Follow the Pipeline:
Anticipatory Effects of Proposed Regulations

Suzanne Chang, Tulane University
Joseph Kalmenovitz, University of Rochester
Alejandro Lopez-Lira, University of Florida

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Full text available on SSRN

Economics of regulation: Important & understudied

- Regulation affects a **broad range of corporate policies**
  - Often cited as a major risk factor by US companies
  - Recurring theme in political debate & academic discourse
- Until recently: broad theories, limited empirical settings
  - **Theory**: big picture tensions between public choice & public interest
  - Empirically: rule-by-rule analysis of specific policy changes
- Recently: **systematic, data-driven empirical research**
  - **Costs of compliance** (Kalmenovitz (2023); Trebbi and Zhang (2022))
  - **Textual complexity** of rules (Amadxarif et al. (2019); Colliard and Georg (2020))
  - **Fragmentation** of regulation (Kalmenovitz et al. (2023))
- All papers: focus on **effective** regulations (already binding)
- Our paper: focus on **proposed** regulations - **regulatory pipeline**

The paper in a nutshell

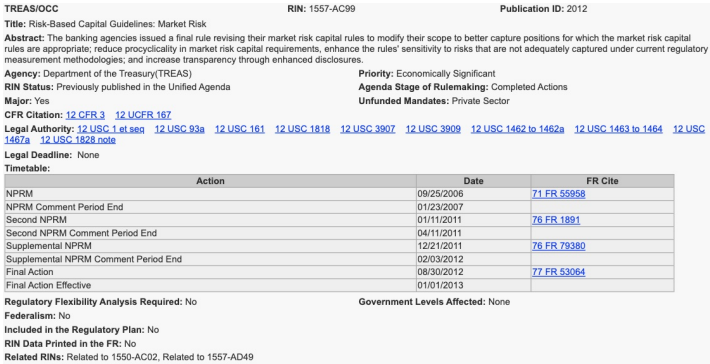
- New *firm-specific* measure of regulatory pipeline
  - Intuition: **proposed** regulations that are relevant to the firm
  - Full text from the Unified Agenda & conference calls
  - Parsing with a topic-modeling method (LDA)
  - The measure is available on our website - take a look, use, & cite!

- Main finding: **substantial anticipatory effects on firms**
  - Increases overhead costs, reduces profits & capital investment
  - Effects independent of **effective** regulations (current regulatory burden)
  - Channels: anticipation, uncertainty, economies of scale, limited regulatory capture
  - Some regulatory topics are **systematically important**

Overview of the Talk

1. Data
2. Introducing *RegPipeline*
3. Economic consequences of pipeline exposure
4. Systematic risk
5. Conclusion

Primary data source: Unified Agenda (UA)



TREAS/OCC **RIN:** 1557-AC99 **Publication ID:** 2012

Title: Risk-Based Capital Guidelines: Market Risk

Abstract: The banking agencies issued a final rule revising their market risk capital rules to modify their scope to better capture positions for which the market risk capital rules are appropriate; reduce procyclicality in market risk capital requirements, enhance the rules' sensitivity to risks that are not adequately captured under current regulatory measurement methodologies; and increase transparency through enhanced disclosures.

Agency: Department of the Treasury(TREAS)
Priority: Economically Significant
RIN Status: Previously published in the Unified Agenda
Agenda Stage of Rulemaking: Completed Actions
Major: Yes
Unfunded Mandates: Private Sector
CFR Citation: 12 CFR 3 12 UCFR 167
Legal Authority: 12 USC 1 et seq 12 USC 93a 12 USC 161 12 USC 1818 12 USC 3907 12 USC 3909 12 USC 1462 to 1462a 12 USC 1463 to 1464 12 USC 1467a 12 USC 1828 note
Legal Deadline: None
Timetable:

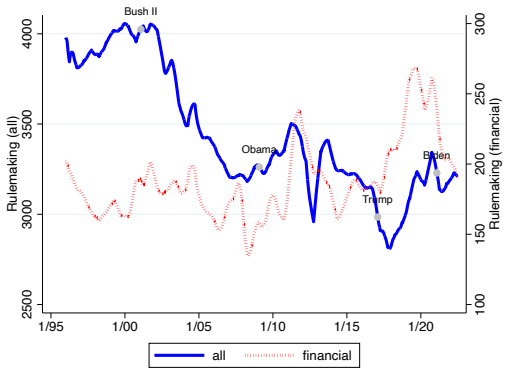
Action	Date	FR Cite
NPRM	09/25/2006	71 FR 55958
NPRM Comment Period End	01/23/2007	
Second NPRM	01/11/2011	76 FR 1891
Second NPRM Comment Period End	04/11/2011	
Supplemental NPRM	12/21/2011	76 FR 79380
Supplemental NPRM Comment Period End	02/03/2012	
Final Action	08/30/2012	77 FR 53064
Final Action Effective	01/01/2013	

Regulatory Flexibility Analysis Required: No
Government Levels Affected: None
Federalism: No
Included in the Regulatory Plan: No
RIN Data Printed in the FR: No
Related RINs: Related to 1550-AC02, Related to 1557-AD49

- An official semi-annual publication of the Federal government
- Status of all pending rules in the pipeline
- Full timetable for each rule (RIN)
- Electronic data since 1995

For each rule, we use the detailed timetables to identify entry (first mention in the UA / FR) and exit (final rule or official withdrawal). In between, the rule was in the pipeline. Reshaping the data, we know which rules were in the pipeline at any given point. This rule was in the OCC's pipeline from 9/25/2006 till 8/30/2012.

Distribution of rule proposals



	Mean	SD	Min	Max	Obs.
Outcome:					
Alive	7.5	26.3	0.0	100.0	42,934
Rule	67.1	47.0	0.0	100.0	39,735
Repeal	30.2	45.9	0.0	100.0	39,735
Mixed	2.7	16.2	0.0	100.0	39,735
Frozen	25.6	43.6	0.0	100.0	39,735
Pending Time	869.2	1,184.8	1.0	15,237.0	42,934
If Rule=0:	1,222.1	1,463.5	1.0	12,827.0	13,053
If Rule=1:	640.4	878.1	1.0	11,085.0	26,682
Importance:					
Major	5.2	22.1	0.0	100.0	42,934
Tier1	28.9	45.3	0.0	100.0	42,934
Tier2	71.1	45.3	0.0	100.0	42,934
Substantive:	63.3	48.2	0.0	100.0	42,934
Administrative:	7.8	26.9	0.0	100.0	42,934

On the left: Number of rules under development by all (& financial) federal agencies, at a daily frequency. **On the right:** $Alive = 1$ if the RIN was still under development in 2022. Conditional on $Alive = 0$, $Rule = 1$ if the RIN successfully converted into a rule; $Repeal = 1$ if the RIN was officially withdrawn before any rule was published; and $Mixed = 1$ if the RIN was partially successful (part codified and part withdrawn). $Frozen = 1$ if the RIN was put on hold ("long-term action") at least once. $PendingTime$ is the number of days the rule has been in the pipeline (or still is, if $Alive = 1$).

Overview of the Talk

1. Data
2. Introducing *RegPipeline*
   - 2.1 Measurement
   - 2.2 Properties
3. Economic consequences of pipeline exposure
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Introducing *RegPipeline*

2.1 Measurement

Step 1/3: Composition of the pipeline

$$TopicPipeline_{o,t} = \sum_{r=1}^{R_t} Weight_{o,r}$$

- **Intuition**: How many "rule fractions" are about topic o
- Identify topics with **Latent Dirichlet Allocation (LDA)**
  - Unsupervised machine-learning; unbiased, replicable, well-known (e.g., Lopez-Lira (2019))
  - Topic: a cluster of words that appear jointly in the text
  - Our focus is on 100 topics (as in Kalmenovitz et al. (2023))
- $Weight_{o,r}$ = fraction of rule r dedicated to topic o
  - Determined based on LDA; does not vary within-rule over time
  - Sum within rule = 1, but sum across rules could be > 1
- The product is $TopicPipeline_{o,t} = (0, \infty]$; how many proposed rules touch on topic o, as of time t

Step 2/3: firm exposure to the pipeline

$$\omega_{i,o,t} = \frac{Words_{o,i,t}}{Words_{i,t}} = \frac{Words_{o,i,t}}{\sum_{o=1}^{O} Words_{o,i,t}}$$

- Quarterly conference calls from the Capital IQ Transcripts database*
- Project each call into the LDA model trained on the Unified Agenda
- $Words_{i,t}$ = number of words in the call
- $Words_{o,i,t}$ = words in the call devoted to topic o
- $\omega_{i,o,t}$ = relative importance of topic o for firm i at time t
- By construction, $\omega_{i,o,t} = (0, 1]$ and its average is 1%

* We remove the operator's sentences, standard stopwords such as "the" and "and," and boilerplate words which appear repeatedly in the text but do not distinguish between topics

Step 3/3: firm-level exposure to the aggregate pipeline

$$RegPipeline_{i,t} = \sum_{o=1}^{O} \omega_{i,o,t} \cdot TopicPipeline_{o,t}$$

1. Composition of the pipeline: $TopicPipeline_{o,t}$
   - Identify regulatory topics using Latent Dirichlet Allocation algorithm (LDA)
   - E.g., Banking and Aviation
   - Compute fraction of pipeline at time t belonging to topic o
   - Measured at the topic×time level; varies over time & topics
2. Importance of topic o for firm i at time t ($\omega_{i,o,t}$)
   - E.g., banks care about Banking more than they care about Aviation
   - Measured at the firm×topic×time level; varies over time, topics, & firms
3. Combine the topic's weight ($\omega_{i,o,t}$) with the topic's frequency ($TopicPipeline_{o,t}$), to generate firm×time measure, $RegPipeline_{i,t}$

2.2 Properties

Interpreting LDA topics

- LDA does not explain what topic o is about
- However, for completion, we investigate the interpretation of the topics:
  - Dominant keywords per topic
  - Distribution over time: topics consistently used by many rules
  - Distribution over agencies: topics associated with specific agencies
  - Distribution over industries: topics associated with specific industries
- We also suggest **short label** (title) for each LDA topic
- The empirical analysis below is **independent** of how we label the LDA topics

Importance of topics across industries

- **Topic 26**: medicare, hospital, outpatient ⇒ Healthcare

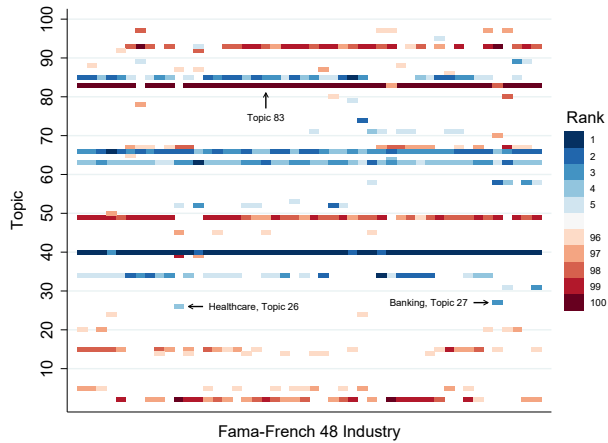
  Label: Healthcare (Medicare)

- **Topic 27**: mortgage, credit, housing= ⇒ Banking

  Label: Rural credit

- **Topic 83**: immigration, alien, passports, visa

  Label: Immigration



For each Fama-French 48 industry, we calculate the average weight of each topic. Rank #1 is for the industry's most dominant topic. topics by agencies

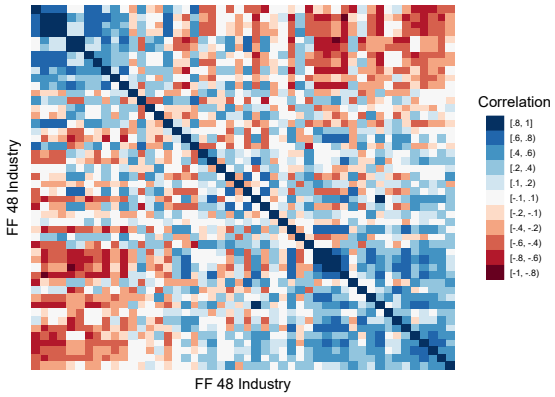
Variance decomposition

	(1)	(2)	(3)	(4)
Industry Classification	FF48	2-digit SIC	3-digit SIC	4-digit SIC
Time FE	49.5%	49.5%	49.5%	49.5%
Industry FE	9.3%	9.6%	12.3%	13.4%
Industry×time FE	1.2%	1.2%	1.8%	2.1%
Subtotal	60.0%	60.2%	63.6%	65.0%
Firm-specific (one minus subtotal)	40.0%	39.8%	36.4%	35.0%
Time-invariant (firm FE)	11.2%	11.0%	8.1%	7.0%
Firm-specific variation (residual)	28.8%	28.7%	28.2%	28.0%
Number of industries	48	68	258	409

- Economy-wide factors: 50% of the variation (by construction)
- Industry factors: 10%
- Firm factors: 11%
- Firm×year level: remaining 29%

We regress our primary measure of firm-level regulatory pipeline on a growing number of fixed effects, and report the resulting R^2.

Commonalities across industries



- Left column: Business Services
- **From the top-left corner down**: Business Services (1), Computers (0.62), Communication (0.78), Electronic Equipment (0.69)
- **From the bottom-left corner up**: Business Supplies (-0.56), Construction Materials (-0.47), Rubber and Plastic Products (-0.63)

We first compute the average $RegPipeline$ within each Fama-French 48 industry, net of time trends. We then correlate the averages across each pair of industries. The shading of each square indicates the correlation of an industry pair, with blue (red) for positive (negative) correlation.

Stock versus flow of regulation

Regulatory pipeline: low current burden, high concerns of future political risk

	$RegPipeline$	CFR	$FedRegister$	$RegIn$	$RegIn^{forms}$	$RegIn^{hours}$	$RegIn^{dollar}$	$10K$	$PRisk$
$RegPipeline$	1.00								
CFR	0.03***	1.00							
$FedRegister$	0.26***	0.00	1.00						
$RegIn$	0.06***	0.07***	0.19***	1.00					
$RegIn^{forms}$	-0.17***	-0.08***	0.06***	0.66***	1.00				
$RegIn^{hours}$	-0.16***	-0.03***	0.10***	0.70***	0.92***	1.00			
$RegIn^{dollar}$	-0.29***	0.04***	0.04***	0.37***	0.57***	0.60***	1.00		
$10K$	-0.17***	-0.07***	0.00	-0.05***	0.10***	0.06***	0.09***	1.00	
$PRisk$	0.03***	0.03***	-0.01	-0.00	-0.02***	-0.03***	-0.01	0.06***	1.00

Univariate correlations between our primary measure, $RegPipeline$, and a host of measures from the literature related to regulation: exposure to the Code of Federal Regulations (CFR, based on Al-Ubaydli and McLaughlin (2017)); costs of compliance with paperwork regulations (four versions of $RegIn$ from Kalmenovitz (2023)); discussion of regulation in the 10-K ($10K$); and discussion of political risk in the conference call ($PRisk$ from Hassan et al. (2019)).

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1. Data
2. Introducing *RegPipeline*
3. Economic consequences of pipeline exposure
   - 3.1 Main results
   - 3.2 Channels
4. Systematic risk
5. Conclusion

Economic consequences of pipeline exposure

3.1 Main results

Is exposure to the regulatory pipeline costly for firms?

H1a. *RegPipeline* **is burdensome** for firms

- **Anticipatory effects**: Future rules will likely impose compliance costs
- **Uncertainty**: Will the proposal convert, when, and in what form
- **Political economy**: harder to capture regulators

⇒ *RegPipeline* leads to higher costs & lower profits

H1b. *RegPipeline* **is desirable** for firms

- "Cheap talk" or race to the bottom among regulators
- Barriers for entry & less competition
- Positive externalities from regulation

⇒ *RegPipeline* leads to lower costs & higher profits

Public interest: Pigou (1938); Demsetz (1974); Melody (2016). *Public choice* or *capture*: Tullock (1967); Stigler (1971); Krueger (1974); Posner (1974); Peltzman (1976); Becker (1983).

Workhorse specification

$$y_{i,j,t+l} = \alpha + \beta \cdot RegPipeline_{i,j,t} + \overrightarrow{X}_{i,j,t} + \lambda_i + \lambda_{j,t} + \epsilon$$

- $y_{i,j,t+l}$ = outcome for firm i, industry j, time t
  - Primary analysis: costs, profitability
  - Additional analysis: capital investment, financial policies, lobbying
- $RegPipeline_{i,j,t}$ = firm's exposure to regulatory pipeline
- Firm and year×industry fixed effects
  - Relax FEs to study, e.g., cross-industry effects
- $\overrightarrow{X}_{i,j,t}$ = firm×year controls
  - Standard confounders: assets, CF, MTB, leverage, Tobin's Q, complexity
  - Regulatory burden & political risk
- One-year lag; divided by SD to facilitate economic interpretation; SE clustered at the Fama-French 48 industry level

Main result: exposure to the pipeline is costly

Outcome:	*SGA*			*COGS*			*NetIncome*		
RegPipeline	0.123***	0.088***	0.103***	0.214***	0.203***	0.312***	-0.067**	-0.047	-0.112**
	(0.032)	(0.032)	(0.039)	(0.068)	(0.067)	(0.085)	(0.033)	(0.033)	(0.047)
Assets	-0.789***	-0.676***	-0.805***	-1.361***	-1.354***	-2.171***	-0.196***	-0.234***	-0.143
	(0.107)	(0.108)	(0.177)	(0.255)	(0.246)	(0.522)	(0.049)	(0.051)	(0.104)
RegIn			0.122			0.410**			-0.114
			(0.085)			(0.181)			(0.083)
PRisk			-0.008			-0.074***			-0.023*
			(0.011)			(0.026)			(0.014)
Obs.	104,369	104,358	64,938	123,795	123,784	67,182	124,394	124,383	67,539
R^2	.914	.918	.923	.892	.901	.916	.632	.653	.61
Firm controls and FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time FE	YES	-	-	YES	-	-	YES	-	-
Time×FF48 FE	-	YES	YES	-	YES	YES	-	YES	YES

SGA (*COGS*) are sales, general and administrative (cost of goods sold) scaled by beginning-of-period total assets and multiplied by 100. *RegPipeline* is our primary measure. Firm controls include operating cash flows, market-to-book ratio, Tobin's Q, leverage, and complexity. *RegIn* is regulatory intensity (Kalmenovitz (2023)) and *PRisk* is political risk (Hassan et al. (2019)). Independent vars lagged and divided by SD. SE clustered by firm.

Magnitude: 15-17% of the size effect (abs. value); 70-80% of regulation effect (*RegIn*)

Economic consequences of pipeline exposure

3.2 Channels

Channel #1: Anticipation

- We interpret the results as evidence for anticipatory effects
- To substantiate this, we exploit the breadth of our data to show heterogeneous effects by rules
- Prediction: **effect stronger when rules more likely to convert & to impose heavier burden**
  - Expected costs of compliance are higher
- Strategy: compute versions of *RegPipeline* based on subsets of rules
- We find that the effects are driven by -
  (1) Rules with **higher ex-ante probability** of converting into a final rule
  (2) **More important** rules ("significant" or "economically significant")

Test #1: Effect driven by high-likelihood rule proposals

Rules:	High likelihood			Low likelihood		
Outcome:	*SGA*	*COGS*	*NetIncome*	*SGA*	*COGS*	*NetIncome*
	(1)	(2)	(3)	(4)	(5)	(6)
RegPipeline	0.248***	0.696***	-0.216**	0.084	0.065	-0.127
	(0.076)	(0.181)	(0.086)	(0.091)	(0.214)	(0.109)
Obs.	64,938	67,182	67,539	64,938	67,182	67,539
R^2	.923	.916	.61	.923	.916	.61
Firm controls and FE	YES	YES	YES	YES	YES	YES
Time×FF48 FE	YES	YES	YES	YES	YES	YES

We estimate a linear prob model, and define **high likelihood rules** as those with above-median ex-ante probability of converting into a final rule. We construct two versions of *RegPipeline*, each including only high or low likelihood rules. Firm controls include operating cash flows, market-to-book ratio, Tobin's Q, leverage, complexity, *RegIn* (Kalmenovitz (2023)), and *PRisk* (Hassan et al. (2019)). Independent vars lagged and divided by SD. SE clustered by firm.

Test #2: Effect driven by high-impact rule proposals

Rules:	High impact			Low impact		
Outcome:	*SGA*	*COGS*	*NetIncome*	*SGA*	*COGS*	*NetIncome*
	(1)	(2)	(3)	(4)	(5)	(6)
RegPipeline	0.236***	0.355***	-0.452***	0.039	0.222***	-0.011
	(0.058)	(0.124)	(0.065)	(0.033)	(0.076)	(0.041)
Obs.	64,938	67,182	67,539	64,938	67,182	67,539
R^2	.923	.916	.61	.923	.916	.61
Firm controls and FE	YES	YES	YES	YES	YES	YES
Time×FF48 FE	YES	YES	YES	YES	YES	YES

We define **high impact rules** as those designated "significant" or "economically significant". We construct two versions of $RegPipeline$, each including only high or low impact rules. Firm controls include operating cash flows, market-to-book ratio, Tobin's Q, leverage, complexity, $RegIn$ (Kalmenovitz (2023)), and $PRisk$ (Hassan et al. (2019)). Independent vars lagged and divided by SD. SE clustered by firm.

Channel #2: Uncertainty

- Regulatory pipeline can create significant legal uncertainty
  - How long would the proposal linger in the pipeline (timing uncertainty)
  - Will the proposal convert or be rescinded (outcome uncertainty)
  - How would the draft change while in the pipeline (content uncertainty)
- This could affect capital investment decisions
- H1a: pipeline exposure incentivizes **less investment** -
  - Postpone investments until uncertainty resolves*
  - Lower NPV due to rising costs
- H1b: pipeline exposure incentivizes **more investment** -
  - Compliance requires fixed assets (labor safety, environmental protection)
  - Detailed rules create certainty

* As in McDonald and Siegel (1986); Bernanke (1983); Julio and Yook (2012); Gulen and Ion (2015)).

Lower investment, cash build-up

Outcome:	*CAPX*			*Cash*		
RegPipeline	-0.067***	-0.065***	-0.079**	0.641***	0.437***	0.417**
	(0.024)	(0.023)	(0.032)	(0.131)	(0.133)	(0.182)
Obs.	123,272	123,261	67,505	123,296	123,285	67,234
R^2	.666	.716	.723	.855	.861	.853
Firm controls and FE	YES	YES	YES	YES	YES	YES
Time×FF48 FE	YES	YES	YES	YES	YES	YES

Both capital investment (CAPX) and cash (Cash) are scaled by beginning-of-period total assets. Firm controls include operating cash flows, market-to-book ratio, Tobin's Q, leverage, complexity, $RegIn$ (Kalmenovitz (2023)), and $PRisk$ (Hassan et al. (2019)). Independent vars lagged and divided by SD. SE clustered by firm.

Channel #3: Economies of scale

Outcome:	*COGS*				*SGA*			
RegPipeline	0.150***	0.112***	0.123***		0.247***	0.236***	0.338***	
	(0.032)	(0.032)	(0.039)		(0.067)	(0.067)	(0.085)	
Large × *RegPipeline*	-0.089***	-0.088***	-0.074***		-0.118***	-0.122***	-0.102***	
	(0.007)	(0.007)	(0.007)		(0.014)	(0.013)	(0.014)	
Bin1 × *RegPipeline*				0.209***				0.441***
				(0.039)				(0.085)
Bin2 × *RegPipeline*				0.095**				0.287***
				(0.038)				(0.085)
Bin3 × *RegPipeline*				0.015				0.184**
				(0.037)				(0.085)
Bin4 × *RegPipeline*				-0.049				0.121
				(0.038)				(0.086)
Bin5 × *RegPipeline*				-0.094**				0.058
				(0.038)				(0.087)
Obs.	104,369	104,358	64,938	64,938	123,795	123,784	67,182	67,182
R^2	.916	.92	.924	.927	.893	.901	.917	.918
Firm FE, controls	YES	YES	YES	YES	YES	YES	YES	YES
Regulation controls	-	-	YES	YES	-	-	YES	YES
Time FE	YES	YES	-	-	YES	YES	-	-
Time×FF48 FE	-	-	YES	YES	-	-	YES	YES

- For above-median companies, effect is 30-80% lower
- Effect **declines monotonically** across size quintiles
- **No effect** in the top quintile
- Consistent with economics of scale channel

Each quarter, we assign firms from the same Fama-French 48 industry into two groups based on whether the firm's total assets lie above ($High = 1$) or below ($High = 0$) the industry's median. In columns 4 and 8, we sort by quintiles.

Channel #4: Limited scope for regulatory capture

Outcome:	$\mathbb{1}(Lobby)$			$Lobby^{\$}$			$Lobby^{agencies}$		
$RegPipeline$	0.195	1.292	1.075	-101.074***	-83.924***	-96.869**	-0.282***	-0.343***	-0.308**
	(1.518)	(1.617)	(2.200)	(32.321)	(30.915)	(43.318)	(0.106)	(0.112)	(0.155)
Obs.	12,877	12,873	8,399	8,480	8,438	5,170	8,480	8,438	5,170
R^2	.606	.628	.635	.93	.935	.939	.782	.799	.815
Firm controls and FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Time×FF48 FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

$\mathbb{1}(Lobby) = 1$ if the firm conducts lobbying activity in a given year. Conditional on $\mathbb{1}(Lobby) = 1$, $Lobby^{\$}$ is dollar spending on lobbying and $Lobby^{agencies}$ is the number of federal agencies the firm has been lobbying. $RegPipeline$ is our primary measure of firm-level regulatory pipeline. Firm controls are $Assets$, $TobinQ$, CF, MTB, $Leverage$, $Complexity$, $RegIn$ from Kalmenovitz (2023), and $PRisk$ (from Hassan et al. (2019)). Independent vars lagged and divided by SD. SE clustered by firm.

Likely channels: unclear where to focus lobbying efforts; marginal impact on each topic is lower

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Factor model of returns with regulatory pipeline

- A systematically important topic **increases sensitivity to macro shocks**[*]
- Consider a standard factor model:

$$r_{i,t+1} = \alpha_{i,t} + \beta'_{i,t} f_{t+1} + \epsilon_{i,t+1},$$

  where $r_{i,t+1}$ is the return for stock i; f_{t+1} is latent common factors $(L \times 1)$; and $\beta_{i,t}$ is firm-specific sensitivity to the factors $(L \times 1)$

- Crucially, **β is driven by the regulatory pipeline**: $\beta_{i,t} = \Gamma'_b x_{i,t},$
- $x_{i,t}$ is the exposure of firm i to each regulatory topic $(K \times 1)$
  - Varies at the topic-firm level $\Leftarrow$ **Our measure**
- Γ_b is the exposure of each topic to each latent factor $(K \times L)$
  - Varies at the topic-factor level $\Leftarrow$ **To estimate** methodology
  - **Topic (row in Γ_b) with high loadings is systematically important**

[*] Similar to, e.g., Kelly et al. (2019), Lopez-Lira (2019), and Giglio et al. (2023).

Systematically important regulatory topics

Topic	Label	ΔR^2
Topic 93	Pharmaceuticals	0.40***
Topic 24	Health: insurance	0.16***
Topic 74	Government contracts: natural resources	0.11***
Topic 14	Securities: taxes and penalties	0.11***
Topic 97	Environmental protection	0.10***
Topic 59	Environmental protection: hazardous substances	0.10**
Topic 42	Product manufacturing	0.10
Topic 47	Aviation: aircraft safety	0.10

A systematically important regulatory topic satisfies two conditions: (1) Explains **large fraction** of the time-series variation in stock returns (ΔR^2), relative to other topics. (2) The impact on stock returns is **statistically significant**. The methodology follows Kelly et al. (2019). Some non-systematically important topics are "Imports: Cultural property," "Freedom of Information," and "Exports: arms and munitions."

Overview of the Talk

1. Data
2. Introducing *RegPipeline*
3. Economic consequences of pipeline exposure
4. Systematic risk
5. Conclusion

What did we learn from the paper?

(1) Firm-specific exposure to regulatory pipeline

- Intuition: firm expects more relevant regulations in the future
- Utilize a largely-unknown source of information: Unified Agenda
- Map the Agenda to individual firms using LDA technology

(2) Anticipatory effects of regulatory pipeline

- Increases overhead costs while reducing profits and capital investment
- Subtantial source of burden, independent of effective regulations
- Likely channels: anticipation, uncertainty, economies of scale, political economy
- Some topics are systematically important

* The measure is available on our website - take a look, use, & cite!

Appendix

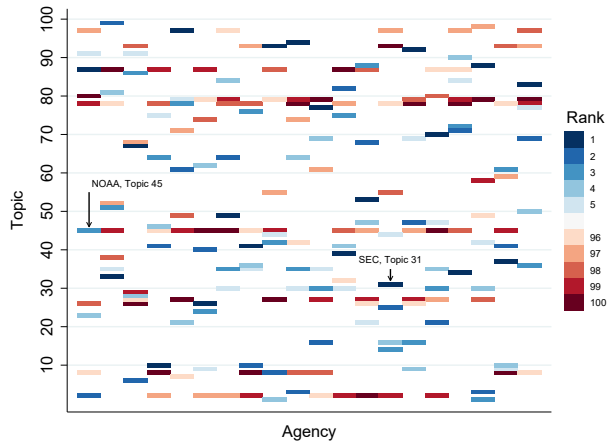
Importance of topics across agencies

- **Topic 45**: fish, vessel, ocean ⇒ National Oceanic & Atmospheric Admin. (NOAA)

  Label: Fisheries & fishing (Treaties)

- **Topic 31**: investment, company, disclosure ⇒ Securities & Exchange Commission (SEC)

  Label: Securities (Investment companies)



For each of the top 20 agencies, we calculate the average weight of each topic across the agency's history of rules and report the agency's top and bottom five topics. Rank #1 is for the agency's most dominant topic. back

Systematically important regulations: Methodology

- We follow the bootstrapping procedure in Kelly et al. (2019)
- For each regulatory topic o:
  1. Estimate a model of returns with and without topic o, that is, set the corresponding row in Γ_b to zero
  2. Obtain total R^2 in both scenarios:* the model's ability to explain the time-series variation in stock returns
  3. Compute $\Delta R^2 \Rightarrow$ how much does topic o contribute
  4. Repeat the process 1,000 times to obtain statistical significance
- Finally, we categorize topic o as systematically important if:
  1. **Magnitude:** Its contribution to ΔR^2 is amongst the top
  2. **Significance:** The corresponding row in Γ_b is significantly different from zero

* Total R^2 is defined as $1 - \frac{\sum_{i,t}(r_{i,t+1} - \hat{\beta}_{i,t} f_{t+1})^2}{\sum_{i,t} r^2_{i,t+1}}$.

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