Baker & Goldsmith-Pinkham

Measuring Corporate Governance from the Source

Language Models and the Full Proxy Corpus

Andrew C. Baker UC Berkeley Law **Paul Goldsmith-Pinkham** Yale SOM

NBER Corporate Finance · November 6, 2026

Outline

- Outline the parsing protocol
- Describe what we learn about governance provisions over the full cross-section of public firms
- Show how the data can be used to help resolve empirical disputes
- Discuss where we go from here

Corporate Governance Parsing Protocol

Corporate governance

- Managers run the firm while shareholders bear the consequences
- Shareholders retain a few powers: elect the board, approve major transactions, etc.
- The rules governing internal affairs reside in charters, bylaws, and disclosures
- Theory says these rules matter. Testing that requires measuring them across many firms

Berle & Means (1932); Jensen & Meckling (1976); Gompers, Ishii & Metrick (2003); Bebchuk, Cohen & Ferrell (2009)

Existing data

Sources

- IRRC → RiskMetrics → ISS (via WRDS)
- SharkRepellent (FactSet)
- Equilar, BoardEx, MSCI, Refinitiv, Bloomberg

Limits

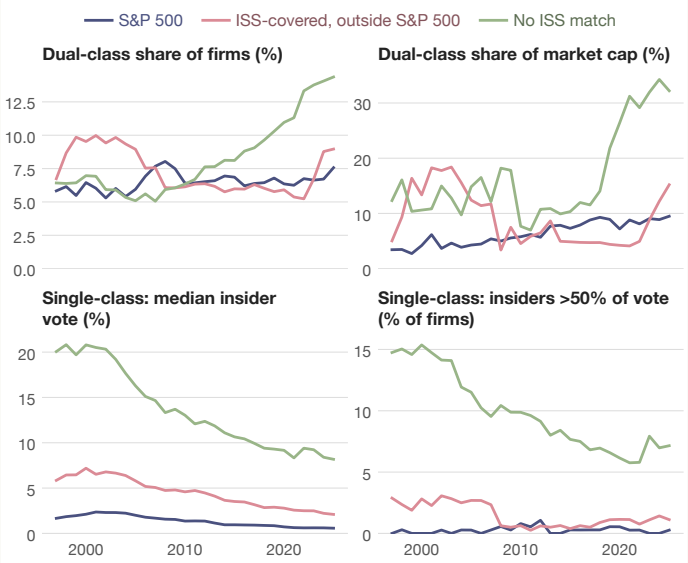
- Opaque coding; vendors disagree with each other
- Expensive subscriptions
- Coverage stops at the S&P 1500

Daines, Gow & Larcker (2010); Larcker, Reiss & Xiao (2015); Berg, Koelbel & Rigobon (2022)

Proxy statements as a data source

- Every reporting company files a DEF 14A each year, free on EDGAR since 1997
- Content is somewhat standardized by Schedule 14A: shares and votes per class, director terms, the beneficial-ownership table
- Form of this content is not, with thousands of layouts, footnotes, plain-text tables
- Hand-coding the full corpus would have been herculean task, if even possible.
- A nascent literature on LLMs for data creation: Ludwig, Mullainathan & Rambachan (2026) on automating the measurement of economic concepts for downstream analysis with validation sampling.

Insider voting power by coverage tier

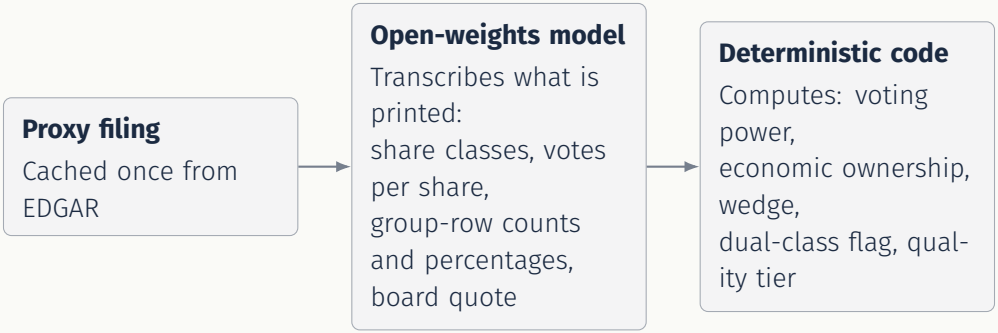


Three measures

Measure	Where it is disclosed
Staggered board	Director terms, Item 401(a)
Dual-class structure	Classes and votes per share, Item 6
Insider voting power and economic ownership	Directors-and-officers group row of the ownership table, Item 403

Wedge = voting power − economic ownership

Transcribe / compute split



- The parsing model is never asked to compute anything, just retrieve information
- 35B open-weights model at temperature zero, 140,314 filings
- Frontier model (Claude Opus) parsing particularly hard-to-read filings, or for auditing ($100 total)

Validation

- Adversarial sample of 170 hand-adjudicated filings, acts as a regression gate for every pipeline change
- Random audits: 250 + 160 filings, frontier auditor, adversarial verifier, human adjudication of disputes
- External agreement: ISS/IRRC 97–99%, CII dual-class recall 99%

Accuracy (%), 160-filing audit	As measured	After repairs
Dual-class classification	99.4	100
Board classification	99.3	100
Insider voting power	95.9	100
Insider economic ownership	92.5	98.5

Staggered board, the easy case: Bruker 2025

PROPOSAL NO. 1
ELECTION OF DIRECTORS

Our Restated Certificate of Incorporation provides that our Board will consist of three classes of directors with overlapping three-year terms. One class of directors is to be elected each year for a three-year term. Directors are assigned to each class in accordance with a resolution or resolutions adopted by the Board, each class consisting, as nearly as possible, of one-third the total number of directors. There are currently 10 members of our Board, consisting of three Class II directors serving terms expiring at our Annual Meeting of Stockholders in 2026, three Class III directors serving terms expiring at the 2027 Annual Meeting, and four Class I directors serving terms expiring at our Annual Meeting of Stockholders in 2025. The four current Class I directors whose terms expire at our 2025 Annual Meeting of Stockholders are Bonnie H. Anderson, Frank H. Laukien, Ph.D., John A. Ornell, and Richard A. Packer.

Staggered board, the hard case: E.W. Scripps 2025

ANNUAL MEETING OF SHAREHOLDERS
AND PROXY STATEMENT

The E.W. Scripps Company
312 Walnut Street, Cincinnati, Ohio 45202

Proposal 1 Election of Directors

(Item 1 on the Proxy Card)

A board of 12 directors is to be elected, three by the holders of Class A Common Shares voting separately as a class and nine by the holders of Common Voting Shares voting separately as a class. The nominating & governance committee recommended to the Board each of the nominees set forth on the following pages. In the election, the nominees receiving the greatest number of votes will be elected. Directors are elected by the shareholders for terms of one year and hold office until their successors are elected and qualify. Each of the director nominees identified in this Proxy Statement has consented to being named as a nominee in our proxy materials and has accepted the nomination and agreed to serve as a director if elected.

Classes elect directors by constituency, not by term; all twelve are elected annually

Dual class, the easy case: Gaia 2026

INFORMATION CONCERNING SOLICITATION AND VOTING

Quorum and Voting Rights

Holders of a majority of the outstanding votes eligible to be cast by our Class A common stock and Class B common stock at the annual meeting must be present at the annual meeting or represented by proxy to constitute a quorum. Only shareholders of record at the close of business on the record date, March 6, 2026 will be entitled to notice of, and to vote at, the annual meeting. As of March 6, 2026, there were 19,577,872 shares of our Class A common stock, par value $0.0001 per share, and 5,400,000 shares of our Class B common stock, par value $0.0001 per share, outstanding and entitled to vote. Holders of our Class A common stock as of the record date are entitled to one vote for each share held and holders of our Class B common stock as of the record date are entitled to ten votes for each share held. The holders of our Class A common stock and Class B common stock will vote together as a single class. Cumulative voting is not permitted for any purpose. Once a quorum is present, the affirmative vote of a majority of the votes eligible to be cast on the subject matter shall be the act of the shareholders, other than with respect to the election of directors, as described below.

Dual class, the hard case: Light & Wonder 2023

exercise or conversion within 60 days of April 10, 2023.

The following table sets forth certain information regarding beneficial ownership of the equity securities of SciPlay by:

- each of our directors and named executive officers, individually; and
- all of our directors and executive officers, as a group.

The number of shares and the percentages of beneficial ownership set forth below are calculated as of April 10, 2023 based on outstanding shares of Class A common stock of 21,936,334 and Class B common stock of 103,547,021. Except as otherwise indicated, the stockholders listed in the table below have sole voting and investment power with respect to the shares indicated.

The two classes belong to SciPlay, a subsidiary. Light & Wonder has one class

Ownership, the easy case: Duluth Holdings 2026

	Beneficial Ownership of Common Stock				
	Class A		Class B		% of Total Voting Power
	Shares	%	Shares	%	
5% Shareholders:					
Stephen L. Schlecht and Marianne M. Schlecht Descendants Trust[1]	—	—	8,694,295	25.0%	12.7%
Askeladden Capital Management LLC and Samir Patel[2]	—	—	2,207,287	6.3%	3.2%
Named Executive Officers, Directors and Director Nominees:					
Stephen L. Schlecht	3,364,200[3]	100.0%	7,119,588	20.5%	59.6%
Stephanie L. Pugliese[4]	—	—	2,460,009	7.1%	3.6%
Samuel M. Sato[5]	—	—	857,966	2.5%	1.3%
Heena K. Agrawal	—	—	396,152	1.1%	*
David Homolka	—	—	379,911	1.1%	*
David C. Finch	—	—	207,480	*	*
Janet H. Kennedy	—	—	112,128	*	*
Brett L. Paschke[6]	—	—	155,314	*	*
Susan J. Riley	—	—	82,556	*	*
Ronald Robinson	—	—	74,973	*	*
Scott K. Williams	—	—	136,629	*	*
All Executive Officers, Directors, and Director Nominees as a Group (12)	3,364,200	100.0%	12,048,655	34.7%	66.8%

Group row: 66.8% of votes, 40.4% of shares

Ownership, the hard case: Gaia 2026

Title of Class of Common Stock	Name and Address of Beneficial Owner	Amount and Nature of Beneficial Ownership[1]	Percent of Class[2]	Percent of Class A Assuming Full Conversion of Class B Ownership[3]
Class A	AWM Investment Company, Inc.[4]	1,252,090	6.40%	5.01%
	BlackRock, Inc.[5]	1,027,164	5.25%	4.11%
	Flint Ridge Capital LLC[6]	1,180,000	6.03%	4.72%
	John P. Szabo, Jr.[6]	1,950,000	9.96%	7.81%
	Koller Capital LLC[7]	1,267,763	6.48%	5.08%
	Jirka Rysavy[8]	5,768,225	23.09%	23.09%
	Kiersten Medvedich[9]	93,769	*%	*%
	James Colquhoun[10]	951,203	4.86%	3.81%
	Ned Preston[11]	2,000	*%	*%
	Yonathan Nuta[12]	5,541	*%	*%
	Paul Sutherland[13]	347,719	1.78%	1.39%
	Kristin E. Frank[14]	117,467	*%	*%
	Anaal Udaybabu	—	—%	—%
	Keyur Patel	—	—%	—%
	Kimberly Arem[15]	5,000	*%	*%
	All directors, director nominees, and officers as a group (9 persons)	6,339,721	26.02%	25.38%
Class B	Jirka Rysavy[8]	1,400,000	25.93%	5.60%
	Jirka Rysavy, LLC[8]	4,000,000	74.07%	16.01%
	All directors, director nominees, and officers as a group (9 persons)	5,400,000	100.00%	N/A

The Class A group row includes 5.4m as-converted Class B shares

Votes ≈ 74%
Economics ≈ 25%

Neither number is printed

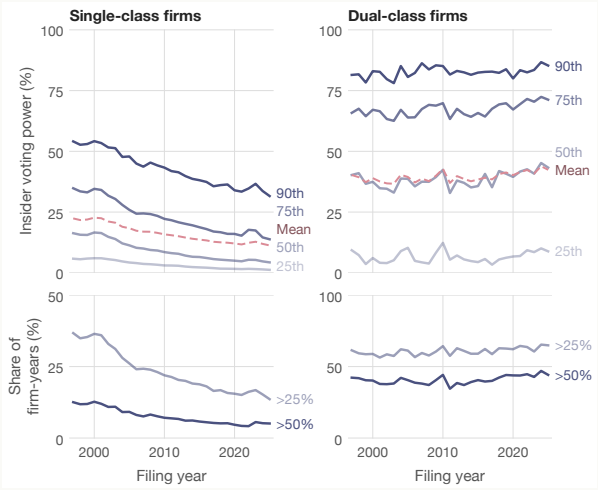
Corporate Governance in Practice

Coverage

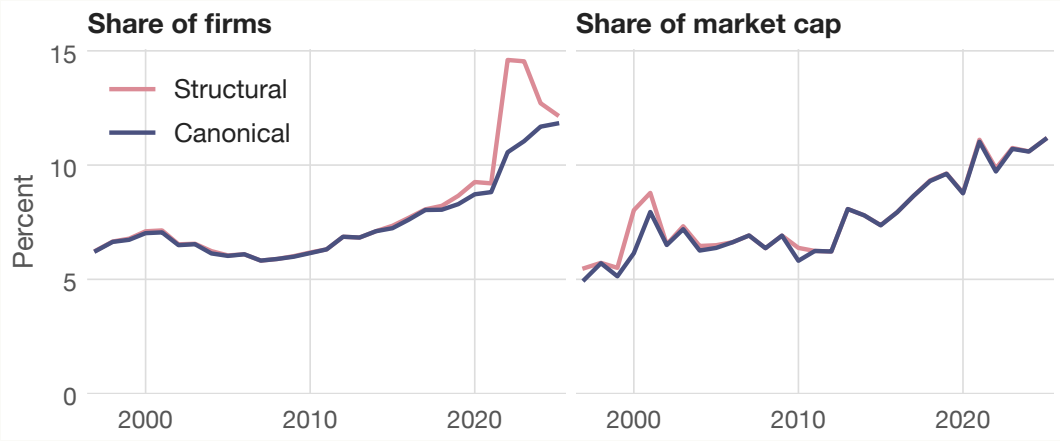
Filing years	Frame firm-years	Filings	Coverage (%)	Flagged (%)
1997–2002	37,420	37,409	85.6	3.1
2003–2010	35,766	39,932	91.9	2.0
2011–2018	29,167	31,424	94.3	1.2
2019–2026	23,464	31,549	92.5	0.9
All	125,817	140,314	90.7	1.9

Frame: CRSP/Compustat common stock, no exchange or index filter. Flagged rows are kept, not dropped

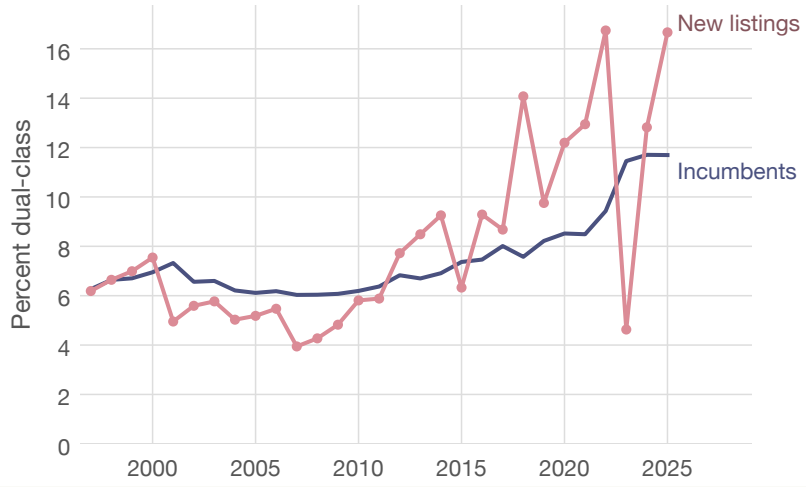
Insider voting power, single- versus dual-class



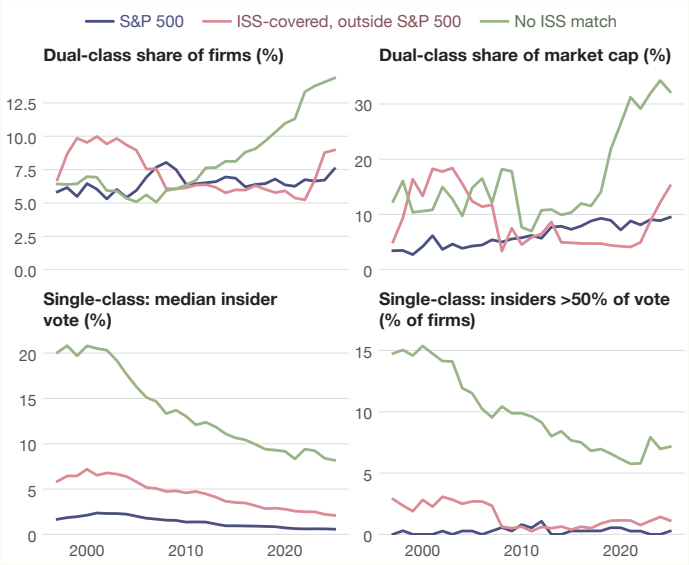
Dual-class prevalence



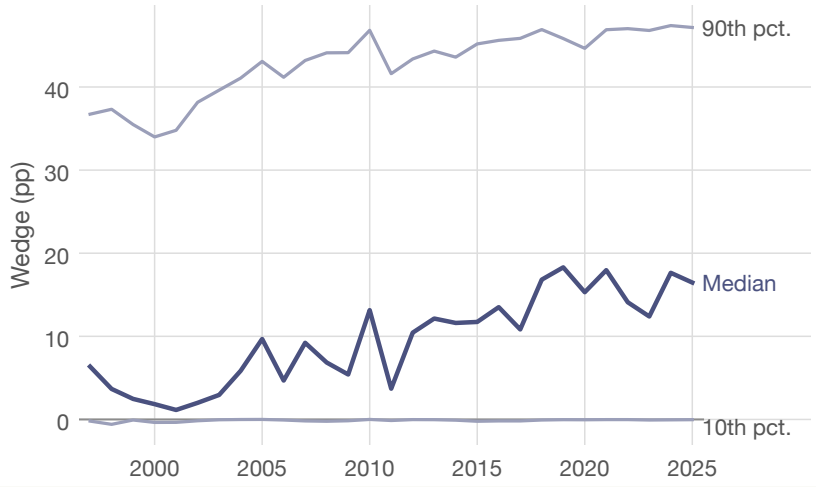
Incumbents versus new listings



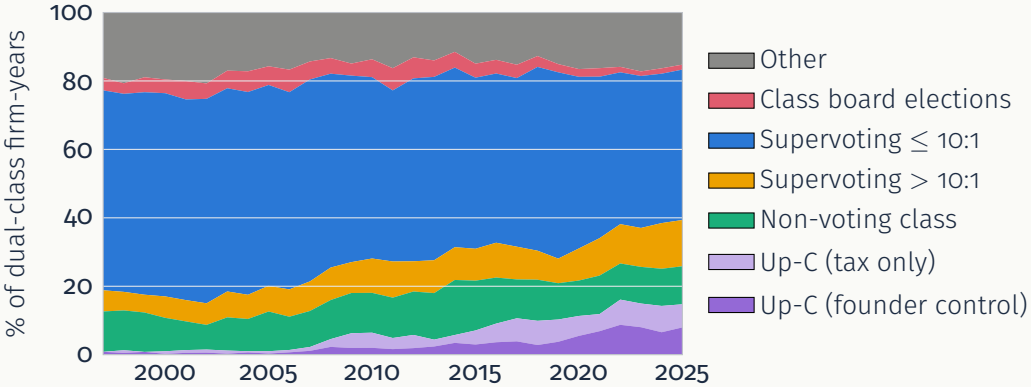
Insider voting power by coverage tier



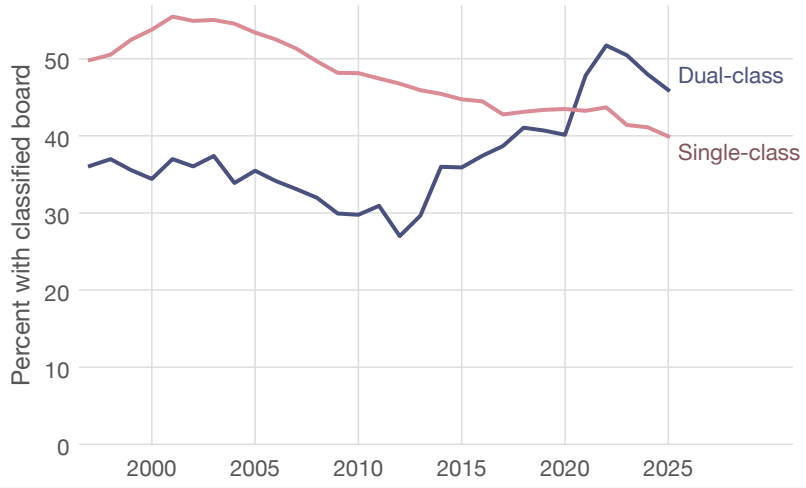
The wedge


90th pct.
Median
10th pct.
Wedge (pp)
40
30
20
10
0
2000
2005
2010
2015
2020
2025

Control mechanisms



Staggered boards and dual class



Where control hides

- In 2,547 of 8,581 dual-class firm-years, the largest holder outvotes the entire directors-and-officers group
- In 876 of those, the controller holds a majority and the group row does not
- Family entities add more than five points of voting power in 1,211 firm-years

How it Helps: Chetty and Saez (2005, 2010)

The 2003 dividend-tax cut

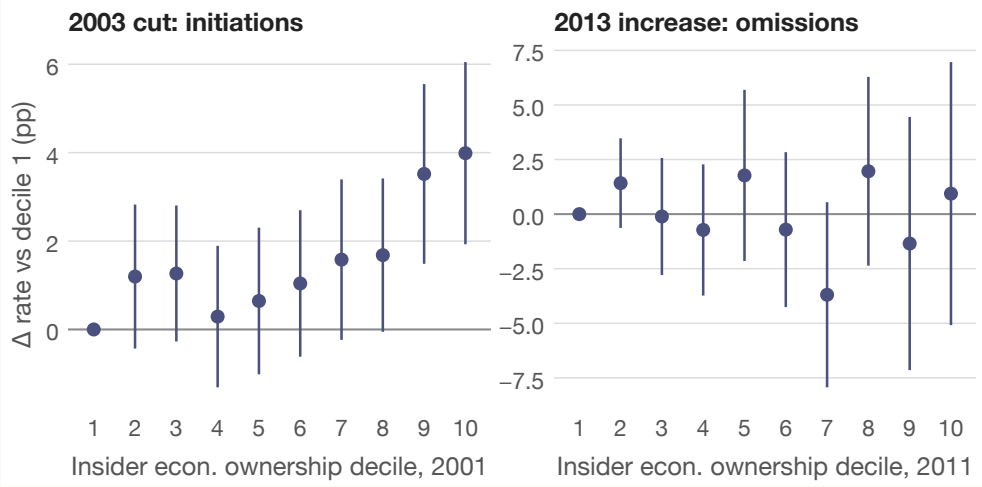
- Top dividend rate fell from 38.6% to 15%
- Chetty & Saez (2005): dividend initiations rose at firms where insiders held large personal stakes
- Chetty & Saez (2010): the stake gives the incentive to initiate, but managers need the power
- Prior work users insider share as the proxy

Edgerton (2013); Hanlon & Hoopes (2014); Floyd, Li & Skinner (2015); Yagan (2015); Jacob & Michaely (2017)

Design

- We look at regular dividend initiations around the 2003 cut, with the 2013 rate increase (from 15% to 23.8%) as a symmetry check
- Pre-treatment economic ownership and voting power from the group row, while the wedge is the difference
- Difference-in-differences by ownership decile, then ownership $\times$ wedge

Initiations by decile of insider economic ownership

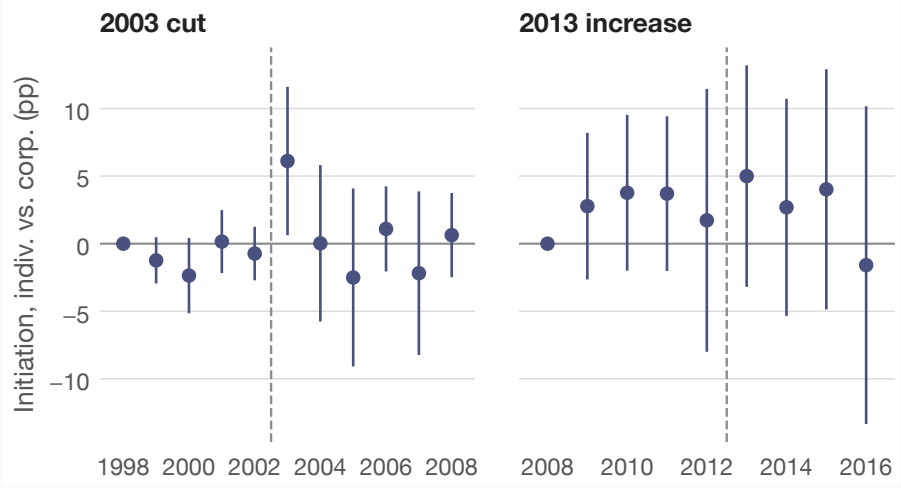


Incentive, control, and their interaction

	2003 (rate cut)	2013 (rate rise)
Econ. ownership (per s.d.)	0.54	**−1.15**
	(0.43)	(0.42)
Wedge (per s.d.)	2.02	0.29
	(0.71)	(0.61)
Econ. × Wedge	2.22	**−0.01**
	(0.87)	(0.31)

Impact-year coefficients, percentage points, linear probability model of initiation; firm-clustered SEs

Individual versus corporate controllers



Real effects on the controller margin



Conclusion

Where this goes

- As academics, we can create a free, audited panel for the full proxy corpus, every value traceable to the filing
- New measures, new firms, new years at low marginal cost
- We can combine with charter and by-laws from to make it a one-stop shop for governance data