

# Data and Methods for Analyzing Special Interest Influence in Rulemaking

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## Abstract

The United States government creates astonishingly complete records relevant to policy creation in executive agencies. In this article, we describe the major kinds of data that have proven useful to scholars studying interest group behavior in bureaucratic politics, how to obtain them, and challenges that we as users have encountered in working with these data. We discuss databases such as [regulations.gov](https://www.regulations.gov), which contains comments on draft rules proposed by executive branch agencies, and new sources of data, such as ex-parte meeting logs, which describe the interest groups and individual lobbyists that bureaucrats are meeting face-to-face about proposed policies. One challenge is that some of these data are not machine-readable. We argue that a productive way forward is to invest in making all the datasets machine-readable and to create a consistent way to link them to each other as well as to outside databases.

*Keywords:* Interest groups, rulemaking, lobbying, bureaucratic politics, data sources

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## 1 Introduction

If the U.S. federal government is unquestionably good at one thing, it is pushing out paper. In theory, governmental records relevant to the creation of policy in executive agencies have long been available to researchers. Practically speaking, obtaining such data has been a costly and challenging undertaking. In the 1990s and early 2000s, leading research was limited to data on just a few rules (e.g., [Golden, 1998](#)) or using surveys (e.g., [Furlong, 2004](#)). Since 1994, when the government first released the *Federal Register* online, scholars have had access to increasingly detailed data on the notice-and-comment rulemaking process, including draft policies, the activities of policymakers, and interest group advocacy.

In this article, we describe the kinds of data that have proven useful to scholars studying interest group lobbying of federal agencies, how to obtain them, and also challenges that we have found in working with these data. Three examples of data sources that fit this description are machine-readable records of all agency rules published in the Federal Register, comments posted on regulations.gov, metadata about rules contained in the Unified Agenda, and Office of Management and Budget reports. We also describe sources that have become more available in recent years, such as ex-parte meeting logs<sup>1</sup> and individually-identified personnel records of nearly all federal employees since 1973 ([Singer-Vine, 2017](#)).

These data sources do not exhaust the kinds of records relevant to researchers. They reflect what is available at present, but new data sources emerge constantly. Thus, we also highlight sources of data that we believe are already or may soon become available, perhaps after enterprising researchers submit the necessary Freedom Of Information Act (FOIA) requests. Examples include agency press releases (see, e.g., [Libgober, N.d.](#); [Libgober and Carpenter, 2018](#)) and the Foreign Agents Registration Act (FARA) reports ([Shepherd and You, 2019](#)).<sup>2</sup> To orient potential students of agency policymaking to available sources of data, we identify four units of analysis: (1) participants, (2) policymakers, (3) policy texts, and (4)

metadata such as policy timing. We describe where to find data on each in roughly the order that they appear in the process of developing a rule.

## **1.1 Background: Rulemaking and the Administrative Procedures Act**

For decades, the volume of legal requirements emerging from executive agencies has dwarfed the lawmaking activity of Congress, the Supreme Court, and the Presidency. Each year, agencies publish four thousand or more regulations. In doing so, agencies must follow a process prescribed by the Administrative Procedures Act (APA), 5 U.S.C. § 553(c). For each rule, agencies create a collection of documents at each stage of their policymaking process. Section 553 requires agencies to issue a Notice of Proposed Rulemaking (NPRM) in the *Federal Register* to notify potentially affected parties that the regulatory environment or program administration may change. Following the NPRM, agencies solicit comments on these regulations through regulations.gov (for executive agencies) or the agency websites themselves (for independent agencies). Agencies are required to consider public comments but are not required to alter the rules based on them. These documents are organized in a “docket” folder with a unique name and ID number. Once kept in literal folders in each agency’s “docket room,” where visitors could make photocopies, these documents are now online. For example, the Centers for Medicare Medicaid Services rulemaking docket 0163 “Transparency in Coverage” can be found at [regulations.gov/docket?D=CMS-2019-0163](https://www.regulations.gov/docket?D=CMS-2019-0163). The fact that the APA requires agencies to assemble a comprehensive record of who sought to influence the policymaking process, and that such records are relatively complete, is highly unusual and makes the agency policymaking particularly exciting for interest group scholars.

## **2 Who participates in the rulemaking process?**

Notice and comment rulemaking creates a unique feature in American democracy; the right for anyone to participate in, perhaps even influence, policymaking processes at federal agencies. Participation in rulemaking activities is highly skewed. A few rules, such as the

Federal Communication Commission’s rules on net neutrality, receive millions of comments. In contrast, half of the proposed rules open for comment on regulations.gov received no comments at all (Libgober, N.d.). Even the median rule designated as “economically significant” – rules projected to have an annual economic impact of over \$100 million – receives fewer than ten comments (Judge-Lord, 2019). Participants include businesses, public interest groups, trade associations, unions, law firms, and academics (Cuéllar, 2005; Yackee and Yackee, 2006). While businesses are the most consistent and influential participants (Yackee and Yackee, 2006; Libgober, N.d.), most comments are part of public pressure campaigns. Indeed, at least 39 million of the 48 million comments on proposed rules on regulations.gov were mobilized by just 100 advocacy organizations such as the Sierra Club (Judge-Lord, 2019).

The notion that interest groups seek to influence rules motivates scholarly interest in patterns of participation in rulemaking. For example, You (2017) finds that half of all spending on lobbying legislation occurs *after* a bill becomes law. Participation in this process can begin even before a proposed rule is issued. de Figureido and Kim (2004) show that meetings between agency officials and firms spike before an agency issues a policy. Libgober (n.d.) finds that firms that meet with federal regulators before a rule is issued may receive abnormally high stock market returns upon its release. Leveraging high-frequency trading data, Libgober shows that in the minutes and hours following the publication of proposed rules at the Federal Reserve, the firms that met with the Board during rule-development significantly outperformed matched market competitors that did not obtain such early access. These findings are consistent with the analysis of qualitative researchers that commenters who participate early in the rulemaking process can shape the content of the rule (Naughton et al., 2009). Interest groups and firms may even initiate a rulemaking process through a petition for rulemaking under 5 U.S.C. § 553(e).

Scholars are also interested in how participation in rulemaking may affect a rule’s ultimate fate when sent to the White House Office of Management and Budget (OMB) or in judicial review. Interest groups lobby successfully in OMB review (Haeder and Yackee, 2015a).

[NOTE: reference to IG&A OMB article here]. Interest groups also use the rulemaking record but build a case for litigation. Yet, there are few large-N studies linking lobbying in rulemaking to litigation or court decisions. [Libgober and Rashin \(2018\)](#) analyzed comments submitted to financial regulators and found that threats of litigation were rare but, when they did occur, were often followed by court decisions. [Judge-Lord \(2016\)](#) found no relationship between the number of comments and the likelihood that the Supreme Court upheld or struck down an agency rule and, like [Schuck and Elliott \(1990\)](#), found that the court is more likely to strike down policies made through the notice and comment process.

To analyze patterns of participation, scholars use data from a variety of sources. Sources for data on participation are agency rulemaking dockets ([Golden, 1998](#); [Yackee, 2006](#); [Young, Marple, and Heilman, 2017](#); [Ban and You, 2019](#)), the *Federal Register* ([Balla, 1998](#); [West, 2004](#)), and regulations.gov ([Balla et al., 2019a](#); [Gordon and Rashin, nd](#)). Though commenters are not generally required to disclose their names and affiliations, many do. The best current data sources for obtaining the names of the organizations that submit comments on federal regulations are regulations.gov and the websites of the independent agencies themselves.

## 2.1 Obtaining and working with data on comment participants

Scholars wishing to obtain data on comments and commenters from executive agencies generally use the website regulations.gov. Actually obtaining the data requires overcoming a number of technical and bureaucratic hurdles. First, bulk data from the website can only be accessed via an Application Programming Interface (API).<sup>3</sup> This requires requesting an API key.<sup>4</sup> Second, obtaining an accurate count of comments is not straightforward as agencies have different policies regarding duplicated comments<sup>5</sup> and confidential business information.<sup>6</sup> Third, obtaining the data is time-consuming.<sup>7</sup> As of October 4, 2019, Regulations.gov has 11,238,958 public submission documents representing over 70 million public comments and almost 1.5 million rules and other documents.

Not all federal agencies post rulemaking documents to regulations.gov. Scholars studying participation in these agencies can often obtain data on participation in rulemaking from the agency websites.<sup>8</sup>

In addition to the challenges of obtaining the data, scholars also must choose how they want to preprocess the data before analyzing it. For example, to answer questions about the types of organizations that participate in rulemaking, scholars first need to accurately identify these organizations so that they can be assigned the correct covariate data. This process, however, is not trivial as the same firm can be identified in numerous ways. For example, Goldman Sachs submitted comments to the Securities and Exchange Commission (SEC) and Federal Reserve Board (FRB) as The Goldman Sachs Group, Inc, Goldman Sachs Co. LLC, Goldman Sachs Bank USA, Goldman, Sachs & Co., Goldman Sachs Execution & Clearing, LP, among other identifiers. All of these entities need to be accurately matched to Goldman Sachs, including the Goldman Sachs Execution & Clearing comment which is on Goldman Sachs letterhead.<sup>9</sup> The problem can be more acute with associations such as the American Bar Association (ABA) sometimes commenting as itself and other times as individual sections of the ABA. One way scholars have been able to get around this problem is to use fuzzy matching. Fuzzy matching is a process that compares two strings of text and gives a distance between them. This procedure will assign a small distance between Goldman Sachs and Goldman, Sachs & Co. and a larger distance between Goldman Sachs and Merrill Lynch. The distances and optimal thresholds depend on the algorithm used. Fuzzy matching, however, is not a panacea as the same procedure will also show a small distance between JP Morgan and Morgan Stanley, which are two separate entities. It will also not reveal whether an ABA letter is from the American Banker's Association or the American Bar Association. Many organizations active on similar rulemaking issues share acronyms or have similar names. In expectation, however, noise generated from incorrect matching is likely to bias a scholar against finding any relationships within the data.

### 3 Who writes rules?

Scholars recently began to study how policymakers' identities and networks affect the policymaking process. This is partially due to the release of new data sources such as the U.S. Office of Personnel Management's (OPM) data on government employees (e.g., [Bolton, Figueiredo, and Lewis, 2018](#)),<sup>10</sup> Open Secrets' lobbying (e.g., [Baumgartner et al., 2009](#)) and revolving door databases (e.g., [i Vidal, Draca, and Fons-Rosen, 2012](#); [Bertrand, Bombardini, and Trebbi, 2014](#)), machine-readable lobbying disclosure act reports (e.g., [Boehmke, Gailmard, and Patty, 2013](#); [You, 2017](#); [Dwidar, 2019](#)), meeting logs ([Libgober, n.d.](#)), and datasets of corporate board membership such as Boardex (e.g., [Shive and Forster, 2016](#)). Scholars have also been able to study the identities of policymakers through the creative use of longstanding data sources such as the *Federal Register* (e.g., [Carrigan and Mills, 2019](#)).

Work on the networks between policymakers and private interests has reshaped our understanding of the policymaking space. By exploiting meeting logs, [Libgober \(n.d.\)](#) finds that comments and meetings with policymakers are associated with abnormal returns in the billions. [Carrigan and Mills \(2019\)](#) find that the number of job functions of the bureaucrats who write the rules is associated with both decreases in the time an agency takes to promulgate a rule and increases in the probability that the rule will be overturned in court. [i Vidal, Draca, and Fons-Rosen \(2012\)](#) find evidence that, among lobbyists, connections to politicians are more valuable than issue expertise. In fact, when a former Senate aide becomes a lobbyist, the Senator's retirement results in a substantial loss of income for that lobbyist.

#### 3.1 Obtaining and Working with personnel and lobbying data

Scholars can obtain data on agency personnel from the BuzzFeed personnel data release. The BuzzFeed personnel data<sup>11</sup> contains information on federal employees such as their salaries, job titles, and basic demographic data from 1973 through 2016.<sup>12</sup>

These are the most comprehensive personnel records publicly available, but they have

significant limitations. First, not all agencies and occupations are a part of this release.<sup>13</sup> Second, some of the employees in these data do not have unique identification numbers. This means that common names such as “John Smith” match multiple employees; the Veterans Health Administration (VHA) employed 24 John Smiths in 2014, five with the same middle initial.

To obtain machine-readable data on the identities of domestic lobbyists, scholars use two databases from Open Secrets – a nonprofit focused on tracking spending on politics in the US – on administrative and Congressional lobbying. Downloading the lobbying data is straightforward as it only requires an account to access the “bulk data” page. The lobbying data comes from the required disclosures under the Lobbying Disclosure Act of 1995 (LDA). Note that the reporting threshold varies by type of firm (in-house have a higher minimum reporting threshold than lobbying firms) and over time.<sup>14</sup> The lobbying data covers 1999 through 2018 and is broken up into seven tables that can easily be loaded into R or Python.<sup>15</sup> We note, however, that the data is not complete as some lobbyists do not disclose required contacts and the data does not contain exact monetary amounts.<sup>16</sup> We recommend Open Secret’s database as it is easier to use than the raw Senate data. Open Secrets also has a database on revolving door employees that shows the career paths of federal government workers that went to the private sector and are employed in some capacity where their work depends on interacting with the federal government.<sup>17</sup> Unlike their lobbying database, this one must be scraped as there is no option to download it using bulk data.<sup>18</sup>

Lobbyists advocating for foreign clients are required to disclose these contacts under the Foreign Agent Registration Act. Foreign agents often lobby bureaucratic agencies; for example, the state Israel retained law firm, Arnold & Porter, for advice on, among other issues, registering securities with the SEC.<sup>19</sup> The reports contain a multitude of data including the names of foreign entities, the firms representing them, the nature of the contact, and the specific officials contacted. The data are astonishingly complete - the website contains all 6264 FARA registrants and their foreign contacts since July 3, 1942. The FARA data



can be accessed online through the Department of Justice.<sup>20</sup> Unlike other data discussed in this essay, the FARA data is *not* all in machine-readable form;<sup>21</sup> converting from PDF to a machine-readable format (e.g., .csv) is neither easy nor error-free. As a result, scholars using the data only focus on a subset such as [You \(2019\)](#) who focuses on lobbying activities by the governments of Colombia, Panama, and South Korea on their free trade agreements from 2003 through 2012. In the absence of a completely digitized archive, scholars can exploit the search functions to search by lobbying registrant (e.g., lobbying firm Squire Patton Boggs) or foreign principal (e.g., the government of Afghanistan). Similar to the discussion of the diversity of names above, the same actor can participate under different names. For example, the Embassy of the Islamic Republic of Afghanistan and the Embassy of Afghanistan are designated as separate entities under FARA.

Corporate executives, lawyers, and lobbyists often meet with agency officials to discuss rules. Records of these meetings are often recorded by agency personnel. Obtaining these data requires writing a web scraper for each agency that holds the meetings data since the data are held in different places on each website. Since there are no uniform standards for reporting meeting data, the data differ substantially from agency to agency in both content and organization. The Federal Reserve, for example, groups meetings by subject but not by rule,<sup>22</sup> the SEC groups meetings by rule, and the CFTC and FCC has all their meetings in one place.<sup>23</sup>

## 4 What do the rules say?

All of the work discussed above relies on the notion that public participation and the rulewriters influence the content of rules; numerous studies have found that commenters influence rules (see, e.g., [Cuéllar, 2005](#); [Yackee and Yackee, 2006](#); [Naughton et al., 2009](#); [Haeder and Yackee, 2015b, 2018](#)) at agencies such as the Department of Labor ([Yackee and Yackee, 2006](#)), the Department of Treasury ([Cuéllar, 2005](#)), the Environmental Protection Agency ([Wagner and Peters, 2011](#)), the Securities and Exchange Commission ([Rashin, 2019](#)),

and numerous other agencies. This finding is consistent across interviews (e.g., [Furlong, 1998](#)), qualitative analysis (e.g., [Cuéllar, 2005](#)), and quantitative analysis (e.g., [Yackee and Yackee, 2006](#)). Firms and groups representing businesses' interests are influential in securing policy concessions from the rulemaking process ([Yackee, 2006](#); [Yackee and Yackee, 2006](#); [Carpenter and Moss, 2013](#)), particularly when they are unopposed. Other scholars have found that agencies respond to citizens ([Balla et al., 2019b](#)) and medical professionals ([Balla, 1998](#); [Gordon and Rashin, nd](#)).

#### 4.1 Obtaining and Working with Data on Rule Text

One of the most basic functions of the bureaucracy is to issue regulations that set specific, enforceable requirements implementing a law. The federal government publishes all rules in the *Federal Register*, accessible via [FederalRegister.gov](#). This database is comprehensive and has machine-readable records of all regulations published after 1994.<sup>24</sup> Scholars can access search for regulations by the *Federal Register* citation, e.g., 47 FR 3431, *Federal Register* number, or, more usefully, through their API; unlike other APIs mentioned in this essay, the *Federal Register* API does not have any rate limits.<sup>25</sup>

While the raw text of rules is relatively straightforward to obtain, there are several thorny theoretical and methodological issues that scholars must overcome.<sup>26</sup> First, the standard path from notice of proposed rulemaking (NPRM) to public comments to a final rule is not always straightforward. Some rules are withdrawn before a final rule. Other agencies issue interim final rules subject to comments. For studies that seek to compare the proposed and final rules, the most problematic rules are the ones where one proposed rule gets broken up into a few smaller final rules or the reverse, where small rules become bundled into one final rule. These rules pose challenges for inference as the processes that lead to amalgamation or separation are not well understood. Second, scholars must decide whether, and to what extent, they should preprocess the rulemaking data before feeding the data to a text analysis algorithm.

## 5 Rule metadata

Rulemaking metadata, such as the time rules are released, allow scholars to answer questions about factors that affect the rulemaking environment. Scholars have exploited this data to study questions about regulatory delay, agenda-setting, and the financial impact of rules. Often lengthy delays between statutory promulgation and the issuance of regulations are the subject of recent empirical scholarly interest. Scholars attribute various causes to regulatory delay including auditing (Acs and Cameron, 2013); outside contacts (Balla, Deets, and Maltzman, 2011); the political climate (Potter, 2017; Thrower, 2018); personnel types (Carrigan and Mills, 2019); ossification (Yackee and Yackee, 2012); deadlines (Lavertu and Yackee, 2012; Carpenter et al., 2011; Bertelli and Doherty, 2019); staffing levels (Bolton, Potter, and Thrower, 2015). These scholars relied on data from OIRA (Acs and Cameron, 2013; Balla, Deets, and Maltzman, 2011; Bolton, Potter, and Thrower, 2015; Carrigan and Mills, 2019), the Unified Agenda (Bertelli and Doherty, 2019; Potter, 2017; Lavertu and Yackee, 2012; Potter, 2019), the *Federal Register* (Yackee and Yackee, 2012; Thrower, 2018), and FDA’s drug approval and postmarket experience (Carpenter et al., 2011). Scholars have also exploited rule metadata to show that publicly-traded banks that submit comments account for \$7 billion in excess returns (Libgober and Carpenter, 2018).

### 5.1 Obtaining and working with the Unified Agenda and Press releases

Obtaining data from the Unified Agenda is relatively straightforward as all issues since 1995 are available online in machine-readable form.<sup>27</sup> The Unified Agenda contains all the proposed regulations an agency plans to issue in the near future, making it an extremely useful data source for studying questions about agenda setting and timing (for example, see Potter (2019)). There are, however, significant limitations to these data. First, agencies report their early-stage rulemaking to the Unified Agenda strategically (Nou and Stiglitz, 2016). Second, agencies do not list “failed” rules that did not become final rules in the Unified

Agenda ([Yackee and Yackee, 2012](#)). Third, [Coglianese and Walters \(2016\)](#) note that the Unified Agenda misses much of the regulatory agency’s work, including enforcement actions, adjudicatory actions, and decisions not to act.

In addition to the disclosures mandated by law, agencies often issue press releases to notify the public of important agency actions. Much like the meetings data discussed above, the policies regarding their storage and dissemination differ from agency to agency. The Federal Reserve, for example, lists all press releases since 1996 on their website, while the SEC only has them from 2012.<sup>28</sup> When working with the press releases scholars often need data on the exact time documents were made available to the general public (see, e.g., [Libgober, N.d.](#)). Obtaining the press release metadata requires exploiting Really Simple Syndication (RSS) feeds to extract the exact time a press release becomes public.

## **6 Discussion: Assembling Complete Databases**

The United States government releases troves of data on rulemaking but in forms that require substantial effort from scholars to be useful for research. Scholars working on bureaucratic politics face two primary data challenges going forward: assembling complete, machine-readable datasets of agency rulemaking activity and linking observations across datasets. We see four fruitful data projects which could increase researcher efficiency by preventing duplicated efforts to download and clean data. First, a complete database is needed to link commenting activity throughout the Federal government that can be downloaded in bulk, including comment text and metadata. Second, a comprehensive database could link revolving door rulemakers from the OPM personnel records, LDA disclosure forms, and FARA data. This database would be significantly improved by the addition of data from LinkedIn, but those data are not currently public. Third, creating a database of all meeting activities throughout the federal government. Finally, unique identifiers for each commenter would allow researchers to link commenting behavior to organizations across datasets. These projects, once completed, will allow scholars to pursue novel research on political participation,

influence, and public management.

## **7 Conflicts of Interest**

On behalf of all authors, the corresponding author states that there is no conflict of interest.

## Notes

<sup>1</sup>These logs record who participated in face-to-face or telephone meetings between interest groups and bureaucrats, often including individual names.

<sup>2</sup>We link to more relevant data sources on our GitHub page: <https://github.com/libgober/regdata/blob/master/README.md>.

<sup>3</sup>An API is a set of procedures that allow a user to access data from a website in a structured way. Some websites limit API usage by requiring users to get an API key; regulations.gov is one of those websites.

<sup>4</sup>By emailing [regulations@erulemakinghelpdesk.com](mailto:regulations@erulemakinghelpdesk.com) with “your name, email address, organization, and intended use of the API.” See <https://regulationsgov.github.io/developers/> for more details. Approval of API keys takes several days. We caution prospective users of the site that these keys can be deactivated without warning or acknowledgment of why they were deactivated.

<sup>5</sup>The difference between the total number of reported comments and the number of comments on regulations.gov is often due to mass comment campaigns being grouped together.

<sup>6</sup>See e.g., [Lubbers \(2012\)](#) and <https://www.regulations.gov/userNotice>.

<sup>7</sup>Regulations.gov is subject to a rate limit of 1,000 queries per hour which is especially problematic for scholars seeking to analyze the full text of comments, many of which are included only as attachments. Downloading an individual document requires calling the API twice, once for the docket information, which includes the attachment URL(s), and then a second time to download the linked file.

<sup>8</sup>Some agencies have only some records on regulations.gov. For example, the Federal Energy Regulatory Commission has posted proposed rules on regulations.gov, but directed comments to be submitted by email and then posted them on its eLibrary website. Unlike regulations.gov, most agency sites do not have an API and thus require scholars to use

bespoke web scrapers. We have examples of scrapers for several of these agencies on <https://github.com/libgober/regdata>. While these websites are not rate-limited or gated with API keys, we recommend caution with the rate at which scholars solicit information from the servers to avoid security protocols that trigger a temporary ban.

<sup>9</sup>See <https://www.sec.gov/comments/s7-03-10/s70310-43.pdf>.

<sup>10</sup>Note that the dataset Bolton, Figueiredo, and Lewis (2018) used is not public like the similar BuzzFeed data we discuss below.

<sup>11</sup>Available at <https://archive.org/details/opm-federal-employment-data/page/n1>. (The complete dataset is over 30GB).

<sup>12</sup>Updated personnel files are available through 2018 from the OPM itself here: <https://www.fedscope.opm.gov/datadefn/index.asp>

<sup>13</sup>The list includes at least 16 agencies and, within the covered agencies, law enforcement officers, nuclear engineers, and certain investigators (Buzzfeed, 2017). See <https://www.buzzfeednews.com/article/jsvine/sharing-hundreds-of-millions-of-federal-payroll-records>

<sup>14</sup>See <https://lobbyingdisclosure.house.gov/ldaguidance.pdf> for details.

<sup>15</sup>Note that the raw data can be downloaded from the Secretary of the Senate's Office of Public Records here: [https://www.senate.gov/legislative/Public\\_Disclosure/LDA\\_reports.htm](https://www.senate.gov/legislative/Public_Disclosure/LDA_reports.htm)

<sup>16</sup>See <https://www.gao.gov/assets/700/698103.pdf>

<sup>17</sup>See <https://www.opensecrets.org/revolving/methodology.php> for details.

<sup>18</sup>Note that they promote academic work using their database, so they do not actively discourage scraping their database.

<sup>19</sup>See <https://efile.fara.gov/docs/1750-Supplemental-Statement-20110729-13.pdf>

<sup>20</sup><https://efile.fara.gov/ords/f?p=1381:1:13132679194789:::>

<sup>21</sup>The metadata - e.g., dates, registrants, clients - are available in machine-readable form through the API or bulk data downloads page.

<sup>22</sup><https://www.federalreserve.gov/regreform/communications-with-public.htm>

<sup>23</sup>See <https://www.cftc.gov/LawRegulation/DoddFrankAct/ExternalMeetings?page=6> and <https://www.fcc.gov/proceedings-actions/ex-parte/archive-of-filings>

<sup>24</sup>For issues from March 1939 through 1993, see <https://www.govinfo.gov/app/collection/fr/>, although note that they might require optical character recognition to make them in a readable format.

<sup>25</sup>However we still recommend small delays to prevent flooding the server with requests.

<sup>26</sup>We note that raw texts of rules are not available from regulations.gov or the independent agencies themselves. As these rules are often in PDF form, converting them to .txt for analysis introduces errors into the text.

<sup>27</sup>The Unified Agenda from 1983 through 1994 is available in the *Federal Register*.

<sup>28</sup>See <https://www.federalreserve.gov/newsevents/pressreleases.htm> and <https://www.sec.gov/news/pressreleases>



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