# The stock exchange rulemaking firehose: A law-as-data approach

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**Abstract**

I had hoped to have a full paper by the submission deadline, but a couple weeks of lost child-care got in the way. In lieu of a paper with full results, please accept this "extended abstract."

I use law-as-data methods to empirically examine the rise and nature of rulemaking by securities industry self-regulatory organizations (SROs), like the stock exchanges. Studying a "new" dataset of [32,667] Securities and Exchange Commission filings in the Federal Register, I compare the SEC's own rule filings with those it publishes on behalf of exchanges and other SROs. The SEC publishes several times as many SRO rules each day as its own rules. This "firehose" of SRO rule filings has gone largely unnoticed by securities and administrative law scholars, but these rules are of vital importance to the structure and operation of capital markets in the United States. This project's goal is to shedding light on basic unexplored questions about the production of stock exchange and SRO rules in securities law. These basic questions include which SROs are filing rule proposals, what the proposals are about, and how SRO regulatory attention has shifted over time. This inquiry can inform the political economy of stock exchange regulation, as well as our understanding of how the SEC's oversight of SROs compares to other modes of industry self-regulation.

**Keywords:** securities regulation, administrative rulemaking, self-regulation, stock exchanges, natural language processing, law as data

**JEL Codes:** C55, G23, G28, K22, K23

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# 1    Introduction

In this project, I use NLP methods to empirically examine the rise and nature of SRO rulemaking in the securities industry, with a goal of shedding light on basic unexplored questions about the production of stock exchange rules in securities law. These basic questions include which SROs are filing rule proposals, what the proposals are about, and how SRO regulatory attention has shifted over time. The analysis of these and other filings can help us understand the political economy of stock exchange regulation, as well as inform our understanding of how the SEC's oversight of SROs affects the regulatory environment more broadly.

# 2    Background

With the passage of the Securities Exchange Act of 1934, Congress established the Securities and Exchange Commission (SEC) as an independent regulatory agency tasked with overseeing all aspects of securities trading. Congress extended the SEC's power over the securities markets, including stock exchanges and over-the-counter markets, in a series of further statutes like the Maloney Act of 1938 and the Securities Act Amendments of 1975 (Mahoney 2020; Platt 2023).

   This section situates industry self-regulatory organizations in capital markets, as well as how these SROs produce rules.

## 2.1    Self-regulatory organizations in U.S. capital markets

As part of its mission, the SEC is responsible for ensuring that exchanges, among several dozen industry self-regulatory organizations (SROs), comply with federal laws and regulations governing their operations. As illustrated in tables 1 and 2, active SROs include stock exchanges, like the New York Stock Exchange and NASDAQ and their affiliates, plus brokerage industry regulator FINRA, clearing agencies, joint industry plans, and more (Edwards 2017). Other SROs have deregistered or been consolidated during the time period relevant to this project, as table 2 shows in particular. Awrey and Macey (2022), for instance, review consolidation among SROs in the "U.S. securities clearing and depository markets."

   The SEC produces its own rules governing markets and their participants. But it also has statutory authority to oversee the SROs that themselves oversee and regulate market participants (Wallace and Dryden 2009). Each of these SROs has statutory authority to adopt rules for its members, subject to the SEC's blessing. Some illustrations may be useful.

   Consider first stock exchanges, which provide not only listing services for issuer companies, but also execution facilities and market services for people who want to trade – liquidity providers

and takers (Fox, Glosten, and Rauterberg 2015). Generally speaking, each exchange has its own set of listing requirements (Dombalagian 2015). These requirements typically include minimum market capitalization levels as well as other financial criteria such as profitability or liquidity ratios. Jin and Min (2021) characterize stock exchange listing rules as a form of relational contracting. Additionally, many exchanges also have additional restrictions in place regarding insider trading or disclosure practices related to corporate events like mergers or acquisitions.

As market centers, exchanges also have rules governing the kinds of order types that may be submitted for execution (Fox and Rauterberg 2017). Exchanges may charge fees to access the services they provide.[1] In these ways, stock exchange rules are relevant not only to members but to the broader public markets, even when they are about the structure and operation of the stock exchanges (Miller 1985).

Not all self-regulatory organizations are stock exchanges. The Financial Industry Regulatory Authority, or FINRA, is another major SRO that has regulatory jurisdiction over broker-dealers in securities and their associated persons (Edwards 2022; Laby 2010). FINRA also handles enforcement and examination for most of the other stock exchanges (Edwards 2017).[2] FINRA directly regulates its member firms and the people who work for them. In enforcement actions, it applies its regulatory rulebook. Recent FINRA rules include things like restrictions on brokerage firms with a significant history of misconduct.[3]

## 2.2  SRO rulemaking in securities law

SRO rules typically start with development by the organization's governing body, which may consist of members of the regulated industry. Section 19(b) of the Securities Exchange Act of 1934 requires SROs to submit proposed rules and rule changes to the SEC for review.[4] SRO rules typically must be approved by the SEC before becoming "effective," although Exchange Act Section 19(b)(3) and Rule 19b-4(f) provide for effectiveness upon filing, and no SEC preapproval, for certain categories of SRO rules.

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1. See, e.g., Bats EDGA Exchange, Inc.; Proposed Rule Change Related to Transaction Fees, 82 Fed. Reg. 43,598 (Sept. 18, 2017).

2. On the split in SRO authority that led FINRA to handle member regulation for the exchanges, see Hunter (2005).

3. See, e.g., Order Approving Proposed Rule Change to Amend FINRA Rule 8312 to Release Information on BrokerCheck Relating to Firm Designation as a Restricted Firm, Release No. 34-96798, 88 Fed. Reg. 8,494 (Feb. 9, 2023).

4. Exchange Act § 19(b), 15 U.S.C. § 78s(b); see also id. § 3(a)(27), 15 U.S.C. § 78c(a)(27) (defining the "rules of the exchange" as including "stated policies, practices, and interpretations" of the exchange that "the Commission by rule, may determine to be necessary or appropriate in the public interest or for the protection of investors"); 17 C.F.R. § 240.19b-4(a)(6) (defining a "stated policy, practice, or interpretation" as "[a]ny material aspect of the operation of the facilities of the self-regulatory organization"). When push comes to shove, an SRO may not be able to enforce against its members or other persons an SRO rule that was not approved under Rule 19b-4 if required to have been. See ABN AMRO Clearing Chicago LLC, Exchange Act Release No. 83849, 2018 WL 3869452 (Aug. 15, 2018); Gregory Acosta, Release No. 34-89121, 2020 WL 3428890 (SEC July 22, 2020) (opinion of the commission).

The SEC may approve, disapprove, or modify the proposal. Its oversight role is essential here to ensure that the statutory goals of the securities laws are met before industry is allowed to enforce its own rules (Wallace and Dryden 2009). SRO rules are typically constrained by specified criteria set out in the statute that is applicable to each kind of SRO, for instance in Exchange Act Section 6(b) for exchanges and Exchange Act Section 15A(b) for FINRA (Schwartz 2007, p. 418). One implication is that the SEC must consider whether the proposal is consistent with certain of the Exchange Act's requirements, like whether it "promote[s] efficiency, competition, and capital formation."[5]

Under Rule 19b-4, SROs must submit for review any "stated policy, practice, or interpretation" that is not "reasonably and fairly implied by" existing SRO rules. As a result, SROs file Rule 19b-4 rule change proposals all the time. Notices of proposed rules, and actions on the proposals, are published in the Federal Register, making their textual contents amenable to NLP methods and analysis.
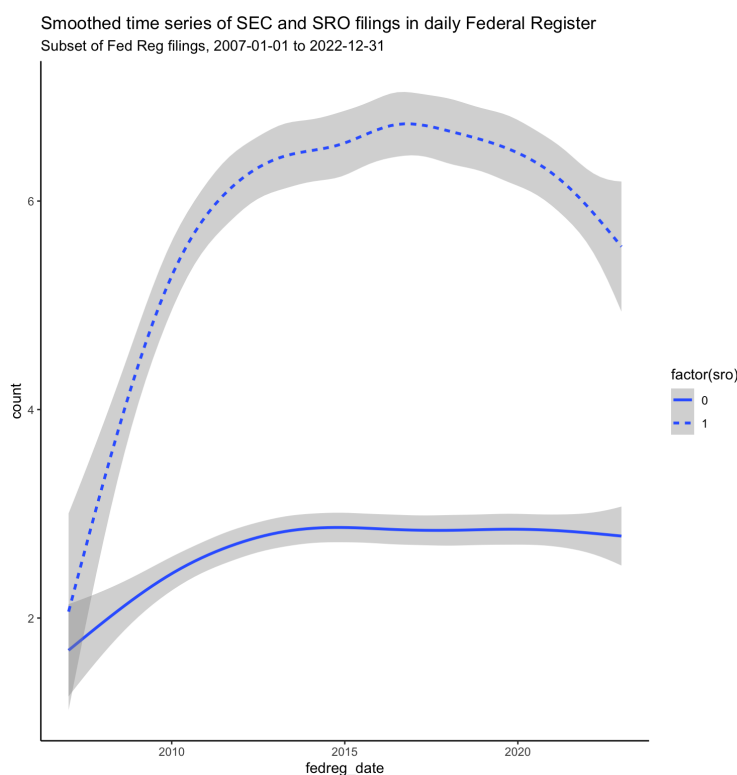


**Figure 1:** LOESS time series of average daily count of SEC notices of SRO rules (1), and all other SEC filings (0), placeholder figure showing subsetted data from 2007 to 2022

With so many SROs and such a sensitive trigger for the regulatory obligation to file a proposed rule change under Rule 19b-4, SRO rules make up the bulk of the SEC's filings in the Federal Reg-

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5. Exchange Act Section 3(f), 15 U.S.C. § 78c(f).

ister. Most years, as figure 1 illustrates, the SEC publishes on average about three times as many SRO rule filings in the Federal Register as its own rule filings.

Exchange Act Section 19(b), moreover, provides for onerous APA-like notice-and-comment procedures in connection with some categories of SRO rule filings. Wading through and processing this volume of SRO rule filings is an enormous regulatory task for the SEC's Division of Trading and Markets and the Commission itself (Schwartz 2007, p. 434). From the perspective of industry participants and academics, it also is a potentially significant obstacle to monitoring, understanding, commenting on, and influencing the design and adoption of SRO rules (Al-Ubaydli and McLaughlin 2017). The volume of SRO rule proposals may be too great for even those with material financial incentives to monitor and comment on these rules manually, raising the stakes of using automated methods to identify and parse these filings.

## 3 Literature Review

### 3.1 Securities law scholarship on stock market regulation

Scholars have long been concerned about the role of legal rules in mediating stock markets. Markets are constrained by their rules, including the background legal rules and relational practices against which trade can come to exist.

Stock exchanges and other SROs produce rules in their capacity as regulators (Gadinis and Jackson 2007; Dombalagian 2004). Under consolidation of stock exchanges, we should expect a rise in the private market for securities law, given incentives for markets to both offer attractive, low-cost-of-compliance listing and trading services (Brummer 2008). The history of stock market regulation, and of federally overseen self regulation more broadly, is the distrust that industry will regulate itself effectively (Omarova 2010; Seligman 2004; Macey and Novogrod 2012).

Meanwhile, there may be reason for concern that SEC monitoring of SROs will be costly and thus will be underproduced. In Susquehanna Int'l Grp. v. SEC, 866 F.3d 442 (DC Cir. Aug. 8, 2017), for instance, the D.C. Circuit found that the SEC had not adequately articulated the basis for its determination that an SRO rule met the statutory criteria for approval, and faulted the SEC's process for being too deferential to the SRO's say-so.[6]

Despite its importance in regulating stock markets, the production of stock exchange and other SRO rules has received relatively little attention from legal scholars. This may be due in part to the relative obscurity of market regulation compared to other, more well trodden areas of securities law such as insider trading or disclosure requirements. That is perhaps surprising, for

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6. Writing in BUSINESS LAWYER's *Federal Regulation of Securities* annual year in review, Fisher (2018, 887) concludes from *Susquehanna* that "serious quality control efforts are in order" for SEC review of SRO rule proposals.

as [placeholder] figure 2 illustrates, the SROs have been outpacing SEC rulemaking since around the 2008 financial crisis.
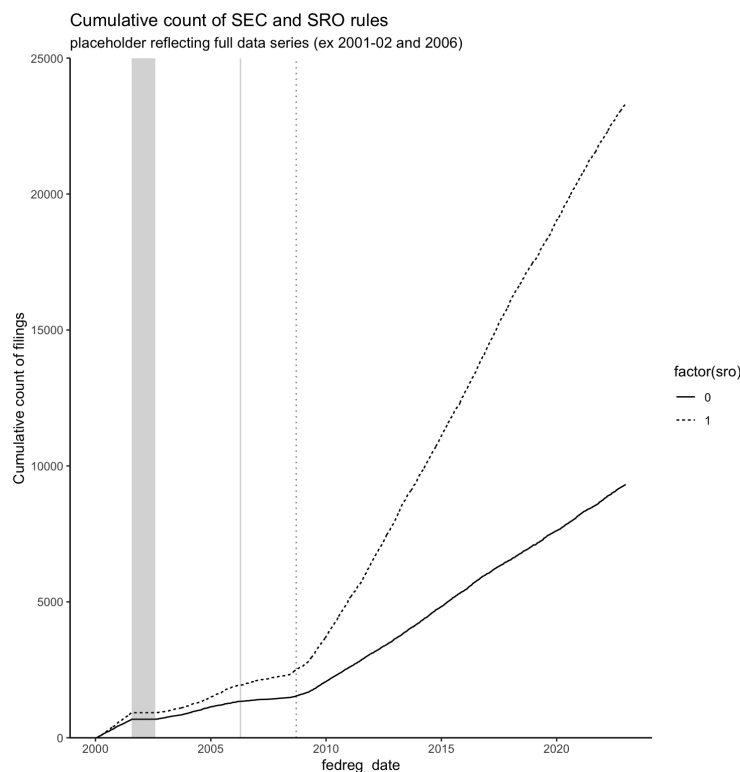


**Figure 2:** Cumulative count of SEC and SRO rules reflecting full data series (ex missing data as of March 15, 2023's draft). Vertical dotted line is September 15, 2008, the date of the Lehman Brothers bankruptcy. First grey rectangle shows missing data for August 2001 through August 2002, and second grey rectangle shows again in April 2006.

This makes stock exchange (and, more broadly, SRO) rulemaking a largely unexplored and undescribed area of securities regulation. In the securities and administrative law scholarship, for example, there are only a handful of articles more than acknowledging in passing Exchange Act 19(b), Rule 19b-4, and the associated processes.

The main treatment is Schwartz (2007), who criticizes the SRO rulemaking process for its slow pace, complexity, and risk aversion on the part of the SEC.[7] Under that view, "the SRO rule change process is the 'critical path' of much new competition and in many instances the source of developments in market structure" (p. 411).

Reflecting on intervening statutory changes in the JOBS Act of 2012 (discussed below in section 5.3), others have noted that exchanges are unlike other market participants like alternative

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7. There are also only a handful of cases citing Rule 19b-4. See, e.g., NASDAQ OMX Group, Inc. v. UBS Securities, LLC, 770 F.3d 1010 (2d Cir. 2014); General Bond & Share Co.v. SEC, 39 F.3d 1451 (10th Cir. 1994); John Hancock Life Ins. Co. v. Wilson, 254 F.3d 48 (2d Cir. 2001) (Katzmann, J., concurring); G.K. Scott & Co., Inc. v. SEC, 1995 WL 364671 (DC Cir. June 7, 1995) (unpublished); CBOT Holdings, Inc. v. Chicago Board Options Exchange, Inc., 2007 WL 2296355 (Del. Ch. Aug. 3, 2007) (unpublished).

trading systems that may make changes "without SEC approval." In this view, the SRO rulemaking process may introduce "regulatory constraints [that] deter exchanges from innovating on trading design."(Mahoney 2020, p. 27).

Understood in broader context of administrative law scholarship, the limited literature on the production of securities industry SRO rules raises identifiable research questions. Given that SROs are filing several multiples more rule filings than the SEC itself—which I suggest is a "firehose" of filings—this area merits scholarly attention. In addition to identifying these patterns and contributing a new dataset of SRO rule filings, this project engages with existing literatures on administrative law, securities regulation, and legal-texts-as-data to explore how these methods can be used to better understand the dynamics of rulemaking in this area.

## 3.2 Law as data approaches to studying administrative rulemaking

The use of "text as data" techniques has become increasingly popular in recent years, with researchers using sophisticated methods to analyze large amounts of textual information from various sources including social media posts, news articles, books, and more (Grimmer, Roberts, and Stewart 2022).[8] Law is no exception; researchers have applied text-as-data techniques to analyze legal texts such as court decisions (Corley 2008; Livermore, Riddell, and Rockmore 2017; Varsava 2023), contracts (Frankenreiter and Nyarko 2020), corporate governance (Frankenreiter et al. 2022), and the like.

The literature on "law as data," understood as a form of text-as-data, is varied and evolving (Livermore and Rockmore 2019; Varsava 2020). "Law as data" analysis has been used for a variety purposes including assessing decisionmakers' different approaches to statutory interpretation (Choi 2020), or uncovering patterns in legislation that may be difficult to detect through hand collection (Frankenreiter and Livermore 2020).

These methods can be used to study the production of stock market and SRO rules, as well as the SEC's own rules, from Federal Register filings. NLP allows for a more comprehensive analysis of the content and structure of these documents than is possible with traditional manual methods. By applying NLP techniques to large datasets of rule filings, we can better understand how different types of securities laws are created and enforced.

Scholars in law and finance have already applied NLP methods in the context of SEC filings. Studies in this tradition typically examine public company disclosures on EDGAR, which permit

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8. NLP methods are commonly used when analyzing legal texts using law-as-data approaches due their ability to process large amounts of unstructured textual information. The difficulty is in reducing dimensionality of textual data, permitting further analysis of semantic content for other scholarly ends. Example methods include sentiment analysis, named entity recognition, part-of-speech tagging, semantic role labeling, and topic modeling (Blei 2012; Blei and Lafferty 2007; Carter, Brown, and Rahmani 2016; Patz, Thorvaldsdottir, and Goetz 2022), all of which may provide valuable descriptive insights into law's textual memorializations.

comparison with other widely available financial metrics for public companies (Loughran and McDonald 2016, 2020; Jiang, Pittman, and Saffar 2022; Lopez-Lira 2020; Frankenreiter et al. 2022). In their governance function, SROs also must submit filings with the SEC, but just of a less familiar sort. Form 19b-4 requires SROs to describe the rule or rule change they wish to enforce, as well as to submit their justifications for public review and comment in most circumstances. Like other kinds of regulated-company filings with the SEC, these are ultimately disclosures to the market about the SRO's regulatory plans.

NLP has potential applications for studying trends in stock market regulation over time. By leveraging large datasets with historical SRO rule filings over many years, for instance, we can track changes in regulatory attention and approach Hollibaugh (2019). This project's approach thus is like Mankad, Michailidis, and Kirilenko (2019)'s analysis of the CFTC's implementation of Dodd-Frank derivatives regulations, but focuses on the SEC and SROs instead.

The time period covered by the data set, from 2000 to 2022, includes the entire history of modern equity market structure under Regulation NMS. In addition, that time period has been one of significant industrial reorganization within the capital markets industry. Textual evidence of changes in regulatory attention and approach might be used in conjunction with other relevant covariates about intervening court decisions (Choi 2021), executive politics (Kaufman 2020), and the like.

## 4   Data

The Federal Register is the official publication of the rulemaking agenda of the United States federal government. It is published most days and agencies typically must publish their proposed rules in the Federal Register to notify the public and, in most cases, invite comment. The United States Government Printing Office provides access to bulk data files containing the full text and metadata of the Federal Register from 2000 to 2022.[9]

Using R, I bulk extract and clean[10] the bulk data for the period.[11] For this project, I subset

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9. The availability of this data has led to an emerging literature that examines administrative rulemaking with textual methods. Choi (2021) studies the effect of a court decision on how the Treasury Department justifies its administrative rules in the Federal Register. Other examples include regulatory fragmentation (Kalmenovitz, Lowry, and Volkova 2022), complexity of law published in the Federal Register (Katz and Bommarito 2014; Wu 2000), interagency coordination (Saito 2022), aviation regulation (Robinson 2017), and agency responses to comment letters (Kirilenko, Mankad, and Michailidis 2014; Levy and Franklin 2014).

10. The XML is hard to parse and there are data entry errors; table 3 shows all the way the SEC's agency name appears in the agency metadata before the cleaning process.

11. In a possible future extension of the dataset's scope, additional data is available in plain text format back to 1994, for which I have already collected the files and metadata; further data is available in scanned PDFs back to the 1930s. In other future extensions of the project, I hope to use some of the now cleaned Federal Register dataset for other purposes, including comparing the SEC filings to those of other agencies, and collaborating with colleagues

the SEC's filings, resulting in a dataset of more than [32,667] SEC filings between 2000 and 2022, comprising metadata and textual contents.

For the March 15, 2023 draft of this paper, I subset this further to focus on [29,145] filings between January 1, 2007 and December 31, 2022. There was an error in how R applied the code to unzip the bulk data and read it into XML. As a result, my data set (as of March 15, 2023) is missing some entries in 2001-02 and 2006; see figures 2 and 6. That I did not have time to fix that before submitting this proposal is a large part of the reason why this is an "extended abstract" and I am not reporting results yet. I plan to run the final paper code on UNL's supercomputer cluster.

I use tidytext tools in R to tokenize each filing's textual contents, remove stop words, and the like. SRO rules can be identified with metadata, from which the name of the SRO can also be extracted with regex.[12] These patterns in SRO filings are relevant to the competition and consolidation discussion below.

It is worth mentioning a limitation in the data and possible extension in the analysis. By focusing on Rule 19b-4 filings in the Federal Register, I only capture the output of the regulatory process. But SROs work closely with their regulators, permitting more informal means by which the SEC can influence SRO rule proposals. In that case, by focusing only on the output of this process, we miss capturing nuance in how the process potentially shapes proposals — such as by encouraging withdrawal (and thus nonpublication, and nonappearance in the dataset) of a proposal that is not likely to pass muster with the regulator.

Rule 19b-4 filings are amenable to FOIA request, which is I guess the obvious next step here.

## 5   Results

At this stage, I have worked up the dataset and a proof of concept on the analysis. I was hoping to have full results ready by the submission deadline, but a couple weeks of lost childcare got in the way. I am still working through some of the research questions below, which is why I am sharing this extended abstract instead.

Using some of the more relatively straightforward NLP methods – LDA modeling and sentiment, compared by tagged SRO, as well as relative to the SEC's own non-SRO rule filings – this project provide an empirical analysis of the rise of these filings, the topics of these proposals, shifts in the usage and sentiment of language, and shifts in SRO regulatory attention.

1. How does language differ between SEC and SRO rule filings, and what are some implications for regulatory approaches? For example, what differences do we see in the economic

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interested in examining other agencies' filings as well.

12. See tables 1 and 2, collected from the SEC's website, for the starter list of current exchange and non-exchange SROs. I hand check the remaining untagged SRO entries for accuracy and hand code missing entries.

analysis for these filings?

2. Are there any correlations between particular topics that appear more frequently in one type of filing than another, or across different types of SROs?

3. Does natural language processing reveal any trends over time regarding changes in the content or structure of either type of filing?

## 5.1 SEC's statutory pathways to respond

Exchange Act Section 19(b) provides for different statutory pathways for the SEC to act, or not, on SRO rule proposals. These include mandatory notice-and-comment periods, immediate or accelerated effectiveness with a lookback period for comments, and the institution of SEC proceedings to modify or disapprove rule filings (Schwartz 2007). SRO rules can be tagged using textual markers of each of these different pathways.

How do other textual indicia (like topic distribution) differ by the marker of delayed-or-immediate-effectiveness pathway (or of SEC response, like disapproval of the rule change)?

## 5.2 Stock exchange consolidation and the genesis of rule filings as text precedents

Stock exchange rules are a kind of transaction involving industry counterparties, regulators, and the public (Jin and Min 2021). In a world of contractual incompleteness and transaction costs, repeat players have an incentive to develop and reuse transactional precedent. That contracts may be relational complicates the matter. So transactional precedent may become sticky regardless of its desirability.

NLP methods can shed light on some of these questions. Most directly, Scott, Marantz, and Ulibarri (2022) study boilerplate text in agency regulatory documents and report a low degree of text reuse in the most administratively interesting and complex parts of the assessment at the end of an agency decisionmaking process. In addition, Nyarko (2021) examines material contracts filed with the SEC to determine the the role of law firm influence on the presence of dispute resolution clauses, and in particular the role of transactional precedents on the stickiness of contract language. Taking a different approach by measuring textual similarity with Levenshtein distance, Anderson and Manns (2017) examine the role of attorney drafting in tailoring standard templates for merger agreements.

Consolidation among industry SROs means that there are now several families of stock exchanges owned by common parents, families in which exchanges serve specialized functions.

How, if at all, has this consolidation affected the transmission of SRO rule text between members of the same exchange family? What can similar methods, measuring the degree of standardization and similarity to "precedent" rule filings, tell us about the extent to which exchanges use prior 19b-4 filings as textual precedents for later 19b-4 filings? To what extent does consolidation make SRO rule text sticky? [13]

## 5.3 The role of fee filings

Competition among different types of venues is having a significant impact on how SRO rules are created and enforced (Blanc 2007; Jordan and Hughes 2007). Traditional exchanges have been forced to adapt their rules in order to remain competitive with alternative trading venues such as dark pools, electronic communication networks (ECNs), and other over-the-counter (OTC) markets. For example, exchanges have had to introduce new technologies that allow for faster execution times and lower transaction costs in order to compete with ECNs. Many exchanges have implemented circuit breakers or price bands which limit volatility. By providing "lit" liquidity, exchanges may also attract institutional investors who may be wary of investing in OTC markets for price discovery and adverse selection concerns. Finally, in a world of noise trading and zero commission trading (Langvardt and Tierney 2022) and pending equity market structure reform (see discussion in part 6.2), the industrial organization of the capital markets is likely to continue to be a fundamentally contested space over how we promote capital allocation and price discovery.

Fees are important to SROs, especially stock exchanges, for which they are a "primary source of income ... providing revenues that totaled $5.4 billion in 2016" (Markham 2019, 1210). Exchanges produce liquidity and price discovery in a context where asymmetric information can be profitable. Traders are willing to pay for access to, for example, so-called "depth of book" data that reflects the density of limit order interest at particular price bands around the "national best bid / offer." But this means an arms race to pay for data fees, at prices the exchanges set (Mahoney 2020).

Let me illustrate with an example of one of these data fees. Because a proposal to set a new fee is a rule change under Exchange Act Section 19(b), the SRO must file its proposal with the Commission. Figure 3 shows an example of a fee proposal by stock exchange IEX, filed with the SEC, which then published it in the Federal Register a week later. In the appendix, code listing 1 shows how the first few lines of this fee filing are represented in GPO's bulk data XML.

Fee filings are an interesting source of change in this space. In the JOBS Act of 2012, Congress

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13. Given the Brummer (2008) model of stock exchange competition as sellers in a market for private law, should we expect regulatory ossification or innovation? On ossification in rulemaking, see Pierce (2012), Yackee and Yackee (2012), and Livermore (2007).

**Figure 3:** Two sample columns from the Federal Register for a fee filing by stock exchange IEX on November 22, 2022

provided that a stock exchange's proposed rule change to "establish[] or chang[e] a due, fee, or other charge imposed ... shall take effect upon filing with the Commission." [14]  Even though such a rule goes into effect immediately upon filing, the SEC has 60 days to review the filing and decide whether to initiate proceedings to suspend the rule change. As one observer has objected, however, "[t]he SEC is not well-suited to be a public utility rate regulator" (Mahoney 2020, p. 27).

The outcome of this process is important for exchanges and the users who pay the fees. Because fee-related rule changes are legally enforceable on effectiveness, SEC review provides the only backstop against unrestricted price increases. This is in parallel with broader policy concerns that people are subject to predatory overcharge of "junk fees." [15]  Here, if the SEC decides not to suspend a fee rule, users are stuck. The SEC's decision not to suspend a fee rule is not reviewable. [16] In addition, the D.C. Circuit in 2020 foreclosed a different path for challenging "the reasonableness of generally-applicable fee rules." [17]

Preliminary analysis, corroborated by background institutional knowledge of the SEC's processes (Securities and Exchange Commission 2019), suggests that these fee filings have made up an increasing proportion of the published SRO rule releases. Additional questions may bear on what NLP methods can tell us about trends in these fee filings relative to other disclosures by

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14. Exchange Act Section 19(b)(3)(A)(ii).

15. For other recent efforts in this space, see Stefania Palma. 2022. "Biden's Antitrust Adviser Warns of 'Profusion of Junk Fees' in US Economy." *Financial Times,* November 20, 2022; Unfair or Deceptive Fees Trade Regulation Rule Commission Matter No. R207011, 87 Fed. Reg. 67413 (Nov. 8, 2022).

16. NetCoalition v. SEC, 715 F.3d 342 (DC Cir. 2013)

17. NASDAQ Stock Mkt. v. SEC, 961 F.3d 421 (DC Cir. June 5, 2020); see also SIFMA and Bloomberg LP, Order Vacating Prior Order and Requesting Additional Briefs, Exchange Act Release No. 89504, 2020 WL 4569089 (Aug. 7, 2020).

SROs about the sources of their revenue (Mahoney 2020). What do these trends reveal, in turn, about the political economy of stock market regulation — about whose interests matter in the production of SRO rules?

## 5.4   The character of the SEC analysis

One interesting question involves changes in the depth and complexity of the analysis when the SEC, in a filing, articulates why it is approving the proposed rule. We encountered this once before, with the discussion of the *Susquehanna* (2017) decision. In a possible extension of the project, I would look at textual indicia of the complexity of the SEC's analysis surrounding this rule change. I am still mulling this, but I think the rigidity of the rule change upon that decision's release[18] means the complexity of the SEC's analysis surrounding a time threshold may be amenable to regression discontinuity design (Lee and Lemieux 2010).

## 5.5   Other forms of self regulation

As the primary regulator of stock exchanges in the United States, the SEC oversees securities industry self regulation within its statutory jurisdiction. In other areas of regulation, SROs are overseen by other federal regulators like FERC or the CFTC. For example, the Federal Energy Regulatory Commission (FERC) regulates electricity markets through its oversight of regional transmission organizations (RTOs). These RTOs are responsible for managing wholesale electricity markets in their respective regions. Similarly, the Commodity Futures Trading Commission (CFTC) oversees futures exchanges such as CME Group Inc., which offers a variety of financial products including commodities futures contracts and options on futures contracts.

Scholars have examined the processes in which SRO rules are produced in these other regulatory contexts (Hammond 2016; Cunningham 2016; Moot 2010).[19] Scholars have observed that the CFTC approves almost all proposed SRO rules, raising concerns about how the statutory burden is allocated in the usual case — on SROs in seeking SEC approvals, but on the CFTC in pursuing disapproval (Fischer 2015). Meanwhile, these regulatory contexts may be close enough to permit

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18. As I have written elsewhere about the role of agency nonacquiescence at the SEC, because Exchange Act matters like SRO rules can be appealed to the D.C. Circuit, adverse decisions from that court "potentially constrain[] the agency's [nonacquiescence] choice set in ways other courts' decisions do not" (Langvardt and Tierney 2022, fn. 62).

19. In a symmetrical fashion as in the securities industry, futures exchanges, or boards of trade, may "make rules, monitor the actions of individuals and entities trading on their contract markets, enforce compliance with their rules, and discipline those that violate the rules" (Fischer 2015, p. 76). RTOs and futures exchanges make rules through a process of consultation with their members. This includes soliciting input from market participants, conducting economic analysis, and engaging in public comment periods. The federal overseers review these proposed rules to ensure they are consistent with the applicable laws and regulations. If the proposed rule is approved by the regulator, it can be implemented by the RTO or exchange.

meaningful cross-agency comparison, as in Choi (2021)'s use of the Federal Register to compare how a change in deference owed to this IRS changes its use of statutory interpretation relative to other agencies' use.

This kind of transsubstantive look at the production of federally overseen self-regulation may also inform ongoing and vibrant debates among administrative law scholars about delegation and legitimacy in the administrative state. As Edwards (2022) observes, recent anti-administrativist challenges related to things like appointments, removal, and commission structure are likely to spread to SROs.

# 6    Discussions

I hope to be able to identify through discussion at the conference additional research questions for this and future projects. In the meantime, some additional questions I intend to pursue for this conference project include the results above and the normative discussion below.

## 6.1    Whose interests are implemented in SRO rules?

The study of SRO rule filings can reveal a great deal about the political economy of stock market regulation.

To begin, it can provide insight into the interests that securities law serves. Industry groups have significant influence over how regulatory rules are crafted and implemented (Tierney and Schlozman 1986). The core concern with self-regulation is that the adopted rules, and patterns of enforcement, will reflect industry-specific concerns and preferences rather than those of the public, investors, or other stakeholders. Studying SRO rule filings can shed light on how regulatory power is distributed among different actors in the financial system. In particular, it may be possible to identify how different constituencies wield influence in areas of regulation, and who is absent from these processes. In other work, I hypothesize that first-moving firms may forestall regulatory intervention by offering contract terms or other service features that are better than existing law permits to frame regulators' views of the status quo (Tierney 2020).

What is more, examining SRO rule filings can provide basic but important insight into how SRO rulemaking works. The firehose of rule filings has made it impractical for securities law scholars to assess the scope and nature of FINRA, stock exchange, and other SRO rulemaking. That obstacle means we lack even basic summary statistics about the filings of SROs. An approach leveraging NLP methods can help make these practices more legible, and thus more amenable to the kind of social welfare analysis used to assess various forms of stock market regulation. That knowledge is critical to democratizing "the law" of capitalism in the weak sense of unlocking

knowledge about the workings of stock market regulation from industry insiders.

The rest of the discussion in this subsection of the WIP, omitted in this draft, mainly extends the questions about legibility of the SRO rule production process with literatures about administrative legitimacy and democratic control over the economy. Lessons in this space are, in my view, particularly interesting to the extent they inform the political economy of capital markets. How can we learn from the history of capital markets regulation to design future capital markets regulation in an era increasingly concerned with "just transitions" (Eisenberg 2018)? In other words, what can SRO regulation do to inform how we design capital markets regulation to promote human flourishing and not merely the sectoral interests of financial capital?

## 6.2 Equity market structure reform proposals

The modern system of SROs is the consequence of the Securities Acts Amendments of 1975, which brought about the national market system in securities (Werner 1975). Critics have faulted Regulation NMS for "hinder[ing]" the "organic development" of a competitive national market (Peirce 2018, 661–62) and have suggested to a deregulatory approach that is said to promote autonomy and flexibility (Mahoney 2020; Clayton and Redfearn 2020).

These debates about how to structure capital markets are not stale. In December 2022, the SEC approved a package of new market structure rules that are thought to tend to push transactions into greater liquidity and transparency, like the exchanges.[20] These reforms may have second-order effects on the competitiveness of exchanges relative to alternative trading systems. We might therefore expect to see a greater degree of innovation in auction formats if the equity market structure reform proposals are adopted.

## 6.3 Cryptocurrency exchanges

Stock exchanges face significant regulatory pressure, not only within their sector from alternative trading systems, but also from other asset classes. Before a secular slowdown in cryptocurrency markets, we saw significant growth among trading platforms for cryptocurrencies (Johnson 2020–21).

The SEC has increasingly taken the tack of referring to some cryptocurrencies as "crypto asset securities," as a way of sidestepping threshold definitional questions in the case of assets that meet the "investment contract test." But the implication is that the panpoly of the securities

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20. See, e.g., Proposed Rule: Order Competition Rule, Exchange Act Release No. 96495, 88 Fed. Reg. 128 130 (Jan. 3, 2023); Proposed Rule, Regulation Best Execution, Exchange Act Release No. 96496, 88 Fed. Reg. 5,440 (Jan. 27, 2023); Proposed Rule, Regulation NMS: Minimum Pricing Increments, Access Fees, and Transparency of Better Priced Orders, Exchange Act Release No. 96494, 87 Fed. Reg. 80,266 (Dec. 29, 2022); Proposed Rule, Disclosure of Order Execution Information, Exchange Act Release No. 96493, 88 Fed. Reg. 3,786 (Jan. 20, 2023).

laws might apply in the case of crypto asset securities, including laws applicable to broker-dealers and exchanges in securities.

Rulemaking in the Federal Register constitutes a significant zone of contestation for the shape of this rulemaking. In summer 2022, the SEC proposed to expand the definition of "exchange" in Regulation ATS in ways that would require a greater degree of cryptocurrency market participants to register as brokers or dealers in securities under Reg ATS.[21] Cryptocurrency industry participants responded negatively to the Reg ATS reform proposal, contending that is a kind of sub silentio rulemaking to extend regulatory requirements to crypto market participants. In forthcoming work, my sometime coauthor Langvardt (2023) characterizes the industry backlash as reflecting a fundamentally techno-libertarian free speech absolutism. He assesses rhetoric in comments submitted to the SEC to think about litigation risk associated with the rulemaking process. A possible future extension of this work may be to apply NLP methods to the comment process surrounding that reform proposal.

One doctrinal implication of regulation of cryptocurrency exchanges as exchanges is that their governance — and certain "code-as-law" smart contracts — may become susceptible to Rule 19b-4's filing requirement as rules of a crypto asset securities exchange under existing law.

# 7   Conclusion

Industry self-regulation has seemed to unleash a firehose of rule change filings that are hard to keep up with. Understanding what SROs do is crucial to seeing how we structure capital markets, and this project is a first step at that inquiry.

> *"I would like to say thank you on behalf of the group and ourselves and I hope we've passed the audition."*
>
> - John Lennon, *The Beatles (1969)*

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21. See Securities Exchange Act Release No. 94062 (January 26, 2022), 87 FR 15496 (March 18, 2022).

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# Tables

**Table 1:** List of non-exchange securities industry self-regulatory organizations

| Designation | Category and SRO | Former affiliation |
|---|---|---|
| | **Joint Industry Plans** | |
| — | 17d-2 Plans for Allocation of Regulatory Responsibilities | |
| NMS | National Market System Plans | |
| | **Registered Securities Associations** | |
| FINRA | Financial Industry Regulatory Authority | National Association of Securities Dealers (NASD) |
| | **Registered Securities Future Product Exchanges** | |
| CFE | CBOE Futures Exchange | |
| CBOT | Chicago Board of Trade | |
| CME | Chicago Mercantile Exchange | |
| — | OneChicago | formerly registered; see Release No. 34-91117 |
| MGEX | Minneapolis Grain Exchange, Inc. | |
| NQLX | NQLX | formerly registered |
| | **Securities Futures Associations** | |
| NFA | National Futures Association | |
| | **Registered Clearing Agencies** | |
| LCH SA | Banque Centrale De Compensation | |
| BSECC | Boston Stock Exchange Clearing Corporation | |
| CME | Chicago Mercantile Exchange LLC | formerly registered |
| FICC | Fixed Income Clearing Corporation | |
| ICC | ICE Clear Credit LLC | |
| ICEEU | ICE Clear Europe Limited | |
| NSCC | National Securities Clearing Corporation | |
| OCC | The Options Clearing Corporation | |
| SCCP | Stock Clearing Corporation of Philadelphia | |
| DTCC | The Depository Trust Company | |

**Table 2:** List of stock exchanges

| Designation | Current name | Former affiliations |
|---:|---|---|
| BOX | Box Exchange LLC | Box Options Exchange LLC |
| CboeBYX | Cboe BYX Exchange, Inc. | Bats BYX Exchange, Inc. (BatsBYX) BATS Y-Exchange (BYX) |
| CboeBZX | Cboe BZX Exchange, Inc. | Bats BZX Exchange, Inc. (BatsBZX) BATS Exchange (BATS) |
| C2 | Cboe C2 Exchange, Inc. | |
| CboeEDGA | Cboe EDGA Exchange, Inc. | Bats EDGA Exchange, Inc. (BatsEDGA) EDGA Exchange (EDGA) |
| CboeEDGX | Cboe EDGX Exchange, Inc. | Bats EDGX Exchange, Inc. (BatsEDGX) EDGX Exchange (EDGX) |
| CBOE | Cboe Exchange, Inc. | |
| IEX | Investors Exchange LLC | |
| LTSE | Long-Term Stock Exchange, Inc. | |
| MEMX | MEMX LLC | |
| MIAX | Miami International Securities Exchange, LLC | |
| EMERALD | MIAX Emerald, LLC | |
| PEARL | MIAX PEARL, LLC | |
| BX | Nasdaq BX, Inc. | NASDAQ OMX BX Boston Stock Exchange (BSE) |
| GEMX | Nasdaq GEMX, LLC | ISE Gemini (ISEGemini) Topaz Exchange (Topaz) |
| ISE | Nasdaq ISE, LLC | International Securities Exchange |
| MRX | Nasdaq MRX, LLC | ISE Mercury (ISEMercury) |
| PHLX | Nasdaq PHLX LLC | NASDAQ OMX PHLX |
| NASDAQ | The Nasdaq Stock Market LLC | |
| NYSE | New York Stock Exchange LLC | |
| NYSEARCA | NYSE Arca, Inc. | |
| NYSEAMER | NYSE American LLC | NYSE MKT (NYSEMKT) NYSE Amex (NYSEAmex) American Stock Exchange (Amex) |
| NYSECHX | NYSE Chicago, Inc. | Chicago Stock Exchange, Inc. (CHX) |
| NYSENAT | NYSE National, Inc. | National Stock Exchange (NSX) |

**Table 3:** Unclean agency data

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**Table 4:** Top filing dates (preliminary, placeholder)

| Federal Register Date | SRO or not? | Daily filing count |
|---|:---:|---:|
| 2019-06-06 | — | 32 |
| 2021-11-05 | — | 21 |
| 2022-01-03 | — | 19 |
| 2022-03-08 | — | 19 |
| 2018-01-16 | — | 18 |
| 2022-05-13 | — | 17 |
| 2021-10-25 | — | 15 |
| 2022-01-27 | — | 14 |
| 2011-09-02 | — | 13 |
| 2018-03-19 | — | 13 |
| 2013-10-22 | SRO | 69 |
| 2011-04-13 | SRO | 42 |
| 2010-12-15 | SRO | 37 |
| 2019-12-30 | SRO | 29 |
| 2010-02-10 | SRO | 27 |
| 2018-12-27 | SRO | 26 |
| 2019-04-17 | SRO | 26 |
| 2017-06-01 | SRO | 25 |
| 2017-12-15 | SRO | 25 |
| 2019-01-31 | SRO | 25 |

# Figures



Cumulative count of SEC and SRO rules
subset since 2007-01-01
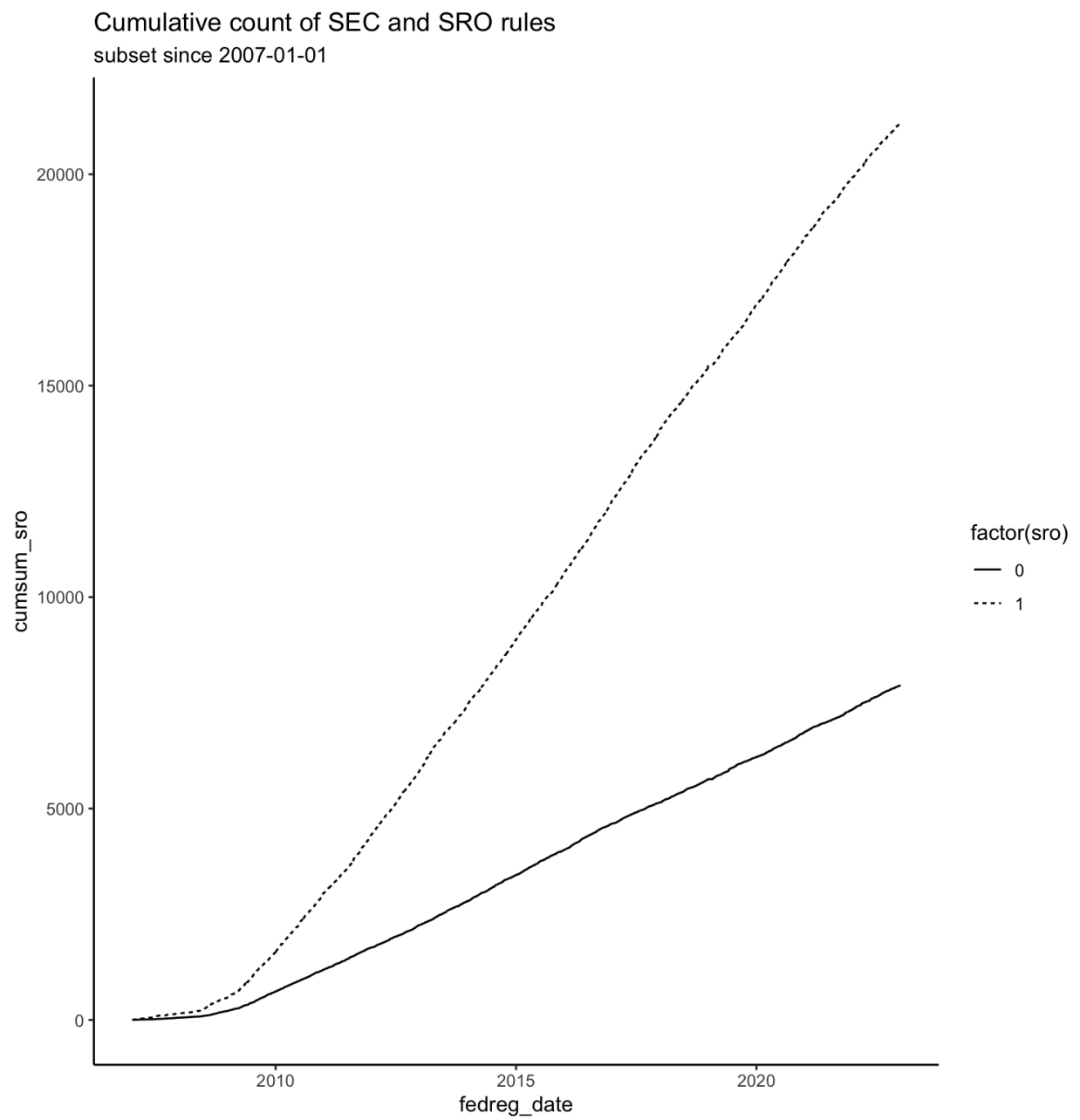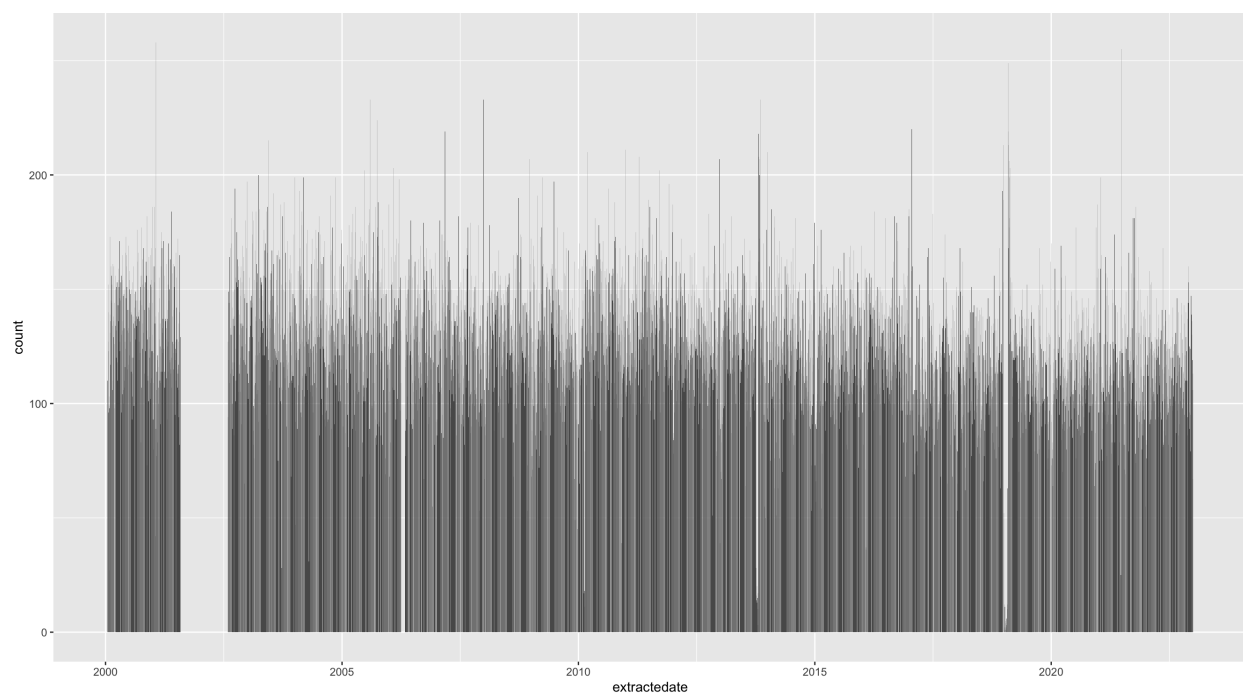
**Figure 4:** Cumulative count of SEC and SRO rules since January 1, 2008 (placeholder)
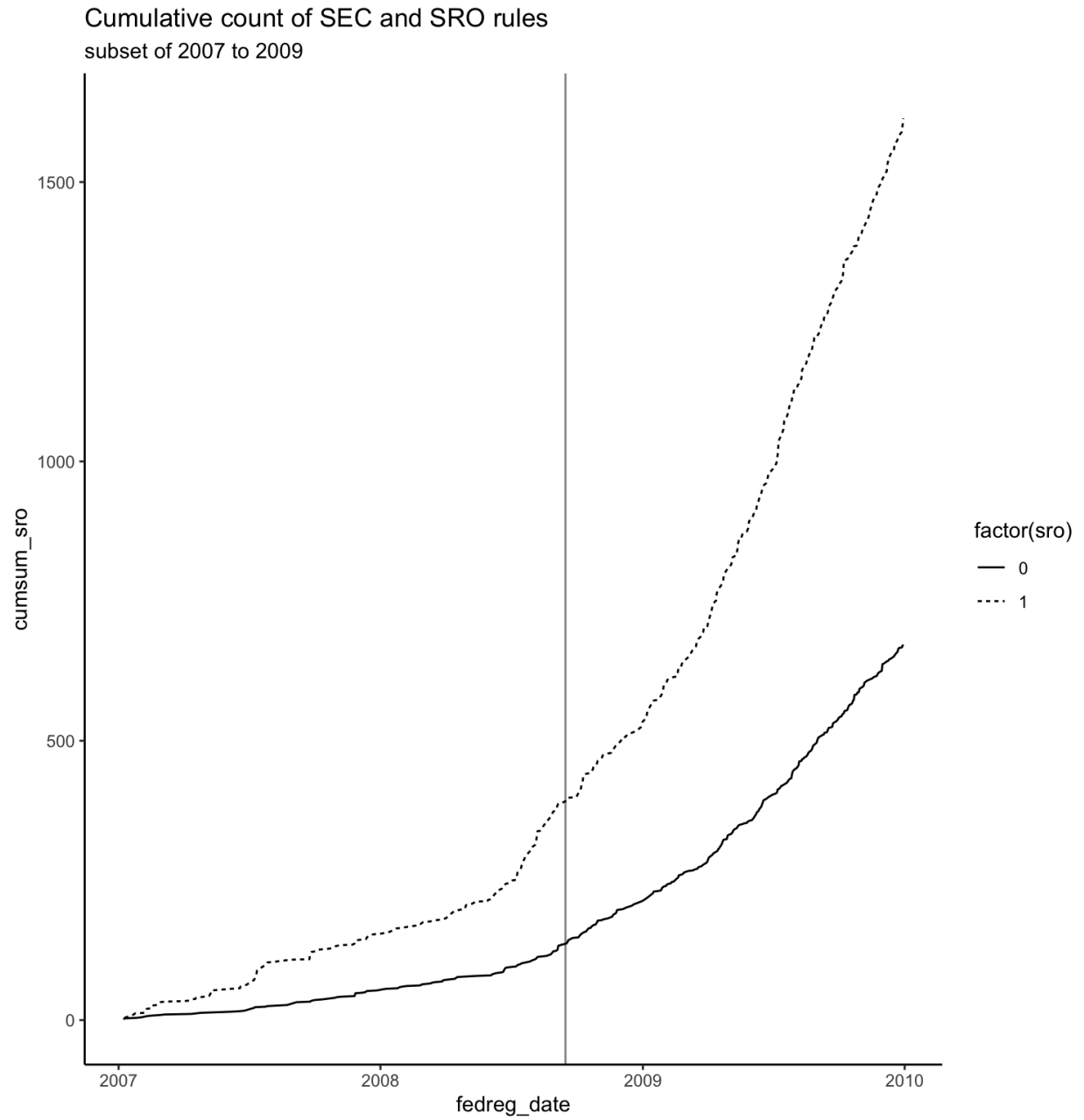
**Figure 5:** Cumulative count of SEC and SRO rules in 2007 to 2009 to show detail of the inflection point. Vertical line is September 15, 2008, the date of the Lehman Brothers bankruptcy.
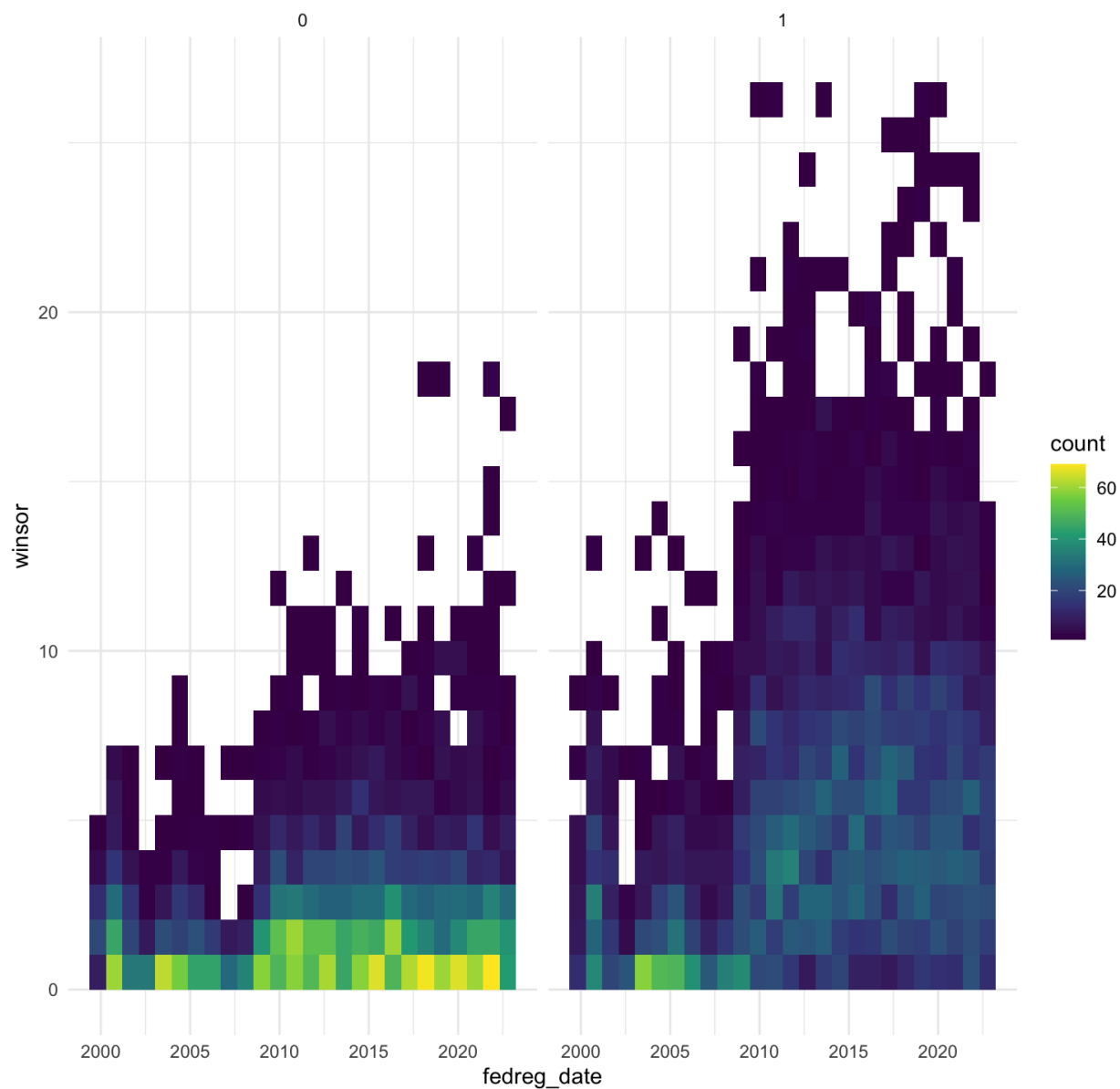
**Figure 6:** Filings per issue (per day) for the full data set of Federal Register issues, 2000-2022, showing missing data as of March 15, 2023's draft in late 2001-2002 and briefly in 2006
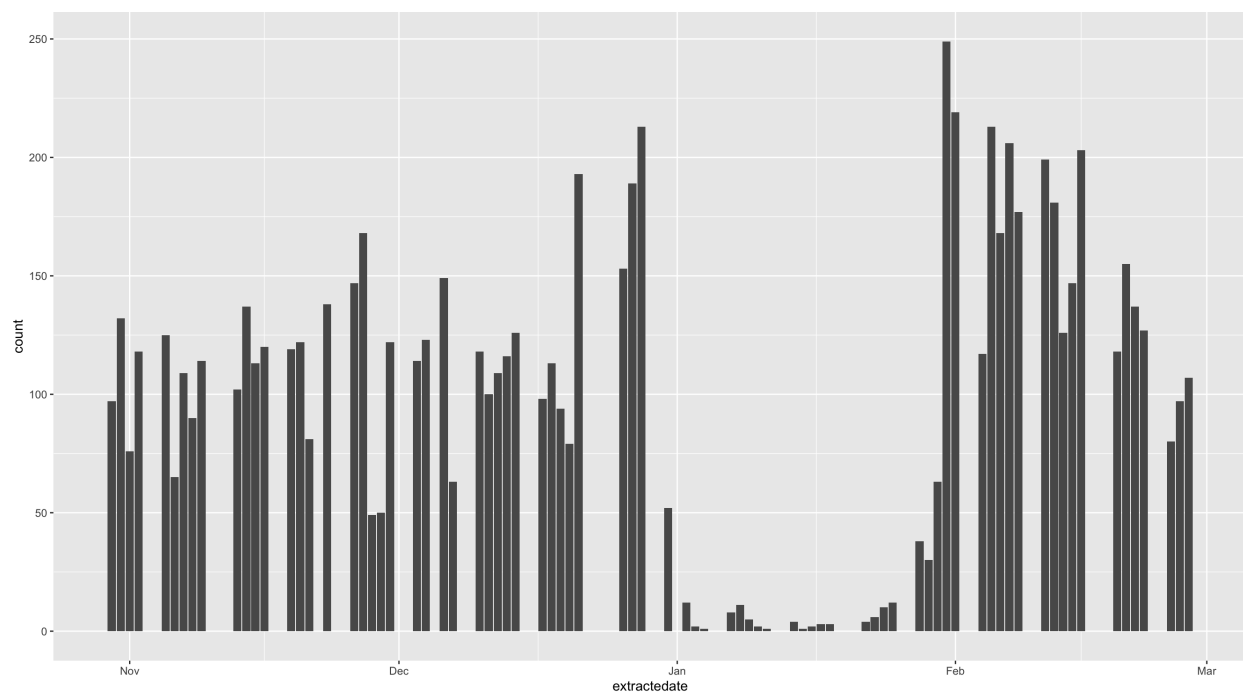


**Figure 7:** Not missing data in January 2019, just the government shutdown

**Figure 8:** 2d density maps of rule filing counts, winsorized at 99.9% level

# Appendix A. Placeholder

**Listing 1:** XML sample code for IEX fee filing

```xml
<NOTICE>
        <PREAMB>
            <AGENCY TYPE="S">SECURITIES AND EXCHANGE COMMISSION</
                AGENCY>
            <DEPDOC>[Release No. 34-96331; File No. SR-IEX-2022-09]</
                DEPDOC>
            <SUBJECT>Self-Regulatory Organizations; Investors Exchange
                LLC; Notice of Filing and Immediate Effectiveness of
                Proposed Rule Change Pursuant to IEX Rule 15.110 To
                Amend IEX's Fee Schedule</SUBJECT>
            <DATE>November 16, 2022.</DATE>
            <P>
                Pursuant to section 19(b)(1)
                <SU>1</SU>
                <FTREF/>
                of the Securities Exchange Act of 1934 (the ""Act)
                <SU>2</SU>
                <FTREF/>
                and Rule 19b-4 thereunder,
                <SU>3</SU>
                <FTREF/>
                notice is hereby given that, on November 7, 2022, the
                    Investors Exchange LLC "("IEX or the ""Exchange)
                    filed with the Securities and Exchange Commission
                    (the ""Commission) the proposed rule change as
                    described in Items I, II and III below, which
                    Items have been prepared by the self-regulatory
                    organization. The Commission is publishing this
                    notice to solicit comments on the proposed rule
                    change from interested persons.
            </P>
            <FTNT>
                <P>
                    <SU>1</SU>
                    15 U.S.C. 78s(b)(1).
                </P>
            </FTNT>
```