

The interrelationships between Corporate Political Activity and corporate environmental performance: The role of language diversity

Appendix 1. Description of the dependent variable

Env-score is composed of information on three categories: i) Resource Use, ii) Emission Reduction, and iii) Innovation.

Resource Use reflects a company's performance and capacity to reduce the use of materials, energy, or water and to find more eco-efficient solutions by improving supply chain management.

Emission Reduction measures a company's commitment and effectiveness toward reducing environmental emissions in the production and operational processes.

Innovation reflects a company's capacity to reduce its customers' environmental costs and burdens, thereby creating new market opportunities through new environmental technologies and processes or eco-designed/friendly products.

These three categories aggregate data from 68 individual indicators (Resource Use with 20 indicators, Emission Reduction with 28 indicators, and Innovation with 20 indicators) from 500+ ESG measures collected from numerous publicly available information sources including but not limited to (a) company reports, (b) company filings, (c), company websites, (d) NGO websites, (e) CSR reports, and (f) selected media outlets:

https://www.refinitiv.com/content/dam/marketing/en_us/documents/methodology/esg-scores-methodology.pdf.

Appendix 2. Propensity Score Matched (PSM) Matching Diagnostic Tests

Panel A: PSM diagnostic Logit regression					(1)	(2)			
Log (Board-size) _{t-1}					1.670 (0.000)	0.317 (0.253)			
Independent director ratio _{t-1}					0.016 (0.004)	-0.003 (0.551)			
Dual CEO _{t-1}					0.405 (0.000)	-0.167 (0.155)			
Log (GDP) _{t-1}					0.664 (0.000)	0.070 (0.276)			
GDPPC _{t-1}					0.083 (0.085)	-0.007 (0.890)			
Sovereign credit rating (Residual) _{t-1}					-0.124 (0.002)	-0.007 (0.885)			
Log (Number of employees) _{t-1}					0.258 (0.000)	-0.005 (0.908)			
Environment Mgmt Team _{t-1}					0.392 (0.000)	-0.087 (0.557)			
Constant					-13.930 (0.000)	-0.778 (0.429)			
Observations					4,454	1,254			
Year FE					NO	NO			
Industry FE					NO	NO			
Pseudo R2					0.292	0.00309			
Panel B: Summary statistics of the propensity score between the treated group and control group									
	Obs.	mean	Std. dev	min	p25	p50	p75	max	
Treated group	627	0.380	0.246	0.010	0.149	0.343	0.619	0.875	
Control group	627	0.380	0.246	0.010	0.149	0.343	0.620	0.875	
Difference		0.000	0.000	0.000	0.000	0.000	0.000	0.000	
Panel C: Mean difference tests of the control variables between the treatment and control group									
	Treated Group		Control group		Mean Difference		t-statistic		
Log (Board-size) _{t-1}	2.530		2.512		0.018		1.299		
Independent director ratio _{t-1}	72.556		74.008		-1.452		-1.213		
Dual CEO _{t-1}	0.442		0.469		-0.027		-0.964		
Log (GDP) _{t-1}	6.273		6.258		0.015		0.215		
GDPPC _{t-1}	4.732		4.785		-0.053		-0.628		
Sovereign credit rating _{t-1}	-0.804		-0.799		-0.005		-0.052		
Log (Number of employees) _{t-1}	10.219		10.211		0.008		0.119		

Panel A estimates a Logit regression analysis to predict the probability of being in the treatment group (high political contributions in the top quintile of the full sample) and presents the results for the full sample in column (1) and the PSM subsample in column (2). As shown in column (2), the statistically insignificant coefficients of all company- and country-level control variables and the dramatic drop of the pseudo- R^2 to about 0.309% in the PSM subsample indicated that none of the control variables now predicted which firms were more likely to be in the treatment group. Please refer to Table 2 for detailed definitions of all other variables. Standard errors are clustered by country and year. p values are in parentheses. In Panel B, we compared the summary statistics of the propensity scores, including the mean and the standard deviation, between the treatment and control groups. As expected, we found no discernable differences in any of the summary statistics between the two groups, suggesting that the firms in the two groups were identical with respect to their propensity scores. Panel C reports that the mean difference tests show no statistical differences between the treatment and the control groups in terms of the means for all control variables, suggesting that—at least with respect to company- and country-level characteristics used to construct our PSM subsample—the firms in the two groups were identical. The firms in the treatment and control groups were thus statistically indistinguishable.

Appendix 3. Mitigating reverse causality bias

To provide further assurance about the causal effect of CPA on environmental performance, we identify firms where Political or Lobbying contributions do not change for two consecutive years. The logic is that, for these firms, during those consecutive years, their CPA does not change as a result of their environmental performance, making reverse causality less likely. This subsample represents approximately 60% of political contributions and 20% of lobbying contributions. We replicate our baseline OLS regression models using this subsample. As reported in the table below, the results are very similar, showing that CPA likely leads to better environmental performance rather than the other way around.

Controlling for Endogeneity Using subsample whose CPA does not change at least for two consecutive years

	(1)	(2)	(3)	(4)
Log (Political-contributions) _{t-1}	0.103 (0.505)			
Log (Lobbying-contributions) _{t-1}		0.841 (0.015)		
Political-contributions(Yes/No) _{t-1}			3.419 (0.000)	
Lobbying-contributions(Yes/No) _{t-1}				6.320 (0.065)
Log (Board-size) _{t-1}	12.129 (0.000)	10.962 (0.000)	11.970 (0.000)	12.348 (0.000)
Independent director ratio _{t-1}	0.129 (0.000)	0.066 (0.106)	0.124 (0.000)	0.093 (0.000)
Dual CEO _{t-1}	-0.492 (0.623)	-3.784 (0.026)	-1.548 (0.042)	-1.577 (0.019)
Log (GDP) _{t-1}	3.224 (0.634)	48.127 (0.059)	0.026 (0.997)	17.897 (0.166)
GDPPC _{t-1}	-0.254 (0.871)	-6.172 (0.241)	-0.118 (0.931)	-1.132 (0.656)
Sovereign credit rating (Residual) _{t-1}	0.241 (0.493)	1.468 (0.191)	0.261 (0.374)	0.316 (0.568)
Log (Number of employees) _{t-1}	5.360 (0.000)	4.261 (0.000)	5.432 (0.000)	5.769 (0.000)
Environment Mgmt Team _{t-1}	11.454 (0.000)	12.169 (0.000)	11.227 (0.000)	11.456 (0.000)
Constant	-85.432 (0.010)	-283.522 (0.032)	-66.639 (0.030)	-160.461 (0.024)
Observations	2,672	823	3,912	2,896
R-squared	0.497	0.464	0.476	0.402
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Country FE	YES	YES	YES	YES
Adjusted R-square	0.474	0.394	0.460	0.379

The table reports results of the baseline multivariate OLS regressions using the subsample each of whose CPA does not change at least for two consecutive years to test hypothesis 2a. Please refer to Table 2 for detailed definitions of all other variables. Standard errors are clustered by country and year. *p* values are in parentheses.

Appendix 4. Mitigating omitted variable bias

While the country-level fixed effect we use in our regression model mitigates concerns of time-invariant country-level unobservable factors, it might also be argued that it does not necessarily mitigate endogeneity arising from country-level omitted time-variant factors. To further mitigate this omitted variable bias, we additionally control for *Yale EPI*¹ (*Environmental Performance Index*) as a proxy for levels of environmental stringency of regulation, *the number of green NGOs*² as another societal measure of interest in support of environmental protection for countries as additional country-level control variables in our regression models. Furthermore, to account for possible criticism that some companies are based and operating in only their home countries, whereas others may be exposed to a multitude of cultural and regulatory factors³, we follow Shoham et al. (2020) to construct a dummy variable, *Cross-listing*⁴. As reported in the table below, we find that our primary findings remain robust to the inclusion of these additional control variables.

Controlling for Endogeneity after controlling for additional country-level control variables

	(1)	(2)	(3)	(4)
Log (Political-contributions) _{t-1}	0.225 (0.000)			
Log (Lobbying-contributions) _{t-1}		0.872 (0.000)		
Political-contributions(Yes/No) _{t-1}			3.314 (0.000)	
Lobbying-contributions(Yes/No) _{t-1}				5.041 (0.024)
Log (Board-size) _{t-1}	12.142	10.885	12.027	11.483

¹ The country's Environmental Performance Index from Yale Center for Environmental Law & Policy (epi.yale.edu) (*Yale EPI*) provides a quantitative basis for comparing environmental performance for 180 countries. Given that the Yale EPI is available biennially only in even-numbered years and the underlying methodology and data between versions of the EPI change, it is not appropriate to assemble the Yale EPI scores from each release into a time series. Therefore, we first obtain historically processed time series for every indicator used for each version of the *Yale EPI*. Then, we constructed longitudinal data on environmental performance using the weight of each time series processed indicator within each level of aggregation for the EPI available in the 2020 EPI Technical Appendix.

² Next, we construct the second country-level variable, *Number of Green NGOs*, which represents the number of Non-Government Organizations (NGOs) in a country that is directly involved with the United Nations Environment Program (UNEP) through accreditation to the United Nations Environment Assembly (UNEA).

³ Thanks to an anonymous reviewer's suggestion that being a multinational enterprise potentially affects its environmental performance through practices like environmental arbitrage, we replaced *Cross-listing* with *Multinational* (available in Refinitiv ESG), a binary variable which has a value of 1 if a company claims to follow the OECD Guideline for Multinational Enterprises (MNEs) (that aims to encourage positive contributions MNEs can make to economic, environmental and social progress, and to minimize adverse impacts on matters covered by the Guidelines that may be associated with MNE's operations, products and services) and zero otherwise as robustness and found the very consistent results supporting all our hypotheses. Results will be available upon request to authors.

⁴ The *Cross-listing* dummy has a value of 1 if a company is financially internationalized by cross-listing its equity ownership on foreign stock exchanges in addition to their domestic stock exchanges during our sample period given that cross-listing can expose a company to a different environment in terms of culture, institutions and/or regulation other than its home country.

	(0.000)	(0.000)	(0.000)	(0.000)
Independent director ratio _{t-1}	0.131	0.072	0.130	0.075
	(0.000)	(0.001)	(0.000)	(0.001)
Dual CEO _{t-1}	-1.062	-1.657	-1.090	-1.444
	(0.175)	(0.006)	(0.164)	(0.017)
Log (GDP) _{t-1}	-8.063	9.927	-7.988	12.178
	(0.277)	(0.323)	(0.281)	(0.212)
GDPPC _{t-1}	0.991	-0.234	0.971	-0.857
	(0.547)	(0.908)	(0.554)	(0.662)
Sovereign credit rating (Residual) _{t-1}	0.388	0.395	0.394	0.204
	(0.208)	(0.366)	(0.200)	(0.621)
Log (Number of employees) _{t-1}	4.831	4.814	4.835	5.321
	(0.000)	(0.000)	(0.000)	(0.000)
Environment Mgmt Team _{t-1}	10.622	10.800	10.602	11.064
	(0.000)	(0.000)	(0.000)	(0.000)
Yale EPI _{t-1}	-0.433	-0.146	-0.439	-0.116
	(0.132)	(0.682)	(0.125)	(0.736)
Number of Green NGO _{t-1}	0.037	0.036	0.035	0.028
	(0.597)	(0.599)	(0.621)	(0.682)
Cross-listing _{t-1}	4.718	2.282	4.663	2.180
	(0.000)	(0.011)	(0.000)	(0.017)
Constant	-0.786	-106.424	-0.630	-119.317
	(0.984)	(0.055)	(0.987)	(0.027)
Observations	3,792	3,288	3,792	3,288
R-squared	0.460	0.392	0.460	0.384
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Country FE	YES	YES	YES	YES
Adjusted R-square	0.443	0.371	0.443	0.363

The table reports results of the baseline multivariate OLS regressions where we include *Yale EPS*, *the number of green NGOs*, and *Cross-listing* as additional control variables to test hypothesis 2a. Please refer to Table 2 for detailed definitions of all other variables. Standard errors are clustered by country and year. *p* values are in parentheses.

Appendix 5. Overrepresented English-speaking countries

As reported in Table 1, English-speaking countries (US and UK) are overrepresented in the sample. In order to verify whether this sampling bias in our data had distorted our main findings, we re-run the regressions using two sub-samples as follows. The first is a non-US-UK company sub-sample, while the second is a US-UK company sub-sample. As reported in the table below the hypotheses are still strongly supported.

Robustness Using Sub-Sample Analyses

	(1)	(2)	(3)	(4)	(5)	(6)
Interaction _{t-1}					-0.641 (0.000)	-7.588 (0.003)
Log (Political-contributions) _{t-1}	0.286 (0.001)		0.278 (0.000)		0.572 (0.000)	
Political-contributions(Yes/No) _{t-1}		5.200 (0.000)		3.366 (0.001)		6.988 (0.000)
First Pronoun Drop					Subsumed	Subsumed
Log (Board-size) _{t-1}	4.361 (0.041)	4.086 (0.054)	19.885 (0.000)	19.844 (0.000)	3.705 (0.090)	3.793 (0.081)
Independent director ratio _{t-1}	0.072 (0.004)	0.070 (0.005)	0.212 (0.000)	0.212 (0.000)	0.051 (0.058)	0.052 (0.055)
Dual CEO _{t-1}	1.990 (0.062)	2.012 (0.058)	-3.434 (0.000)	-3.390 (0.000)	1.433 (0.216)	1.443 (0.213)
Log (GDP) _{t-1}	-18.106 (0.007)	-18.138 (0.007)	35.714 (0.493)	32.033 (0.543)	-16.401 (0.014)	-16.627 (0.014)
GDPPC _{t-1}	2.761 (0.056)	2.702 (0.061)	-3.626 (0.720)	-2.888 (0.777)	2.411 (0.113)	2.435 (0.110)
Sovereign credit rating (Residual) _{t-1}	1.067 (0.003)	1.070 (0.003)	-4.400 (0.000)	-4.355 (0.000)	0.899 (0.051)	0.911 (0.049)
Log (Number of employees) _{t-1}	4.786 (0.000)	4.713 (0.000)	5.292 (0.000)	5.328 (0.000)	4.466 (0.000)	4.475 (0.000)
Environment Mgmt Team _{t-1}	11.389 (0.000)	11.331 (0.000)	11.613 (0.000)	11.589 (0.000)	10.928 (0.000)	10.935 (0.000)
Constant	25.940 (0.283)	26.362 (0.276)	-294.352 (0.284)	-275.459 (0.321)	24.328 (0.319)	24.556 (0.316)
Observations	1,770	1,770	2,684	2,684	1,770	1,770
R-squared	0.506	0.509	0.489	0.489	0.491	0.491
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES
Adjusted R-square	0.472	0.475	0.474	0.474	0.455	0.455

The table reports results of the baseline multivariate OLS regressions using two subsamples. To test hypothesis 2a, we employ Equation (2) by using a non-US-UK subsample which is made of all non-US and non-UK companies in columns (1) and (2) while we use a US-UK subsample which includes US and UK companies only in columns (3) and (4). In columns (5) and (6), we use the non-US-UK subsample to test hypothesis 2b by employing Equation (3) where the interaction term between *First Pronoun Drop* and each political contribution measure is used as a focal explanatory variable. Please refer to Table 2 for detailed definitions of all other variables. Standard errors are clustered by country and year. *p* values are in parentheses.

Appendix 6. Robustness test for controlling for the other form of CPAs

So far, we have focused on the effect of two different forms of CPAs on environmental performance individually. However, the positive effect of one form of CPA might be co-affected by the other form of CPA because companies might be able to strategically choose each form of CPA individually or jointly to maximize their strategic goals given that the economic magnitude of each form of CPA is found to be different in Table 5. To test this implication, we included both forms of CPA in the same regression models to see whether the marginal effect of each form of CPA remains robust even after the other form of CPA is included in the same regression models. As reported in the table below, we found that the coefficient of each form of CPA continues to be positively significant whether the other form of CPA is controlled for, supporting hypotheses 2a and 2b.

Robustness after controlling for the other form of CPAs

	(1)	(2)	(3)	(4)
Interaction with Political-contribution			-0.452 (0.000)	-4.414 (0.003)
Interaction with Lobbying-contribution			-0.336 (0.001)	-3.530 (0.005)
Log (Political-contributions) _{t-1}	0.405 (0.000)		0.471 (0.000)	
Log (Lobbying-contributions) _{t-1}	0.107 (0.034)		0.153 (0.007)	
Political-contributions(Yes/No) _{t-1}		5.547 (0.000)		5.913 (0.000)
Lobbying-contributions(Yes/No) _{t-1}		0.448 (0.468)		1.016 (0.154)
First Pronoun Drop			Subsumed	Subsumed
Log (Board-size) _{t-1}	11.815 (0.000)	11.830 (0.000)	11.383 (0.000)	11.538 (0.000)
Independent director ratio _{t-1}	0.096 (0.000)	0.096 (0.000)	0.094 (0.000)	0.096 (0.000)
Dual CEO _{t-1}	-1.539 (0.003)	-1.531 (0.003)	-1.544 (0.002)	-1.518 (0.003)
Log (GDP) _{t-1}	-9.443 (0.105)	-9.310 (0.104)	-7.343 (0.179)	-7.820 (0.151)
GDPPC _{t-1}	2.555 (0.029)	2.463 (0.032)	2.080 (0.057)	2.120 (0.052)
Sovereign credit rating (Residual) _{t-1}	0.166 (0.508)	0.182 (0.469)	0.084 (0.739)	0.111 (0.661)
Log (Number of employees) _{t-1}	4.896 (0.000)	4.986 (0.000)	4.893 (0.000)	4.994 (0.000)
Environment Mgmt Team _{t-1}	11.536 (0.000)	11.520 (0.000)	11.516 (0.000)	11.524 (0.000)
Constant	-16.720 (0.555)	-18.180 (0.515)	-25.294 (0.347)	-24.276 (0.364)
Observations	6,879	6,879	6,886	6,886

R-squared	0.431	0.431	0.435	0.434
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Country FE	YES	YES	YES	YES
Adjusted R-square	0.420	0.421	0.424	0.424

The table reports results of the baseline multivariate OLS regressions where *Env-score* is used as a dependent variable after controlling for other form of CPA simultaneously. In columns (1) to (2), we test hypothesis 2a by employing Equation (2) where both CPA measures are used as focal explanatory variables. In columns (3) to (4), we test hypothesis 2b by employing Equation (3) where the interaction term between *First Pronoun Drop* and both CPA measures are used as focal explanatory variables. Please refer to Table 2 for detailed definitions of all other variables. Standard errors are clustered by country and year. *p* values are in parentheses.

Appendix 7. Censored model

In response to a possible concern that our dependent variable, *Env_scores*, is censored both to 0% and 100%, we re-estimated both hypotheses using Tobit regression models where we restrict values of our dependent variable to both lower limit at 0% and upper limit at 100%. As shown in the table below, the results remain not only robust but also very similar in terms of the economic significance after considering censoring in our dependent variables.

Robustness Using Tobit Models

	(1)	(2)	(3)	(4)
Interaction _{t-1}			-0.284 (0.020)	-1.597 (0.392)
Log (Political-contributions) _{t-1}	0.228 (0.000)		0.304 (0.000)	
Political-contributions(Yes/No) _{t-1}		3.567 (0.000)		3.815 (0.000)
First Pronoun Drop			Subsumed	Subsumed
Log (Board-size) _{t-1}	12.039 (0.000)	11.912 (0.000)	11.819 (0.000)	11.849 (0.000)
Independent director ratio _{t-1}	0.119 (0.000)	0.118 (0.000)	0.117 (0.000)	0.117 (0.000)
Dual CEO _{t-1}	-1.270 (0.069)	-1.294 (0.064)	-1.329 (0.056)	-1.310 (0.060)
Log (GDP) _{t-1}	-9.823 (0.126)	-9.763 (0.128)	-8.705 (0.166)	-9.365 (0.139)
GDPPC _{t-1}	2.005 (0.138)	1.992 (0.139)	1.798 (0.174)	1.927 (0.148)
Sovereign credit rating (Residual) _{t-1}	0.463 (0.090)	0.477 (0.080)	0.465 (0.087)	0.479 (0.079)
Log (Number of employees) _{t-1}	5.470 (0.000)	5.459 (0.000)	5.446 (0.000)	5.455 (0.000)
Environment Mgmt Team _{t-1}	11.180 (0.000)	11.148 (0.000)	11.145 (0.000)	11.136 (0.000)
Constant	-30.601 (0.201)	-31.023 (0.194)	-34.216 (0.146)	-32.404 (0.171)
Observations	4,454	4,454	4,454	4,454
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Country FE	YES	YES	YES	YES
Pseudo R-square	0.0684	0.0686	0.0685	0.0686

The table reports results of the multivariate TOBIT regressions where we restrict the value of the dependent variable, *Env-score* to both lower limit at 0% and upper limit at 100%. In columns (1) to (2), we test hypothesis 2a by employing Equation (2) where each political contribution measure is used as a focal explanatory variable interchangeably. In columns (3) to (4), we test hypothesis 2b by employing Equation (3) where the interaction term between *First Pronoun*

Drop and each political contribution measure is used as a focal explanatory variable. Please refer to Table 2 for detailed definitions of all other variables. Standard errors are clustered by country and year. *p* values are in parentheses.

Appendix 8. Nested data

In response to a concern that the data could be in nested groups - companies within countries, we executed the linear mixed-effect model⁵ to allow both fixed and random effects at the same time and re-tested both hypotheses. We exclude *Log (Number of employees)*⁶ as a control variable from analysis to increase the time-series variations within firms in our sample. As reported in the table below, we found very consistent results, supporting both hypotheses 2a and 2b.

Linear Mixed (Multi-level) Models

	(1)	(2)	(3)	(4)
Interaction _{t-1}			-0.325 (0.009)	-4.494 (0.017)
Log (Political-contributions) _{t-1}	0.127 (0.018)		0.184 (0.003)	
Political-contributions(Yes/No) _{t-1}		1.121 (0.093)		1.447 (0.047)
First Pronoun Drop			6.452 (0.067)	6.432 (0.068)
Log (Board-size) _{t-1}	7.559 (0.000)	7.589 (0.000)	7.445 (0.000)	7.492 (0.000)
Independent director ratio _{t-1}	0.049 (0.000)	0.050 (0.000)	0.049 (0.001)	0.050 (0.000)
Dual CEO _{t-1}	0.736 (0.184)	0.735 (0.184)	0.728 (0.191)	0.738 (0.185)
Log (GDP) _{t-1}	1.196 (0.371)	1.278 (0.339)	0.830 (0.514)	0.918 (0.470)
GDPPC _{t-1}	0.352 (0.409)	0.354 (0.407)	0.669 (0.127)	0.682 (0.121)
Sovereign credit rating (Residual) _{t-1}	0.501 (0.008)	0.500 (0.008)	0.674 (0.000)	0.668 (0.000)
Environment Mgmt Team _{t-1}	6.129 (0.000)	6.138 (0.000)	6.027 (0.000)	6.048 (0.000)
Constant	2.629 (0.666)	2.302 (0.706)	0.825 (0.890)	0.429 (0.942)
Observations	6,933	6,933	6,933	6,933
Year FE	YES	YES	YES	YES
Number of countries	44	44	44	44
Number of Unique Company	1,157	1,157	1,157	1,157
P-value (Chi2)	0.000	0.000	0.000	0.000

The table reports results of the linear mixed (multi-level) regressions where observations are nested within company that is further nested within the same country. We exclude as a company-level control variable, *Log (Number of employees)*. In columns (1) to (2), we test hypothesis 2a by employing Equation (2) where each political contribution

⁵ We appreciate the editor for suggesting us to use the multi-level method to account for variation at different levels (e.g., companies nested in the same country) in our sample.

⁶ The exclusion allows us to increase our sample size, resulting in having more balanced panel data and more time-series variables within firms nested in the same country which is optimal for our linear mixed-effect model designed to allow both fixed and random effects at the same time.

measure is used as a focal explanatory variable interchangeably. In columns (3) to (4), we test hypothesis 2b by employing Equation (3) where the interaction term between *First Pronoun Drop* and each political contribution measure is used as a focal explanatory variable. Please refer to Table 2 for detailed definitions of all other variables. *p* values are in parentheses.

Appendix 9. Mitigating potential measurement bias

It could potentially be argued that some companies strategically decide not to disclose political donations due to local culture and institutional constraints. It is also feasible that even though Refinitiv-ESG captures and reports companies' political activities from various databases. To address this potential measurement bias⁷, we follow the customary practice (Lewis & Tan, 2016) by assuming both political contributions and lobbying contributions as being zero if the data for each independent variable of interest is missing for a firm as long as Refinitiv-ESG reports ESG Environmental Pillar score (*Env-score*). Treating missing political contributions as zero increase the sample to 19,207 company-year observations (Expanded sample). We use this expanded sample to mitigate potential measurement bias as a robustness test later.

To mitigate potential measurement bias described in the bottom of subsection (*Corporate Political Activities*) as robustness, we used the expanded sample and re-estimated Equation (2), where we alternatively used *Log (Political-contributions)*⁸ and *Political-contributions(Yes/No)* as explanatory variables. As reported in Models (1) and (2) in the table below, we continued to find the coefficients of both *Log (Political-contributions)* and *Political-contributions(Yes/No)* to be statistically positive, supporting hypothesis 2a. Models (3) and (4) provide us with re-confirming evidence supporting our primary findings for hypothesis 2b. The findings obtained using the expanded sample above suggested that our results were less vulnerable to potential measurement bias.

Controlling for Endogeneity after Treating Missing Corporate Political Activities

	(1)	(2)	(3)	(4)
Interaction _{t-1}			-0.775 (0.000)	-10.780 (0.000)
Log (Political-contributions) _{t-1}	0.623 (0.000)		0.717 (0.000)	
Political-contributions(Yes/No) _{t-1}		8.526 (0.000)		9.047 (0.000)
First Pronoun Drop			Subsumed	Subsumed
Constant	-93.418 (0.000)	-93.070 (0.000)	-91.122 (0.000)	-90.992 (0.000)
Observations	19,207	19,207	19,207	19,207
R-squared	0.451	0.451	0.445	0.446
Controls	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES

⁷ For example, Refinitiv ESG reports ESG Environmental Pillar score (*Env-score*) for 52,390 company-year observations while it reports only 7,944 company-year observations for political contributions in the same Refinitiv ESG universe.

⁸ We repeated the same analysis using the expanded sample in which we replaced *Log (Political-contributions)* with *Log (Lobbying-contributions)* and found very similar results, which will be made available upon request to the authors.

Country FE	YES	YES	YES	YES
Adjusted R-square	0.447	0.448	0.442	0.442

The table reports results of the baseline multivariate OLS regressions where *Env-score* is used as a dependent variable using the expanded sample. SE are clustered by country and year. *p* values are in parentheses.