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Public Interest Reply Comment¹ on
The Surface Transportation Board's Solicitation of Information
Association of American Railroads – Petition for Rulemaking, Docket No. EP 752
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Jerry Ellig, Research Professor²

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The George Washington University Regulatory Studies Center improves regulatory policy through research, education, and outreach. As part of its mission, the Center conducts careful and independent analyses to assess rulemaking proposals from the perspective of the public interest. This reply comment on the Surface Transportation Board's (STB's) solicitation of information regarding the Association of American Railroads' (AAR's) petition for a rule on benefit-cost analysis does not represent the views of any particular affected party or special interest, but is designed to assist the board in developing analytical methods to identify the primary impacts of proposed rules and feasible alternatives.

Introduction

On November 4, 2019, the STB solicited further information from the public about specific methods that could be used for benefit-cost analysis of rules related to economic regulation of freight railroads.³ Most commenters who expressed a view appear to agree that what they really mean by the term “benefit-cost analysis” is the broader framework known as regulatory impact analysis: assessment of the nature and significance of the problem the regulation seeks to solve, development of alternative solutions, and assessment of the benefits and costs of alternatives.

¹ This comment reflects the views of the author and does not represent an official position of the GW Regulatory Studies Center or the George Washington University. The Center's policy on research integrity is available at <http://regulatorystudies.columbian.gwu.edu/policy-research-integrity>.

² The author is a research professor at the George Washington University Regulatory Studies Center.

³ Surface Transportation Board, “Association of American Railroads – Petition for a Rulemaking: Solicitation of Information,” Docket No. EP 752 (November 4, 2019) at 2. [Hereinafter “SOI.”]

Several also implied that distributional analysis is important for STB rules, since the rules can generate substantial wealth transfers between railroads and shippers.

Beyond these broad areas of agreement lie several points of disagreement and several points that simply deserve clarification. This reply comment addresses the following points:

1. Economic logic and empirical studies demonstrate that benefit-cost analysis is no more difficult for economic regulations than for other types of regulation. Really.
2. The perfect need not be the enemy of the good. The best analytical practice for benefit-cost analysis is to quantify and monetize benefits and costs that can be quantified and monetized, explain any uncertainties associated with these estimates, and explain the reasons any significant benefits or costs are not quantified.
3. It is more consistent with OMB practice to vary the extent of the analysis based on the importance of the regulation, rather than establishing a single threshold that determines whether a regulation receives any benefit-cost analysis.
4. The analysis is not the decision. Because the STB is subject to statutory goals other than economic efficiency, a simple decision rule like “regulate only if benefits exceed costs” is not appropriate. Nevertheless, the STB should conduct benefit-cost analysis so it is aware of the tradeoffs involved when it pursues other goals.
5. The STB need not choose between halting ongoing proceedings while it develops its approach to benefit-cost analysis or making no analytical improvements in ongoing proceedings. The Federal Communications Commission (FCC) faced a similar transition problem in 2017-2018, and the FCC’s economists found ways to improve benefit-cost analysis in ongoing proceedings without creating substantial delay.

Benefit-Cost Analysis is No More Difficult for Economic Regulations

Some commenters in this docket have urged caution because they claim that benefit-cost analysis is especially difficult for economic regulation versus other types of regulation, such as environment, health, and safety regulation. The clearest statements of this claim are in a comment from the Joint Shippers:

The vast majority of federal regulations for which a CBA is conducted, however, pertain to environment, safety and health. A much smaller universe of federal regulation entails economic regulation of an entire industry comparable to the Board’s regulation of the rail industry. The former has costs and benefits that are far more amenable to quantification and monetization in a CBA than the latter. For example, the cost of implementing a safety requirement or installing anti-pollution equipment is typically known or readily susceptible to estimation and so are the benefits of doing so. In contrast, behavioral responses to economic regulations are

subject to much greater uncertainty and are less susceptible to quantification and monetization.⁴

The impacts of economic regulation are substantially dependent upon behavioral responses. Unlike other sectors, the objects of economic regulation are not goods or equipment, but the activities of individuals and firms and their interactions in interrelated markets for intangible goods and services. For example, the effects of changes in rail economic regulations administered by the Board depend upon the behavior and reactions of railroads and their customers in response to those changes, which are hard to accurately predict.⁵

Such statements would come as a shock to virtually any economist and, indeed, to most people on both sides of the debate over the role of benefit-cost analysis in federal regulation during the past 45 years. A fundamental purpose of economic analysis is to understand (and predict) how people react to changes in the incentives they face. Economic regulation most certainly alters incentives. Moreover, economic regulation alters incentives and affects behavior in ways that can be most easily understood as purely “economic” and expressed in monetary terms.

If anything, benefit-cost analysis of economic regulation ought to be easier than benefit-cost analysis in other fields. Indeed, the debate among experts usually focuses on whether benefit-cost analysis is more difficult for environment, health, and safety regulations because those regulations frequently involve valuation of goods that are not traded in markets, individuals’ preferences for the degree of risk other people ought to be allowed to take, effects on future generations, and other conceptually knotty problems that do not arise in economic regulation of railroads.⁶ The “economic regulation is especially difficult” argument originated in law review articles that criticized the D.C. Circuit’s *Business Roundtable* decision, which invalidated an SEC regulation for insufficient economic analysis.⁷ A law review article by Jeffrey Gordon made the strongest version of the argument: benefit-cost analysis of financial regulation is inherently impossible because people, unlike machines or chemicals, change their behavior in response to changes in regulations.⁸ That argument apparently made its way into the Joint Shippers’ comments because it is summarized in the Congressional Research Service report appended to those

⁴ “Reply of Joint Shippers,” in Surface Transportation Board, “Association of American Railroads: Petition for a Rulemaking,” Docket No. EP 752 (April 4, 2019) at 10. [Hereinafter “Joint Shippers.”]

⁵ Id. at 11-12.

⁶ For two sides of this debate, see Frank Ackerman & Lisa Heinzerling, *Pricing the Priceless: Cost-Benefit Analysis of Environmental Protection*, 150 U. PENN. LAW REV. 1553 (2011), and John D. Graham, *Saving Lives Through Administrative Law and Economics*, 157 U. PENN. LAW REV. 395 (2008).

⁷ For a brief overview of this debate, see Jerry Ellig, *Improvements in SEC Economic Analysis After Business Roundtable: A Structured Assessment*, 19 FLA. ST. U. BUS. REV. __ (forthcoming 2020). A draft of this study is attached as an appendix to this comment. See also Jerry Ellig and Vera Soliman, *Is Regulatory Impact Analysis of Financial Regulations Possible?*, in Hester Peirce and Benjamin Klutsey (eds.), *REFRAMING FINANCIAL REGULATION: ENHANCING STABILITY AND PROTECTING CONSUMERS* 463 (2016).

⁸ Jeffrey N. Gordon, *The Empty Call for Benefit-Cost Analysis in Financial Regulation*, 43 J. LEGAL STUD. S351 (2014).

comments. Of course, the argument misses the point that understanding how people respond to incentives is the primary subject matter of economics.

But don't just rely on economic theory to address this point. At least two types of empirical studies refute the claim that benefit-cost analysis of economic regulation is more difficult than benefit-cost analysis of other types of regulation because it involves predicting how people will respond to changes in regulations.

First, a large body of economic literature used standard economic methods to assess and quantify the effects of pre-1980 railroad regulation, make quantitative predictions about the likely effects of regulatory reform, and/or produce quantitative estimates of the effects of the Staggers Act after it was implemented. Some of the pre-Staggers predictions proved more accurate than others, but the most accurate studies were the ones that focused on key causal connections between regulation, productivity, and rail rates – in other words, the studies that most extensively identified the ways railroads and shippers would change their behavior in response to changes in regulations.⁹

Second, I conducted an empirical study of factors that may affect the quality of the Securities and Exchange Commission's economic analysis to determine whether that analysis improved after the SEC adopted its new economic analysis guidance in March 2012.¹⁰ The economic analysis accompanying a sample of major SEC regulations issued in 2013-15 was substantially better than in pre-guidance years and close to the average quality of regulatory impact analyses produced by executive branch agencies. Both of these findings suggest that economic analysis of economic regulations is no more difficult than economic analysis of other types of regulations.

Quantitative vs. Qualitative Analysis

A less extreme version of the argument that benefit-cost analysis would be unusually difficult for the STB is the claim that an analysis that quantifies all benefits and costs would be nearly impossible and surely unreliable. The American Fuel and Petrochemical Manufacturers (AFPM), for example, state that "Generally, the nature of the rules being promulgated by independent regulatory agencies, including the STB, may make it difficult to conduct rigorous, quantitative, cost-benefit

⁹ These studies are summarized in Jerry Ellig, *Railroad Deregulation and Consumer Welfare*, 21 J. REG. ECON. 143 (2002).

¹⁰ Ellig, *supra* note 7.

analysis.”¹¹ On the other hand, the Western Coal Traffic Association supports “conceptual” (ie, qualitative) benefit-cost analysis and contends the STB often does that.¹²

The grain of truth in this argument is that even a very good benefit-cost analysis may be incomplete in the sense that it may not be able to monetize all major benefits and costs, or some of the estimates may be subject to substantial ranges of uncertainty. But it is a non sequitur to imply that therefore the only choice is between perfect quantification of everything (a non-attainable ideal) or qualitative analysis only (i.e, willful refusal to use whatever quantitative information may be available).

Executive Order 12866 does not require perfection; it only requires quantification of benefits and costs “to the extent feasible”¹³ and that agencies base their decisions on “the best reasonably obtainable scientific, technical, economic, and other information concerning the need for, and consequences of, the regulation.”¹⁴ OMB Circular A-4 explains best analytical practices, but it also clearly recognizes that when limitations (of time, data, state of the relevant scholarly literature, etc.) make the ideal impossible to attain, analysts should do the best they can and be honest about what they are unsure of or what they don’t know. Even the D.C. Circuit’s *Business Roundtable* decision, which many lawyers criticized because they feared it would require impossible feats of quantification, stated merely that

Here the Commission inconsistently and opportunistically framed the costs and benefits of the rule; failed adequately to quantify the certain costs *or to explain why those costs could not be quantified*; neglected to support its predictive judgments; contradicted itself; and failed to respond to substantial problems raised by commenters.¹⁵ [emphasis added]

In other words, not even the D.C. Circuit expected the SEC to do the impossible, subsequent legal commentary notwithstanding.¹⁶

Another version of the argument against quantification is AFPM’s suggestion that the STB should conduct cost-effectiveness analysis (CEA) instead of benefit-cost analysis. According to AFPM,

¹¹ American Fuel and Petrochemical Manufacturers, “Comments of American Fuel and Petrochemical Manufacturers,” in Surface Transportation Board, “Association of American Railroads: Petition for a Rulemaking,” Docket No. EP 752 (January 31, 2020) at 4. [Hereinafter “AFPM.”]

¹² “Reply of the Western Coal Traffic League,” in Surface Transportation Board, “Association of American Railroads: Petition for a Rulemaking,” Docket No. EP 752 (April 3, 2019) at 7-8. [Hereinafter “WCTL.”]

¹³ Executive Order 12866, §6(a)(3)(C)(i) and §6(a)(3)(C)(ii).

¹⁴ Executive Order 12866, §1(b)(7).

¹⁵ *Business Roundtable v. Securities and Exchange Commission*, 647 F. 3d 1144, 1148-49 (2011).

¹⁶ A great deal of the legal literature critical of *Business Roundtable* is summarized in Ellig, *supra* note 10, at 10-13.

CEAs involve qualitative discussion of costs and benefits, as opposed to CBA, which typically requires monetized estimates of both costs and benefits. In these analyses, an outcome is identified as necessary or sufficiently important to the advancement of social welfare, such as preventing cancer cases, preserving wetlands, or reducing the likelihood of financial crises. A set of alternative regulations, ranging from stringent to lenient, is then analyzed to determine how well each alternative achieves the objective outcome and at what cost. This comparison is useful for identifying the most effective form of regulation, and much less burdensome than full-scale CBA.¹⁷

Unfortunately, this description reflects a misunderstanding of what CEA is and how it is conducted. CEA is a procedure that can be helpful when benefits of a regulation can be quantified but not monetized. The analyst compares *monetized* costs with *quantified* benefits (such as lives or life-years saved, cases of disease avoided, etc.) to determine the social cost per unit of successful outcome. This is obviously a quantitative exercise, not a substitution of qualitative for quantitative analysis. OMB Circular A-4 explains this quite clearly.¹⁸

Circular A-4 advises agencies to conduct benefit-cost analysis for all major rulemakings that do not involve health and safety outcomes; CEA should additionally be conducted only if some of the benefits cannot be expressed in monetary terms.¹⁹ STB regulations typically produce monetary benefits, costs, and transfers. The only application of CEA I can imagine for the STB would be if the board can estimate the amount of money a regulation will transfer from railroads to shippers but does not have a good estimate of the social benefits of the associated rate reductions. In that case, the board's economists could use CEA to compare the cost-effectiveness of different regulatory alternatives that would transfer a given amount of wealth. If that information is useful for board decisions, then a CEA could be useful in addition to a BCA, as Circular A-4 recommends.

Setting the Threshold for BCA

Several commenters suggest that STB should conduct benefit-cost analysis for regulations with impacts exceeding the “economically significant” threshold of \$100 million annually.²⁰ AAR advocates conducting benefit-cost analysis for every proposed rule, with the extent of the analysis dependent on the scope and impacts of the rule.²¹ The American Chemistry Council takes a middle ground, stating that benefit-cost analysis should definitely be conducted for all rules with economic

¹⁷ AFPM at 5.

¹⁸ Office of Management and Budget, “Circular A-4: Regulatory Analysis” (Sept. 17, 2003) at 11-12. [Hereinafter “Circular A-4.”]

¹⁹ Circular A-4 at 9-10.

²⁰ See, e.g., Joint Shippers at 5; AFPM at 9.

²¹ Association of American Railroads, “Response of the Associations of American Railroads to Solicitation of Information,” in Surface Transportation Board, “Association of American Railroads – Petition for a Rulemaking: Solicitation of Information,” Docket No. EP 752 (Jan. 31, 2020) at 7, 20. [Hereinafter “AAR”].

impacts above the \$100 million threshold, plus below that threshold for rules that have important impacts, but not for all rules.²²

AAR further suggests that if the STB wants to choose a threshold, the threshold should essentially be any regulation that would be considered significant under Executive Order 12,866.²³ The executive order defines what constitutes a significant regulation in Section 3(f). Section 3(f)(1) is the definition of an economically significant regulation (annual effect on the economy of \$100 million or more, or various specified adverse material economic effects). Sections 3(f)(2) thru 3(f)(4) list other factors that cause a regulation to be considered significant, but not economically significant. Alternatively, AAR suggests that the STB could use as a threshold the definition of “major” rules under the Unfunded Mandates Reform Act.²⁴

The choice among alternative thresholds could affect the number of regulations eligible for benefit-cost analysis. In practice, the economically significant and major thresholds are roughly equivalent. Between 1996 and 2018, federal agencies finalized an average of 49 economically significant regulations annually and 70 major regulations annually. The number of major regulations is greater because it includes regulations from independent agencies whose regulations are not subject to OIRA review. The number of significant regulations, however, averaged 258 per year between 1996 and 2018 – more than three times the number of major regulations and five times the number of economically significant regulations.²⁵ If the same relationship holds for STB regulations, then the “significant” threshold suggested by AAR would lead to benefit-cost analysis of significantly more regulations than the “major rules” threshold.

In deciding how much analysis to apply to which types of regulations, I suggest that the STB would do well to follow the proportionality principles embodied in Executive Order 12,866 and OMB Circular A-4. Section 1 of the executive order articulates general principles that agencies should follow for all regulations. Principles related strictly to analysis (as opposed to the use of analysis in decision-making) include: the agency should identify and assess the significance of the problem it seeks to solve, examine whether other regulations helped cause the problem, identify and assess alternatives, consider the degree and nature of risks, assess benefits and costs, use the best reasonably obtainable information, assess alternative forms of regulation, and seek the views of other levels of government.²⁶ This section does not impose specific analytical requirements for all regulations; it simply states that agencies should adhere to these principles “to the extent

²² American Chemistry Council, “Response of the American Chemistry Council,” in Surface Transportation Board, “Association of American Railroads – Petition for a Rulemaking: Solicitation of Information,” Docket No. EP 752 (Jan. 31, 2020) at 6-7.

²³ AAR at 21.

²⁴ *Id.*

²⁵ Figures calculated from data available at <https://regulatorystudies.columbian.gwu.edu/reg-stats>.

²⁶ Executive Order 12866, §1(b).

permitted by law and where applicable.”²⁷ Thus, it appears to give agencies discretion as to the extent of analysis they conduct for regulations that are not considered significant.

For significant regulations, agencies are required to submit to OIRA a “reasonably detailed” description of the need for the regulation, an explanation of how the regulation will meet that need, and an assessment of potential benefits and costs of the regulation.²⁸ For economically significant regulations, agencies are additionally required to submit assessments of the benefits and costs of the regulation and alternatives, quantified to the extent feasible.²⁹ Finally, for regulations with annual economic impacts greater than or equal to \$1 billion, OMB Circular A-4 requires agencies to conduct a quantitative analysis of uncertainties that may affect the size of benefit and cost estimates.³⁰

Another issue that deserves clarification is whether wealth transfers count toward the \$100 million threshold, or whether the threshold only refers to benefits or costs. One commenter argued, “Moreover, in Circular A-4, OMB made clear that “transfers” are not counted as either costs or benefits and thus do not trigger the CBA requirement.”³¹ But the passage the commenter quotes from Circular A-4 just explains why transfers do not count as benefits or costs; it says nothing about whether transfers greater than or equal to \$100 million annually trigger the RIA requirement. OMB’s “Regulatory Impact Analysis: Frequently Asked Questions” clarifies that “The \$100 million threshold applies to the impact of the proposed or final regulation in any one year, and it includes *benefits, costs, or transfers*. (The word *or* is important: \$100 million in annual benefits, *or* costs, or transfers is sufficient ...).”³² For decades, OIRA has regularly reviewed regulations from the Center for Medicare and Medicaid Services, which adjust reimbursement rates for providers and therefore involve large transfers, even though the RIAs for these regulations rarely even calculate social benefits or social costs.

BCA and Statutory Goals

In its petition, AAR implied that the results of the benefit-cost analysis should determine the outcome of the decision: “If the potential costs of the rule would likely outweigh the potential benefits, then the Board would decline to adopt the rule or adopt a less costly alternative

²⁷ Executive Order 12866, §1(b).

²⁸ Executive Order 12866, §6(a)(3)(B).

²⁹ Executive Order 12866, §6(a)(3)(C).

³⁰ Circular A-4 at 40.

³¹ American Forest and Paper Association, “Reply of the American Forest & Paper Association,” Surface Transportation Board, “Association of American Railroads – Petition for a Rulemaking: Solicitation of Information,” Docket No. EP 752 (April 4, 2019) at 4. [Hereinafter “AF&PA.”]

³² Office of Management and Budget, “Regulatory Impact Analysis: Frequently Asked Questions” (February 7, 2011), https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/assets/OMB/circulars/a004/a-4_FAQ.pdf.

proposal.”³³ Several other commenters rightly note that the STB has statutory goals other than economic efficiency, notably wealth transfers.³⁴ That is not, however, a reason to downplay the importance of conducting the analysis; it is a reason to clearly distinguish between the analysis and the decisions.

BCA in Ongoing Proceedings

The question of how to handle benefit-cost analysis in ongoing proceedings is perhaps the most controversial issue in this proceeding. Multiple commenters fear the AAR petition is imply a ploy to slow down ongoing rulemakings, and they urged the STB to avoid delaying any current rulemakings to incorporate benefit-cost analysis.³⁵

Clearly, it is not practical to bring major ongoing proceedings to a halt while the STB develops and implements a comprehensive approach to implementing benefit-cost analysis. At the same time, it is not desirable to proceed with business as usual, given the STB’s demonstrated interest in exploring a greater role for benefit-cost analysis. The FCC’s recent experience demonstrates how an independent agency can take a middle-ground approach between these two extremes, incorporating improved economic analysis into ongoing orders on a case-by-case basis.

The FCC faced a transitional quandary in 2017 and 2018. In April 2017, Chairman Ajit Pai announced that he planned not just to set up a centralized, freestanding economic office (which the STB already has), but also to have the economists conduct benefit-cost analysis more consistently and give economic analysis greater emphasis in FCC decisions.³⁶ An internal working group developed the plan for the new office in 2017,³⁷ and the FCC adopted a rule creating the

³³ AAR at 19.

³⁴ See, e.g., AF&PA at 5; AFPM at 8; Joint Shippers at 7-8, 10; National Grain and Feed Association,” Comment Letter, Surface Transportation Board, “Association of American Railroads – Petition for a Rulemaking: Solicitation of Information,” Docket No. EP 752 (April 4, 2019) at 2.[Hereinafter “NGFA.”]

³⁵ See, e.g., ACC at 1; NGFA at 2; AF&PA at 2-3, 6-8; AFPM at 2-3; Joint Shippers at 13; National Coal Transportation Association, “Reply on Behalf of National Coal Transportation Association,” Surface Transportation Board, “Association of American Railroads – Petition for a Rulemaking: Solicitation of Information,” Docket No. EP 752 (Jan. 31, 2020) at 2.

³⁶ Ajit Pai, “The Importance of Economic Analysis at the FCC,” remarks at the Hudson Institute (April 5, 2017) at 3-4, <https://www.hudson.org/events/1415-commission-chairman-ajit-pai-on-economic-analysis-at-the-fcc42017>.

³⁷ Wayne Leighton, Mindy Ginsburg, Sasha Javid, Jay Schwarz, Royce Sherlock, Walt Strack, and Rodger Woock. “Plan for Office of Economics and Analytics (OEA): Recommendations and Report to Chairman Ajit Pai, Federal Communications Commission” (January 9, 2018), <https://www.fcc.gov/document/report-chairman-pai-plan-office-economics-and-analytics>.

new office in January 2018.³⁸ The new office commenced operation under the new organizational structure in December 2018.³⁹

At the same time as he sought to promote more extensive economic analysis and incorporate it into rulemakings, the chairman was committed to moving forward rapidly on a number of important rulemakings. In 2017 and 2018, the FCC's economics staff worked to accomplish these two goals simultaneously, even though the new economics office was not yet established, and the FCC had developed no formal economic analysis guidance document of its own.

One example of how a modest amount of economic analysis yielded actionable information was the FCC order in October 2017 that eliminated the international traffic and revenue reports that carriers had been required to file at an estimated cost of \$700,000-\$1.3 million annually.⁴⁰ When these reports were initiated, many foreign telephone companies charged very high per-minute rates to terminate international phone calls placed to their customers. The FCC established benchmark rates for each country that it believed were more consistent with the actual cost of terminating the call, then used the international traffic and revenue reports to monitor actual termination rates.

For the 2017 order, the FCC's economic analysis focused on whether the problem that gave rise to this reporting requirement still exists. FCC economists found that average settlement rates dropped from 18 cents per minute in 2000 to 3 cents per minute in 2014, and settlement rates on 75 percent of routes accounting for 98.7 percent of international minutes from the U.S. were below their benchmark rates. This occurred largely because of expanded competition in international telecommunications, including VOIP-based alternatives to the traditional switched telephone network. In short, the problem the reporting requirement was established to solve largely went away. The FCC concluded that it could gather adequate information on the small number of remaining high termination rates at lower cost through targeted data requests and commercial third-party data.⁴¹

This example demonstrates how a modest amount of economic analysis can provide sufficient information to guide decisions. It also illustrates how a primary focus on problem analysis can obviate the need for detailed, quantitative benefit-cost analysis. The analysis revealed

³⁸ Federal Communications Commission, "In the Matter of Establishment of the Office of Economics and Analytics, Order" (released January 31, 2018), <https://www.fcc.gov/document/fcc-votes-establish-office-economics-analytics>.

³⁹ Federal Communications Commission, "FCC Opens Office of Economics and Analytics," Press Release (December 11, 2018), <https://www.fcc.gov/document/fcc-opens-office-economics-and-analytics>.

⁴⁰ Federal Communications Commission, "Reporting Requirements for U.S. Providers of International Services; 2016 Biennial Review of Telecommunications Regulations, Final Rule," 82 FED. REG. 55,323, 55,324 (Nov. 21, 2017).

⁴¹ Id. at 55,324-55,325.

that the extent of the problem had shrunk significantly over time, and so the FCC could deal with the remaining small problem in a different way.

An example of how the economics staff accomplished the goal of incorporating greater economic analysis into an order for a major regulation without sacrificing speed was the *Restoring Internet Freedom* order. The Notice of Proposed Rulemaking was released on May 23, 2017, with comments due on July 17 and reply comments due on August 16.⁴² The goal was to complete the rulemaking by the end of the year, which the FCC accomplished at its December 14 meeting. But because Chairman Pai committed to releasing drafts of all FCC orders a month in advance of the meeting, the order (including, of course, the economic analysis) had to be essentially finished in time to release on November 22.⁴³ In addition, the NPRM presumed that the annual economic impact of the order would exceed \$100 million and proposed to conduct a benefit-cost analysis consistent with the guidelines in OMB Circular A-4.⁴⁴ A retreat from the chairman's commitment to improved economic analysis was not an option.

The FCC's economists obviously did not have time to conduct any new empirical studies to estimate benefits or costs. Of course they searched for relevant economic content in stakeholder comments, but they also conducted a thorough search of the economics literature to identify relevant theoretical and empirical research that would shed light on the likely effects of the major policy issues at stake: reclassifying broadband as a common carrier under Title II of the Communications Act; banning blocking, throttling, and paid prioritization of Internet traffic; and promulgating a general rule prohibiting business practices not yet invented that might create "unreasonable interference or disadvantage." The largely qualitative benefit-cost analysis indicated the likely direction and relative magnitude of benefits and costs.⁴⁵ This economic analysis was examined extensively and upheld in 27 pages (out of 146 pages total) of the D.C.

⁴² Federal Communications Commission, "In the Matter of Restoring Internet Freedom: Notice of Proposed Rulemaking," WC Docket No. 17-108 (Adopted May 18, 2017), <https://www.fcc.gov/document/restoring-internet-freedom-notice-proposed-rulemaking>.

⁴³ "FCC Announces Tentative Agenda for December Open Meeting" (Nov. 22, 2017), <https://www.fcc.gov/document/fcc-announces-tentative-agenda-december-open-meeting-3>.

⁴⁴ FCC, *supra* note 42, at paras. 105-115.

⁴⁵ Federal Communications Commission, "Restoring Internet Freedom: Final Rule," 83 FED. REG. 7852, 7909-7011 (Feb. 22, 2018). The section of the order labeled "Cost-Benefit Analysis" on pp. 7909-11 summarizes the results of economic analysis that is woven throughout the order. For succinct explanations of the economic analysis in the order, see Jerry Ellig et al., *Economics at the FCC, 2017-2018: Internet Freedom, International Broadband Pricing Comparisons, and a New Office of Economics and Analytics*, 53 REV. IND. ORG. 681 (2018); Jerry Ellig, "Restoring Internet Freedom as an Example of How to Regulate," 3 BUS. ENTREP. & TAX LAW REV. (forthcoming), working paper version available at <https://regulatorystudies.columbian.gwu.edu/sites/g/files/zaxdzs3306/f/downloads/WorkingPapers/GW%20Reg%20Studies%20-%20Restoring%20Internet%20Freedom%20How%20to%20Regulate%20-%20JEllig.pdf>.

Circuit's *Mozilla* decision.⁴⁶ In response to petitioners' challenge that the FCC's benefit-cost analysis was not quantitative, the court noted that "the Circular itself calls for a qualitative analysis under circumstances that the Commission reasonably invoked."⁴⁷

Based on these and other experiences at the FCC, I suggest that it is possible for an independent commission's economists to expand the use of benefit-cost analysis in ongoing proceedings during a transition period without creating major delays.

⁴⁶ *Mozilla v. FCC*, United States Court of Appeals for the D.C. Circuit No. 18-1051 (Oct. 1, 2019), [https://www.cadc.uscourts.gov/internet/opinions.nsf/FA43C305E2B9A35485258486004F6D0F/\\$file/18-1051-1808766.pdf](https://www.cadc.uscourts.gov/internet/opinions.nsf/FA43C305E2B9A35485258486004F6D0F/$file/18-1051-1808766.pdf). See also Jerry Ellig, "Implications of Mozilla for Agency Economic Analysis," Yale J. on Regulation *Notice & Comment* (Oct. 18, 2019), <https://www.yalejreg.com/nc/implications-of-mozilla-for-agency-economic-analysis-by-jerry-ellig/>.

⁴⁷ *Mozilla v. FCC* at 114.

**IMPROVEMENTS IN SEC ECONOMIC ANALYSIS
AFTER *BUSINESS ROUNDTABLE*:
A STRUCTURED ASSESSMENT**

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JERRY ELLIG*

ABSTRACT

Several D.C. Circuit decisions that remanded regulations to the Securities and Exchange Commission (SEC) between 2005 and 2011 provide a natural experiment that permits researchers to identify the correlation between judicial review, the quality of regulatory agencies’ economic analysis, and its use in regulatory decisions. SEC economic analysis improved substantially following the issuance of new staff guidance on economic analysis in 2012. Improvement occurred on all major elements that the guidance identified as important. The improvement occurred both on criteria that address “conceptual” economic analysis and on criteria that require quantification of benefits or costs to receive full credit. Although substantial room for improvement still exists, the court decisions appear to have motivated the SEC, in just a few years, to close the gap between the quality of its economic analysis and the average quality of economic analysis produced by executive branch agencies. This result holds implications not just for the debate about SEC economic analysis but also for the broader debate over the relationship between judicial review and regulatory impact analysis. It suggests that judicial review is likely to have a salutary effect on the quality of agency economic analysis.

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II. BACKGROUND 5
 A. *Major Elements of Regulatory Analysis* 6

* Research Professor, Regulatory Studies Center, The George Washington University. Ph.D., Economics, George Mason University, 1988; M.A., Economics, George Mason University, 1986; B.A., Economics, Xavier University, 1984. The author thanks Jonathan Nelson, Randall Seeger, and Vera Soliman for research assistance; Oliver Sherouse for developing the word count and other data on regulatory complexity; Hester Peirce and Richard Williams for helpful discussions over a period of several years; and Ted Bolema, William H.J. Hubbard, and two anonymous reviewers for the Mercatus Center for helpful comments on earlier drafts. This Article solely reflects the views of the author and does not reflect the views of Florida State University, its College of Law, or the *Florida State Business Review*.

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I. INTRODUCTION

In recent years, two related debates have raged over the proper role of the judiciary in reviewing economic analysis conducted by regulatory agencies when they issue major regulations. Several D.C. Circuit decisions that remanded regulations to the Securities and Exchange Commission (SEC) have been widely criticized for expanding the role of courts in critiquing agencies' substantive analysis.¹ Nevertheless, members of Congress have introduced legislation that would require financial regulatory agencies to conduct economic analysis to inform regulatory decisions and allow courts to review it.² More broadly, advocates of comprehensive regulatory reform have argued that courts should review the quality of the regulatory impact analyses that federal regulatory agencies produce, including independent agencies.³ Legislation permitting judicial review of agency analysis, the Regulatory Accountability Act, has been introduced in the past several

1. See *infra* Section II.C.

2. See, e.g., Financial CHOICE Act of 2017, H.R. 10, 115th Cong. (2017) (listing the topics that financial regulators' economic analysis must cover in § 312 and providing for judicial review of agency compliance with those requirements in § 317).

3. See, e.g., Reeve Bull & Jerry Ellig, *Judicial Review of Regulatory Impact Analysis: Why Not the Best?*, 69 ADMIN. L. REV. 725 *passim* (2017); Susan E. Dudley, *Improving Regulatory Accountability: Lessons from the Past and Prospects for the Future*, 65 CASE W. RES. L. REV. 1027, 1054–56 (2015); Jonathan S. Masur & Eric A. Posner, *Cost-Benefit Analysis and the Judicial Role*, 85 U. CHI. L. REV. 935 *passim* (2018); Christopher J. Walker, *Modernizing the Administrative Procedure Act*, 69 ADMIN. L. REV. 629 *passim* (2017).

Congresses and has passed the House of Representatives multiple times.⁴

Even in the absence of new legislation, recent cases suggest the courts will place greater weight on the quality and use of economic analysis by regulatory agencies in the future.⁵ Two examples not involving the SEC illustrate this tendency.

In *Michigan v. EPA*, the Supreme Court overturned the Environmental Protection Agency (EPA) regulation of hazardous air pollutants from fossil fuel power plants because the EPA declined to consider costs when determining whether its regulation was “appropriate and necessary.”⁶ The agency’s regulatory impact analysis (RIA) estimated costs of \$9.6 billion annually, but the EPA said the RIA played no role in its decision.⁷ Without dictating how the EPA must take costs into account, the court ruled that the agency failed to consider a relevant factor when it completely ignored costs.⁸

In *MetLife, Inc. v. Financial Stability Oversight Council*, the U.S. District Court for the District of Columbia overturned a regulatory decision to classify MetLife as a nonbank financial company subject to enhanced regulatory oversight by the Federal Reserve.⁹ Two of the reasons for the court’s decision directly pertain to deficient economic analysis. First, the Financial Stability Oversight Council (FSOC) did not estimate the size of potential losses that financial distress could create for MetLife, nor did it estimate the resulting size of losses that counterparties might sustain.¹⁰ As a result, the regulators had no factual basis for determining that financial distress at MetLife would undermine the stability of the U.S. financial system.¹¹ Second, the FSOC failed to estimate or even consider the costs that MetLife would incur from increased regulation.¹² Because those costs could impair MetLife’s profitability, they could affect the vulnerability of the

4. See, e.g., Regulatory Accountability Act of 2017, H.R. 5, 115th Cong. § 951 (2017). Unlike the legislation discussed *supra* note 2, which applies to financial regulatory agencies, the Regulatory Accountability Act of 2017 is a comprehensive revision of the Administrative Procedure Act that applies to almost all regulatory agencies.

5. See, e.g., Caroline Cecot & W. Kip Viscusi, *Judicial Review of Agency Benefit-Cost Analysis*, 22 GEO. MASON L. REV. 575, 578 (2015); Cass R. Sunstein, *Cost-Benefit Analysis and Arbitrariness Review*, 41 HARV. ENVTL. L. REV. 1, 2–3 (2017); Masur & Posner, *supra* note 3, *passim*.

6. *Michigan v. EPA*, 135 S. Ct. 2711, 2712 (2015).

7. *Id.* at 2705–06.

8. *Id.* at 2712.

9. *MetLife, Inc. v. Fin. Stability Oversight Council*, 177 F. Supp. 3d 219 (D.D.C. 2016).

10. *Id.* at 238.

11. *Id.* at 237–40.

12. *Id.* at 239.

company to financial distress. Thus, the regulators ignored a factor that was highly relevant to the decision they had to make.¹³

Courts have interpreted the SEC's authorizing legislation to require the commission to assess the economic effects of new rules before it adopts them.¹⁴ The D.C. Circuit's decisions in the SEC cases provide a natural experiment that permits researchers to assess the effects of judicial review on the quality of regulatory agencies' economic analysis and its use in regulatory decisions. Subsequent to the D.C. Circuit decisions, the SEC's Office of General Counsel and Office of Economic Analysis issued new guidance for economic analysis¹⁵ that is explicitly based on the principles of Executive Order No. 12,866, which governs regulatory analysis and review in the executive branch.¹⁶ The guidance also reorganized the process for developing regulations to involve economists at the outset, and the number of financial economists with PhDs working at the SEC more than doubled.¹⁷

SEC regulations issued before this guidance were accompanied by analyses that were much less thorough than the analyses conducted by executive branch agencies.¹⁸ Existing studies disagree on whether the SEC's economic analysis has improved. Numerous authors claim to find little evidence of improvement.¹⁹ Other researchers, however, have suggested that the economic analysis accompanying individual SEC regulations has improved since the D.C. Circuit decisions.²⁰

13. *Id.* at 239–43.

14. *Bus. Roundtable v. SEC*, 647 F.3d 1144, 1148 (D.C. Cir. 2011).

15. OFFICE OF GEN. COUNSEL & DIV. OF RISK, STRATEGY & FIN. INNOVATION, SEC. & EXCH. COMM'N, CURRENT GUIDANCE ON ECONOMIC ANALYSIS IN SEC RULEMAKINGS 1 (2012) [hereinafter CURRENT GUIDANCE].

16. Exec. Order No. 12,866, 3 C.F.R. 638 (1993), *reprinted as amended in* 5 U.S.C. § 601 app. at 822–27 (2018).

17. *See infra* Section II.D.

18. Jerry Ellig & Hester Peirce, *SEC Regulatory Analysis: "A Long Way to Go and a Short Time to Get There,"* 8 BROOK. J. CORP. FIN. & COM. L. 361, 363 (2014).

19. *See, e.g., id.* at 431–35; Eric A. Posner & E. Glen Weyl, *Benefit-Cost Paradigms in Financial Regulation*, 43 J. LEGAL STUD. S1, S30 (2014); Jeff Schwartz & Alexandra Nelson, *Cost-Benefit Analysis and the Conflict Minerals Rule*, 68 ADMIN. L. REV. 287 (2016); PAUL ROSE & CHRISTOPHER J. WALKER, U.S. CHAMBER OF COMMERCE CTR. FOR CAPITAL MKTS. COMPETITIVENESS, THE IMPORTANCE OF COST-BENEFIT ANALYSIS IN FINANCIAL REGULATION 11, 27 (2013).

20. *See, e.g.,* Bruce R. Kraus, *Economist in the Room at the SEC*, 124 YALE L.J. F. 280, 296–301 (2015); Bruce Kraus & Connor Raso, *Rational Boundaries for SEC Cost-Benefit Analysis*, 30 YALE J. ON REG. 289, 324–27 (2013); Richard L. Revesz, *Cost-Benefit Analysis and the Structure of the Administrative State: The Case of Financial Services Regulation*, 34 YALE J. ON REG. 545, 570 (2017); Catherine M. Sharkey, *State Farm "with Teeth": Heightened Judicial Review in the Absence of Executive Oversight*, 89 N.Y.U. L. REV. 1589, 1632 (2014); Joshua T. White, *The Evolving Role of Economic Analysis in SEC Rulemaking*, 50 GA. L. REV. 293 *passim* (2015).

This Article provides a more systematic view by offering a structured assessment of the economic analysis accompanying a sample of SEC regulations issued after the 2012 guidance. Using the evaluation method developed for the Regulatory Report Card project, the Article compares the quality and claimed use of economic analysis for samples of post-2012 SEC regulations, pre-2012 SEC regulations, and executive branch regulations.

SEC economic analysis improved substantially following issuance of the 2012 guidance. The difference is highly statistically significant, and it persists even after econometrically controlling for other factors that may be associated with higher-quality analysis. Improvement occurred on all major elements the SEC identified as important in its 2012 guidance: (1) explanation of the justification for the rule, (2) clear definition of the baseline against which to measure the rule's economic impacts, (3) identification and discussion of reasonable alternatives, and (4) analysis of the benefits and costs of the proposed rule and the principal alternatives. The improvement occurred both on criteria that address "conceptual" economic analysis and on criteria that require quantification of benefits or costs to receive full credit.

The SEC's explanations of how economic analysis informed its decisions also improved noticeably. For the most part, economic analysis was used to identify potentially effective solutions and to discard alternatives that had little chance of creating benefits. The SEC did not improve its explanation of how net benefits (benefits minus costs) affected its decisions, largely because benefits are not quantified sufficiently to allow calculation of net benefits and comparison of alternatives.

Substantial opportunities for improvement still exist. The economic analysis accompanying SEC regulations is still far from complete—a characteristic it shares with the analysis produced by executive branch agencies. Nevertheless, the court decisions appear to have motivated the SEC, in just a few short years, to close the gap between the quality of its economic analysis and the average quality of economic analysis produced by executive branch agencies. The SEC example illustrates how judicial review can prompt a regulatory agency to produce higher-quality analysis and to provide a more complete explanation of how that analysis affected its decisions.

II. BACKGROUND

A. Major Elements of Regulatory Analysis

A thorough economic analysis to inform regulatory decision-making consists of at least four elements. Those elements are outlined in President Clinton's Executive Order No. 12,866, which governs regulatory analysis and review in the executive branch,²¹ and *Circular A-4*, the Office of Management and Budget's guidance to agencies on regulatory analysis²²:

- (1) *Problem analysis*. The very first principle enunciated in Executive Order No. 12,866 is that "[e]ach agency shall identify the problem that it intends to address (including, where applicable, the failures of private markets or public institutions that warrant new [regulatory] action) as well as assess the significance of that problem."²³ The analysis should define the problem and identify its root cause, so that the agency can identify whether regulation is necessary and, if so, can develop effective solutions. Thus, analysis of the problem is a logically prior and necessary step before development of alternatives or counting of benefits or costs can occur.²⁴ It is clear from both Executive Order No. 12,866 and OMB *Circular A-4* that agencies must do more than simply cite the statute that authorized or required the regulation.²⁵ Citing a statute is not the same thing as assessing a problem.
- (2) *Development of alternatives*. Executive Order No. 12,866 and *Circular A-4* direct agencies to consider multiple types of alternatives, including alternatives to direct regulation, removal of existing regulations, alternative forms of regulation, different levels of stringency, different compliance dates, and use of state or local regulation instead of federal regulation.²⁶
- (3) *Estimation of benefits*. For executive branch agencies, the scope of analysis and degree of quantification depend on the importance of the regulation. Any regulation subject to review by the Office of Information and Regulatory Affairs

21. Exec. Order No. 12,866, 3 C.F.R. 638.

22. OFFICE OF MGMT. & BUDGET, EXEC. OFFICE OF THE PRESIDENT, CIRCULAR A-4, REGULATORY ANALYSIS (2003).

23. Exec. Order No. 12,866 § 1(b)(1), 3 C.F.R. at 639.

24. White, *supra* note 20, at 305.

25. Exec. Order No. 12,866 § 6(a)(3)(B)(i), 3 C.F.R. at 645; OFFICE OF MGMT. & BUDGET, *supra* note 22, at 3-4.

26. Exec. Order No. 12,866 § 1(b)(1), 3 C.F.R. at 639; OFFICE OF MGMT. & BUDGET, *supra* note 22, at 6-9.

(OIRA) must include an assessment of benefits.²⁷ An economically “significant regulatory action”—defined as a regulation with annual economic effects of at least \$100 million or meeting certain other criteria—must have an analysis that quantifies the benefits of the regulation and the alternatives considered.²⁸ A regulation with \$1 billion or more in annual economic impact must have a formal analysis of uncertainties associated with the estimates.²⁹

- (4) *Estimation of costs.* The cost of a regulation includes all opportunity costs to society, not just compliance costs for regulated entities.³⁰ For executive branch agencies, the differing requirements for the scope of analysis and degree of quantification based on the impact of the regulation apply to the cost analysis as well as to the benefit analysis.

In the executive branch, this economic analysis of prospective regulations has come to be known as a regulatory impact analysis (RIA). An agency’s RIA may be either a separate document or a separate section in the *Federal Register* notice announcing the proposed or final regulation. The executive order neither attenuates nor creates any additional right of judicial review.³¹ However, an agency’s RIA may be subject to judicial review if the statute authorizing the regulation requires the agency to conduct a benefit-cost analysis or to consider benefits and costs. Courts can also review the analysis if the agency voluntarily uses any part of the RIA to support its decisions.³²

No administration has required independent agencies to comply with the executive order’s RIA requirements. However, some independent agencies have an obligation to conduct a benefit-cost analysis or related economic analysis as a result of language in their authorizing statutes. The SEC, for example, is required to consider the effects of regulation on competition, efficiency, and capital formation when it evaluates whether a regulation is in the public interest. Courts have interpreted that language to mean that the SEC must conduct a benefit-cost analysis of potential regulations and reasonable alternatives. The resulting analysis is subject to judicial review.

When courts review an executive branch or independent agency’s economic analysis, the review occurs under the “arbitrary

27. Exec. Order No. 12,866 § 6(a)(3)(B)(ii), 3 C.F.R. at 645.

28. *Id.* § 6(a)(3)(C)(i), at 645; *id.* § 6(a)(3)(C)(iii), at 646.

29. OFFICE OF MGMT. & BUDGET, *supra* note 22, at 40.

30. *Id.* at 19.

31. Exec. Order No. 12,866 § 10, 3 C.F.R. at 649.

32. Cecot & Viscusi, *supra* note 5, *passim*.

and capricious” standard, unless the statute authorizing the regulation specifies an alternative standard. In practice, the thoroughness of court review under the “arbitrary and capricious” standard has varied widely. In some cases, courts have been highly deferential, merely satisfying themselves that the analysis has articulated some reason for the agency’s decisions. In other cases, courts have evaluated the completeness, accuracy, and logic of the agency’s analysis in light of other information in the record.³³ The major D.C. Circuit cases that struck down SEC regulations were of the latter variety.

B. The D.C. Circuit Cases

The first case, *Chamber of Commerce v. SEC*, involved a regulation that required most mutual funds to have a supermajority of independent directors and an independent chair.³⁴ The court remanded the regulation in part because the SEC refused to assess a disclosure alternative favored by two dissenting commissioners.³⁵ The court also faulted the SEC for failure to consider the costs that mutual funds would incur in complying with the rule.³⁶ Although acknowledging that a full cost estimate may be difficult, the decision noted that the SEC could at least have provided a rough estimate.³⁷ When the SEC readopted the rule after a week of deliberation, the court struck down the rule because the SEC relied on extra-record evidence and did not consider data on the costs already incurred by some funds that had complied with the regulation.³⁸

The second case, *American Equity v. SEC*, considered a rule that deemed fixed index annuities to be an investment product subject to the federal securities laws, not just an insurance product governed by state insurance laws.³⁹ The court faulted the SEC for asserting that the rule would increase competition and efficiency without assessing the current (baseline) extent of competition and efficiency under the state law regime.⁴⁰ The court also criticized

33. See, e.g., Reeve T. Bull & Jerry Ellig, *Statutory Rulemaking Considerations and Judicial Review of Regulatory Impact Analysis*, 70 ADMIN. L. REV. 873 *passim* (2018); Bull & Ellig, *supra* note 3, *passim*; Cecot & Viscusi, *supra* note 5, *passim*.

34. *Chamber of Commerce v. SEC*, 412 F.3d 133, 136 (D.C. Cir. 2005).

35. *Id.*

36. *Id.*

37. *Id.* at 144–45.

38. *Chamber of Commerce v. SEC*, 443 F.3d 890, 906 (D.C. Cir. 2006).

39. *Am. Equity Inv. Life Ins. Co. v. SEC*, 572 F.3d 923, 925 (D.C. Cir. 2009), *amended and superseded by*, 613 F.3d 166 (D.C. Cir. 2010).

40. *Id.* at 935.

the SEC's circular reasoning that the rule would increase competition by reducing uncertainty because the absence of a rule created uncertainty.⁴¹

The third and most momentous case was *Business Roundtable v. SEC*.⁴² This case involved a challenge to an SEC rule that outlined the circumstances in which a company's board of directors had to include shareholder-nominated board candidates in the board's proxy materials sent to investors.⁴³ The court vacated the rule for seven reasons. First, the SEC failed to estimate companies' compliance costs (even though there was evidence available).⁴⁴ Second, the SEC provided insufficient empirical support for its claim that the rule would benefit shareholders by improving corporate performance.⁴⁵ Third, the SEC failed to assess whether the rules would lead to additional contested elections or merely make currently contested elections easier.⁴⁶ Fourth, the commission attributed the costs of elections that would be contested as a result of the rule to preexisting state laws that give shareholders the right to elect directors.⁴⁷ Fifth, the SEC ignored the possibility that the rule could create additional costs by allowing certain groups of shareholders to use them as leverage to extract special concessions from the company.⁴⁸ Sixth, in calculating benefits and costs, the analysis used inconsistent estimates of the frequency with which the rule would be used.⁴⁹ Seventh, the SEC did not consider whether imposing the requirements on investment companies would create different benefits and costs from imposing them on other types of corporations.⁵⁰

All of these D.C. Circuit cases involved elements that were missing from the economic analysis, such as obvious alternatives, significant costs, or empirical support for claims of fact. But *Business Roundtable* arguably went much further than the other cases because the court critically assessed the SEC's analytical judgment in (1) choosing input values for calculations, (2) attributing costs to state laws rather than to the new regulation, (3) interpreting conflicting academic studies on the relationship

41. *Id.* at 934–35.

42. *Bus. Roundtable v. SEC*, 647 F.3d 1144 (D.C. Cir. 2011).

43. *Id.* at 1146–47.

44. *Id.* at 1150.

45. *Id.*

46. *Id.*

47. *Id.* at 1151.

48. *Id.* at 1151–52.

49. *Id.* at 1153.

50. *Id.* at 1154–55.

between independent directors and corporate performance, and (4) determining whether to include certain benefits or costs that require predictions of behavioral changes.⁵¹ The D.C. Circuit appeared quite frustrated that the SEC's analysis of the proxy access rule suffered from the same kinds of deficiencies that the court had pointed out several years previously in *Chamber of Commerce* and *American Equity*.⁵²

C. Scholarly Reactions to the D.C. Circuit Cases

Proponents argue that the SEC cases are a positive development. Prior research finds that the economic analysis of independent financial regulatory agencies often falls far short of the quality of analysis conducted by executive branch agencies.⁵³ A study prepared for the Administrative Conference of the United States surveyed research by independent academics, the Government Accountability Office, and agency inspector generals.⁵⁴ The author found that although independent agencies often conduct some qualitative analysis of benefits or costs, they often fail to address benefits or costs of elements of the regulation that are required by law, are less likely to assess the benefits and costs of alternatives to the regulation, and often fail to quantify benefits or costs other than paperwork costs.

Jonathan Masur and Eric Posner put the SEC's analysis in *Business Roundtable* in this category: "The reason that the court in *Business Roundtable* acted rightly in striking down the proxy access rule is not that the rule was obviously a bad one but that the SEC failed to supply an adequate [cost-benefit analysis]." ⁵⁵ Henry Manne suggests that *Business Roundtable* spurred the SEC's change of heart on economic analysis and that judicial review is essential to prevent insufficient or faulty analysis.⁵⁶ Jonathan Guynn contends that economic analyses performed by financial regulatory agencies "have typically read as if they were written by lawyers trying to make a plausible case for a precooked

51. Kraus & Raso, *supra* note 20, at 303–16; 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. 125, 158–62 (2012).

52. ROSE & WALKER, *supra* note 19, at 33.

53. See, e.g., Ellig & Peirce, *supra* note 18, at 361–63; Arthur Fraas & Randall Lutter, *On the Economic Analysis of Regulations at Independent Regulatory Commissions*, 63 ADMIN. L. REV. (SPECIAL ISSUE) 213 *passim* (2011).

54. CURTIS W. COPELAND, ECONOMIC ANALYSIS AND INDEPENDENT REGULATORY AGENCIES 4 (2013).

55. Masur & Posner, *supra* note 3, at 29.

56. Henry G. Manne, *Economics and Financial Regulation*, REGULATION, Summer 2012, at 20, 25.

conclusion, rather than as a rigorous analysis based on actual data and solid scientific methods.”⁵⁷ He argues that *Business Roundtable* should generate a welcome improvement in the quality of agency analysis as agencies seek to avoid litigation. Catherine Sharkey argues that external review of agency analysis plays a vital “information-forcing” role.⁵⁸ She suggests that OIRA performs this role adequately for executive branch agencies, but because independent agencies are not subject to the OIRA review process, courts should step in and evaluate their analysis using a heightened standard of scrutiny.

Critics see much mischief and little good coming from the decisions. Many believe that heightened court scrutiny will make it more difficult for the SEC to issue major new regulations.⁵⁹ Berkeley law professor Steven Davidoff Solomon commented disapprovingly, “[T]he opinion appears to create an almost insurmountable barrier for the SEC by requiring that it provide empirical support amounting to proof that its rules would be effective.”⁶⁰ Even some advocates of expanded benefit-cost analysis express skepticism about the merits of judicial review.⁶¹

Most significant for the purposes of this Article, however, are several criticisms that imply that judicial review might not lead to higher-quality analysis. Jeffrey Gordon argues that benefit-cost analysis of financial regulation is simply impossible because changes in regulation lead to unpredictable changes in the behavior of the financial system.⁶² His view implies that any attempts to improve benefit-cost analysis of financial regulation are futile. John Coates warns that if the court decisions are interpreted to mean that agencies must produce fully quantified estimates of benefits and costs, they may require the SEC to

57. Jonathan D. Guynn, Note, *The Political Economy of Financial Rulemaking After Business Roundtable*, 99 VA. L. REV. 641, 642 (2013). Cf. Kraus & Raso, *supra* note 20, at 297–301.

58. Sharkey, *supra* note 20, at 1591.

59. See, e.g., James D. Cox, *Iterative Regulation of Securities Markets After Business Roundtable: A Principles-Based Approach*, 78 L. & CONTEMP. PROBS., no. 3, 2015, at 25, 27–28; Jill E. Fisch, *The Long Road Back: Business Roundtable and the Future of SEC Rulemaking*, 36 SEATTLE U. L. REV. 695, 709 (2013); Kraus & Raso, *supra* note 20, at 318–19; Murphy, *supra* note 51, at 127.

60. Steven Davidoff Solomon, *Proxy Access in Limbo After Court Rules Against It*, N.Y. TIMES (July 27, 2011, 3:36 PM), <http://dealbook.nytimes.com/2011/07/27/proxy-access-in-limbo-after-court-rules-against-it/>.

61. See, e.g., John H. Cochrane, *Challenges for Cost-Benefit Analysis of Financial Regulation*, 43 J. LEGAL STUD. S63, S95 (2014); Cass R. Sunstein, *Financial Regulation and Cost-Benefit Analysis*, 124 YALE L.J. F. 263, 268 (2015); Posner & Weyl, *supra* note 19, at S30.

62. Jeffrey N. Gordon, *The Empty Call for Benefit-Cost Analysis in Financial Regulation*, 43 J. LEGAL STUD. S351 *passim* (2014).

attempt the impossible, because the benefits of many regulations that safeguard the financial system are difficult if not impossible to quantify with any degree of accuracy.⁶³ Cost estimates could be subject to the same drawback; Jeff Schwartz and Alexandra Nelson argue that the SEC substantially overstated the costs of its conflict minerals rule because it felt obligated to produce a number.⁶⁴

Even if one takes a more sanguine view of what is possible, financial regulatory agencies may not currently have the technical knowledge, resources, institutional setting, or managerial structures necessary to produce significantly better analysis.⁶⁵ Judicial review is an adversarial process that occurs after a regulation has been adopted. Thus, judicial review offers less opportunity for improvement of the analysis before the regulation is adopted than does the interagency process coordinated by OIRA before an executive agency regulation is published.⁶⁶ Judicial review may also prompt agencies to hide weaknesses in their analysis⁶⁷ or to produce a distorted economic analysis that helps them win court cases but is not methodologically sound.⁶⁸ Finally, judges may use judicial review to enforce their own policy preferences,⁶⁹ or they may decline to examine agency analysis because of their policy preferences⁷⁰—choices that would make judicial review a less credible enforcement mechanism.

Many skeptics of judicial review acknowledge that better economic analysis is needed and have suggested other ways to improve financial regulators' economic analysis. Proposed structural solutions include (1) have OIRA or some other external entity conduct a review, (2) modify the Paperwork Reduction Act to facilitate data gathering, (3) allow agency economics staff to release an analysis without approval of the commissioners, (4)

63. John C. Coates IV, *Cost-Benefit Analysis of Financial Regulation: Case Studies and Implications*, 124 YALE L.J. 882 *passim* (2015).

64. Schwartz & Nelson, *supra* note 19, *passim*.

65. See, e.g., Ryan Bubb, Comment, *The OIRA Model for Institutionalizing CBA of Financial Regulation*, 78 L. & CONTEMP. PROBS., no. 3, 2015, at 47 *passim*; John C. Coates IV, *Towards Better Cost-Benefit Analysis: An Essay on Regulatory Management*, 78 L. & CONTEMP. PROBS., no. 3, 2015, at 1, 23.

66. Bubb, *supra* note 65, at 52.

67. Coates, *supra* note 63, at 1004.

68. Robert J. Jackson, Jr., Comment, *Cost-Benefit Analysis and the Courts*, 78 L. & CONTEMP. PROBS., no. 3, 2015, at 55, 59.

69. See, e.g., Grant M. Hayden & Matthew T. Bodie, *The Bizarre Law and Economics of Business Roundtable v. SEC*, 38 J. CORP. L. 101 *passim* (2012); Recent Case, *Business Roundtable v. SEC*, 647 F.3d 1144 (D.C. Cir. 2011), 125 HARV. L. REV. 1088, 1092–93 (2012).

70. See Eric A. Posner & E. Glen Weyl, *Cost-Benefit Analysis of Financial Regulations: A Response to Criticisms*, 124 YALE L.J. F. 246, 260–61 (2015) (citing Coates, *supra* note 63).

have agency economics staff report to all commissioners (rather than just the chair), and (5) require sunsets and retrospective evaluation for all new regulations.⁷¹ Proposed resource solutions include (1) more funding for economic analysis, (2) appointment of commissioners with expertise in economics, (3) greater sharing of best practices across agencies, and (4) more research on methods of benefit-cost analysis for financial regulations.⁷²

The varied reactions to the D.C. Circuit decisions are a microcosm of the broader debate over judicial review of RIAs. Proponents of judicial review see significant deficiencies in agency analysis—even by executive branch agencies subject to OIRA review—and see judicial review as a salutary enforcement mechanism to encourage higher-quality analysis.⁷³ Opponents question the ability of generalist judges to evaluate agency economic analysis, and they fear that judicial review will slow or halt rulemaking.⁷⁴ Instead, they suggest that more resources for analysis and various structural changes will produce more desirable improvements in agency analysis.⁷⁵

D. The SEC as a Case Study

There are two reasons the SEC provides an informative case study of the effects of judicial review on the quality and claimed use of economic analysis in regulations.

First, the circumstances surrounding the decisions create a quasi-natural experiment. The mandate for improved economic analysis was imposed on the SEC externally by the courts and

71. See, e.g., Robert P. Bartlett III, *The Institutional Framework for Benefit-Cost Analysis in Financial Regulation: A Tale of Four Paradigms?*, 43 J. LEGAL STUD. S379 *passim* (2014); Rachel A. Benedict, Note, *Judicial Review of SEC Rules: Managing the Costs of Cost-Benefit Analysis*, 97 MINN. L. REV. 278, 297–300 (2012); Bubb, *supra* note 65, at 48; Coates, *supra* note 63, at 895; Posner & Weyl, *supra* note 19, at S30–31; Posner & Weyl, *supra* note 70, at 261–62; Revesz, *supra* note 20, at 584.

72. Coates, *supra* note 63, at 1007–11; Revesz, *supra* note 20, at 575–82.

73. See, e.g., *Cost-Justifying Regulations: Protecting Jobs and the Economy by Presidential and Judicial Review of Costs and Benefits: Hearing Before the Subcomm. on Courts, Commercial & Admin. Law of the H. Comm. on the Judiciary*, 112th Cong. 7 (2011) (statement of John D. Graham, Dean, Indiana University School of Public and Environmental Affairs); Bull & Ellig, *supra* note 3, at 730; Cecot & Viscusi, *supra* note 5, at 605–07; Dudley, *supra* note 3, at 1055; Masur & Posner, *supra* note 3.

74. See, e.g., *A Review of Regulatory Reform Proposals: Hearing Before the S. Comm. on Homeland Sec. & Governmental Affairs*, 114th Cong. 12–13 (2015) (statement of Sidney A. Shapiro, Chair, Wake Forest University School of Law, and Vice President, Center for Progressive Reform); Ronald Levin, *Judicial Review of Procedural Compliance*, 48 ADMIN. L. REV. 359, 362 (1996).

75. See, e.g., *Toward a 21st Century Regulatory System: Hearing Before the S. Comm. on Homeland Sec. & Governmental Affairs*, 114th Cong. 12–13 (2015) (statement of Sally Katzen, Professor, New York University School of Law).

reinforced by pressure from Congress. The court decisions (especially *Business Roundtable*) were a surprise, representing a significant departure from past practice.⁷⁶ By Sharkey's account, "A shock wave reverberated throughout the banking and financial services community" in response to *Business Roundtable*.⁷⁷ I suspect the shock of the court decisions was not completely random, but it was surely regarded as a low-probability outcome *ex ante*. Thus, it is as close to a natural experiment as one is likely to find in the policy world.

Second, by most accounts, the SEC did, in fact, take significant steps to improve its economic analysis because of the court decisions.⁷⁸ In March 2012, the SEC's general counsel and chief economist issued new guidance for economic analysis of regulations.⁷⁹ The guidance is based on the principles in executive orders and OMB guidance geared toward executive branch agencies.⁸⁰ It identifies four key components that should be included in the economic analysis accompanying regulations: (1) an explanation of the justification for the rule, (2) a clear definition of the baseline against which to measure the rule's economic impacts, (3) identification and discussion of reasonable alternatives, and (4) analysis of the benefits and costs of the proposed rule and the principal alternatives.⁸¹ The document also outlines a new organizational process intended to ensure that economists are involved in the development of regulations at every step in the process.⁸² The guidance explicitly states that these changes are a response to the three D.C. Circuit decisions, congressional inquiries, and evaluations from the Government Accountability Office and the SEC's inspector general.⁸³ Paul Rose and Christopher Walker document how the guidance responds directly to the D.C. Circuit's criticisms, often citing the three cases as justification.⁸⁴

The SEC's actions did not end at issuing new guidance. In a reversal of an earlier decision, the chief economist now reports

76. *E.g.*, Robert B. Ahdieh, *Reanalyzing Cost-Benefit Analysis: Toward a Framework of Function(s) and Form(s)*, 88 N.Y.U. L. REV. 1983, 1988–90 (2013); 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, 1828–30 (2012); Cox, *supra* note 59, at 27; Guynn, *supra* note 57, at 681.

77. Sharkey, *supra* note 20, at 1624.

78. Kraus, *supra* note 20, at 288 n.41.

79. CURRENT GUIDANCE, *supra* note 15.

80. *Id.* at 3–4.

81. *Id.* at 4.

82. *Id.* at 2.

83. *Id.* at 1–2.

84. ROSE & WALKER, *supra* note 19, at 34–36.

directly to the chair of the commission.⁸⁵ The budget of the Division of Economic and Risk Analysis (DERA) grew from \$20 million in fiscal year 2011 to \$43 million in fiscal year 2014.⁸⁶ The number of financial economists with PhDs increased from thirty in 2011 to seventy-three in 2015.⁸⁷ “The underlying spirit (though not the letter) of the much-maligned [*Business Roundtable*] opinion has brought economists to the table in the SEC rulemaking process, where their contributions are real.”⁸⁸

Thus, it is reasonable to infer that if an observed change in the quality of SEC economic analysis occurs after the three court decisions previously discussed, at least some of that change was a response to the court decisions.

III. REGULATIONS COVERED

Hester Peirce and I assessed the quality of economic analysis accompanying seven SEC regulations issued from 2010 to 2011.⁸⁹ We selected the two most recent major rules (as of February 2012) for each of the primary rule-writing divisions: Corporation Finance, Investment Management, and Trading and Markets. One additional rule in the sample was issued by the enforcement division. This study replicates the previous study’s method by selecting the two most recent final, nontemporary rules (as of January 2016) from each of the three primary rulemaking divisions. All but one of the rules in the sample are major. The nonmajor rule, dealing with credit ratings, is nevertheless an important rule that was accompanied by an economic analysis.⁹⁰ The enforcement division issued no major rules during this period, so the seventh rule is issued jointly by the Corporation Finance and Investment Management divisions. Table 1 lists and summarizes the SEC rules evaluated for this study.

85. Ellig & Peirce, *supra* note 18, at 372–73.

86. White, *supra* note 20, at 309.

87. *Id.* at 308–09.

88. Kraus, *supra* note 20, at 304.

89. Ellig & Peirce, *supra* note 18, at 361.

90. See Removal of Certain References to Credit Ratings and Amendment to the Issuer Diversification Requirement in the Money Market Fund Rule, 80 Fed. Reg. 58,124, 58,143 (Sept. 25, 2015) (to be codified at 17 C.F.R. pts. 270, 274). As Table 4, *infra*, demonstrates, the economic analysis of the Credit Ratings regulation scored close to the sample mean, so inclusion of this regulation did not bias the results of the evaluation.

Table 1. SEC Rules Assessed in This Study.

Rule	Summary of Rule
Preguidance ⁹¹	
Risk Management Controls for Brokers or Dealers with Market Access Published Nov. 15, 2010 Division of Trading and Markets	Requires brokers or dealers offering customers direct access to an exchange or alternative trading system to establish controls and procedures to limit risks associated with direct access. It also requires these brokers and dealers to establish controls to prevent entry of orders that are erroneous, exceed certain capital or credit thresholds, or violate regulatory requirements.
Shareholder Approval of Executive Compensation and Golden Parachute Compensation Published Feb. 2, 2011 Division of Corporate Finance	Requires companies to conduct a separate shareholder advisory vote to approve executive compensation, plus a vote to determine how often they will conduct this advisory vote. It also requires companies that are conducting a vote on mergers or acquisitions to disclose golden parachute arrangements and, in some cases, to conduct a shareholder advisory vote. Smaller companies have an extended transition period to comply.
Securities Whistleblower Incentives and Protections Published June 13, 2011 Division of Enforcement	Establishes a new whistleblower program. It creates procedures for reporting securities law violations to the SEC and for calculating payment of a whistleblower award if the tip leads to a successful SEC enforcement action that generates more than \$1 million in monetary sanctions.

91. For preguidance rules, see Ellig & Peirce, *supra* note 18, at 375–78.

Rules Implementing Amendments to the Investment Advisers Act of 1940 Published July 19, 2011 Division of Investment Management	Transitions medium-sized advisers from SEC registration to state registration; requires advisers to hedge funds and certain other funds to register with the SEC and provide information on Form ADV; implements Dodd-Frank exemptions for certain foreign advisers and advisers to venture capital and small private funds; requires these exempt advisers to file reports with the SEC; and amends “pay-to-play” rules.
Large Trader Reporting Published Aug. 3, 2011 Division of Trading and Markets	Requires large traders to receive an identification number from the SEC and furnish this number to broker-dealers who execute their transactions. It also requires broker-dealers to use this number to maintain records, report transactions to the SEC, and monitor transactions for activity that could trigger large trader requirements.
Reporting by Investment Advisers to Private Funds and Certain Commodity Pool Operators and Commodity Trading Advisers on Form PF Published Nov. 16, 2011 Division of Investment Management and CFTC	Requires investment advisers to one or more large private funds to file Form PF with the SEC. It also requires certain commodity pool operators and commodity trading advisers to file Form PF with the SEC and lets them use this filing to satisfy CFTC filing requirements with respect to commodity pools that are not private funds.
Net Worth Standard for Accredited Investors Published Dec. 29, 2011 Division of Corporation Finance	Revises the definition of <i>accredited investor</i> to exclude the value of a person’s primary residence and certain associated debt when calculating net worth. It also makes a number of related technical corrections.

Postguidance	
Eliminating the Prohibition against General Solicitation and General Advertising in Rule 506 and Rule 144A Transactions Published July 24, 2013 Division of Corporation Finance and Division of Investment Management	Implements a provision of the JOBS Act that allows issuers of certain securities that are not publicly offered to engage in general advertising and solicitation, provided that the purchasers of the securities are accredited investors. It also allows certain securities that were never publicly offered to be offered to parties other than qualified institutional buyers for resale as long as the buyers are qualified institutional buyers or parties acting on their behalf.
Money Market Fund Reform Published Aug. 14, 2014 Division of Investment Management	Requires institutional nongovernment money market funds to transact at a floating net asset value instead of fixing the value of their shares at \$1. The rule allows money market fund boards of directors to impose liquidity fees or temporarily suspend redemptions in times of stress. It also requires money market funds to engage in greater diversification, adopt enhanced stress testing, and disclose more information to the SEC and to investors.
Security-Based Swap Data Repository Registration, Duties, and Core Principles Published Mar. 19, 2015 Division of Trading and Markets	Requires registration of repositories that receive and store data on security-based swap transactions and outlines the duties of these repositories.

Registration Process for Security-Based Swap Dealers and Major Security-Based Swap Participants Published Aug. 14, 2015 Division of Trading and Markets	Requires registration of security-based swap dealers and major security-based swap market participants.
Pay Ratio Disclosure Published Aug. 18, 2015 Division of Corporation Finance	Requires disclosure of the annual total compensation of a company's chief executive officer, the median annual total compensation of employees other than the chief executive officer, and the ratio of those two figures in annual reports, proxy statements, and registration statements.
Removal of Certain References to Credit Ratings and Amendment to the Issuer Diversification Requirement in the Money Market Fund Rule Published Sept. 15, 2015 Division of Investment Management	Removes references to credit ratings in rules and forms applicable to money market funds. It also removes an exception to the issuer diversification requirements that allowed funds to make larger investments in securities issued subject to a guarantee by a non-controlled person.
Crowdfunding Published Nov. 16, 2015 Division of Corporation Finance	Establishes rules allowing small businesses and start-ups to raise capital from small investors over the Internet. The rule also permits Internet-based platforms to facilitate crowdfunding without having to register as brokers.

The quality and claimed use of economic analysis was assessed using the standardized scoring system developed for the Regulatory Report Card project. In the Regulatory Report Card project, a research team assessed the quality of the regulatory impact analysis accompanying every economically significant prescriptive regulation that was proposed by executive branch regulatory agencies and that cleared OIRA review between 2008

and 2013—a total of 130 regulations.⁹² The research team also assessed the extent to which the agency claimed to use the analysis to inform its decisions. The Report Card evaluation data have been used as a measure of the quality of agency economic analysis in several published studies.⁹³

The evaluation criteria employed in the Regulatory Report Card flow directly from the principal requirements for regulatory impact analysis found in Executive Order No. 12,866 and OMB *Circular A-4*. The analysis criteria consist of the four fundamental topics, listed in Table 2, that any RIA should cover: (1) analysis of the underlying systemic problem, (2) alternatives, (3) benefits, and (4) costs. Patrick McLaughlin and I provide a crosswalk chart that shows how the evaluation criteria correspond to items in OMB's RIA checklist.⁹⁴ These four criteria are very similar to the criteria listed in the SEC's 2012 guidance for economic analysis.⁹⁵ That should be no surprise, because both the SEC's guidance and the Regulatory Report Card are based on Executive Order No. 12,866. The primary difference is that a fifth aspect of analysis listed in the SEC's guidance—assessment of the baseline—is included in the Regulatory Report Card as a subcriterion under analysis of the problem. The discussion below shows results for the baseline subcriterion separately to more closely track the list of topics as they are presented in the SEC's guidance.

The "Use" criteria address the extent to which the agency explained how it used the analysis in making decisions about the regulation. Evaluations of those criteria are based on claims the agency made about its use of analysis, because the evaluators cannot observe the extent to which information in an RIA actually influenced agency decisions. One might expect that agency claims

92. Bull & Ellig, *supra* note 33, at 877. " 'Economically significant' regulations are those that have costs or other economic effects exceeding \$100 million annually or that meet other criteria specified in section 3[(f)(1)] of Executive Order No. 12,866." Jerry Ellig & Rosemarie Fike, *Regulatory Process, Regulatory Reform, and the Quality of Regulatory Impact Analysis*, 7 J. BENEFIT-COST ANALYSIS 523, 530 (2016). A prescriptive regulation contains mandates, prohibitions, or other restrictions on citizens' activity. *Id.* "The other major type of regulation is budget regulations, which implement federal spending or revenue collection programs." *Id.*

93. See, e.g., Jerry Ellig & Christopher J. Conover, *Presidential Priorities, Congressional Control, and the Quality of Regulatory Analysis: An Application to Healthcare and Homeland Security*, 161 PUB. CHOICE 305 *passim* (2014); Jerry Ellig et al., *Continuity, Change, and Priorities: The Quality and Use of Regulatory Analysis Across U.S. Administrations*, 7 REG. & GOVERNANCE 153 *passim* (2013); Bull & Ellig, *supra* note 33, *passim*; Ellig & Fike, *supra* note 92, at 529–30; Ellig & Peirce, *supra* note 18, *passim*.

94. Compare Jerry Ellig & Patrick A. McLaughlin, *The Quality and Use of Regulatory Analysis in 2008*, 32 RISK ANALYSIS 855, 871–72 (2012), with OFFICE OF MGMT. & BUDGET, EXEC. OFFICE OF THE PRESIDENT, AGENCY CHECKLIST: REGULATORY IMPACT ANALYSIS 1–2 (2010).

95. CURRENT GUIDANCE, *supra* note 15, at 4.

to use the RIA would result in numerous “false positives,” as agencies might claim to use the RIAs simply to make it easier to “sell” the regulation to the public. However, the Report Card data demonstrate that in the majority of cases, agencies do not claim to have used the RIA at all.⁹⁶ Therefore, it does not appear that false positives distort the data. There may well be a countervailing tendency for “false negatives” because an agency’s RIA can be challenged in court if the agency relies on it to justify decisions about the regulation.⁹⁷

Table 2. Regulatory Report Card Assessment Criteria.⁹⁸

Analysis
For each analysis criterion, the lettered subquestions each receive a score of zero to five, and these are averaged and rounded to produce the score on the criterion. Score data for each of these subquestions can be downloaded at http://www.mercatus.org/reportcards/archive .
1. <i>Systemic problem</i>: How well does the analysis identify and demonstrate the existence of a market failure or other systemic problem the regulation is supposed to solve? A. <i>Name problem</i>: Does the analysis identify a market failure or other systemic problem? B. <i>Theory</i>: Does the analysis outline a coherent and testable theory that explains why the problem (associated with the outcome above) is systemic rather than anecdotal? C. <i>Evidence</i>: Does the analysis present credible empirical support for the theory? D. <i>Baseline</i>: How well does the analysis address the baseline—what the state of the world is likely to be in the absence of further federal action? E. <i>Uncertainty</i>: Does the analysis adequately assess uncertainty about the existence and size of the problem?

96. Jerry Ellig, Evaluating the Quality and Use of Regulatory Impact Analysis: The Mercatus Center’s Regulatory Report Card, 2008-2013, at 25–26 (July 2016) (unpublished manuscript) (on file with the Mercatus Center at George Mason University).

97. Cecot & Viscusi, *supra* note 5, at 591.

98. Ellig, *supra* note 96, at 14–16.

2. *Alternatives*: How well does the analysis assess the effectiveness of alternative approaches?
 - A. *Alternatives named*: Does the analysis enumerate other alternatives to address the problem?
 - B. *Scope of alternatives*: Is the range of alternatives considered narrow or broad?
 - C. *Benefits of alternatives*: Does the analysis evaluate how alternative approaches would affect the amount of the outcome achieved?
 - D. *Cost of alternatives*: Does the analysis identify and quantify incremental costs of all alternatives considered?
 - E. *Net benefits of alternatives*: Does the analysis identify the approach that maximizes net benefits?
 - F. *Cost-effectiveness of alternatives*: Does the analysis identify the cost-effectiveness of each alternative considered?
3. *Benefits*: How well does the analysis identify the benefits (or other desired outcomes) and demonstrate that the regulation will achieve them?
 - A. *Outcomes named*: How clearly does the analysis identify ultimate outcomes that affect citizens' quality of life?
 - B. *Outcomes measured*: How well does the analysis identify how these outcomes are to be measured?
 - C. *Theory*: Does the analysis provide a coherent and testable theory showing how the regulation will produce the desired outcomes?
 - D. *Evidence*: Does the analysis present credible empirical support for the theory?
 - E. *Uncertainty*: Does the analysis adequately assess uncertainty about the outcomes?
 - F. *Incidence*: Does the analysis identify all parties who receive benefits and assess the incidence of benefits?
4. *Costs*: How well does the analysis assess costs?
 - A. *Expenditures*: Does the analysis identify all expenditures likely to arise as a result of the regulation?
 - B. *Passthrough*: Does the analysis identify how the regulation would likely affect the prices of goods and services?
 - C. *Behavior*: Does the analysis examine costs that stem from changes in human behavior as consumers and producers respond to the regulation?
 - D. *Uncertainty*: Does the analysis adequately address uncertainty about costs?
 - E. *Incidence*: Does the analysis identify all parties who bear costs and assess the incidence of costs?

Use
5. <i>Any use of analysis:</i> Does the proposed rule or the RIA present evidence that the agency used any aspect of the analysis in making decisions?
6. <i>Cognizance of net benefits:</i> Did the agency choose the alternative that maximizes net benefits or explain why it chose another option?

For each criterion, trained evaluators assigned a score ranging from zero (no useful content) to five (comprehensive analysis with potential best practices). Table 3 lists the guidelines for scoring. The scorers compiled notes explaining the reasons for each score.⁹⁹ As a qualitative evaluation using Likert-scale scoring, the Report Card represents an approach midway between checklist scoring systems and detailed case studies of individual regulations.¹⁰⁰ Inter-rater reliability tests indicate that the training method for evaluators produces consistent evaluations across multiple scorers.¹⁰¹

Table 3. Report Card Scoring Guidelines.¹⁰²

Score	Guideline
5	Complete analysis of all or almost all aspects, with one or more “best practices”
4	Reasonably thorough analysis of most aspects and/or shows at least one “best practice”
3	Reasonably thorough analysis of some aspects
2	Some relevant discussion with some documentation of analysis
1	Perfunctory statement with little explanation or documentation

In a previously-published article, several colleagues and I used the Regulatory Report Card evaluation framework to evaluate the

99. The scorers’ notes on each regulation are publicly available at *Regulatory Report Card*, MERCATUS CTR. GEO. MASON U., <http://www.mercatus.org/reportcards> (last visited Jan. 10, 2020).

100. The evaluation method is explained more fully in Ellig & McLaughlin, *supra* note 94, at 858–62.

101. *E.g.*, *id.* at 860–61; Ellig et al., *supra* note 93, at 159.

102. Ellig & McLaughlin, *supra* note 94, at 860.

analysis accompanying preguidance SEC regulations.¹⁰³ For this Article, I scored the seven postguidance SEC regulations.

IV. AVERAGE QUALITY AND USE OF ANALYSIS, PRE- AND POSTGUIDANCE

A. Summary Statistics and Comparison of Means

Table 4 shows the Report Card scores of the pre- and postguidance SEC regulations for the overall quality of analysis, the various subcomponents of quality of analysis, and the two criteria that assess how well the agency explained how its analysis influenced decisions. Table 5 shows summary statistics for these two groups of regulations plus three comparison groups: the three SEC regulations remanded by the D.C. Circuit, executive branch financial regulations, and all executive branch regulations evaluated in the Regulatory Report Card project.

The scores for the three regulations remanded by the D.C. Circuit are similar to the scores for the seven regulations issued during the year and a half before the SEC staff issued its economic analysis guidance. This result suggests that the quality of SEC economic analysis changed little in the period between the court decisions and the March 2012 guidance.¹⁰⁴ The differences in mean scores for SEC pre- and postguidance regulations suggest substantial improvement. The differences are statistically significant for every criterion except cognizance of net benefits. Comparison of mean scores suggests that the quality of SEC economic analysis has improved so much that it is now statistically indistinguishable from analysis conducted for executive branch financial regulations (excluding cognizance of net benefits). The mean for SEC postguidance regulations is still slightly below the mean for all executive branch regulations on analysis of alternatives, benefits, and costs.

103. Ellig & Peirce, *supra* note 18, at 363–64.

104. None of the differences in means are statistically significant in a two-tailed *t*-test. The difference in means for the cost score is (marginally) significant at the 10% level.

Table 4. Report Card Scores for SEC Pre- and Postguidance Regulations.

	Analysis	Problem	Baseline	Alternatives	Benefits	Costs	Any Use Claimed	Cognizance of Net Benefits
Preguidance ¹⁰⁵								
Risk Management Controls	5	2	1	0	1	2	1	0
Executive Compensation	3	0	0	1	1	1	1	0
Whistleblower Incentives	4	0	0	2	1	1	3	1
Amendments to Investment Advisers Act	5	1	1	1	1	2	1	0
Large Trader Reporting	5	1	1	1	1	2	1	0
Reporting by Investment Advisers	6	1	0	2	2	1	2	0
Net Worth Standards for Accredited Investors	3	0	1	1	1	1	2	0
Postguidance								
Removal of Advertising Prohibition	9	3	4	1	3	2	2	0
Money Market Reform	13	4	3	3	3	3	5	1
Swap Data Repository	8	2	1	2	2	2	3	1
Swap Dealer Registration	6	1	1	2	1	2	3	0
Pay Ratio Disclosure	5	1	2	2	0	2	3	0
Credit Ratings	7	1	2	2	2	2	3	0
Crowdfunding	10	3	3	2	3	2	2	0

105. Scores for SEC preguidance regulations do not always match those reported by Ellig & Peirce, *supra* note 18, because all scores were converted to the Regulatory Report Card's post-2012 scoring system to make them comparable to the scores for the sample of 2008–2013 executive branch regulations. For an explanation of the change in the Report Card scoring system after 2012, see Ellig, *supra* note 96.

Table 5. Summary Statistics.

Variable	Mean	Standard Deviation	Minimum	Maximum	Median
SEC Remanded Regulations ($n = 3$)					
Analysis	5.3	1.5	4	7	6
Problem	1.3	0.6	1	2	1
Baseline	0.3	0.6	0	1	0
Alternatives	1.3	0.6	1	2	1
Benefits	1.7	0.6	1	2	2
Costs	1.0	0.0	1	1	1
Any Use Claimed	1.0	0.0	1	1	1
Cognizance of Net Benefits	0.0	0.0	0	0	0
SEC Preguidance Regulations ($n = 7$)					
Analysis	4.4	1.1	3	6	5
Problem	0.7	0.8	0	2	1
Baseline	0.6	0.5	0	1	1
Alternatives	1.1	0.7	0	2	1
Benefits	1.1	0.4	1	2	1
Costs	1.4	0.5	1	2	1
Any Use Claimed	1.6	0.8	1	3	1
Cognizance of Net Benefits	0.1	0.4	0	1	0
SEC Postguidance Regulations ($n = 7$)					
Analysis	8.3***	2.7	5	13	8
Problem	2.1**	1.2	1	4	2
Baseline	2.3***	1.1	1	4	3
Alternatives	2.0**	0.6	1	3	2

Benefits	2.0*	1.2	0	3	2
Costs	2.1**	0.4	2	3	2
Any Use Claimed	3.0**	1.0	2	5	3
Cognizance of Net Benefits	0.3	0.5	0	1	0
Executive Branch Financial Regulations 2008–2013 (<i>n</i> = 9)					
Analysis	10.3	3.7	5	14	12
Problem	2.6	1.0	1	4	3
Baseline	1.2	1.0	0	3	1
Alternatives	2.8	1.2	1	4	3
Benefits	2.9	1.2	1	4	3
Costs	2.1	0.8	1	3	2
Any Use Claimed	2.7	1.1	1	4	2
Cognizance of Net Benefits	2.6+++	1.3	1	4	3
All Executive Branch Regulations 2008–2013 (<i>n</i> = 130)					
Analysis	10.7	2.9	2	18	10.5
Problem	2.2	1.0	0	4	2
Baseline	2.3	1.2	0	5	2
Alternatives	2.7††	1.2	0	5	3
Benefits	3.2††	0.8	1	5	3
Costs	2.6††	1.0	1	5	3
Any Use Claimed	2.3	1.4	0	5	2
Cognizance of Net Benefits	2.4††	1.5	0	5	2

Notes: Statistical significance of difference in mean scores for SEC preguidance and SEC postguidance (two-tailed *t*-test) is: *** 1%, ** 5%, * 10%. Statistical significance of difference in mean scores for SEC postguidance and executive branch financial regulations (two-tailed *t*-test) is: +++ 1%. Statistical significance of difference in mean scores for SEC postguidance and all executive branch regulations (two-tailed *t*-test) is: †† 5%.

B. Econometric Analysis

The foregoing comparison of mean scores suggests that the quality of SEC economic analysis and the extent to which the SEC claimed to use the analysis in decisions improved noticeably following *Business Roundtable* and the SEC's new economic analysis guidance. Other factors, however, could account for some or all of this improvement. For example, more complicated regulations may be accompanied by lengthier analysis. Regulations that are more politically controversial or have larger impacts might be accompanied either by higher-quality analysis, because elected leaders expect a more careful vetting of such regulations,¹⁰⁶ or by lower-quality analysis, because politics trumps economic analysis.¹⁰⁷ Regulations subject to statutory deadlines may have lower-quality analysis simply because the agency has less time to do the work.¹⁰⁸ Statutory restrictions on agency decision-making authority for a particular regulation may lead to lower-quality analysis because fewer margins exist on which the analysis could affect decisions, so the agency invests less in analysis.¹⁰⁹

The statistics in Table 6 suggest that some of these factors could help explain why the SEC's postguidance regulations are accompanied by more thorough analysis than the preguidance regulations. On average, the postguidance regulations have approximately double the word count of the preguidance regulations, suggesting that they may be more complex. The postguidance regulations attracted an average of four times as many public comments as the preguidance regulations (excluding one outlier, pay ratio disclosure, which received more than 300,000 public comments). The increased number of comments may indicate that these regulations are more politically salient.

Most of the statutory constraints are similar for both groups of regulations, with two exceptions: two postguidance regulations had

106. Mathew D. McCubbins et al., *Administrative Procedures as Instruments of Political Control*, 3 J. L. ECON. & ORG. 243, 259 (1987).

107. Stuart Shapiro & John F. Morrall III, *The Triumph of Regulatory Politics: Benefit-Cost Analysis and Political Salience*, 6 REG. & GOVERNANCE 189 *passim* (2012).

108. See, e.g., Alden F. Abbott, *The Case Against Federal Statutory and Judicial Deadlines: A Cost-Benefit Appraisal*, 39 ADMIN. L. REV. 171 *passim* (1987); Alden F. Abbott, *Case Studies on the Costs of Federal Statutory and Judicial Deadlines*, 39 ADMIN. L. REV. 467 *passim* (1987); Jacob E. Gersen & Anne Joseph O'Connell, *Deadlines in Administrative Law*, 156 U. PA. L. REV. 923 *passim* (2008).

109. Richard Williams, *The Influence of Regulatory Economists in Federal Health and Safety Agencies* 14 (Mercatus Ctr. at George Mason Univ., Working Paper No. 08-15, 2008).

statutory deadlines, and three postguidance regulations were issued under statutes that gave the SEC little discretion to decide who is subject to the regulation. The SEC estimated that one of the fourteen regulations had an economic impact exceeding \$1 billion annually. Some other SEC regulations may have had actual impacts exceeding \$1 billion annually, but this variable is coded solely on the basis of the agencies’ estimates for each regulation.

Table 6. Explanatory Variables for SEC Regulations, Pre- and Postguidance.

	Preguidance	Postguidance
Averages		
Word Count	4,464	9,322
Public Comments	95	44,210
Public Comments (Excluding Pay Ratio Regulation)	95	381
Number of Regulations		
Statutory Deadline	0	2
Regulation Required	5	6
Prescribed Form	6	5
Prescribed Stringency	2	1
Prescribed Coverage	1	3
Effects Exceed \$1 Billion	0	1

1. Econometric Model and Estimation Method

The econometric analysis tests for differences in the quality and claimed use of economic analysis for SEC regulations pre- and postguidance. The model employs a difference-in-difference specification with agency-specific fixed effects. The other variables listed in Table 6 are included as control variables. The full model is:

$$Score_i = \alpha + \beta_1 SEC*Postguidance\ Publication_i + \beta_2 SEC_i + \beta_3 Postguidance\ Publication_i + \beta_4 Word\ Count_i + \beta_5 Public\ Comments_i + \beta_6 Public\ Comments_i^2 + \beta_7 Financial_i + \beta_{8-12} Statutory\ Constraints_i + \beta_{13} \$1Billion\ Impact_i + \beta_{14} Agency_i + \varepsilon,$$

where $Score_i$ is equal to regulation i 's Report Card score, $SEC*Postguidance\ Publication_i$ is the difference-in-difference estimator equal to one if the regulation is an SEC regulation published after the March 2012 guidance, SEC_i is a dummy variable equal to one if the regulation is an SEC regulation, and $Postguidance\ Publication_i$ is a dummy variable equal to one if the regulation was published after the March 2012 guidance. $Word\ Count_i$ is the number of words in the regulatory text, used as a measure of the complexity of the regulation. $Financial_i$ is a dummy variable equal to one if the regulation is a financial regulation. $Public\ Comments_i$ and $Public\ Comments_i^2$ indicate the number of public comments submitted when the regulation was proposed, plus the square of this number (to control for diminishing marginal returns). $Statutory\ Constraints_i$ is a vector of five dummy variables that indicate statutory constraints: there is a statutory deadline for the regulation, the regulation is required by statute, or the statute dictates the form, stringency, or coverage of the regulation; $\$1\ Billion\ Impact_i$ is a dummy variable that indicates whether the regulation has benefits, costs, or other economic impacts of at least \$1 billion, as determined by the issuing agency; and $Agency_i$ is a vector of agency dummy variables that control for agency-specific fixed effects.

The omitted category agency is the Department of Transportation, whose mean Report Card score for analysis (10.25) is almost identical to the sample mean (10.27). Thus, the agency coefficients essentially test whether each agency's analysis is statistically different from the typical executive branch analysis.

The dependent variables—scores indicating the quality or claimed use of analysis—are ordinal. Therefore, ordered logit is likely the most appropriate estimation method, especially when the score variable has only a few possible outcomes.¹¹⁰ The dependent variable in an ordered logit regression equation is the log of the ratio of the odds that the score will or will not have a designated value.¹¹¹ The coefficients in an ordered logit regression estimate how each explanatory variable affects this odds ratio.

The explanatory variables were tested for collinearity through examination of the correlation coefficients,¹¹² the variance inflation

110. Ellig & Conover, *supra* note 93, at 312; Ellig & Fike, *supra* note 92, at 536; Ellig et al., *supra* note 93, at 157.

111. HENRI THEIL, PRINCIPLES OF ECONOMETRICS 634 (1971).

112. See Donald E. Farrar & Robert R. Glauber, *Multicollinearity in Regression Analysis: The Problem Revisited*, 49 REV. ECON. & STAT. 92 *passim* (1967).

factor,¹¹³ and the condition index.¹¹⁴ None indicated significant collinearity. The SEC variables of interest are not collinear with any other variables. The explanatory variable they are most closely correlated with is the financial regulation dummy, but more than half of the financial regulations are from agencies other than the SEC. Therefore, false negatives due to collinearity are unlikely to be a problem for the SEC variables.

2. Results

Table 7 reports regression results using the score for overall quality of analysis as the dependent variable. The sample used for the regressions contains 143 regulations: 129 executive branch regulations evaluated as part of the Regulatory Report Card project, 7 preguidance SEC regulations, and 7 postguidance SEC regulations. One agency that issued just one regulation in the Report Card sample, the Office of Personnel Management, is omitted because its inclusion frequently generated warnings that the standard errors are suspect because one or more observations were completely determined.

Table 7. Overall Quality Analysis Score Is Significantly Different Pre- and Postguidance.

	(1) Ordered Logit	(2) Ordered Logit	(3) BUC Ordered Logit	(4) OLS
SEC*Postguidance Publication	5.09 (4.50)***	5.95 (3.33)***	17.96 (13.26)***	4.94 (8.16)***
SEC	-6.33 (4.52)***	-7.89 (4.04)***	Not Applicable	-6.91 (15.32)***
Postguidance Publication	-0.62 (1.30)	-0.32 (0.90)	-0.41 (1.34)	-0.39 (1.15)
Word Count		-0.00001 (2.39)**	-6.98e-06 (2.44)**	-9.29e-06 (2.23)**
Public Comments		0.00004 (2.19)**	0.00003 (1.85)*	0.00004 (2.07)*

113. See DAVID A. BELSLEY ET AL., REGRESSION DIAGNOSTICS: IDENTIFYING INFLUENTIAL DATA AND SOURCES OF COLLINEARITY 93 (1980).

114. See *id.* at 153.

Public Comments ²		-1.88e-10 (2.42)**	-1.45e-10 (2.21)**	-1.83e-10 (2.55)**
Financial		1.25 (1.96)**	1.24 (2.72)***	1.60 (2.75)**
Statutory Deadline		-0.41 (0.64)	-0.21 (0.34)	-0.38 (0.47)
Regulation Required		-0.23 (0.69)	-0.34 (1.40)	-0.41 (1.28)
Prescribed Form		-0.21 (0.48)	0.27 (0.75)	0.35 (0.59)
Prescribed Stringency		-0.59 (0.92)	-0.74 (1.80)*	-0.87 (1.69)
Prescribed Coverage		-0.01 (0.03)	-0.01 (0.04)	0.04 (0.08)
Effects Exceed \$1 Billion		1.61 (3.18)***	1.58 (2.72)***	1.88 (3.30)***
Constant R^2 or Pseudo- R^2	0.07	0.18	0.18	0.56
N	143	143	1,186	143
Linear Combination SEC*Postguidance Publication + SEC	-1.24 (2.26)**	-1.93 (2.94)***	Not Applicable	-1.96 (2.95)***

Note: Absolute values of z - or t -statistics in parentheses are based on robust standard errors clustered by department. Agency fixed effects coefficients for columns (2) and (4) are not reported to conserve space. Agency coefficients are not reported for BUC ordered logit in column (3) because the method does not produce agency-specific coefficients. Statistical significance is indicated by asterisks: * 10%, ** 5%, *** 1%.

Column (1) shows a bare-bones regression that includes only the difference-in-difference estimator, the dummy variable for the SEC, and the dummy variable indicating whether the regulation was published after the SEC's March 2012 guidance. Subsequent columns show the full regression model using three different estimators.

Column (2) shows the results for an ordered logit estimator with agency-specific dummy variables. A virtue of this estimator is that it calculates coefficients for the agency-specific dummy variables, including the SEC dummy variable. A potential disadvantage is that ordered logit may not be a consistent

estimator when the number of observations for some of the agencies is small.¹¹⁵

Column (3) employs the “blow up and cluster” (BUC) ordered logit estimator developed by Gregori Baetschmann, Kevin Staub, and Rainer Winkelmann,¹¹⁶ which is consistent, is reasonably efficient, and is unbiased for small sample sizes. The sample is “blown up” by creating $K-1$ copies of each observation, where K is the number of possible values the dependent variable could take. This is why N is equal to 1,186 for this estimator instead of 143. Each of the copies is dichotomized at one of the different possible values of the dependent variable. Standard errors are clustered by observation because all the $K-1$ copies are obviously related to each other. Conditional maximum likelihood is applied to the entire blown-up set of observations. Because the BUC estimator does not employ agency-specific dummy variables, it does not create agency-specific coefficients. However, it is possible to test whether the SEC postguidance regulations have higher analysis scores than preguidance regulations by including a dummy variable for the postguidance regulations.¹¹⁷

Column (4) shows results using ordinary least squares (OLS). OLS may be permissible in this case because the dependent variable—the total score for quality of analysis—takes on seventeen different values ranging from two points to eighteen points, and the scores are not clustered around a few values. Therefore, it may be permissible to treat the analysis score as a cardinal variable.

All three estimators used for the full regression model produce essentially the same results. Postguidance SEC regulations are accompanied by significantly better economic analysis. For the ordered logit and OLS estimators, it is possible to use Stata’s “lincom” command to calculate a coefficient that shows the combined effect of one or more individual coefficients. For estimators (1), (3), and (4), the combined effect of *SEC*Postguidance Publication* and *SEC* is negative and statistically significant. This indicates that the improvement in the SEC’s economic analysis after the 2012 guidance is not quite large enough to offset the negative SEC coefficient.

115. See Gary Chamberlain, *Analysis of Covariance with Qualitative Data*, 47 REV. ECON. STUD. 225 *passim* (1980).

116. See Gregori Baetschmann et al., *Consistent Estimation of the Fixed Effects Ordered Logit Model*, 178 J. ROYAL STAT. SOC’Y SERIES A (STAT. IN SOC’Y) 685, 686 (2015).

117. When dummy variables are included for both SEC preguidance and SEC postguidance regulations, the BUC estimator fails to converge.

Nevertheless, the improvement is substantial. In the OLS regression, the coefficient on *SEC*Postguidance Publication* is almost five points. The coefficient is larger than the mean score (4.30 points) and more than five times the standard deviation (0.95 points) of SEC regulations in the preguidance period.

The negative sign on *Word Count* suggests that more complex regulations receive somewhat less thorough economic analysis than one would expect after controlling for the size of the regulations' impact and agency-specific fixed effects.¹¹⁸ Regulations that are more politically salient, as measured by the number of public comments, receive more extensive analysis (although this variable is significant at only the 10% level in the BUC and OLS estimators). This effect is subject to diminishing returns. None of the statutory constraints correlate with the quality of analysis, although *Prescribed Stringency* is marginally significant in one regression.¹¹⁹ Regulations with impacts exceeding \$1 billion have higher-quality analysis. These results are all consistent with previous research using the Report Card data set.¹²⁰

Another interesting result is that, after controlling for agency-specific fixed effects, financial regulations have higher-quality analysis than other types of regulations. This outcome undercuts the claim that economic analysis is especially difficult for financial regulations.

Table 8 shows regression results for each of the individual components of analysis that correspond to topics listed in the SEC's guidance, plus the two criteria related to the agency's explanation of how it used the analysis. In every regression, the difference-in-difference coefficient indicates that the SEC's postguidance analysis, as well as the commission's explanations of how it used the analysis, improved compared with the preguidance period. Improvement is even evident in analysis of the systemic problem—the criterion on which scores are typically lowest.

118. Other measures, such as the number of unique words and the number of regulatory restrictions (occurrences of the words *must*, *shall*, *may not*, *required*, and *prohibited*) produced virtually identical results in the regressions.

119. None of the statutory constraints were significant when entered singly in separate regressions either.

120. See, e.g., Bull & Ellig, *supra* note 33, at 877–78, 888, 916–17; Ellig, *supra* note 96, *passim*; Ellig & Conover, *supra* note 93, at 311; Ellig & Fike, *supra* note 92, at 530, 535–36; Ellig et al., *supra* note 93, at 160–64.

Table 8. Regressions for Individual Criteria Related to Quality or Use of Analysis.

	Problem	Baseline	Alternatives	Benefits	Costs	Any Use Claimed	Cognizance of Net Benefits
SEC*Postguidance Publication	3.17 (5.11)***	3.04 (4.22)***	3.09 (4.45)***	4.24 (5.53)***	2.89 (3.25)***	2.46 (5.07)***	2.71 (4.43)***
SEC	-0.71 (0.98)	-0.51 (0.82)	-5.71 (4.80)***	-5.82 (7.25)***	-2.99 (4.70)***	-3.27 (3.78)***	-9.10 (7.51)***
Postguidance Publication	0.99 (1.94)*	0.84 (1.32)	-1.33 (2.18)**	-0.30 (0.72)	-0.53 (1.37)	0.38 (0.82)	-2.16 (3.34)***
Word Count	-2.18e-06 (0.49)	-5.51e-06 (1.93)*	-9.82e-06 (1.61)	-0.00002 (4.35)***	8.17e-07 (0.19)	-4.42e-06 0.60	-4.16e-06 (0.57)
Public Comments	1.01e-06 (0.06)	0.00002 (1.46)	0.00004 (3.18)***	0.00008 (3.63)***	-3.62e-06 (0.32)	0.00003 (0.85)	0.00005 (3.06)***
Public Comments ²	-3.76e-11 (0.63)	-6.60e-11 (1.43)	-1.43e-10 (3.15)***	-3.63e-10 (3.80)***	-2.93e-11 (0.74)	-9.77e-11 (0.81)	-1.60e-10 (2.78)***
Financial	0.53 (1.17)	-3.42 (4.37)***	2.70 (2.63)***	-0.46 (0.75)	0.70 (1.21)	1.75 (2.12)**	2.38 (2.28)**
Statutory Deadline	-0.68 (1.32)	-0.44 (0.66)	-0.33 (1.02)	-0.53 (0.53)	0.15 (0.22)	0.89 (1.91)*	0.52 (0.99)
Regulation Required	-0.33 (0.52)	-0.28 (0.54)	0.39 (1.22)	-0.24 (0.51)	-0.81 (1.34)	-0.44 (1.18)	-0.24 (0.61)
Prescribed Form	-0.49 (0.86)	-1.28 (1.96)**	-0.11 (0.23)	1.17 (1.84)*	0.83 (1.39)	0.56 (0.82)	-0.63 (0.91)
Prescribed Stringency	-0.05 (0.13)	0.42 (0.62)	-1.37 (2.73)***	0.17 (0.29)	-0.99 (1.93)*	-0.58 (0.83)	-1.01 (2.03)**
Prescribed Coverage	-0.05 (0.13)	0.02 (0.04)	-0.23 (0.86)	0.51 (1.73)*	-0.01 (0.02)	-0.15 (0.38)	0.19 (0.38)
Effects Exceed \$1 Billion	1.31 (2.26)**	0.78 (1.69)*	1.12 (1.20)	1.70 (2.05)**	1.07 (2.45)***	1.25 (1.48)	0.84 (1.11)
Pseudo- R^2	0.6	0.18	0.17	0.33	0.29	0.22	0.31
N	143	143	143	143	143	143	143
Linear Combination SEC*Postguidance Publication + SEC	-0.16 (0.18)	2.53 (2.89)***	-2.62 (3.31)***	-1.58 (3.56)***	-0.10 (0.12)	-0.80 (1.00)	-6.34 (5.85)***
Linear Combination SEC*Postguidance Publication + SEC + Financial	0.37 (0.60)	-0.89 (1.69)*	0.07 (0.16)	-2.04 (5.61)***	0.60 (1.09)	0.95 (1.76)*	-3.96 (5.18)***

Note: Absolute values of z - or t -statistics in parentheses are based on robust standard errors clustered by department. Statistical significance is indicated by asterisks: * 10%, ** 5%, *** 1%.

The other control variables are usually correlated with some, but not all, of the individual elements of the quality or claimed use of economic analysis. Thus, *Word Count* is negatively correlated with analysis only of benefits. *Public Comments* and *Public Comments*² are correlated with analysis of alternatives and benefits, plus the thoroughness of the agency's explanation of the role of net benefits in its decisions. Financial regulations appear to have more thorough analysis of alternatives, less thorough analysis of baselines, and more thorough explanations of how the agency used the analysis and the role of net benefits in the decision. Statutory constraints are mostly uncorrelated with the quality of individual elements of economic analysis, except that *Prescribed Stringency* is highly correlated with less thorough analysis of alternatives. Regulations with effects exceeding \$1 billion appear to have more thorough analysis of the underlying problem, benefits, and costs.

To conserve space, Table 8 reports results for only the ordered logit fixed effects estimator using the full model. Bare-bones ordered logit regressions like the one in Column (1) of Table 7, as well as BUC ordered logit regressions, produced results similar to the results reported in Table 8. OLS was not estimated because it is not an appropriate estimator when the dependent variable is ordinal and has a small number of potential values (zero to five).

V. QUALITATIVE VERSUS QUANTITATIVE ANALYSIS

Scholars have spilled a great deal of ink arguing over the possibility and desirability of economic analysis of financial regulations. Gordon claims that economists cannot predict the results of financial regulations because the regulations change the financial system.¹²¹ Coates and Schwartz and Nelson argue that nonquantified or "conceptual" economic analysis is desirable, but reliable quantification of many major benefits and costs is unlikely to be feasible.¹²² Posner and Glen Weyl counter that economic analysis, including calculation of benefits and costs, should be no more difficult for financial regulations than for other regulations;¹²³ in fact, it should perhaps be easier, given that most of the valuations relevant to financial regulation are monetary.¹²⁴

121. Gordon, *supra* note 62, *passim*.

122. Coates, *supra* note 63, at 887–88, 895; Coates, *supra* note 65, at 3; Schwartz & Nelson, *supra* note 19, at 345.

123. Posner & Weyl, *supra* note 19, at S30; Posner & Weyl, *supra* note 70, at 261.

124. *Cf.* ROSE & WALKER, *supra* note 19, at 17–19.

Given these disagreements, it is instructive to observe what kind of improvements in SEC analysis occurred following adoption of the 2012 guidance.

A. Report Card Data

The Report Card evaluation criteria in Table 2 can be divided into two types. Some of the criteria are largely conceptual, in the sense that they focus on a clear understanding of concepts or on theoretical and empirical analysis of cause-and-effect relationships. They include, for example, the identification, theory, and empirical evidence analyzing the systemic problem; the identification of a wide variety of alternatives; and the identification of intended outcomes and the theory and evidence showing how the regulation will achieve them. Other criteria require a clear understanding of economic concepts but also require some degree of quantification in order to receive full credit under the Report Card scoring system. Examples include the analysis of the baseline, the calculation of benefits and costs of the regulation and its alternatives, and the assessment of uncertainties that might alter the magnitude of the problem, benefits, or costs. Thus, the Report Card criteria assess the use of economic concepts and supporting empirical analysis, as well as the extent of quantification of benefits and costs.

Figures 1 through 4 show how the average scores for SEC regulations changed pre- and postguidance for each evaluation criterion related to the quality of analysis. Criteria that require quantification to receive full credit are marked with asterisks. Three conclusions are clear from these graphs. First, substantial improvement occurred on numerous “conceptual” criteria that do not require quantification. Second, substantial improvement also occurred on criteria that require quantification. Third, the average scores for most criteria are still usually below three points, the score that indicates reasonably thorough analysis of some aspects of the topic.

Figure 1. Changes in Scores for Criteria Related to Problem Analysis.

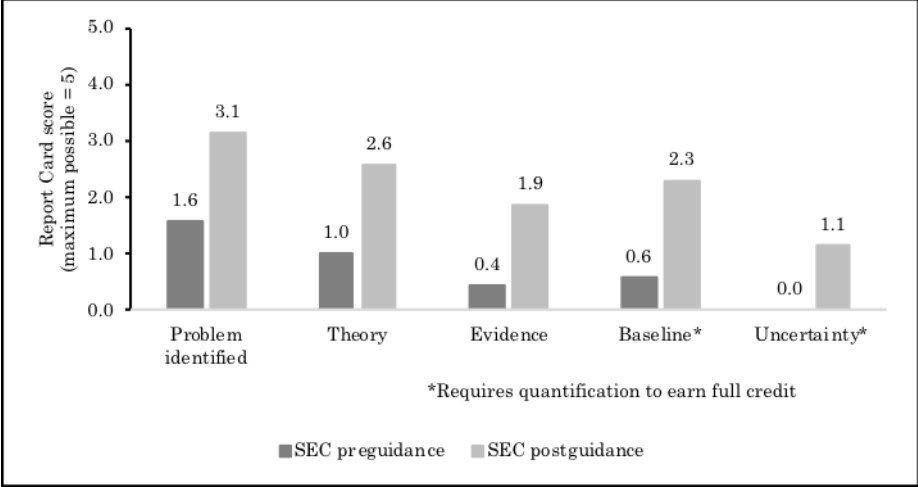
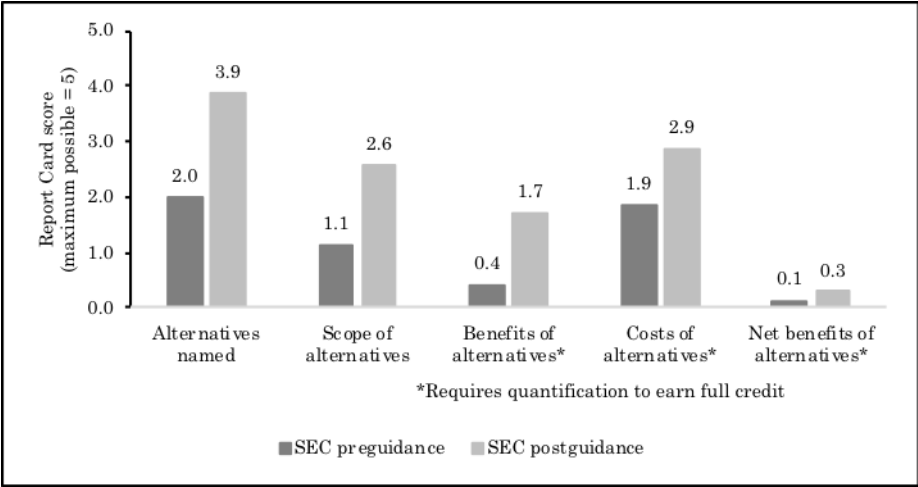


Figure 2. Changes in Scores for Criteria Related to Analysis of Alternatives.



Note: Scores for cost-effectiveness of alternatives are omitted because they equaled zero in both periods.

Figure 3. Changes in Scores for Criteria Related to Analysis of Benefits.

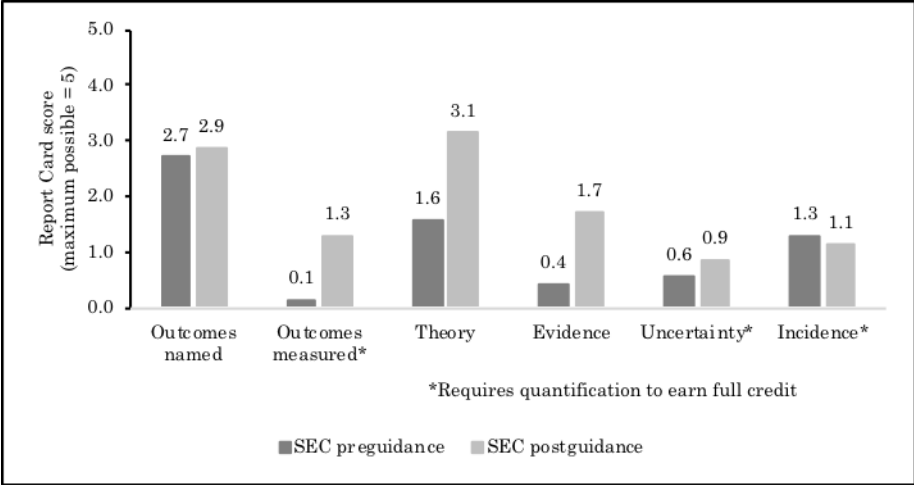
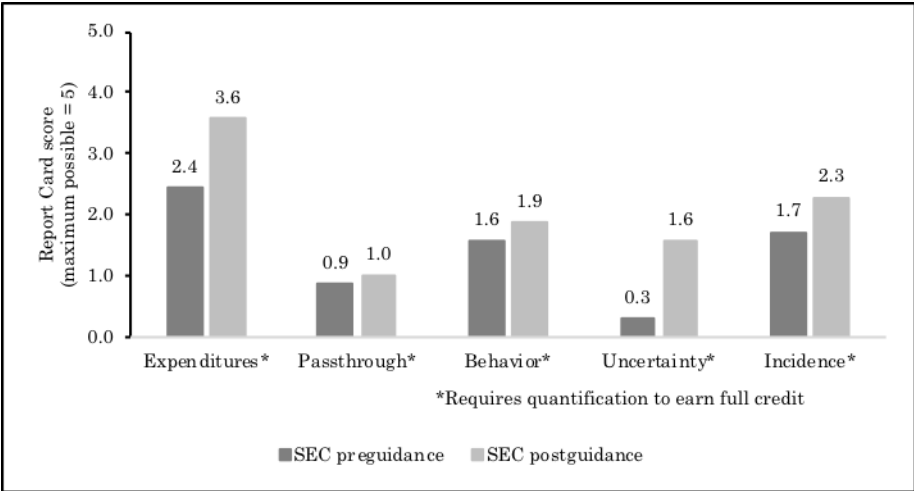


Figure 4. Changes in Scores for Criteria Related to Analysis of Costs.



Even the average postguidance scores for most criteria are usually below three points, suggesting that much of the improvement on criteria that involve quantification may reflect more effective incorporation of the underlying economic concepts rather than significant improvements in quantification. For some of the analysis criteria, that is true. Figure 1, for example, indicates a large improvement in analysis of baselines. In most cases, though, the improvement occurred because the analysis accompanying preguidance regulations barely mentioned the baseline at all. The analysis accompanying postguidance regulations explained the current regulations and conditions that

the new regulation was expected to change. Thus, the recent past was implicitly assumed to be the baseline that would continue in the absence of a new regulation.

Only one postguidance regulation was accompanied by a (partial) projection of how the market was likely to evolve in the absence of the new regulation. The paperwork burden analysis for the regulation that removed the ban on general advertising for certain private investment placements projected how regulatory filings were expected to grow in the future and then estimated how the regulation would alter those figures, based on the SEC's experience with a similar regulatory change in the past.¹²⁵ That projection of the baseline, however, was limited to the paperwork analysis. The economic analysis presented a great deal of quantitative information about the size, scope, and composition of the exempt-offerings market in recent years, followed by a qualitative assessment of how the size of the exempt-offerings market might be expected to change under the regulation.¹²⁶

Other examples demonstrate significant improvements in quantification. They primarily involve quantification of costs that take the form of expenditures. Figure 4 shows that the average score for calculation of expenditures increased by more than one point. One regulation—pay ratio disclosure—earned a score of five points for reasonably complete assessment of compliance expenditures. The analysis included expenditures for both outside counsel and other assistance, plus internal time. Initial compliance costs for registrants covered by the rule were extrapolated from cost estimates supplied by ten large firms that submitted comments. Ongoing compliance costs were estimated based on several commenters' estimates of these costs as a percentage of initial costs. A separate section calculates paperwork burdens.¹²⁷ Three other regulations earned four points for reasonably complete analysis of some aspects of expenditures. They were the regulations implementing security-based swap data repository

125. Eliminating the Prohibition Against General Solicitation and General Advertising in Rule 506 and Rule 144A Offerings, 78 Fed. Reg. 44,771, 44,787–88 (July 24, 2013) (to be codified at 17 C.F.R. pts. 230, 239, 242).

126. *Id.* at 44,788–98.

127. Pay Ratio Disclosure, 80 Fed. Reg. 50,104, 50,154–61 (Aug. 18, 2015) (to be codified at 17 C.F.R. pts. 229, 240, 249).

registration,¹²⁸ security-based swap dealer and participant registration,¹²⁹ and crowdfunding.¹³⁰

B. Conceptual Analysis Example: Money Market Fund Reform

The money market reform regulation demonstrates how conceptual and empirical economics can inform decision-making even when benefits and costs are not quantified sufficiently to permit calculation of net benefits.¹³¹ This regulation earned a score of five points for “Any Use of Analysis” but just one point for “Cognizance of Net Benefits.” Economic analysis clearly informed numerous decisions, even though net benefits of alternatives were not estimated. The Division of Risk, Strategy, and Financial Innovation (now DERA) undertook a study at the request of three commissioners that the SEC indicated was “critically important” in the design of its reform proposals.¹³² Economic analysis appears to have played a large role in the design of the regulation and its application to four types of money market funds:

- (1) *Prime retail*, which invest in commercial paper and have individuals as shareholders;
- (2) *Prime institutional*, which invest in commercial paper and have institutional investors as shareholders;
- (3) *Treasury*, which invest primarily in U.S. Treasury securities; and
- (4) *Tax exempt*, which invest in debt issued by state and local governments.

The DERA study identified a fundamental problem created by the liquidity-maturity mismatch inherent in the structure of money market funds. Before the 2014 reforms, all money market funds were permitted to trade at a stable net asset value (usually \$1), even though the actual (“shadow”) net asset value could fluctuate. Differences between the stable and shadow net asset values give alert investors an incentive to redeem shares at the stable value, leaving the remaining investors with shares worth less than the stable value and creating pressure for the fund to

128. Security-Based Swap Data Repository Registration, Duties, and Core Principles, 80 Fed. Reg. 14,438 (Mar. 19, 2015) (to be codified at 17 C.F.R. pts. 232, 240, 249).

129. Registration Process for Security-Based Swap Dealers and Major Security-Based Swap Participants, 80 Fed. Reg. 48,964 (Aug. 14, 2015) (to be codified at 17 C.F.R. pts. 240, 249).

130. Crowdfunding, 80 Fed. Reg. 71,388 (Nov. 16, 2015) (to be codified at 17 C.F.R. pts. 200, 227, 232, 239–40, 249, 269, 274).

131. Money Market Fund Reform; Amendments to Form PF, 79 Fed. Reg. 47,736, 47,736 (Aug. 14, 2014) (to be codified at 17 C.F.R. pts. 230, 239, 270, 274, 279).

132. *Id.* at 47,739.

subsequently “break the buck”—redeem shares for less than the stable value.¹³³ Large outflows in times of financial stress can create pressure for the fund to liquidate assets at a loss, potentially affecting the rest of the financial system by reducing the net asset value of other funds that hold the same assets and encouraging redemptions from other money market funds that hold the same assets.¹³⁴

The SEC did not just theorize about these potential problems; it examined evidence. DERA found that in noncrisis periods, an individual fund’s need for sponsor support to avoid breaking the buck was not accompanied by industrywide redemptions, suggesting that problems in a single fund do not often affect broader financial markets.¹³⁵

In contrast, the 2008 breaking of the buck by the Reserve Primary Fund, which held 1.2% of its assets in Lehman Brothers’ commercial paper, was accompanied by large flows of funds from “prime” money market funds to Treasury money market funds.¹³⁶ The SEC historically sought to maintain stable net asset values by requiring money market funds to invest in short-term, high-quality, diversified debt securities and to maintain sufficient liquidity to meet foreseeable redemptions.

The DERA study demonstrated that, even with the addition of reforms adopted in 2010, which reduced the maximum weighted average maturity from ninety days to sixty days, SEC regulations existing at the time would not have prevented the Reserve Primary Fund from breaking the buck.¹³⁷ Thus, the potential for “runs” on prime money market funds still existed even after the 2010 reforms.

The SEC’s economic analysis of the problem pointed the way toward solutions that address the root causes of the problem. The 2014 reforms permitted money market funds to charge redemption fees and impose redemption gates in times of financial stress. Fees allow the fund to pass liquidity costs—reductions in net asset value caused by investors’ sudden redemptions—back to the investors whose decisions create those costs. Redemption gates allow money market funds to temporarily prevent redemptions that could cause significant costs. The SEC cited evidence that fees

133. DIV. OF RISK, STRATEGY & FIN. INNOVATION, SEC. & EXCH. COMM’N, RESPONSE TO QUESTIONS POSED BY COMMISSIONERS AGUILAR, PAREDES, AND GALLAGHER 3–5 (2012) [hereinafter RESPONSE TO QUESTIONS].

134. Money Market Fund Reform; Amendments to Form PF, 79 Fed. Reg. at 47,743–44.

135. RESPONSE TO QUESTIONS, *supra* note 133, at 14–16.

136. *Id.* at 6–7.

137. *Id.* at 36–38.

and gates had been used by other types of cash management pools to discourage redemptions in crises.¹³⁸ Finally, the requirement that prime institutional funds price and transact at actual net asset value removes the incentive for investors to redeem shares for \$1 when the shares are worth less than \$1.¹³⁹

Decisions about the regulation's coverage also appear to be influenced by economic analysis. The SEC concluded that applying the rules to Treasury money funds would produce little benefit because default risks are lower, the underlying securities are highly liquid, Treasury securities' value tends to rise during financial stress, and Treasury money funds experience inflows during times of stress.¹⁴⁰ Applying fees and gates to retail funds could counter retail investors' incentive to redeem in times of stress, but applying the floating net asset value rule to retail funds would produce little benefit because retail investors have little incentive to behave as first movers.¹⁴¹ Rules were applied to municipal funds on the basis of data suggesting that their risks are more like those of prime funds than government funds.¹⁴² Bruce Kraus identifies several other decisions on the money market fund regulation that were informed by economic analysis.¹⁴³

The comparison of SEC pre- and postguidance economic analysis reveals clear improvement in the incorporation of economic concepts and research, plus some improvement in quantification. This finding should be good news regardless of whether one favors quantitative or conceptual economic analysis.

VI. CONCLUSION

I had hoped to write a fairy-tale ending, in which the D.C. Circuit's black-robed angels induced the SEC to produce at least one product that could be lauded as an example of the "gold standard" for economic analysis of financial regulations. The gold standard need not involve impossible feats of quantification, but an analysis that outscored most of the analyses from executive branch agencies would have been nice. No such wonkish unicorn reared its pointy head.

138. Money Market Fund Reform; Amendments to Form PF, 79 Fed. Reg. at 47,748–49, 47,752.

139. *Id.* at 47,775–77.

140. *Id.* at 47,792.

141. *Id.* at 47,794–98, 47,800.

142. *Id.* at 47,803–06.

143. Kraus, *supra* note 20, at 299–300.

Nevertheless, the results are encouraging. In a relatively short period of time, the SEC issued new guidance for economic analysis, reorganized internally to give economists a greater voice in rulemaking, and produced a measurable improvement in the quality of economic analysis accompanying its regulations. Conceptual economic reasoning, use of relevant economic literature, and quantification all improved. The SEC's score for quality of analysis almost doubled, from an average of 4.4 points from 2010 to 2011 to an average of 8.3 points from 2013 to 2015. By way of comparison, a study using a similar qualitative assessment methodology found that the quality of federal agencies' annual performance reports produced under the Government Performance and Results Act improved by 75% between 1999 and 2009.¹⁴⁴ In other words, the SEC achieved more improvement in its economic analysis in three years than federal agencies achieved in their Government Performance and Results Act performance reports in ten years. The SEC's accomplishment suggests that judicial review of agency economic analysis is a mighty motivator indeed.

This result holds implications not just for the debate about SEC economic analysis but also for the broader debate over the relationship between judicial review and regulatory impact analysis. The SEC example illustrates how judicial review can prompt a regulatory agency to produce higher-quality analysis and to provide a more complete explanation of how that analysis affected its decisions. Thus, judicial review is likely to have a salutary, rather than a perverse, effect on the quality of agency economic analysis.

144. JERRY ELLIG ET AL., *GOVERNMENT PERFORMANCE AND RESULTS: AN EVALUATION OF GPRA'S FIRST DECADE* 12 (2012).