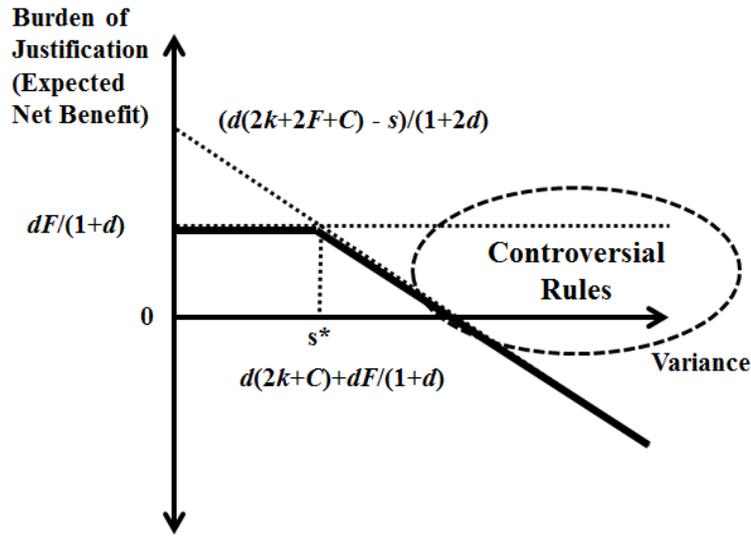


Figure 1. Dynamic Efficiency of a Reversible Rule

The above proposition shows that the decision of implementing Rule x should depend not solely on the expected net annual benefit of Rule x (that is, m) being positive (or more precisely, m being greater than $\frac{dF}{1+d}$), but rather on m being greater than $\frac{(d(2k+2F+C)-s)}{(1+2d)}$.

Figure 1 depicts this dynamic efficiency of a reversible rule. The bold-faced line segments indicate how the threshold of justification decreases (i.e., easier to pass the rule) as variance increases. By assumption, controversial rules *de facto* exhibit a high variance of the expected net benefit because there are a lot of disagreements as to the overall effect of the rule. Unlike $\frac{dF}{1+d}$, which is necessarily non-negative, $\frac{(d(2k+2F+C)-s)}{(1+2d)}$ may be negative and large (mostly depending on the variance s). The most interesting case is the following:

$$dF \sim \frac{dF}{1 + d} > 0 > m > \frac{(d(2k + 2F + C) - s)}{(1 + 2d)}.$$

Take $d = 0.05$, $c = \$1$ million, $s = \$100$ million, $m = -\$50$ million, and $k = F = C = 0$. Then as long as the expected net annual value of Rule x is greater than $-\$91$ million, it makes sense for the agency to go forward with Rule x .

On Experimentation and Real Options in Financial Regulation

Matthew Spitzer and Eric Talley

ABSTRACT

Financial regulators have recently faced enhanced judicial scrutiny of their cost-benefit analysis (CBA) in advance of significant reforms. One facet of this scrutiny is judicial skepticism toward experimentation (and the real option to abandon) in the CBA calculus. That is, agencies have arguably been discouraged from counting as a benefit the value of information obtained through adopting new regulations on a provisional basis, with an option to revert to the status quo in the future. We study field experimentation versus more conventional forms of CBA (or analytic learning) in a regulatory-judicial hierarchical model. We demonstrate that there is no principled basis for dismissing (or demoting) experimentalism and that such rationales deserve a place in agencies' standard CBA arsenals. Nevertheless, our analysis also reveals an institutional reason for the tension between the judiciary and regulators, suggesting that regulators are plausibly too eager to embrace field experimentation while judges are simultaneously too recalcitrant.

1. INTRODUCTION

Thus far, the 21st century has proven decidedly unkind to the Securities and Exchange Commission (SEC). The commission has been targeted for considerable blame for its conduct leading up to the financial crisis,

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it has been embarrassed by its negligence in exposing infamous financial scandals (such as Bernard Madoff), and it has been overrun with the monumental tasks of implementing the two most comprehensive financial market legislative overhauls of the last 80 years (the Sarbanes-Oxley Act of 2002 and the Dodd-Frank Act of 2010). Arguably, however, none of these burdens has been as monumental as the epic “beat-down” the SEC has suffered in the courtroom, where it has encountered spirited (if not unprecedented) challenges to its rule-making authority under the Administrative Procedures Act (APA). In the last decade, the D.C. Circuit has applied the arbitrary-and-capricious standard under the APA to invalidate at least three significant SEC rule-making decisions (*Chamber of Commerce of the United States v. SEC* [412 F.3d 133 (D.C. Cir. 2005)]; *American Equity Investment Life Insurance Company v. SEC* [613 F.3d 166 (D.C. Cir. 2010)]; *Business Roundtable v. SEC* [647 F.3d 1144 (D.C. Cir. 2011)]).

A consensus poster child for the SEC’s ministerial malaise is the 2011 case *Business Roundtable v. SEC*, where a three-judge panel for the D.C. Circuit invalidated a significant reform to the proxy rules that govern public companies. Under rule 14a-11, publicly traded issuers and investment companies would have been required (under certain circumstances) to allow shareholders controlling at least 3 percent of an issuer’s voting securities to place their own nominees on the ballot for regular directorial elections. (This would have represented a mandatory change from the status quo ante, in which dissident shareholders must usually underwrite a proxy challenge, often at considerable risk and expense.)

After a contentious, party-line vote by the commission approving the rule change, the Business Roundtable and U.S. Chamber of Commerce filed a timely (and nearly immediate) challenge to the reform. Writing on behalf of a unanimous three-judge panel, Judge Douglas Ginsburg held that the commission had acted arbitrarily and capriciously in failing to assess the economic effects of the new rule, and accordingly the court invalidated and vacated the rule change. In particular, the court held that the SEC inconsistently and opportunistically framed the costs and benefits of the rule, that it failed to respond to potential problems raised in the notice and comment period, that it failed to quantify adequately certain costs or otherwise explain why they could not be quantified, and that it neglected to support its predictive judgments about the rule.¹

1. The plaintiffs did not challenge—and the court did not overrule—a contemporaneous rule change under rule 14a-8, which prevents companies from excluding shareholders’ proposals to establish procedures for proxy access.

We are personally uncertain whether—had it survived judicial scrutiny—rule 14a-11 would have generated positive or negative net economic effects. It is unclear, in fact, whether *anyone* could—in good faith—conjure a convincing case for either position. Indeed, an issue that continually plagues empirical corporate governance research is the challenge of using observational studies to demonstrate much of anything, much less the likely effects of novel reforms.

Rather, our interest in *Business Roundtable* (and cases of its ilk) focuses precisely on its epistemic indeterminacy: how, if at all, should one think of cost-benefit analysis (CBA) in situations in which theory is contested, empirics unclear, and politics pervasive? In this paper, we advance the argument that many of the recent judicial opinions related to financial regulation have placed too much emphasis on the ex ante empirical quantifiability of the costs and benefits of a proposed rule, giving short shrift to the role of regulatory experimentation (with an embedded real option to abandon) as a part of a CBA. Specifically, we argue that the judiciary's rhetoric in these recent cases effectively deters regulators from touting as one of the benefits from regulation the information produced through field-testing a new rule and the concomitant option to revert to the status quo ante (if appropriate) should the test prove unsuccessful. The failure to appreciate the real-option value of regulatory experimentation, we argue, has induced courts to be overly skeptical of innovative administrative reforms. Moreover, as financial markets grow more complex, nuanced, and difficult to measure with observational data, the real-option value of regulatory field experimentation also becomes greater.

To investigate and illustrate our argument, we develop and analyze a game-theoretic framework of an administrative-judicial hierarchy, using it to assess the relative importance of traditional CBA (which we call “analytic learning”) versus the learning-by-doing benefits of regulatory experimentation. Using the model, we demonstrate that indeed there is no principled a priori basis for categorically disfavoring (or favoring) field experimentation within a cost-benefit framework. That is, depending on the facts and circumstances of a given case, and the technologies for regulatory learning available, an optimal regulatory policy might rely exclusively on analytic learning, exclusively on field experimentation, or on some combination of the two.

Nevertheless, our analysis also suggests that there may be a structural reason for the evident tension between the SEC's experimentalist zeal and the D.C. Circuit's squinty-eyed skepticism—one that does not nec-

essarily hinge on differing ideological commitments among regulators and judges. Rather, our model suggests that the relative costs and benefits of each type of regulatory learning are not evenly distributed among the relevant players. Regulators—who disproportionately bear the costs of analytic learning—are likely too eager to embrace field experimentation, while the judiciary—who disproportionately bear the costs of experimentation—are simultaneously too recalcitrant. In the end, we argue, neither unfettered regulatory license nor unfettered judicial veto rights are likely to give rise to an optimal scheme for regulatory learning.

Three caveats deserve mention before proceeding. First, although we limit our arguments in this paper to financial regulation (focusing on the corporate and securities context), our analysis would potentially be applicable to other forms of regulation, such as environmental, communications, transportation, tax, and the like (see, for example, Sabel and Simon 2011; Sunstein 2002). In each case, the relative merits of experimental versus analytic learning would hinge on the relative costs, benefits, and precisions of each form of learning. Robust capital markets stand out, however, because participants regularly price out regulatory reforms in observable ways, thereby providing rapid and probative feedback to regulatory decision makers. By comparison, other domains—such as environmental regulation—plausibly require more protracted experiments yielding more recondite results. Given the amenability of securities markets to field testing, then, it is perhaps ironic that courts have arguably scrutinized the SEC’s experimental efforts with greater (not lesser) skepticism than other regulatory domains.

Second, this paper is far from the first to suggest the use of experimentation in financial regulation. Even before the Business Roundtable complaint was filed, one of us advanced the thesis that rule 14a-11 was best viewed as a field experiment, yielding valuable future information about whether rule change would be worth keeping (Talley 2010). This debate joins a larger one about whether administrative agencies have anything near the requisite expertise and knowledge to regulate effectively and efficiently, particularly when randomized, clinical experimentation is impractical (see, for example, Romano 2012; Whitehead 2012; Posner and Weil 2013; Forstall 2012; McGinnis 2013).

Perhaps closest to our analysis in this regard are recent papers by Lee (2013) and Gubler (2014), both of whom also criticize the *Business Roundtable* decision while advocating greater judicial deference to the use of field experiments. Our approach joins with that of Lee and Gubler in this assertion. Our approach goes further, however, in that we situate

our analysis in a game-theoretic institutional setting involving regulators and judicial actors who have not only policy preferences, but also specific preferences about how costs are distributed in a regulatory hierarchy. In so doing, we show that while field experimentation continues to have clear value in this setting, the players' places in the regulatory process may cause regulatory experimentation to be overvalued by the regulator (even as it is excessively discounted by the judiciary).²

Finally, in framing our analysis, we use *Business Roundtable* as a salient example of judicial hostility toward administrative experimentation.³ At the same time, it bears noting that although numerous commentators at the time debated rule 14a-11 in terms of its experimental value (Talley 2010; Ribstein 2010), the SEC's own CBA tended to downplay that perspective. It is an open question whether—had the CBA more forcefully embraced experimentalism—the rule would have survived judicial scrutiny. On the basis of our reading of the case (as well as other anecdotal evidence),⁴ we have reason to be skeptical, and we proceed on that basis.

In any event, other recent judicial opinions have suggested that the crescendo of judicial scrutiny over financial regulation has perhaps begun to abate. In the recent case of *Investment Co. Institute v. Commodity Futures Trading Comm'n* (720 F.3d 370 [D.C. Cir. 2013]), for example, the D.C. Circuit upheld the Commodity Futures Trading Commission's rule change requiring public registration by investment companies that were previously exempt. Many of the arguments advanced by the plaintiffs (indeed many of the plaintiffs themselves) were the same as in *Business Roundtable*. Although one case does not make for a trend, it at the

2. Sunstein (2014) recommends the use of break-even analysis—subject to a maximin criterion—to inform cost-benefit analysis (CBA) in financial regulation in information-impooverished environments. Although his analysis is largely silent on the question of regulatory experimentation and the real option to abandon, the framework we propose nests comfortably within Sunstein's proposal.

3. Others have similarly observed that the case marks an increasing escalation in the Federal Circuit of scrutiny over financial regulation. (For example, we note that many other commentators have made similar observations about the case; for example, Cox and Baucom [2012]; and Kraus and Raso [2013].)

4. Shortly after the publication of *Business Roundtable*, at an endowed lecture delivered by Judge Ginsburg related to the case, coauthor Talley (acting as commentator) posed the question of whether rule 14a-11 might have been more fruitfully assessed through the lens of field experimentation. Judge Ginsburg's response suggested significant resistance to regulatory experimentalism, going so far as to draw an analogy to the infamous U.S. Public Health Service Tuskegee syphilis experiment (1932–72). Viewed in this light, the lack of explicit reliance on experimentalism in the CBA for rule 14a-11 was plausibly the by-product of (correctly) anticipated hostility toward such rationales.

very least suggests that the D.C. Circuit has begun to reconsider the appropriate role of regulatory experimentation. Nevertheless, with the judicial situation in flux, and with Congress currently entertaining legislation that would require enhanced CBA for financial regulation,⁵ this is a particularly apt time for academic participants to make meaningful contributions to the debate.

Our analysis proceeds as follows. Section 2 develops a dynamic game-theoretic framework for our analysis, including the formal development of two different (and nonexclusive) modalities for regulatory learning. Section 3 analyzes how the judiciary and administrative agencies interact in a judicial and/or regulatory hierarchy. Here we demonstrate that various institutional factors can induce regulators to be (inefficiently) too anxious to experiment while making judges (inefficiently) too recalcitrant. The section also demonstrates that the interaction of regulators and the judiciary during the judicial review process does not necessarily improve things from a welfare perspective. Section 4 discusses the robustness of our results along with several possible extensions. Section 5 concludes.

2. FRAMEWORK AND PRELIMINARIES

In this section we develop and analyze a game-theoretic framework for assessing the relative benefits of conventional empirical cost-benefit research versus the benefits of field experimentation. Although based loosely on *Business Roundtable v. SEC* (647 F.3d 1144), the framework described is deliberately abstract, and—as noted above—it may be generalizable to other areas involving regulatory learning in administrative law. The information structure is similar in spirit to the framework developed in Spitzer and Talley (2000, 2013), but it is adapted for the specific context of the problem at issue here.

Consider an economy of size N with a time horizon of $T + 1$ discrete periods, indexed by $t \in 0, 1, 2, \dots, T$. Period $t = 0$ denotes an ex ante period. For each period $t \geq 1$, the economy is regulated by a single policy within a policy space $Y \equiv \mathbb{R}^1$, where element $y \in Y$ represents a specific policy. The implied ordering of the policy space is deliberate, and it lends itself to many real-world policy debates; for the sake of concreteness, suppose that the policy decision reflects the impediments placed on minority shareholders of public companies who wish to nom-

5. See, for example, Financial Regulatory Responsibility Act of 2013, S. 450, 113th Cong. (2013). For a good overview, see Bartlett (2014).

inate their own candidates in corporate board elections. Under this interpretation, larger values of y correspond to increasingly more conservative policy stances (that is, unfriendly to minority shareholders). The reverse movement corresponds to increasingly liberal stances (that is, solicitous of minority shareholders). Without loss of generality, we normalize the policy $y = 0$ to represent the maximally centrist position in policy space.

Suppose that at $t = 0$, a default status quo policy is already in place and that its location is common knowledge to all participants (for example, by dint of extensive experience with the incumbent policy). Denote y_0 as the location of the status quo, and further assume (also without loss of generality) that this location takes on a positive value,⁶ so $y_0 = \alpha > 0$.

Also at $t = 0$, suppose that an alternative policy (denoted y_1) has been proposed that would move the regulatory regime away from the status quo.⁷ Unlike the status quo, however, we assume the alternative policy is unfamiliar and untested—a key challenge that typifies much of rule making in financial regulation. To capture this factor analytically, we assume that y_1 's true location in policy space Y is not known with certainty. Rather, its location is commonly known to be a random variable (Y_1) distributed normally with mean μ and precision τ .⁸ The uncertainty about the location of the alternative drives our analysis in two ways. First, the players are assumed to be averse to risk, and second, two technologies are available to the regulator that can generate more precise information about the distribution of Y_1 . Both of these dimensions are detailed below.

Implementing a new policy imposes a lag of 1 period. Thus, if a switch to the alternative policy (or a switch back from the alternative) is declared at time t , the new policy will become effective in period $t + 1$.

There are three relevant players in the game: the public (P) of size N , which is ultimately regulated by either the status quo ante policy or

6. All the intuitions below follow (but from the other direction) when y_0 takes on negative values. The only thing necessary to impel our analysis forward is for the status quo ante to be distinct from the first-best choice of at least one of the relevant decision-making constituencies.

7. We do not consider (at least for now) how this alternative comes to the fore. However, the equilibrium behavior described below would characterize the continuation payoffs of an initial stage in which the policy alternative is selected.

8. Recall that the precision of a normal random variable is the reciprocal of the variance, so $Y_1 \sim N(\mu, [1/\tau])$. In the analysis that follows, it is more economical to express variance measures in terms of precision.

the alternative policy; a unitary regulator (R), who makes an initial decision about whether to retain the status quo or embrace the alternative (and on what terms); and a unitary judiciary (J), which is in a position to veto the regulator's choice to implement the alternative. The judiciary's veto right is asymmetric and takes hold only on the regulator's adoption of the alternative policy; that is, J cannot veto a regulator's choice to maintain the status quo.

2.1. Preferences and Welfare

Each player in the game receives payoffs that include (but need not be limited to) her preferences over regulatory policy.⁹ Specifically, suppose that each player $i \in \{P, R, J\}$ has an ideal point y_i^* in policy space Y . These ideal points correspond to the policy locations that—if known with certainty—would be most suited to each player's ideological dispositions. For the public, this ideal point might correspond to the policy preference of a representative citizen or alternatively that of the median citizen or voter. For players R and J, this ideal point may coincide with the public's or may be determined in other ways. Denote these ideal points by $\{y_P^*, y_R^*, y_J^*\}$ for players $\{P, R, J\}$, respectively. We normalize the public's policy preference at $y_P = 0$. Thus, as with the policy space, if another player has a policy preference $y_i^* > 0$, we describe that player as being more conservative than the public; conversely, if player i has policy preference $y_i^* < 0$, she is more liberal than the public. We concentrate most of our analysis on the special case where, like the public, the regulator and judiciary share centrist policy commitments, so $y_R^* = y_J^* = y_P^* = 0$. This restriction not only simplifies our analysis, but it allows us to concentrate more squarely on the structure of the judicial-regulatory hierarchy. We discuss the implications of relaxing this assumption in Section 4.¹⁰

Each player derives utility in each period (at least in part) from minimizing the expected squared distance between its ideal point y_i^* and the governing policy during each period. (All players discount future periods' payoffs using a common discount factor $\beta \leq 1$.) The concave nature of each party's per-period utility function in policy space suggests that, *ceteris paribus*, the players will exhibit risk aversion in their policy pref-

9. In addition, the regulator also has preferences about uncompensated costs that it incurs in conducting certain types of CBA.

10. We are constrained by the length limitations for this symposium submission. We hope to extend the build-out model further in this direction in later papers.

erences in each period, inducing a bias toward the known quantity represented by the status quo ante.

Finally, in order to facilitate comparisons across different regimes, the model must commit to a welfare measure. In what follows, we equate social welfare to the weighted sum of the expected payoffs of the regulator, the courts, and the public, scaling the latter's payoff by the size of the economy, N . Consequently, as the economy grows, the relative importance of the regulator's and the judiciary's payoff shrinks proportionally (even though their incentives remain relevant to the ultimate choice of policy).¹¹

2.2. Regulatory Learning

Because the true location of the alternative policy is stochastic, the risk-averse players value acquiring additional knowledge about the realized location of y_1 . The administrative agency plays the key role in producing such information, and, accordingly, we consider two distinct (but not mutually exclusive) forms of regulatory knowledge acquisition: analytic learning and field experimentation. We describe each approach below.

2.2.1. Analytic Learning. This form of regulatory learning is perhaps the most familiar manifestation of what many traditionally envision when considering CBA by administrative agencies. Under analytic learning, the regulator attempts (at some cost) to harvest a variety of evidence (theoretical, empirical, anecdotal, experimental, and the like) that is probative of the alternative policy's characteristics. By so doing, the regulator (and others) gains more precise information about the alternative's desirability relative to the status quo. All else constant, in the light of the players' risk aversion, greater precision is valuable.

To capture the intuition of analytic learning, we assume that R can extract a signal (denoted Z) about the location of y_1 within the policy space. Specifically, signal Z is assumed to be normally distributed with a mean equal to the true value of y_1 and a precision of γ . We assume that R may choose any precision $\gamma \geq 0$ it desires. However, the regulator's choice of precision also imposes a direct cost of effort, $c(\gamma)$, which we

11. Because N is essentially a free parameter of the model, it may also be interpreted as reflecting broader considerations about how to trade off the public's welfare against governmental actors' welfare.

assume is uncompensated and borne solely by the regulator.¹² Specifically, suppose that $c(0) = 0$, $c'(\gamma) > 0$, and $c''(\gamma) > 0$, so increasing precision comes at an increasing marginal cost. (One possible example is a quadratic cost, $c(\gamma) = c_0(\gamma^2/2)$ for $c_0 > 0$, so the costs of precision increase in the square of the target precision level.) The fact that the regulator must bear the uncompensated costs of analytic learning can introduce important agency costs into the model.¹³

If the regulator engages solely in analytic learning, it must opt for either the status quo ante or the alternative immediately after observing Z , and it may not alter course thereafter up to period T .

2.2.2. Field Experimentation. A second form of learning available to the regulator is what we call field experimentation. Under this approach, the regulator effectively test drives the alternative policy, embracing it on a trial basis that lasts for K periods (where $K \leq T$). At the end of K periods, the regulator must choose whether to keep the alternative in place or to revert back to the original status quo ante (starting in period $K + 1$). Field experimentation is roughly tantamount to a policy change that includes a mandatory sunset provision so that the policy change must be reactivated once the trial period ends (see, for example, Gersen 2007).

To capture the intuition of field experimentation, we assume that in each period the alternative policy is in place, it generates probative data about the location of y_1 . Specifically, for each period of the field test $k = 1, 2, \dots, K$, a signal V_k about the alternative is generated. The sequence of signals is denoted $\{V_1, V_2, \dots, V_K\}$, and we assume that each V_i is independently and normally distributed with mean equal to the true value of y_1 and precision ω . Once the experimental period is complete (that is, at the completion of period K), R must immediately choose between making the experiment permanent or returning to the status quo, and this decision becomes effective in period $K + 1$ lasting

12. The assumption that the costs of analytic learning are borne solely by the regulator can be relaxed, but many of our results hinge on the relative costs of analytic learning versus experimentation being larger for the regulator than for the judiciary. We justify this assumption with a more extended discussion in Section 4.

13. It is important to acknowledge that because regulators are nominally provided with a government budget, at least some portion of verifiable costs associated with analytic learning are compensated. That said, it is eminently plausible that regulators bear at least some uncompensated fraction of analytic learning costs, either because they are under-compensated for the work they do, or because budgets are arguably exogenous to workload, or because regulators must allocate budgets across multiple projects, generating a noteworthy opportunity cost.

until terminal time T . Unlike analytic learning, field experimentation does not impose an idiosyncratic cost on the regulator; however, it may still be perceived as costly to all parties to the extent that the status quo appears preferable given the information available at the time the experiment commences.

2.2.3. Hybrid Learning. The two learning approaches can be employed in isolation, but they can also be combined. That is, the regulator could choose to invest in some analytic learning ($\gamma > 0$) while also committing to engage in field experimentation ($K > 0$). Consequently, the regulator's learning plan entails two choice parameters: (γ, K) . In order to keep things tractable (at least at this stage), we make a simplifying assumption that the real option to abandon the experiment is a "European" option, exercisable only at the conclusion of its maturity period K . In other words, the regulator must commit to regulatory learning policy (γ, K) at the onset at $t = 0$, and it is not free to alter its plan in response to interim signals that the experiment might yield while underway. (Equivalently, R may be unable to observe such signals until the trial period is complete.) Only when the experimental period ends may the regulator marshal all available evidence to make a decision about whether to continue embracing the alternative or revert to the status quo—a decision that endures thereafter until terminal time T . This constraint permits one to isolate the option value associated with regulatory learning at a single point, K .¹⁴ Hybrid learning protocols create something akin to the learning that occurs in well-known bandit problems in decision theory (for example, Berry and Fristedt 1985), albeit one that is in this case nested within a strategic environment.

As a final aside, it bears noting that this specification is rich enough to allow for the consideration of most of the serious policy contenders that are related to regulatory learning. Specifically, the regulator can choose to engage exclusively in analytic learning (with no field experimentation) by fixing $\gamma > 0$ and $K = 0$. In contrast, the regulator can engage exclusively in field experimentation (with no analytic learning) by fixing $\gamma = 0$ and $0 < K < T$. Finally, the regulator can effectively short-circuit all learning—issuing an immediate, uninformed choice between the status quo and the alternative—by choosing $\gamma = K = 0$.

14. While this is a restrictive assumption, note that relaxing it would permit the regulator to exercise a real option at other junctures in the model, thereby enhancing the relative attractiveness of experimentation. Thus, the analysis below could be seen as identifying a lower bound for the value of experimentation coupled with the real option of abandoning.

2.3. Regulatory Hierarchy and Sequence of Moves

Finally, as noted above, this paper situates a comparison of experimental and analytic learning in a hierarchical model of regulatory-judicial interaction. We assume the following sequential interaction between R and J:

1. In period $t = 0$, R announces a learning plan (γ, K) associated with its CBA.
2. Immediately thereafter (also in period $t = 0$), R's plan is challenged by an interest group and brought before J. J makes a decision (upholding or overturning) that maximizes its expected payoff given its information and conjectures about equilibrium play at that stage of the game.
3. If J overturns the plan at $t = 0$, the status quo rule ante remains in effect through period T .
4. If J upholds, then R's plan goes into effect and y_1 is put into effect through period $t = K$, at which point R makes a posterior decision about whether to retain y_1 for the remaining periods or instead to revert to y_0 .
5. Regardless of whether R decides at $t = K$ to retain or revert, its decision is once again immediately subject to review, and J may veto or uphold the agency's posterior decision.

Although this structure provides a relatively intuitive benchmark, it goes without saying that no extensive form is sacrosanct and that other sequential structures are plausible as well. (Our discussion takes on other candidates in Section 4, offering conjectures about their effects on our results.)

3. ANALYSIS OF MODEL

With this analytic framework in hand, we now proceed to analyze and assess the plausible equilibria that emerge. We proceed first by characterizing the benchmark socially optimal CBA, contrasting it to R's and the J's respective preferred plans (were they to have absolute decision-making authority). We then turn to analyzing how the judiciary and agency behave in equilibrium, comparing that outcome with the social optimum.

3.1. Socially Optimal Cost-Benefit Analysis

Consider a first-best learning protocol, in which (γ, K) are chosen by a benevolent social planner in order to maximize expected social welfare.

Recall that under the status quo, the policy location of y_0 is known with certainty ($y_0 = \alpha \geq 0$), and thus each player's expected payoff for each period that is associated with the status quo is the expected squared distance between the ideal point and α :

$$EU_i(y_0) = E[-(y_i^* - y_0)^2] = -\alpha^2. \tag{1}$$

As of $t = 0$, imposing the assumption that all players share the ideal point of 0 in policy space, staying with the status quo yields an expected payoff for each player:

$$EU_i(y_0) = \sum_{t=1}^T -\beta^t(0 - \alpha)^2 = -\alpha^2 \left(\beta \frac{1 - \beta^T}{1 - \beta} \right). \tag{2}$$

Aggregating across time and all three constituencies, and recalling that the size and welfare weight of the public is N , total joint welfare associated with the status quo ante is given by

$$ESW(y_0) = -\alpha^2 \left(\beta \frac{1 - \beta^T}{1 - \beta} \right) (N + 2). \tag{3}$$

Now consider, in contrast, the payoffs associated with an announced regulatory learning plan (γ, K) . Note that because all random variables and signals are assumed to come from the conjugate family of normal distributions, any distribution that is conditioned on combinations of random variables and observed signals is also normal. Consequently, suppose that the trial period has been completed, revealing both an analytic-learning signal Z and a series of field experimentation signals $\{V_1, \dots, V_k\}$. The conditional random variable $(Y|Z, V_1, \dots, V_k)$ is distributed normally with the following parameters:

$$(Y_i|Z, V_1, \dots, V_k) \sim N \left(\frac{\tau\mu + \gamma z + \omega \sum_{t=1}^K v_t}{\tau + \gamma + \omega K}, \frac{1}{\tau + \gamma + \omega K} \right). \tag{4}$$

To economize on notation, it is possible to compress R 's observed information into the observation of a single, hybridized signal X , with realization

$$x = \frac{\tau\mu + \gamma z + \omega \sum_{t=1}^K v_t}{\tau + \gamma + \omega K}. \tag{5}$$

It is straightforward to confirm that the unconditional distribution of X is normal with mean μ and precision $\tau[1 + (\tau/\gamma + \omega K)]$. (See the Appendix for this and all other derivations and proofs.) Conditional on observing hybridized signal x , the expected payoff of choosing the alternative policy is

$$\begin{aligned} -E([Y_1 - \gamma_i^*]^2|x) &= -E([Y_1 - 0]^2|x) = -(E[Y_1|x])^2 - \text{Var}(Y_1|X) \\ &= -(x)^2 - \frac{1}{\tau + \gamma + \omega K}. \end{aligned}$$

Consequently, all parties will favor retaining the alternative strategy if and only if its per-period expected payoff from the alternative strategy (conditional on CBA learning) exceeds its known payoff under the status quo ante. In other words, the planner will favor the alternative after observing x if and only if

$$\alpha^2 > x^2 + \frac{1}{\tau + \gamma + \omega K}. \quad (6)$$

In principle, the hybrid signal may be so far from the social optimum that this condition is not satisfied. In fact, the condition may not be satisfied even when the hybrid signal conveys good news about the estimated location of the alternative (that is, that $x = 0$). This latter intuition is formalized in the following lemma.

Lemma 1. It is never socially optimal to remain with the alternative strategy after experimentation if $\tau + \gamma + \omega K < 1/\alpha^2$.

The condition in lemma 1 is a sufficiency condition for the status quo to remain socially optimal regardless of what information is generated from the CBA learning plan (γ, K) . Effectively, it states that no amount of regulatory effort can render the alternative an attractive option if the aggregate information derived from that effort is too imprecise. If the condition in lemma 1 is not satisfied, then it may be optimal to embrace the alternative policy over the status quo after experimentation, but only if the hybrid signal X falls into the interval

$$x \in [-x^*(\gamma, K), x^*(\gamma, K)], \quad (7)$$

where $x^*(\gamma, K) = +\sqrt{\alpha^2 - (1/\tau + \gamma + \omega K)}$. In other words, the hybrid signal X must be within a symmetric interval around the players' common ideal point to justify embracing the status quo and forgoing experimentation.

Combining these considerations, the social welfare problem is to choose a learning strategy (γ, K) that maximizes the expected improvement in social welfare over the status quo, or $\Delta_{\text{ESW}}(\gamma, K) \equiv \text{ESW}(\gamma, K) - \text{ESW}(y_0)$. In terms of the model's parameters, this measure is defined as follows:

$$\begin{aligned} \Delta_{\text{ESW}}(\gamma, K) = & -c(\gamma) - (N + 2)\left(\beta \frac{1 - \beta^K}{1 - \beta}\right)\left(\mu^2 + \frac{1}{\tau} - \alpha^2\right) \\ & - (N + 2)\beta^{K+1} \frac{1 - \beta^{T-K}}{1 - \beta} E_x \left[\min\left\{0, x^2 + \frac{1}{\tau + \gamma + \omega K} - \alpha^2\right\} \right], \end{aligned} \tag{8}$$

where the first term on the right-hand side is the social cost of analytic learning, the second term is present discounted value (PDV) of the social cost of experimentation, and the third term is PDV of the social value of the real option to abandon.

More specifically, the above total social welfare measure has three component parts. The first component is the regulator’s direct cost of engaging in the analytic learning, or $c(\gamma)$. The second is the aggregate present value of the expected social welfare loss associated with the experimental period, where the status quo ante (of $-\alpha^2$) is passed up for K periods in exchange for the expected (risk-adjusted) payoff of the alternative (or $-\left[\mu^2 + (1/\tau)\right]$). (Given the assumptions in the lemma, this cost to social welfare of experimentation is always positive.) The third component in expression (8) is the present value of the real option to abandon the reform at the end of the prescribed sunset period, informed by the fruits of the experimental plan. Note that this term enters $\Delta_{\text{ESW}}(\gamma, K)$ in a strictly positive fashion. Let $(\gamma^{\text{ESW}}, K^{\text{ESW}})$ denote the optimal learning plan in the sense of maximizing $\Delta_{\text{ESW}}(\gamma, K)$.

Analysis of the social planner’s problem yields the following proposition (proof in the Appendix).

Proposition 1. If $\alpha^2 > 1/\tau$ and $c'(0)$ is sufficiently small, then $\gamma^{\text{ESW}} > 0$. Similarly, if $\alpha^2 > 1/\tau$ and μ is sufficiently small, then $K^{\text{ESW}} > 0$.

The intuition behind proposition 1 is simple and intuitive. It essentially states two results: First, it states that some analytic learning will be socially optimal so long as the marginal cost of investing in precision (captured by γ) is sufficiently low and the location of the status quo ante is not too close to first best. Second, it states that at least some experimentation will be socially optimal so long as the cost of experimentation (captured by μ) is sufficiently low and the status quo ante is not too close to first best.

Note that the sufficiency conditions given in proposition 1 are similar but not identical for the inclusion of analytic learning and field experimentation (respectively) in an optimal CBA. In other words, an implication of proposition 1 is that the social optimum might involve a corner solution consisting solely of either analytic learning with no experimen-

tation or experimentation with no analytic learning. However, there does not appear to be any categorical reason to expect one of these corner solutions to obtain rather than the other. Moreover, the conditions in proposition 1 may be satisfied simultaneously for both analytic learning and field experimentation. This result is sensible, even if it is inconsistent with the view (arguably harbored by at least some recent judicial opinions and proposed legislation) that field experimentation should be categorically disfavored against other forms of CBA. To the contrary, proposition 1 suggests that the importance of field experimentation relative to analytic learning turns on the facts and circumstances of the case.

3.2. Institutional Preferences

Before proceeding to the strategic interaction between the two strategic players R and J, we first consider their preferences over policy generally—that is, if each had the absolute right to implement his or her most preferred policy. As before, we continue to assume that the public, the regulator, and the judiciary share the same ideal point in policy space; nevertheless, the institutional structure of their interaction suggests that an agency cost problem can exist because of the distribution of social costs and benefits associated with CBA.

Consider first the net payoff to the agency associated with a learning plan (γ, K) , which we denote $\Delta_R(\gamma, K)$:

$$\begin{aligned} \Delta_R(\gamma, K) = & -c(\gamma) - \left(\beta \frac{1 - \beta^K}{1 - \beta} \right) \left(\mu^2 + \frac{1}{\tau} - \alpha^2 \right) \\ & - \beta^{K+1} \frac{1 - \beta^{(T-K)}}{1 - \beta} E_x \left[\min \left\{ 0, x^2 + \frac{1}{\tau + \gamma + \omega K} - \alpha^2 \right\} \right]. \end{aligned} \quad (9)$$

Although this expression looks similar to the social welfare measure above, it differs in a few important ways: in equation (9) the regulator internalizes neither the full social cost of experimentation (that is, that portion borne by the public or the judiciary) nor the full social benefit of the real option to abandon. However, the regulator does internalize the full social cost of investing in analytic learning (that is, $c(\gamma)$). Consequently, if the regulator were left to its own devices to maximize $\Delta_R(\gamma, K)$, it would tend to oversupply experimentation and undersupply analytic learning in its CBA.

Stated more formally, comparing equation (9) with equation (8) yields the following propositions.

Proposition 2. The regulator (weakly) prefers to engage in too little

analytic learning and excessive field experimentation relative to the social optimum. However, the regulator would implement a socially optimal learning protocol if it were constrained to choose any $\gamma \geq \gamma^{\text{ESW}}$.

One notable feature from proposition 2 is the observation that the regulator can be induced to adopt a socially optimal research plan solely by requiring it to invest in at least as much analytic learning as is characterized by γ^{ESW} . In other words, once the regulator is constrained to engage in no less than the socially optimal amount of analytic learning, it would proceed to select the first-best level of experimentation on its own accord. This lower bound might be interpreted as the analog of a first-best arbitrary-and-capricious standard.

Unfortunately, it is unlikely that the judiciary would adopt this standard on its own. Indeed, consider the expected net payoff for the judiciary associated with a learning plan (γ, K) , which we denote $\Delta_j(\gamma, K)$:

$$\begin{aligned} \Delta_j(\gamma, K) = & -\left(\beta \frac{1 - \beta^K}{1 - \beta}\right) \left(\mu^2 + \frac{1}{\tau} - \alpha^2\right) \\ & - \beta^{K+1} \frac{1 - \beta^{T-K}}{1 - \beta} E_x \left[\min \left\{ 0, x^2 + \frac{1}{\tau + \gamma + \omega K} - \alpha^2 \right\} \right]. \end{aligned} \quad (10)$$

As with the regulator, the judiciary fails to internalize a portion of the experimental social cost as well as a portion of the real option to abandon. However, because neither the judiciary nor the public bears the direct investment costs associated with analytical learning, its maximand is identical (up to a scalar) to that of the public. The judiciary's failure to internalize any of the costs of analytic learning will cause it to be too dismissive of experimentation and too anxious to promote pure analytic learning. This reasoning is captured by the following proposition:

Proposition 3. The judiciary prefers to engage in (weakly) too much analytic learning and (weakly) too little field experimentation relative to the social optimum.

Just as proposition 2 provides reason to be skeptical of granting regulatory actors unfettered license to balance analytic learning against field experimentation, proposition 3 states that the judiciary suffers from the opposite problem: it has little interest in field experimentation, and it would rather attempt to induce the regulator to engage predominantly (or even solely) in analytic learning.

3.3. Equilibrium

Having considered both the socially optimal CBA and the institutionally induced preferences of the strategic players (R and J), we now proceed to consider how the parties would interact within a Bayesian-perfect equilibrium. We solve the game backwards, considering first the “sunset” stage in period $t = K$, assuming that a hybrid plan of the form (γ, K) has been installed by R and not overturned by J. Analysis of the players’ incentives at this stage immediately yields the following lemma:

Lemma 2. Upon the termination of the experimental period for a learning plan (γ, K) in period K , the player R will opt to retain the alternative policy if and only if

$$x \in \left[-\sqrt{\alpha^2 - \frac{1}{\tau + \gamma + \omega K^2}}, \sqrt{\alpha^2 - \frac{1}{\tau + \gamma + \omega K^2}} \right].$$

Player J will uphold whichever decision player R makes, and both players’ decisions will be welfare maximizing as of period $t = K$.

The intuition behind lemma 2 is straightforward. At period K , the experimentation period has come to a close and all of the previous costs of analytic learning and experimentation are now sunk. Consequently, the only issue left to decide is which policy choice to make (given current information), and R will choose to retain the experimental alternative so long as the best posterior estimate of y_1 ’s location (embodied by the realization of x) is sufficiently close to R’s ideal point—an assessment corresponding to the condition stated in lemma 2. Moreover, by assumption, there is perfect alignment among R’s, J’s, and P’s preferences in policy space, and thus J can do no better than to uphold R’s decision at that stage. (Conflict between J and R could occur at this stage if they have different ideal points in policy space—a possibility we take up in Section 4.)

Moving backward in time to the ex ante period $t = 0$, both players will anticipate the behavior described in lemma 2 and will incorporate that into their strategy at the time the CBA is announced. Consider first the judicial actor J who is ruling on whether to invalidate R’s learning plan (γ, K) . Under the extensive structure described above, invalidation of the plan implies that the status quo ante will remain in place thereafter. Consequently, J could conceivably favor upholding R’s announced learning plan even if that plan is not J’s most preferred plan (that is, even if J would have preferred a weightier dose of analytic learning over field

experimentation). Equivalently, the judiciary will veto the regulator's plan only if the CBA yields a payoff that is worse (from the judiciary's perspective) than simply maintaining the status quo for the duration of the game. Formally, this reasoning implies that J will uphold any learning plan (γ, K) such that $\Delta_J(\gamma, K) \geq 0$.

Anticipating J's behavior, R will design its learning plan to maximize its expected payoff, subject to the constraint that J must expect a non-negative payoff going forward. That is, anticipating equilibrium play, R's choice at $t = 0$ boils down to selecting a learning plan (γ, K) to solve the following constrained optimization problem:

$$\max_{(\gamma, k)} \Delta_R(\gamma, k), \quad \text{subject to } \gamma \geq 0, K \geq 0, \text{ and } \Delta_J(\gamma, k) \geq 0. \quad (11)$$

As shown, if completely unconstrained, R would favor a learning plan that involves too much experimentation (and too little analytic learning) relative to the social optimum, while the judiciary would have an incentive to do the opposite. The constraint of eventual judicial review (reflected through the treatment of J's payoff as a constraint in the above optimization problem) raises the possibility that R's rule-making endeavors might be nudged toward the social optimum.

Somewhat surprisingly, however, it turns out that this plausible balance does not emerge from our framework, as reflected in proposition 4:

Proposition 4. There is a unique Bayesian perfect equilibrium in the sequential game defined above. In it, the regulator announces a learning plan (γ^R, K^R) that maximizes its own welfare $\Delta_R(\gamma, K)$ unconstrained by the possibility of judicial review. As per proposition 2, this plan entails (weakly) too little analytic learning and (weakly) too much field experimentation relative to the social optimum. This policy is never overturned by the judiciary.

Although the result in proposition 4 is somewhat surprising, its intuition is relatively straightforward. It turns out that the need to satisfy J's preferences is never a binding constraint in the modeling framework described above. To see why, suppose for argument's sake that the regulator simply ignored the judiciary's veto right and selected a learning plan (γ^R, K^R) so as to maximize its own personal payoff $\Delta_R(\gamma, K)$. Because this plan is optimal for the regulator, it must deliver R a nonnegative payoff over the status quo, and thus $\Delta_R(\gamma^R, K^R) \geq 0$. However, comparison of equation (9) with equation (10) makes it clear that because only player R bears the total social cost of analytic learning, it must be the case that $\Delta_J(\gamma^R, K^R) \geq \Delta_R(\gamma^R, K^R)$. In other words, while J is not

happy with R's favored mixture of analytic learning and experimentalism, R's choice is never so objectionable from J's perspective to justify maintaining the status quo. Consequently, then, at least within this institutional structure, the regulator acts just as in it did in proposition 2—as though it has an unfettered right to declare a policy without any judicial review.

4. ROBUSTNESS AND EXTENSIONS

The analyses from the previous sections help underscore three core insights of this paper. First, regulatory experimentation deserves to be considered alongside analytic learning as a bona fide means for conducting CBA—a conclusion that is arguably at odds (or at least in tension) with several recent judicial decisions and pending legislation. Second, notwithstanding the utility of experimentation in information-poor regulatory environments, institutional factors can cause regulators to be too zealous about experimentalism while causing judges to be too skeptical. Third, although the institutional interdependence of regulators and the judiciary through judicial review might—in principle—cause the players to moderate their preferences, such a result is not guaranteed, and indeed in our baseline model, judicial review provides a poor constraint on regulators' experimentalist zeal.

As with any model, of course, the analysis above has made several simplifying assumptions, the alteration or relaxation of which could conceivably bear on the above insights. We briefly explore a variety of these variations below.

First, the analysis has assumed that the costs of analytic learning fall disproportionately on the regulator rather than on the judiciary (or society). Although this assumption is not necessary to drive proposition 1 (regarding the social optimality of analytic learning and experimentation), propositions 2, 3, and 4 (regarding the difference in incentives between the agency and judiciary) all require this assumption. We believe that this assumption is justified on several grounds. Most directly, because analytic learning requires active research and synthesis by the agency, it is reasonable to believe that the marginal costs of such effort are not compensated by agency budgets.

More subtly, regulators may be more averse to the costs of analytic learning because they tend to serve for a much shorter expected tenure than do federal judges. Figure 1 illustrates the average tenures of sitting Federal Communications Commission and SEC commissioners relative

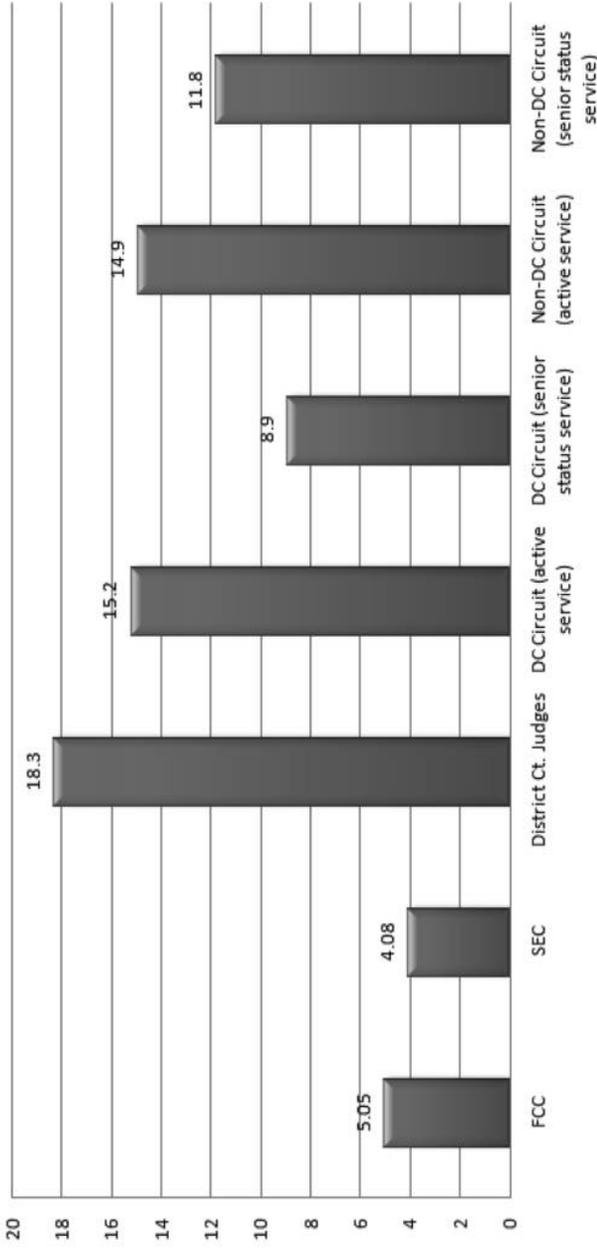


Figure 1. Regulator and federal judiciary tenures: average length of service (in years)

to federal district court judges, D.C. Circuit judges, and non-D.C. Circuit judges.¹⁵

The significantly shorter service of regulators implies that such actors are not able to amortize the costs of analytic learning over as long a period as the judiciary. Moreover, they generally need not confront the total cost of experimentation, since commissioners may well be on to another job by the time the experiment runs its course, while the federal judges remain sitting. These figures perhaps give firmer grounds for the model's assumption that regulators place greater relative weight than the judiciary on the costs of analytic learning over experimentation.

Second, our model has assumed that J was unable to commit to an adjudication strategy *ex ante* (such as requiring a minimal level of analytic learning by R); rather, J was constrained either to approve or to reject R's CBA in a manner consistent with J's payoff at the time of its decision. In equilibrium, J's inability to commit introduced a relatively lax constraint on R's behavior (see proposition 4), effectively permitting R to implement its preferred policy unconstrained by J. One possible variation of the model would be to assume that J has the means to precommit to rejecting any learning plan whose analytic learning component falls below some judicially determined threshold $\hat{\gamma}^J$. If this commitment level were credible, then R would be forced to reckon with a real judicial review constraint. Most optimistically, suppose J selected the socially optimal level of analytic learning (so $\hat{\gamma}^J = \gamma^{ESW}$); it is easy to show that R's optimal behavior in such a setting would be to announce a learning plan coinciding with the social optimum whenever it chose to move forward with regulation, so $(\gamma, K) = (\gamma^{ESW}, K^{ESW})$.¹⁶ One po-

15. The data from Figure 1 come from the following sources. For Federal Communications Commission and Securities and Exchange Commission tenures, we consulted the agencies' websites to obtain lists of former members of each commission. Starting with appointments in 1961, we calculated the number of years in office for each commissioner. We did this for every commissioner to the present, omitting sitting commissioners, since we do not know how long they will serve. The data on district court judges come from Yoon (2003). For the data on circuit courts of appeal, see Federal Judicial Center, History of the Federal Judiciary, Export of All Data in the Biographical Directory of Federal Judges, 1789–present (<http://www.fjc.gov/history/home.nsf/page/export.html>), starting in 1960 and through the present for judges who are not still active. (For the non-D.C. circuits, we excluded the Federal Circuit because its docket does not include appeals from administrative agency rule making.)

16. We should note that it is possible under this set of assumptions that R would decide simply not to go forward with a rule change, even when it would be socially optimal to do so and when R's learning plan would be optimal. This is because R's policy payoff may not justify the uncompensated costs of analytic learning.

tentially charitable interpretation of cases such as *Business Roundtable* is that they represented an effort by the judiciary to alter equilibrium play prospectively, establishing precedents that would serve as a means for precommitment in later cases to a more demanding standard on analytic learning than regulators would otherwise adopt.

That said, there is no guarantee that even if J could precommit to a threshold value of γ , the judiciary would have the incentive to set it in a welfare-maximizing way. Rather, the judiciary might well simply maximize its expected payoff by fixing $\hat{\gamma}^J$ at its own preferred point γ^J , which (as shown above) entails more analytic learning than the social optimum. When J precommits to a threshold analytic-learning requirement in this way, the resulting equilibrium learning plan would now be optimal from J's perspective rather than from R's, but it need not be any closer to the social optimum.¹⁷

Another potentially interesting (and intuitively attractive) extension of the model would be to allow J to observe the fruits of R's analytic learning before conducting its review of R's plan. Under this alternative approach, J has an informational advantage when it acts—one that in some ways serves the interests of all players. Specifically, suppose J observed the analytic-learning signal Z before issuing its opinion, allowing it to bring more information to bear in its judicial review than R had in its original rule making. Although this variation adds some degree of technical complication to the model, a few important intuitions nonetheless emerge. First, the resulting equilibrium would now involve cases in which the judiciary overturns the regulator—a possibility that was not part of the equilibrium characterized in Section 3.3.

Perhaps more significantly, however, because R's investment in analytic learning is now sunk at the time J makes its decision, from that point forward R and J share identical policy commitments, and thus J's decision to uphold or overturn R's learning plan would be noncontroversial (and in fact optimal). Thus, this type of variation on the model's assumptions effectively gives the players a collective option of abandoning the proposed reform before the experimentation period begins. While clearly desirable from social welfare grounds, this variation would do little to address R's incentive to engage in too little analytic learning *ex ante*.

Finally, a relatively obvious (but somewhat involved) modification of

17. Which of J's and R's preferred outcome is further from the social optimum depends on deeper parameters in the model.

the model would entail allowing J, R, and P to have policy preferences distinct from one another. Although we have suppressed this dimension in the model in order to concentrate on institutional forces, allowing actors to have differing ideologies over policy space clearly matters, and it can substantially affect equilibrium play. Given space constraints, we cannot realistically do justice to the (myriad) permutations that differing ideologies introduce. Nevertheless, to get a taste for how such issues may alter the model's predictions, suppose we altered our baseline model to allow only the judge's ideal point (y_j^*) to drift away from 0, and in the direction of the known location of the status quo ante, $\alpha > 0$. It should be clear that in the limiting case of $y_j^* = \alpha$, J will summarily reject any and all rule-making changes issued by R. Indeed, when J's ideal point coincides with the known status quo, J can do no better than to resist change of any sort. Perhaps more interesting, however, is what might happen if J's preferences occupy a middle ground between $y_j^* = 0$ and $y_j^* = \alpha$. Here, J is relatively skeptical about the desirability of reform, but not unalterably so. Anticipating J's greater reluctance, R will anticipate that the judicial review constraint $\Delta_j(\gamma^R, K^R) \geq 0$ now has become sharper, since J may not share R's views about the continuation game and, in particular, about whether the proposed experimentation period is desirable over the status quo. That knowledge can, in equilibrium, motivate R to engage in a greater degree of analytic learning than it would otherwise entertain, improving welfare. Viewed in this sense, the injection of some ideological diversity can be beneficial to social goals, even when the public does not share the views of the ideological outlier (a point we also illustrate in Spitzer and Talley [2013]). Although variations such as this are both interesting and worth pursuing, we leave them for future endeavors.

5. CONCLUSION

In this paper, we have developed a framework to study regulatory CBA within a judicial-administrative hierarchy. Our focus has been motivated by recent judicial decisions and proposed legislation in financial regulation that appear to downplay the appropriate role for regulatory experimentation relative to more conventional forms of analytic learning in conducting CBA.

Our analysis has produced three key insights. First, there do not appear to be any a priori reasons to relegate regulatory experimentation to a metaphorical backseat relative to analytic learning in CBA. Both

approaches have distinct benefits and drawbacks, and thus both should be considered in administrative rule making (and the judicial review thereof). Second, we have shown that—notwithstanding the usefulness of experimentation—institutional structures can cause regulators to be too zealous about experimentalism while causing judges to be too skeptical. Thus, while we disagree with judicial decisions that (arguably) dismiss the role of experimentation, we are not surprised at the disagreement between regulators and judges about what relative weight it should receive in CBA. Finally, we have demonstrated that there is no guarantee that the threat of judicial review can promise to solve (or even substantially mollify) the institutionally grounded disagreements between regulators and the judiciary noted above. At the same time, our analysis suggests that at least some institutional structures (such as limited commitment power and some ideological diversity among actors) may provide a partial solution to the problem.

APPENDIX: PROOFS

We first present the derivation (from Section 3.1) of the distribution of hybridized signal $x = (\tau\mu + \gamma z + \omega \sum_{t=1}^K v_t) / (\tau + \gamma + \omega K)$. We show that hybrid signal $x \sim N\{\mu, (\tau\{1 + [\tau/(\gamma + \omega K)]\})^{-1}\}$. Because all components of x are normal, so must be x , and we therefore need only to compute its mean and precision. To compute the mean, we make use of the law of iterated expectations:

$$\begin{aligned}
 E(x) &= E_{y_1}[E_{x|y_1}(x|y_1)] = E_{y_1}\left[E_{xy_1}\left(\frac{\tau\mu + \gamma z + \omega \sum_{t=1}^K v_t}{\tau + \gamma + \omega K} \middle| y_1\right)\right] \\
 &= \frac{\tau\mu + \gamma E_{y_1}(y_1) + \omega K E_{y_1}(y_1)}{\tau + \gamma + \omega K} = \mu.
 \end{aligned}
 \tag{A1}$$

To compute the precision of x , we make use of the law of iterated variance:

$$\begin{aligned}
 \text{var}(x) &= E[\text{var}(x|y_1)] + \text{var}[E(x|y_1)] \\
 &= E\left[\text{var}\left(\frac{\tau\mu + \gamma z + \omega \sum_{t=1}^K v_t}{\tau + \gamma + \omega K} \middle| y_1\right)\right] + \text{var}\left(\frac{\tau\mu + \gamma y_1 + \omega \sum_{t=1}^K y_1}{\tau + \gamma + \omega K}\right) \\
 &= E\left[\frac{\gamma^2 \text{var}(zy_1) + \omega^2 \sum_{t=1}^K \text{var}(v_t y_1)}{(\tau + \gamma + \omega K)^2}\right] + \text{var}\left[\left(\frac{\gamma + \omega K}{\tau + \gamma + \omega K}\right) y_1\right] \\
 &= \frac{\gamma + \omega K}{(\tau + \gamma + \omega K)^2} + \frac{(\gamma + \omega K)^2}{\tau(\tau + \gamma + \omega K)^2} = \left(\frac{1}{\tau} \frac{\gamma + K\omega}{\tau + \gamma + K\omega}\right).
 \end{aligned}
 \tag{A2}$$

Taking the inverse of this variance yields precision for x of $\tau[1 + \tau/(\gamma + \omega K)]$, which is the expression from the text.

Proposition 1. If $\alpha^2 > 1/\tau$ and $c'(0)$ is sufficiently small, then $\alpha^{ESW} > 0$. Similarly, if $\alpha^2 > 1/\tau$ and μ is sufficiently small, then $K^{ESW} > 0$.

Proof. Recall the social planner’s expected payoff over the status quo from implementing learning plan (γ, K) :

$$\begin{aligned} \Delta_{ESW}(\gamma, K) = & -c(\gamma) - (N + 2)\left(\beta \frac{1 - \beta^K}{1 - \beta}\right)\left(\mu^2 + \frac{1}{\tau} - \alpha^2\right) \\ & - (N + 2)\beta^{K+1} \frac{1 - \beta^{(T-K)}}{1 - \beta} E_x\left[\min\left\{0, x^2 + \frac{1}{\tau + \gamma + \omega K} - \alpha^2\right\}\right]. \end{aligned} \tag{A3}$$

This function is strictly concave, moreover, in both γ and K . Differentiating $\Delta_{ESW}(\gamma, K)$ with respect to γ and imposing the most restrictive condition of $\gamma = K = 0$ yields

$$\begin{aligned} \left. \frac{\partial \Delta_{ESW}(\gamma, K)}{\partial \gamma} \right|_{\gamma=K=0} = & \\ -c'(0) + (N + 2)\beta \frac{1 - \beta^T \Pr\{x \in [-\sqrt{\alpha^2 - 1/\tau}, \sqrt{\alpha^2 - 1/\tau}]\}}{1 - \beta} \frac{1}{\tau^2}. \end{aligned} \tag{A4}$$

The second term is defined and is strictly positive so long as $\sqrt{\alpha^2 - 1/\tau} > 0$ (the condition stated in the proposition), and thus the entire expression is positive so long as $c'(0)$ is sufficiently small.

Now consider the second statement in the proposition. To show the second part of the proposition, hold $\gamma = 0$ and compare $\Delta_{ESW}(0, 1) - \Delta_{ESW}(0, 0)$:

$$\begin{aligned} \Delta_{ESW}(0, 0) = & -(N + 2)(\beta) \frac{1 - \beta^T}{1 - \beta} \left[\min\left\{0, \mu^2 + \frac{1}{\tau} - \alpha^2\right\}\right], \\ \Delta_{ESW}(0, 1) = & -(N + 2)\beta\left(\mu^2 + \frac{1}{\tau} - \alpha^2\right) \\ & - (N + 2)\beta^2 \frac{1 - \beta^{(T-1)}}{1 - \beta} E_x\left[\min\left\{0, x^2 + \frac{1}{\tau + \omega} - \alpha^2\right\}\right]. \end{aligned} \tag{A5}$$

Their difference is therefore

$$\begin{aligned} \Delta_{\text{ESW}}(0, 1) - \Delta_{\text{ESW}}(0, 0) &= -(N + 2)\beta\left(\mu^2 + \frac{1}{\tau} - \alpha^2\right) \\ &\quad - (N + 2)\beta^2 \frac{1 - \beta^{(T-1)}}{1 - \beta} E_x \left[\min \left\{ 0, x^2 + \frac{1}{\tau + \omega} - \alpha^2 \right\} \right] \\ &\quad + (N + 2)(\beta) \frac{1 - \beta^T}{1 - \beta} \left[\min \left\{ 0, \mu^2 + \frac{1}{\tau} - \alpha^2 \right\} \right]. \end{aligned}$$

The condition $\alpha^2 > 1/\tau$ (stated in the proposition) implies that the first term in this expression is strictly positive as long as μ is sufficiently small (the other condition in the proposition) or equivalently that $\mu^2 + (1/\tau) - \alpha^2 < 0$. When these conditions hold, the above expression can be simplified to read

$$\begin{aligned} \Delta_{\text{ESW}}(0, 1) - \Delta_{\text{ESW}}(0, 0) &= \\ &= -(N + 2)\beta^2 \frac{1 - \beta^{(T-1)}}{1 - \beta} \left[E_x \left(\min \left\{ 0, x^2 + \frac{1}{\tau + \omega} - \alpha^2 \right\} \right) - \left(\mu^2 + \frac{1}{\tau} - \alpha^2 \right) \right], \end{aligned}$$

which is strictly positive so long as

$$E_x \left[\min \left\{ 0, x^2 + \frac{1}{\tau + \omega} - \alpha^2 \right\} \right] - \left(\mu^2 + \frac{1}{\tau} - \alpha^2 \right) < 0. \tag{A6}$$

It is clear that $E_x[\min\{0, x^2 + 1/(\tau + \omega) - \alpha^2\}] < E_x[x^2 + 1/(\tau + \omega) - \alpha^2]$, and thus by substitution into equation (A6) we can derive the following sufficient condition for equation (A6) to hold

$$E_x \left(x^2 + \frac{1}{\tau + \omega} - \alpha^2 \right) - \left(\mu^2 + \frac{1}{\tau} - \alpha^2 \right) \leq 0 \Leftrightarrow E(x^2) + \frac{1}{\tau + \omega} - \mu^2 - \frac{1}{\tau} \leq 0.$$

From the distribution derived on x above, we have

$$\begin{aligned} E(x^2) &= \text{var}(x) + E(x)^2 \\ &= \left(\frac{1 - \gamma + K\omega}{\tau\tau + \gamma + K\omega} \right) \Big|_{K=1, \gamma=0} + \mu^2 = \frac{1}{\tau} \frac{\omega}{\tau + \omega} + \mu^2. \end{aligned}$$

And thus we have

$$E(x^2) + \frac{1}{\tau + \omega} - \mu^2 - \frac{1}{\tau} = \frac{1}{\tau} \frac{\omega}{\tau + \omega} + \mu^2 + \frac{1}{\tau + \omega} - \mu^2 - \frac{1}{\tau} = 0,$$

which is clearly nonpositive, and it therefore follows that equation (A6) is satisfied as a strict inequality under the conditions stated in the proposition. QED.

Proposition 2. The regulator prefers to engage in (weakly) too little analytic learning and (weakly) excessive field experimentation relative to

the social optimum. However, the regulator would implement a socially optimal learning protocol if it were constrained to choose any $\gamma \geq \gamma^{\text{ESW}}$.

Proof. The proposition is a direct implication of differentiating to equation (9) to equation (8) with respect to γ . QED.

Proposition 3. The judiciary prefers to engage in (weakly) too much analytic learning and (weakly) too little field experimentation relative to the social optimum.

Proof. The proposition is a direct implication of differentiating equation (10) to equation (8) with respect to K . QED.

Proposition 4. There is a unique Bayesian perfect equilibrium in the sequential game defined above. In it, the regulator announces a learning plan (γ^R, K^R) that maximizes its own welfare $\Delta_R(\gamma, K)$ unconstrained by the specter of judicial review. As per proposition 2, this plan entails (weakly) too little analytic learning and (weakly) too much field experimentation relative to the social optimum. This policy is never overturned by the judiciary.

Proof. The proof is by construction. Suppose that R solved programming problem (11) but ignored the third constraint in that program (which requires $\Delta_J(\gamma, K) \geq 0$). Let the solution to this problem be denoted (γ^R, K^R) . Because (γ^R, K^R) is optimal for the regulator by hypothesis, then it must be the case that $\Delta_R(\gamma^R, K^R) \geq 0$. However, comparing equation (9) with equation (10), it is clear that because only player R bears the cost of analytic learning, $\Delta_J(\gamma^R, K^R) \geq \Delta_R(\gamma^R, K^R)$ for all (γ^R, K^R) . QED.

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