Green greed? Evidence from corporate donations to anti-climate politicians*

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ABSTRACT

Firms with excellent environmental grades donate more to climate-obstructionist politicians. "Brown" institutional ownership provides a channel underlying this result. Green firms donating more to obstructionists experience stock value increases when anti-environment bills pass and when anti-climate politicians facing close congressional races win. During these events, a $1 gift to obstructionists is related to a market capitalization increase of over $900. These results withstand the use of two major environmental policies as separate exogenous shocks to firms' environmental scores. Our findings highlight actions that sharply contrast with firms' public stance and their implications for shareholder wealth and environmental legislation.

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"Corporate greed is accelerating climate change… Corporations have translated their economic power into political power, lobbying for policies that give them free rein to despoil the environment."

Joseph Stiglitz (April 21, 2019)[1]

1. Introduction

In the U.S., as in many countries around the world, firms are increasingly exposed to government policies that intend to fight climate change (Bolton and Kacperczyk, 2021). Along with this trend, firms are now more politically involved (Zingales, 2017). The prevailing view on corporate engagement in the environmental regulation process is that environmentally proactive firms will back politicians who advocate climate-friendly policies because these firms have an intrinsic interest in "doing well by doing good" (Bénabou and Tirole, 2010). Anecdotal evidence, however, often points to the opposite. For example, U.S. Senator Sheldon Whitehouse noted that:

> Despite the statements emitted from oil companies' executive suites about taking climate change seriously and supporting a price on carbon, their lobbying presence in Congress is 100% opposed to any action […] Let me use the example of two good guys: Coca-Cola and PepsiCo. […] Coke and Pepsi take great positions on climate change in their public materials […] but here in Congress their lobbying agencies don't support their position.[2]

Aside from Coke and Pepsi, Bloomberg reported that, in 2018, many large U.S. firms that are part of the Climate Action 100+ Program donated more to lawmakers who voted against climate-friendly bills than to those who voted for the same policies.[3]

We use data from U.S.-based publicly traded companies during 1995–2018 to examine the empirical relation between firms' environmental performance and their political contributions. We

[1] See: https://www.cnn.com/2019/04/21/perspectives/joseph-stiglitz-earth-day-economy/index.html

[2] See congressional record: https://www.congress.gov/114/crec/2016/05/17/CREC-2016-05-17-pt1-PgS2911-4.pdf

[3] See https://www.bloomberg.com/graphics/2020-election-company-campaign-finance-climate-change/. Additional evidence includes media reports that some CEOs who signed open letters endorsing the Paris Agreement simultaneously funded groups lobbying President Donald Trump to withdraw from that agreement (see https://theintercept.com/2017/06/04/paris-accord-trump-lobby-ceo-withdraw/).

begin by documenting a robust *positive* association between corporate green performance, as measured by MSCI's environmental score (i.e., E-score), and firm contributions to environmental obstructionists, classified based on politicians' voting behavior in Congress. Specifically, we obtain detailed records of firm payments through political action committees (PACs) to political candidates seeking a seat in Congress. For each candidate, we assess their revealed attitude toward the climate by tracking their individual lifetime voting record on key environment-related bills. This process allows us to observe, for example, that until 2018, Mr. Michael Conaway, U.S. Representative for Texas's 11th congressional district, voted just 6 times in favor of the environment out of 359 climate-related votes since entering Congress. In contrast, Mr. Conaway's fellow Republican, Mr. Christopher Shays, Representative for Connecticut's 4th congressional district, supported 90% of pro-climate bills during his tenure. We define politicians as salient environmental obstructionists (supporters) if their cumulative pro-climate votes stand at the bottom (top) decile of all politicians in an electoral cycle.

Figure 1 presents our novel finding on corporate donations to environmental obstructionists and supporters. The left plot in Figure 1 shows that moving from a median environmental performer to a top performer is associated with a striking 19% surge in donations to climate obstructionists (relative to the mean). By contrast, the right plot shows no correlation between gifts to environmental supporters and firm's E-score. These patterns hold in firm-level panel regressions with industry (or firm) and electoral cycle fixed effects and control variables that capture firm political affiliations and performance. We also find that these results are not solely driven by Republican firms, which give more to obstructionists, on average. In fact, in the subsample of Democratic firms, the economic effect nearly doubles when compared to the full sample. We obtain similar findings from politician-level regressions that include firm-politician and firm-cycle fixed effects to account for firms' general attitudes toward a politician.

We are mindful that firms' environmental performance is endogenous. To assess causality, we use difference-in-differences (DiD) methods in the context of two different identification events.

The first uses a quasi-experiment, the 2005 Energy Policy Act, which established wide-ranging policies to incentivize industrial firms to adopt new renewable fuel standards. Consistent with prior studies, we show that firms in the targeted industries improve their environmental performance after the Act's passage. This finding supports our identification assumption that the law is a valid shock to companies' E-score. Comparing political contributions from treated and control firms, we find that treated firms (i.e., firms that improve their E-score) contribute significantly *more* to obstructionist politicians *after* the law implementation, but not before.

We use the 2015 Clean Power Plan (CPP) as a second exogenous shock to corporate environmental performance. The CPP assigns each state a target for CO_2 reductions. Focusing on the states that openly endorsed and enforced the CPP emission targets, we first show that firms in the enforcing states improve their E-scores. We then use state-level CO_2 reduction targets to proxy for treatment intensity and again find that firms with a higher treatment intensity donate *more* to obstructionist lawmakers.

We further conduct a subsample analysis that exploits the discontinuity of CPP treatment along the geographic borders of Washington DC, which is exempt from any emission-reduction target. Both neighboring states of Washington DC (Maryland and Virginia) implemented their CPP targets. We thus compare donations from *control* firms located in Washington DC and those from *treated* firms located in counties that geographically neighbor Washington DC. In the spirit of Card and Krueger (1994), we use this geographic phenomenon as the "as-if random" treatment assignment. The test reveals that after the CPP law passes, treated firms boost their contributions to environmental obstructionists by as much as 12 percent relative to bordering control firms. Taken together, our evidence indicates that the relation between firms' own environmental records and their political engagement is likely causal.

We go on to analyze the causes and consequences of the above empirical evidence. One interpretation of these findings is that greener firms use their donations to lobby obstructionist politicians so that they do not oppose climate-friendly legislation. We formally refer to this

conjecture as the *"swing-the-vote"* hypothesis. An alternative, which we call the *"corporate greed"* hypothesis, posits that firms with excellent green records will support obstructionists with the goal of lowering the burden imposed by environmental regulations. Corporate greed may manifest if environmental regulations impose onerous costs on firms in general and on green firms in particular. Existing academic evidence (which we confirm with our data) shows that this is indeed the case as firms devoted to green operations are precisely those bearing higher costs from these commitments.[4] The corporate greed hypothesis follows from Cukierman and Tommasi's (1998) theory of "policy reversals." The theory posits that when decision makers (e.g., shareholders or CEOs in green firms) have private information about costly implementation of certain policies (e.g., climate laws), they could take actions that stand in stark contrast to their public stance (e.g., derail green laws through political donations).[5]

To distinguish our hypotheses, we analyze the drivers of corporate donations. According to Babenko et al. (2020), CEOs can direct corporate political giving through their power over employees. By contrast, Bertrand et al. (2020) argue that large shareholders use their ownership stakes to influence firms' political actions. We thus consider environmental incentives of corporate executives and of large institutional investors. If green firms use donations to wield influence over obstructionists and swing their votes in favor of green legislation, we expect these firms' political contributions to be driven by CEOs or shareholders with a *pro-climate* agenda. Conversely, if corporate greed motivates green firms' donations to environmental obstructionist, then "*brown*" CEOs or shareholders should drive this finding.

Our analysis reveals that corporate greed best explains corporate political giving as ownership by brown shareholders is the most robust driver of green firms' gifting to anti-climate politicians.

[4] See, for example, Cronqvist and Yu (2017), Di Giuli and Kostovetsky (2014), Fisher-Vanden and Thorburn (2011), Raghunandan and Rajgopal (2021). For evidence on the cost of capital, see also Avramov et al. (2021), Derwall et al. (2005), and Goldstein et al. (2021).

[5] Firms are not required to disclose their political activities and contributions, creating room for hypocritically hidden actions. Recently, the lack of transparency in corporate PAC donations has received greater attention from academics and the Securities and Exchange Commission (see, e.g., https://www.sec.gov/rules/petitions/2011/petn4-637.pdf). Moreover, a substantial amount of political giving, such as that through intermediaries, is never publicly available.

We obtain this result by exploring each shareholder's own political contributions and classifying their climate stance based on whether these shareholders regularly endorse environmental obstructionists. Regression analyses show that green firms make significantly more anti-climate political gifts right after brown shareholders obtain a large stake in the firm. Using a similar empirical approach, we also find that brown CEOs—those who *personally* contribute to obstructionists—lower their green firms' pro-environment contributions but do not affect their firm's donations to environmental obstructionists.

We directly test—and reject—the swing-the-vote hypothesis by showing that obstructionists do *not* change their (anti-climate) voting behavior after receiving more funds from greener firms. We also find that the level of environmental regulatory burden influences green firms' anti-climate political giving—a result that provides additional support for the corporate greed hypothesis.

Does corporate greed with respect to the environment affect firm value? To understand the consequences of greedy political contributions, we analyze firms' stock reactions to climate-related bills that receive congressional approval. For each anti-environment bill that Congress ratifies, we calculate firms' abnormal stock return on the passage date. We find that corporate greed pays: Greener firms with more anti-climate donations in the previous election cycle exhibit significantly higher abnormal returns when an anti-environment bill passes. The estimates are economically meaningful: A $1 gift to an obstructionist is related to a market capitalization increase of over $900. Moreover, we find that in close special congressional elections, greener firms exhibit much higher abnormal returns when the obstructionist candidates they support narrowly win the race. We interpret this evidence as indicative of pecuniary motives behind the political donations to anti-climate politicians, as suggested by the corporate greed hypothesis.

To probe our baseline results, we perform a battery of robustness checks. We use alternative econometric specifications, different measures of environmental performance, and other ways to define environmental obstructionists. We also implement several subsample analyses to rule out

alternative explanations, including the possibility that firms' E-scores capture corporate liability risk to environmental infractions. Our results survive all of the robustness tests.

Our work contributes most directly to the literature investigating the implications of firms' environmental, social, and governance (ESG) activities. Most studies in this area focus on firm-level economic or financial outcomes, such as stock and accounting performance.[6] We move this literature forward by showing a disconnect between a firm's environmental performance (which is widely publicized) and its intervention in the legislative process affecting climate change (which is not as transparent).[7] In this regard, our findings complement concurrent work by Raghunandan and Rajgopal (2021) and by Gibson et al. (2022). Raghunandan and Rajgopal (2021) find that many prominent firms that openly commit to being socially responsible exhibit worse records in environmental issues (such as carbon efficiency and air/water pollution), social issues (such as labor standards and gender diversity), and corporate governance issues (such as CEO compensation and board composition). Gibson et al. (2022) find that U.S.-based institutional investors that join the Principles for Responsible Investment—a UN-supported network of investors that promotes the incorporation of ESG issues into investment analysis—exhibit worse ESG portfolio records.

Our study also complements a growing literature on the role of investors in firms' ESG practices. Existing work finds that, through engagement, ESG funds and climate-conscious green investors improve the environmental practices of their portfolio firms (Barko et al., 2021; Hoepner et al., 2018; Krueger et al., 2020). Unlike our study, those papers are silent on the role of brown investors. We fill this crucial gap in the literature by showing that brown investors influence their portfolio firms' support for politicians that oppose climate-related regulation.

[6] See Giglio et al. (2021) and Gillan et al. (2021) for a review of this literature.

[7] There also exists a business ethics literature on ESG and policy influence (see, e.g., Cho et al., 2006; Clark and Crawford, 2012; Delmas et al., 2015). However, this literature is very different from ours as it relates firms' overall political activities (such as total lobbying activities) to ESG performance. Our paper focuses on corporate greed with respect to the environment (i.e., green firms supporting climate-obstructionist politicians) and delivers distinct, even contrasting, implications. Moreover, our work provides a causal interpretation with novel identification attempts.

This study also adds to the growing body of work on the value of firms' political networks (e.g., Akey, 2015; Akey et al., 2021; Babenko et al., 2020; Bertrand et al., 2021; Child et al., 2021; Faccio, 2006; Fisman, 2001; Fisman and Wang, 2015; Heitz et al., 2021; Schoenherr, 2019). We highlight corporate political contributions as a network link with implications for both firm performance and the environment.

Our findings deliver important implications for researchers and practitioners that rely on various scores to determine a firm's record and commitment to ESG practices. Recent research notes that widely used ESG ratings vary considerably by the rating's provider (Berg et al., 2022). This work finds that the divergence is particularly severe for the "S" and "G" components. Our study suggests that a broader set of metrics (including corporate political activities) should be considered when assessing a firm's *true* "E" stance. In this regard, scholars, shareholders, and policymakers have increasingly demanded more transparency related to corporate political activities (Lyon et al., 2018). Our results on the role of firms' gifts that shape climate-related legislation indicate that such transparency is vital for truly understanding the impact of corporations on the environment.

2. Data and descriptive statistics

2.1 Corporate contributions to obstructionist and climate-friendly politicians

Our initial sample consists of firms that make political contributions at any point during 1995–2018.[8] The data on contributions come from the Federal Election Commission (FEC), which publishes itemized PAC donations by election cycle (i.e., every two years). Therefore, we use biennial-level observations in this study. For each PAC, we observe the contribution's recipient and the payment amount. If a firm has multiple PACs, we aggregate the amount across the PACs.[9]

[8] Our sample starts in 1995 because the MSCI environmental score can only be matched to firm characteristics from 1995. We describe this below.

[9] We rely on FEC identifier ORG_TP to identify corporate PACs. We keep all contribution transactions to a political candidate adjusting for any refunds a PAC receives. See Section A of Appendix 1 for a brief description of U.S. campaign finance laws.

For each politician, we measure their revealed support for the environment by examining the politician's cumulative pro-environment voting records on climate-related bills during their tenure in Congress. Information on specific bills and their related voting records comes from the League of Conservation Voters (LCV), a not-for-profit organization. LCV collects all key environment-related bills since 1970 and categorizes each vote into a "pro-" or "anti-" environment position. These bills cover a comprehensive range of environmental issues such as air, water, land, wildlife, energy, and climate.[10] We find 579 related bills from the Senate and 914 bills from the House, representing 453,921 total votes. These granular vote-level data allow us to calculate, for each politician and election year, the overall pro-environment support rate. For example, Mr. James Inhofe, a Republican Senator from Oklahoma, had a cumulative pro-environment support rate of 0.05 in 2014. This figure indicates that Mr. Inhofe voted in support of the environment 5 out of 100 times since first entering Congress in 1987.

Figure 2 shows that support for the environment is polarized, and, intuitively, divided between Democrat and Republican lawmakers. The histogram in Panel A shows that most Democrats are in the top decile of the supporting score, while most Republicans lie in the opposite end of the distribution. In Panel B, we plot the median annual support rate. Across most years, the median support in Congress for the environment is around 40%–60%. We observe a noticeable drop of support from 2016 until 2018 during the Trump administration. This pattern suggests that the calculated voting record-based environmental scores for the sample politicians are volatile.

Finally, we calculate the percentage of firms' contributions to environmental obstructionists and environmentally friendly politicians. To capture the most salient anti- (or pro-) environment politicians, we define a politician as an obstructionist (supporter) if the individuals' cumulative pro-environment voting support rate is in the lowest (highest) decile of the distribution in an election cycle. This definition ensures that we have the same number of obstructionists and supporters in every cycle. We find that the average pro-environment voting rate by obstructionists

[10] Appendix 2 gives several examples of the bills and the explanations to a pro-/anti-environment position.

and supporters is 7% and 96%, respectively. Figure 3 shows that, while the political giving to environmental supporters has increased since 2008, obstructionists get more PAC contributions.

2.2 Firms' environmental performance

We measure firm-level environmental performance using the rating scores issued by MSCI. MSCI ESG ratings attract the widest investor base.[11] According to Berg et al. (2021), MSCI scores have the most precise measurement among all ESG raters. Moreover, those authors note that the coverage of MSCI ratings is greater than other ESG raters—a feature that allows us to capture more firms. The environmental rating of MSCI focuses on an observable matrix that includes both strengths and concerns, such as pollution prevention, recycling, use of energies and chemicals, substantial emissions, impact of products and services, as well as environmental management and regulatory concerns.[12] Notably, none of these assessment criteria is directly related to the firm's political activities. This allows us to detect the discrepancy between observable firms' environmental performance and their (harder to detect) political contributions.

We follow the literature (e.g., Deng et al., 2013; Hong and Kostovetsky, 2012) to calculate a firm's environmental score (hereafter, E-score). Specifically, we take the sum of all environmental strengths of a firm, as reported by MSCI, and divide this sum by the number of strength indicators. Similarly, we construct a scaled concern score. Accordingly, E-score is the scaled strength score minus the scaled concern score. By construction, a higher E-score indicates better environmental performance. Since our contribution data are available at a biennial electoral cycle level, we average a firm's annual E-score for each cycle to obtain electoral cycle-level scores.

The final sample links the PAC contribution dataset and the MSCI E-score dataset. MSCI's rating starts in 1991, however, firm CUSIPs, which we use to link with the financial data, are not available before 1995. Therefore, we start our analysis from 1995 (as in Engle et al., 2020).

[11] Over 1,700 asset management funds, consultants, advisers, banks, pension funds, and insurers use MSCI ESG ratings (data as of May 2022). See https://www.msci.com/our-solutions/esg-investing

[12] Appendix 3 shows the details of MSCI environmental rating and its components.

Unfortunately, there are no common firm identifiers between the FEC's PAC contribution records and the MSCI dataset. To circumvent this issue, we first use a fuzzy name-matching procedure that standardizes the names of corporations (as in Babenko et al. 2020). Next, we fuzzy merge based on textual similarity scores (as in Raffo and Lhuillery, 2009). We check all matched firm names and identify the remaining unmatched companies using FEC-recorded organization names. This process generates a final dataset consisting of 5,286 firm-election cycle observations.

2.3 Other data

Firms' financial data come from Compustat. We also use CRSP equity data to calculate firms' stock market reactions in our event study analysis. Politician characteristics, such as party affiliation, Congress seats, district, incumbent status, are gathered from FEC. We obtain CEO information from BoardEx and institutional ownerships from Thomson/Refinitiv's 13F dataset. We collect specific regulatory data, such as environmental law violations and CPP's emission reduction targets, directly from the EPA's website.

2.4 Summary statistics

Table 1 presents summary statistics for firms' political contributions and characteristics. At the firm-election cycle level, approximately 10% of PAC contributions go to climate-unfriendly politicians, and about 5% to climate-friendly politicians. The average corporate PAC campaign spending is 209,990 dollars in an election cycle.[13] At the firm-politician-cycle, a typical political candidate receives 1.72% of a firm's total PAC funds. Other firm characteristics, such as size, leverage, Tobin's Q, profitability, are similar to those analyzed in other studies (Akey, 2015; Babenko et al., 2020). We winsorize all firm characteristics at the top and bottom 1 percentiles to reduce the impact of potentially spurious outliers.

[13] This figure is slightly larger than the value reported by Akey (2015), most likely because we include the post "Citizens United v. FEC" ruling period in our study.

3. Environmental performance and political contributions

3.1 Empirical results

To study the effect of firms' green performance on their political engagement, our general approach is to examine whether E-scores are correlated with political giving to environmental obstructionists (or climate supporters). However, an immediate concern is that a firm's political preference could influence its contributions to obstructionists (often Republican lawmakers). For example, one might worry that if Republican-leaning firms have higher E-scores on average, a positive relation between E-score and contributions to obstructionist simply captures a firm's political stance. We note that this concern stands in contrast to the evidence in Di Giuli and Kostovetsky (2014) showing that Republican firms have *lower* average environmental scores. Nevertheless, to control for a firm's political preference, as well as other characteristics, we estimate the following regression:

$$\%\ \textit{Contributions to}\ [\textit{obstructionists / supporters}]_{i,t} = \alpha + \beta \cdot \text{E-score}_{i,t} + \gamma \cdot \mathbf{Z_{i,t}} + \delta_t + \lambda_j + \epsilon_{i,t} \quad (1)$$

where % *Contributions* is firm *i*'s PAC giving to obstructionists or supporters in election cycle *t*. We focus on the percentage of giving, rather than dollar values, to capture the importance of obstructionists (supporters) in a firm's political spending portfolio. Measuring contributions in relative terms also mitigates the size effect (i.e., larger firms donate more to obstructionists or supporters in absolute $ values). E-score is a firm's environmental score in election cycle *t*. $\mathbf{Z_{i,t}}$ includes firm-level control variables: Democratic leaning (the percentage of PAC contributions to the Democratic Party), firm size (logarithm of total assets), cash holdings, Tobin's Q, leverage, profitability, and investment. δ_t represents election cycle fixed effects. λ_j is 4-digit Standard Industrial Classification (SIC) fixed effects. With the latter fixed-effects, we make comparisons

within a granularly defined industry, which directly controls for industry-level policy preferences.[14] $\epsilon_{i,t}$ is the error term. We cluster standard errors at the firm level.

Table 2 reports ordinary least squares (OLS) regressions, based on equation (1), that analyze the full sample.[15] In column (1), the regression coefficient for our variable of interest, β, tracking contributions to obstructionists, is positive and statistically significant. The estimate implies that moving from a median firm to a top environmental performer is associated with a 19 percent increase in PAC giving to environmental obstructionists.[16] Conversely, the correlation between contributions to climate-friendly politicians and E-score is not significant (column 2).

Next, we explore whether Republican firms (which mostly support environmental obstructionists) drive the baseline results. To check this, we restrict our analyses to Democratic firms. We define a firm as Democratic if more than 50% of its contributions go to the Democratic Party. Columns 3 and 4 present this subsample analysis.

The results strongly reject the idea that our baseline findings reflect political ideologies. Compared to the full sample, Democratic firms, albeit greener, exhibit a much stronger political support for obstructionists when their own E-score rises (column 3). We find that the economic magnitude nearly doubles in this analysis. By contrast, as in our baseline analyses, we do not find a significant association between a firm's E-score and its contributions to climate-friendly politicians (column 4).

The results of some of the other independent variables deserve attention. Among all controls, those tracking party ideology (Democratic vs Republican) are the most robust predictors of

[14] In our preferred specifications we use industry fixed effects rather than firm fixed effects because the main independent variable, E-score, is likely persistent in the time series. Our results are robust to the firm fixed effects, as we show in the robustness checks.

[15] Tobit models do not qualitatively alter our findings. However, we refrain from these models due to the concern that fixed effect estimators in non-linear models can be severely biased (Neyman and Scott, 1948; Greene, 2008). Moreover, Angrist and Pischke (2009) show that inferences drawn from linear models are similar to those drawn from non-linear specifications. Yet, according to those authors, linear models provide benefits such as direct interpretation of coefficients, better handling of fixed-effects, and easier interpretation of interaction terms.

[16] The economic magnitude is calculated by dividing 1.938 (coefficient in column 1 of Table 2, which equals the change of E-score from median to maximum) by the mean % contributions to climate obstructionists (10.177).

political support for the climate. This finding is consistent with those by Di Giuli and Kostovetsky (2014). Larger firms are less likely to contribute to the most salient candidates (both obstructionists and supporters). We also find that a firm's profitability is negatively associated with political gifts to the most salient lawmakers.

3.1.1 Identification through exogenous shocks

Our tests are subject to two potential concerns related to endogeneity. First, environmental performance is associated with unobserved attributes which, despite using various fixed effects in our tests, we are unable to account for. Second, while most investors do not observe firms' campaign/political gifts, there might be a concern of reverse causality, whereby firms that donate more to climate obstructionists engage in greenwash attempts.

To mitigate these concerns and explore the potential causal impact of corporate environmental performance on political giving, we rely on separate DiD analyses using two different identification events: the 2005 Energy Policy (EP) Act and the 2015 Clean Power Plan (CPP). Section B of Appendix 1 provides additional details on these policies.

3.1.1.1 Energy Policy Act of 2005

The EP Act of 2005 provides substantial incentives for industrial companies to improve energy conservation and efficiency. The variation of the effects stems from the industry in which a firm is operating. Metcalf (2008) shows that the Act substantially contributes to greenhouse gas reductions. We use the EP Act promulgation as a quasi-experimental setting to examine firms' incentives to influence future environmental legislation. Following Dixon et al. (2010), we define Act-treated firms as those operating in the fuel production, transportation, building construction, and manufacturing industries.[17] Accordingly, *Treated* is an indicator variable for these firms and

[17] Specifically, the affected industries' 2-digit SICs include the following: energy production and transportation (28, 29, 35, 36, 38, 46), transportation (37, 40, 41, 43, 45, 46, 47), building construction (15), and industrial manufacturing (20-27, 30-34, 39).

Post is a dummy variable for election cycles after 2005/06. The treatment effect of the law is estimated with the following specification:

$$\%\ \textit{Contributions to obstructionists}_{i,t} = \alpha + \beta \cdot \text{Treated}_i \times \text{Post}_t + \gamma \cdot \mathbf{Z_{i,t}} + \delta_t + \lambda_j + \epsilon_{i,t} \qquad (2)$$

where the dependent variable is firm *i*'s contributions to obstructionists in cycle *t*. We include the same set of control variables ($\mathbf{Z_{i,t}}$) as those in equation (1). Because political giving varies across industries, we control for 4-digit SIC industry fixed effects (λ_j). We also include election cycle fixed effects (δ_t) to account for cyclical fluctuations in political participation. Because these fixed effects fully subsume the coefficient estimates of *Treated* and *Post*, we only keep their interaction term in equation (2). β captures the treatment effects of the EP Act.

Our DiD identification relies on several assumptions. First, the EP Act must be a valid shock to the related firms' E-scores. We verify this assumption in the first column of Table 3. We see that treated firms significantly improve their E-scores after the Act implementation relative to the control group. The increase in E-score is equivalent to an interquartile range of E-score in our sample, suggesting that the improvement on E-performance is economically meaningful. Another requirement is that, absent the regulation, the development of the outcome variable (political contributions) follows a parallel trend between the treated and control groups. We check this assumption in an augmented specification tracking the effect of the law surrounding the implementation year.

In columns 2 and 3 of Table 3, we first present the aggregate effect of the law on political giving. The results show that treated firms significantly increase their PAC contributions to environmental obstructionists after the EP Act passes (column 2). The increase in giving amounts to 13 percent relative to the predicted average contributions to obstructionists, suggesting that the economic effect is large. In contrast, in column 3, we find no significant impact of the law on political giving to climate-friendly politicians, as in the analyses in Table 2.

To check the parallel-trends assumption, we augment equation (2) by interacting a set of time (election cycle) indicators with *Treated*. This allows us to compare the dynamics of firm contributions for each election cycle (from 1995/96) relative to the baseline cycle 2005/06 (when the law is first enforced). Column 4 reports the results. We find that treated and control groups follow a similar trend prior to 2005, and that the effect is only significant one cycle *after* the law is in effect.

To directly illustrate this pattern, Panel A of Figure 4 plots the difference (treated – controls) in contributions to climate-obstructionists. We see a drastic upward discontinuity in the trend of contributions around 2005/06. This graphical evidence suggests that our setting satisfies parallel trends, an assumption necessary to ensure the internal validity of DiD estimates.

3.1.1.2 Clean Power Plan

Our second identification event relies on the stringent carbon emission targets set by the CPP policy. Because the targets differ by state, this setting allows us to explore a different source of potential E-score variation, namely, that at the state level.

There are potential caveats with the use of the CPP policy as a quasi-experimental setting. First, the Supreme Court issued a stay on the CPP preventing the EPA from enforcing the policy. Consequently, some states never effectively implemented the Plan's mandates. To address this problem, we exclude the firms located in the states that publicly oppose the CPP and retain those in states that vowed to meet the CO_2 reduction targets in spite of the Supreme Court's decision.[18] We note that in the endorsing states, the vast majority subsequently established state-level legislation to enforce the carbon-reduction target (see Appendix 1 for details). Second, the CPP was announced in 2015, which leaves us with a short post-regulation period. Therefore, we focus on the sample period after 2008, which also excludes the introduction of the EP Act (our first

[18] The states that oppose the CPP include Alabama, Arizona, Arkansas, Colorado, Florida, Georgia, Indiana, Kansas, Kentucky, Louisiana, Michigan, Mississippi, Missouri, Montana, Nebraska, Nevada, New Jersey, North Dakota, Ohio, Oklahoma, South Carolina, South Dakota, Texas, Utah, West Virginia, Wisconsin, Wyoming.

shock) as a confounding event. Moreover, under the CPP, the treatment effect is identified with the *intensity* of carbon emission reduction goals (rather than discrete treated vs control groups). We therefore adjust equation (2) by replacing the *Treated* dummy with a continuous treatment variable, capturing the intensity of CO_2 reduction targets. The *Post* dummy variable is set to equal to 1 for the election cycle after 2015/16.

We first verify whether the carbon emission goal is associated with improvements in E-score for firms located in the targeted states. Column 1 of Table 4 confirms this assumption: Firms located in states with higher emission reduction targets improve their E-scores. The statistical significance is weak (*t*-statistic = 1.7), most likely because the effect is estimated with only one post-regulation period, and the environmental improvement takes time to materialize.

Columns 2 and 3 report the results of political donations with the DiD regression. Following state-level Clean Power legislations and commitments, the firms in these states may react by intensifying their political engagement. The estimates show that firms located in higher emission-reduction target states significantly increase their PAC giving to environmental obstructionists after the Clean Power legislation (column 2). In column 3, we examine the effects of contributions to pro-environment politicians. As in our baseline regressions, we do not observe any significant change in giving to the climate supporters.

We check the parallel-trends assumption in column 4. Panel B of Figure 4 plots the temporal dynamics of the treatment effects. Both the regression estimates and the plots suggest that our CPP-setting satisfies the parallel-trends condition since a sharp break occurs only after 2015.

We conduct a subsample analysis to further address the concerns about the CPP policy stated earlier. We note that the Governors of Maryland (MD) and Virginia (VA) both vowed to implement their CPP-related carbon emission targets after the Supreme Court's decision to temporarily halt the policy's enforcement. We use this setting in a test that contrasts contributions

from *control* firms located in Washington DC (which is exempt from the CPP target),[19] and those from *treated* firms located in neighboring MD and VA. This setting gives us a unique opportunity to exploit the discontinuity using county borders. Importantly, one should not expect the firms to be fundamentally different along county borders (Card and Krueger, 1994, 2000). We therefore use an alternative formulation of equation (2) in which we define *Treated* as a dummy variable that equals 1 for firms located in MD and VA counties that neighbor Washington DC, and 0 for firms in Washington DC.

Columns 5 and 6 of Table 4 report the results. We find that treated firms increase their campaign contributions to obstructionists by 12% relative to their neighboring control firms. This result is statistically significantly at the 1 percent level. Conversely, the impact on campaign contributions to climate-friendly politicians is insignificant, as shown in column 6. If we view the treatment in these analyses as "almost random" (as in Card and Krueger, 1994), then the evidence supports a causal impact of E-performance on political giving.

3.2 Politician-level evidence

In this section, we examine contributions at the politician level to control for politician individual characteristics, and therefore, assess whether a politician's environmental stance is correlated with other policy positions. To do so, we collapse our data to firm-politician-cycle pairs. We employ the following specification:

$$\begin{aligned} \%\ \textit{Contributions to Politician}_{i,p,t} = \ & \alpha + \beta \cdot \text{E-score}_{i,t} \times \text{Obstructionist/Supporter}_{p,t} \\ & + \eta \cdot \text{E-score}_{i,t} + \theta \cdot \text{Obstructionist/Supporter}_{p,t} \\ & + \gamma \cdot \mathbf{Z}_{\boldsymbol{p,t}} + \lambda_{i,p} + \delta_t + \epsilon_{i,p,t} \end{aligned} \tag{3}$$

[19] The EPA does not set a goal for the District of Columbia because the District does not have any electric generating units. We note that (1) the DC unveiled a Clean Energy plan in 2019 (DC Act 22-583) to mandate 100% renewable electricity by 2032. However, this Act is adopted outside our sample period; (2) Alaska and Hawaii are also exempt from the emission target because EPA "does not possess all of the information or analytical tools needed to quantify" the best system of emission reduction. Vermont is exempt because it does not have electric generating units. We do not have firms headquartered in Alaska, Hawaii, and Vermont.

where the dependent variable is firm *i*'s contributions to politician *p* in cycle *t* (in percentage). The main explanatory variable is the interaction of "E-score × Obstructionist (or Supporter)." Equation (3) includes a vector of control variables, $\mathbf{Z}_{p,t}$, that captures, among other attributes, politician characteristics, such as party affiliation, Congress seat (Senate vs House), and incumbent status. We use δ_t to denote election-cycle fixed effects and $\lambda_{i,p}$ to denote firm-politician pair fixed effects. Importantly, firm-politician pair fixed effects control for a firm's congruence with a given politician, allowing us to estimate the incremental support for a politician conditional on the firm's general policy preference with respect to that politician. Finally, in some regressions, we include firm-cycle fixed effects to control for time-varying firm characteristics. As a result, we do not need to control for firm-level covariates in these tests.

In columns 1 and 2 of Table 5, we estimate regressions based on equation (3) to study contributions to anti-climate politicians. The results show that contributions to an obstructionist increase on the E-score. The economic magnitude is important. Based on column 2 (where we control for firm-cycle fixed effects), political giving to an obstructionist increases by 7 percent relative to the mean when a firm moves from a median E-score to top E-score. By contrast, columns 3 and 4 show that political giving to a climate-friendly politician is not associated with the E-score.

Finally, in columns 5 and 6, we alter the definitions of environmental obstructionists and supporters. Instead of classifying a politician as either an obstructionist or supporter, we measure their climate stance using their pro-environment voting support (i.e., a continuous politician-level score). We find that the results are robust to this alternative classification. The coefficient on the interaction term "Politician score × E-score" is negative and significant, suggesting that higher E-score firms donate *less* to a politician if the politician's own environmental record is good.

Taken together, our findings are consistent with firms' environmental performance influencing their political support for anti-climate candidates. The evidence—both at the firm and the politician

level—suggests that upon achieving a higher E-score, firms simultaneously donate to politicians with worse climate records.

4. Causes and consequences of green firms' political giving

Why do green firms support salient anti-climate politicians? One possibility involves strategic political engagement that aims to *swing the vote* from the opposite side of the political spectrum. Under this possibility, greener firms use political contributions to lobby obstructionists and alter these lawmakers' behavior. Alternatively, another possibility involves *corporate greed* whereby insiders take actions that sharply contrast with their firm's public position (e.g., supporting anti-climate politicians) to lower the costs imposed by environmental laws. Such greedy behavior can manifest if ESG engagements (a) generate negative spillovers on firm performance,[20] or (b) provide "window dressing" for firms with agency problems (see, for example, Cheng et al., 2020; Krueger, 2015; Masulis and Reza, 2015).

We use our data to confirm a *negative* association between the E-score and firm performance as measured by either Tobin's Q, profitability, or EBIT margin. We also document a *positive* association between the E-score and a firm's costs margin. Appendix 4 reports these results. Note that the goal of these analyses is neither to prove causality (which is beyond the scope of this study) nor to reject the possibility that E-performance could be beneficial in other contexts (such as during the COVID-19 crisis, as in Albuquerque et al., 2020). Our tests simply provide auxiliary evidence germane to the corporate greed hypothesis that we aim to explore.

To distinguish between the swing-the-vote hypothesis and the corporate greed alternative, we first evaluate the determinants of corporate donations to obstructionists. The swing-the-vote hypothesis posits that firm insiders with a *green* agenda use political giving to deter obstructionists from opposing pro-climate legislation. By contrast, the corporate greed alternative predicts that ownership by *brown* insiders drives donations to anti-climate politicians.

[20] See, for example, Gillan et al. (2021) for a review.

4.1 Channels

To explore the association between firms' environmental performance and their political contributions, we consider two types of insiders, CEOs and large institutional shareholders. Our analysis is guided by studies that identify these parties as the key drivers of corporate PAC contributions (Babenko et al., 2020; Bertrand et al., 2020; Bonica, 2016; Hertel-Fernandez, 2017).

Following the procedure in Bertrand et al. (2020), we first obtain institutional investors' PAC contributions from FEC. For each shareholder, we calculate their political giving to obstructionists/supporters in an election cycle. We then compute the ownership stake-weighted average of investors' contributions (to either obstructionists or supporters) at the firm level. With this process, we obtain a "brownness" score and a "greenness" score for each firm's ownership in an election cycle.

Similarly, we use firm CEOs' private political contributions (to both climate obstructionists and supporters) as a proxy for the CEO's personal climate stance.[21] We then compute the "brownness" and "greenness" scores for every CEO. Because our goal is to examine whether salient (extreme) environmentalist shareholders or CEOs can affect firms' political donation choices, we define a firm as being owned or managed by brown investors/CEO if the brownness score of the investors/CEO is in the top 95 percentile of the distribution. Likewise, we classify a firm as having green investors/CEO if the greenness score of its investors/CEO lies in the top 95 percentile. We note that a firm could be simultaneously owned by both brown and green investors.

We base our tests on equation (1) but augment the specification by interacting the E-score with indicator variables for brown/green investors (or CEOs). For example, in column 1 of Table 6, we examine whether brown and green ownership amplifies or attenuates the E-score effect on contributions to obstructionists. We find that *brown* ownership significantly impacts a firm's support for anti-climate politicians. Conditional on E-score, which remains highly significant,

[21] These individual contributions can be found in FEC's "Contributions by individuals" database. We manually collect individuals' contributions to political candidate's committees (FEC committee type H, S, and P). Note that we do not include CEOs' contributions to their corporate PACs.

brown ownership amplifies the contribution effects fourfold. In contrast, we do not find green shareholders influence their firms' political gifting. These findings indicate that, in stark contrast with their public stance, green firms engage in corporate greed with respect to the environment. Nevertheless, these findings also support rational behavior: Facing potentially value-reducing environmental regulation, brown investors proactively sway their portfolio firm's political giving to match their own. Meanwhile, because these contributions are not readily observable, green investors might not be able to counter with offsetting donations.

Next, we examine the contributions to pro-environment politicians in column 2. According to the results, which lack statistical significance, neither brown nor green investors seem to directly influence donations to environmental supporters. This is consistent with the baseline finding showing that contributions to climate supporters are not driven by E-score.

Columns 3 and 4 of Table 6 report the results for CEOs. Overall, the effect of CEOs is weak. For instance, in column 3 we find that E-score continues to be positively correlated with contributions to obstructionists, but the CEO's own climate attitude does not alter this relation. Nonetheless, there is weak evidence that brown CEOs reduce their greener firms' contributions to environmentally friendly politicians (column 4). Despite the overall weak moderating effect of CEOs, we observe that a CEO's climate stance is positively correlated with a firm's *general* climate political stance: Firms led by a brown (green) CEO donate more (less) to obstructionists, whereas firms with a green CEO give more to eco-supporters.

In the last two columns of Table 6, we probe the robustness of our earlier results by including investor and CEO indicators in the same specification. The new results corroborate the previous findings as they highlight a material role of brown institutional investors.

Our overall evidence is consistent with the corporate greed hypothesis. The results also connect our work to studies on the influence of ESG funds or green investors. Many papers suggest that ESG activism is an effective instrument for improving corporate climate policies (Hoepner et al., 2018; Krueger, et al., 2020). Our findings, albeit consistent with those in these studies, strike a

different and more cautious tone: While green investors could prompt green initiatives, brown shareholders appear to simultaneously obstruct climate policies by engaging their portfolio firms in political activism.

4.2 Does political giving alter lawmakers' climate stance?

To directly examine whether contributions can swing politicians' votes, we further analyze politicians' voting behavior after they receive corporate donations.

We estimate regressions in which the dependent variable is a politician's pro-environment vote in political cycle *t*. Pro-environment stance is measured by the percentage of climate-friendly votes out of all votes on environment-related bills cast by the politician (at *t*). The key independent variable is donating firms' E-score interacted with the firm's contributions to that politician, both measured at $t - 1$. The regressions control for politician characteristics, politician fixed effects, and political cycle fixed effects. We cluster the standard errors at the politician level.

The results reported in Panel A of Table 7 show that green firms' contributions (measured as either PAC percentage of giving or logarithm of $ value) do not correlate with the politician's voting in the *following* election cycle. This pattern holds for both the subsample of obstructionists (columns 1 and 2) and of E-supporters (columns 3 and 4). The evidence rejects the possibility that political donations successfully swing the vote.

4.3 Does regulatory burden drive corporate greed?

We also analyze the role of firms' environment-related regulatory burden to understand whether such burden is directly related to their political giving (especially to anti-environment politicians). We augment the baseline specification in equation (1) by interacting the key independent variable, E-score, with measures of environmental regulation stringency. We measure regulation stringency with three proxies: (i) a dummy variable that indicates whether a State Environmental Policy Act

(SEPA) exist in the firm's headquarter state,[22] (ii) an index that captures the *intensity* of state-level environmental policies (with a higher index value indicating more stringent actions),[23] and (iii) the number EPA enforcement actions per election cycle.[24]

The results shown in Panel B of Table 7 support the conjecture that higher regulatory burden prompts the political donations to obstructionists by green firms. When we focus on columns 1 through 3, we find statistically significant estimates on the coefficient *E-score × Regulatory stringency* regardless of which measure we use to proxy for regulatory burden. By contrast, the estimates are not significant in the regressions for political giving to pro-climate legislators.

4.4 Does corporate greed with respect to the environment create value?

The last question we ask is whether a firm's political support for the environment carries a pecuniary incentive, as predicted by the corporate greed hypothesis. Existing studies on political spending show that partisan contributions by corporations are highly rewarding. For instance, Akey (2015) finds that when a connected politician wins an election, firm value increases by about 3.7%. Similarly, Babenko et al. (2020) document a 0.9% surge in firm value when a CEO-supported candidate wins an election. Motivated by this work, we study whether green firms benefit when (a) Congress passes anti-environmental bills and (b) environmental obstructionists win congressional elections.

4.4.1 Anti-environment bills

First, we study anti-environment bills that pass in the House or the Senate.[25] If firms with a high E-score *and* high contributions to obstructionists benefit from these anti-environmental bills, we

[22] Sixteen states have a SEPA. In addition to the National Environmental Policy Act (NEPA), SEPAs require state government actions be evaluated for the potential impact on the environment or public health.
[23] The index is based on the following procedural requirements for project reviews: state actions, local actions, private actions, and all actions that could potentially contribute to global warming and climate change.
[24] We map EPA enforcement regions to states using EPA crosswalk files.
[25] Congressional bill data come from the League of Conservation Voters. We track 339 anti-environmental bills that pass during our sample period. Passed bills generally reflect (1) an increased probability that the bill becomes a law, and (2) an increased support for the policy across the political spectrum in congress. Our focus on voted bills is consistent with Cohen et al. (2013).

should expect an increase in their value on the bill passage date. To test this conjecture, we estimate firms' abnormal returns on the bill passage date using standard event study methods (Dodd and Warner, 1983).[26] We then regress abnormal stock returns on the interaction term of *E-score* and percentage of contributions to obstructionists in the previous cycle. In all regressions, we control for firm characteristics like those in Table 2. Because our analysis is at the bill level, we also include industry-cycle fixed effects and/or bill fixed effects.

Panel A in Table 8 presents the results. Column 1 shows that the estimate of the interaction term is positive and statistically significant at the 5 percent level. Conditional on E-score, increasing contributions to obstructionists by one standard deviation (8.42%) is associated with a $16 million increase in firm value. An alternative way of gauging the magnitude is that a $1 contribution is related to a $932 increase in the firm's market value.[27]

We assess the robustness of the results in column 2 by including bill fixed effects. In this specification, we essentially compare the value effects across firms for the same passed bill. Our estimate is unchanged from that in column 1.

In columns 3 and 4 of Panel A, we examine whether contributions to *climate-friendly* politicians have an impact on firm value. We find that the coefficient on the interaction term ("E-score × % Contributions to supporters") is negative but statistically indistinguishable from zero. In other words, donations to climate supporters are not associated with immediate monetary benefits. This result might explain the absence of an effect on political giving to environmental supporters in our earlier analyses.

[26] We use a 200-day estimation window and the CRSP value-weighted index as our market benchmark. Our results are similar if we use the Fama-French three-factor model.

[27] The calculation is as follows. To get the change in firm value by a one standard deviation change in contributions (conditional on E-score), we multiple 0.973% (the coefficient of the interaction) by 8.42 (standard deviation) to obtain 0.082%. We then multiply this value by the mean market capitalization before the passage day (20,118 million), to obtain 16 million. To calculate the $ return for $1 of contributions, we first multiply 0.973% by the mean market capitalization (20,118 million), to obtain 195.7 million, which is the value increase if the firm were to increase their contributions by 100%. We then divide 195.7 by 0.21 (average total contributions in $million in a cycle) to obtain 932.

In general, the tests in Panel A of Table 8 indicate that corporate greed with respect to climate change pays as green firms that donate to anti-climate politicians exhibit a market capitalization increase when Congress passes anti-environment bills.

4.4.2 Election of obstructionist politicians

Our second test explores the election of environmental obstructionists. Because most general election results are predictable, we follow the identification strategy proposed by Akey (2015) involving close races in special elections. Special elections occur when a congressman dies or resigns before their term ends. These elections provide the cleanest setting in which to examine the effect of firms' political connection for two reasons. First, the dates of these elections are exogenous to firm-specific economic events; second, unlike general elections where multiple politicians (or the President) are concurrently elected, special elections are not confounded by election results from other political races.

A crucial aspect of our empirical design is that we examine *close elections*, defined as those in which a candidate wins (or loses) by a margin of less than 5 percentage points (as in Akey, 2015). To the extent that the election results in these races cannot be precisely predicted, the treatment effect near the winning threshold is randomized (Lee and Lemieux, 2010). Consequently, our approach resembles a regression discontinuity (RD) that explores differences in abnormal returns to the firms that support the "just winning" candidate versus those supporting the "just losing" candidate. Because our interest is to discern the value of supporting an obstructionist by a green firm (rather than the value of supporting a winner for an average firm), we follow the RD design in Ito (2015) and Lucas and Mbiti (2014) by interacting the treatment variable (*Won*) with the candidate's obstructionist status and the firm's E-score. Equation (4) provides our specification.

$$AR_{i,j,t} = \alpha + \beta \cdot \text{Won}_{j,t} \times \text{Obstructionist}_{j,t} \times \text{E-score}_{i,t} + f(\text{margin}_{j,t}) + \text{Won}_{j,t} \times g(\text{margin}_{j,t}) + \gamma \cdot \mathbf{Z_{i,t}} + \lambda_e + \delta_i + \epsilon_{i,j,t} \quad (4)$$

where *i* indexes firms, *j* indexes candidates, *t* indexes election dates, and *f* and *g* are polynomial functions of the winning margin, defined as the difference in vote share for candidate *j* relative to the just winning (or losing) candidate. *Margin* takes a positive (negative) value for a winning (losing) candidate. We allow the regression function to differ on both sides of the winning point in equation (4). The vector $\mathbf{Z}_{i,t}$ includes all constituent variables from the triple interaction term and their pairwise interactions, firm-level control variables (like those in Table 2), as well as an indicator for whether the winning candidate is from the same party as the firm's political affiliation. It is important to note that we include election fixed effects (λ_e) to control for characteristics of the special election, and industry or firm fixed effects, δ_i.

We extend the sample of close special elections in Akey (2015) with supplemental data from FEC (Appendix 5 lists these elections). Following Akey, we consider only the firms that donated to either the winning or the losing candidate, but not to both.[28] In equation (4), we are interested in β, which estimates the causal effect of supporting a winning obstructionist by a green firm. To save space, we only report the estimates of β in Panel B of Table 8.

Starting from column 1, which examines abnormal returns on the election day with a linear model, we observe that greener firms exhibit significantly higher returns when the winning candidate is an environmental obstructionist. This result survives the inclusion of firm fixed effects in column 2. In Column 3, we follow the recommendation by Lee (2008) and Gelman and Imbens (2019) and introduce a quadratic polynomial function to allow for a more flexible estimate around the discontinuity point. That specification yields a very similar β estimate, suggesting that our results are not spuriously significant due to underlying nonlinearity in the dependent variable. Finally, to be consistent with previous work on election outcomes, we calculate firms' cumulative abnormal returns (CAR) from day -1 until day +3. Column 4 shows that our results are robust to

[28] We follow the advice in Lee (2008) and check whether there are observable differences between firms that donate to winning politicians and firms that donate to losing politicians. We do not find any statistically significant differences in firm-level covariates (e.g., size, profitability, Tobin's Q, leverage, investment) between firms connected to a just-winner and those connected to a just-loser, controlling for the candidate's voting share.

this alternative return window. Based on the column 4 estimate, CAR increases by 0.51% (or about $103 million) for a one standard deviation increase in the E-score if the supported obstructionist candidate narrowly wins. These findings corroborate our tests of anti-environment bills in Panel A, indicating value creation of "greedy" political giving by green firms.

5. Robustness checks

We conduct several robustness checks in this section to confirm our baseline findings. The results of these analyses appear in Table 9.

We first use an alternative statistical specification by controlling for firm fixed effects. If firm-level E-scores are persistent, this specification would identify the effect on political giving when a firm experiences changes in its E-score. Column 1 presents the results. The coefficient estimate of E-score remains highly significant and positive, suggesting that (unobserved) time-invariant firm characteristics do not affect our findings.

Second, we reconsider the possibility that contributions to obstructionists are correlated with *other* policy preferences of the political candidates. To the extent that policies from local lawmakers are most directly relevant to a firm's operations, we argue that contributions to out-of-state politicians are less likely confounded by policy congruence. In column 2, we therefore examine out-of-state political giving to obstructionists. The results are consistent with those from our baseline test.

We further evaluate the concern that partisanship is behind our baseline findings. In Table 2, we show that Democratic firms, which would support fewer obstructionists if the partisanship argument were true, actually donate more to climate obstructionists when their own E-scores are high. In a similar spirit, we examine firms that do not exhibit a clear political affiliation. We define a firm as politically neutral if its contributions to either party range between 45% and 55%. Column 3 reports the results of politically neutral firms. In this subsample, we find that the positive effect of E-score on donations to climate-obstructionists is significant at the 1 percent level. The

economic magnitude is also higher than the estimate in the full sample. Again, as in earlier analyses, the latter results do not support the possibility that political preferences explain our findings.

Another concern is that the MSCI rating is a noisy proxy for environmental performance. In column 4, we use another variable to identify climate leaders: CERES membership. CERES is one of the largest nonprofit organizations led by pro-climate investors. It supports its member firms to achieve "net-zero emissions by 2040 and to get to 50% reductions by 2030."[29] Firms join the CERES network on a voluntary basis. As a result, membership sends a clear public signal about a firm's climate commitments. We collect CERES membership affiliations and use them to replace firms' MSCI E-scores. Consistent with the results using E-scores, column 4 shows a positive association between CERES membership and political giving to obstructionists.

We also perform two other subsample analyses. The first one aims to detect whether our estimates are driven by the energy industry. We thus drop all observations of energy firms based on the reported SIC codes. Column 5 of Table 9 shows that our results are robust to this exclusion. Additionally, we are concerned that a firm's E-score is a proxy for environmental policy burden and violations. To tackle this concern, we obtain all cases of environmental violations from the EPA website. In column 6, we re-estimate the baseline regression using a subsample that excludes 476 "EPA violator" firms. The results are similar to those from the full sample, suggesting that the E-score does not proxy for regulatory infractions.

We next consider whether a sample selection bias exists. Our main analyses include only firms that have established corporate PACs for political donations. We note that our sampling criteria are consistent with the existing literature and address the concern that a firm's PAC-donation decision is endogenous. Consequently, comparing firms based on whether they have PACs might not be appropriate. Nevertheless, in column 7 of Table 9, we expand the sample by including MSCI firms without corporate PACs and setting their contributions to zero. This strategy potentially adds

[29] See https://www.ceres.org/about-us (data as of May 2022).

noise to the data since approximately 64% of MSCI firms do not have a corporate PAC.[30] Despite the caveats just stated, we continue to find a positive association between E-scores and contributions to anti-climate politicians.

Finally, to check the robustness of the results with respect to our definitions of environmental obstructionists, we reclassify obstructionist in two different ways. The first uses an even higher threshold to define a politician's environmental extremism: We classify politicians as obstructionists if their cumulative environmental support rate lies below the bottom 5th percentile (instead of decile) in an election cycle. The second definition is based on a rolling window of support rate using the most recent 3 election cycles (instead of the lifetime voting record). This second classification incorporates the possibility that a politician's climate position may change overtime. However, because we use a much shorter observation window, the proxy might be noisier. Regardless of how we classify an obstructionist, the results in columns 8 and 9 of Table 9 suggest that the evidence on corporate greed with respect to the environment is robust.

6. Conclusions

We study the association between U.S. firms' environmental grades and their political gifts to congressional candidates (through PACs) during 1995–2018. We determine politicians' revealed attitude toward the environment by studying their lifetime voting record on key climate-related bills. We define a politician as a salient environmental obstructionist (supporter) if their cumulative pro-climate votes stand at the bottom (top) decile of all politicians in an electoral cycle.

Firm-level panel regressions yield a robust *positive* association between corporate contributions to anti-environment candidates and the firm's own green performance. Importantly, we find that this novel finding is not entirely driven by Republican-leaning firms, which provide more support to obstructionists, on average. Moreover, the results are similar when we estimate politician-level

[30] We use firm fixed effects in this test because these fixed effects partially control for the endogenous decision to establish PACs.

regressions, in which we use firm-politician fixed effects to account for firms' general attitudes toward a candidate.

We establish plausibly causal interpretations with two different identification events: the 2005 passing of the Energy Policy Act and the 2015 Clean Power Plan as separate exogenous shocks to firms' environmental performance. Using both events, we continue to find that firms with higher environmental grades contribute significantly more to anti-climate politicians.

Next, we examine the mechanism underlying the corporate donation patters we uncover. Our analyses identify ownership by brown shareholders (i.e., investors whose own PACs donate mostly to climate-unfriendly politicians) as a mechanism through which green firms donate to climate-obstructionists. This evidence supports the corporate greed hypothesis.

Finally, event studies upon the passing of anti-environment bills and upon the election of environmental obstructionists show that firms with excellent E-scores *and* more donations to obstructionists earn significantly higher abnormal returns. According to the estimates, a $1 donation to an obstructionist politician is related to a firm value increase of over $900.

Overall, our results provide strong evidence revealing corporate greed when it comes to climate change: Corporations that presumably support green initiatives, as implied by their strong E-scores, actively work to endorse climate-unfriendly politicians through PAC contributions. Notably, such greedy behavior is effective as contributions to climate-unfriendly lawmakers ultimately enhance the value of green firms. These findings should be of particular interests to investors that seek green firms in their portfolios, to government agencies that grant benefits to firms based on the environmental scores issued by third parties, and to investigators who use those scores in their research projects.

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Figure 1. PAC Contributions to Environmental Obstructionists and Supporters

The figures plot the relation between % contributions to environmental obstructionists (left) / supporters (right) and a firm's environmental score. We show a fractional polynomial that controls for firm characteristics (Democrat leaning, size, cash holding, Tobin's Q, leverage, profitability, investment intensity, industry, and election cycle fixed effects). Dash lines present the 95% confidence intervals.

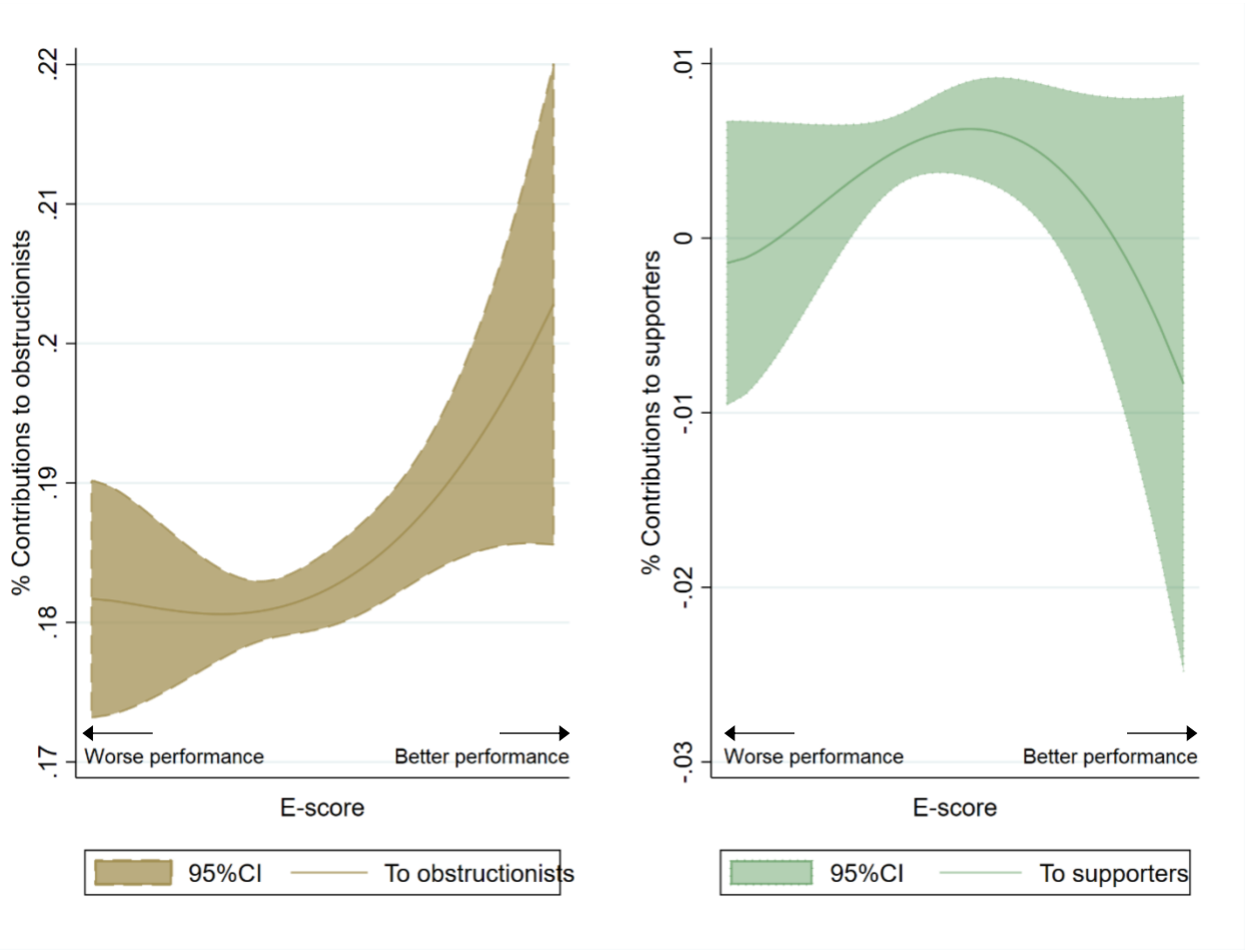
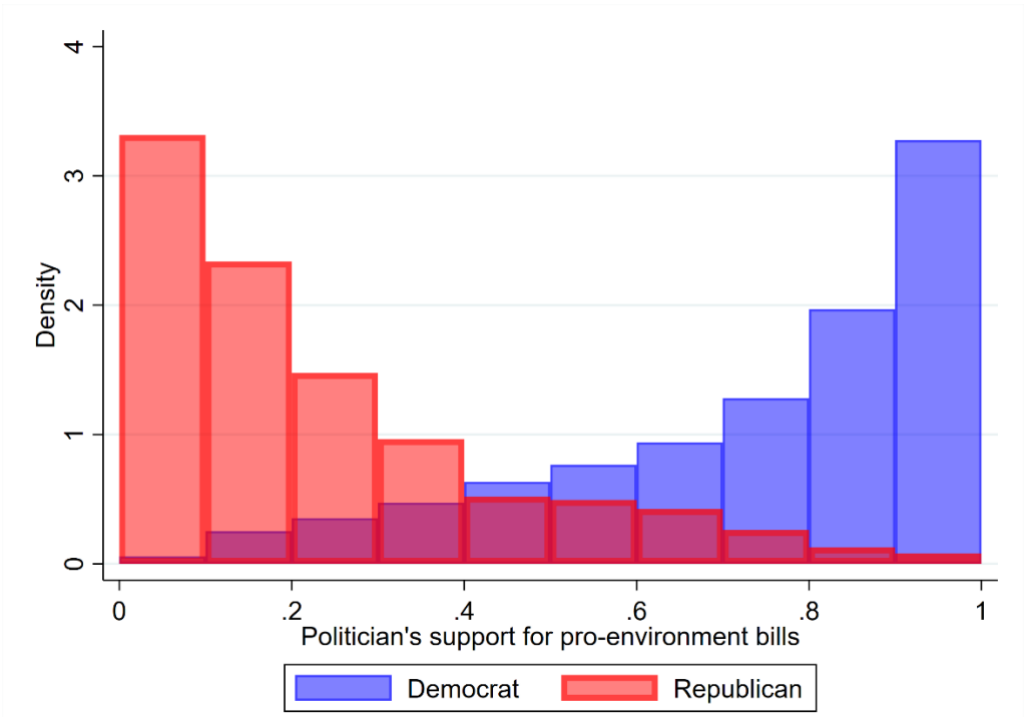


Figure 2. Politicians' Support for the Environment

Panel A plots the histogram of support rate of pro-environmental bills. The blue bar identifies politicians from the Democratic Party whereas the red bar identifies politicians from the Republican Party. Panel B shows the median support rate by election cycle.

A. Histogram



B. Median support rate

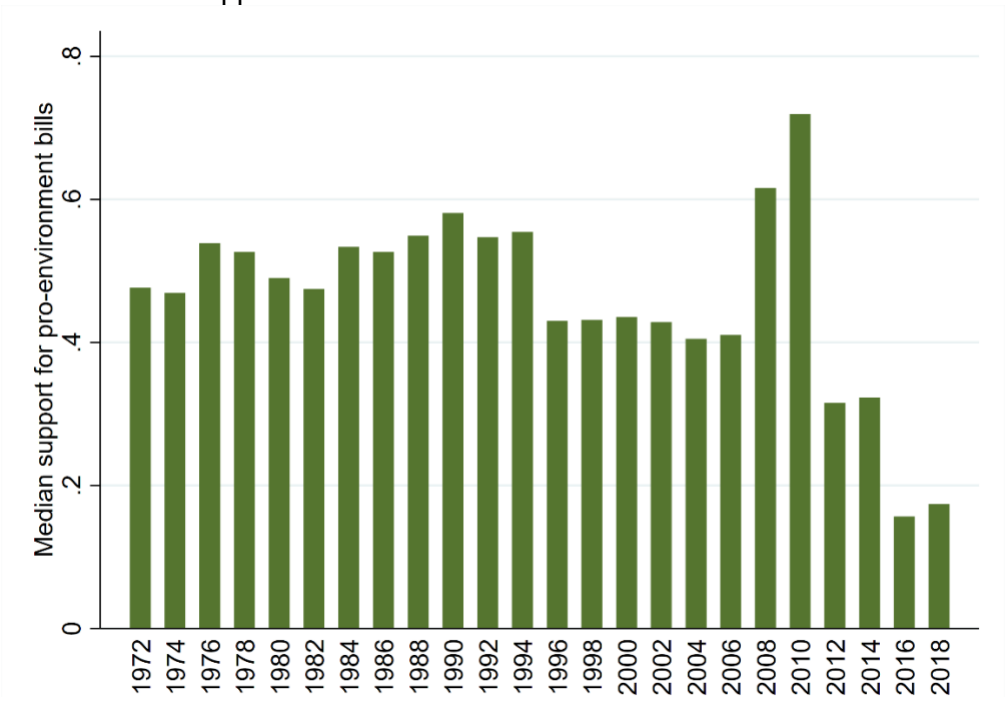


Figure 3. Political Giving to Environmental Obstructionists and Supporters

The graph shows the percentage of corporate PAC contributions that flow to environmental obstructionists and supporters by election cycle.

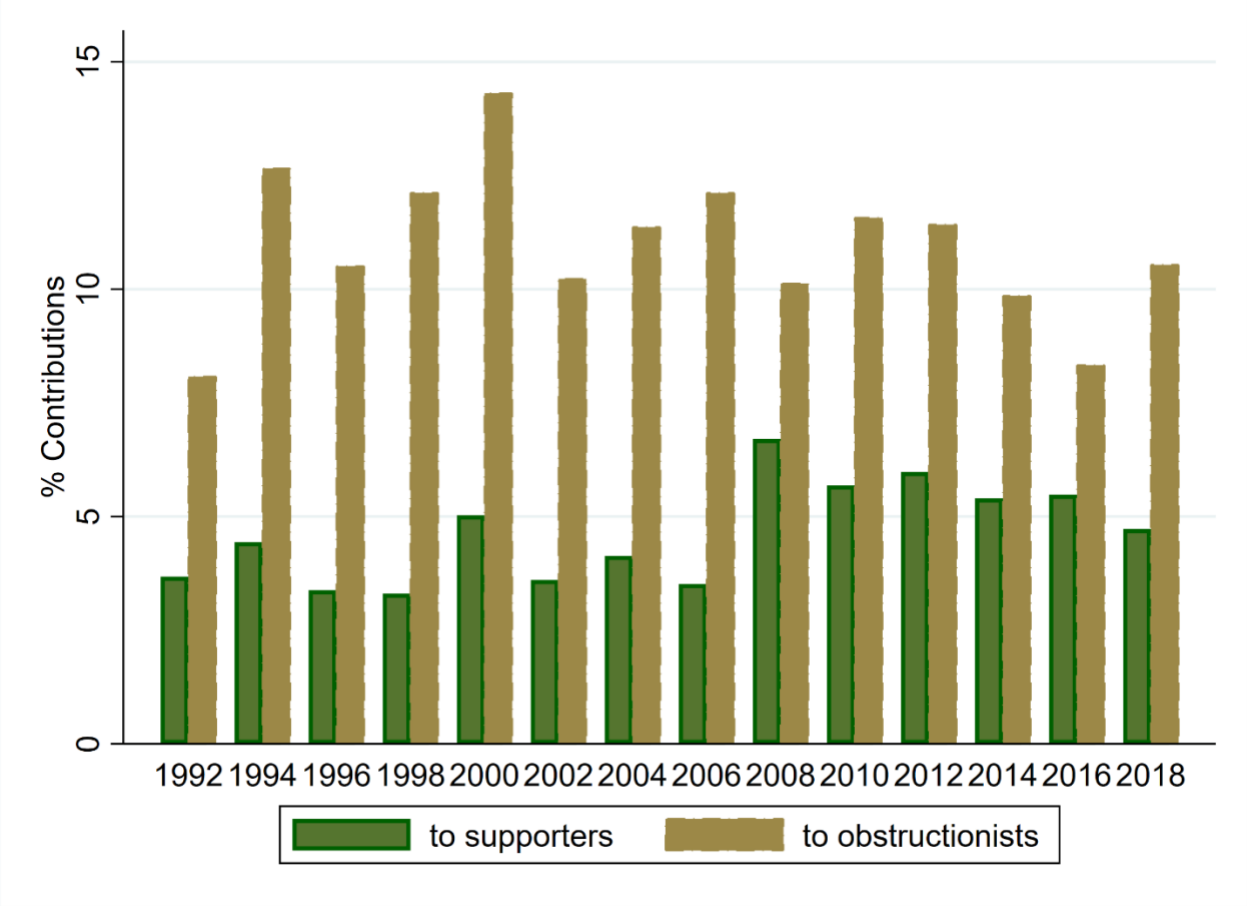
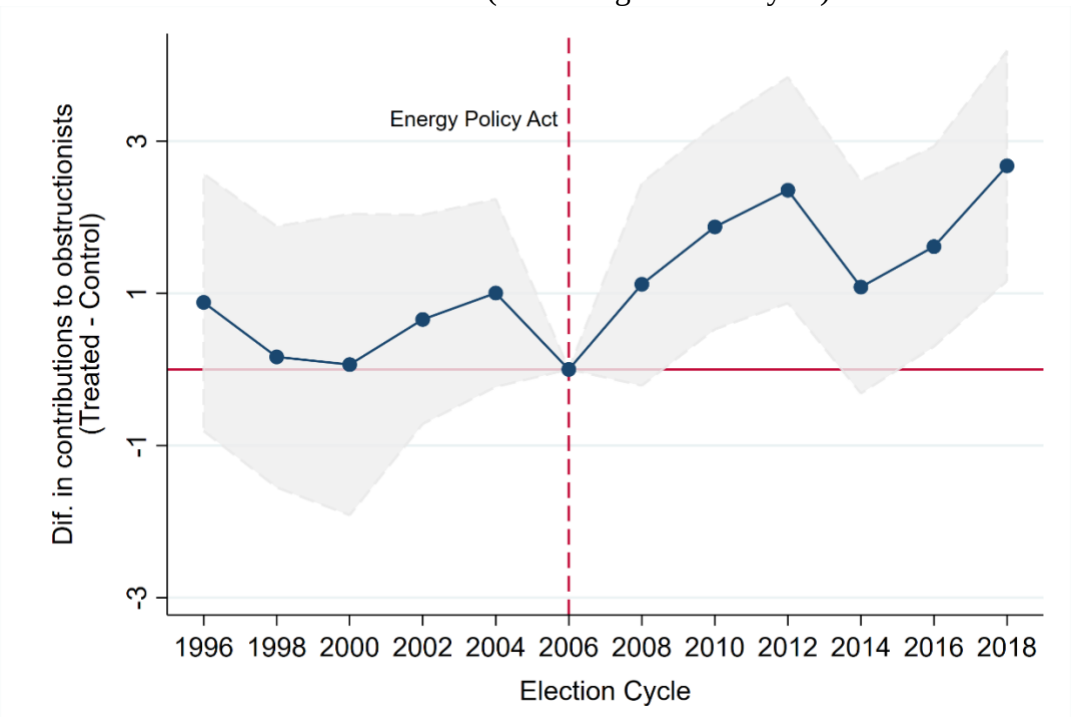


Figure 4. Effects of Environmental Policies Around the Implementation Year

The figure shows the treatment effects of the EP Act (Panel A) and the CPP policy (Panel B) around the implementation year, controlling for firm characteristics, cycle, and industry fixed effects (see equation (2)).

Panel A: Effects around the EP Act (2006 congressional cycle)



Panel B: Effects around the CPP policy (2016 congressional cycle)

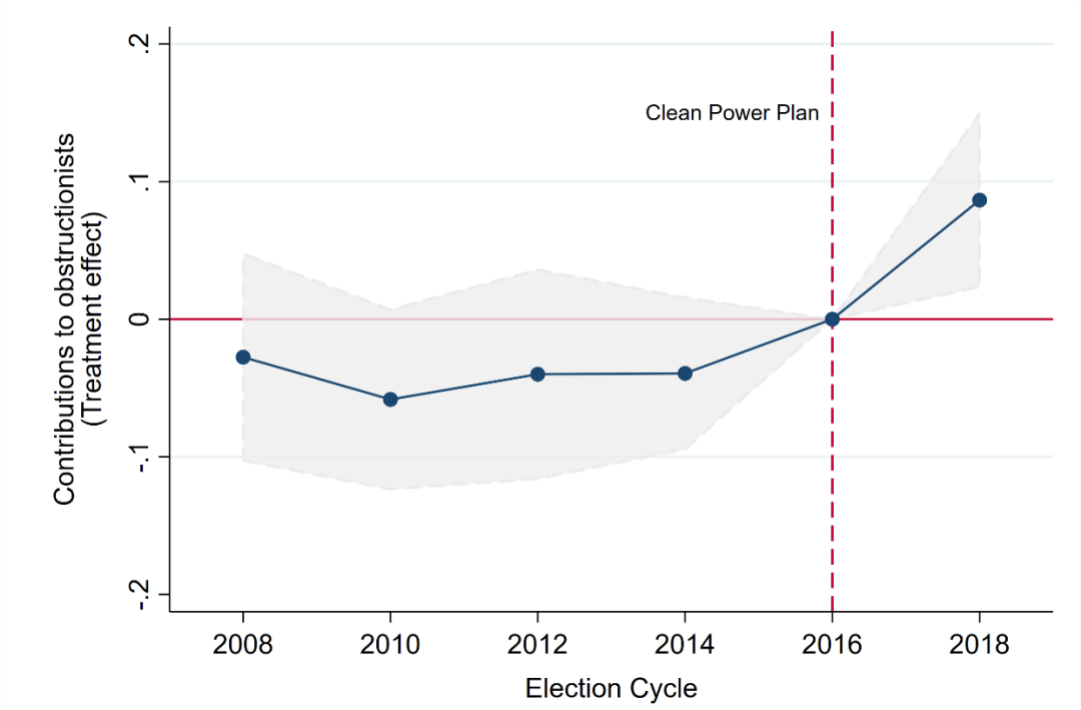


Table 1. Summary Statistics

The table reports summary statistics for firms during 1995 – 2018 election cycles. Definitions of obstructionists, supporters, and E-score appear in Section 2. Firm size is the logarithm of a firm's total assets. Cash holding is cash and equivalents scaled by total assets. Tobin's Q is market value of assets over book value of assets. Leverage is book value of debts over market value of assets. Profitability is net income scaled by total assets. Investment is capital expenditure scaled by total assets. These values are reported at the end of an election cycle.

	N	Mean	S.D.	Pct 10	Median	Pct 90
Panel A. Firm's PAC political contributions						
Firm-cycle level:						
Pct contributions to obstructionists (%)	5,286	10.177	8.421	1.273	8.945	19.388
Pct contributions to supporters (%)	5,286	5.032	8.778	0.000	2.484	12.155
Total amount of contributions (thousand $)	5,286	209.99	327.77	17.00	965.50	511.57
Firm-politician-cycle level:						
Pct contributions to candidate (%)	357,452	1.720	5.086	0.168	0.716	3.534
Panel B. Firm's environmental score and characteristics						
E-score	5,286	0.059	0.230	-0.157	0.000	0.375
Firm size (log. of total assets)	5,286	9.292	1.636	7.246	9.279	11.391
Cash holdings	5,286	0.100	0.120	0.008	0.055	0.256
Tobin's Q	5,286	1.747	1.062	1.000	1.374	2.903
Leverage	5,286	0.202	0.151	0.032	0.175	0.395
Profitability	5,286	0.040	0.073	-0.014	0.037	0.119
Investment	5,286	0.047	0.044	0.002	0.036	0.100

Table 2. Environmental Performance and Political Contributions

This table presents the association between firms' PAC contributions and their environmental score at the firm–congressional cycle level. We use OLS regressions. The dependent variable is the percentage of PAC contributions to politicians who are either environmental obstructionists or supporters, as indicated in the table header. The independent variable is the firm's environmental score (*E-score*). Definitions of environmental obstructionist/supporter and *E-score* are in Section 2. The full sample includes all firms in the MSCI ESG database. Columns 3 and 4 only include the subsample of Democratic firms, defined as firms whose PAC contributes more than 50% of funds to the Democratic Party in a given congressional cycle. We include congressional cycle and industry (4-digit SIC) fixed effects. Standard errors are clustered at the firm level and reported in the parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	Depend. variable: Contributions to environmental obstructionists or supporters			
	Obstructionist	Supporter	Obstructionist	Supporter
	1	2	3	4
E-score	1.938***	0.076	3.852***	-2.900
	(0.662)	(0.589)	(1.397)	(2.562)
Democratic leaning	-15.519***	25.345***	-15.598***	58.936***
	(0.958)	(2.070)	(1.811)	(8.482)
Firm size	-0.313**	-0.550***	-0.114	0.297
	(0.123)	(0.145)	(0.203)	(0.411)
Cash holdings	-0.275	3.479**	0.471	5.789
	(1.301)	(1.514)	(2.228)	(4.337)
Tobin's Q	-0.098	0.141	-0.342	0.590
	(0.167)	(0.236)	(0.241)	(0.745)
Leverage	-0.342	-0.055	-3.154	-2.633
	(1.203)	(1.368)	(2.099)	(4.385)
Profitability	0.543	-4.535*	-6.239**	-13.040*
	(1.801)	(2.542)	(2.875)	(6.880)
Investment	1.025	-0.411	2.325	-12.586
	(4.575)	(4.143)	(8.052)	(20.619)
Sample	All firms	All firms	Dem. firms	Dem. firms
N	5,286	5,286	1,122	1,122
R^2	0.288	0.402	0.444	0.448
Cycle FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES

Table 3. Difference-in-Differences: Evidence from Energy Policy Act

This table presents a difference-in-differences analysis using the Energy Policy Act as an exogenous shock to firms' E-score. The main independent variable is the interaction term of *Treated* and *Post*. Treated firms are those operating in energy production, manufacturing, transportation, and buildings industries. *Post* is a dummy variable that equals 1 for election cycles after 2006, and 0 otherwise. We include industry and congressional cycle fixed effects. Standard errors are clustered at the firm level and reported in the parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Depend. variable:	Test for identification assumption: E-score	Difference-in-differences		
		Cont' to obstructionists	Cont' to supporters	Cont' to obstructionists
	1	2	3	4
Treated × $Post^{EPA(2006)}$	0.153***	1.288***	-0.294	
	(0.017)	(0.499)	(0.503)	
Treated × $Before^{1996}$				0.881
				(1.028)
Treated × $Before^{1998}$				0.164
				(1.043)
Treated × $Before^{2000}$				0.064
				(1.202)
Treated × $Before^{2002}$				0.657
				(0.835)
Treated × $Before^{2004}$				1.004
				(0.750)
Treated × $Post^{2008}$				1.119
				(0.809)
Treated × $Post^{2010}$				1.873**
				(0.817)
Treated × $Post^{2012}$				2.355***
				(0.903)
Treated × $Post^{2014}$				1.083
				(0.850)
Treated × $Post^{2016}$				1.615**
				(0.799)
Treated × $Post^{2018}$				2.675***
				(0.920)
Democratic leaning	0.096***	-15.439***	25.385***	-15.435***
	(0.019)	(0.963)	(2.070)	(0.963)
Firm size	0.035***	-0.243**	-0.548***	-0.244**
	(0.003)	(0.118)	(0.144)	(0.119)
Cash holdings	0.079**	-0.301	3.540**	-0.343
	(0.036)	(1.292)	(1.506)	(1.295)
Tobin's Q	-0.009*	-0.096	0.134	-0.096
	(0.005)	(0.166)	(0.239)	(0.166)
Leverage	-0.007	-0.326	-0.065	-0.334
	(0.032)	(1.208)	(1.370)	(1.212)
Profitability	0.113**	0.691	-4.505*	0.714
	(0.049)	(1.800)	(2.543)	(1.797)
Investment	0.279**	1.884	-0.488	2.031
	(0.111)	(4.652)	(4.160)	(4.681)
N	5,286	5,286	5,286	5,286
R^2	0.494	0.287	0.403	0.288
Cycle FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES

Table 4. Difference-in-Differences: Evidence from the Clean Power Plan

This table presents a difference-in-differences analysis using the Clean Power Plan (CPP) policy as a shock to firms' E-score. The sample is from 2008 till 2018 and excludes the states that oppose the CPP. The independent variable is the interaction term of *Treatment* and *Post*. *Treatment* measures treatment intensity, defined as the percentage CO_2 reduction target from 2012 to 2030 in each state (columns 1 to 4). *Post* is a dummy variable that equals 1 for election cycles after 2015, and 0 otherwise. Column 1 tests the identification assumption, where the dependent variable is *E-score*. Columns 2 through 5 present the results of the difference-in-differences analysis, where the dependent variable is the percentage of PAC contributions to obstructionist or supporters. In columns 5 and 6, the sample is restricted to firms located in Washington DC (where there is no CCP target) and in its neighboring counties (with CCP targets), and *Treatment* is a dummy variable that equals 1 for firms in the neighboring counties of DC, and 0 for control firms in DC. We include industry and congressional cycle fixed effects. Standard errors are clustered at the firm level and reported in the parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Depend. variable:	Test for identification assumption: E-score	Difference-in-differences				
		Cont' to obstructionists	Cont' to supporters	Cont' to obstructionists	Cont' to obstructionists	Cont' to supporters
	1	2	3	4	5	6
Treatment × $Post^{CPP(2016)}$	0.002*	0.080***	0.050		12.252***	3.795
	(0.001)	(0.031)	(0.045)		(3.297)	(2.281)
Treatment × $Before^{2008}$				-0.028		
				(0.046)		
Treatment × $Before^{2010}$				-0.058		
				(0.040)		
Treatment × $Before^{2012}$				-0.040		
				(0.046)		
Treatment × $Before^{2014}$				-0.039		
				(0.033)		
Treatment × $Post^{2018}$				0.087**		
				(0.038)		
Treatment	-0.001	-0.067***	-0.083**	-0.026	-6.029*	-1.117
	(0.001)	(0.024)	(0.033)	(0.030)	(3.469)	(1.702)
Democratic leaning	0.050	-16.147***	25.923***	-16.179***	-13.239**	11.117***
	(0.041)	(1.720)	(3.330)	(1.727)	(6.497)	(2.732)
Firm size	0.070***	0.381**	-0.465*	0.380**	-0.750	0.083
	(0.006)	(0.167)	(0.257)	(0.167)	(0.653)	(0.418)
Cash holdings	0.076	1.878	-1.183	1.906	8.812	-0.576
	(0.065)	(1.747)	(2.405)	(1.741)	(8.277)	(3.958)
Tobin's Q	0.010	-0.551**	0.596	-0.534**	0.670	2.444***
	(0.013)	(0.266)	(0.457)	(0.264)	(0.998)	(0.708)
Leverage	-0.004	-2.284	0.472	-2.342	6.765	6.483
	(0.074)	(1.856)	(2.827)	(1.871)	(7.352)	(4.814)
Profitability	0.086	-0.682	-8.586**	-0.823	3.790	-15.499*
	(0.106)	(2.917)	(3.847)	(2.921)	(8.685)	(7.964)
Investment	0.190	-0.307	0.639	-0.007	-2.851	8.106
	(0.299)	(7.903)	(11.610)	(7.944)	(18.326)	(12.977)
Sample	Supporting states, 08-18	Supporting states, 08-18	Supporting states, 08-18	Supporting states, 08-18	DC + Neighbors	DC + Neighbors
N	1,443	1,443	1,443	1,443	178	178
R^2	0.557	0.404	0.488	0.406	0.414	0.529
Cycle FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

Table 5. Politician-level Evidence

This table presents the association between firms' PAC contributions and their environmental score at the politician–firm–congressional cycle level. The dependent variable is the percentage of PAC contributions to a given politician in a congressional cycle. The independent variable is the interaction term of the firm's environmental score (*E-score*) and a dummy variable, *Politician*, which flags whether the politician is an environmental obstructionist or supporter. Definitions of environmental obstructionist/supporter and *E-score* are in Section 2. In columns 5 and 6, the independent variable is the interaction term of the firm's *E-score* and the politician's environmental score (i.e., cumulative support rate for pro-environment bills). We use OLS regressions. The sample includes all politicians from FEC's contribution records that can be matched to the firms in the MSCI ESG database. We include firm-politician pairwise fixed effects, election cycle fixed effects, and/or firm-cycle fixed effects. Standard errors are clustered at the firm level and reported in the parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	Depend. variable: Contributions to the politician					
	Politician is an obstructionist		*Politician* is a supporter		Using politician's environmental score	
	1	2	3	4	5	6
Politician × E-score	0.215***	0.117**	-0.019	0.010		
	(0.073)	(0.055)	(0.074)	(0.054)		
Politician score × E-score					-0.158**	-0.073*
					(0.080)	(0.043)
Politician	-0.144***	-0.116***	-0.013	-0.001		
	(0.036)	(0.027)	(0.055)	(0.038)		
Politician score					0.348*	0.444***
					(0.192)	(0.144)
E-score	0.169**		0.189**		0.255***	
	(0.081)		(0.081)		(0.085)	
Democratic	-0.445***	-0.248**	-0.445***	-0.247**	-0.446***	-0.247**
	(0.151)	(0.114)	(0.151)	(0.114)	(0.151)	(0.114)
Senate	0.290***	0.256***	0.303***	0.266***	0.304***	0.270***
	(0.057)	(0.050)	(0.057)	(0.050)	(0.057)	(0.050)
Incumbent	-0.332***	-0.266***	-0.330***	-0.264***	-0.331***	-0.266***
	(0.061)	(0.042)	(0.061)	(0.042)	(0.061)	(0.042)
N	357,452	357,452	357,452	357,452	357,452	357,452
R^2	0.602	0.719	0.602	0.719	0.602	0.719
Firm-Politician FE	YES	YES	YES	YES	YES	YES
Cycle FE	YES	NO	YES	NO	YES	NO
Firm-Cycle FE	NO	YES	NO	YES	NO	YES

Table 6. Who Drives Political Contributions?

This table examines the channels that drive firms' political contributions at the firm–congressional cycle level. The dependent variable is the percentage of PAC contributions to politicians who are either environmental obstructionists or supporters, as indicated in the table header. The independent variable is the firm's environmental score (*E-score*) interacted with "brown" / "green" institutional ownership (columns 1 and 2), CEOs (columns 3 and 4), or both (columns 5 and 6). Definitions of environmental obstructionist/supporter and *E-score* are in Section 2. "Brown" ("Green") institutional ownership or CEO is defined as the institutional ownership / CEO whose political contributions to environmental obstructionists (supporters) lie in the top 5 percentile of the distribution. We use OLS regressions. The sample includes all firms in the MSCI ESG database. The control variables are the same as those in Table 2. We include congressional cycle and industry (4-digit SIC) fixed effects. Standard errors are clustered at the firm level and reported in the parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	Depend. variable: Contributions to environmental obstructionists or supporters					
	Obstructionist	Supporter	Obstructionist	Supporter	Obstructionist	Supporter
	1	2	3	4	5	6
Brown investor × E-score	4.410***	-0.685			4.855***	-1.025
	(1.708)	(1.897)			(1.750)	(1.951)
Green investor × E-score	0.112	2.095			-0.052	2.224
	(1.272)	(2.213)			(1.284)	(2.228)
Brown CEO × E-score			-1.575	-1.402*	-1.552	-1.278*
			(1.178)	(0.771)	(1.183)	(0.765)
Green CEO × E-score			1.246	-1.228	0.867	-1.084
			(1.187)	(1.525)	(1.072)	(1.460)
E-score	1.666**	-0.035	1.970***	0.279	1.703**	0.159
	(0.680)	(0.595)	(0.682)	(0.600)	(0.699)	(0.605)
Brown investor	0.292	-0.627			0.241	-0.652
	(0.608)	(0.442)			(0.610)	(0.441)
Green investor	-0.003	0.841*			0.034	0.870*
	(0.407)	(0.466)			(0.408)	(0.467)
Brown CEO			2.879***	-0.190	2.906***	-0.181
			(0.618)	(0.317)	(0.620)	(0.317)
Green CEO			-1.087***	3.073***	-1.098***	3.093***
			(0.380)	(0.751)	(0.380)	(0.752)
N	5,286	5,286	5,286	5,286	5,286	5,286
R^2	0.289	0.403	0.294	0.408	0.295	0.409
Controls as in Table 2	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
Cycle FE	YES	YES	YES	YES	YES	YES

Table 7. Swing-the-vote *versus* corporate greed

Panel A reports the association between politicians' pro-climate vote in cycle *t* (%) and their funds received from firms in *t* – 1. The regressions are at the politician–firm–congressional cycle level. The dependent variable is the percentage of pro-climate vote in cycle *t.* The independent variable is the interaction term of the firm's *E-score* and the firm's contributions to that politician in *t* – 1. *Contributions* are measured as the percentage of PAC contributions to a given politician or as the logarithm of contribution amount. We examine E-obstructionists (columns 1–2) and supporters (columns 3–4) separately. We include politician fixed effects and election cycle fixed effects. Control variables include political party affiliation, Senator, and incumbent status. Standard errors are clustered at the politician individual level. Panel B examines whether regulatory burden drives the association between firms' contributions and their E-score. The regressions are at the firm–election cycle level. The dependent variable is the percentage of PAC contributions to either environmental obstructionists or supporters, as indicated in the table header. The independent variable is the firm's environmental score interacted with *Regulatory stringency*. *Regulatory stringency* is proxied by *SEPA* (dummy variable for whether (state-level) State Environmental Policy Acts exist), an *index* capturing the intensity of the state-level environmental policy, and *EPA* enforcement actions (number of EPA actions per cycle). Same control variables and fixed effects as in Table 2 are included. Standard errors are clustered at the firm level and reported in the parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A. Does political giving alter politicians' voting behavior?

	Depend. variable: Pro-climate vote (%) in current political cycle *t*			
	Obstructionist subsample		Supporter subsample	
Contributions (*t*–1) proxied by:	PAC percentage	Log($ value)	PAC percentage	Log($ value)
	1	2	3	4
Contributions × E-score	-0.005	-0.001	0.024	0.000
	(0.027)	(0.001)	(0.024)	(0.001)
E-score	0.001	0.012	0.000	-0.001
	(0.001)	(0.009)	(0.000)	(0.005)
Contributions	0.001	-0.000	0.004	0.001**
	(0.004)	(0.000)	(0.003)	(0.000)
# Politician-firm-cycles	28,642	28,325	15,170	14,821
# Unique politicians	227	227	217	217
R^2	0.527	0.530	0.474	0.479
Controls	YES	YES	YES	YES
Cycle FE	YES	YES	YES	YES
Politician FE	YES	YES	YES	YES

Panel B. Does regulatory burden drive political giving?

	Depend. variable: Contributions to environmental obstructionists or supporters					
	Obstructionist			Supporter		
Regulatory stringency proxied by:	SEPA	Index	EPA	SEPA	Index	EPA
	1	2	3	4	5	6
E-score × Regulatory stringency	2.418***	0.631**	0.002*	0.490	0.112	-0.001
	(0.893)	(0.307)	(0.001)	(0.797)	(0.367)	(0.001)
E-score	0.848	1.263	0.090	-0.051	0.028	0.958
	(0.846)	(0.783)	(1.120)	(0.631)	(0.624)	(1.175)
Regulatory stringency	-0.700*	-0.308**	0.003***	1.111***	0.479***	-0.001***
	(0.373)	(0.128)	(0.001)	(0.358)	(0.137)	(0.000)
N	5,286	5,286	5,139	5,286	5,286	5,139
R^2	0.289	0.289	0.304	0.405	0.406	0.405
Controls as in Table 2	YES	YES	YES	YES	YES	YES
Cycle FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES

Table 8. Do Contributions to Environmental Obstructionists Create Value?

Panel A examines firms' abnormal return (AR) on the passage date of anti-environmental legislation. The sample includes all firms in the MSCI ESG database with stock information available on the legislation date. The dependent variable, AR, is calculated using a market model with a 200-day estimation window before the legislation passage. The independent variable is the interaction term of the firm's environmental score (*E-score*) and the firm's % contributions to environmental obstructionists (columns 1 and 2) or to environmental supporters (columns 3 and 4). Panel B examines a sample of Congress special elections won or lost by a margin of 5% or less, and for the firms that only donated to one candidate in the election. The dependent variable is AR on the election day 0 or cumulative abnormal return (CAR) over [-1,3]. The independent variable is the interaction term of the firm's *E-score* and a dummy variable indicating that an obstructionist won. The estimation is performed using various polynomial forms. Definitions of environmental obstructionist/supporter and *E-score* are in Section 2. We include control variables as those in Table 2 and standalone variables in the interaction term (untabulated). Fixed effects are indicated at the bottom of each panel. Standard errors are clustered at the firm level and reported in the parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A. Anti-environment bills

	Depend. variable: Abnormal return			
	1	2	3	4
E-score × % Contributions to obstructionists	0.973**	0.973**		
	(0.397)	(0.396)		
E-score × % Contributions to supporters			-0.467	-0.476
			(0.568)	(0.568)
E-score	-0.020	-0.020	0.100**	0.100***
	(0.047)	(0.047)	(0.038)	(0.038)
% Contributions to obstructionists	0.057	0.055		
	(0.079)	(0.079)		
% Contributions to supporters			-0.159	-0.160
			(0.139)	(0.139)
N	133,146	133,146	133,146	133,146
R^2	0.061	0.085	0.061	0.085
Controls as in Table 2	YES	YES	YES	YES
Industry-Cycle FE	YES	YES	YES	YES
Bill FE	NO	YES	NO	YES

Panel B. Close special elections

Depend. variable:	AR[0]	AR[0]	AR[0]	CAR[-1,3]
	1	2	3	4
E-score × Obstructionist × Won	0.946**	1.114**	1.166**	2.231**
	(0.452)	(0.464)	(0.467)	(1.022)
Functional form	Linear	Linear	Quadratic	Quadratic
N	1,252	1,252	1,252	1,252
R^2	0.213	0.334	0.337	0.260
Variables in the interaction term & controls	YES	YES	YES	YES
Election FE	YES	YES	YES	YES
Industry FE	YES	NO	NO	NO
Firm FE	NO	YES	YES	YES

Table 9. Robustness Tests

This table presents the robustness tests for the association between firms' PAC contributions and their environmental score at the firm–congressional cycle level. The dependent variable is the percentage of PAC contributions to obstructionist politicians. The independent variable is the firm's environmental score (*E-score*). Column 1 includes firm fixed effects. Column 2 examines contributions to out-of-state obstructionists. Column 3 examines the contributions from "politically neutral" firms, defined as the firms whose contributions to either Party range within 45% to 55% of all contributions in the congressional cycle. Column 4 replaces *E-score* with an alternative measure of environmental leader, *CERES*, a dummy indicator for firms in the CERES environmental network. Column 5 excludes firms in the energy industry. Column 6 drops firms with EPA violations. Column 7 includes all MSCI-sample firms (including those without corporate PACs). Columns 8 and 9 use alternative definitions of obstructionists. In column 8, an obstructionist is defined as a politician whose lifetime supporting rate for pro-environmental legislation falls in the bottom 5 percentile of all politicians. In column 9, an obstructionist is defined using a politician's supporting rate for pro-environmental legislation in the most recent 3 congressional cycles. Control variables are the same as those in Table 2. Standard errors are clustered at the firm level and reported in the parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	Depend. variable: Contributions to environmental obstructionists								
	Including Firm FE	Out-of-state contribution	Politically neutral firms	Using CERES to replace *E-score*	Excluding Energy	Drop firms with EPA violations	Include no-PAC firms	Alternative definition of obstructionists	
								Bottom 5pct	*Most recent* 3 *cycles*
	1	2	3	4	5	6	7	8	9
E-score	1.398**	1.494**	4.344***	1.898**	1.328**	2.064***	0.849*	1.770***	1.255*
	(0.669)	(0.667)	(1.209)	(0.755)	(0.663)	(0.720)	(0.515)	(0.550)	(0.690)
N	5,286	5,286	932	5,286	4,982	4,810	14,466	5,286	4,936
R^2	0.504	0.191	0.413	0.287	0.277	0.290	0.576	0.203	0.283
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES
Cycle FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	NO	YES	YES	YES	YES	YES	NO	YES	YES
Firm FE	YES	NO	NO	NO	NO	NO	YES	NO	NO

Appendix 1. Institutional Background

A. Corporate gifts through PACs and Super PACs

In the U.S., companies must establish political action committees (PACs) to make campaign contributions. These committees solicit funds from their firm's employees, but they are prohibited from using corporate treasury funds directly. Current federal campaign finance laws limit a corporate PAC's contribution to $5,000 per election per candidate. In 2010, the Supreme Court decision in "Citizens United v. The Federal Election Commission (FEC)" substantially expanded the ability of firms to support political candidates. The decision allows companies to make contributions from their treasury funds to independent-expenditure political committees (also known as "Super PACs"). The ruling also removed corporate contribution limits to the Super PACs.

B. U.S. environmental policies in the 2000's

A series of laws and policies established in the U.S. since 1970 address environmental protection concerns. Federal agencies, most noticeably, the Environmental Protection Agency (EPA), implement and enforce these regulations. During our sample period (1995–2018), there are two major environmental policy developments: the Energy Policy Act (EP Act) of 2005 and the Clean Power Plan policy (CPP) of 2015. In our empirical analysis, we explore the effects of these policies as individual exogenous shocks to firms' environmental performance.

The EP Act, signed into law in August 2005, established stringent renewable fuel standards by mandating greater amounts of renewable fuel (e.g., ethanol or biodiesel) contained in gasoline. It intended to improve energy efficiency in many economic sectors through a wide-ranging set of tax incentives and programs. Industries directly targeted by the EP Act include renewable fuel production, transportation (especially railroad and air), buildings/construction, and manufacturing (Dixon et al., 2010). Because of the EP Act, pollution issues, such as the greenhouse gas emissions, have substantially decreased (Metcalf, 2008).

The second climate policy, CPP, was proposed by the EPA in 2014 and announced by President Barack Obama in 2015. The CPP set state-level carbon emission reduction targets with the goal of cutting CO_2 emissions by 32 percent in 2030, relative to 2005 levels. According to the EPA, the CPP is the most forceful action on climate change in U.S. history. However, in 2016, the U.S. Supreme Court issued a temporary stay on the implementation of the CPP in response to a lawsuit led by some states and industry groups.[31] Despite the stay, over 20 states—including Republican-leaning ones such as Virginia and Idaho—announced that they would move forward to enforce the CPP. For example, right after the court decision, the Governors of Maryland and Virginia vowed to reach their CPP-assigned goals to reduce carbon pollution.[32] Moreover, 14 such states subsequently adopted 100% clean energy goals through state-level legislation or executive order based on the CPP. The so-called "opt-in" state compliance was effective in achieving targeted pollution goals (e.g., Linn et al., 2016; Pacyniak, 2017). See Figure A1.

[31] See https://archive.epa.gov/epa/cleanpowerplan/clean-power-plan-existing-power-plants-regulatory-actions.html

[32] See https://www.georgetownclimate.org/articles/state-statements-following-the-supreme-court-s-decision-to-stay-the-clean-power-plan.html, https://appvoices.org/2016/02/18/va-clean-power-plan-approach-unchanged/, https://www.troutmanenergyreport.com/2016/04/maryland-governor-reauthorizes-act-with-40-percent-greenhouse-gas-reduction-goal/, and https://www.nytimes.com/2016/07/20/us/obama-clean-power-plan.html

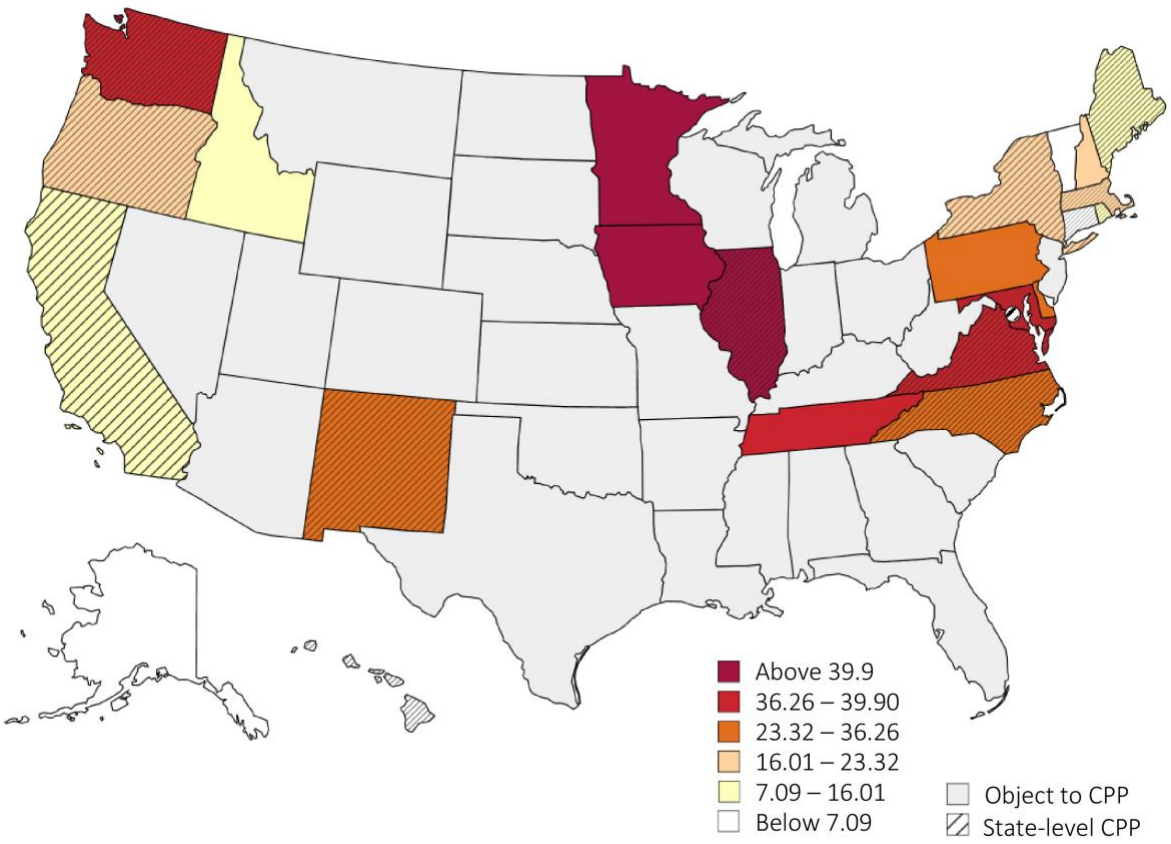


Figure A1. Status of the Clean Power Plan and State-level Clean Energy Policies

The map illustrates the states that objected to the 2015 Clean Power Plan (in grey) and the states that supported the Plan after the Supreme Court's stay on the Plan's implementation (in other colors). For the supporting states, a darker color indicates a higher CO2 pollution reduction goal. Stripes indicate the states that implement their own 100% Clean Energy legislation following the Supreme Court's stay on the CPP.

Appendix 2. LCV, environmental bills, and pro-environment positions

LCV collects the most important environmental bills voted in Congress since 1970. According to LCV, these bills represent "the consensus of experts from more than 20 respected environmental, environmental justice, and conservation organizations." The bills are related to the vital environmental issues of the year, such as air, water, energy, lands, climate change, spending for environmental programs, public health, wildlife conservation, etc.

Below are three examples of environmental bills and LCV's explanation for a pro-environment position.

1. 2018 House roll call vote 203, *eliminating clean water safeguards*, "no" vote is the pro-environment position. Explanation: Representative Jim Banks (R-IN) offered an amendment to H.R. 2, the Agriculture and Nutrition Act of 2018, also known as the Farm Bill, which would repeal the clean water safeguards established by the 2015 Clean Water Rule. This rule protects the waterways that feed into the drinking water of over 117 million people as well as the streams, headwaters, wetlands and other water bodies that serve as habitat for wildlife, reduce flooding risk, and naturally filter pollution. The Banks amendment would subvert the rulemaking process by disregarding public input, ignore the rule's strong scientific foundation, and return Clean Water Act jurisdiction to an inconsistent and uncertain regulatory scheme. Eliminating the Clean Water Rule would disproportionately impact low-income communities and communities of color and would jeopardize the clean water families, communities, and economies depend on.

2. 2016 Senate roll call vote 9, *clean energy funding*, "yes" vote is the pro-environment position. Explanation: Senator Brian Schatz (D-HI) offered an amendment to S. 2012, the Energy Policy Modernization Act of 2015, which would increase funding for the Advanced Research Projects Agency-Energy, an important Department of Energy research program intended to spur transformational breakthroughs in energy technologies. Additional funding for this program could help the United States lead in the clean energy transformation.

3. 2010 Senate roll call vote 187, *cutting oil subsidies*, "yes" vote is the pro-environment position. Explanation: The oil and gas industry receives billions of dollars of government support each year through loopholes in the tax code and royalty-free lease agreements. These subsidies dwarf the incentives that are currently available for renewable energy and energy efficiency and distort the market in favor of this mature industry that is a major source of global warming and other toxic pollutants. President Obama called for the elimination of many of these subsidies in his budgets for fiscal years 2010 and 2011 and agreed to eliminate these subsidies in a pledge made with other world leaders at a Group of 20 Summit in 2009. Congress, however, has not taken the steps necessary to end these subsidies.

In June, the Senate took up H.R. 4213, the American Workers, State, and Business Relief Act of 2010, which would extend unemployment benefits to long term out of work Americans for an additional four months. Senator Bernard Sanders (I-VT) offered an amendment to the bill to eliminate $35 billion in subsidies to the oil and gas industry, giveaways which were targeted for elimination in the President's budget; $25 billion of the savings would go to deficit reduction and $10 billion would be directed to the Energy Efficiency and Conservation Block Grant Program, a grant program that allows communities to invest in projects that reduce energy usage.

Appendix 3. MSCI's environmental rating

The following criteria are included in MSCI ESG's environmental score:

E-strengths: Beneficial products and services, pollution prevention, recycling, clean energy, property, plant and equipment, management system strengths, natural capitals (waste stress, land use and biodiversity, raw material sourcing), financing environmental impact, opportunities in green building, opportunities in renewable energy, electronic waste strengths, product carbon footprint, climate change vulnerability, and other strengths

E-concerns: Hazardous waste, regulatory problems, Ozone depleting chemicals, substantial emissions, agricultural chemicals, climate change concerns, negative impacts of products and services, land use and biodiversity concerns, non-carbon releases, supply chain management, water management, and other concerns

Appendix 4. Environmental grades and firm performance

The table presents the association between firm performance and E-score. The sample is from MSCI ESG database over 1995 – 2018. The dependent variables in column 1 through 4 are *Tobin's Q* (market value of assets over book value of assets), *Profitability* (net income scaled by total assets), *EBIT margin* (EBIT scaled by sales), and *Costs margin* (COGS scaled by sales), respectively. All values are reported at the end of an election cycle. Definitions of E-score are in Section 2. We include cycle and firm fixed effects. Standard errors are clustered at the firm level and reported in the parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	Tobin's Q	Profitability	EBIT margin	Costs margin
	1	2	3	4
E-score	-0.308***	-0.010*	-0.017*	0.025*
	(0.088)	(0.006)	(0.009)	(0.014)
Democratic leaning	-0.019	0.020***	0.019**	-0.001
	(0.067)	(0.006)	(0.010)	(0.030)
Firm size	-0.403***	-0.002	0.007	0.009
	(0.044)	(0.003)	(0.004)	(0.012)
Cash holdings	0.471**	0.016	-0.064**	0.051
	(0.238)	(0.022)	(0.031)	(0.047)
Leverage	-2.360***	-0.244***	-0.189***	0.122***
	(0.174)	(0.017)	(0.025)	(0.043)
R&D expenditures	2.250	-0.591***	-0.662***	-0.009
	(2.600)	(0.164)	(0.189)	(0.262)
Constant	5.858***	0.110***	0.138***	0.506***
	(0.414)	(0.029)	(0.041)	(0.114)
N	5,835	5,835	5,776	5,831
R^2	0.758	0.545	0.733	0.648
Cycle FE	YES	YES	YES	YES
Firm FE	YES	YES	YES	YES

Appendix 5. Close special elections 1996–2018

This table presents dates, candidates, seats, and outcomes of special Congressional elections won by a margin of less than 5 percent from 1996 to 2018. Victory margin is the percentage by which the candidate won (lost) the election: A positive (negative) margin indicates win (loss). To indicate parties, D refers to the Democratic Party; R refers to the Republican Party; and C refers to the Conservative Party. Data come from the Federal Election Commission.

Date	Name	State	District	Party	Victory Margin (%)
19960130	Ron Wyden	Oregon	Senate	D	1.6
19960130	Gordon Smith	Oregon	Senate	R	-1.6
19970513	Bill Redmond	New Mexico	3	R	2.96
19970513	Eric Serna	New Mexico	3	D	-2.96
19980623	Heather Wilson	New Mexico	1	R	4.96
19980623	Phillip Maloof	New Mexico	1	D	-4.96
19990529	David Vitter	Louisiana	1	R	1.49
19990529	David Treen	Louisiana	1	R	-1.49
20010619	Randy Forbes	Virginia	4	R	4.2
20010619	Louise Lucas	Virginia	4	D	-4.2
20030603	Randy Neugebauer	Texas	19	R	1.04
20030603	Mike Conaway	Texas	19	R	-1.04
20040601	Stephanie Herseth	South Dakota	0	D	1.15
20040601	Larry Diedrich	South Dakota	0	R	-1.15
20050802	Jean Schmidt	Ohio	2	R	3.27
20050802	Paul Hacket	Ohio	2	D	-3.27
20060606	Brian Bilbray	California	50	R	4.55
20060606	Francine Busby	California	50	D	-4.55
20070717	Paul Broun	Georgia	10	R	0.84
20070717	Jim Whitehead	Georgia	10	R	-0.84
20080503	Don Cazayoux	Louisiana	6	D	2.93
20080503	Woody Jenkins	Louisiana	6	R	-2.93
20090331	Scott Murphy	New York	20	D	0.45
20090331	Jim Tedisco	New York	20	R	-0.45
20091103	Bill Owens	New York	23	D	2.37
20091103	Douglas Hoffman	New York	23	C	-2.37
20100119	Scott Brown	Massachusetts	Senate	R	4.76
20100119	Martha Coakley	Massachusetts	Senate	D	-4.76
20110524	Kathy Hochul	New York	26	D	4.96
20110524	Jane Corwin	New York	26	R	-4.96
20140311	David Jolly	Florida	13	R	1.8
20140311	Alex Sink	Florida	13	D	-1.8
20170620	Karen Handel	Georgia	6	R	3.56
20170620	Jon Ossoff	Georgia	6	D	-3.56
20170620	Ralph Norman	South Carolina	5	R	3.1
20170620	Archie Parnell	South Carolina	5	D	-3.1
20171212	Doug Jones	Alabama	Senate	D	1.7
20171212	Roy Moore	Alabama	Senate	R	-1.7
20180313	Conor Lamb	Pennsylvania	18	D	0.4
20180313	Rick Saccone	Pennsylvania	18	R	-0.4
20180424	Debbie Lesko	Arizona	8	R	4.8
20180424	Hiral Tipirneni	Arizona	8	D	-4.8
20180807	Troy Balderson	Ohio	12	R	0.8
20180807	Danny O'Connor	Ohio	12	D	-0.8