Improvements in SEC Economic Analysis since *Business Roundtable*

A Structured Assessment

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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 and the quality of regulatory agencies' economic analysis and its use in regulatory decisions. Subsequent to the D.C. Circuit decisions, the SEC staff in 2012 issued new guidance for economic analysis. This paper offers a structured assessment of the economic analysis accompanying a sample of post-2012 SEC regulations, using the evaluation method developed for the Mercatus Center at George Mason University's Regulatory Report Card. SEC economic analysis improved substantially following the 2012 guidance. Improvement occurred on all major elements that the SEC staff identified as important in its guidance: explanation of the justification for the rule, clear definition of the baseline against which to measure the rule's economic impacts, identification and discussion of reasonable alternatives, and 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. 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.

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Keywords: Securities and Exchange Commission, financial regulation, Dodd-Frank, administrative procedure, Administrative Procedure Act, regulation, regulatory reform, regulatory process, benefit-cost analysis, cost-benefit, regulatory impact analysis, regulatory review, judicial review

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Improvements in SEC Economic Analysis since *Business Roundtable*

A Structured Assessment

Jerry Ellig

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. Nevertheless, members of the past several Congresses have introduced legislation that would have required financial regulatory agencies to conduct economic analysis and allowed courts to review it.[1] More broadly, advocates of comprehensive regulatory reform have argued that courts should review the quality of the regulatory impact analyses that all federal regulatory agencies produce (Dudley 2015). Legislation permitting judicial review of agency analysis, the Regulatory Accountability Act, has been introduced in the past several Congresses and has passed the House of Representatives multiple times.[2]

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 (Cecot and Viscusi 2015, 578; Sunstein 2016). Two examples not involving the SEC illustrate this

[1] See, for example, the Financial Regulatory Responsibility Act, S. 450, 113th Cong. (2013) and S. 1615, 112th Cong. (2011), which listed the topics that financial regulators' economic analysis must cover and provided for judicial review. Other legislation, such as the SEC Regulatory Accountability Act (H.R. 5429, 114th Cong. (2016); H.R. 2308, 112th Cong. (2011)), does not explicitly mention judicial review. However, the SEC Regulatory Accountability Act would likely subject SEC economic analysis to judicial review because it lists the topics the economic analysis must cover and states that the commission may regulate only when it determines that the benefits justify the costs. Moreover, the act directs the SEC to select the regulatory alternative with the greatest net benefits.

[2] Regulatory Accountability Act of 2015, H. R. 185, 114th Cong. (2015). Unlike the legislation listed in footnote 1, which applies to financial regulatory agencies, this legislation is a comprehensive revision of the Administrative Procedure Act that applies to almost all regulatory agencies.

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." 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. 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.[3] In *MetLife v. FSOC*, the US 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. 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. As a result, the regulators had no factual basis for determining that financial distress at MetLife would undermine the stability of the US financial system.[4] Second, the FSOC failed to estimate or even consider the costs that MetLife would incur from increased regulation. Because those costs could impair MetLife's profitability, they could affect the vulnerability of the company to financial distress. Thus, the regulators ignored a factor that was highly relevant to the decision they had to make.[5]

Courts have interpreted the SEC's authorizing legislation to require the commission to conduct benefit-cost analysis when determining whether new regulations are in the public interest (Rose and Walker 2013, 27). The D.C. Circuit's decisions in the SEC cases provide a

[3] Michigan v. EPA, 135 S. Ct. 2699 (2015).
[4] MetLife v. FSOC, 2016 U.S. Dist. LEXIS 68366, at *38–44 (D.D.C. May 25, 2016).
[5] Ibid., at *44−52.

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 analysis (RSFI/OGC 2012) that is explicitly based on the principles of Executive Order No. 12,866,[6] which governs regulatory analysis and review in the executive branch. SEC regulations issued before this guidance were accompanied by analysis that was much less thorough than the analysis conducted by executive branch agencies (Ellig and Peirce 2014). 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. If the court decisions have led the SEC to improve its economic analysis in desirable ways or to explain more clearly how that analysis influenced its decisions, then the case for judicial review of economic regulatory analysis is stronger. If the decisions have had no effect, then the case for judicial review is weaker.

Existing studies disagree on whether the SEC's economic analysis has improved. Schwartz and Nelson (2016) find that the conflict minerals rule, issued in September 2012, was accompanied by no estimate of benefits and a misleadingly high estimate of costs. Ellig and Peirce (2014, 431–35) saw very little improvement in the analysis accompanying the one postguidance regulation they considered: the rule on clearing agency standards, finalized in November 2012. One year after the new SEC staff guidance, Rose and Walker (2013, 11) opined, "Much progress remains to be made before financial regulators achieve the level of cost-benefit analysis that has become the norm in the executive agency context." The following year, Posner and Weyl (2014, S30) claimed, "*Business Roundtable* may well push financial regulators

[6] 58 Fed. Reg. 51,735 (September 30, 1993).

to conduct better [benefit-cost analyses], but so far the evidence is not encouraging." Other researchers, however, have suggested that the economic analysis accompanying individual SEC regulations has improved since the D.C. Circuit decisions (Kraus 2015, 296–301; Kraus and Raso 2013, 324–27; Revesz 2016, 22; Sharkey 2014, 1632; White 2015).

This paper provides a more systematic view by offering a structured assessment of the economic analysis accompanying a sample of recent SEC regulations. Using the evaluation method developed for the Mercatus Center at George Mason University's Regulatory Report Card project, I compare the quality and claimed use of economic analysis for 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. Indeed, the quality of post-2012 SEC economic analysis is equivalent to the quality of analysis accompanying financial regulations proposed by executive branch agencies. 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.

Background

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, and *Circular A-4*, the Office of Management and Budget's guidance to agencies on regulatory analysis (OMB 2003):

1) *Problem analysis.* The very first principle enunciated in Executive Order No. 12,866 is that "each 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" (Exec. Order No. 12,866, sec. 1[b][1]). 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 (White 2015, 134). 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 (Exec. Order No. 12,866, sec. 6[a][3][B][i]; OMB 2003, 3–4). 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 (Exec. Order No. 12,866, sec. 1[b]; OMB 2003, 6–9).
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 (OIRA) must include an assessment of benefits (Exec. Order No. 12,866, sec. 6[a][3][B][ii]). An "economically significant regulation"—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 (Exec. Order No. 12,866, sec. 6[a][3][C][i] and sec. 6 [a][3][C][iii]). A regulation with $1 billion or more in annual economic impact must have a formal analysis of uncertainties associated with the estimates (OMB 2003, 40).
4) *Estimation of costs.* The cost of a regulation includes all opportunity costs to society, not just compliance costs for regulated entities (OMB 2003, 19). 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. 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 (Exec. Order No. 12,866, sec. 10). 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 (Cecot and Viscusi 2015).

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 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 (Cecot and Viscusi 2015). The major D.C. Circuit cases that struck down SEC regulations were of the latter variety.

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. The court remanded the regulation in part because the SEC refused to assess a disclosure alternative favored by two dissenting commissioners. The court also faulted the SEC for failure to consider the costs that mutual funds would incur in complying with the rule. Although acknowledging that a full cost estimate may be difficult, the decision noted that the SEC could at least have provided a rough estimate.[7] 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.[8]

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. 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. The court also criticized the SEC's circular reasoning that the rule would increase competition by reducing uncertainty because the absence of a rule created uncertainty.[9]

[7] Chamber of Commerce v. SEC, 412 F.3d 133, 145 (D.C. Cir. 2005).
[8] Chamber of Commerce v. SEC, 443 F.3d 890, 906 (D.C. Cir. 2006).
[9] American Equity v. SEC, 572 F.3d. 923 (D.C. Cir. 2009).

The third and most momentous case was *Business Roundtable v. SEC*. 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. The court vacated the rule for seven reasons: (1) the SEC failed to estimate companies' compliance costs (even though there was evidence available); (2) the SEC provided insufficient empirical support for its claim that the rule would benefit shareholders by improving corporate performance; (3) the SEC failed to assess whether the rules would lead to additional contested elections or merely make currently contested elections easier; (4) 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; (5) 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; (6) in calculating benefits and costs, the analysis used inconsistent estimates of the frequency with which the rule would be used; and (7) 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.[10]

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 between independent directors and corporate performance, and (4) determining whether to include certain benefits or costs that require predictions of

[10] Business Roundtable v. SEC, 647 F.3d 1144 (D.C. Cir. 2011).

behavioral changes (Kraus and Raso 2013, 303–16; Murphy 2012, 158–62). 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* (Rose and Walker 2013, 33). Nevertheless, Berkeley law professor Steven Davidoff (2011) commented disapprovingly, "The 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."

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 (Ellig and Peirce 2014; Fraas and Lutter 2011). Manne (2012, 25) 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. Guynn (2013, 642) 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 conclusion, rather than as a rigorous analysis based on actual data and solid scientific methods" (cf. Kraus and Raso 2013, 297–301). He argues that *Business Roundtable* should generate a welcome improvement in the quality of agency analysis as agencies seek to avoid litigation. Sharkey (2014) argues that external review of agency analysis plays a vital "information forcing" role. 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 (Cox 2015, 27–28; Fisch 2013, 709; Kraus and Raso 2013, 318–19; Murphy 2012, 127). Even some advocates of expanded benefit-cost analysis express skepticism about the merits of judicial review (Cochrane 2014, S95; Posner and Weyl 2014, S30; Sunstein 2015, 268).

Most significant for the purposes of this paper, however, are several criticisms that imply that judicial review might not lead to higher-quality analysis. Gordon (2014) 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. His view implies that any attempts to improve benefit-cost analysis of financial regulation are futile. Coates (2015a) 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 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. Cost estimates could be subject to the same drawback; Schwartz and Nelson (2016) argue that the SEC substantially overstated the costs of its conflict minerals rule because it felt obligated to produce a number.

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 (Bubb 2015; Coates 2015b, 23). 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 (Bubb 2015, 52). Judicial review may also prompt agencies to hide

weaknesses in their analysis or to produce a distorted economic analysis that helps them win court cases but is not methodologically sound (Coates 2015a, 1004; Jackson 2015, 59). Finally, judges may use judicial review to enforce their own policy preferences (Hayden and Bodie 2012; Recent Cases 2012, 1092–93), or they may decline to examine agency analysis because of their policy preferences (Posner and Weyl 2015, 260–61)—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) have agency economics staff report to all commissioners (rather than just the chair), and (5) require sunsets and retrospective evaluation for all new regulations (Bartlett 2014; Benedict 2012; Bubb 2015; Coates 2015b; Posner and Weyl 2014, S30–S31; Posner and Weyl 2015, 261–62; Revesz 2016). 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 (Coates 2015b; Revesz 2016).

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 (Cecot and Viscusi 2015; Dudley 2015; Graham 2011). Opponents question the ability of generalist judges to evaluate

agency economic analysis, and they fear that judicial review will slow or halt rulemaking (Levin 1996; Shapiro 2015). Instead, they suggest that more resources for analysis and various structural changes will produce more desirable improvements in agency analysis (Katzen 2015).

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 reinforced by pressure from Congress. The court decisions (especially *Business Roundtable*) were a surprise, representing a significant departure from past practice (Ahdieh 2013, 1988–90; Cox 2015, 27; Cox and Baucom 2012; Guynn 2013, 681). By Sharkey's (2014, 1624) account, "A shock wave reverberated throughout the banking and financial services community" in response to *Business Roundtable*. The most realistic assessment is that 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 (Kraus 2015). In March 2012, the SEC's general counsel and chief economist issued new guidance for economic analysis of regulations. The guidance is based on the principles in executive orders and OMB guidance geared toward executive branch agencies. 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. 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. 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 (RSFI/OGC 2012). Rose and Walker (2013, 34–36) document how the guidance responds directly to the D.C. Circuit's criticisms, often citing the three cases as justification.

The SEC's actions did not end at issuing new guidance. In a reversal of an earlier decision, the chief economist now reports directly to the chair of the commission (Ellig and Peirce 2014, 372–73). The budget of the Division of Economic and Risk Analysis (DERA) grew from $20 million in fiscal year 2011 to $42 million in fiscal year 2014. The number of financial economists with PhDs increased from 30 in 2011 to 73 in 2015 (White 2015, 308–9). "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" (Kraus 2015, 304).

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.

Regulations Covered

Ellig and Peirce (2014) assessed the quality of economic analysis accompanying seven SEC regulations issued in 2010–2011. They 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 their sample was issued by the enforcement division. This study replicates their 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 (SEC 2015d), dealing with credit ratings, is nevertheless an important rule that was accompanied by an economic analysis.[11] 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.

Table 1. SEC Rules Assessed in This Study

Rule	Summary of Rule
Preguidance	
Risk Management Controls for Brokers or Dealers with Market Access Published November 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 February 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.

[11] As table 4 (page XX) 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.

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 August 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 November 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 December 29, 2011 Division of Corporation Finance	Revises the definition of *accredited investor* 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 August 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 March 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 August 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 August 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 September 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 noncontrolled person.
Crowdfunding Published November 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.

Sources: For preguidance rules, see Jerry Ellig and Hester Peirce, "SEC Regulatory Analysis: 'A Long Way to Go and a Short Time to Get There,'" *Brooklyn Journal of Corporate, Financial & Commercial Law* 8, no. 2 (2014): 375–78. For postguidance rules, see author's own summary.

The quality and claimed use of economic analysis was assessed using the standardized scoring system developed for the Regulatory Report Card project of the Mercatus Center at George Mason University. 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.[12] 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 (Ellig and Conover 2014; Ellig and Fike 2016; Ellig, McLaughlin, and Morrall 2013; Ellig and Peirce 2014).

[12] "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. A prescriptive regulation contains mandates, prohibitions, or other restrictions on citizens' activity. The other major type of regulation is budget regulation, which implements federal spending or revenue collection programs.

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. Ellig and McLaughlin (2012) provide a crosswalk chart that shows how the evaluation criteria correspond to items in OMB's RIA checklist (OMB 2010). These four criteria are very similar to the criteria listed in the SEC's 2012 guidance for economic analysis (RSFI/OGC 2012). 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 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 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 (Ellig 2016, 25–26). 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 (Cecot and Viscusi 2015, 591).

Table 2. Regulatory Report Card Assessment Criteria

Analysis
For each analysis criterion, the lettered subquestions each receive a score of 0–5, 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. **Systemic problem:** 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. **Name problem:** Does the analysis identify a market failure or other systemic problem? B. **Theory:** 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. **Evidence:** Does the analysis present credible empirical support for the theory? D. **Baseline:** 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. **Uncertainty:** Does the analysis adequately assess uncertainty about the existence and size of the problem?
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.	**Any use of analysis:** Does the proposed rule or the RIA present evidence that the agency used any aspect of the analysis in making decisions?
6.	**Cognizance of net benefits:** 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 0 (no useful content) to 5 (comprehensive analysis with potential best practices). Table 3 lists the guidelines for scoring. The scorers compiled notes explaining the reasons for each score.[13] 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. The evaluation method is explained more fully by Ellig and McLaughlin (2012). Inter-rater reliability tests indicate that the training method for evaluators produces consistent evaluations across multiple scorers (Ellig and McLaughlin 2012; Ellig, McLaughlin, and Morrall 2013).

Table 3. Report Card Scoring Guidelines

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

Ellig and Peirce (2014) used the Regulatory Report Card evaluation framework to evaluate the analysis accompanying preguidance SEC regulations. One of the creators of the Report Card scored the seven preguidance regulations in Ellig and Peirce's paper and the seven postguidance SEC regulations in this paper.

[13] The scorers' notes on each regulation are publicly available at http://www.mercatus.org/reportcards/archive.

Average Quality and Use of Analysis, Pre- and Postguidance

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.[14] 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.

Ellig and Peirce (2014, 385) find that the quality of analysis for the preguidance regulations is well below the quality of analysis for executive branch financial regulations, and the difference is highly statistically significant. 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.

[14] 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 percent 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								
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

Note: Scores for SEC preguidance regulations do not always match those reported by Ellig and Peirce (2014) 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 (2016).

Table 5. Summary Statistics

Variable	Mean	Std. Dev.	Min.	Max.	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 (*n* = 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 (*n* = 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 percent, ** 5 percent, * 10 percent. Statistical significance of difference in mean scores for SEC postguidance and executive branch financial regulations (two-tailed *t*-test) is: +++ 1 percent. Statistical significance of difference in mean scores for SEC postguidance and all executive branch regulations (two-tailed *t*-test) is: †† 5 percent.

Figures 1–3 demonstrate the SEC's improvement visually. Figure 1 charts the overall quality of analysis for SEC regulations preguidance, SEC regulations postguidance, executive branch financial regulations, and all executive branch regulations. The SEC's average score almost doubled postguidance, and this difference is highly statistically significant. The difference between the SEC's average score postguidance and the averages for executive branch regulations is not statistically significant.

Figure 2 shows that the SEC improved in each category of analysis. All of these differences are statistically significant.

Figure 3 compares the SEC's average pre- and postguidance scores on the two criteria that assess how well the commission explained how its analysis affected decisions. The SEC greatly improved its explanation of how various aspects of its economic analysis informed its decisions; its average score for "Any use of analysis" nearly doubled. The difference is statistically significant, and the average SEC postguidance score is similar to the average scores earned by executive branch agencies.

However, the SEC's explanations of how net benefits of alternatives affected its decisions did not improve. This disparity in results occurs because, although the SEC now often cites economic analysis in support of its decisions, it does not quantify benefits and costs of alternatives sufficiently to allow a calculation of net benefits.

Figure 1. Overall Quality of Analysis

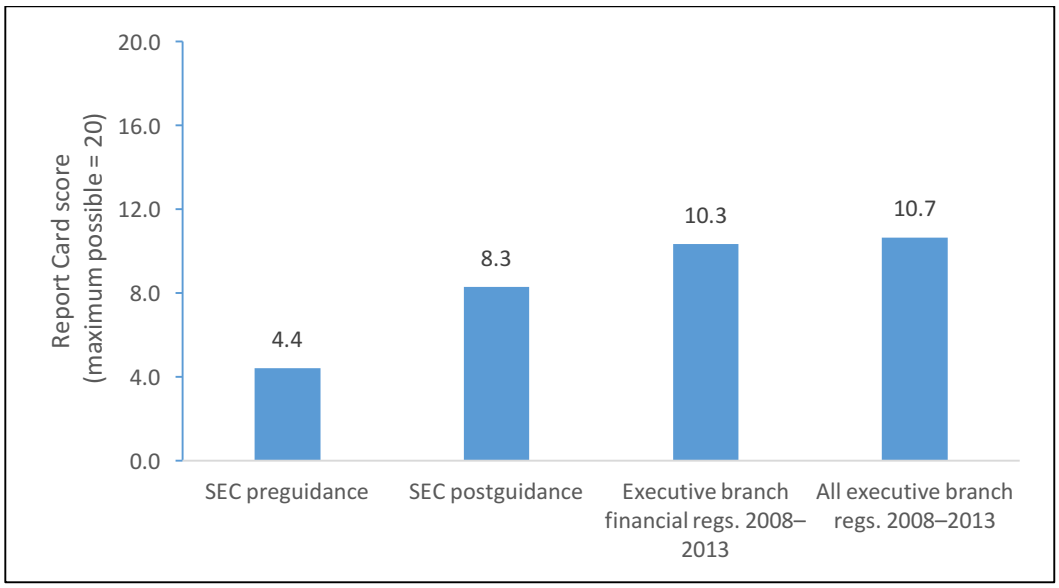


Figure 2. Improvement in SEC Analysis, Pre- vs. Postguidance

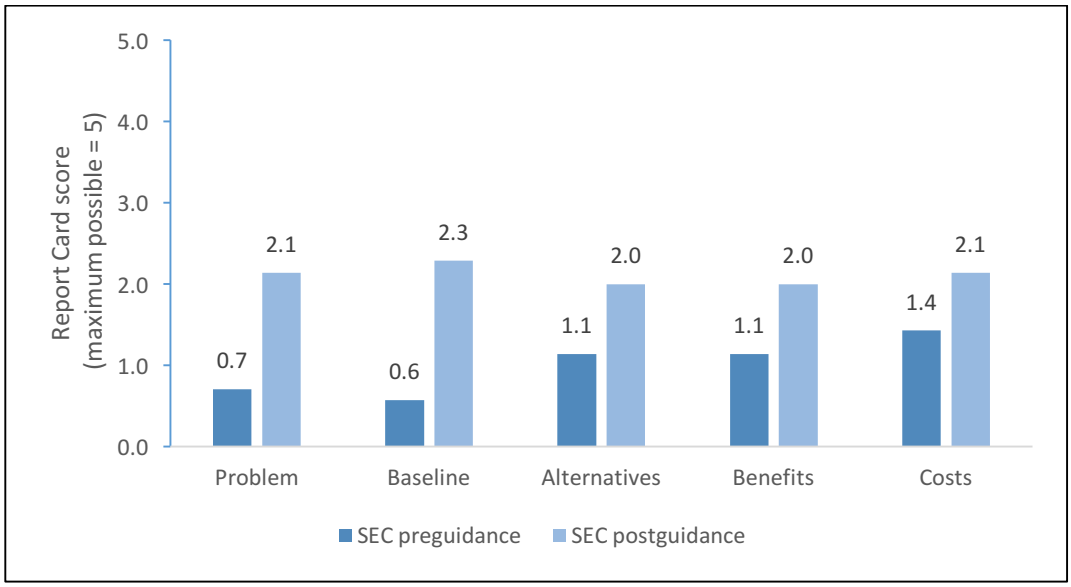
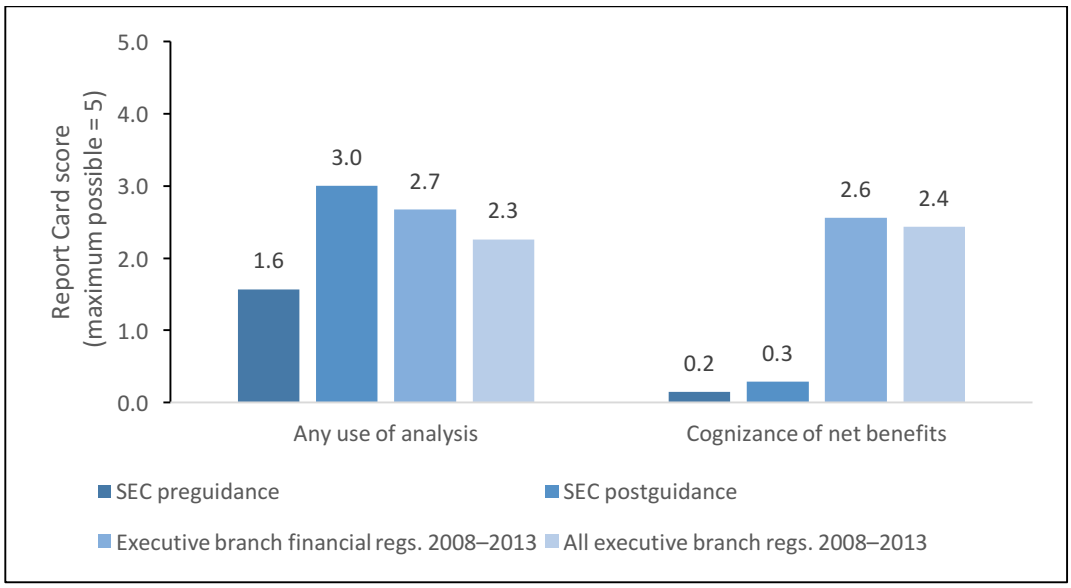


Figure 3. SEC's Claimed Use of Economic Analysis, Pre- and Postguidance



Qualitative vs. Quantitative Analysis

Scholars have spilled a great deal of ink arguing over the possibility and desirability of economic analysis of financial regulations. Gordon (2014) claims that economists cannot predict the results of financial regulations because the regulations change the financial system. Coates (2015a, 2015b) and Schwartz and Nelson (2016) argue that nonquantified or "conceptual" economic analysis is desirable, but reliable quantification of many major benefits and costs is unlikely to be feasible. Posner and Weyl (2014, 2015) counter that economic analysis, including calculation of benefits and costs, should be no more difficult for financial regulations than for other regulations; in fact, it should perhaps be easier, given that most of the valuations relevant to financial regulation are monetary (cf. Rose and Walker 2013, 17–19).

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

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 4–7 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 4. Changes in Scores for Criteria Related to Problem Analysis

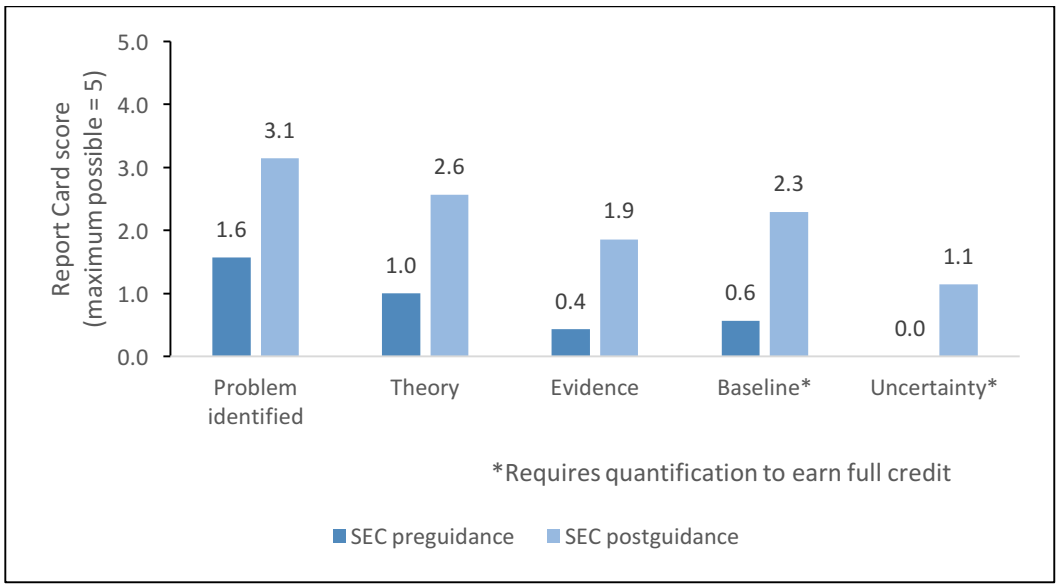
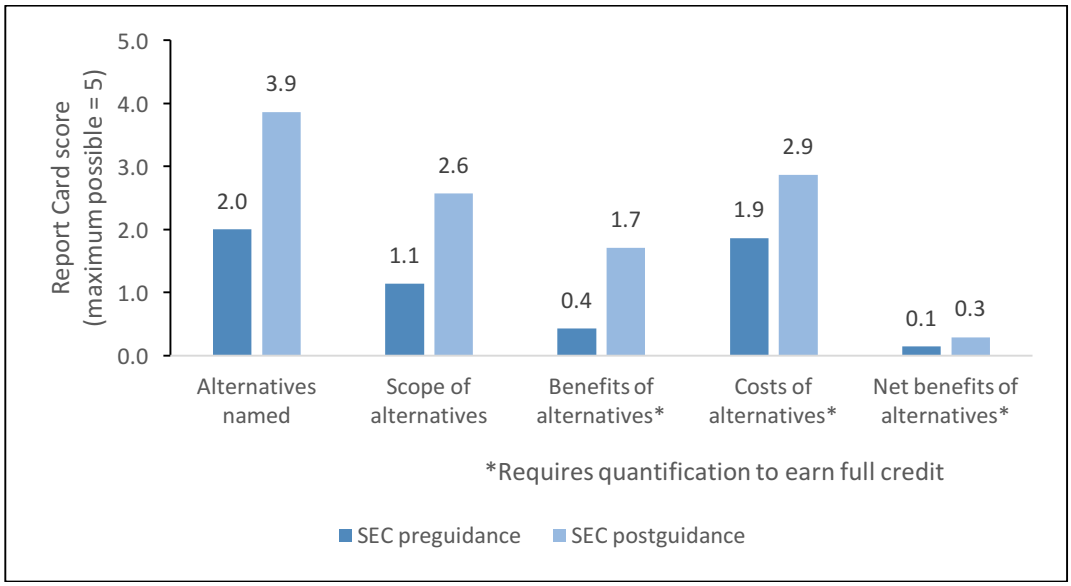


Figure 5. Changes in Scores for Criteria Related to Analysis of Alternatives



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

Figure 6. Changes in Scores for Criteria Related to Analysis of Benefits

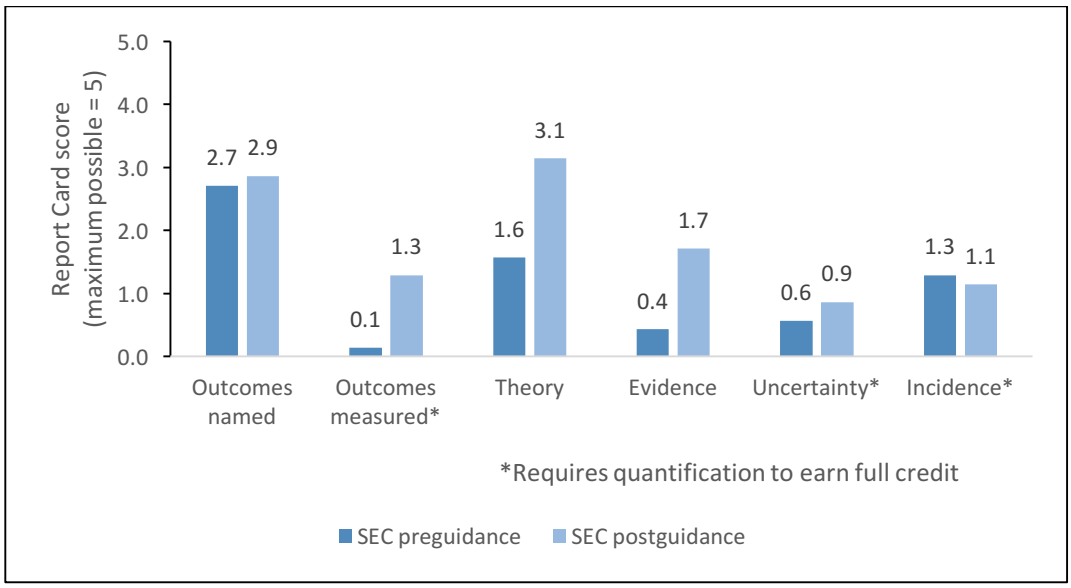
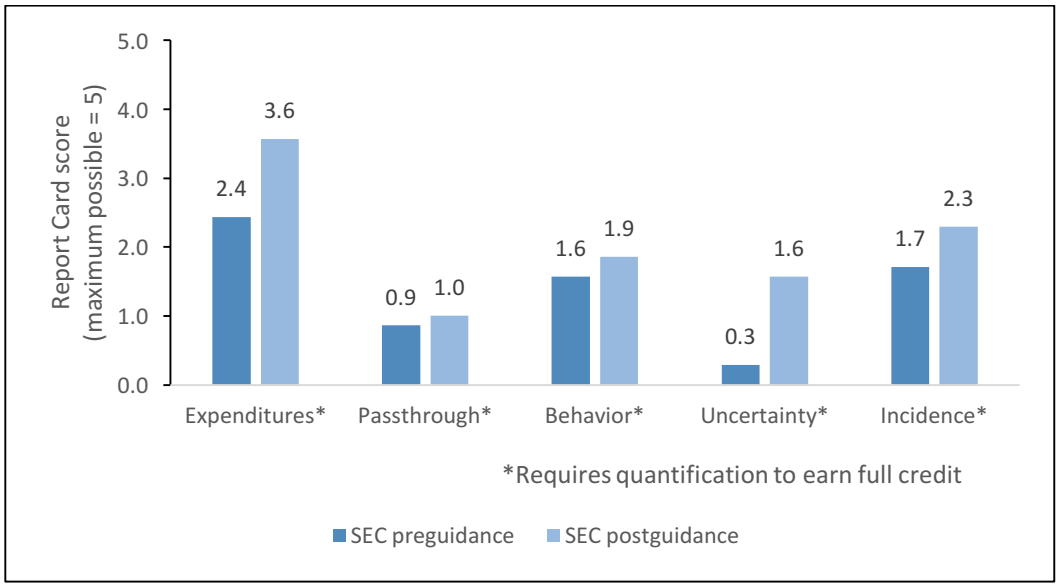


Figure 7. Changes in Scores for Criteria Related to Analysis of Costs



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 4, 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 (SEC 2013, 44787–88). 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 (SEC 2013, 44788–98).

Other examples demonstrate significant improvements in quantification. They primarily involve quantification of costs that take the form of expenditures. Figure 7 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 10 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 (SEC 2015b, 50154–61). 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 registration (SEC 2015e), security-based swap dealer and participant registration (SEC 2015c), and crowdfunding SEC 2015a).

Conceptual analysis example: money market fund reform. The money market reform regulation (SEC 2014) 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. 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 (SEC 2014, 47739). 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 US 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 subsequently "break the buck"—redeem shares for less than the stable value (DERA 2012, 3–5). 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 (SEC 2014, 47743–44).

The SEC did not just theorize about these potential problems; it examined evidence. DERA (2012, 14–16) 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.

In contrast, the 2008 breaking of the buck by the Reserve Primary Fund, which held 1.2 percent 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 (DERA 2012, 6–7). 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 90 days to 60 days, SEC

regulations existing at the time would not have prevented the Reserve Primary Fund from breaking the buck (DERA 2012, 36–38). 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 and gates had been used by other types of cash management pools to discourage redemptions in crises (SEC 2014, 47748–52). 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 (SEC 2014, 47775–77).

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 (SEC 2014, 47792). 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 (SEC 2014, 47794–801). 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

(SEC 2014, 47803–6). Kraus (2015, 299–300) identifies several other decisions on the money market fund regulation that were informed by economic analysis.

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.

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 (McCubbins, Noll, and Weingast 1987), or by lower-quality analysis, because politics trumps economic analysis (Shapiro and Morrall 2012). Regulations subject to statutory deadlines may have lower-quality analysis simply because the agency has less time to do the work (Abbott 1987a, 1987b; Gersen and O'Connell 2008). 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 (Williams 2008, 14).

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 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 14 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, 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

Source: Author's calculations.

The following econometric analysis tests for differences in the quality and claimed use of economic analysis for SEC regulations pre- and postguidance. Control variables include the variables listed in table 6, dummy variables indicating which SEC division issued the regulation, and agency-specific fixed effects.

Econometric Model and Estimation Method

The full regression equation estimated is

$$\text{Score}_i = \alpha + \beta_0\text{SEC Preguidance}_i + \beta_1\text{SEC Postguidance}_i + \mathbf{\beta_2 SEC\ Division_i} + \beta_3\text{Word Count}_i + \beta_4\text{Public Comments}_i + \beta_5\text{Public Comments}_i^2 + \mathbf{\beta_6 Statutory\ Constraints_i} + \beta_7\$1\text{Billion Impact}_i + \mathbf{\beta_8 Agency_i} + \varepsilon,$$

where $Score_i$ = regulation i's Report Card score, and $SEC\ Preguidance_i$ and $SEC\ Postguidance_i$ are the two key variables of interest—dummy variables that indicate whether the regulation is an SEC regulation and whether it was issued before or after the SEC's 2012 economic analysis guidance. $\boldsymbol{SEC\ Division_i}$ is a vector of dummy variables that indicate which SEC division issued the regulation: Investment Management, Corporate Finance, or Enforcement (the omitted division is Trading and Markets). $Word\ Count_i$ is the number of words in the regulatory text, used as a measure of the complexity of the 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). $\boldsymbol{Statutory\ Constraints_i}$ 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 $\boldsymbol{Agency_i}$ 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. Because the SEC regulations are divided between the pre- and postguidance periods, there is no separate SEC dummy. If the SEC's economic analysis improved, the coefficient on *SEC Postguidance* should be different from, and larger than, the coefficient on *SEC Preguidance*. The sign and significance of the two SEC dummies also indicate whether the SEC's analysis differs significantly from the typical executive branch agency's 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 (Ellig and Conover 2014; Ellig and Fike 2016; Ellig, McLaughlin, and Morrall 2013). 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 (Theil 1971, 634). 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 (Farrar and Glauber 1967), the variance inflation factor (Belsley, Kuh, and Welsch 1980, 93), and the condition index (Belsley, Kuh, and Welsch 1980, 153). None indicated significant collinearity. In particular, the two key 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.

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 of Analysis Score Is Significantly Different Pre- and Postguidance

	Ordered logit (1)	Ordered logit (2)	BUC ordered logit (3)	OLS (4)
SEC preguidance	−6.72 (3.03)***	−8.56 (3.42)***		−7.49 (13.61)***
SEC postguidance	−1.60 (4.79)***	−2.77 (3.46)***	17.80 (15.87)***	−3.22 (5.08)***
Investment management	1.27 (2.97)***	1.66 (2.47)**	1.71 (7.17)***	1.52 (6.90)***
Corporation finance	−0.68 (1.23)	−0.16 (0.26)	0.02 (0.04)	0.43 (0.69)
Enforcement	−0.59 (1.63)	−0.27 (0.52)	−0.39 (1.47)	0.21 (0.70)
Word count	4.77e−06 (2.05)**	−0.00001 (2.33)**	−6.96e−06 (2.43)**	−9.17e−06 (2.15)**
Public comments	0.00002 (1.19)	0.00004 (2.26)**	0.00002 (1.59)	0.00003 (1.90)*
Public comments^2	−1.02e−10 (1.36)	−1.64e−10 (2.57)**	−1.16e−10 (1.90)*	−1.58e−10 (2.34)**
Financial		1.22 (1.76)*	1.30 (2.64)**	1.62 (2.53)**

Statutory deadline		−0.52 (0.78)	−0.31 (0.48)	−0.46 (0.55)
Regulation required		−0.19 (0.61)	−0.24 (1.09)	−0.38 (1.14)
Prescribed form		−0.12 (0.27)	0.24 (0.59)	0.29 (0.45)
Prescribed stringency		−0.59 (0.82)	−0.77 (1.58)	−0.89 (1.48)
Prescribed coverage		−0.02 (0.07)	−0.04 (0.11)	−0.02 (0.03)
Effects exceed $1 billion		1.64 (3.34)***	1.60 (2.83)***	1.92 (3.45)***
Treasury		−3.68 (5.34)***		−3.93 (7.68)***
Environmental Protection Agency		1.01 (4.21)***		1.23 (4.31)***
Labor		−0.27 (0.99)		−0.48 (1.85)*
Homeland Security		1.71 (4.77)***		1.99 (8.61)***
Commerce		−1.66 (2.56)**		−1.91 (3.31)***
Justice		−0.20 (1.50)		−0.23 (1.38)
Interior		0.14 (0.39)		0.27 (0.54)
Education		2.33 (5.04)***		2.60 (7.72)***
Health and Human Services		−0.55 (1.44)		−0.67 (1.36)
Housing and Urban Development		−0.64 (0.71)		0.57 (0.80)
Agriculture		0.34 (0.94)		0.94 (4.17)***
General Services Administration		−1.03 (1.26)		−0.95 (1.23)
EPA-Department of Transportation		5.26 (5.03)***		5.05 (5.70)***
Constant				9.89 (17.19)***
R^2 or pseudo-R^2	0.08	0.18	0.18	0.56
N	143	143	1,186	143

Note: Absolute values of *z*- or *t*-statistics in parentheses are based on robust standard errors clustered by department. Agency-specific coefficients are not reported for BUC ordered logit because the method does not produce agency-specific coefficients. Statistical significance is indicated by asterisks: * 10 percent, ** 5 percent, *** 1 percent.

Column (1) shows a bare-bones regression that controls only for the SEC division issuing the regulation, the word count, and the number of public comments. The coefficients on *SEC*

preguidance and *SEC postguidance* are both statistically significant, and the difference indicates improvement in the postguidance period. A chi-squared test rejects the hypothesis that the coefficients are equal at better than the 1 percent level.

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. 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 (Chamberlain 1980).

Column (3) employs the "blow up and cluster" (BUC) ordered logit estimator developed by Baetschmann, Staub, and Winkelmann (2015), which is consistent, is reasonably efficient, and 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 $N = 1{,}186$ 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.[15]

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 17

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

different values ranging from 2 points to 18 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 than are preguidance regulations. The ordered logit and OLS estimators indicate that postguidance SEC regulations still have somewhat less extensive analysis than does the typical executive branch regulation. Regulations from the SEC's Division of Investment Management have somewhat better analysis than regulations from the other divisions.[16]

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.[17] 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 11 percent level in the BUC estimator). However, this effect is subject to diminishing returns. None of the statutory constraints correlate with the quality of analysis.[18] Regulations with impacts exceeding $1 billion have higher-quality analysis. Some of the agency-specific dummies are statistically significant, and some are not. These results are all consistent with previous research using the Report Card data set (Ellig 2016; Ellig and Conover 2014; Ellig and Fike 2016; Ellig, McLaughlin, and Morrall 2013).

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.

[16] Omission of the SEC division dummy variables does not materially change any regression results.
[17] 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.
[18] None of the statutory constraints were significant when entered singly in separate regressions either.

In the OLS regression, the difference between the coefficients on *SEC preguidance* and *SEC postguidance* is about 4.3 points—slightly larger than the mean difference between *SEC preguidance* and *SEC postguidance.* The coefficient is almost equal to four standard deviations of the *SEC preguidance* score, suggesting that the improvement is indeed substantial.

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. The SEC division dummy variables are omitted in these regressions because their inclusion frequently generated a warning that the standard errors were questionable because some observations were completely determined.

In every regression, the coefficients indicate 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. Chi-squared tests reject equality of the two coefficients at better than the 1 percent level. Improvement is even evident in analysis of the systemic problem—the criterion on which scores are typically lowest. The SEC's postguidance analysis of the underlying problem is no better than the analysis offered by executive branch agencies. This result probably occurs because the SEC staff guidance interprets *Circular A-4* as allowing the agency to cite a statutory requirement as sufficient justification for a regulation (OMB 2003, 3; RSFI/OGC 2012, 6).

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 preguidance	−3.17 (5.11)***	−0.59 (1.14)	−5.39 (5.68)***	−5.80 (7.42)***	−2.97 (4.50)***	−3.19 (4.09)***	−8.21 (9.33)***
SEC postguidance	0.71 (0.98)	3.11 (3.58)***	−3.51 (4.20)***	−1.82 (3.19)***	−0.57 (0.99)	−1.07 (1.22)	−7.43 (7.99)***
Word count	−2.19e−06 (0.50)	−5.76e−06 (2.09)**	−0.00001 (1.68)*	−0.00002 (4.41)***	7.92e−07 (0.18)	−4.55e−06 (0.63)	−3.94e−06 (0.57)
Public comments	0.00002 (0.65)	0.00003 (2.09)**	0.00002 (2.51)**	0.0001 (3.41)***	−1.84e−06 (0.15)	0.00002 (0.78)	0.00002 (2.56)***
Public comments^2	−6.49e−11 (1.00)	−9.01e−11 (1.83)*	−9.51e−11 (2.60)***	−3.56e−10 (3.70)***	−1.31e−11 (0.32)	−8.55e−11 (0.75)	−9.52e−11 (2.59)***
Financial	0.49 (1.16)	−3.28 (4.50)***	2.43 (2.93)***	−0.47 (0.79)	0.69 (1.15)	1.70 (2.17)**	1.94 (2.31)**
Statutory deadline	−0.43 (0.81)	−0.24 (0.35)	−0.58 (1.55)	−0.60 (0.65)	0.04 (0.05)	0.79 (1.86)*	−0.03 (0.08)
Regulation required	−0.40 (0.65)	−0.33 (0.62)	0.38 (1.10)	−0.22 (0.49)	−0.76 (1.27)	−0.42 (1.09)	−0.18 (0.57)
Prescribed form	−0.46 (0.73)	−1.21 (1.68)*	−0.12 (0.24)	1.16 (1.80)*	0.80 (1.29)	0.55 (0.77)	−0.58 (0.86)
Prescribed stringency	−0.04 (0.11)	0.25 (0.37)	−1.16 (2.59)***	0.20 (0.35)	−0.94 (1.75)*	−0.54 (0.78)	−0.66 (1.50)
Prescribed coverage	−0.02 (0.04)	−0.004 (0.01)	−0.26 (1.26)	0.52 (1.79)*	0.006 (0.01)	−0.14 (0.34)	0.21 (0.49)
Effects exceed $1 billion	1.26 (2.31)**	0.76 (1.90)*	1.18 (1.34)	1.70 (2.10)**	1.08 (2.60)***	1.28 (1.57)	0.79 (1.13)
Treasury	−0.03 (0.06)	−0.15 (0.25)	−3.33 (3.23)***	−2.83 (3.61)***	−3.17 (3.07)***	−2.57 (2.87)***	−4.05 (3.56)***
Environmental Protection Agency	0.46 (1.09)	0.49 (1.46)	0.21 (2.00)**	1.26 (2.58)***	1.59 (9.85)***	−2.21 (4.65)***	−1.80 (8.56)***
Labor	0.40 (1.31)	−0.23 (0.99)	−0.97 (2.52)***	0.28 (1.18)	−0.53 (2.01)**	−1.34 (4.68)***	−1.91 (4.42)***
Homeland Security	2.08 (9.43)***	0.85 (3.28)***	0.96 (3.25)***	0.35 (1.50)	0.70 (3.15)***	0.80 (2.77)***	1.16 (5.13)***

Commerce	1.82	0.03	−3.61	0.36	−15.29	−3.10	−3.89
	(3.32)***	(0.04)	(7.77)***	(0.71)	(10.99)***	(6.00)***	(5.61)***
Justice	−0.29	1.44	−0.04	−1.29	−0.68	2.49	−0.48
	(1.02)	(8.29)***	(0.28)	(6.22)***	(2.37)**	(5.06)***	(6.02)***
Interior	2.86	2.05	−0.16	−0.75	−2.39	−1.53	0.11
	(3.49)***	(2.40)**	(0.43)	(1.30)	(3.99)***	(2.30)**	(0.28)
Education	−0.31	0.07	3.58	1.63	3.23	1.45	2.53
	(1.05)	(0.15)	(6.52)***	(5.38)***	(6.66)***	(3.88)***	(4.38)***
Health and Human	1.26	−1.12	−1.03	−1.67	−0.24	−3.03	−3.14
Services	(3.36)***	(2.53)**	(7.04)***	(3.20)***	(0.61)	(9.72)***	(9.88)***
Housing and Urban	14.45	3.94	−2.77	1.98	−0.38	−0.63	−2.80
Development	(10.99)***	(5.74)***	(4.97)***	(2.32)**	(0.61)	(0.74)	(4.49)***
Agriculture	0.01	−0.14	0.67	0.95	0.54	−1.78	−2.62
	(0.05)	(0.62)	(2.65)***	(4.55)***	(2.17)**	(11.91)***	(6.09)***
General Services	−1.52	−2.60	−0.49	−3.74	3.13	−2.71	−2.49
Administration	(2.33)**	(3.30)***	(0.90)	(5.21)***	(3.11)***	(3.48)***	(3.74)***
EPA-Dept of	3.11	1.90	3.15	4.14	4.03	1.69	2.67
Transportation	(3.68)***	(2.57)***	(3.82)***	(5.46)***	(3.98)***	(1.36)	(2.66)***
Pseudo-R^2	0.14	0.17	0.19	0.33	0.29	0.21	0.28
N	143	143	143	143	143	143	143

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 percent, ** 5 percent, *** 1 percent.

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 the baseline, alternatives, and benefits. *Public comments* and *Public comments*^{2} are correlated with those elements of analysis 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. 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 similar to the one reported in column (1) of table 7 produced results similar to that regression in table 7. 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 (0–5).

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.

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 in 2010–2011 to an average of 8.3 points in 2013–2015. 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 percent between 1999 and 2009 (Ellig, McTigue, and Wray 2012, 12). In other words, the SEC achieved more improvement in its economic analysis in 3 years than federal agencies achieved in their Government Performance and Results Act performance reports in 10 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.

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