What’s at Stake in Rulemaking?
Financial Market Evidence for Banks’ Influence on Administrative Agencies

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Governments worldwide use administrative rulemaking to craft economic regulation, and businesses engage in costly activity to influence this process. How much is at stake in rulemaking? How can we tell whether firms obtain meaningful influence? We use intra-day event study methods to analyze how firms’ stock responds to the announcement of new rules. We find that commenting firms obtain stock returns between 5 and 12 percentiles higher than those that abstained. Observed rulemaking participation by publicly-traded banks alone accounts for $3.2 to $7.8 billion in excess returns. The aggregate influence of commenters on all Dodd-Frank rules is likely far larger. These results, as well as case studies of two rules, suggest that firms shape policy in rulemaking net of their influence on rule-drafting, that business-induced rulemaking changes may account for billions of dollars in profits, and that rulemaking comprises an important site of political inequality.

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1 Introduction

With increasing frequency, democracies delegate the task of regulating economic and social life to administrative agencies. The very agencies that administer and enforce statutes also write the rules that explain what those statutes mean. Rules govern policy in diverse domains and in many governmental systems, including the United States (Kerwin and Furlong 2011), Europe (Sabel and Zeitlin 2010), Japan (Kanda 1991), and dozens of other countries and sub-regional governments (Renfrow and Houston 1987; Jensen and McGrath 2011). These rules are generated through complex, variable processes that, especially in presidential systems (Jensen and McGrath 2011), often involve the ability for affected parties to comment upon a published draft rule (“notice and comment”) and seek judicial review.

Rulemaking raises fundamental issues of institutional political science (Kerwin and Furlong 2011; Yackee and Yackee 2006; Nelson and Yackee 2012) and administrative and constitutional law (Mashaw 1985; Shapiro 1965). Rulemaking agencies possess a quasi-legislative authority to issue documents that govern the activity of the subjects of the state and are enforceable at law (Lubbers 2012). Rulemaking is a crucial context in which the dynamics of delegation unfold (McCubbins, Noll, and Weingast 1987, 1989; Epstein and O’Halloran 1999; McCarty 2017).

For delegation to create political stakes, agencies need discretion in implementing policy and interest groups need tools that can influence how discretion is used. While presumably discretion and capacity for influence exist to some degree, the literature is divided about how extensive either is. This is especially true of notice-and-comment, as some have argued that agencies surely should have settled the important issues by the time a rule is proposed, ergo only technical details remain. Existing empirical approaches would have a hard time assessing the substantive significance of the changes made during notice-and-comment.

In this paper, we use market-based measures to explore the political stakes of rulemaking. We find evidence that these stakes are large, and that economically significant influence is still possible during the commenting stage. Moreover, our measures suggest political
influence is unequal. Domestic banks’ comments on rules are associated with meaningful market gains, while the comments of foreign banks and finance consumers are not. We illustrate the mechanism of our study by closely analyzing two significant rules, one related to proprietary trading (the ”Volcker Rule”) and the other related to consumer finance (“Debit Card Interchange Fees”).

2 Interest Groups and Administrative Procedures – Theoretical and Methodological Issues

Scholars have debated at length the meaning and dynamics of rulemaking, some arguing that the process preserves the advantages of the coalition that created the statute (McCubbins, Noll, and Weingast [1989]), others concluding that different or additional interests enter influentially at the rulemaking stage (Balla [1998] and others). Other scholars ask whether rulemaking reveals special interest influence and political inequality, as business interests dominate the notice-and-comment process (Golden [1998] Yackee [2005] Yackee and Yackee [2006] Wasserman [2015]). These concerns connect fundamentally to issues of regulatory capture in political economy (Bernstein [1955] Stigler [1971] Carpenter [2004] Dal Bo [2006] Carpenter and Moss [2013] McCarty [2017]). Still others argue that most of the influence upon rules comes not during formal administrative procedures (“notice and comment”) but during a less visible, earlier stage in which the proposed rule is drafted (Krawiec [2013] Wagner [2013]).

2.1 Strategy, Stakes, and the Problem of Interpretation

The empirical context makes it difficult to adjudicate among these claims using existing evidence. Important advances in content analysis have permitted scholars to demonstrate concrete, granular associations between comments and changes in rules (Haeder and Yackee [2015] Yackee and Yackee [2006]). Yet textual approaches to content analysis have several
fundamental limitations.

- Changes in policy and initial policy position both matter, but content-analysis strategies usually only look at the former. Agencies may write rules in such a way as to create the appearance of compromise with certain commenters or interests (Elliott 1992). If so, the predictive association of business comments with rules changes may simply represent reversion to the agency’s preferred policy.

- Much substance can depend on little text, and it is difficult to evaluate the economic importance of a rule change based on text alone. If we observe changes in rules, how can we conclude that the changes were important or mere window dressing?

- Reproducible content-analysis is costly. It may require significant policy domain expertise. Statistical text analysis can help with both issues, but still needs training data.

While content-analysis strategies have created a rich and informative literature on rulemaking, there is a need for additional, independent techniques for evaluating rulemaking outcomes.

2.2 An Alternative Approach: Studying the Stock Prices of Participating Firms

In this paper, we harness an important political-economic fact: the entire administrative process is watched by highly informed actors, who invest in markets and have immense financial stakes in the outcomes. Many of the firms that comment are publicly traded, and their valuation changes by the second during trading hours. Using new data on firm’s comments regarding rules that implement the Dodd-Frank Act of 2010, and combining quantitative data with case studies, we investigate how financial firms shape rulemaking in the United States. Our empirical strategy proceeds in two stages. First, we use event study methods on
intra-day trading data to estimate the effect of new rules on the expected future profitability of firms. Second, we explore the relationship between the rules’ effect and a firm’s decision to participate in the rulemaking process.

We find that firms which participate in notice-and-comment related to Dodd-Frank experience substantially higher returns following the announcement of proposed and final rules. We test for significance using both conventional regression methods and through bootstrapping against a set of randomly selected times. Using our regression estimates we calculate the total market value of excess returns associated with participation as between $3.2 and $7 billion.

Asset pricing studies have advantages and limitations. Among the advantages is that market traders’ expectations will reduce the bias from strategic agency rule drafting. By the time a final rule is announced, traders will have expectations both about any bias built into the proposed rule as well as the resulting changes, with the result that these changes will already have been priced into the final rule. While subsequent changes do not capture the full value of business influence, they capture the attributed value of changes that were not previously expected, hence beyond the observable strategic dynamics. Another advantage to asset-price-based approaches is that the estimated benefit to firms can be compared across firms using measures that are directly and meaningfully comparable. Finally, these asset price changes can be linked to actual textual changes in the rule, permitting the measurement of value changes tied directly to comments and policy change.

We do not, however, regard stock-market evidence as a perfect solution to the dilemmas of research in this area. Only publicly traded firms have measurable returns, and only for those rules announced during market trading hours. Because we can only examine price changes in response to an “event” like announcement, each firm’s stock price may already reflect influence from other events we cannot observe. For example, one study examines business meetings with White House officials during the Obama Administration (Brown and Jiekun 2017) and produces evidence consistent with ours as well as with (Haeder and Yackee
Another study explores returns to financial firms from having connections with a Treasury secretary nominee, also finding similar effects (Acemoglu et al. 2016).

3 Some Patterns of Financial Rulemaking Influence After Dodd-Frank

The 2,300 page Dodd-Frank Act of 2010 calls for a vast amount of rulemaking in numerous policy domains, ranging from systemic financial regulation to consumer protection (Moss 2009; Carpenter 2010; Carpenter 2011). The statute was the subject of vast lobbying activities in Congress as well as in the Treasury Department, where much of the statute was written (Carpenter 2011). The executive branch is triply implicated in Dodd-Frank— in the drafting of the statute, in the writing of rules, and in enforcement. Our empirical analysis examines only the second of these, and only through the formal participation of publicly-traded firms in rulemaking at one agency. It excludes other, harder to observe forms of influence, and thus may severely underestimate the returns to lobbying.


• **High Incremental Product Value.** “The amount billed by Debevoise & Plimpton to write a 17-page letter on a new rule intended to rein in risky banking – around $100,000 – would make most authors jealous. That’s the fee just for parsing the proper definition of a bank-owned hedge fund. Longer and more complex regulatory

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2According to one estimate, Dodd-Frank explicitly asks for 398 rules, and implicitly may require many more
missives, weighing in on who should be deemed too big to fail or how derivatives are traded, can easily cost twice as much.”

- **High Stakes and Vast Aggregate Activity**. “These comment letters could save Wall Street banks billions of dollars if they help persuade policy makers to adopt a more lenient interpretation of the coming rules. And white-shoe law firms like Debevoise & Plimpton are cranking them out by the dozen.”

- **Professional Work** “Besides the lawyers, there are legions of corporate accountants, financial consultants, risk management advisers, turnaround artists and technology vendors all vying for their cut. . . . ‘It is a full-employment act,’ said Gregory J. Lyons, a partner at Debevoise, where a team of a half-dozen lawyers has drafted 30-plus comment letters in the last six months. ‘The law is passed, but we are still reasonably early in the process,’ Mr. Lyons said. ‘There is still a lot to be written.’”

But does costly expenditure on rulemaking comments lead to identifiable returns for those who incur such immense costs? We know of no quantitative study that answers such a question. Cognizant of the fact that public equity traders watch these developments closely, we now outline a procedure for detecting some of the returns to commenting in rulemaking.

4 Methodology: Event Study and Estimating Equations

4.1 Using Stock Markets to Examine the Value of Influence with Endogenous Participation

Event study methodology was introduced in the 1960s to study how stock prices responded to the release of new information like income reports or stock splits (Ball and Brown [1968], Fama et al. [1969]). Since then, hundreds of event studies have been published across many
disciplines. MacKinlay (1997) provides a good introduction to event-study methodology, while Corrado (2011) discusses how these methods have been applied in practice. To our knowledge, event study methodology has not previously been used to study rulemaking (on lobbying, see (de Figueiredo and Richter 2014) and (Brown and Jiekun 2017)).

Although most event studies have aggregate price at a daily level, high-frequency event studies have also been used to understand how quickly markets assimilate new information. Early studies found that equity prices adapt within five to fifteen minutes to announcements related to earnings and dividends (Patell and Wolfson 1984; Jennings and Starks 1985). To our knowledge, intraday returns have rarely been used in studies of the effect of regulatory or policy changes.

4.2 Measurement Strategy

Market returns can be measured in many ways. For our purposes, it is crucial that these measures permit meaningful inter-firm comparisons, despite the fact that different assets may have different price-processes. One possibility is to use $t$-statistics (Sharpe ratios), however we prefer to make fewer implicit parametric assumptions. In particular, we use ranked returns, which we construct as follows.

We assume that for each asset $i$, day $d$, and period $t$ we can obtain measures of the price $P_{idt}$ of that asset at that day and time. Let $R_{idt} = P_{id(t+1)} - P_{idt}$ be the arithmetic returns of asset $i$ from one period to the next on a given day. We regard these quantities as random variables arising from the following generative model:

$$R_{idt} = \alpha_i + \beta_i R_{mdt} + \epsilon_{idt}$$

$$\epsilon_{idt} \sim F_{it}$$

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$^3$In our study, periods are trading-minutes like 9:35AM, 2:04PM, etc. For discussion of how we derive prices, see Section 5.
Here $m$ is a market control, usually an index fund. If controls are not desired, assume $\alpha_i = \beta_i = 0$. It is a stylized fact that when dealing with intraday returns, the variance of $\epsilon_{idt}$ depends on the time of day $t$ and that there is some correlation between periods (Kolari and Pynnonen [2011]). This makes the assumption of i.i.d. normality underlying the use of $t$-statistics inappropriate. We may define the cumulative abnormal returns at time $t$ on day $d$ over $k$ periods for asset $i$ as

$$\text{CAR}_{i dt}^k = \sum_{i=1}^{k} \epsilon_{i dt+i}$$

(1)

If market controls are not used, $\text{CAR}_{i dt}^k = P_{i dt+k} - P_{i dt}$, or a simple difference in price. In other cases, $\text{CAR}_{i dt}^k$ is the difference in price after controlling for market movements. Then we wish to define $Q_{i dt}^k$ as the quantile of the corresponding CARs against comparable days at the same time $t$ and for the same number of periods $k$. Let $D(d)$ be a set of $h$ consecutive trading days prior to $d$. The most natural definition

$$\hat{Q}_{i dt}^k = \frac{\left| \left\{ \text{CAR}_{i dt}^k \leq \text{CAR}_{i dt}^k : \tilde{d} \in D(d) \right\} \right|}{|D(d)|}$$

has a significant practical disadvantage. If all the CARs were the same, then we would estimate $\hat{Q}_{i dt} = 1$. Some assets are not frequently traded and so the cumulative average returns may be 0 more frequently than one would like (or than makes sense given our assumption $F_{i dt}$ is continuous). Therefore we use the following formula, which would yield $Q_{i dt} = 0.5$ in such circumstances.

$$\hat{Q}_{i dt}^k = \frac{\left| \left\{ \text{CAR}_{i dt}^k \leq \text{CAR}_{i dt}^k : \tilde{d} \in D(d) \right\} \right|}{2 \cdot |D(d)|} + \frac{\left| \left\{ \text{CAR}_{i dt}^k < \text{CAR}_{i dt}^k : \tilde{d} \in D(d) \right\} \right|}{2 \cdot |D(d)|}$$

(2)

For frequently traded stocks, ties are rare and the two equations will be the same. Assum-

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4We used tickers RSP and VTI, which are an S&P 500 Equal Weight ETF and Total Market Equal Weight ETF, respectively.
ing $F_{it}$ is a continuous probability distribution, it follows that $\hat{Q}_{kt}^{k} \sim U\{0, \frac{1}{|D(d)|}, \frac{2}{|D(d)|}, \ldots, 1\}$. Note that there is a function $\alpha$ linking each rule $j$ with a day $d$ and time $t$ when $j$ was proposed. Similarly, there is a function $\omega$ so that $\omega(j)$ gives the day and time when $j$ was finalized. Thus it is possible to describe $\hat{Q}_{\alpha(j)}$ as the estimated quantile response of rule $j$’s proposal, and $\hat{Q}_{\omega(j)}$ as the response to finalization.

4.3 Estimating Equations

Ultimately, we seek to examine the relationship between market reactions to rule announcements and participation in rulemaking procedures. We are interested in whether observed returns on the announcement of the proposed rule predict subsequent commenting behavior, and we are also interested in whether return quantiles are higher upon announcement of the final rule for commenting versus non-commenting firms. Our basic regressions take the following forms

$$C_{ij} = \psi_i C + \gamma_j C + \theta X_{ij} + \upsilon_{ij}$$  \hspace{1cm} (3)

$$\hat{Q}_{\omega(j)}^{k} = \psi_i Q + \gamma_j Q + \theta f(C_{ij}) + \beta' X_{ij} + \epsilon_{ij}$$  \hspace{1cm} (4)

where $\hat{Q}_{\alpha(j)}$ is the quantile-measured effect of the rule $j$ on firm $i$ at proposal, $\hat{Q}_{\omega(j)}^{k}$ is the analogous effect at finalization, $\psi_i$ and $\gamma_j$ are fixed effects for firm and for rule, respectively, $C_{ij}$ measures commenting activity for firm $i$ participating in the notice-and-comment process related to rule $j$ (where the function $f$ allows for a more continuous measure of commenting activity or a simple binary measure of whether commenting occurred or not), and $X_{ij}$ is a set of other covariates related to the firm or the rule, and $\upsilon_{ij}$ and $\epsilon_{ij}$ are error terms.

Our estimate of $\hat{Q}_{\alpha(j)}^{k}$ depends on the day $d$, time $t$, and windows $k$ according the method outlined in the previous subsection. Since it is not clear which market index provides the best control, we calculate $\hat{Q}_{\alpha(j)}^{k}$ in three ways: without a market control, controlling against an S&P 500 index fund, and a Total Market index fund. Because the movements we are
interested in affect a number of highly-valued stocks that are components of the S&P 500, we use equal weight ETFs that ensure the influence of these component stocks is as small as possible.

Another issue involved with estimation of $\hat{Q}_i^k$ is the size of the event window $k$. Should we look at the difference in excess market returns after one minute, one hour, or some other time period? Shorter periods have relatively less risk of confounding interventions and attenuation due to noise. Longer windows have a better chance of fully incorporating the information contained in the announcement, a point we will consider in greater detail in the next section. The mathematical comment in the Appendix formalizes these tradeoffs for a general asset price process, the Lévy process. An important practical consideration is that longer durations winnow the set of eligible rules. Focusing on returns after six hours, for example, would only allow us to estimate rules published between 9:30AM and 10:00AM. In the absence of strong priors, our approach is to look at a variety of time-domains: five minutes, twenty minutes, and an hour. We also consider the average of all available intervals from one to sixty minutes for a particular rule, as a way of decreasing the sensitivity of our rule estimates to transitory shocks.

4.4 Will The Estimates Understate or Overstate the Causal Impact of Commenting?

Framework. The potential outcomes framework structures our thinking about whether estimation equation (4) will overstate or understate the true causal impact of commenting (Rubin 2005). According to this model of statistical reasoning, the outcomes that follow potential alternative actions are real, fixed quantities. For example, we have shown it is possible to measure some outcome $Q_i$ for a set of firms following a rule announcement. If firm $i$ comments we may assume one potential outcome $Q_i(1)$ would follow, while if $i$ abstains there would be another $Q_i(0)$. The causal impact of commenting on firm $i$ is $Q_i(1) - Q_i(0)$, in other words the difference in the two potential outcomes. The fundamental problem
of causal inference is that one only gets to observe history once, so one of the terms in the difference is unobservable. Causal inference, whether experimental or observational, depends on substantive assumptions about unobservable quantities that cannot be verified.

Regression equations like (4) produce results akin to the following reduced potential outcomes table:

<table>
<thead>
<tr>
<th>Comments</th>
<th>Abstains</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commenters</td>
<td>$Q_C(1)$</td>
</tr>
<tr>
<td>Abstainers</td>
<td>$Q_A(1)$</td>
</tr>
</tbody>
</table>

Here $Q_C(1)$ is the average quantile return of commenters when they comment and $Q_A(0)$ is the average quantile return of abstainers when they abstain. We cannot observe $Q_C(0)$, the returns for commenters if they had abstained. Nor can we observe $Q_A(1)$, the returns for abstainers if they had commented. The causal effect of commenting could either mean the average effects of commenting for commenters $Q_C(1) - Q_C(0)$, the effect of commenting for abstainers $Q_A(1) - Q_A(0)$, or the overall difference $Q(1) - Q(0)$. Fundamentally, these differences are unknowable because we only observe one set of potential outcomes for each actor.

A naive causal interpretation of these regressions implicitly supposes commenters would typically receive outcomes like the abstainers had they abstained (formally, $Q_C(0) = Q_A(0)$), and that abstainers would have received outcomes like the commenters had they commented (e.g. $Q_A(1) = Q_C(1)$). This assumption is doubtful, although it would seem to follow if participation were “random” and unrelated to influence. However, the substantively important question is in which direction is the naive causal assumption wrong?

Our primary focus throughout this article is on the regulatory benefits of commenting for commenters. The primary risk for our empirical conclusions is therefore that $Q_C(0) > Q_A(0)$. The effects we observe are only overstated if on average the commenters would have done better than the average abstainer even if they had abstained.

**Sources of Upward Bias.** Suppose that commenters would have done better than ab-
stainers even if they had abstained. Note that this assumption implies commenters and abstainers are different from one another in ways that relate to market outcomes around rule announcement. In this story however, commenting does not produce influence, but merely indicates a deeper difference between firms that tend to “win” at certain times and firms that tend to “lose” at those times. Note that the study’s design applies significant pressure to such alternative accounts: announcement times appear as if random, our estimates are very sharp around these times, each firm is implicitly controlled against its own recent movements, and also against broader market movements. In our experience, most arguments that our estimates are over-stated are, essentially, selection arguments that assume comments do indeed produce influence. But this proposition is what we wish to evaluate.

In our view, the literature only provides one reasonable explanation for how such differences could arise despite comments lacking efficacy. Participation and positive market reactions may have a common cause: firm participation prior to the notice of proposed rule-making (NPRM). Agencies often develop rules after extensive consultation with potentially affected actors. These efforts may help promote the legitimacy and quality of regulation (Coglianese, Kilmartin, and Mendelson 2009), yet there are potential advantages to informing a regulator while it is still deliberating. Firms that participate in pre-NPRM outreach may have a higher propensity to submit comments after proposal. Indeed, scholarship suggests that regulators sometimes encourage consultees to submit comments to improve the quality of the record in case of judicial review (Elliott 1992). If pre-proposal outreach both shapes the rules and results in an increased propensity to participate, then it is possible the commenters would have obtained more positive reactions even if they had abstained than abstainers. Indeed, we will show that firms that go on to comment receive highly abnormal returns following rule proposal relative to those that go on to abstain, which is consistent with the theory that pre-notice participation matters and leads to commenting.

Nevertheless, we are skeptical that pre-NPRM participation could explain all of the observed difference between commenters and abstainers at the final stage. Typically, it takes
many months to finalize a rule after proposal. Influence exerted pre-NPRM should therefore be well assimilated by the market by the time the final rule is announced. As evidence of this, we use previously collected data from (Krawiec 2013) and explore the correlation between proposed and final rule announcement returns for those firms that met with regulators prior to the Volcker Rule’s proposal. The two are very slightly negatively correlated, which is consistent with the notion that the market internalizes pre-NPRM influence by final rule announcement time and inconsistent with the “common cause” explanation for apparent commenter influence.

Sources of Attenuation Bias. Other criticisms of the influence interpretation of these results may actually support the notion that the effect we observe is actually under-estimated. Consider, for example, the possibility that the market is able to forecast to some degree the content of the rules. The effect of the rule on the firm \(i\) is like a random variable \(\gamma_i\) with some prior. Assuming this prior is correct, the tighter the prior is, the smaller the market movement we should usually observe in the price of asset \(i\) after uncertainty about this value is resolved. In the limit, if traders could perfectly forecast the content of the rule, or if traders already knew the content of rules because of leaks, we should not observe any price movement following rule announcements, even if the regulatory impact were large. Movements should only be observed if market forecasting is imperfect. Similarly, if the information hits the market earlier than we think, the effect would already be partially realized. This should result in an underestimate of the effect of commenting.

Other considerations also suggest the effect is likely underestimated. If firm \(j\) comments then firm \(i\) may receive a benefit it would not have received if \(j\) had not commented. Such free-riding behavior would make the difference between firm \(i\)’s and firm \(j\)’s price movements smaller on average. Similar arguments apply to trade association comments, whose role we cannot measure but which are probably effectual (Nelson and Yackee 2012). Finally, and this is especially important for our overall estimates of the aggregate gains from commenting, many rules are published in the late afternoon or early evening after market close. Also,
many firms that submit comments are not publicly traded. These all heighten concerns that our estimates will be attenuated and the true causal impact of commenting larger.

5 Data Sources

This study uses three kinds of data: intra-day stock prices, rule announcement times, and records of which firms participated in notice-and-comment. All publicly traded firms identified as “Finance Companies” by NASDAQ were considered potential commenters, although some were so infrequently traded that they were dropped. Also included were publicly traded firms from outside the finance sector that submitted at least one comment on a Dodd-Frank rule.

Asset prices were derived from the National Best Bid Offer database available from Wharton Research Data Services (WRDS). Because these data are reported at higher frequency than is necessary for our purposes, we aggregated to the minute-by-minute level by separately averaging the best bids and best offers, and then taking the median between the two as the asset price. If a stock was not traded in a given minute, this procedure is unable to measure the asset price at that time. To deal with this problem, we imputed the price of the asset by using the most recent asset price available.

Crucial to our study is precise identification of rule announcement times. Publication in the Federal Register typically occurs after the rule and its text have been revealed to the public via press release. We ascertain the time of each press release using two strategies. First, we extracted a server imprinted publication time from RSS data originally published by the Federal Reserve. Second, we were granted a FOIA request by the Federal Reserve. Usually the times were identical, and in no case did they differ by more than several minutes. As an integrity check, we selected several rules at random and compared the time we would attribute with the first story about each rule on Bloomberg.

Figure 1 provides a calendar representation of the rule announcements. Unfortunately,
Figure 1: Calendar of Regulatory Events
not all announcements were made during active trading hours. In these cases, such rules must be dropped. All told, there were 50 proposed rules or notices of proposed rulemaking, 34 final or interim final rules, and 22 proposed-final rule pairs that could be used for our study.

Tickers for each comment submitted to the Federal Reserve as part of Dodd-Frank rule-making were human coded by one of the authors and an RA.

6 Case Studies of Two Rules – Proprietary Trading Restrictions and Debit Card Interchange Fees

Before moving to large-sample estimation of the estimating equations, we consider two cases of rulemaking that illustrate both the need for intra-day event study methods and the link between tangible rules changes and firm price movements. The “black-box problem” confronted in our event study is that it is difficult to attribute changes in firm value to commenting activity without knowing how the comments in question might have shaped the rules. This question becomes even more difficult to address because of a commensurability problem. Even within a single agency, and especially in financial regulation, rulemaking covers a wide ambit of particular policy issues. Detecting that a bank’s comments may have moved a rule about credit card fees is quite different from detecting whether a bank’s commenting activity changed rules about capital adequacy standards. While quantitative techniques are being developed in this direction to be used across rules (Rashin 2017), we opt here for a more granular description of two rules, linking comments to rules changes, and then linking these changes to immediately observed movements in firm value upon release of the Final Rule. The two rules we examine, the Volcker Rule and Durbin Rule, attracted heavy commenting activity from banks and non-bank interests alike.
6.1 The Debit Card Rule (a.k.a. “Durbin Amendment Rule”)

6.1.1 Illustrative Example – Estimating Returns Quantiles within Trading Days

The Durbin Amendment was an important, last-minute statutory change to the Dodd-Frank Act. The amendment added a new section (Section 920) to the Electronic Fund Transfer Act (EFTA) that regulated interchange transaction fees and added rules for payment card transactions. The idea was to cap the amount payment processors could charge and encourage fraud prevention efforts. The policy issues raised by the rule were sufficiently complex that the Federal Reserve would ultimately finalize two separate rules in response to its initial proposal of December 12, 2010. The first one addressed the reasonableness of fees (76 FR 139) and the other addressed fraud-prevention standards (77 FR 46258).

We use the debit-card rule both to illustrate how the estimation of \( \hat{Q}_{ki} \) works in practice, and also flesh out the mechanism driving our large-sample estimation. We focus on the fraud-prevention standards component of the rule, which was announced at noon on July 27, 2012. First, we analyze the market performance of four publicly traded companies between 11:00AM and 1:00PM that day: Apple, BlackRock Financial, American Express, and Capital One Financial. Apple and BlackRock serve as our placebos, since the future profitability of neither electronics manufacturers nor investment managers seems obviously connected to debit card fees.\(^{5}\) Indeed, neither firm commented. By contrast, payment processors like American Express and Capital One were directly concerned and both submitted comments that discussed the issue of fraud-prevention standards. We briefly summarize the issues at stake in rulemaking in order to identify how we should expect the market to react for those two firms.

The Durbin Amendment allows issuers to charge additional transaction fees reimbursing the issuers for fraud-prevention costs. The two key issues at stake in rulemaking were the

\(^{5}\)Apple certainly does have some exposure through its chain of retail stores, however its 2011 10-K makes clear that the Apple Store is a relatively small component of its business, with 88% of sales deriving from other sources.
size of the fees and what kinds of fraud prevention measures would qualify. The proposed rule did not set a maximum fee and outlined two possible approaches to qualification: (1) a rules-based approach that would require the adoption of certain technologies and (2) a more flexible approach based on standards. American Express, Capital One, and many other issuers submitted letters requesting high-fees and flexible qualification standards. Merchants wanted lower fees and less flexible qualification standards. The interim final rule of June 29, 2011 adopted a 1% fee and provisionally established a standards-based approach. The outcome was a clear victory for the issuers. As the National Association of Convenience Stores lamented, “the Rule lacks any mechanism to ensure that issuers receiving the fraud prevention adjustment are actually preventing fraud.” Senator Durbin himself sent a letter to the Federal Reserve insisting that the Board “must address the shortcomings of the interim final rule by implementing a final rule that requires actual compliance with effective fraud prevention steps in order for a fee adjustment to be allowed.” For their part, Capital One and other issuers sent comments supporting the interim rule. The final rule largely confirmed the approach of the interim rule, including the 1% fee and non-prescriptive qualification standards. As proof-positive of their displeasure, retailers sued the Board over the rule. For our purposes, the important point is that we should expect a favorable market reaction for representative issuers Capital One and American Express.

Figure 2 shows the change in price for each stock relative to its price at noon on July 27, 2012. The price path for Capital One and American Express both indicate notable upward jumps shortly after noon, while Apple and BlackRock do not. In order to emphasize the magnitude of these jumps, the illustration also shows what would have been observed at

6The interim final rule was released too late in the day to permit for the intra-day measures we use. Yet payment processor stocks rose strongly in the following trading day. See Glenn Schorr, “Volcker Rule Due Out Soon: Hopefully More Bark Than Bite,” October 6, 2011; http://xa.yimg.com/kq/groups/17389986/555239495/name/Nomura+US+Bank+%26+Brokers.pdf. We examine only the July 2012 rule here, which suggests that our estimates of commenter benefits are, if anything, underestimated, as some of the market reaction favorable to payment processors took place over a year beforehand.
noon on each of the previous 100 days. Against this 100 day benchmark, the price paths of Apple and BlackRock are unremarkable before and after noon. While American Express and Capital One are also quite typical between 11:00AM and noon, after the first few minutes the returns are higher than would have been observed on previous days, and stay that way throughout the hour.

Figure 3 shows how these price paths are transformed into measures $\hat{Q}_k^i$. The measure summarizes with a single number the information about how the announcement day relates to the previous days. Note that in Figure 3 we have used a market control while in 1(a) we have not. This adjustment does not do much to change the overall picture, because the S&P500 was flat around this time, however it is a useful precaution and decreases the
influence of background noise.

While the mid-day changes presented here are unusual, as time marches on these movements become less surprising. For example, suppose the rule announcement caused an increase in the value of American Express by about 25 cents per share, a market impact of 287 million dollars. The average daily volatility of American Express is 40 cents per share. Finding a $287 million dollar impact using daily data is clearly hopeless, which explains the necessity of using an intra-day approach.

It is worth emphasizing that our regression strategy takes these measures as given and relies on the logic of difference-in-difference estimation. Figure 4 shows what happens when we separately average the $Q$ scores of US financial firms that commented on the Durbin rule and those that abstained. In contrast with the variability of firm-level $Q$ scores (see Figure 3), $Q$-scores that are averaged across several firms are quite stable. Indeed, for abstainers, $\bar{Q}$ is essentially flat around 0.5\footnote{Note that there is some evidence that abstainers stock experienced a positive response as well at noon, consistent with the notion that some banks materially gained by “free-riding” on others’ commenting activity.}. Second, note that before noon the two paths are similar. Around the announcement time the returns of the commenters become more volatile. By
12:15PM the difference between the curves is apparent and remains stable over the hour.

While we have thus far used the Debit Card rule to emphasize the logic of our empirical method, the case also fills out the larger story that emerges from looking across the entire set of rules. The retention of the interim rule’s outcomes represented a preservation of policy wins for card-issuing banks. In particular, it allowed issuers the right to “tax” retail transactions for costs that were largely illusory, at least according to the merchants and Senator Durbin. For producers, preserving these wins were crucial. The burden of these fees for most merchants was small. For some large retailers, like Amazon or Best Buy, the little burdens may have been enough to justify commenting, but even for them the 1% fee hardly represents an existential threat to their business. Indeed, bank letters were notably more numerous and more detailed than the merchants at both the proposal and interim final rule stage. Consumer advocates were hardly represented at all. As an illustration of how well commenting financial firms did relative to commenting non-financial firms, American Express experienced returns near the top of its quantile returns distribution while a representative merchant (Best Buy) saw flat stock returns (see Figure 5).\footnote{Amazon’s stock rose in the aftermath but that rise had started fifteen minutes before the final rule for}
Another point this case study highlights is that understanding who benefits and how much is often, even in substantively important rules, not as hard as one might suppose. Public deliberation allows interested observers to identify a finite set of possible alternatives and their consequences. One of the two major outcomes was partially capturable in a number – the retention of the one cent adjustment. The other major issue was only slightly harder to understand, standards versus specific technologies. The Fed’s press release makes clear which way the rule went on both issues, and so does the rule’s preamble. Unsurprisingly, the market reaction to the debit card rule was immediate and sustained. Indeed, the differential returns experienced by commenting firms are observable very quickly after final rule announcement, as commenters saw returns at the 60th percentile of ranked returns after just five minutes ($\hat{\beta} = 0.1000 (0.0374), p = 0.008$). Average returns after the first hour were highly correlated at $\rho = 0.55 (p < 0.001)$ with the returns in the first five minutes.

reasons unrelated to the rule.
6.2 Proprietary Trading Restrictions on Banks: The Volcker Rule

Section 619 of the Dodd-Frank Act calls for federal agencies to write what is known as the “Volcker Rule,” so named after former Federal Reserve Chairman Paul Volcker. The Volcker Rule sought to limit the ability of certain financial institutions to engage in proprietary trading – purchasing and selling financial products on their own account in order to make a profit. The Volcker Rule was one of the most far-reaching parts of the Dodd-Frank law, designed (according to its sponsors) to limit the financial risk of large institutions and to create a better alignment of incentives between banks’ capital provision functions and their activities in speculative trading in complex financial instruments.

6.2.1 From Proposed to Final Rule

The Proposed Rule implementing Section 619 was published in the Federal Register on Monday, November 7, 2011 (FR 76 (215) 68846-68792). The Rule attracted a large number of comments, over 500 individual comments and over 18,000 form letters. The Volcker Rule arguably attracted more media attention (including from specialty trade journals in the finance field, such as the American Banker) than any other rule issued under Dodd-Frank.

As an examination of mechanisms by which comments might lead to rulemaking changes, and by which traders and other observers might see plausible gains in these changes, we worked ‘backwards’ by first examining the most important changes in the Volcker Rule from Proposed Rule to Final Rule stage, then by asking which commenting firms asked for those changes, and then by asking whether those firms saw appreciable gains in firm value in the first hour after the release of the Final Volcker Rule on December 10, 2013.

To gauge the most important changes in the Volcker Rule from proposed to final stage, we examined the analyses of top law and consulting firms that provided their clients with published overviews of the proposed and/or final rule announcements. From these we

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9The firms were Arnold & Porter, Davis Polk, Debevoise & Plimpton, KPMG, Mayer Brown, Morgan Lewis, Oliver Wyman, Simpson Thatcher, Skadden Arps, Sullivan & Cromwell, and WilmerHale. See the
identified the most important changes from proposed to final rule stage, attempting to rank-order them in order of emphasis placed upon the changes by the law and consulting firms.

While there were slight differences among the various law firms’ assessments of the final Volcker Rule, the following themes emerged from the interpretations of informed observers:

- permitted market-making related activities under the proprietary trading restrictions
- the definition of “covered funds”
- the deadlines for conformance with the Rule
- the definition of “reasonably expected near-term demands” of clients (RENTD)
- compliance and quantitative trading measures

Of these, the first – the exemption for market-making activities in the proprietary trading prohibition – occupied a central place in the commentaries of law firms. The law and consulting firms noted that the Final Rule eliminated an Appendix (Appendix B of the Proposed Rule) that had sought to clarify appropriate market-making related activities. The Final Rule also reduced the number of quantitative measurements, including revenues criteria, for measuring market-making activities. Morgan Lewis remarked (p. 10) that “The Regulations no longer include Appendix B from the Proposed Rules. This is a significant accommodation to industry concerns over the requirements and impact of the proposed Appendix B. While Appendix B purported to clarify what types of activities would be considered permissible market-making related activities, it contained a number of troublesome presumptions of activities that would be considered impermissible proprietary trading unless the banking entity could convince its regulators otherwise.”

Appendix for sources.
6.2.2 The Market-Making Exception to Proprietary Trading

The trickiest implementation issue involved in designing the Volcker rule prohibition was to avoid chilling “market-making” activities, which can often look similar. In theory, proprietary trading involves speculative trading of the firm’s own capital, obtaining profits from changes in the value of the investment, while market-making aims to obtain revenue from fees. If a customer approaches the market-making firm with a demand for a derivative, the firm either finds a counterparty immediately or, if a counterparty is not available (a mismatch), takes a position in the financial product while a counterparty is sought. The customer’s fee compensates the firm for their work on the transaction and the risk incurred during the period of mismatch.

Banks and brokerages that engage in such activity help make the financial system more liquid. If every customer had to wait for a counterparty, instability and uncertainty in financial markets would increase. Yet the firm’s ability to take a position in a product allows it to accumulate an inventory, which can generate a profit if the assets in question have been oversold elsewhere, or if the firm trades up with inventory. Appendix B of the Proposed Rule attempted to use factors such as “revenues relative to risk,” “source of revenues,” “customer-facing activity” and “payment of fees and commissions” as criteria distinguishing proprietary trading from market-making (Proposed Rules, FR 76 (215), 68961-68962).

6.2.3 Firms’ Comments on Market-Making Activities

Many prominent firms decried the Proposed Rule’s attempt to impose a rigid structure upon the measurement and permission of market-making related trading activity. In its comment letter, Goldman Sachs emphasized market-making activities and their regulation as the first area of concern. “Without substantial revisions, the Proposed Rule will define permitted market-making related, underwriting and hedging activities so narrowly that it will significantly limit our ability to help our clients – businesses and investors in the United States and around the world – invest their wealth and generate liquidity from their holdings.”
Morgan Stanley was even more direct in its criticism, requesting that the agencies “Delete Appendix B” in a section header printed in italicized, bold text: “Appendix B should be deleted from the final rule. ... The Agency should use the conformance period to analyze and develop a body of supervisory guidance that appropriately characterizes the nature of market-making related activities.”

A common theme in these comments was the wish for the Agencies to avoid specificity in rulemaking and instead adopt a more adaptive approach, one that would emphasize relational supervision between regulators and banks, would develop regulations via guidance documents and principles rather than hardwiring them into rules, and would permit firms more time to conform to the rules as they became clearer. If such requests were granted, it would allow large banks and investment firms to continue to shape the development of these guidance documents and the supervisory practices. Because Appendix B of the Proposed Rule expressed the kinds of “negative presumptions” and “undue restrictions on permitted activities” that Goldman lamented, it was a chief target of the commenters.

6.2.4 Associated Returns in the First Hour after Final Rule Announcement

The importance of changes related to market-making related activities from Proposed to Final Volcker Rule is reflected in the variable returns experienced by commenters in the first hour after the Final Rule announcement in December 2013. The thirty firms that commented upon the Volcker Rule witnessed returns at the 55th percentile of ranked returns (55.4 relative to a baseline of 50) in the first hour after the Final Rule’s announcement. One way of examining whether firms observably focused upon market-making related activities in their commenting is whether their comments were cited by the Agencies in the Final Rule (footnotes 517 to 554 of the Final Rule). Compared to all firms in the sample, firms that commented and had their comments cited in the market-making section of the rule

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experienced one-hour returns in the 64th percentile of ranked returns ($\hat{\beta} = .1437, p = 0.048$). Compared to other firms that commented, firms that were cited by the Agencies had 8.2 points higher ranked returns in that first hour ($\hat{\beta} = .0823, = 0.237$). This difference is not statistically significant, but with only thirty firms (all of whom commented on other aspects of the rules), the size of the differential in an hour of trading is rather remarkable.

More evidence about what drove observed differences between commenters and abstainers arises from investigating the difference between immediate post-announcement changes and more durable changes that unfolded over the course of the hour. Reactions after five minutes would have allowed only a cursory assessment of the rule and its changes from the proposed. Such a “quick-and-dirty” read would be driven by heuristics like prior expectation, the press-release, or summary provisions of the preamble. Reactions after an hour, by contrast, are more likely to have identified high-level differences between the Final Rule and the Proposed Rule, which the rule’s preamble discusses at great length. The difference between the 60-minute and the 5-minute market reactions $- R_{t=60} - R_{t=5}$ serves as a measure of the difference between a “more informed” read of the rule and a “less informed” read. If we then regress this differential upon whether a firm was cited at all in the footnotes to the Final Rule, we retrieve a coefficient of essentially zero ($\beta = 0.0006, p = 0.996$). In other words, firms whose comments were cited by the Agencies experienced no differential change from $t = 5$ to $t = 60$. Yet when the differential is regressed upon an indicator for whether the firm’s comment was cited in the market-making related activities section (footnotes 517 to 554), the resulting differential return is appreciable ($\beta = 0.1266, p = 0.254$), albeit still statistically insignificant in a small sample. In summary, the comments that plausibly moved the firm’s value the most were those directed at the “market-making related activities” section of the Volcker Rule, and the value ascribed to firms by traders did not accrue immediately but only after a period of interpretive digestion.

11The estimated effect of being cited at all in the final rule, but not in the market-making exemption section, is nine ranked percentage points less, and statistically insignificant ($\hat{\beta} = .0526, p = 0.58$).
6.2.5 The Pre-Proposal Stage

The data available on the Volcker Rule also permit us to observe changes in the rule (and associated firm value) that are “net” of the activity of firms that occurs before the Proposed Rule is drafted. Krawiec (2013) examines the “sausage-making” of the proposed Volcker Rule by collecting systematic data on which firms, associations and interests met with different regulators from the passage of the Dodd-Frank Act to the Proposed Rule. It was widely detected that the statute’s prohibitions on banks owning hedge funds (capping these assets at three percent of the bank’s Tier 1 Capital) were clearer than the market-making related exemptions to the proprietary trading restriction. Analysts followed the development of the Volcker Rule, including a Bloomberg story on September 26, 2011, which reported on a possibly leaked version of the draft rule document.\footnote{Cheyenne Hopkins and Phil Mattingly, “Trader Pay May Face Restrictions Under Draft Volcker Rule,” Bloomberg, September 26, 2011: \url{https://www.bloomberg.com/news/articles/2011-09-26/trader-pay-may-face-restrictions-under-dodd-frank-s-volcker-rule}}

Krawiec’s data for the Volcker Rule allows us to examine firm influence upon the drafting of the rule. Regressing the one-hour ranked returns after the release of the proposed rule upon a firm’s number of meetings with rule-writing agencies yields a positive and statistically significant coefficient of $\hat{\beta} = 0.02 \ (0.006)$, implying that for every meeting a firm had with an agency before the draft of the rule, its immediate ranked return upon release of the proposed Volcker rule was two ranks higher. Taking these estimates literally would imply that Goldman Sachs, which had 27 such meetings, would experience returns at the top of its distribution, and indeed they were \(R_{t=60}^{GS} = 1.00\).\footnote{Caution is advised in interpreting these linear estimates and especially any extrapolations, as they can exceed the constructed bounds of the index computed.} As evidence that the market had internalized these effects at the time of the Final Rule announcement, there is almost zero correlation ($\rho = -0.04 \ (p = 0.30)$) between one-hour ranked returns after the Proposed Volcker Rule and one-hour ranked returns after the Final Volcker Rule.

Our methods lend support to Krawiec’s argument that pre-NPRM activity shapes pro-
posed rules. Importantly, however, important rules changes seem to occur in the notice-and-comment process even net of pre-NPRM activity. The elimination of Appendix B occurred only during the notice-and-comment process, not before. Controlling for the first hour of returns after the proposed Volcker Rule announcement, as well as for firms that were cited outside of the market-making section, first-hour returns for firms cited in the market-making section of the final Volcker Rule were fully 15 percentage points higher in the distribution of ranked returns ($\hat{\beta} = .1521, p = 0.036$).

While the pre-NPRM stage is likely an important site of influence in rulemaking, the case studies laid out here suggest that there is considerable activity aimed at the notice-and-comment process, and that public equity markets apparently reveal that this activity yields substantial returns. It was after the rulemaking on the Durbin Amendment concluded that analysts began to detect a pattern of influence whereby the proposed rule would be stringent, industry comments would arrive, and then the final rule would be more moderate. Even embedding this expectation, public equity markets consistently assigned added value to commenting firms upon the release of Dodd-Frank final rules, not only for the Volcker Rule but also for the larger Fed-authored sample we examine. This suggests that public equity markets detect commenter influence even net of strategic rule drafting, and points again to the particular advantages of an event study methodology for studying these phenomena.

7 Results from Large-Sample Estimation

We now turn to estimation of equations (3) and (4). Our first regression in Table 1 shows an OLS regression of participation on market reactions with firm and rule fixed effects. Since returns may be of two types, favorable and unfavorable, we measure the magnitude of these deviations separately. We find that positive reactions are significantly associated with an increased tendency to participate, but the result is not stable over various time domains.

Formally, positive response is defined as $\max\{0, Q_{ij}^k - 0.5\}$ while negative response is defined as $\max\{0, 0.5 - Q_{ij}^k\}$.

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14 Formally, positive response is defined as $\max\{0, Q_{ij}^k - 0.5\}$ while negative response is defined as $\max\{0, 0.5 - Q_{ij}^k\}$. 
Table 1: Market Reaction to Rule Proposal Does Not Predict Participation

<table>
<thead>
<tr>
<th></th>
<th>Tp5</th>
<th>Tp20</th>
<th>Tp60</th>
<th>T.bar</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Negative Response</strong></td>
<td>−0.001</td>
<td>−0.003</td>
<td>0.001</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.005)</td>
<td>(0.005)</td>
<td>(0.005)</td>
</tr>
<tr>
<td><strong>Positive Response</strong></td>
<td>−0.005</td>
<td>0.004</td>
<td>0.017**</td>
<td>0.011*</td>
</tr>
<tr>
<td></td>
<td>(0.005)</td>
<td>(0.005)</td>
<td>(0.007)</td>
<td>(0.006)</td>
</tr>
</tbody>
</table>

Firm Fixed Effects Yes Yes Yes Yes
Rule Fixed Effects Yes Yes Yes Yes
Observations 29,164 27,832 23,137 29,164

Note: *p<0.1; **p<0.05; ***p<0.01

Our second regression in Table 2 examines how commenting relates to final rule outcomes (quantile-based returns). We find that the two are significantly associated, and it is consistently sized over the period of asset price measurement. All tests of significance use Huber-White standard errors.

Stock returns are noisy and cross-sectionally correlated, so the deviations reported may be less surprising than conventionally-estimated standard errors would suggest. To protect against this possibility, and also provide a kind of placebo test, we bootstrap participant returns using the following strategy. First, we select trading times at random since the
Table 2: Participation in Rulemaking Predicts Superior Market Reaction to Final Rule

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>earliest_RSP_{Tp5}</th>
<th>earliest_RSP_{Tp20}</th>
<th>earliest_RSP_{Tp60}</th>
<th>earliest_RSP_{T.bar}</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tp5</td>
<td>Tp20</td>
<td>Tp60</td>
<td>T.bar</td>
</tr>
<tr>
<td>Participated</td>
<td>0.062**</td>
<td>0.064***</td>
<td>0.069***</td>
<td>0.052***</td>
</tr>
<tr>
<td></td>
<td>(0.025)</td>
<td>(0.022)</td>
<td>(0.023)</td>
<td>(0.019)</td>
</tr>
<tr>
<td>Firm Fixed Effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Rule Fixed Effects</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>21,030</td>
<td>20,530</td>
<td>19,436</td>
<td>21,030</td>
</tr>
</tbody>
</table>

*Note:* 
*p<0.1; **p<0.05; ***p<0.01

passage of Dodd-Frank and imagine that our announcements had been taken from this pool instead of their true times. Next, we replace the true participants at random from the pool of financial sector stocks. This two stage randomization procedure preserves the clustering that is present in the real data and allows us to look at the distribution of average absolute returns for commenters. The histograms are displayed in Figure 6.

The most noteworthy observation that emerges from bootstrapping is that the returns participants receive at the proposal stage are much higher than one would expect due to chance. The 54th percentile return of participants to final rules which we observed here is not as surprising according to this measure as the conventional standard errors suggest, however this is in part because the exercise only evaluates the significance of absolute returns while the regression looks at differential returns. Differential returns of 0.07 would be quite significant according to these figures tests, since theoretically we should expect non-participants to have returns at 0.5, and any deviations among random non-participants should be correlated with
deviations of random participation. Bootstrapping differential returns is computationally intractable since one needs to estimate returns for all 681 participants in 38 rules many, many times, while for the procedure performed here only 274 acts of pseudo-participation must be estimated per replicate.

The regressions above considered differential returns following rule announcements among U.S. financial firms, but what about foreign banks, or firms that are on the consumer side of finance? We present two further regressions exploring whether there are differential returns by commenting depending on commenter type. Table 3 shows that participation by foreign financial firms was actually associated with market losses, and significantly different from domestic financial firms. Table 4 shows that the gains associated with notice-and-comment participation also appear to be reserved for financial firms that comment, as opposed to consumers of finance. Since non-U.S. financials and finance consumers did participate, these differential estimates are consistent with two potentially complementary hypotheses, namely that (1) U.S. financial firms were more informative in their commenting than non-U.S. financial firms and non-financial U.S. firms, and (2) U.S. financial firms may enjoy rents or particular influence in the commenting process.
Table 3: Market Reaction to Rule Proposal Predicts Superior Market Reaction Only for Domestic Banks

<table>
<thead>
<tr>
<th>Dependent variable:</th>
<th>earliest_RSP_Tp5</th>
<th>earliest_RSP_Tp20</th>
<th>earliest_RSP_Tp60</th>
<th>earliest_RSP_T.bar</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tp5</td>
<td>Tp20</td>
<td>Tp60</td>
<td>T.bar</td>
</tr>
<tr>
<td>Participated</td>
<td>−0.045</td>
<td>−0.051</td>
<td>−0.047</td>
<td>−0.018</td>
</tr>
<tr>
<td></td>
<td>(0.043)</td>
<td>(0.052)</td>
<td>(0.040)</td>
<td>(0.037)</td>
</tr>
<tr>
<td>Participated * US Financial Firm</td>
<td>0.109**</td>
<td>0.117**</td>
<td>0.117**</td>
<td>0.071*</td>
</tr>
<tr>
<td></td>
<td>(0.049)</td>
<td>(0.056)</td>
<td>(0.046)</td>
<td>(0.042)</td>
</tr>
</tbody>
</table>

Firm Fixed Effects   | Yes              | Yes               | Yes               | Yes               |
Rule Fixed Effects    | Yes              | Yes               | Yes               | Yes               |
Observations          | 24,816            | 24,230             | 22,940             | 24,816             |

Note: *p<0.1; **p<0.05; ***p<0.01
Table 4: Participation in Rulemaking Predicts Superior Market Reaction Only for Financial Firms

<table>
<thead>
<tr>
<th>Dependent variable:</th>
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<th>earliest_RSP_Tp20</th>
<th>earliest_RSP_Tp60</th>
<th>earliest_RSP_T.bar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tp5</td>
<td>−0.046</td>
<td>−0.002</td>
<td>−0.029</td>
<td>−0.022</td>
</tr>
<tr>
<td></td>
<td>(0.035)</td>
<td>(0.041)</td>
<td>(0.041)</td>
<td>(0.033)</td>
</tr>
<tr>
<td>Participated * US Financial Firm</td>
<td>0.091**</td>
<td>0.048</td>
<td>0.081*</td>
<td>0.063*</td>
</tr>
<tr>
<td></td>
<td>(0.041)</td>
<td>(0.045)</td>
<td>(0.045)</td>
<td>(0.037)</td>
</tr>
</tbody>
</table>

Firm Fixed Effects | Yes | Yes | Yes | Yes |
Rule Fixed Effects | Yes | Yes | Yes | Yes |
Observations       | 28,454 | 27,774 | 26,291 | 28,454 |

Note: *p<0.1; **p<0.05; ***p<0.01
8 Discussion

The previous section demonstrated correlations between comments on financial regulations and market outcomes for commenters when those regulations were announced. These announcement times are sharply identified and the timing seems as-if random. There is not much reason to doubt that the announcements “cause” the market movements that differentiate commenters and abstainers, and also differentiate commenters from one another by economic sector. These are important findings that establish the political stakes of rulemaking are large, even at the notice-and-comment stage. A harder problem is explaining why regulatory announcements differentiate firms in this fashion. Do the estimates accurately convey the marginal benefit of commenting for commenters? Put differently, is the mechanism for this observed difference the benefit of commenting or merely a byproduct of some other regulatory dynamics happening off-stage?

In Section 4.4 we considered how the difference in returns between commenters and abstaining financial firms was likely to relate to the marginal benefit of commenting for commenters. We argued that important aspects of the empirical context, for example the possibility of free-riding, the role of trade associations, market forecasting, should lead the estimates to understate the true marginal benefit of commenting if commenting were indeed effective. Our analysis also clarified that in order for our estimates to overstate the marginal benefit of commenting for commenters, firms that comment would need to do better even when they do not comment than firms that abstain. This alternative is theoretically puzzling. Why would firms that win following final regulatory announcements have a greater propensity to send comments?

While we cannot investigate all the potential explanations for our estimates, we can explore theoretically-sound mechanisms supported by existing literature. In particular, it possible that pre-NPRM participation is the common cause of commenting and gains at the final-rulemaking stage. Yet this alternative seems unlikely on the basis of our analysis of the case studies and regressions. If pre-rulemaking participation were all that mattered, one
would expect market returns at the proposal stage to predict commenting, but they do not. At least for the Volcker rule, we were able to investigate this possibility using previously collected data (Krawiec 2013). We found that pre-notice meetings significantly predict positive returns to the proposed rule, suggesting these meetings do influence regulatory outcomes. For final rule announcements, however, it appears comments matter more. Firms whose letters were cited in the market-making section of the preamble to the final Volcker rule, where a substantively important shift in policy occurred, experienced greater returns than ones who commented but were not cited or were cited in other sections. At least in this case, comments associated with successful persuasion appear to drive commenter’s superior market outcomes.

**Aggregate Market Impact of Commenting.** How big are the stakes of rulemaking? Despite all the caveats discussed above, we consider it worthwhile to characterize what the aggregate impact of commenting on market returns would be if the regression coefficients estimated in Tables 1 through 4 did capture the average marginal benefit of commenting. The smallest such coefficient implies an average difference of five percentiles, while the largest was around twelve. We approximate the market impact as follows. First, we use the inverse cdf of the normal to convert a q-score of 0.55 to an equivalent z-score, which is about 0.12. We obtain the implied change in share price by multiplying this difference by the standard deviation of each stock’s returns after an hour. We multiply this change in share-price by the number of shares currently outstanding, for each commenting firm every time they comment. This procedure yields a grand total of $3.2 billion. If the effect were 12 percentiles, the implied estimate is $7.8 billion. The fact that we have evidence of leaks, free-riding, and market-prediction suggests a higher figure. These estimates are also restricted only to publicly traded firms commenting on their own, not including trade association activity, nor the activity of privately held firms, nor rules that were announced after-hours.

**Strategic Considerations.** The results speak to existing theories and studies of rulemaking. The “political control” interpretation of (McCubbins, Noll, and Weingast 1987...
suggests that the notice-and-comment process preserves legislative policy gains achieved by parties to the original statutory bargain. Major financial firms were deeply involved in the Dodd-Frank statutory writing process (Ziegler and Woolley 2016; Carpenter 2011). The fact that affected banks comment on these rules and move proposed rules in ways that public equity traders interpret as towards the interests of the banks coheres with a “political control” interpretation. The partial differential returns for U.S. commenting banks observed in Table 3 also support this interpretation. That said, given that consumer interests represented in other firms did not benefit (Table 4), our findings are also consistent with (Balla 1998) that some parties benefit differentially from commenting, whether or not they were part of the original bargain.

Finally, the estimates presented here suggest that the rules changes are likely associated with important policy gains for commenting businesses. Because non-business entities are not publicly traded, we cannot speak with these methods to the “bias toward business” observed by (Yackee and Yackee 2006). We can say, from these estimates, that equity traders believe and bet that business interests benefit from commenting, and that if such benefits are enjoyed so disproportionately that a “bias” exists, then that bias reflects real stakes. So too, our debit rule case shows a particular rule where the benefits of commenting were restricted to financial firms, while non-financial firms did not benefit, as the policy changes likely came at the cost that other parties (consumers, vendors) pay in terms of higher interchange fees permitted by the Final Rule. This case coheres with our interpretation of the regression estimates in Table 4, which show that commenting returns are limited to financial firms.

9 Conclusion

In the burgeoning global world of notice-and-comment processes, what are the stakes? Do commenters derive observable benefit from their participation in administrative procedures? Are the changes in rules induced by comments real changes or are they more cosmetic than
valuable? What movements occur beyond the strategic dynamics of costly initial rules that are moderated by the notice-and-comment process?

An intra-day event study of stock prices following rule announcements establishes several findings: (1) proposed and final rules often provoke a statistically significant market reaction for the stock price of financial firms, (2) those firms that eventually participate observe a statistically differentiable superior return upon the announcement of the Proposed Rule, and (3) those firms that comment experience significantly higher average returns in the first hour of trading after Final Rule announcement relative to those firms that do not comment. Closer analysis of two particular rules – the debit card interchange fee rule and the Volcker Rule on proprietary trading restrictions for systemically important firms – suggest that observed changes in firm value were correlated with meaningful and firm-requested policy changes in the rules.

The limits of financial market data point to further research questions. An important implication of our results is that markets expect firms to gain from rulemaking comments. This is different from saying that commenting firms do in fact realize these gains. More assessment of possible mechanisms is needed in order to justify the claim that rulemaking participation has caused firms to receive these benefits, but nevertheless the evidence is consistent with the intuitive explanation that firms participate in rulemaking because it helps them secure more favorable regulatory outcomes.

The empirical patterns documented here have implications for the study of business influence in regulation, for the study of rulemaking, and for the study of political inequality. These include but are not limited to the following:

- Traditional measures of business influence upon politics may grossly under-measure business expenditure and benefit. Indeed, our own measures may substantially underestimate firm participation and influence activity, as much of that activity occurs “informally.”

- Our own analysis of the Volcker Rule using data from (Krawiec 2013) suggests that pre-
NPRM meetings were associated with large and identifiable near-term improvements in firm asset prices. These observations are consistent with recent evidence of meetings at OIRA by (Haeder and Yackee 2015) and among White House offices (Brown and Jiekun 2017), which also point to important policy changes occurring outside the traditional notice-and-comment process.

- Our Volcker Rule analyses suggest, however, that significant value gains accrued to firms that met with rulemaking agencies before the proposed rule, and that net of the significant gains experienced by firms that met with agencies before the proposed rule, firms participating in the notice-and-comment process saw additional gains upon the release of the Final Rule. These patterns point to the joint significance of pre-NPRM activity and commenting activity.

- Analysis of differential returns among commenting firms suggests that the realized gains in firm value from commenting were limited to financial firms and U.S. financial firms (as compared to foreign firms) in particular. This fact suggests that domestic firms may have advantages in the degree to which they have adapted their legal and political operations to national administrative procedures.

Statistical documentation of differential changes in firm value for commenting banks points to rich possibilities for further empirical inquiry. First, it should be possible to generalize the implicit method of our case studies, examining rules changes and asking whether (among those firms that participate) those whose comments more appreciably move the rules experience differentially larger asset returns. Second, scholars can ask whether these commenting activities are associated with other, non-commenting activities as measurable in lobbying and contact data. Finally, with appropriate caution for measurement of public equity markets in different settings, the methods here are potentially extensible to non-U.S. rulemaking agencies and non-federal U.S. agencies, and to other spheres of regulation.
References


Brown, Jeffrey R., and Huang Jiekun. 2017. “All the President’s Friends: Political Access and Firm Value.”


