Online Appendix

"RETAIL SHAREHOLDER PARTICIPATION IN THE PROXY PROCESS: MONITORING, ENGAGEMENT, AND VOTING"

Alon Brav,[a] Matthew Cain,[b] and Jonathon Zytnick[c*]

This Online Appendix provides supplemental and robustness tests to accompany the results in the paper.

Section A provides additional tables. Section B provides additional figures. Section C provides additional discussion about preference- and information-based theories of voting. Section D provides institutional background information about shareholder voting. Appendix E provides additional information about our data and variable construction. Section F contains an illustrative example of retail shareholder voting. Section G provides additional information regarding our section on voting methods.

[*] Alon Brav is the Peterjohn-Richards Professor of Finance at Fuqua School of Business, Duke University, ECGI and NBER. He can be reached by phone: (919) 660-2908, email: brav@duke.edu. Matthew Cain is a Senior Fellow at the Berkeley Center for Law and Business, UC Berkeley School of Law. He can be reached at phone: (574) 485-8065, email: mdcain@outlook.com. Jonathon Zytnick is a fellow at NYU School of Law's Institute for Corporate Governance and Finance, and a PhD student at Columbia University. He can be reached at phone: (240) 498-9112, email: jzytnick@gmail.com.

Table A1. Categorization of ISS Voting Analytics proposals

The ISS Voting Analytics dataset contains two fields that we use to categorize shareholder proposals. The first, Item Description, is a description of the proposal on the proxy statement. The second, Agenda General Description, is a standardized and more concise description, e.g., "Approve Political Donations." The proposals in the ISS Voting Analytics dataset are captured by only 310 distinct Agenda General Descriptions as compared to 46,343 distinct Item Descriptions. We allocate each of the Agenda General Descriptions into twelve broad categories designed to capture the diversity of these proposals. For proposals with insufficient information in their Agenda General Descriptions, we use the Item Description to assign them into one of our twelve categories. We use string matches (e.g., "Elect Director") to assign the bulk of these proposals into categories, and then hand-match the remaining proposals. The table below reports the twelve categories.

Categories of Proposals:		
1	Directors	Elect director
2	Accounting	Financial statements/Auditor
3	Governance	Board and shareholder rights
4		Compensation
5		Say on Pay frequency
6		Other
7	Major transactions	Issuance, buyback, distribution, stock split, or conversion
8		M&A
9	Shareholder environmental	Climate change, sustainability, etc.
10	Shareholder social	Diversity, lobbying, etc.
11	Shareholder governance	
12	All remaining proposals	

Table A2. Management and shareholder proposals in the retail voting dataset

This table reports information on the content of proposals in the retail voting dataset. The sample is limited to retail dataset proposals that were matched with data from ISS Voting Analytics and CRSP. The table reports the number of proposals of each type. Proposal categories are based on item descriptions from ISS Voting Analytics (see Online Appendix Table A1). Sponsor, management recommendation, and ISS recommendation are from ISS Voting Analytics. In the rows pertaining to ISS recommendations, we exclude proposals regarding the frequency of Say on Pay votes for which do not have "For" or "Against" recommendations.

	2015	2016	2017
All Proposals	16,583	17,502	19,847
Management:			
Elect director	8,620	9,161	9,682
Financial statements/Auditor	2,976	3,016	3,001
Governance - board & shareholder rights	221	263	216
Governance - compensation	3,515	3,681	3,900
Governance - other	160	211	228
Governance - Say on Pay frequency	118	127	1,812
Major Transactions - issuance, buyback, distribution, stock split, or conversion	270	295	330
Major Transactions - M&A	146	196	200
Other	43	42	41
Shareholder:			
Environmental	76	91	83
Social	115	131	129
Governance	323	288	225
Management:	15,951	16,865	17,598
Management For & ISS For	14,680	15,434	16,013
Management For & ISS Against	1,268	1,425	1,574
Shareholder:	514	510	437
Management Against & ISS For	387	345	298
Management Against & ISS Against	111	142	123

Table A3. Coverage of the retail voting sample in CRSP and ISS Voting Analytics

This table reports information on the proportion of firms in the CRSP and ISS Voting Analytics datasets contained in the retail voting sample. The CRSP universe is limited to those firms with non-missing information on price or number of shares and have share codes 10 or 11. The retail dataset is limited to those firms for which we have both proposal data and matching shareholder voting data. Panel A reports, for each size quintile by year, the number of firms (by 6-digit CUSIP) in CRSP and the subset of those CRSP firms that are in the retail data and have a meeting in that year. Firm size is calculated as the product of CRSP variables *csho* and *prc*, and quintiles are determined using the NYSE size breakpoints from Ken French's website. Panel B reports, for each size quintile by year, the number of firms (by 6-digit CUSIP) that are in both ISS Voting Analytics and CRSP and the subset of those firms that are in the retail data and are matched to at least one meeting in the ISS Voting Analytics dataset in the given year. Panel C reports, for each institutional ownership quintile by year, the number of firms in CRSP (by 6-digit CUSIP) and the subset of those CRSP firms that are in the retail data and have a meeting that year. Institutional ownership quintiles are calculated using data from Thomson Reuters, and Panel C is limited to those firms that have institutional ownership reported by Thomson Reuters.

Panel A: Number of firms relative to the CRSP universe, by size quintile

	2015			**2016**			**2017**		
Size quintile:	CRSP	CRSP & Retail data	Coverage percent	CRSP	CRSP & Retail data	Coverage percent	CRSP	CRSP & Retail data	Coverage percent
Smallest	1,964	1,629	82.94	1,909	1,616	84.65	2,001	1,734	86.66
2	752	645	85.77	701	641	91.44	607	558	91.93
3	455	408	89.67	467	435	93.15	450	419	93.11
4	392	346	88.27	387	357	92.25	362	346	95.58
Largest	343	314	91.55	336	323	96.13	329	318	96.66
Total	3,906	3,342	85.56	3,800	3,372	88.74	3,749	3,375	90.02

Panel B: Number of firms relative to the CRSP and ISS Voting Analytics universes, by size quintile

Size quintile:	2015			2016			2017		
	CRSP & ISS	CRSP, ISS & Retail data	Coverage percent	CRSP & ISS	CRSP, ISS & Retail data	Coverage percent	CRSP & ISS	CRSP, ISS & Retail data	Coverage percent
Smallest	1,614	1,556	96.41	1,596	1,569	98.31	1,646	1,606	97.57
2	655	626	95.57	610	599	98.2	569	561	98.59
3	409	396	96.82	419	418	99.76	434	421	97
4	371	356	95.96	361	360	99.72	375	371	98.93
Largest	327	313	95.72	322	321	99.69	316	309	97.78
Total	3,376	3,247	96.18	3,308	3,267	98.76	3,340	3,268	97.84

Panel C: Number of firms relative to the CRSP and institutional ownership universes, by institutional ownership quintile

Institutional Ownership Quintile:	2015			2016			2017		
	CRSP & TR	CRSP, TR & Retail data	Coverage percent	CRSP & TR	CRSP, TR & Retail data	Coverage percent	CRSP & TR	CRSP, TR & Retail data	Coverage percent
Smallest	646	600	92.88	654	602	92.05	657	623	94.82
2	645	608	94.26	654	624	95.41	657	628	95.59
3	646	611	94.58	654	635	97.09	657	640	97.41
4	645	620	96.12	654	635	97.09	657	642	97.72
Largest	645	614	95.19	654	641	98.01	657	644	98.02
Total	3,227	3,053	94.61	3,270	3,137	95.93	3,285	3,177	96.71

Table A4. Ownership of brokerage accounts from the 2016 Survey of Consumer Finances

This table reports probit regression results predicting the ownership of a brokerage account using the 2016 Federal Reserve Board's triennial Survey of Consumer Finances (SCF). The SCF is a nationally representative cross-sectional survey of U.S. households. Families participating in the SCF respond to questions on financial and nonfinancial assets, debt, employment, income, and household demographics, providing the most comprehensive and highest quality microdata on U.S. household wealth (Bricker, Henriques, and Moore (2017)). See the documentation available at https://www.federalreserve.gov/econres/scfindex.htm. The dependent variable, Brokerage Account, is a dummy variable equal to one if the household has a brokerage account (SCF variable X3923). Household demographics include Age (SCF variable X8022), which is based on six categories: < 30, 30-40, 40-50, 50-60, 60-70, and >70. The first age category, <30, is the omitted group in the estimation below. Female-headed household (SCF variable 8021) is a dummy variable equal to one for female-headed households and zero otherwise. Household size (SCF variable X7001) is the number of people in the primary economic unit, which takes the values 1 through 12. Education (SCF variable X5931) is the highest level of school completed or highest degree received, split into three categories: below high school, high school, and college degree or higher. The high school category is the omitted variable in the estimation below. Marital status (SCF variable X8023) is a dummy variable equal to one if married and zero otherwise. Income (SCF variable X5729) is the total income of the primary economic unit and its family living in the same premises that was received in 2015 from all sources, before taxes and other deductions. We include the log of income below. Job Status (SCF variable X6670) is a dummy variable equal to one if working or self-employed and zero otherwise. Business equity (SCF variable X3103) provides information on businesses that the primary economic unit or family owns. Business equity is coded as a dummy variable equal to one if the primary economic unit has ownership or share of ownership in any privately-held businesses, including farms, professional practices, limited partnerships, private equity, or any other business investments that are not publicly traded. Homeowner (SCF variable X701) is a dummy variable equal to one if the primary economic unit and family own the house and zero otherwise. Net worth is measured following the definition from the SCF bulleting available at: https://www.federalreserve.gov/econres/files/Networth%20Flowchart.pdf with data available at: https://www.federalreserve.gov/econres/files/scfp2016s.zip. We include below the log of net worth. Since some households have negative net worth we form the variable as follows: $\log(\text{net worth} - \min(\text{net worth}, 0) + 1)$. Savings account (SCF variable X3727) is a dummy variable equal to 1 if the primary economic unit or anyone in the family living at the same premises has a savings or money market account and zero otherwise. Retirement account (SCF variable X3601) is a dummy variable equal to one if the household has a retirement account and zero otherwise. Mutual funds or hedge funds (SCF variable X3819) is a dummy variable equal to one if the household has an investment in a mutual fund or hedge fund and zero otherwise. Assets reported in this variable do not include any pension or 401(k) accounts. Financial knowledge (SCF variable X7556) measures knowledge about personal finance with -1 (not at all knowledgeable about personal finance) to 10 (very knowledgeable about personal finance). Attitude towards risk (SCF variable X7557) measures on a scale from -1 to 10 willingness to take financial risks when saving or making investments with -1 (not at all willing to take risks) to 10 (very willing to take risks). For each of the three specifications we report the coefficients and the t-statistics in parentheses below and the marginal effects at the mean of the regressors (margins command in Stata). Standard errors are calculated to account for both imputation error and sampling variability following the SCF documentation available at: https://www.federalreserve.gov/econres/files/Standard_Error_ Documentation.pdf. *, **, and *** represent significance at the 0.05, 0.01, and 0.001 levels, respectively.

	(1)		(2)		(3)	
Brokerage account	Coefficient	Marginal	Coefficient	Marginal	Coefficient	Marginal
Intercept	-22.25***		-16.17***		-15.37***	
	(-20.34)		(-16.18)		(-15.58)	

Age						
30-40	0.2423**	0.0443*	0.1885*	0.0307	0.2081*	0.0331*
	(2.73)	(2.52)	(2.02)	(1.86)	(2.24)	(2.07)
40-50	0.2342*	0.0428**	0.1415	0.0231	0.1689	0.0269
	(2.82)	(2.60)	(1.58)	(1.46)	(1.88)	(1.73)
50-60	0.2631**	0.0481**	0.2362**	0.0385*	0.2918**	0.0465**
	(3.18)	(2.94)	(2.68)	(2.49)	(3.27)	(3.04)
60-70	0.2917**	0.0532**	0.2080*	0.0340*	0.3067**	0.0489**
	(3.13)	(2.86)	(2.13)	(1.96)	(3.15)	(2.90)
>70	0.4484***	0.0819***	0.3367***	0.0550**	0.4694***	0.0748***
	(4.36)	(4.02)	(3.42)	(3.13)	(4.69)	(4.31)
Education						
Below high school	-0.2620**	-0.0482**	-0.1768	-0.0287	-0.1730	-0.0275
	(-2.94)	(-2.70)	(-1.85)	(-1.67)	(-1.72)	(-1.57)
College or higher	0.5190***	0.0947***	0.3526***	0.0578***	0.2973***	0.0474***
	(9.54)	(8.93)	(5.95)	(5.53)	(4.86)	(4.53)
Female-headed	-0.2278***	-0.0416***	-0.2567***	-0.0419***	-0.1776**	-0.0283**
	(-3.89)	(-3.55)	(-4.09)	(-3.75)	(-2.80)	(-2.57)
Household size	-0.1158***	-0.0211***	-0.0753**	-0.0123**	-0.0783**	-0.0125**
	(-5.31)	(-4.95)	(-3.18)	(-2.93)	(-3.29)	(-3.03)
Marital Status	0.0082	0.0015	-0.1181	-0.0193	-0.0769	-0.0122
	(0.14)	(0.13)	(-1.82)	(-1.67)	(-1.16)	(-1.07)
Log Income	0.1593***	0.0291***	0.1039**	0.0169**	0.0998**	0.0159**
	(3.98)	(3.73)	(3.02)	(2.81)	(2.99)	(2.79)
Job status	-0.0086	-0.0015	-0.0238	-0.0039	-0.0503	-0.0080
	(-0.15)	(-0.13)	(-0.41)	(-0.38)	(-0.86)	(-0.79)
Business equity	-0.1274 *	-0.0232*	-0.1126*	-0.0184	-0.1708**	-0.0272**
	(-2.30)	(-2.12)	(-1.97)	(-1.82)	(-2.93)	(-2.72)
Homeowner	0.2236***	0.0408***	0.1408**	0.0230**	0.1276*	0.0203*
	(4.64)	(4.20)	(2.77)	(2.53)	(2.39)	(2.18)
Log Net worth	1.2723***	0.2323***	0.8983***	0.1465***	0.8119***	0.1292***
	(14.79)	(12.94)	(11.58)	(10.16)	(10.73)	(9.52)
Savings account			0.1792***	0.0293***	0.1797***	0.0286***
			(3.98)	(3.67)	(3.90)	(3.62)
Retirement account			0.7185***	0.1173***	0.6922***	0.1102***
			(14.66)	(13.12)	(13.66)	(12.27)
Mutual funds or Hedge funds			0.7212***	0.1178***	0.6886***	0.1097***
			(11.92)	(11.82)	(11.12)	(11.03)
Financial knowledge					0.0080	0.0013
					(0.83)	(0.77)
Attitude towards risk					0.0939***	0.0149***
					(9.89)	(9.28)
Observations	125,981,70		125,981,70		125,981,70	
Pseudo R^2	0.2500		0.3244		0.3432	

Table A5. Ownership by retail shareholders by industry

This table reports information on retail shareholder firm ownership by industry. The sample is limited to retail dataset proposals that are matched to data from ISS Voting Analytics and CRSP. Industry is the Fama French 12-industry classification. "# of Investors" refers to the number of retail investors in the sample, in thousands, who own shares in the firm, averaged across firms in the group. "Retail Ownership" is the percentage of outstanding shares of the firm held by domestic retail investors in the sample.

	2015				2016				2017			
	# of investors (thousands)		Retail ownership (%)		# of investors (thousands)		Retail ownership (%)		# of investors (thousands)		Retail ownership (%)	
Industry:												
Business equipment	42	6	26	18	48	6	25	16	49	7	26	16
Chemicals	25	7	18	15	34	6	20	15	30	7	19	14
Consumer durables	73	5	26	20	67	5	24	19	61	5	24	21
Consumer nondurables	54	8	26	20	60	10	24	17	63	8	23	16
Energy	60	11	28	22	65	10	28	22	58	9	27	20
Finance	19	2	38	26	21	2	37	26	23	3	28	24
Healthcare	29	5	30	25	29	5	30	24	28	6	32	27
Manufacturing	24	5	22	17	27	6	22	17	28	6	22	16
Telecommunications	141	5	23	19	141	5	29	21	166	6	30	21
Utilities	79	36	26	23	84	37	25	21	81	34	22	18
Wholesale/Retail/Serv.	37	6	21	15	42	6	20	16	47	7	21	17
Other	27	4	22	17	29	4	23	17	33	4	21	16

Table A6. Retail voting by meeting

This table reports voting results at the ballot level. % Cast is the proportion of ballots cast as a fraction of the number of shares outstanding. % voting only with mgmt. refers to ballots that entirely match management's recommendation. % at least one against mgmt. refers to ballots with at least one vote that deviates from management's recommendation. The columns with header "Retail votes" are at the shareholder vote level, while the columns with header "Retail account" are at the retail account level and weight each account equally. Rows relating to takeover defenses use SharkRepellent classifications and are limited to those observations that are matched with SharkRepellent.

	Retail votes			Retail accounts		
	% Cast	% shares voting only with mgmt.	% at least one against mgmt.	% Cast	% accounts voting only with mgmt.	% at least one against mgmt.
All meetings	32	76	24	11	59	41
Annual meeting	32	76	24	11	58	42
Special meeting	38	79	21	15	74	26
Proposal sponsor/type:						
Meeting is 100% management proposals	34	82	18	11	70	30
At least one shareholder proposal	30	69	31	12	52	48
At least one shareholder prop. (environmental)	29	69	31	12	52	48
At least one shareholder prop. (social)	29	67	33	12	51	49
No disagreements between mgmt. and ISS	32	80	20	12	67	33
At least one disagreement between mgmt. and ISS	32	74	26	11	54	46
No takeover defense-related proposal	34	79	21	12	63	37
≥1 takeover defense-related proposal	28	68	32	11	52	48
≥1 proposal increasing takeover defenses	52	85	15	10	64	36
≥ 1 proposal reducing takeover defenses	28	68	32	11	52	48

Table A7. Retail shareholder and Big Three voting on shareholder proposals

This table reports information on retail voting limiting the sample to retail dataset proposals that are matched with data from ISS Voting Analytics and CRSP. Each entry represents the average of all firm votes in the category. The first column, Retail Votes, provides the domestic retail voting rates from the retail voting data. The second column, All votes, provides the overall voting results from ISS Voting Analytics, with corrections from SharkRepellent and CRSP, as described in Online Appendix E in the paper. The third column, Big Three, provides the votes cast by the Big Three institutional investors, BlackRock, Vanguard, and State Street. The construction of the mutual fund voting records is described in Online Appendix E. % For is the number of votes For divided by the number of votes cast. Each row contains the average of % For across all proposals in the given category. We report the t-statistic of the test for the difference between All Votes (or Big Three) and Retail Votes, calculated as the absolute value of the t-statistic of the intercept from regressing the difference between Retail Votes and All Votes (or Big Three) with only an intercept term.

	Retail votes		**All votes**		**Big Three**	
	% For	t-statistic	% For	t-statistic	% For	t-statistic
Shareholder Proposals:						
Environmental	13	-	23	10.0	3	13.4
Climate Change	12	-	24	9.2	4	6.0
Sustainability	15	-	24	5.8	2	12.0
Other	15	-	16	0.4	0	14.4
Social	15	-	19	5.9	3	18.1
Diversity	14	-	17	1.6	6	2.8
Lobbying and political contributions	17	-	25	10.3	2	21.7
Other	11	-	8	3.4	1	16.0
Governance	21	-	38	22.9	26	3.9

Table A8. Retail voting by proposal type, voter account value, and firm size

This table provides voting results sorted by above-median and below-median account values (medians determined within a calendar year) and by firm size terciles. Account value is the sum of the account's individual firm stake values, where the stake value is the number of shares owned by the account multiplied by the record date month end share price. Firm size is calculated as the product of CRSP variables *csho* and *prc*, and terciles are determined using the NYSE size breakpoints from Ken French's website. Results are reported on the basis of shares rather than on the basis of accounts; the numbers reported are calculated for each proposal, then averaged across proposals. Proposal categories are based on item descriptions from ISS Voting Analytics (see Online Appendix Table A1).

	Account value				**Firm size terciles**					
	Low		High		Smallest		Middle		Largest	
	% Cast	% For	% Cast	% For	% Cast	% For	% Cast	% For	% Cast	% For
Shareholder:										
Environmental	6	30	25	14	30	13	27	16	25	14
Social	6	35	26	15	24	9	24	21	26	15
Governance	6	38	29	22	40	46	30	27	27	19
Management:										
Elect director	6	93	29	96	34	93	28	95	27	96
Financial statements/Auditor	8	96	33	98	34	98	30	98	28	98
Governance – board and shareholder rights	9	89	34	92	39	91	29	94	27	91
Governance – compensation	8	80	32	88	34	86	29	90	27	90
Governance – other	13	86	41	91	42	89	39	95	30	94
Major Transactions – issuance, buyback, distribution, stock split, or conversion	11	74	34	84	32	82	33	90	28	92
Major Transactions – M&A	15	90	46	95	51	95	41	95	34	93
Other	10	91	35	90	37	89	29	93	30	94
Sponsor:										
Management	7	90	31	94	33	92	27	94	26	96
Shareholder	6	36	28	19	38	42	29	24	26	17

Table A9. Frequent and infrequent voters

This table reports voting results by frequent and infrequent voters. To classify accounts as frequent or infrequent, we limit the comparison to accounts that have at least five voting opportunities over the 3-year sample and that voted at least once and classify those with below-median or median voting rates as infrequent and with above-median voting rates as frequent. The median voting rate in this group is 0.5. Proposal categories are based on item descriptions from ISS Voting Analytics (see Online Appendix Table A1).

	Frequent voter		**Infrequent voter**	
	% Cast	% For	% Cast	% For
Shareholder:				
Environmental	80	13	18	20
Social	82	15	19	24
Governance	81	22	23	28
Management:				
Elect Director	83	96	22	94
Financial statements/Auditor	85	98	26	97
Governance - board and shareholder rights	84	92	30	90
Governance – compensation	83	88	27	85
Governance - other	86	92	45	89
Major transactions - issuance, buyback, distribution, stock split, or conversion	85	84	38	80
Major Transactions - M&A	88	95	53	93
Other	84	91	34	91
Sponsor:				
Management	84	94	25	92
Shareholder	81	18	21	25

Table A10. Impact of retail voting: An alternative measure of Big Three ownership

This table provides an analysis similar to that in Table 5 in which we ask how changes in voting outcomes under hypothetical changes in both the decision to vote, changes in retail ownership, and the voting preferences of certain groups of shareholders. We scale up the observed Big Three votes to the total holdings by Big Three open-end mutual funds on each firm, calculated from CRSP to address the possibility that we may undercount the shares held by the Big Three institutional investors as we only observe the votes of funds that appear in ISS Voting Analytics' N-PX dataset. The analysis is otherwise identical to that in Table 5. In our counts of Big Three votes, we only include votes from Form N-PX for which we can match the fund to an ownership count for that firm from Form 13-F. For Big Three votes, for shares on which we observe votes on Form N-PX, we calculate the number of shares voted in favor and the number of shares voted against. Then we scale up these share numbers so the shares voted by the Big Three match the total number of shares owned by Big Three in the CRSP Open-End Mutual Fund Dataset. Panel A provides the number of proposals whose outcome would change if a voting group's participation were set to zero. The sample consists only of proposals for which the voting base is the number of votes cast rather than the number of outstanding shares. We exclude routine proposals including auditor ratification and meeting adjournments, as well as director elections. Each row in Panel A designates a voting group whose participation is set to zero in the hypothetical. Columns (3) (and (4) reflect the number of proposals flipped under the hypothetical, and columns (5), (6), and (7) provide the number of proposals whose final percentage counts move by five, ten, and twenty percent, respectively. Panel B provides the number of proposals whose outcome would change if ownership were shifted between retail and non-retail shareholders. We use the same sample as in Panel A and change retail ownership by 18.4% which is the standard deviation of retail ownership of all firms in the sample. Firms are sorted into quintiles of retail ownership and we ask how an increase (decrease) in ownership for firms in the bottom, second, and third (third, fourth, and largest size) quintile impacts vote outcomes. We report the consequences of these ownership changes separately for management and shareholder proposals. Since the Big Three institutional voting is not utilized in Panel B, the evidence reported below is identical to that in Panel B in Table 5. In Panel C we hold fixed observed shareholder participation and report the number of proposals whose voting outcome would change if a voting group's preferences were altered. The two voting groups whose preferences we alter are those of retail shareholders, in the middle two columns, and the Big Three institutional investors, BlackRock, Vanguard, and State Street, in the right two columns. Voting choices are altered to the voting choice of the group described in the row header. To ensure a consistent comparison across the two voting groups, the number of votes we alter for a proposal is limited to the minimum of the number of retail votes and the number of Big Three votes. The sample in Panel C consists of the proposals in Panel A whose final overall number of votes in favor is between 4/5 and 6/5 of the number of votes required. That is, for a standard proposal which would pass by a majority of cast ballots, Panel C limits to proposals that received 40% to 60% in favor. In both panels, columns (1) and (2) ("# passing proposals" and "# failing proposals") refer to the actual number of passing and failing proposals in each of the panel's samples. In Panel C, columns (3) and (4) reflect the number of proposals whose outcome is changed under the hypothetical that retail voters alter their voting rate, and columns (5) and (6) reflect the number of proposals with changed outcomes under the hypothetical that the Big Three voters alter their voting preference. In both panels, retail votes come from Broadridge and are limited to domestic retail shareholders, overall vote totals come from ISS's Voting Analytics dataset, and mutual fund votes come from a merge of Form N-PX, CRSP Mutual Funds, and Thomson Reuters S12 as described in Online Appendix E.

Panel A: Consequences due to shocks to retail participation

	Actual count		**Change if group participation goes to zero**				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Group whose participation goes to zero:	# passing proposals	# failing proposals	# passing proposals flipped to fail	# failed proposals flipped to pass	# of 5% movers	# of 10% movers	# of 20% movers
Retail voters	11,545	1,392	122	39	1,144	465	132
Big Three	11,545	1,392	116	117	1,437	325	72
All non-retail shareholders	11,545	1,392	404	165	7,881	5,032	2,105

Panel B: Consequences due to shocks to retail ownership

	Actual count		**Change due to shocks to retail ownership**				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Retail ownership quintile whose ownership is either increased or decreased:	# passing proposals	# failing proposals	# passing proposals flipped to fail	# failed proposals flipped to pass	# of 5% movers	# of 10% movers	# of 20% movers
Management proposals:							
Bottom quintile, + stdev.	2,297	27	0	3	20	4	0
Second quintile, + stdev.	2,236	55	1	10	31	2	0
Third quintile, + stdev.	2,141	35	0	9	55	6	0
Third quintile, - stdev.	2,141	35	12	0	36	2	0
Fourth quintile, - stdev.	2,185	32	20	0	77	9	1
Top quintile, - stdev.	2,476	30	21	1	247	30	0
Shareholder proposals:							
Bottom quintile, + stdev.	45	219	3	0	3	0	0
Second quintile, + stdev.	48	248	5	0	11	1	0
Third quintile, + stdev.	56	355	8	0	22	1	0
Third quintile, - stdev.	56	355	0	7	14	0	0
Fourth quintile, - stdev.	46	325	0	8	32	5	0
Top quintile, - stdev.	15	66	0	3	26	9	0

Panel C: Consequences due to shocks to retail voting preferences

	Actual count		**Retail voters alter vote**		**Big Three voters alter vote**	
	(1)	(2)	(3)	(4)	(5)	(6)
	# passing proposals	# failing proposals	# passing proposals flipped to fail	# failed proposals flipped to pass	# passing proposals flipped to fail	# failed proposals flipped to pass
Management proposals:						
Group voting frequency to adopt:						
Retail voters	243	88	0	0	14	25
Big Three	243	88	45	5	0	0
All non-retail shareholders	243	88	47	0	31	14
All in favor	243	88	0	17	0	33
All opposed	243	88	113	0	85	0
Shareholder proposals:						
Group voting frequency to adopt:						
Retail voters	62	166	0	0	14	6
Big Three	62	166	0	12	0	0
All non-retail shareholders	62	166	0	23	4	21
All in favor	62	166	0	58	0	61
All opposed	62	166	1	0	17	0

Table A11. Retail shareholder decision to cast a ballot: Alternative measures of institutional block ownership

This table extends the analysis reported in Table 6 in the paper in which we study retail shareholder turnout decisions. We follow the specifications in Table 6, columns (2), (4), and (6), and those in Online Appendix Table A14 and add three variables that are meant to proxy for the presence of blockholders in a company's shareholder base. The table reports the slopes on these additional proxies, their interactions with account ownership, and triple interactions with account ownership and firm size. Top blockholder is the fraction of shares outstanding held by the top blockholder. Top 5 blockholders is the fraction of shares outstanding held by the top 5 blockholders. Institutional HHI is the Herfindahl-Hirschman Index of ownership by institutional investors, all from Thomson Reuters. For information on the other covariates see Table 6. Standard errors clustered at the account and meeting level are in parentheses. Number of clusters refers to the number of distinct meetings. *, **, and *** represent significance at the 0.05, 0.01, and 0.001 levels, respectively.

	(1)	(2)	(3)	(4)	(5)
Log(α)	0.662	0.594***	0.388	-0.014	-0.015
	(0.675)	(0.025)	(0.273)	(1.293)	(0.525)
Log(ME)		0.471***			
		(0.036)			
Yearly abnormal return		0.167			
		(0.223)			
Dividend yield		0.167			
		(0.096)			
Tobin's q		-0.114***			
		(0.032)			
ROA		-0.891**			
		(0.282)			
Special meeting		4.885***			
		(0.425)			
Institutional ownership		-2.097***			
		(0.309)			
Top 5 blockholders		0.002*			
		(0.001)			
Top blockholder		0.000			
		(0.001)			
Institutional HHI		-1.336***			
		(0.389)			
Log(α) × Log(ME)	0.063*		0.020	0.093	0.046
	(0.029)		(0.011)	(0.061)	(0.024)
Log(α) × Tobin's q	-0.207***		-0.030*	1.201***	0.156
	(0.027)		(0.013)	(0.196)	(0.118)
Log(α) × ROA	0.392		-0.490***	3.199	3.135**
	(0.266)		(0.131)	(3.452)	(1.153)
Log(α) × Special meeting	1.548***		1.687***	-1.637	-3.111**
	(0.251)		(0.219)	(1.392)	(1.129)
Log(α) × Institutional ownership	-0.706		-0.663***	2.474	0.968

	(0.401)		(0.139)	(3.356)	(1.498)
Log(α) × Top 5 blockholders	0.002*		0.001*	-0.023*	-0.008
	(0.001)		(0.000)	(0.012)	(0.004)
Log(α) × Top blockholder	-0.003*		-0.000	0.019	0.009
	(0.001)		(0.001)	(0.016)	(0.006)
Log(α) × Institutional HHI	-0.141		-0.675***	6.954*	8.359***
	(0.345)		(0.158)	(3.129)	(1.697)
Log(α) × Log(ME) × Tobin's q				-0.060***	-0.007
				(0.009)	(0.005)
Log(α) × Log(ME) × ROA				-0.099	-0.163**
				(0.170)	(0.057)
Log(α) × Log(ME) × Special meeting				0.141*	0.209***
				(0.067)	(0.054)
Log(α) × Log(ME) × Inst. ownership				-0.167	-0.087
				(0.160)	(0.069)
Log(α) × Log(ME) × Top 5 block.				0.001*	0.000*
				(0.001)	(0.000)
Log(α) × Log(ME) × Top block.				-0.001	-0.000
				(0.001)	(0.000)
Log(α) × Log(ME) × Inst. HHI				-0.397*	-0.482***
				(0.171)	(0.091)
Intercept	7.925***	9.344***	9.594***	7.891***	9.654***
	(0.070)	(0.035)	(0.055)	(0.065)	(0.060)
Industry FE		Yes			
Meeting FE	Yes		Yes	Yes	Yes
Account-Year FE		Yes	Yes		Yes
Account-Firm FE					
N	6,753,702	6,047,147	6,047,134	6,753,702	6,047,134
Number of clusters	7,874	7,880	7,870	7,874	7,870
R^2	0.04	0.80	0.80	0.04	0.80

Table A12. Retail and institutional voting by proposal type

This table reports regression results predicting proposal-level voting outcomes for four categories of proposals: director elections; say on pay; shareholder proposals; and other proposals. The dependent variable is the number of votes cast in line with management's recommendation divided by the number of votes cast For or Against, aggregated across all shareholders and multiplied by 100. Log market equity is the log of market equity computed as price time shares outstanding from CRSP, as of the record date month. Yearly abnormal return is the firm buy and hold return for the period 13 months to one month prior to the record date, minus the buy and hold value weight market return from CRSP. Dividend yield is a binary variable equal to one if there is a positive difference in the firm's buy and hold return with dividends and without dividends. Tobin's q is book value plus market equity minus book equity, divided by book value. Return on assets, ROA, is EBITDA divided by total assets. Special meeting is a binary variable equal to one for special meetings. Institutional ownership is equal to the number of shares owned by institutions divided by the shares outstanding in the year prior to the meeting, both from Thomson Reuters. ISS against management is a binary variable that equals 1 if ISS has a recommendation other than For for a management proposal, or a For recommendation on a shareholder proposal. Columns 1 through 4 contain institutional voting results and columns 4 through 6 contain retail voting results. All columns include year-month and industry fixed effects, and columns are divided by proposal types. Industry fixed effects use Fama French 12-industry categories; time fixed effects are year-month; proposal category fixed effects use the proposal categories set forth in Online Appendix Table A1. All right-hand side variables are each demeaned over all observations in the sample (separately demeaned for each subsample) so the intercept reflects the average vote for an observation with average values of those covariates. Observations are weighted so that each meeting is weighted equally. Standard errors clustered at the meeting level are in parentheses. Number of clusters refers to number of distinct meetings. *, **, and *** represent significance at the 0.05, 0.01, and 0.001 levels, respectively.

	Institutional Voters				Retail Voters			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Vote with management	Director	Say on pay	Shareholder	Other	Director	Say on pay	Shareholder	Other
Log(ME)	0.799***	0.668***	3.411***	0.924***	0.498***	0.131	1.702***	0.426**
	(0.091)	(0.112)	(0.512)	(0.167)	(0.090)	(0.103)	(0.361)	(0.133)
Yearly abnormal return	-0.008	-0.086	-5.911	-1.735*	2.938***	5.099***	3.027	4.250***
	(0.524)	(0.583)	(3.020)	(0.786)	(0.496)	(0.579)	(2.153)	(0.579)
Dividend yield	0.341	-0.053	4.828*	-0.244	-0.102	-0.788*	0.975	-1.180*
	(0.300)	(0.400)	(2.140)	(0.523)	(0.309)	(0.366)	(1.401)	(0.461)
Tobin's q	0.128	0.442***	-0.839	0.283	0.450***	0.534***	0.101	0.335
	(0.131)	(0.131)	(0.650)	(0.227)	(0.085)	(0.120)	(0.469)	(0.175)
ROA	-3.160	-0.556	10.986	2.725	-0.225	3.857**	14.091*	4.467***
	(1.755)	(1.329)	(8.054)	(1.762)	(1.198)	(1.174)	(5.828)	(1.266)
Special meeting		-8.099***		-0.668		-1.571		0.821
		(1.118)		(1.255)		(0.907)		(1.057)
Institutional ownership	5.946***	2.636**	9.345*	5.430***	0.799	3.393***	-2.721	3.221***
	(0.976)	(0.847)	(4.138)	(1.142)	(0.750)	(0.729)	(3.559)	(0.908)
ISS against management	-36.346***	-47.588***	-26.204***	-52.816***	-0.386	-2.658***	-0.293	-1.503*
	(1.555)	(0.975)	(1.231)	(1.152)	(0.716)	(0.605)	(0.909)	(0.642)
Intercept	96.002***	89.688***	70.496***	85.380***	95.359***	87.241***	82.612***	87.593***
	(0.138)	(0.177)	(0.650)	(0.256)	(0.132)	(0.155)	(0.404)	(0.207)
Year-Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Proposal Category FE			Yes	Yes			Yes	Yes
N	19,517	6,661	1,367	5,453	19,600	6,741	1,378	5,544
Number of clusters	2,564	6,639	793	3,908	2,580	6,719	794	3,963
R^2	0.55	0.60	0.50	0.65	0.09	0.08	0.23	0.14

Table A13. Comparison of retail shareholder and Big Three investors' voting decisions

This table reports regression results on shareholder voting in which votes are aggregated to the proposal level. The dependent variable is the number of votes voted in line with management's recommendation divided by the number of votes cast For or Against, multiplied by 100. Yearly abnormal return is the firm buy and hold return for the period 13 months to one month prior to the record date, minus the buy and hold value weight market return from CRSP. Dividend yield is a binary variable equal to one if there is a positive difference in the firm's buy and hold return with dividends and without dividends (*ret* and *retx* from CRSP, respectively). Log market equity is the log of market equity (price time shares outstanding from CRSP, as of the record date month). Tobin's q is book value plus market equity minus book equity, divided by book value. Return on assets, ROA, is EBITDA divided by total assets. ISS against management is a binary variable that equals 1 if ISS has a recommendation other than For for a management proposal, or a For recommendation for a shareholder proposal. Industry fixed effects use Fama French 12-industry categories; time fixed effects are year-month; proposal category fixed effects use the proposal categories set forth in Online Appendix Table A1. All right-hand side variables are demeaned, so that the intercept reflects the turnout of an observation with average levels of each covariate. Observations are weighted so that each meeting is weighted equally. Standard errors clustered at the meeting level are in parentheses. *, **, and *** represent significance at the 0.05, 0.01, and 0.001 levels, respectively.

Vote with management	(1) All non-routine	(2) All non-routine	(3) All non-routine	(4) Director elections	(5) Say on pay	(6) Shareholder proposals	(7) Other
Log(ME)	2.990***	1.931***		0.257*	-0.201	5.162***	1.342***
	(0.264)	(0.216)		(0.101)	(0.113)	(0.687)	(0.206)
Yearly abnormal return	-0.460	-1.372	-1.923	0.220	0.601	-3.623	-1.000
	(1.265)	(1.046)	(1.362)	(0.518)	(0.645)	(4.129)	(1.045)
Dividend yield	2.562**	0.140	-3.621	0.150	0.955*	7.506*	-1.114
	(0.856)	(0.733)	(2.571)	(0.319)	(0.477)	(3.180)	(0.691)
Tobin's q	-0.870*	-0.349	1.628	-0.141	0.150	-2.636**	-0.191
	(0.342)	(0.283)	(0.834)	(0.162)	(0.160)	(0.941)	(0.288)
ROA	8.773***	5.827**	-6.143	1.752	4.732**	22.171	6.988***
	(2.472)	(1.940)	(4.255)	(2.167)	(1.561)	(11.786)	(2.044)
Special meeting	2.411	1.081	3.656		-19.018***		1.104
	(1.945)	(1.557)	(2.579)		(1.910)		(1.531)
ISS against management		-35.859***	-28.610***	-18.871***	-30.769***	-14.292***	-40.623***
		(1.366)	(1.594)	(1.820)	(1.441)	(1.629)	(1.631)
Intercept	88.779***	88.985***	90.228***	98.002***	95.135***	82.632***	90.206***
	(0.388)	(0.323)	(0.286)	(0.130)	(0.193)	(0.923)	(0.323)
Year-Month FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Proposal Category FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes		Yes	Yes	Yes	Yes
Firm FE			Yes				
N	6,852	6,852	5,881	19,853	6,673	1,387	5,579
Number of clusters	4,384	4,384	3,413	2,599	6,651	806	3,963
R^2	0.15	0.36	0.64	0.16	0.34	0.31	0.40

Table A14. Retail shareholder decision to cast a ballot: Interaction of account ownership, firm size, and benefit from success

This table provides regressions results describing retail shareholder turnout decisions. The dependent variable is equal to 1 if the account casts a ballot and 0 otherwise, multiplied by 100. α is defined as the account's number of shares held divided by the firm's number of shares outstanding as of the record date month, from CRSP. Log market equity is the log of market equity, computed as price time shares outstanding from CRSP, as of the record date month. Tobin's q is book value plus market equity minus book equity, divided by book value. ROA, return on assets, is EBITDA divided by total assets. Special meeting is a binary variable equal to 1 for special meetings. Institutional ownership is equal to the number of shares owned by institutions divided by the shares outstanding in the year prior to the meeting, both from Thomson Reuters. All right-hand side variables are demeaned, so that the intercept reflects the turnout of an observation with average levels of each covariate. Observations are weighted by the inverse of the number of meetings for the account-year, so that each account-year is weighted equally. Standard errors clustered at the account and meeting level are in parentheses. Number of clusters refers to the number of distinct meetings. *, **, and *** represent significance at the 0.05, 0.01, and 0.001 levels, respectively.

	(1)	(2)
Log(α)	-0.118	0.020
	(1.112)	(0.409)
Log(α) × Log(ME)	0.092	0.035
	(0.054)	(0.019)
Log(α) × Tobin's q	1.122***	0.127
	(0.199)	(0.119)
Log(α) × ROA	3.224	2.458*
	(3.496)	(1.060)
Log(α) × Special meeting	-1.554	-3.042**
	(1.420)	(1.150)
Log(α) × Institutional ownership	-2.604	-0.248
	(1.762)	(0.677)
Log(α) × Log(ME) × Tobin's q	-0.056***	-0.006
	(0.009)	(0.005)
Log(α) × Log(ME) × ROA	-0.102	-0.133*
	(0.171)	(0.053)
Log(α) × Log(ME) × Special meeting	0.138*	0.207***
	(0.068)	(0.055)
Log(α) × Log(ME) × Institutional ownership	0.109	-0.005
	(0.084)	(0.031)
Intercept	7.933***	9.732***
	(0.042)	(0.059)
Industry FE		
Meeting FE	Yes	Yes
Account-Year FE		Yes
Account-Firm FE		
N	6,753,702	6,047,134
Number of clusters	7,874	7,870
R^2	0.04	0.80

Table A15. Robustness to the replacement of Tobin's q with Total q

This table provides regressions results in which we repeat several analyses by replacing Tobin's q with Total q from Peters and Taylor (2016). Panel A repeats the analysis for the relevant columns in Table 6 in which we study the decision to cast a ballot. Panel B repeats the analysis in Table 9 in which we study retail shareholder voting decisions. Panel C repeats the analysis in Table 10 in which we compare retail and institutional investors' decisions. Panel D repeats the analysis in Table 11 in which we study retail shareholder voting decisions and exit.

Panel A: Retail shareholder decision to cast a ballot

	(2)	(4)	(6)
Log(α)	-0.210	0.540***	0.184
	(0.439)	(0.024)	(0.180)
Log(ME)		0.440***	
		(0.033)	
Yearly abnormal return		-0.165	
		(0.134)	
Dividend yield		0.048	
		(0.100)	
Total q		-0.068***	
		(0.020)	
ROA		-0.257	
		(0.205)	
Special meeting		4.505***	
		(0.427)	
Institutional ownership		-0.893***	
		(0.151)	
Log(α) × Log(ME)	0.093***		0.020**
	(0.020)		(0.008)
Log(α) × Log(Total q)	-0.203***		-0.030***
	(0.024)		(0.009)
Log(α) × ROA	0.718***		-0.242*
	(0.208)		(0.103)
Log(α) × Special meeting	1.391***		1.448***
	(0.241)		(0.197)
Log(α) × Institutional ownership	-0.123		-0.174**
	(0.171)		(0.063)
Intercept	7.081***	9.290***	9.224***
	(0.081)	(0.044)	(0.027)
Industry FE		Yes	
Meeting FE	Yes		Yes
Account-Year FE		Yes	Yes
Account-Firm FE			
N	6,216,113	5,536,467	5,536,463
Number of clusters	6,726	6,729	6,726
R^2	0.03	0.80	0.81

Panel B: Retail Shareholder Voting Decisions

	(1)	(3)
Log(α)	1.012***	0.413***
	(0.066)	(0.046)
Log(ME)	1.214***	0.678***
	(0.122)	(0.069)
Yearly abnormal return	4.222***	2.555***
	(0.761)	(0.277)
Dividend yield	0.734	-0.104
	(0.539)	(0.254)
Total q	0.253*	0.007
	(0.120)	(0.059)
ROA	4.609	3.261**
	(2.425)	(1.063)
Special meeting	-2.916*	-2.641**
	(1.369)	(0.844)
Institutional ownership	-0.610	0.913
	(1.161)	(0.579)
ISS against management	-2.305***	-2.328***
	(0.529)	(0.419)
Log account value	0.031	
	(0.023)	
2016 county presidential turnout	-1.126	
	(1.189)	
Log zip code income	1.988***	
	(0.320)	
Fraction over 65	6.249***	
	(1.067)	
Density	-0.000***	
	(0.000)	
Fraction with bachelors	-3.225*	
	(1.623)	
Fraction with post-bachelors	-7.228**	
	(2.726)	
Fraction in Finance/Insurance	4.348	
	(8.319)	
Intercept	85.390***	86.273***
	(0.195)	(0.048)
Proposal Category & Industry FE	Yes	Yes
Year-Month FE	Yes	
Proposal FE		
Account-Year FE		Yes
Account-Meeting FE		
Account-Proposal Category FE		
Account-Year FE		
Account-Firm FE		
N	7,388,040	7,771,765
Number of clusters	7,239	7,591
R^2	0.09	0.58

Panel C: Comparison of retail and institutional investors' decisions

	Institutional voters			**Retail voters**		
	(1)	(2)	(3)	(4)	(5)	(6)
Log(ME)	0.981***	0.794***		0.584***	0.578***	
	(0.158)	(0.106)		(0.092)	(0.092)	
Yearly abnormal return	0.119	-1.111*	-0.307	4.154***	4.192***	3.105***
	(0.774)	(0.508)	(0.429)	(0.441)	(0.440)	(0.346)
Dividend yield	1.602**	-0.400	-3.273**	-0.472	-0.568	2.275**
	(0.519)	(0.329)	(1.220)	(0.306)	(0.305)	(0.867)
Total q	-0.022	0.195**	0.412*	0.259***	0.261***	0.059
	(0.126)	(0.074)	(0.201)	(0.058)	(0.060)	(0.132)
ROA	7.006***	1.242	-1.930	3.751***	3.647***	1.604
	(1.835)	(1.174)	(2.130)	(0.902)	(0.909)	(1.340)
Special meeting	-7.130***	-3.447***	-2.996**	-1.594	-1.497	-0.228
	(1.651)	(0.979)	(1.100)	(0.876)	(0.879)	(0.748)
Institutional ownership	7.846***	4.792***	3.225	2.972***	2.915***	-0.897
	(1.122)	(0.729)	(2.335)	(0.638)	(0.641)	(1.973)
ISS against management		-50.318***	-46.751***		-1.875***	-1.772***
		(0.836)	(0.748)		(0.465)	(0.356)
Intercept	87.910***	88.250***	88.587***	88.880***	88.856***	89.501***
	(0.269)	(0.170)	(0.212)	(0.150)	(0.150)	(0.160)
Year-Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes		Yes	Yes	No
Proposal Category FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE			Yes			Yes
N	29,377	29,276	29,006	29,622	29,511	29,243
Number of clusters	6,646	6,636	6,366	6,732	6,721	6,453
R^2	0.15	0.63	0.77	0.17	0.18	0.65

Panel D: Retail Shareholder Voting Decisions and Exit

StillOwnNextYear	(1)	(2)
Cast Ballot$_t$	2.346***	1.055***
	(0.232)	(0.167)
Log(α_t)	-0.578***	0.829***
	(0.099)	(0.071)
Log(ME$_t$)	0.646***	1.740***
	(0.183)	(0.132)
Yearly abnormal return$_{t+1}$	-3.266**	-4.075***
	(1.114)	(0.977)
Dividend yield$_{t+1}$	-0.011	0.731
	(0.930)	(0.595)
Total q$_{t+1}$	2.413**	-0.453
	(0.846)	(0.625)
ROA$_{t+1}$	-0.193	0.507***
	(0.141)	(0.103)
Institutional ownership$_t$	1.326	-1.161
	(1.432)	(0.808)
Intercept	46.257***	42.812***
	(3.327)	(2.418)
Year-month FE	Yes	Yes
Industry FE	Yes	Yes
Account-Year FE		Yes
N	4,473,407	3,948,997
Number of clusters	2,081	2,081
R^2	0.0124	0.7620

Table A16. Robustness to the exclusion of million-dollar accounts

This table provides regression results describing retail shareholder turnout and voting decisions. Panel A is identical to Table 6, Panel A, but for the removal of all account-years with portfolio values greater than one million dollars. The dependent variable in Panel A is equal to 1 if the account cast a ballot and 0 otherwise, multiplied by 100. Panel B is identical to Table 9, in which the analysis is limited to account-proposals in which the account voted on the proposal and excludes routine proposals (auditor ratification and meeting adjournment). We further remove all account-years with portfolio values greater than one million dollars. The dependent variable in Panel B is a binary variable that equals one if the account voted in line with management's recommendation, and zero if it voted against, multiplied by 100. The covariates used in both panels are as follows. α is the account's number of shares held divided by the firm's number of shares outstanding as of the record date month, from CRSP. Log market equity is the log of market equity, computed as price time shares outstanding from CRSP as of the record date month. Yearly abnormal return refers to the firm buy-and-hold return for the period 13 months to 1 month prior to the record date minus the value weighted market return from CRSP. The dividend indicator is a binary variable equal to one if there is a positive difference in the firm's return with dividends and without dividends (*ret* and *retx* from CRSP, respectively). Tobin's q is book value plus market equity minus book equity, divided by book value. ROA, return on assets, is EBITDA divided by total assets. Special meeting is a binary variable equal to 1 for special meetings. Institutional ownership is equal to the number of shares owned by institutions divided by the shares outstanding in the year prior to the meeting, both from Thomson Reuters. ISS against management is a binary variable that equals one if ISS has a recommendation other than "For" for a management proposal, or a "For" recommendation for a shareholder proposal. Log account value is the log of the total account value for that account in the calendar year defined as the sum across all firms held by the account of the product of share price and the number of shares owned. 2016 county presidential turnout is the number of county residents who cast ballots in the 2016 U.S. presidential election from CQ Voting and Elections, divided by the number of adult citizens from the Census Bureau. Log zip code AGI is the average adjusted gross income in the prior calendar year in the account's zip code. Fraction over 65 is the fraction of zip code residents above the age 65, from the Census, defined as $(DPSF0010015 + DPSF0010016 + DPSF0010017 + DPSF0010018 + DPSF0010019)/DPSF0010001$. Density is the population divided by land area in square meters ($DPSF0010001/AREALAND$). Fraction with bachelors and fraction with post-bachelors are zip-code level five-year averages from the U.S. Census as of 2017. Fraction in Finance/Insurance is equal to the number of employed workers in Finance/Insurance divided by all-industries employment, both at the zip code level, from the Bureau of Labor Statistics. In Panel A, columns 1–2 use meeting fixed effects; columns 3–4 use industry and account-year fixed effects; columns 5–6 use meeting and account-year fixed effects; and column 7 uses meeting, account-year, and account-firm fixed effects. In Panel B, column 1 includes proposal category, industry, and year-month fixed effects; column 2 includes proposal fixed effects; column 3 includes proposal category, industry, and account-year fixed effects; column 4 includes account-meeting and account-proposal meeting; column 5 includes proposal and account-year fixed effects; and column 6 includes proposal, account-year, and account-firm fixed effects. Industry fixed effects use Fama French 12-industry categories; proposal category fixed effects use the proposal categories set forth in Online Appendix Table A1. All right-hand side variables are demeaned, so that the intercept reflects the turnout of an observation with average levels of each covariate. Observations are weighted by the inverse of the number of meetings for the account-year, so that each account-year is weighted equally. Standard errors clustered at the account and meeting level are in parentheses. Number of clusters refers to the number of distinct meetings. *, **, and *** represent significance at the 0.05, 0.01, and 0.001 levels, respectively.

Panel A: Retail shareholder turnout

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log(α)	1.605***	0.601	0.234***	0.564***	0.548***	0.145	0.586***
	(0.052)	(0.475)	(0.020)	(0.025)	(0.027)	(0.252)	(0.110)
Log(ME)				0.441***			
				(0.035)			
Yearly abnormal return				0.185			
				(0.216)			
Dividend indicator				0.137			
				(0.094)			
Tobin's q				-0.112***			
				(0.031)			
ROA				-0.791**			
				(0.273)			
Special meeting				4.823***			
				(0.420)			
Institutional ownership				-1.003***			
				(0.158)			
Log(α) × Log(ME)		0.061**				0.023*	
		(0.023)				(0.011)	
Log(α) × Tobin's q		-0.192***				-0.029*	
		(0.026)				(0.013)	
Log(α) × ROA		0.229				-0.463***	
		(0.242)				(0.130)	
Log(α) × Special meeting		1.595***				1.697***	
		(0.253)				(0.223)	
Log(α) × Inst. owner.		-0.197				-0.208**	
		(0.191)				(0.065)	
Intercept	7.628***	7.647***	9.112***	9.031***	9.123***	9.355***	10.081***
	(0.019)	(0.044)	(0.062)	(0.034)	(0.001)	(0.056)	(0.014)
Industry FE			Yes	Yes			
Meeting FE	Yes	Yes			Yes	Yes	Yes
Account-Year FE			Yes	Yes	Yes	Yes	Yes
Account-Firm FE							Yes
N	6,441,435	6,307,410	5,732,896	5,604,060	5,732,882	5,604,047	4,073,464
Number of clusters	8,264	7,874	8,271	7,880	8,260	7,870	7,628
R^2	0.04	0.04	0.79	0.80	0.80	0.80	0.88

Panel B: Retail shareholder voting

	(1)	(2)	(3)	(4)	(5)	(6)
Log(α)	1.067***	0.787***	0.494***		0.251***	-0.399
	(0.066)	(0.070)	(0.047)		(0.050)	(0.331)
Log(ME)	1.008***		0.626***			
	(0.120)		(0.066)			
Yearly abnormal return	4.449***		2.570***			
	(0.724)		(0.277)			
Dividend indicator	1.463*		0.117			
	(0.577)		(0.263)			
Tobin's q	0.373		0.132			
	(0.196)		(0.094)			
ROA	7.197**		3.318**			
	(2.771)		(1.283)			
Special meeting	-4.585***		-2.915***			
	(1.167)		(0.780)			
Institutional ownership	-2.116		0.640			
	(1.090)		(0.562)			
ISS against management	-2.742***		-2.454***	-1.471***		
	(0.494)		(0.382)	(0.318)		
Log account value	0.006	0.047*				
	(0.023)	(0.023)				
2016 county presidential turnout	2.000***	1.948***				
	(0.315)	(0.305)				
Log zip code income	6.359***	6.213***				
	(1.192)	(1.169)				
Fraction over 65	-0.000**	-0.000**				
	(0.000)	(0.000)				
Density	-4.099*	-2.488				
	(1.608)	(1.565)				
Fraction with bachelors	-7.080**	-9.378***				
	(2.688)	(2.607)				
Fraction with post-bachelors	2.568	5.964				
	(8.034)	(7.644)				
Fraction in Finance/Insurance	85.209***	85.402***	86.114***	87.778***	86.338***	86.304***
	(0.186)	(0.116)	(0.047)	(0.009)	(0.009)	(0.067)
Intercept	1.067***	0.787***	0.494***		0.251***	-0.399
	(0.066)	(0.070)	(0.047)		(0.050)	(0.331)
Proposal Category FE	Yes		Yes			
Industry FE	Yes		Yes			
Year-Month FE	Yes					
Proposal FE		Yes			Yes	Yes
Account-Year FE			Yes			
Account-Meeting FE				Yes		
Account-Proposal Category FE				Yes		
Account-Year FE					Yes	Yes
Account-Firm FE						Yes
N	6,414,393	6,500,231	6,726,393	6,653,955	6,819,813	6,798,544
Number of clusters	7,087	6,564	7,501	4,985	7,277	6,570
R^2	0.09	0.16	0.58	0.81	0.61	0.65

Table A17. Retail turnout at firms with a majority institutional owner

This table provides regression results describing retail shareholder turnout decisions at firms whose largest institutional owner holds more than 50% of the firm's shares outstanding, according to Thomson Reuters. The dependent variable is equal to 1 if the account cast a ballot and 0 otherwise, multiplied by 100. α is defined as the account's number of shares held divided by the firm's number of shares outstanding as of the record date month, from CRSP. Each of the right-hand side variables is an indicator variable reflecting ownership levels. The reference category is accounts with ownership less than or equal to 10^{-9}. In addition, column (2) is limited to meetings in which no proposal comes within 30 percentage points of a different outcome and column (3) is limited to accounts with account stake values of under $100. The regressions in this table begin with the entire universe of accounts, and are limited to qualifying firms and accounts, rather than sampling. Observations are weighted by the inverse of the number of meetings for the account-year, so that each account-year is weighted equally. Standard errors clustered at the account and meeting level are in parentheses. Number of clusters refers to the number of distinct meetings. *, **, and *** represent significance at the 0.05, 0.01, and 0.001 levels, respectively.

	(1) Full sample	(2) No close proposals	(3) Stake less than $100
$\alpha > 10^{-6}$	3.353***	3.364***	6.065***
	(0.412)	(0.445)	(0.616)
$\alpha > 10^{-7}$	1.857***	2.228***	-0.093
	(0.508)	(0.530)	(0.729)
$\alpha > 10^{-8}$	2.661***	2.377**	2.566***
	(0.656)	(0.686)	(0.701)
$\alpha > 10^{-9}$	0.896	1.699	0.896
	(1.162)	(0.875)	(1.162)
Intercept	1.677	0.928	1.677
	(1.038)	(0.682)	(1.038)
N	363,531	297,407	36,732
Number of clusters	52	42	52
R^2	0.01	0.01	0.00

Table A18. Retail shareholder decision to cast a ballot: Association with proposals on the ballot

This table provides regression results similar to that in Table 6, describing retail shareholder turnout decisions. We extend the analysis in columns (2) and (6) of Table 6, Panel A, by including an indicator variable for whether there is an SRI proposal on the ballot and the interaction of log α with this SRI indicator variable. The analysis is otherwise similar to that in Table 6, Panel A. The dependent variable is equal to 1 if the account cast a ballot and 0 otherwise, multiplied by 100. α is defined as the account's number of shares held divided by the firm's number of shares outstanding as of the record date month, from CRSP. Log market equity is the log of market equity, computed as price time shares outstanding from CRSP as of the record date month. Yearly abnormal return refers to the firm buy-and-hold return for the period 13 months to 1 month prior to the record date minus the value weighted market return from CRSP. The dividend indicator is a binary variable equal to one if there is a positive difference in the firm's return with dividends and without dividends (*ret* and *retx* from CRSP, respectively). Tobin's q is book value plus market equity minus book equity, divided by book value. ROA, return on assets, is EBITDA divided by total assets. Special meeting is a binary variable equal to 1 for special meetings. Institutional ownership is equal to the number of shares owned by institutions divided by the shares outstanding in the year prior to the meeting, both from Thomson Reuters. SRI on ballot is a binary variable equal to one if any proposals at the meeting are shareholder environmental or social proposals. Shareholder governance on ballot is a binary variable equal to one if any proposal at the meeting is a shareholder governance proposal. Log (Number of proposals on ballot) is the log of the number of proposals on the ballot. Log account value is the log of the total account value for the account in the calendar year, defined as the sum across all firms held by the account of the product of share price and number of shares owned. Columns 1–2 use meeting fixed effects, columns 3–4 use industry and account-year fixed effects, columns 5–6 use meeting and account-year fixed effects, and column 7 uses meeting, account-year, and account-firm fixed effects. Industry fixed effects use Fama French 12-industry categories. All right-hand side variables are demeaned, so that the intercept reflects the turnout of an observation with average levels of each covariate. Observations are weighted by the inverse of the number of meetings for the account-year, so that each account-year is weighted equally. Standard errors clustered at the account and meeting level are in parentheses. Number of clusters refers to the number of distinct meetings. *, **, and *** represent significance at the 0.05, 0.01, and 0.001 levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log(α)	1.751***	1.825**	0.250***	0.600***	0.585***	0.311	0.573***
	(0.055)	(0.574)	(0.020)	(0.025)	(0.026)	(0.363)	(0.106)
Log(ME)				0.431***			
				(0.047)			
Yearly abnormal return				0.217			
				(0.224)			
Dividend indicator				0.186			
				(0.101)			
Tobin's q				-0.112***			
				(0.033)			
ROA				-0.845**			
				(0.282)			
Special meeting				4.859***			
				(0.435)			
Institutional ownership				-0.921***			

				(0.161)			
SRI on ballot				0.125			
				(0.089)			
Shareholder gov. on ballot				0.251**			
				(0.093)			
Log(Num. prop. on ballot)				-0.097			
				(0.113)			
Log(α) × Log(ME)		-0.003				0.024	
		(0.033)				(0.021)	
Log(α) × Tobin's q		-0.194***				-0.035*	
		(0.028)				(0.015)	
Log(α) × ROA		0.469				-0.454***	
		(0.252)				(0.133)	
Log(α) × Special meeting		1.704***				1.579***	
		(0.259)				(0.192)	
Log(α) × Inst. ownership		0.024				-0.159*	
		(0.183)				(0.070)	
Log(α) × SRI On ballot		0.288**				0.018	
		(0.109)				(0.040)	
Log(α) × Gov. prop. on ballot		0.044				0.087*	
		(0.094)				(0.042)	
Log(α) × Log(Num. prop. on ballot)		0.059				-0.091	
		(0.095)				(0.061)	
Intercept	7.865***	7.925***	9.422***	9.336***	9.429***	9.655***	10.460***
	(0.020)	(0.044)	(0.063)	(0.035)	(0.001)	(0.052)	(0.011)
Industry FE			Yes	Yes			
Meeting FE	Yes	Yes			Yes	Yes	Yes
Account-Year FE			Yes	Yes	Yes	Yes	Yes
Account-Firm FE							Yes
N	6,497,253	6,753,702	6,183,205	6,047,147	6,183,191	6,047,134	4,440,020
Number of clusters	3,153	7,874	8,271	7,880	8,260	7,870	7,644
R^2	0.04	0.04	0.79	0.80	0.80	0.80	0.88

Table A19. Retail preferences and turnout

In this table, we report results of regressions designed to capture the relation between turnout and preferences following Zachariadis et al. (2020). As in Zachariadis et al. (2020), we limit to shareholder governance proposals. For each account-proposal combination, we calculate a leave-one-out vote score as the shareholder's average vote on other shareholder governance proposals. We calculate the institutional vote as the value weighted vote on the proposal by mutual funds, using Form N-PX. For information on the additional covariates see Table 6. The first column includes the interaction of vote score and the institutional vote. The second column is limited to accounts with vote scores greater than 50%. The third column is limited to accounts with vote scores less than 50%. All columns include account-year and industry fixed effects. Standard errors clustered at the account and meeting level are in parentheses. Number of clusters refers to the number of distinct meetings. *, **, and *** represent significance at the 0.05, 0.01, and 0.001 levels, respectively.

	(1) Full sample	(2) Governance score is greater than 50%	(3) Governance score is less than 50%
Institutional vote	0.0405	-0.358	0.141
	(0.560)	(0.506)	(0.558)
Institutional vote × vote score	-0.230		
	(0.371)		
Log(α)	1.462***	1.017***	1.547***
	(0.0999)	(0.0949)	(0.102)
Log(ME)	1.787***	1.197***	1.881***
	(0.168)	(0.153)	(0.175)
Tobin's q	-0.947**	-0.911***	-0.942**
	(0.298)	(0.264)	(0.311)
ROA	0.630	3.881	-0.279
	(2.637)	(2.418)	(2.772)
Intercept	36.44***	39.36***	37.04***
	(3.857)	(3.471)	(4.042)
Industry FE	Yes	Yes	Yes
Account-Year FE	Yes	Yes	Yes
N	7,661,339	1,889,498	5,520,206
Number of clusters	593	591	593
R^2	0.82	0.83	0.82

Table A20. Non-proprietary data descriptive statistics

This table provides descriptive statistics on variables used in our analyses. Firm-meeting variables are weighted at the firm-meeting level, firm-proposal variables are weighted at the firm-proposal level, and zip code variables are weighted at the account level.

	Average	Stdev.	25th perc.	Median	75th perc.
Firm-meeting variables					
Market equity (millions)	7,461	28,383	199	962	3,846
Yearly abnormal return	-0.02	0.37	-0.22	-0.02	0.17
Dividend Yield Binary	0.48	0.50			
Tobin's q	1.96	1.44	1.06	1.43	2.23
ROA	0.03	0.24	0.02	0.08	0.14
Special meeting	0.08	0.27			
Institutional Ownership	0.69	0.29	0.51	0.77	0.91
Firm-proposal variables					
ISS against management	0.10	0.31			
Zip code variables					
2016 presidential turnout	0.63	0.08	0.58	0.63	0.68
Zip code income	11.35	0.56	10.95	11.26	11.64
Over 65	0.14	0.07	0.10	0.13	0.16
Density	1,829	4,898	224	716	1,509
Portion with Bachelors	0.45	0.19	0.30	0.44	0.59
Portion with Post-Bachelors	0.19	0.11	0.10	0.17	0.25
Portion in Finance/Insurance	0.02	0.01	0.01	0.02	0.03

Table A21. Illustrative example of an annual meeting

Panel A: Methods of proxy delivery and vote returns

Proxy delivery method	# of shares	# of accounts	Avg # shares per account	Share voting %
Hard copy—Account choice	203,378,545	143,587	1,416	73.0%
Hard copy—Firm choice	408,438,592	160,873	2,539	33.2%
E-mail	437,093,454	863,938	506	20.4%
Notice	193,138,321	592,794	326	7.3%
Total	1,242,048,913	1,761,192	705	31.2%

Voting method	# of shares	# of accounts	Avg # shares per account	Share voting %
Hard copy	203,910,890	144,928	1,407	16.4%
Internet proxy vote	126,836,144	55,130	2,301	10.2%
Investor mailbox	25,541,657	21,412	1,193	2.1%
Telephone	25,224,002	15,583	1,619	2.0%
Mobile proxy vote	7,616,283	6,542	1,164	0.6%
Consolidated data feed	1,216,582	823	1,478	0.1%
Did not vote	851,703,355	1,516,774	562	68.6%
Total	1,242,048,913	1,761,192	705	100.0%

Panel B: Individual proposal voting results

	Proxy Item	Mgmt. rec.	ISS rec.	Retail votes		
				% Cast	% For	% Against
Management proposals:						
1	Individual director elections	F	F	30.3	N/A	N/A
2	Advisory vote to approve executive comp.	F	N	29.7	88.5	11.5
3	Ratification of independent auditors	F	F	30.6	98.6	1.4
Shareholder proposals:						
4	ESG-related proposal	N	F	30.0	12.5	87.5
5	Restrict precatory proposals	N	N	29.4	7.0	93.0
6	Independent chairman	N	F	29.8	15.4	84.6
7	Increase capital distributions	N	N	29.6	8.6	91.4
8	Special shareholder meetings	N	F	29.5	9.5	90.5
9	Report on lobbying	N	F	30.0	14.3	85.7

Panel C: Permutations of votes cast across proposals

									# of accounts	% of accounts	# of shares	% of shares
Did not vote									1,516,905	86.1%	854,516,673	68.8%
Proposals:												
1	2	3	4	5	6	7	8	9				
F	F	F	N	N	N	N	N	N	125,094	7.1%	258,064,223	20.8%
F	F	N	N	N	N	N	N	N	3,833	0.2%	5,731,872	0.5%
F	F	F	F	F	F	F	F	F	5,436	0.3%	4,395,938	0.4%
F	F	F	N	N	F	N	N	N	2,691	0.2%	4,177,826	0.3%
F	F	F	A	A	A	A	A	A	2,246	0.1%	2,838,453	0.2%
				…					…	…	…	…
F	F	F	A	A	N	A	F	F	1	0.0%	0.1	0.0%
									1,761,192	100.0%	1.242 Billion	100.0%

Figure B1: Delivery of Proxy Material and Shareholder Voting

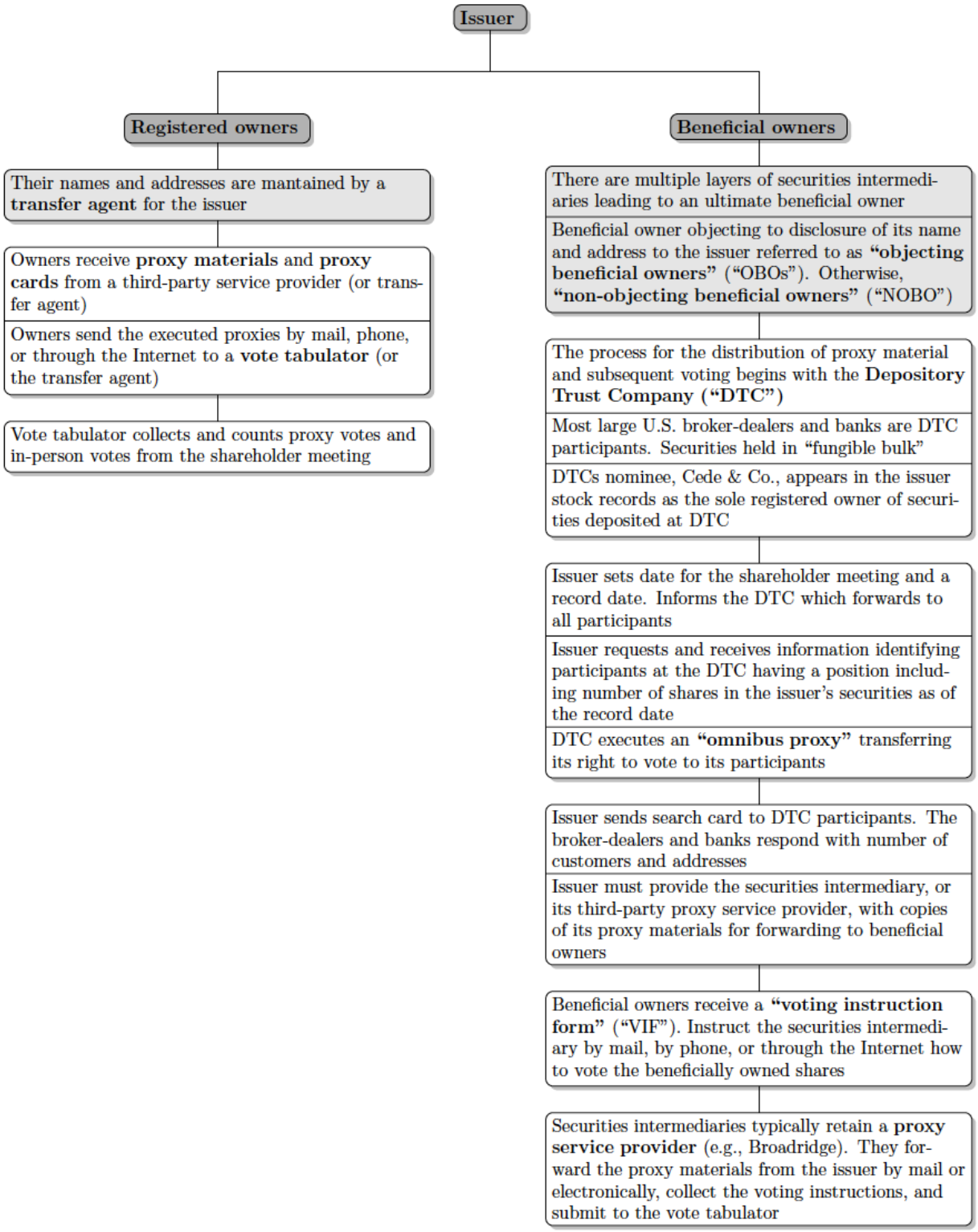
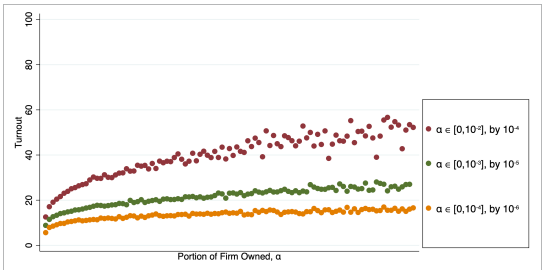


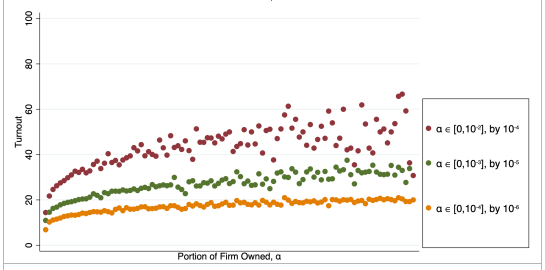
Figure B2. Voter participation and ownership by firm size

This figure graphs the relation between retail voter turnout and ownership by firm size quintiles. Firms are allocated to size quintiles using the Fama French size breakpoints. Within each size quintile we plot a binned scatterplot of turnout on stake size, α, defined as the account's number of shares divided by the firm's number of shares outstanding on the record date month, from CRSP. Each dot represents the average turnout for accounts whose fraction of the firm owned falls within the increment of α. Each of the three colored scatterplots provides a different range for share ownership, α. The first describes how turnout varies with share ownership in the range of [0 10^{-4}] with increments of 10^{-6}; the second, in the range of [0 10^{-3}] with increments of 10^{-5}; and the third in the range of [0 10^{-2}] with increments of 10^{-4}.

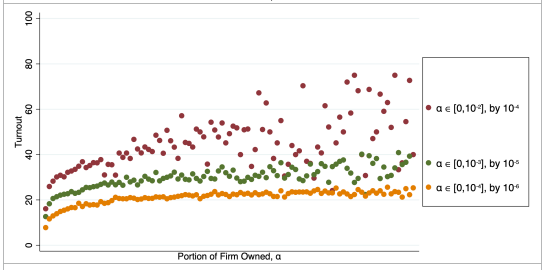
Smallest firm size quintile



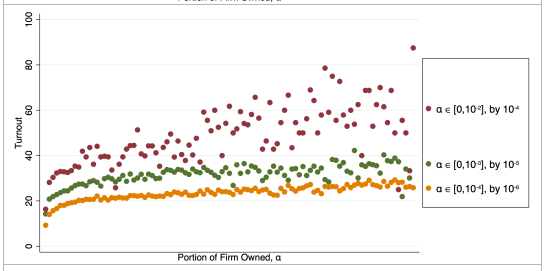
Second firm size quintile



Third firm size quintile



Fourth firm size quintile



Largest firm size quintile

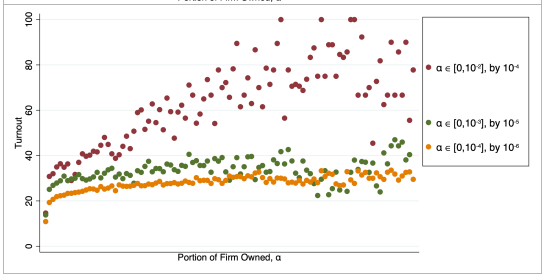


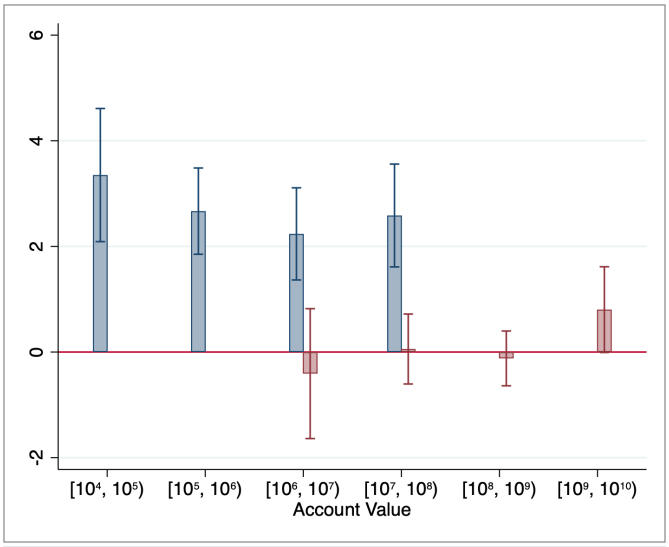
Figure B3. Sensitivity of voting to yearly abnormal return

This figure graphs the sensitivity of voting choice to yearly abnormal return, by owner type. We estimate the following specification for retail accounts:

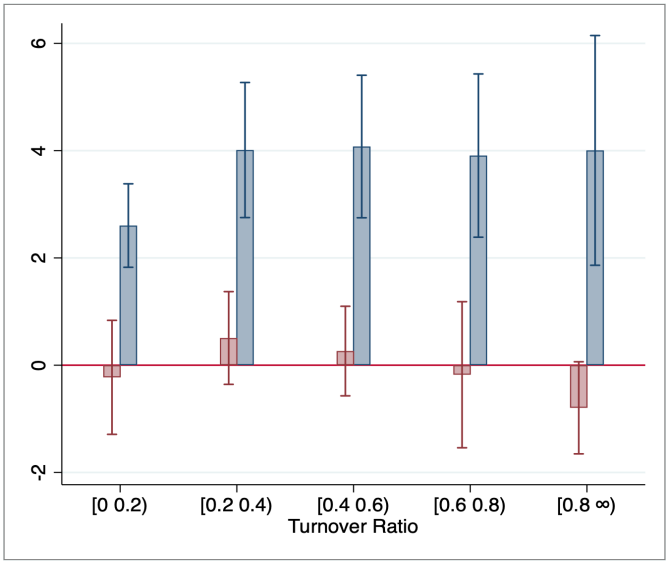
$$WithMGMT_{apmct} = \beta_0 + \sum_{j=1}^{J} \beta_{1j} * Bin_j * X_{apmct} + \sum_{j=1}^{J} \beta_{2j} * Bin_j + \beta_3 * Z_{apmct} + \psi_{PropCat_p} + \zeta_{Ind} + \phi_{at} + \varepsilon_{apmct}$$

where a indexes accounts, p indexes proposals, m indexes meetings, c indexes firms, and t indexes years. Bin_j is a binary variable equal one if an account value (or turnover ratio, or log number of firms in portfolio) falls within the j'th bin. Account value bins correspond to six segments of the log 10 scale ([10^4 10^5), [10^5 10^6), [10^6 10^7), [10^7 10^8), [10^8 10^9), [10^9 10^{10})). Turnover bins are [0 0.2), [0.2 0.4), [0.4 0.6), [0.6 0.8), [0.8 ∞), where the final bin includes the small group of investors with reported turnover ratios greater than 1, and log number of firm bins correspond to seven equally spaced segments ([1 2), [2 3), [3 4), [4 5), [5, 6), [6, 7), [7,8)). The dependent variable, $WithMGMT_{apmct}$, is a binary variable that equals one if the account votes in line with management recommendation and zero if it votes against, multiplied by 100. X_{apmct} is a vector of covariates including yearly abnormal return, Tobin's q, return on assets, and whether ISS's recommendation was in opposition to management's recommendation. Z_{apmct} is a vector of additional covariates including log market equity, a binary variable for dividend yield, institutional ownership, and special meeting. For additional information on the covariates included in X_{apmct} and Z_{apmct} see Table 9 in the paper. $\psi_{PropCat_p}$, ζ_{Ind}, and ϕ_{at} are proposal category, industry, and account-year fixed effects, respectively. β_{1j}, β_{2j}, and β_3 are each vectors of coefficients. We report the retail investor sensitivity to lagged yearly abnormal return across account bins in Panel A, turnover ratio bins in Panel B, and breadth bins in Panel C. We repeat the estimation as described above for institutional investors. For retail, account value is the total account value for that account that calendar year defined as the sum across all firms owned by that account of the product of share price and number of shares owned. For funds, account value is calculated as its portfolio value. For retail, we calculate turnover ratio using CRSP's definition, and take the minimum of purchases and sales divided by account value over the course of the year. For funds, turnover ratio comes from CRSP. For retail shareholders, log account number of firms in the portfolio is the log of the account's firms in the retail dataset in a calendar year; for funds, it is the log of the fund's number of N-PX securities in a calendar year. The analysis is limited to account-proposals in which the account voted on the proposal and excludes routine proposals (auditor ratification and meeting adjournment). For both retail and institutions, we only include bins where there are a sufficient number of distinct voters. Observations are weighted by the inverse of the number of meetings for the account-year, so that each account-year is weighted equally. 95% confidence intervals are clustered at the account and meeting level.

Panel A: Account value bins



Panel B: Turnover ratio bins



Panel C: Log number of firms in account

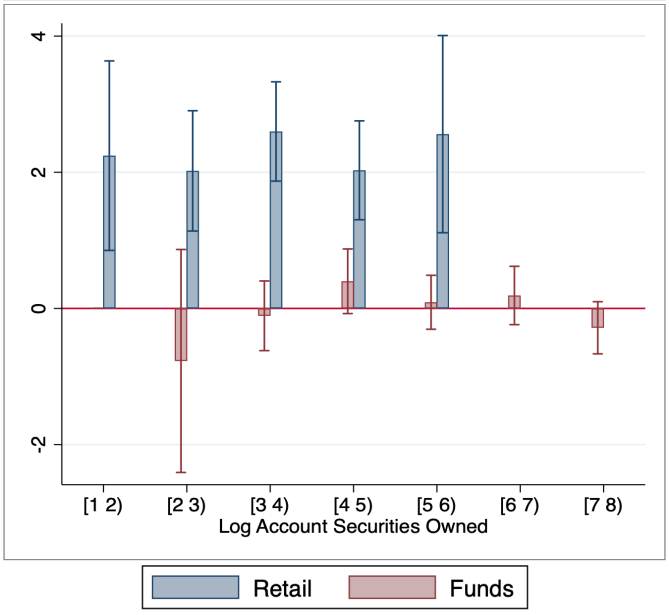


Figure B4. Support for social responsibility proposals

This figure graphs retail support for environmental and social proposals. We sort accounts into four account value bins that correspond to four segments of the log 10 scale ($[10^4\ 10^5)$, $[10^5\ 10^6)$, $[10^6\ 10^7)$, $[10^7\ 10^8)$). For each of the four account value bins, we estimate the following specification for retail accounts where the dependent variable, $VoteInFavor_{apmct}$, is a binary variable that equals one if the account votes for the proposal, multiplied by 100.

$$Vote\ In\ Favor_{apmct} = \beta_0 + \varepsilon_{apmct}$$

where a indexes accounts, p indexes proposals, m indexes meetings, c indexes firms, and t indexes years. Account value is the total account value for that account in the calendar year, defined as the sum across all firms held by the account of the product of share price and number of shares owned. We represent with a red line the average vote by funds on proposals in the sample. Observations are weighted by the inverse of the number of meetings for the account-year, so that each account-year is weighted equally. 95% confidence intervals are clustered at the account and meeting level.

Appendix C. Information-Based and Preference-Based Models

In this Online Appendix, we review two classes of models that are designed to resolve the paradox of voting. Information-based models tend to assume that voting is costless and then try to explain the "paradox of not voting": why any voter fails to turn out despite costless voting (Feddersen and Pesendorfer (1996)). Matsusaka (1995) proposes a rational-choice information-based model with a consumption benefit from voting, D, and finds that voters with less information or ability to evaluate the candidates choose to abstain to avoid voting for the incorrect candidate. Feddersen and Pesendorfer (1996) show that even when voting is costless, uninformed voters strategically abstain to allow informed voters to decide the outcome.

More recently, Bar-Isaac and Shapiro (2020) extend this intuition to a corporate setting by introducing a large blockholder. The blockholder differs in the amount of information she has, and they show that if she has imprecise information she may want to only partially vote her shares so as to avoid "drowning out the information by other shareholders." One central insight from these models is that uninformed shareholders are more likely to abstain under the assumption that their interests are aligned with informed shareholders.

A second group of models, preference-based game-theoretic models with no role for private information, tend to predict positive turnout even with costly voting. Palfrey and Rosenthal (1983) study a voting game in which voting is costly and every voter has complete information about the preferences and voting costs of every other voter. They show that it is possible to arrive at equilibria with significant turnout, independent of electorate size. However, Palfrey and Rosenthal (1985) introduce uncertainty about preferences and costs of participation, which causes voters with positive costs of participation to abstain, leading to near-zero turnout.

More recently, Myatt (2015) studies costly voting when there is aggregate uncertainty about the popularities of the candidates. In this setting, when voters are unsure which candidate is more popular, turnout is substantial and increases with the importance of the election and with the precision of voters' beliefs about the candidates' popularities. Importantly, voters' asymmetric prior beliefs result in an "underdog effect" where the perceived leading candidate sees greater turnout for her competitor. This effect increases the likelihood that the election will be a close race, resulting in a higher turnout and the possibility that the more popular candidate loses.

Zachariadis, Cvijanovic, and Groen-Xu (2020) build on Myatt (2015) to study how shareholder participation and voting outcomes depend on a firm's ownership structure. They recognize that some shareholders, such as mutual funds, are mandated to vote, whereas the rest, denoted discretionary shareholders, select whether to cast a vote. Aggregate uncertainty over the discretionary shareholders' preferences leads to significant participation. Discretionary voters' participation choice depends on the ownership fraction of regular voters and their known support for the proposal, the discretionary voters' benefit-to-cost ratio associated with voting, and the uncertainty of their preferences. As in Myatt (2015), they find that in equilibrium there is an "underdog effect" in that disagreeing discretionary voters turn out more with weaker support by regular shareholders. Because we observe the turnout decisions of discretionary voters, our setting allows us to test some of the model's predictions. In particular, we use proxies for the preferences of retail shareholders and regular voters to evaluate whether retail shareholders turn out more when

they have underdog preferences. In what follows, we turn to our data to see the extent to which we may shed light on information-based and preference-based models of voting.

Information-based models

As discussed in Section 2, political elections feature higher turnout among informed voters (see Matsusaka (1995) for a discussion), and several political science papers have theorized information-based participation. The main insight in these models is that a voter with a less informative signal regarding the candidates can ascertain, conditional on being the pivotal voter, that her private signal likely clashes with that of the more informed voters, and she is better off abstaining.

We cannot observe the information set of the shareholders in our sample and, given that the accounts are anonymized, we cannot form proxies for shareholder-level informedness. We do, however, observe the shareholder's account value and characteristics measured at the zip code and county level, which may serve as proxies for shareholder information. In particular, the shareholder zip code-level percentage with a bachelor's degree and the percentage of employees in the county who work in finance or insurance may serve as proxies for the level of informedness of shareholders residing in that locality.

Table 6, Panel B, column (6) shows that, although the portion holding college degrees is not significantly related to turnout, the portion of a county that works in finance or insurance has a large positive correlation, potentially consistent with higher turnout among those with greater information. Those with larger portfolio values are also significantly more likely to turn out for a firm meeting, even controlling for the size of the particular stake in that firm, which could be a proxy for informedness.

Preference-based models

We next turn to predictions from models that seek to link variation in shareholder preferences and turnout. The political science literature features several theories that connect voter preferences to participation, such as Myatt (2015). Zachariadis et al. (2020) apply some of these insights to a shareholder voting context. In this section, we seek to establish the relation between preferences and turnout.

Following Zachariadis et al. (2020), we limit the sample of proposals to shareholder governance proposals, which have more heterogeneous institutional popularity than other proposal types and which are often the most contentious and outcome-uncertain proposals on the ballot. Zachariadis et al. (2020) select this subset to minimize information heterogeneity across shareholders and proposals. For each account-proposal combination we calculate a shareholder's preference for governance proposals as her average vote on governance proposals in other meetings, which we refer to as her "governance score." As a result, the sample is necessarily limited to accounts that own at least two securities and that sometimes turn out. By constructing shareholder preferences in this manner, our preference measure is not dependent on turnout on the proposal in question. We calculate the institutional vote as the value weighted vote on the proposal by mutual funds, using Form N-PX.

We estimate specifications of the form:

$$Cast_{apmct} = \beta_0 + \beta_1 G_{a,-m} + \beta_2 X_{apmct} + \beta_3 G_{a,-m} X_{apmct} + \varepsilon_{apmct} \quad \text{(C1)}$$

In which a indexes accounts, p indexes proposals, m indexes meetings, $-m$ denotes meetings other than m, G is an account's governance votes at other meetings, and X_{apmct} is a vector of characteristics about the account, proposal or meeting.

Online Appendix Table A19 provides results from a regression estimating Eq. (C1). We do not find evidence that retail turnout among voters who tend to support governance proposals differentially changes with institutional support as compared to voters who tend to oppose governance proposals. A shareholder who generally supports governance proposals is not significantly more likely to turn out when institutional support for the proposal is weak, or vice-versa. In all, we cannot reject the null of no relation, though in all columns the signs are in the direction predicted by Zachariadis et al. (2020).

Appendix D. Institutional Background on Retail Shareholder Voting

In this appendix we describe the method by which a firm's shareholders, most of whom are not registered with the firm, receive voting materials. Online Appendix Fig. B1 provides a synthesis of this information.

Whereas registered owners hold securities through a direct registration system, beneficial owners hold a pro rata interest in all like securities of the intermediary held in common by all other customers who own the same security. These shares are registered in the name Cede & Co., the name used by the Depository Trust & Clearing Company (DTCC), which holds shares by custodians, usually banks and brokerage firms, under their title. Shares for mutual funds, pension funds, insurance firms, endowments, and trusts are usually held by bank custodians.

Custodians, also known as "nominees," own a pro rata interest in the aggregate number of shares of a particular issuer held at the DTCC, which in turn means that investors own a pro rata interest in the custodian's shares. When an investor sells shares of an issuer from one custodian account to a buyer from another custodian account, Cede then shifts a corresponding number of shares of the issuer to the latter custodian account and removes them from the former custodian account. The beneficial owners' name is not available, nor is it recorded.

When it is time for a vote, usually during the annual general meeting of the firm, the issuer sets the date for the meeting and the record date. The record date under Delaware General Corporate Law (DGCL) §213 is fixed in advance of any vote and "shall not be more than 60 nor less than 10 days before the date" of the meeting. The individuals who are listed as registered owners as of the record date on the firm's books are entitled to notice of, and to vote at, the shareholder meeting. Registered shareholders' right to vote grants them the authority to appoint a proxy to vote on their behalf at the meeting. As their names and addresses are available to the issuer, the issuer directly sends the proxy materials to registered shareholders through the transfer agent. After receiving the proxy materials from the issuer, registered owners vote by executing the proxy card and returning it to the "vote tabulator." A vote tabulator, usually the issuer's transfer agent, is appointed by an issuer to collect and count votes. However, the issuer will sometimes hire an independent third-party vote inspector if needed to oversee contested elections.

The process for soliciting proxies for beneficial owners is significantly more complex than the solicitation of proxies for registered owners. The issuer sends an inquiry to the DTCC asking for a list of participant custodians who hold shares of the issuer in the custodian's account. The DTCC provides a "securities position listing" identifying the custodians who have a position in the issuer's securities and the number of securities held by each of them. DTCC custodians also provide information on the omnibus securities positions held by the banks in their network, known as respondent banks. Respondent banks are those that deposit their clients' holdings with larger bank custodians (Kahan and Rock (2008)).

The issuer then sends a search card to all the banks and brokers identified by DTCC or Cede asking for the number of proxies needed. Brokers must respond to search cards within seven business days, while banks must identify all respondent banks within one business day and indicate the approximate number of beneficial owners holding the issuer's shares directly with that bank within seven business days. Accurately conforming to these requirements can sometimes be a challenge due to a situation called "piggybacking" in which respondent banks keep track of their

own customer accounts and larger banks keep record of how many shares they hold for the respondent bank.

Brokers and bank custodians send beneficial owners the proxy materials including a "voting instruction form" (VIF), with a third party proxy service provider executing the process. Brokers and banks effectively reassign the proxy authority they receive from the DTCC to the third party proxy service provider who executes a legal proxy on their behalf. Broadridge Financial Solutions, Inc. is the most widely-used third-party proxy service provider, processing approximately 80% of the outstanding shares in the United States in fiscal year 2018 (see the annual report filed for fiscal year 2018 by Broadridge Financial Solutions). Issuers pay for the proxy processing services based on fees set by the New York Stock Exchange and approved by the SEC.

Since the majority of shares of public firms are held by beneficial owners who object to disclosure of their names (objecting beneficial owners ("OBOs"), issuers that wish to communicate directly with them must send information through the investor's custodian bank or broker-dealer, which generally is forwarded on a same-day basis. The SEC rules for "notice and access" permit firms to mail a notice of the internet-availability of their proxy materials instead of mailing a full package of proxy materials. The majority of shareholders receive proxy information electronically through e-mail, depending on the shareholder's indicated preference. Shareholders always have the option to request paper copies of the proxy materials.

Once the beneficial owners receive the VIF from the securities intermediary, they can instruct the intermediary on how to vote their shares (Gumbs, Hamblet, and Stortini (2013)). The VIF does not give the beneficial owner the right to attend the meeting, but he or she can request the appropriate documentation to do so from their intermediary if they so choose. The third party proxy service provider receives the voting instructions from the custodian, verifies receipt, verifies that the signatories have voting authority, executes the proxy on behalf of its custodian principal, and forwards a legal proxy to the vote tabulator.

Issuers may also hire proxy solicitors (e.g., Okapi Partners, Innisfree, and Georgeson) when voting returns may be insufficient to meet state quorum requirements. In a contested election, management and the dissident also can employ their own proxy solicitors to identify beneficial owners holding large amounts of the issuers and encourage these shareholders to vote. Solicitation of shares held by retail investors, each owning a small stake, is possible with mass mailing of "fight letters" and marketing materials, along with targeted phone campaigns. Issuers are required to disclose the use, and the cost, of these services in their proxy statements.

As Kahan and Rock (2008) point out, because of the complex chain of custody of shares held beneficially in street name, tabulators may disallow votes of omnibus proxies (which pass voting rights through the chain of custody) if they are not properly administered. For example, a name change not updated in the shareholder list would result in a break in the chain of custody. Shareholders typically do not have the ability to monitor whether their votes were cast as instructed. Racanelli (2018) cites Richard Grossman, a Skadden, Arps, Slate, Meagher & Flom attorney who states that "It's difficult, if not impossible, for a beneficial shareholder [whose shares are not registered in their own name] to find out if the vote was cast as instructed and properly counted." Grossman also states that "I am not aware of any obligations on the part of the various intermediaries to tell you."

Brokers cannot vote uninstructed shares in non-routine matters, so these become nonvotes. Kahan and Rock (2008) describe the problem of votes being voted by brokers if they do not receive instructions within ten days in advance. This is no longer the case on the New York Stock Exchange. NYSE Rule 452 was amended in 2009 so that contested elections, non-contested elections for directors, and "vote no" campaigns are all now "non-routine" and broker discretion is not permitted for such non-routine matters. The recent rule change has led, however, to an increase in nonvotes (Gulinello (2010)). For firms that have adopted a majority voting standard, the brokers' inability to vote without instructions from their client increases management's burden of achieving a majority. This can lead to what Hirst (2017) refers to as a frozen charter. In his sample, broker votes represented 10.4% of the outstanding shares of corporations and for those corporations, particularly those with high supermajority requirements for certain charter amendments, these firms were unable to reach those requirements without broker votes. As a result, they were unable to amend certain parts of their charters, even where directors and shareholders strongly supported such amendments, and their charters were consequently frozen.

Securities lending and shorting can also lead to confusion regarding who the beneficial owner of a stock really is. Additionally, there can be imbalances in the system described above. In such cases, broker-dealers must decide how to deal with them, and have developed a few different approaches to determine the allocation of votes between their customer accounts. These approaches are often influenced by whether the broker-dealer's customers are primarily retail or institutional investors.

Appendix E. Details on data and variable construction

E.1 Data sources and construction of variables

For securities data, we use data from the Center for Research in Security Prices (CRSP). For each month t, we calculate a firm's lagged annual return for the one-year period ending in month $t-1$ by compounding one-month holding period returns over the 12-month period. We calculate annual abnormal returns for that same period as the annual return minus the value-weighted annual return from CRSP. The variable yearly abnormal return used in our analyses is the buy-and-hold abnormal return measured as of one month prior to the record date. The one-year dividend yield is calculated as the difference between the buy-and-hold return including dividends and the buy-and-hold return excluding dividends. The difference between returns including and excluding dividends used to compute the dividend yield is described on the CRSP website as the "Income Return," and is available at: http://www.crsp.org/products/documentation/crsp-calculations. Market equity is computed as price time shares outstanding from CRSP, measured as of the record date month. Some of the descriptive statistics and analyses rely on allocating firms into market capitalization quintiles. The market capitalization breakpoints we use for these sorts are from Ken French's website at Tuck School of Business at Dartmouth College: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

We calculate book equity as the difference between stockholders' equity and preferred stockholders' equity, with certain substitutions in the case of missing variables, as described in Daniel and Titman (2016). We slightly alter the code provided on the WRDS website, available at https://wrds-www.wharton.upenn.edu/pages/support/applications/risk-and-valuation-measures/market-book-mb-ratio. Stockholders' equity uses Compustat variable SEQ or, if it is missing, the sum of Total Common Equity (CEQ) and Preferred Stock Par Value (PSTK) or, if either of those are missing, total assets (AT) minus liabilities (LT) minus minority interest (MIB). Book equity is defined as (i) stockholder's equity, minus (ii) preferred stockholder's equity, which is equal to preferred stock redemption value (PSTKRV) or, if missing, preferred stock liquidating value (PSTKL) or, if missing, preferred stock carrying value (PSTK), plus (iii) if not missing, balanced sheet deferred taxes (TXDITC), minus (iv) if not missing, the FASB106 adjustment (PRBA from the Compustat Pension Annual dataset).

Tobin's q is the ratio of market value of assets to book value of assets (AT), where the market value of assets is defined as the sum of book value of assets (AT) and the market equity minus the book equity, as in Bhojraj et al. (2017). ROA is the ratio of EBIDTA to assets (AT), as in Brav et al. (2020). We winsorize Tobin's q, ROA, and dividend yield at the 1% and 99% levels. We also use Total q from Peters and Taylor (2016), available on WRDS. Bartlett and Partnoy (2018) argue that Tobin's q is not adopted properly in empirical work and recommend as a potential alternative the Total q from Peters and Taylor (2016). We repeat the analyses in Sections 6 and 7 using Total q instead of Tobin's q, and find substantially similar results. See Online Appendix Table A15.

We obtain county vote totals for the 2016 presidential election from CQ Voting and Elections and the count of voting eligible adult population from the Census Bureau available at: https://www.census.gov/programs-surveys/decennial-census/about/voting-rights/cvap.2016.html. We compute the 2016 county presidential turnout as the number of county residents who

cast ballots in the 2016 U.S. presidential election divided by the number of adult citizens. For county level variables, we merge to zip codes using the USPS ZIP Code Crosswalk files from the Housing and Urban Development's Office of Policy Development and Research (PD&R). Zip code-level demographic information is from the Census Bureau. Fraction over 65 is the fraction of zip code residents above age 65, defined as (DPSF0010015 + DPSF0010016 + DPSF0010017 + DPSF0010018 + DPSF0010019) / DPSF0010001). Density is calculated as the zip code population divided by land area in square meters, (DPSF0010001 / AREALAND). Fraction with bachelors and fraction with post-bachelors are zip-code level five-year averages from the U.S. Census as of 2017. Zip code employment is from the Bureau of Labor Statistics. We construct the variable fraction in Finance/Insurance by dividing the number of employed workers in Finance/Insurance by all-industries employment, both at the zip code level. Adjusted gross income data at the zip code level is from the IRS website available at: https://www.irs.gov/statistics/soi-tax-stats-individual-income-tax-statistics-zip-code-data-soi. The variable we use in our analyses denoted Zip code AGI is the average adjusted gross income in the prior calendar year in the account's zip code.

Information on whether a meeting was regular annual meeting or a special meeting is from ISS Voting Analytics. We construct an indicator variable equal to one for special meetings. The recommendation on the proposal by the proxy advisory firm Institutional Shareholder Services (ISS) is from ISS Voting Analytics. The variable ISS against management as a binary variable that equals one if ISS has a recommendation other than "For" for a management proposal, or a "For" recommendation on a shareholder proposal. Institutional ownership is equal to the number of shares owned by institutions divided by the shares outstanding in the year prior to the meeting, both from Thomson Reuters.

Online Appendix Table A20 provides descriptive statistics on variables used in our analyses. Firm-meeting variables are weighted at the firm-meeting level; firm-proposal variables are weighted at the firm-proposal level; zip code variables are weighted at the account level.

E.2. Matching of retail voting sample to ISS Voting Analytics

E2.1. Overview

To combine the proposals in the ISS Voting Analytics database with those in the retail shareholder set, we merge the ISS Voting Analytics database at the meeting level with the retail shareholder data by 6-digit CUSIP, meeting date, and record date.

We merge at the proposal level using the order of the proposals within a meeting and their textual descriptions from the retail shareholder voting data and ISS Voting Analytics, which we describe in greater detail in Online Appendix E2.2. Within matched meetings, the retail voting sample and ISS Voting Analytics have roughly identical proposal slates, with one important exception: for 72% of meetings with director elections, the retail voting dataset reports the number of returned votes on the director elections but not the choices on individual directors. As a result, we exclude these director election proposals from analyses of substantive voting decisions. The remaining minor inconsistencies are in how the two sources treat withdrawn proposals, other minor items that appear on the proxy ballot (for example, some ballots include checkboxes for shareholders to indicate that they have no conflict of interest), as well as a handful of proposals that appear to be erroneously missing from ISS Voting Analytics. Online Appendix E.3 provides additional information regarding erroneous ISS Voting Analytics data that we corrected in the course of matching the retail voting proposal data to ISS Voting Analytics.

Next, we merge additional proposal-level information from SharkRepellent. Unlike ISS Voting Analytics and the retail voting data, SharkRepellent proposals are unordered, so we match proposals by voting results and, using text matching, by proposal categories. We merge the retail shareholder voting data with CRSP at the 6-digit CUSIP-month level, matching the record date month in the shareholder voting data to the data month for CRSP. We restrict the analysis to firms in CRSP with share codes 10 or 11 and with a valid share price and shares outstanding information as of the record month. Following the merging with CRSP and ISS Voting Analytics, the final dataset has 4,725,390,872 account-proposal level observations.

Using linking procedures from the Compustat/CRSP Merged Dataset, which links Compustat gvkeys to CRSP permnos, we merge at the firm level with Compustat, so that each meeting merges with the last Compustat fiscal year that ended on or before the record date. We merge the IRS zip code income data with the retail shareholder data at the zip code-calendar year level, lagging the zip code data by one year.

Online Appendix Table A3, Panel A describes the portion of firms in the retail sample that we are able to match to CRSP in each year of the three-year sample period. We achieve coverage of 86% in 2015, 89% in 2016, and 90% in 2017, with higher coverage for larger firms, based on NYSE size quintiles. Panel B describes coverage of the retail shareholder voting data of the intersection of ISS Voting Analytics and CRSP. The overall coverage is high, at 96% in 2015, 99% in 2016, and 98% in 2017, with higher coverage for larger firms. Of the firms in CRSP that do not match to our retail voting data, most are small firms that also do not appear in ISS Voting Analytics; many of the remainder are unmatched because our retail data exclude meetings with record dates in 2014. We also report on institutional ownership in the firms covered in the retail data. To this end, we merge the retail voting data with institutional 13F ownership data from Thomson Reuters at the 6-digit CUSIP-year level, lagged by one year. Online Appendix Table A3, Panel C provides the coverage of retail voting firms in CRSP by institutional ownership quintile. For the subset of firms in CRSP that also appear in the Thomson Reuters 13F data, we achieve coverage of 95%, 96%, and 97%, respectively, in each of 2015–2017.

E.2.2. Details on merging

This section of the online appendix provides the methodology for the proposal-level merger of the ISS Voting Analytics and retail voting datasets. The two datasets include slightly different samples of firms: of the 7,606 unique 6-digit CUSIPs in ISS Voting Analytics and the 6,782 unique 6-digit CUSIPs in the retail voting data, 5,849 are in both. Nearly all of the 1,757 firms that appear in only ISS Voting Analytics are investment funds. Nearly all of the 933 firms that appear only in the retail voting data are non-public firms.

The retail voting sample data come in the form of two separate datasets: one at the firm-meeting-account level, in which each row contains a string of votes representing the votes of an account for all proposals at that meeting (or is blank, if the account did not vote); and one at the proposal level, in which each row contains the text of a single proposal at a meeting. Both datasets include meetings from 2015 to 2017, although the proposal-level set excludes meetings with 2014 record dates. The string of shareholder votes in the retail voting data is ordered as the proposals appear on the ballot; however, meetings vary in their numbering (some are numbered, some are lettered, some have roman numerals or identifying tags). The retail voting dataset lacks any proposal-level identifying information other than the within-meeting order of votes. Thus, the

proposal-level merge between the retail voting data and ISS Voting Analytics requires a three-way merge between retail voting data, retail proposal data, and ISS Voting Analytics.

We begin by ordering the proposals in the retail proposal set so that they properly reflect the actual ballot order. From 90,964 proposals spanning 17,937 meetings in the original retail proposal set, there are 90,787 remaining once we remove proposal slates which are overall duplicates in CUSIP, meeting date, record date, proposal text and number of proposals (we retain one of the proposal slates). We remove meetings from the retail proposal set for which the meeting ID does not appear in the retail voting dataset. Following this step, we match these retail proposals to ISS Voting Analytics prior to matching to the other retail voting dataset so that we can use this match to correct any mis-orderings that remain.

Meetings with multiple types of securities or multiple share classes may have different slates of proposals. For example, preferred stockholders may elect a different set of directors but otherwise vote for the same ballot items as common stockholders. Meetings in ISS Voting Analytics and the retail voting sample are defined slightly differently when there are multiple proposal slates. ISS Voting Analytics treats different proposal slates as separate meetings; the retail voting dataset labels the slates differently within the same meeting. Thus, a proposal that is voted on as part of two different proposal slates will appear as a duplicate. For consistency, we adopt the convention of reporting as a "meeting" a unique CUSIP-meeting date-record date.

To match proposals across the ISS Voting Analytics and retail voting data, we begin by matching meetings by 6-digit CUSIP, meeting date, and record date. Of 18,925 meetings in the ISS Voting Analytics set (of which 15,549 have CUSIPs which appear in the retail voting sample) and 17,731 meetings in the retail voting data (of which 15,683 have CUSIPs which appear in ISS Voting Analytics), 14,587 meetings are in both datasets. There are several hundred meetings which match by CUSIP but not by meeting date and record date. Many appear to be due to simple discrepancies in the record date between the datasets, whereas others may be due to incorrect CUSIP matches. Finally, 89 are due to the fact that proxy contests are not in the retail voting data.

Because ISS Voting Analytics lists multiple proposal slates as separate meetings, for the 622 cases in which ISS Voting Analytics has multiple meetings by the same firm on the same day (166 of which are in the retail voting data), we separately hand-match their proposals to proposals from corresponding meetings. We also hand-match the 21 additional meetings with multiple profiles that are in ISS Voting Analytics but not in the previous group of 622.

Next, for all of the remaining meetings, we match using the number of proposals at the meeting and the order of proposals. In both datasets, proposals within a meeting appear in the order in which they appear on the ballot. However, various discrepancies arise between the two datasets, in which both do not include precisely the same proposals in precisely the same order. Sources for these discrepancies include: (i) the retail voting data frequently condense multiple director election proposals into a single row with proposal text "#DIRECTOR" rather than a separate proposal for each director with the actual proposal text; (ii) the retail voting proposals are ordered unsystematically, with a mix of lexicographic and other kinds of ordering; (iii) there are some proposals about which the firms take different approaches, such as proposals to permit "other business," check boxes to indicate whether the voter has a conflict of interest in the vote, and withdrawn proposals; (iv) ISS Voting Analytics is missing several hundred proposals from its dataset, apparently erroneously (in such cases, the proposals are apparently numbered properly

within ISS Voting Analytics but one of the numbers is missing); and (v) for many meetings, ISS Voting Analytics, apparently erroneously, lists each proposal twice.

To deal with these issues, for those meetings matched on CUSIP, meeting date, and record date, we provisionally match their constituent proposals in order, then use additional factors to properly merge the datasets proposal by proposal, including the proposal's text description given in each dataset. ISS Voting Analytics proposals have a brief item description of the proposal produced by ISS Voting Analytics. For each proposal, the retail voting data have the first several hundred characters of the proposal text directly from the proxy statement. Starting from our match at the meeting level, we match at the proposal level in a series of stages. If two matched meetings have the same number of proposals, then we provisionally match the proposals in order. Because both ISS Voting Analytics and the retail voting data list their proposals in the order they appear on the proxy ballot, this should accurately match the two in most cases. As an added check, we conduct a text match to flag potentially mismatched proposals, that we later hand-check.

Our text match is designed as follows. First, for each pair of meetings that are matched by 6-digit CUSIP, record date, meeting date, and number of proposals, we calculate the string distance between the text description for all combinations of each of the ISS Voting Analytics proposals and each of the retail voting proposals within the matched meeting. The string distance we use is the Jaccard distance, which is the number of shared 5-character strings divided by the total number of 5-character strings. This *generates*, for a meeting with n proposals, an nxn matrix of Jaccard distances, in which (j,k) represents the ISS Voting Analytics proposal in the j'th spot's distance from the retail dataset proposal in the k'th spot, and in which the diagonal represents the distances from the proposals "across from them" in the other dataset. We calculate a score for the meeting as the ratio of the sum of the lowest alternative row or column versus the sum of the diagonal, where a score of 1 indicates that each of the proposals match up better to the proposals across from them in the provisional match than they do to any other proposal in the meeting. For those meetings with scores below 0.99 or flagged for another reason, we check all proposals in the meeting by hand. Matches may be flagged if either (i) there is only one proposal in the meeting, but the proposal text in the retail data is not "#DIRECTOR," or (ii) there are multiple ISS Voting Analytics proposals with "Elect Director" in the item description but one of the retail proposal texts is "#DIRECTOR", implying that director elections for that meeting were condensed in the retail data.

If an ISS Voting Analytics meeting and a retail dataset meeting that matched on CUSIP and meeting and record date do not have the same number of proposals, then, since the most likely reason is that the retail dataset frequently condenses multiple director elections into a single "#DIRECTOR" proposal, we similarly "condense" the ISS Voting Analytics meeting by removing all but one "Elect Director" proposal. If, after this process, the two matched meetings have the same number of proposals, then we repeat the process described above: we provisionally merge each "condensed" ISS Voting Analytics meeting to its corresponding retail dataset meeting on number of proposals, and, if they match, generate a match score and hand-check those with scores below 0.99 or flagged for another reason as described above. If matched meetings still have a different number of proposals, then we manually hand-match their proposals.

Following this process, from the original 14,587 matched meetings we manually hand-match the proposals at 303 meetings (2,112 proposals), for which we find a match from the retail dataset to ISS Voting Analytics on at least one proposal for 301 meetings (1,919 matched proposals). These are cases in which ISS Voting Analytics has duplicate meetings on the same day or the ISS Voting Analytics and retail dataset meetings do not have the same number of proposals

even after condensing. We hand-check the proposals for 760 meetings (3,217 proposals) in which the number of proposals is the same, but the match score is below 0.99, or they are flagged for other reasons, for which we find a match from the retail dataset to ISS Voting Analytics on at least one proposal for 759 meetings (3,215 proposals). We algorithmically match, and do not further check, the proposals at 13,524 meetings (68,048 proposals). Proposals that are algorithmically matched belong to meetings that match on CUSIP, meeting date, meeting day, and number of proposals, have a text match score greater than or equal to 0.99 on the ISS Voting Analytics Item Description and retail proposal text. Last, we remove three meetings because we cannot confirm from their constituent proposals that the meetings themselves were correct matches.

As a final check on our matching process, we verify with the subset of hand-checked meetings that the match score we generate is a strong predictor of proper matching and that scores above 0.99 have a low chance of being incorrectly matched. For the 593 hand-checked proposals with match scores below 0.95, just 170 (28.7%) were properly provisionally matched, but for the 2,350 proposals with scores between 0.95 and 0.99, 2,346 (99.8%) were properly provisionally matched. An additional 274 proposals had scores above 0.99 but were flagged for other reasons; 270 (98.5%) of these were properly provisionally matched. Finally, we also hand-checked 1617 proposals that were not flagged for any reason; all were properly provisionally matched.

The merge of the retail proposal dataset with ISS Voting Analytics generally confirms the proper order of the retail proposals and permits a merge to the retail voting dataset. For those that we hand-code, we also use the manually-checked original retail proposal order and re-order appropriately to ensure that we can properly merge with the retail voting dataset. We then merge the combined ISS Voting Analytics-retail proposals set with the retail voting dataset. Starting with 89,850 proposals in the original retail proposal set, we remove 78 that are duplicates, leaving 89,772 proposals. There are 89,652 proposals remaining once we remove proposal slates which are duplicates in CUSIP, meeting or record date, and number of proposals, but which are not identical in proposal text (we remove all copies of such proposal slates, since we have no way to properly identify them). Of these, 89,571 proposals properly match to the retail voting set by CUSIP, meeting date, record date, number of proposals at the meeting, and sequence number. 73,084 of these proposals (14,578 meetings) match to ISS Voting Analytics.

We run two additional checks using variables that we did not use for our merges. First, although the retail voting dataset has no identifying information to distinguish proposals at a meeting other than the votes themselves, votes on the annual frequency of say on pay are uniquely distinguishable from other votes using the retail voting dataset because the votes are 1's, 2's, and 3's instead of For's or Against's. Of 2,483 proposals for which the retail voting dataset votes are 1's, 2's, and 3's and for which there was a meeting match to ISS Voting Analytics, 2,479 were properly matched to a retail proposal dataset frequency of say-on-pay proposal, a success rate of 99.8%. Second, both the retail voting dataset and the ISS Voting Analytics dataset include proposal-level management recommendations, so we can use these to cross-compare our results. Of 73,084 proposals, the management recommendations differ in 70. From spot-checking, these appear to be cases in which the proposals are properly matched but the ISS and retail datasets differ in their recorded management recommendations (generally because the proposal was withdrawn).

We subsequently merge this sample with CRSP, leaving 54,876 proposals. We then merge with SharkRepellent to correct certain ISS Voting Analytics numbers (as reported in Appendix A.3 below), though we do not drop observations that do not match to SharkRepellent. We hand-correct 42 entries where both ISS Voting Analytics and SharkRepellent incorrectly report 0 votes

For and Against. We drop proposals where the number of votes outstanding is reported incorrectly and cannot be corrected, where no votes are reported (almost always where the firm did not report the results of that proposal in the original 8-K or the proposal was withdrawn prior to voting), and where For votes were reported but not Against, leaving a final sample of 53,952 proposals.

E.3 Correction to ISS Voting Analytics information and match to Shark Repellent

In the course of matching the retail voting proposal dataset to ISS Voting Analytics, we found that ISS Voting Analytics reports erroneous numbers of outstanding shares and vote counts in a portion of its observations. This error affects observations in 2017. In this subsection, we describe how we correct these erroneous entries.

For all meetings in year 2017 for fields with more than 9 digits for outstanding shares, votes for, votes against, votes abstained, or say on pay frequency votes, we find that ISS Voting Analytics dataset cuts off the final digits of the number. For example, a share count of '123,456,789' would be reported in ISS Voting Analytics as '12,345,678.' We correct the errors using data from SharkRepellent, which contains information on outstanding shares, votes for, votes against, votes abstained, and say on pay frequency votes. We first match SharkRepellent to ISS Voting Analytics at the meeting level (by CUSIP, record date, and meeting date) and proposal level (by votes for, votes against, and votes abstained).

For those observations that do not match with SharkRepellent and are candidates to have digits cut off, we identify observations in 2017 that ISS Voting Analytics report as having 8 digits and CRSP reports at least 80,000,000 outstanding shares, and we hand-code the correct numbers using public filings. For a small handful of observations where (i) we do not have shares outstanding numbers from SharkRepellent and (ii) shares outstanding from the record date month from CRSP is approximately 100 or 1,000 times the ISS Voting Analytics number, we multiply the ISS Voting Analytics number by 100 or 1,000 to reach an approximate number.

In total, we correct 20,037 entries across 11,629 proposals with digits cut off, inappropriate zeros, or other inconsistencies. We also run further diagnostics to confirm that ISS Voting Analytics numbers are accurate other than the issue described here. Note that we choose to continue to use the ISS Voting Analytics proposal data rather than SharkRepellent despite the errors because it can be matched at the proposal level with the voting data, as detailed in Online Appendix E2.2, whereas SharkRepellent cannot be, and ISS Voting Analytics has larger coverage.

E.4 Construction of the mutual fund voting records

We use four data sources to form the mutual fund voting dataset. For fund voting information, we use filings on Form N-PX filed with the SEC. Form N-PX is required of all registered management investment companies. We obtain Form N-PX via the Mutual Fund Vote Records dataset within the ISS Voting Analytics Database. The dataset contains the voting decision for each fund on each proposal for each firm that it owns. We also use the CRSP US Mutual Fund Database, which contains whether a fund is index-based or not and the 13F institutional share ownership via the Thomson Reuters S12 dataset, which indicates the ownership of each firm by each fund among 13F filers at the time of the quarterly filing. The fourth dataset is the WRDS Mutual Fund Links (MFLINKS), which is designed to link funds in the CRSP Mutual Fund dataset to the Thomson Reuters Mutual Funds (S12) dataset.

The ISS Mutual Fund Vote Records cannot be directly merged to the Thomson Reuters S12 share ownership dataset since the two have no shared identifier and they write fund names

differently. We therefore construct our dataset as follows. First, we use text matching to match ISS Mutual Fund Vote Records with the CRSP Mutual Fund dataset by fund name. Of the 11,208 unique funds in the ISS dataset, we match 452 (4.03%) to CRSP using exact text matching. We then use the STATA *matchit* function for fuzzy matching, hand-check each match, and conduct additional hand-coding. Following this process, we match 9,244 (82.48%) funds to CRSP.

Next, starting from the CRSP dataset, we use the MFLINKS dataset to match each CRSP fund to a linking identifier by fund. We use that linking identifier to match to Thomson S12 by fund. Finally, we match the ISS Mutual Fund Vote Records to the Thomson Reuters S12 via our links. We match by fund, firm CUSIP, and date. For ISS, the relevant date is the record date of the meeting; for Thomson Reuters, the relevant date is the report date of the 13F filing. We limit to matches in which the record date of the meeting is within 180 days of the record date of the 13F filing. Generally, there is more than one 13F record date within 180 days of a meeting record date for a given fund and firm; we keep only the 13F closest chronologically to the meeting record date.

In total, the ISS Voting Analytics Database contains 15.7 million unique fund proposals that match to proposals in our dataset. Of those, 13.5 million (85.9%) match to a CRSP fund, and 8.7 million (55.4%) match to a Thomson Reuters S12 fund-firm 13F filing, where the record date of the meeting is within 180 days of the record date of the 13F filing.

In our counts of mutual fund share-weighted votes, we only include votes from Form N-PX where we can retrieve the shares held by the fund from the CRSP Mutual Fund Dataset. Thus, we somewhat underestimate the ownership by mutual funds. The term Big Three refers to Vanguard, Blackrock, and State Street. For the proposals in this sample, 78% of Big Three funds (and 70% of Blackrock funds) for which there is N-PX voting data are matched to share numbers from Thomson Reuters; this is likely an underestimate of our true coverage of Big Three ownership, since the larger funds are more likely to have matches in CRSP and Thomson Reuters.

Appendix F. Illustrative example of retail voting

To further describe the scope of the retail voting data, we present detailed information on voting derived from one anonymized issuer's annual meeting. The meeting includes a wide range of proposals for investors to vote on—including the election of director nominees, an advisory vote to approve executive compensation, ratification of the independent auditors, and shareholder proposals—allowing us to highlight variation in voting that we explore in more detail in the paper. The number of total management and shareholder proposals was between nine and fifteen. We report results for nine of them in a randomized order to preserve the issuer's anonymity.

Online Appendix Table A21 presents three key aspects of the voting process, beginning, in Panel A, with a summary of the methods of proxy delivery to retail shareholders and the means by which shareholders returned their votes. Firms and shareholders have a choice regarding how materials are delivered to shareholders. Accounts choose to receive either (i) Hard Copy, (ii) E-Delivery, or (iii) the firm Default delivery method. Firms may choose to send the (a) Hard Copy or (b) Notice and Access, or may choose a mixture of the two (Notice to some shareholders, Hard Copy to others). Shareholders receive their choice of materials, or, if they did not select Hard Copy or E-Delivery, they receive the firm's choice. We summarize the following four options of what the shareholder receives, as coded in our retail voting data: If the shareholder chooses Hard Copy, or if the shareholder chooses Default and the firm chooses Hard Copy, then a complete copy of proxy materials including the proxy statement, annual financials, and ballot or vote instruction form is sent to the shareholder via the postal service. If the shareholder chooses Default and the firm chooses Notice and Access, then it mails the shareholder a notice to announce the meeting with information on how to get complete packages of proxy materials or use the service provider's online website for voting. Under the rules for notice and access, requests for Hard Copy can be made by going to the Internet voting website, calling a toll-free number, or sending a request by e-mail.

Panel A shows that accounts that choose the Hard Copy delivery method tend to own a larger number of shares per account and are far more likely to cast a vote. Whereas accounts receiving delivery by Hard Copy own an average of 1,416 shares (account choice) and 2,539 shares (firm choice) and vote at rates of 73% and 33.2%, respectively, accounts receiving material via E-delivery or Notice own 506 and 326 shares on average and vote at just 20.4% and 7.3%, respectively. In all, retail shareholders at this issuer hold over one billion shares, comprising roughly one-third of shares outstanding, with an overall response rate of 31.2%, consistent with the response rates in the broader sample that we document in Section 4. The bottom of Panel A provides information on the voting method. Two features are noteworthy. First, shareholders that did not vote hold 68.6% of the total retail votes. These shareholders own fewer shares on average than accounts that participate in the voting. Second, among the shareholders who choose to vote, voting by hard copy accounts for about one half of all retail votes, followed by use of the internet.

Panel B provides the voting results for the items on the ballot. To preserve the anonymity of the firm some of the shareholder proposals have been removed. For each of the remaining proposals we report the corresponding management and ISS recommendations. "F" indicates voting in favor of a given proposal, "N" indicates voting no/against a proposal, and "A" indicates abstaining from a vote. The column Retail Votes provides the percent of votes cast by retail shareholders, and within the votes cast, the percent of votes for and against. Consider first the votes

cast for the election of the director nominees. As described above in Section 4, this meeting is one in which our dataset does not provide the breakdown of retail votes in favor or withheld for individual directors. Hence, we can only report the percent of votes cast by retail investors–which in this case was 30.3% of the 1.2 billion retail shares, much lower than the turnout rate by all shareholders, which was more than 60%.

We report the retail voting outcomes for the remaining proposals. The advisory vote to approve executive compensation, known as "say on pay," received support from 88.5% of retail shareholders, similar to the 86.9% at the issuer's 2016 meeting. ISS supported the proposal in 2016 but recommended against it in 2017, but retail support remained relatively constant, indicating a lack of influence of ISS over retail voting behavior. The remaining proposals are shareholder-sponsored. Retail shareholders tend to vote along management's recommendation against all of these proposals.

Finally, we report in Panel C information on the range of voting decisions by retail shareholders for this meeting. Out of 16,681 observed permutations, including the proposals that have been omitted from the panel, we report those combinations of voting that were used most frequently. We report the number of retail accounts voting the specific combination, the number of shares voted, and the percent of shares accounted for by the specific combination relative to all retail shares. As noted above, a large number of shares were not voted. Slightly more than 1.5 million accounts—comprising 86.1 percent of all retail accounts—did not cast a ballot, accounting for 68.8 percent of retail shareholder votes. This non-voting rate is slightly higher than that reported in Panel A since some shareholders returned their ballots but did not indicate a vote for any proposal. Although we count over 16,000 different permutations of votes cast across all of the proposals, 20.8 percent of retail votes voted entirely with management. The remaining permutations comprise a small fraction of votes.

In sum, this example shows that retail shareholder turnout rates are lower than that of non-retail and are strongly associated with the materials they receive; that retail support for management moves less with ISS recommendations than does non-retail support; and that the retail votes tend to follow a few major permutations, such as "all with management" or "in favor of all shareholder proposals."

Appendix G. The impact of information and voting methods on turnout

In this appendix, we provide greater detail on Section 6.2.3, in which we ask whether the manner by which information is disseminated to a shareholder and a shareholder's access to her preferred voting method have a causal effect on turnout.

We focus on the SEC's Notice and Access rule that allows firms to issue a notice of availability of online materials to certain shareholders instead of sending a full package of materials. Because Notice and Access only affects a subset of accounts within a firm, and we observe which accounts are impacted, we are able to estimate the treatment effect on the treated shareholders using the triple-differences strategy that we describe below. Prior research has found a negative effect of Notice and Access on retail turnout, using firm switches for identification. Lee and Souther (2019) find a 4% effect and Geoffroy (2018) finds a 7–13% effect. Both attribute the decline in participation to the change to electronic information dissemination. By focusing on the subset of retail accounts that are affected by Notice and Access, we estimate treatment effects on the treated and find that the effect size is upwards of 50% on the set of retail shareholders who see a switch to or from Notice and Access.

Importantly, we show that the Notice and Access rule affects not just the information materials received by the account but also the methods of voting available to the account.[1] We find below that the entire turnout effect is determined by a change in available voting methods. Shareholders who vote in year t by mail or telephone (as opposed to internet) who retain those options to vote have 63% turnout in $t+1$, whereas those who now face an extra obstacle to voting by mail or telephone have a voting rate of only 16–18% in $t+1$ — a sizeable effect of the inability to continue with their preferred voting method.

Approach to Identification

We are identifying the effects of the materials an account receives on turnout. We model an account's decision to vote as follows:

$$Cast_{act} = \beta_0 + \beta_1 M_{act} + \beta_2 X_{act} + \theta_{ac} + \phi_{at} + \lambda_{ct} + \nu_{act} \quad \text{(G1)}$$

where a indexes account, c indexes firm, and t indexes time. $Cast_{act}$ is account a's decision whether to participate at firm c's meeting at time t, M_{act} equals one if the account actually

[1] To our knowledge, we are the first to make this observation. The change to voting methods appears to be a consequence of the SEC rule creating Notice and Access: "The Notice of Internet Availability of Proxy Materials must contain the following… (10) Instructions on how to access the form of proxy, *provided that such instructions do not enable a security holder to execute a proxy without having access to the proxy statement*…" (emphasis added). Notice and Access rule, 17 CFR § 240.14a-16(d)(10), available at https://www.law.cornell.edu/cfr/text/17/240.14a-16. As explained by the SEC in the accompanying release documents, the above rule does not permit the initial Notice and Access delivery to contain a telephone number or, presumably, a hard copy ballot: "[W]e are clarifying that the Notice must contain instructions on how to access the proxy card. Such information… may not include a means to execute a proxy, such as a telephone number, which would enable the shareholder to execute a proxy without having access to the proxy statement and annual report." The release later states that "We believe that the proxy statement and annual report to security holders represent the information necessary to make an informed voting decision. *The Notice is intended merely to make shareholders aware that these proxy materials are available on an Internet Web site; it is not intended to serve as a stand-alone basis for making a voting decision*." (emphasis added). Federal Register (2007), Vol. 72, No. 18, at 4149-4150, available at https://www.sec.gov/rules/final/2007/34-55146fr.pdf.

receives Hard Copy materials at time t, X_{act} is a vector of additional covariates, θ_{ac} are account-firm fixed effects, ϕ_{at} are account-year fixed effects, and λ_{ct} are firm-year fixed effects.

As discussed in the main text, the materials M are determined by the intersection of the firm's choice and the account's choice. If the account chooses a certain material, then it receives that material; if the account selects the Default option, it receives the firm's choice, either Hard Copy or Notice.

We exploit variation in materials M resulting from the subset of firms that switch their choice of materials (from Notice to Hard Copy or vice versa) during our sample period. Because only accounts that have chosen Default are affected by the firm's choice, only these Default accounts are in our treatment group. We use a triple-differences approach — (i) across firm choice whether to switch or not, (ii) across time whether post-switch or not, and (iii) across shareholder choice whether Default or not. The first two dimensions of variation form the core differences-in-differences; the third dimension of variation (whether the account chose Default) separates out accounts that are unaffected by treatment. There are two potential treatments: removing of materials (switch from Hard Copy to Notice) and adding materials (switch from Notice to Hard Copy).

If we assume momentarily that an account never changes its choice of materials (so we can write its choice as D_{ac}), then any change in materials M_{act} received at time t is fully determined by the triple-interaction of (i) $SwitchHCtoN_c$ or $SwitchNtoHC_c$ (whether the firm switches delivery methods, separated by the direction of switch), (ii) $Post_{ct}$ (a binary variable equal to one if time t is post-switch for switching firm c and zero otherwise), and (iii) D_{ac} (the account's choice of Default):

$$M_{act} = M_{ac0} - SwitchHCtoN_c * Post_{ct} * D_{ac} + SwitchNtoHC_c * Post_{ct} * D_{ac} \qquad \text{(G2)}$$

Substituting Eq. (E2) into Eq. (E1), and absorbing M_{ac0} into account-firm fixed effects yields:

$$\begin{aligned} Cast_{act} = {} & \beta_0 - \beta_1 SwitchHCtoN_c * Post_{ct} * D_{ac} + \beta_1 SwitchNtoHC_c * Post_{ct} * D_{ac} \\ & + \beta_2 X_{act} + \theta_{ac} + \phi_{at} + \lambda_{ct} + \nu_{act} \end{aligned} \qquad \text{(G3)}$$

Eq. (E3) should causally identify the impact of Materials M on the decision to turn out, $Cast$. With this setup we compare Default accounts at post-switch Hard Copy (or Notice) firms with: (i) the same accounts at the same time at different firms in their portfolio that did not switch, which controls for any correlation between the firm decision to switch and changes in the voting tendency of its shareholder base; (ii) the same accounts at the same firm prior to its switch, which controls for any correlation between the firm decision to switch and time-invariant firm-specific turnout; and (iii) non-Default accounts at the same firm at the same time, which controls for any correlation between the firm decision to switch and changes to its shareholder turnout not driven by the switch.

To absorb as much variation as possible, we include two-way fixed effects for account-firm, account-year, and firm-year. Account-firm ensures we are comparing the same account at the same firm over time. Account-year ensures we are comparing the same account at the same time to other firms in its portfolio. Firm-year ensures we are comparing different accounts at the same firm at the same time. In this two-way fixed effects specification, potential control variables such as $SwitchHCtoN_c$ (or $SwitchNtoHC_c$), D_{ac}, year dummies, and all interactions of these variables are absorbed by the fixed effects.

We make the following adjustment to Eq. (G3). Since accounts may change their choices over time, and since the change in choice may be associated with the firm's decision to switch, we proxy for the account's actual choice of Default, D_{act}, with the account's original portion of all firms in its portfolio that are Default, D_{a0}. We use the original rather than current selection because a small group of accounts switch their choice of methods over time, and we use the share of Default rather than the selection for a given firm because a small group of accounts have variation across their firms in their choice of materials. A simple analogy is to a laboratory drug experiment with a treatment group and a control group. Suppose assignment to the treatment group raises one's odds of receiving the treatment, but not by 100% (i.e. some members of the treatment group choose to not take the experimental drug and/or some members of the control group choose to take the experimental drug). Then to regress on whether participants actually took the drug would introduce a bias. Instead, we would regress on which group they were assigned to (i.e. intent to treat), and scale by the percentages in each group that took the drug to obtain the average effect of treatment on the treated.

As a consequence of proxying for the account's choice at firm c at time t, the triple interaction terms $SwitchHCtoN * Post * D_{a0}$ and $SwitchNtoHC * Post * D_{a0}$ are not fully determinative of materials M_{act}. Thus, we estimate the causal variable of interest M in the first stage and separately estimate the reduced form equation.

First Stage:

$$M_{act} = \gamma_0 - \gamma_{1A} SwitchHCtoN_c * Post_{ct} * D_{a0} + \gamma_{1B}\, SwitchNtoHC_c * Post_{ct} * D_{a0} + \gamma_2 X_{act} + \theta_{ac} + \phi_{at} + \lambda_{ct} + \varepsilon_{act} \quad \text{(G4)}$$

Reduced Form:

$$Cast_{act} = \delta_0 - \delta_{1A} SwitchHCtoN_c * Post_{ct} * D_{a0} + \delta_{1B} SwitchNtoHC_c * Post_{ct} * D_{a0} + \gamma_2 X_{act} + \theta_{ac} + \phi_{at} + \lambda_{ct} + \varepsilon_{act} \quad \text{(G5)}$$

Effectively, we scale the coefficients δ_1 by the coefficients γ_1 to convert δ_1, the effect of the triple interaction terms on turnout into β_1, the effect of materials on turnout (see Eq. (E1)). If each account made the same selection for each firm in its portfolio and never changed selections, then we would have $\gamma_{1A} = \gamma_{1B} = 1$ and the reduced form equation would reduce to the second stage equation in Eq. (E1). In practice, because we estimate γ as close to 1 (roughly 0.90, as seen in column 1 of Table 7), this adjustment makes fairly little difference. By separately estimating γ_{1A} from γ_{1B} and separately estimating δ_{1A} from δ_{1B}, we allow that $SwitchHCtoN_c$ and $SwitchNtoHC_c$ may have different impacts on M and $Cast$, respectively. However, we estimate a singular β_1, aggregating the separate effects.

Note that we do not require that the firm decision to switch materials is exogeneous. The primary identifying assumption for the triple-differences is parallel trends (in materials received and in turnout) among Default shareholders at switching firms as compared to non-Default and non-switching firms. We only identify the switch between Hard Copy and Notice; the relative effects of E-Delivery are not identified. We show evidence of parallel pre-trends with our empirical results. Default accounts at switching firms that switch from Hard Copy to Notice or Notice to Hard Copy in 2017 have virtually no pre-switch pre-trend in voting rates from 2015 to 2016. Nor are there pre-trends in our placebo groups, non-Default accounts and non-switching firms. Our

assumption is that those trend lines would remain similar if, counterfactually, accounts did not receive different materials. In fact, we show that Default accounts at switching firms that switch from Hard Copy to Notice see a large drop in voting rates and Default accounts at switching firms that switch from Notice to Hard Copy see a large spike in voting rates, whereas accounts that do not actually switch materials (non-Default accounts and accounts at non-switching firms) do not see any change in voting rates. This is strong evidence for our identifying assumptions.

We conduct extensive robustness checks. Our main regression removes accounts that do not appear in 2015, but not doing this yields essentially identical results. We also obtain virtually identical results when we use an account's original choice of Default at a specific firm, rather than an account's share of Default across the firms in its portfolio. This alternative method is what we use in our figures because it allows for graphical representation. In addition to our main specification with three two-way fixed effects covering our main dimensions of variation (account-year, account-firm, and firm-year) as shown in Eq. (G4)-(G5), we also use a specification with three one-way fixed effects (account, firm, and year) and find qualitatively similar results