Real Effects of Shareholder Proposals:

Diversification in the Context of Climate Change

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ABSTRACT

Extant literature on shareholder proposals has struggled to identify real effects. However, a vein of the diversification literature explains circumstances in which it can serve as a defense. Based on these two lines of literature, I contemplate and test diversification responses to shareholder proposals made in the context of climate change. I find that firms in receipt of climate-related proposals diversify more, mostly into related industries, which generally leads to wealth enhancements. I address endogeneity concerns in a variety of ways: a matching estimator, fixed effects and a placebo. Robustness tests confirm prior results and also expose a telling difference between sales and asset diversification. Climate-related proposals have a more pronounced effect on sales diversification than on asset diversification, suggesting that agents are less responsive to owner concerns. Overall, shareholder proposals can have the real effect of prompting firms to diversify, which has been the case in the context of climate change but diversification largely into related lines of business.

1.0 Introduction and Motivation

"The world's largest asset manager is in disagreement with the world's most famous investor."

> *BlackRock at Odds With Warren Buffett's Berkshire Hathaway Over Disclosures: Shareholder proposals highlight tensions between asset managers promoting ESG disclosures and executives who are pushing back, Wall Street Journal. May 6, 2021*

My research demonstrates how corporate policies have been impacted by shareholder proposals in the United States. As a low-cost form of activism (Ferri, 2012), the literature on shareholder proposals suggests that their effectiveness hinges on the context in which they are made (Carleton, Nelson and Weisbach (1998), Bizjak and Marquette (1998), Thomas and Cotter (2007), Ertimur, Ferri and Stubbens (2010)). As a recurring topic of interest at annual meetings since the 1994 proxy season, shareholders have raised concerns about the adverse impacts that climate change may have on firm fortunes. These shareholder concerns have been expressed across hundreds of industries for decades. Given the time depth and industry breadth, the context of climate change provides an excellent framework for studying the dynamics of shareholder-initiated proposals in the US. The literature also suggests that firms turn to diversification for relief against poor prospects (Weston and Mansinghka 1971; Melicher and Rush, 1974; Mason and Goudzwaard, 1976; Hopkins, 1991; Matsusaka, 2001) or as a means to cope with adversity (Beneish et al., 2008; Gormley and Matsa, 2011; Gopalan and Xie, 2011). Coupling these lines of literature, I conjecture that firms can reasonably be expected to turn to diversification as a defense, thus a real effect of climate-related proposals.

Aside from the literature's suggestion, certain firms appear to under attack, the just by looking at the increased frequency and intensity of shareholder proposals over time (see Figure 1). Recently, climate-related proposals have gained more traction and consensus among shareholders against management,[1] suggesting that firm behaviors may be defensive, seek alternative lines of business or somehow reposition their practices. I examine the extent to which diversification provides firms with a defense against the pressure that shareholder proposals apply for firms to address climate change, while considering the implications to performance.

My general findings are that firms in receipt of a shareholder proposals related to climate change do, in fact, diversify more and that this diversification takes place into related industries. Asset allocations and sales efforts shift but not into entirely new lines of business. This general finding withstands a full set of controls established by the literature also to influence diversification, as well as time and industry invariant factors. To address endogeneity concerns, I employ a matching estimator, fixed effects and a placebo test. When matched by size, industry and year, proposals related to climate change continued to influence diversification, which also survives fixed effects. When all other shareholder proposals (besides those related to climate change) are used as a placebo, the climate-related proposals demonstrate an impact on diversification multiples greater than the placebo.

With respect to performance, I find that diversification influenced by climate-proposals tends to enhance accounting and stock returns. In general, proposal-induced diversification has a positive impact on accounting performance. Although there is a negative relationship between accounting returns and proposal-influenced diversification into *unrelated* industries, a positive relationship exists between diversification into *related* lines of business and accounting returns. The latter form of diversification (related) dominates the former (unrelated) with respect to accounting and stock returns. Risk is largely unaffected.

[1] Shareholders voted against management in 2017 for the following firms: ExxonMobil (62.3%), Occidental Petroleum Corp (67%), Dominion (48%), Duke Energy (46%) and Southern Company (46%). (McWilliams (2017))

For robustness, I examine various periods of the sample, alternative proxies for shareholder pressure, a Poisson regression, changes in diversification as well as lags, restrict the sample to only firms that have received these climate change proposals and split the sample according board independence. Not only do my results hold, but these robustness test expose differences between asset and sales diversification. Asset allocations are at management's sole discretion. Sales result from marketing efforts and consumer preference. Asset diversification is less responsive to climate-related proposals than sales diversification, especially when the board of directors is less independent. While shareholder proposals related to climate change do have real effects, these effects are more acute when agents have less discretion.[2]

My contributions to the literature are threefold. First, while there are a few studies on shareholder proposals and climate change, I am unaware of any such research which discovers real effects such as diversification. While climate change has been addressed extensively in the economics literature contemplating the social cost of carbon (Kokoski and Smith (1987), Nordhaus (1990), Morgenstern (1991), Sohngen and Mendelsohn (1998), Stern (2006, 2008), Pindyck (2007, 2012), Daniel, Litterman and Wagner (2016)), most of the discussion in finance, with respect to climate change, involves information aggregation and disclosure and is still very much in the developmental stage of exploring correlations, as noted by Laura Starks in her Keynote address at the 2020 Financial Management Association annual meeting.

Next, shareholder proposals assist our understanding of shareholder activism, and a more general notion of persuasion over coercion. Shareholder proposals are an explicit expression of activism, as opposed to selling shares, taking control of a firm or taking it private. Despite their

[2] This paper is a condensed version of the second essay of my dissertation (Tindall, 2020)). In my first essay I contemplate Innovation as a real effect of climate-related proposals, using R&D and patents as proxies, which, like asset allocations, are management decisions. My evidence for Innovation is weaker than for Diversification. This finding corroborates my claim, here, that real effects are more prominent when agents have less discretion.

explicit statements, proposals have been difficult characterize. With respect to the proxy process and the market for corporate control, Manne (1965) is among the first to struggle with the purpose of proposals. Likewise, Pound (1988) at first finds inefficiencies that he later (1991) balances against shareholder rights. Karpoff et al (1996) continue the search only to find it without effect. Gillan and Starks (2007) are careful to differentiate between initial excitement and long-term improvement. Levit and Malenko (2011) theorize why activists can improve information aggregation when conflicts are exacerbated. Such conflict, Renneboog and Szilagyi (2011) explain, leads to shareholder proposals expressing “reputational pressure” on management. The current paper finds purpose in this form of shareholder activism to pressure corporate decision making.

Third, the diversification literature often paints this corporate behavior with distain (the diversification discount), until circumstances become more pressing, then, diversification can put up a good defense. Much of the diversification literature concerns its contribution to agency costs (Jensen and Murphy (1990), Jensen (1986), Shleifer and Vishny (1989), Amihud and Lev (1981)), resulting in an overall “discount.” Lang and Stulz (1994) establish an inverse relationship between diversification and Tobin’s Q. Scharfstein (1998) discovers a negative impact on value attributable to overinvestment and cross-subsidization that give rise to Scharfstein and Stein (2000) theorizing why “socialism” occurs within internal markets, which external markets would never tolerate, a misallocation that Rajan, Servaes and Zingales (2000) support. The diversification literate then calls into question the “discount” -- Graham, Lemmon and Wolf (2002) for non-diversified targets, Chevalier (2004) showing pre-merger patterns, Hyland and Diltz (2002) with economic significance, Campa and Kedia (2002) assigning selfselection problems that Villalonga (2004) shows to switch the discount to a premium, as an artifact of the Compustat Tapes which Hyland and Diltz (2002) point out.

However, a minority of the literature views diversification favorably, beginning with Penrose (1959) who discusses the ability of firms to leverage dynamic organizational skills across industries and continuing with Lucas (1978) attributing firm “bigness” to managerial talent. The favorable view of diversification comes into focus with Weston and Mansinghka (1971), observing a defense mechanism at work to assist industries with poor prospects. Melicher and Rush (1974) agree with the defense that diversification provides, which Hopkins (1991) develops into a formal hypothesis and also finds support. Later, Matsusaka (2001) derives a theoretical model to explain why diversification can provide net benefits in certain circumstances. Empirical support for the benefit is confirmed by Beneish et al. (2008) with tobacco firms, Gormley and Matsa (2011) with firms exposed to previously unknown carcinogens, and Gopalan and Xie (2011) with industries that become distressed unexpectedly. Based on my observations of increased frequency shareholder proposals to address climate concerns and by reading the proposals, themselves, I examine diversification as a defensive response to this shareholder pressure and contribute to the literature, accordingly.

My paper unfolds as follows. In order to appreciate the dynamics of proposal pressure as an in-house form of governance, Section 2.1 reviews the legal mechanics of shareholder proposals and recent guidance by the SEC, along with related literature to see what other contexts have found merit for finance questions. Equipped with context and an understanding of proposal mechanics, impacts on corporate behavior is suggested in the form of diversification, with the literature on it reviewed in section 2.2.

With expectations from the literature for increased diversification, a discussion of the data, the hand-collected sample of climate-related proposals and variable construction follows in section 3. General methodology is discussed in section 4, where results are documented and interpreted, along with tests to address endogeneity concerns. In section 5, I conduct robustness checks by employing an alternative database and different proxies of my variable of interest, as well as partitioning and narrowing the sample. Finally, I conclude in section 6 that shareholder proposals related to climate change have a unique effect on diversification that, in turn, have favorable impacts on performance while is largely unaffected risk.

2.0 Literature Review

As with all matters which come to a vote, shareholder proposals involve politics. However, corporate politics differ from democracy in that there is no majority rule. With shareholder proposals in the United States, "winning" 100% of the vote has no power to force the hand of management; it cannot tell the board what to do; there is no enforcement mechanism to enjoin the firm based on vote outcome. Rather, proposing shareholders are left to persuade other shareholders, the directors and management that their initiatives are in the best interests of the firm. The vote outcome is more of a reflection of pressure or temperature taken on investor sentiment for how seriously the board and management should consider some initiative sponsored by a shareholder. This dynamic does not occur by chance. Proposal politics unfold not only by construction and original intent of Title 17, §240.14a-8 of the Code of Federal Regulations, but also each year by the Division of Corporate Finance, as it weighs the merits of proposals which may overstep their precatory purpose. In other words, shareholder proposals cannot put owners in the position of management or otherwise bridge Berle-Means separation. To appreciate the proposal process, it helps to review their mechanical innerworkings as set forth by 14a-8 "shareholder proposals."

2.1 The Mechanics: Regulations, Press Releases and Interpretations from the SEC

To appreciate how shareholders raise concerns through the proposal process at annual meetings, I summarize the Code of Federal Regulation Title 17, §240.14a-8 (14a-8) "Shareholder proposals", as well as public statements by the Commission and Staff Legal Bulletins (SLB) provided by the Division of Corporate Finance (the Division).

Annual meetings afford formal opportunities for shareholders to voice their concerns, within limits. First, a shareholder must own at least $2,000 of market value or 1% of equity for at least one year prior to the date that a proposal is submitted, with an intention to hold onto the interest through the date of the annual meeting.[3] The proposal is limited to 500 words and must be submitted 120 days prior to the release of the proxy statement, or approximately a half year before the annual meeting. However, the spirit of 14a-8 is contained in the conditions which seek to prevent matters that are frivolous, conflict with law, negate board functions or which unduly inhibit management from conducting day-to-day business. Thirteen conditions guide shareholder proposals within limits and permit management to petition the Commission for exclusion when proposals overstep their advisory nature. The 7th condition provides management a great deal of latitude to petition the SEC for exclusion: *"If the proposal deals with a matter relating to the company's ordinary business operations..."* Not only is this condition grounds for excluding a shareholder proposal, but it would also violate Berle-Means separation. Agents are hired by owners to do a job and should be permitted to carry it out.

On a case-by-case basis, the SEC responds to firm requests with No Action Letters.[4] Staff recommends to the Commission either that no action be taken against a firm for excluding a

[3] Although these requirements changed on September 23, 2020, the above discussion applies to the proposals I examine: from 1994 to 2017. See SEC Press Release 220-2020 for the new requirements that will apply to proposals beginning January 1, 2022.

[4] For more information, see https://www.sec.gov/fast-answers/answersnoactionhtm.html.

proposal, or that the Commission should seek to enforce the shareholder's right to propose the matter at an annual meeting. Consequently, the intent or spirit of 14a-8 was not simply set in motion in 1942 with well wishes that shareholder resolutions unfold as intended. Rather, every year the SEC Staff balances the rightful roles of shareholders, management and the board. Further, the Staff periodically releases Staff Legal Bulletins (SLBs) to provide general guidance of the Staff's current stance or method of reasoning on certain matters. Recent SLBs which apply to shareholder proposals, with particular relevance to climate change, are summarized next.

SLB 14E was released in 2009 with discussion of "significant policy issues" that the Staff considers important enough to supersede board functions. Ordinarily, the Staff defers to the board to evaluate risk matters. However, "a proposal that focuses on the board's role in the oversight of a company's management of risk may transcend the day-to-day business matters of a company and raise policy issues so significant that it would be appropriate for a shareholder vote."[5] While SLB 14E stops short of listing those issues, Staff had previously qualified environmental issues as "significant" in SLB No. 14C during 2005.

To further clarify when the Staff might supersede the board, SLB 14I in 2017 looks for a "well-reasoned" analysis from the board based on (1) the proposal content and (2) the degree of micromanagement. In other words, if the board is not performing a careful analysis of a proposal, the Staff is inclined to deny requests to exclude the proposal. Thus, during the 2018 proxy season, Apple successfully excluded a proposal concerning greenhouse gas emissions on "ordinary business" grounds, while TJX and GM could not exclude similar proposals, the difference being "how [the] board of directors has analyzed this matter." (Stein, 2018). The

[5] https://www.sec.gov/interps/legal/cfslb14e.htm

Division issued SLB 14J in 2018 and referenced climate change, specifically, with respect to micromanagement as grounds for exclusion: "a proposal to generate a plan to reach net-zero greenhouse gas emissions by the year 2030, which sought to impose specific timeframes or methods for implementing complex policies, was excludable on the basis of micromanagement."[6] Proposals involving "intricate detail," "specific time-frames" and "complex policies,"[7] had previously served as grounds for exclusion. These grounds resurface as micromanagement in SLB 14J issued in 2018.

Into 2019, the SEC Roundtable[8] discussions pondered the merits and abilities of proposals to serve shareholder interests. Some of these discussions suggest that proposals serve an integral role for minority interests, while other comments relegate proposals to an antiquated process which squanders firm resources. Senator Schatz of Hawaii is concerned that the expanded use of micromanagement exclusions target climate change related proposals.[9] In 2020 (as noted above), the SEC amended shareholder proposal rules, either raising or refining the hurdles for inclusion. The proposal process continues to evolve, often with specific reference to climate change.

From the original provisions of Rule 14a-8 in 1942 through the amendment in 2020 to take effect in 2022, the SEC guides and seeks public comment on the use of shareholder proposals for governing ownership interests. While the subject matter of some proposals may be "so significant," the board continues to play a vital role in deciphering how significant the matter is to the firm. Shareholder proposals assist Berle-Means separation to find the appropriate distance between diffuse ownership and disciplined management.

[6] Apple Inc. (Dec. 5, 2016).
[7] Release No. 34-40018 (May 21, 1998).
[8] "Statement Announcing SEC Staff Roundtable on the Proxy Process," Chairman Jay Clayton: July 30, 2018.
[9] https://www.sec.gov/comments/4-725/4725-4635935-176320.pdf

2.2 Diversification Literature

Diversification provides firms with an option on which line(s) of business to pursue. Much of the diversification literature suggests that such an option is costly, that investors prefer firms to maintain their focus, to keep doing whatever it is they do best to maximize profits and minimize the risk of venturing into less familiar territory. However, in the face of adversity or, in extreme, a liquidation option, investors might favor diversification. As a defense against poor prospects or adversity, diversification can offer relief, according to a minority of the literature.

Since I am focused on the context of climate change as brought to management's attention by proposing shareholders, I am interested in diversification as a defense. While management may have been well-aware of the risks and opportunities that climate change presents prior to shareholder input, *that* these proposals make it onto the definitive proxy statement and the fact that management has opposed each and every one of them since 1994 provides a reasonable basis to suspect firms of taking defensive measures. My research question wonders whether firms diversify in response. More specifically, do firms respond to climate-related proposals (1) by diversifying their asset base when purchasing capital items in different industries, or (2) by targeting sales markets outside of those it had in the past? Do they diversify their assets or sales? The former is more of an explicit management decision: asset allocation is a deliberate choice often set by annual budgets. The latter is more of a firm being responsive to consumer demands: shifts in sales follow the customer who ultimately makes the purchase decision. While I have good reason to believe that firms in receipt of a climate-related proposals are defensive, I am keen on uncovering evidence to suggest that these proposals can compel firms to diversify, what the basis of diversification is (assets or sales) and whether it is dramatic diversification into unrelated lines of business or subtle shifts into more familiar territory.

I turn to the studies which find merit in diversification to determine if an adequate basis exists for the context that climate change presents. While testing the efficiency of conglomerates, Weston and Mansinghka (1971) notice instances of improved performance for certain industries experiencing difficulties. The authors term this defensive diversification. While poor prospects can burden during cyclical downturns, an outlook that is perpetually dismal might cause firms to pursue another line of business. Weston and Mansinghka (1971) notice that firms with below-average P/E ratios alter their asset base toward average P/E ratios in other industries. Although firms cannot attain superior performance by diversifying, they can preserve value by adapting their behavior, Weston and Mansinghka deduce. Melicher and Rush (1974) quickly confirm acquisition strategies that employ such a defense. Hopkins (1991) formalizes a "defensive diversification" hypothesis and finds support for it. Like any defense, the one in diversification that Weston and Mansinghka discover has its limits. A good defense is only a good defense; it cannot take offense and compel superior performance. These limits are confirmed by Mason and Goudzwaard (1976) who find no "new life" provided by diversification. The "discount" literature, that later evolves, does not reconcile well with observation, so Matsusaka (2001) offers a theoretical model to explain how organizational skills (as opposed to technical know-how) can transition away from poor prospects or adversity. Defensive diversification, in theory, is more of a search for a suitable match between management and favorable prospects, than it is a quest in and of itself. The defense must eventually rest and allow firms to refocus on growth opportunities, rather keep searching for alternatives that, at best, lead to preservation.

Even though the following studies do not reference "defensive diversification," the adversity they examine suggests firms use diversification as a defense. One of the more intuitive studies on the positive effects of diversification follows the tobacco industry's response to the 1990's wave of litigation over health concerns, which debunks a negative relationship between value and diversification established by Lang and Stulz (1994). Beneish et al. (2008) demonstrate the value created for tobacco firms that diversify geographically by transforming cash into less liquid, non-tobacco operating assets for agency concerns that Jensen (1986) also suspected of tobacco firms. Beneish et al. (2008) discover positive abnormal returns when diversifying acquisitions are announced, in order to avoid expropriation by impending liabilities. The length of time involved with the case of tobacco also lends itself to parallels with climate change: migratory transitions as opposed to opportunistic reactions. Gormley and Matsa (2011) examine diversifying acquisitions as response to the release of the Report on Carcinogens from the National Toxicology Program. Firms with increased exposure to carcinogen liabilities attempt to "grow" their way out of trouble by acquiring cash rich targets. An important insight from their conclusion suggests that agency concerns are set aside until firms can resume normal operations. Normal owner-agent conflict[10] becomes somewhat moot in the face of a more serious problem. Studying financial distress, Gopalan and Xie (2011) notice significant reductions in the diversification discount. By employing an unanticipated measure of industry distress,[11] the authors remark that conglomerates in trouble can grow in both expanding industries and those in decline, thus a bright side of internal capital markets. As shareholder proposals exert pressure to adapt firm practices to accommodate a societal shift to low carbon footprints, this strand of literature suggests that diversification can provide an effective defense.

[10] From the agency perspective, diversification enables the usual conflicts: from compensation (Jensen and Murphy, 1990) to empire-building (Jensen, 1986), from entrenchment and job security (Shleifer and Vishny, 1989) to management's non-diversifiable, human capital in the firm (Amihud and Lev, 1981).

[11] Developed by Opler and Titman (1994): Negative sales growth of the median firm in a single-segment industry with stock returns of -30%, where such a rapid drop is not anticipated by virtue of equity's forward-look.

To be convinced that diversification is spurred by shareholder proposals, it is critically important to understand the measures of diversifications that have been utilized by the literature. Although he developed a measure to capture industry concentration, Hirschman (1945) gauges each firm's relative weight in an industry according to sales and assets, a measure of concentration that Herfindahl (1950) adapts for his dissertation on the steel industry. While the Herfindahl-Hirschman index is most popularly known for its use by the antitrust division of the Department of Justice, it is also commonly used to measure firm diversification. Jacquemin and Berry (1979) consider predecessor metrics to quantify firm focus, then construct an entropy measure of diversification. The main advantage of entropy over other metrics is how it allows decomposition of related and unrelated diversification, which will be of interest when characterizing firm focus: total diversification, across (2-digit SIC) industry classifications or within them (4-digit SIC). Further, prior literature has established that relatedness can lessen the negative impacts associated with diversification (Berger and Ofek, 1995).

To determine whether diversifying decisions in my context enhance performance, I follow Krueger (2016) and turn to accounting and stock returns. Similar to Beneish et al (2008) in the case of tobacco, when shareholder proposals draw attention to climate risk, I expect diversifying firms to contradict the negative relationship established by Lang and Stulz (1994) between diversification and performance. Further, diversification can be accomplished in smaller, incremental shifts. As Brav et al. (2018) inform the debate on how shareholder activists influence firm policies, diversification can occur at the leading edge of firm practices, in their research and development divisions which expand or narrow firm boundaries (Coase, 1937). The authors find support for efficiency gains after activists intervene – R&D expenses are reduced and patent activity increases – with the strongest valuation improvements experienced by firms with more diversified innovation portfolios.

As mentioned, Weston and Mansinghka (1971) did not set out to establish diversification as a defense. It was only upon closer inspection that the authors noticed a way "…to avoid adverse effects on profitability from developments taking place in the firm's traditional product market area." (p. 928) Over a ten year period, the profitability of conglomerates improves from inferior to average. From this observation, the authors consider the state of the specific industries involved. Mason and Goudzwaard (1976) test for signs of "new life" provided by conglomerates, but find that randomly chosen portfolios perform better, limiting the extent of improvement through diversification. If fear of increased legal liabilities belies concern over climate-related proposals, the case of tobacco (Beneish et al, 2008) indicates that owners and agents may set aside differences against more threatening expropriation. Consequently, diversification may offer reprieve to firm fortunes, even if only temporary.

Overall, the diversification literature suggests that firms which lose focus do so at the expense of shareholders. However, there exist certain contexts in which diversification may provide a profitable option, particularly when faced with poor prospects or adversity. Climate change, as brought up at annual meetings by shareholder, is believed to be a relevant context to spur diversification.

3.0 Data and Methodology

My general methodology to assess the relationship between diversification and shareholder proposals begins with pair-wise correlations and ordinary least squares (OLS) regressions. The dependent variable for diversification is a logged average of either the Herfindahl or Entropy measure: the natural log of one plus a three-year, *forward* average, using either assets or sales as the basis. My main independent variable of interest is the natural log of one plus a three-year, *backward* average of a running total of proposals. If a relationship exists, the influence on *subsequent* firm diversification policies should depends on *prior* receipt of climate-related shareholder proposals.

In addition to the forward average of the dependent variable and the backward average of the independent variable of interest, there is a natural lag built into the proposal process, in that proposals are made known at annual meetings (generally between February and April), while assets and sales (upon which diversification is constructed) is reported at year end. The time distance and smoothing of forward and backward averages, along with the timing of firm decisions and shareholder initiations of resolutions, helps indicate that proposals influence diversification, instead of the reverse.

Once the general association between diversification and a running total of proposals is established, I add the control variables established by the literature to influence diversification, as well as year and industries indicators.

$$\overline{Diversification_{i,t,t+2}} = \alpha_t + \boldsymbol{\beta_t}\overline{Ln\ Running_{i,t,t-2}} + \beta_x Controls_{i,t} + year_t + industry_j + \varepsilon_{i,t} \quad (2)$$

where, *Ln Running* is the variable of interest and the control variables include the following: *Size* is the natural log of revenues, *Tobin's Q* is the difference between market and book equity plus assets scaled by assets, *Firm Age* is the natural log of the number of years a firm has been listed on Compustat, *Revenue Growth* is the percentage change in revenues over a year, *Stock Return* is a firm's annual change in stock price, and *Leverage* is the ratio of long-term and current portion of debt scaled by assets.

3.1 Data Sources

Fundamental accounting data and stock price information is taken from Compustat, both the North America Daily and Historical Segments. The data for shareholder proposals is obtained from Institutional Shareholder Services (ISS) and the SEC's Edgar database, assisted by SeekEdgar's Cloud Technology developed by Raj Srivastava.

The sample of climate-related shareholder proposals is gathered by conducting a search on SeekEdgar[12] using the term "climate change" and selecting DEF14A as the form type. This search returned 1,558 shareholder proposals from the beginning of 1994 through the end of 2017. As I am interested in the ability of shareholder proposals to capture owner-agent tensions and, in turn, affect corporate behavior, each DEF14A was reviewed to ensure that "climate change" appears directly in a proposal sponsored by a shareholder or in management's response to a proposal. I identify 689 such proposals which are contained in 590 DEF 14As, as some firms have several proposals per year. When matched with sufficient fundamental data, 430 firm-years remain for the Proposal sample from 1994 to 2017. In addition, ISS has a brief description of the proposals that it collects, from which I am able to gain some reassurance about my hand-collected sample of climate-related proposals. ISS indicates that there are 709 climate change proposals. Since Niagara Mohawk Power Corporation received the first shareholder proposal addressing climate change in 1994, 242 different firms have received similar proposals in 114 different industries.

3.2 Variable Construction

[12] Refer to https://www.seekedgar.co:8443/home.html for a complete description of the technology.

3.2.1 Proposal Variable (of interest)

My variable of interest represents the "pressure" from shareholder proposals related to climate change. In hopes of creating a proxy which captures the pressure that proposals exert on firm policies, I take a running total of the number of proposals that a firm received from 1994 to 2017, reasoning that this pressure builds up over time and does not simply vanish when such proposals no longer appear at subsequent annual meetings. Proposals are averaged over three years, from year t to year t-2, to smooth the pressure and reflect its precatory nature. *Ln Running* $_{t,\,t\text{-}2}$ is the natural log of one plus this backward average running total. Thus, pressure either can build over several years through the feedback loop demonstrated in Figure 1, or can release if shareholders no longer raise climate issues at subsequent annual meetings. Pressure, as proxied, neither materializes nor disappears immediately when there are gaps in the data. To accommodate the release of pressure, a zero is assigned in years when no climate proposals appear at an annual meeting. The pressure, then, can go to zero if there are no proposals for three years in a row. To distinguish between firms that have never received a proposal and firms whose shareholders have simply taken a break from proposing climate initiatives, the running total picks up where it last left off in the count, but averaging smooths the firm-year observation.

For example (Figure 2), Ford Motor Company received its first two climate proposals in 1998 and 1999, but then no proposal made it onto the ballot until 2003, after which there was at least one climate proposal (three in 2005) until 2008, one more in 2010 and another in 2017. To treat the 2017 observation as through Ford had never received any climate proposals would be as misleading and it would be to treat 2016 as through Ford were still feeling the same pressure that it did in 2008 (when the company had received multiple proposals for six years in a row). In all likelihood, during the 30 years that Bradley Gayton served on Ford's legal team (as corporate secretary, assistant and general counsel until 2020), he probably had not forgotten the mid-2000 wave of climate proposals when one resurfaced in 2017. That year the running total of Ford's climate proposal added one more to the 13 which had preceded it. However, the backward three-year average considers the two preceding years which saw no proposals, so that pressure, as proxied, is enabled to build back up quickly but not immediately. Since I am interested in the effect on subsequent diversification policies, such pressure captures shifts instead of shocks.

I also use alternative measures for the pressure that proposals exert on firm policies as robustness checks: (1) one plus the logged number of proposals that a firm receives in a single year, *Ln Proposals (per year)*, and (2) the percentage of votes among all shareholders that a climate-proposal receives at the annual meeting, *Vote For Percentage*. The proposal literature largely focuses on the percent support that a proposal receives. However, the same firm in the same year can receive wildly divergent levels of support for the same type of proposal, according to ISS. For example, Exxon received three climate-related proposals in 2016 which ranged in support from 5.6% to 38.1%, thus making identification difficult.

As shown in Table 1B "Summary statistics for Shareholder Proposal Sample," during the 430 firm-years, "climate change" has appeared in 6 shareholder proposals in a single year and has gather as many as 46 in a running total of proposals from 1994 to 2017. Average support for these proposals (not reported) ranges from 7% in 1999 to 33% in 2017 (during which individual proposals ranged from 1% to 67% support).

3.2.2 Diversification Variables (dependent)

For diversification, I follow Jacquemin and Berry (1979) who adapt a Herfindahl measure and introduce their entropy measure. The Herfindahl measures are calculated at the 4-digit (*i*, industries) and 2-digit (*s*, segments) SIC levels and proxy concentration of firm assets (sales) at each SIC level as a percent of total assets (sales). One minus the sum of the squared percentage provides an idea of how focused a firm is, where the closer to one a firm is the more diversified are its assets (sales).

$$H_{SIC4(2)} = (1 - \sum_{i(s)=1}^{n} P_{i(s)}\, P_{i(s)})$$

The Herfindahl is a general indication of total diversification at a certain SIC level. The main advantage of Entropy over Herfindahl is how it allows decomposition of related and unrelated diversification. *Total* Entropy assess all classifications of assets (sales) among any differences in 4-digit SIC codes. Where such differences occur provides insight on how dramatic the difference is. If a firm's assets (sales) are different at the 2-digit SIC level or above, the diversification is unrelated: entirely different industries or *Across* Entropy. If a firm's assets (sales) are different below the 2-digit classification, the diversification is related: lines of business that the firm is familiar with or *Within* Entropy. By log-transforming these measures, Jacquemin and Berry (1979) allow for decomposition of *Entropy Total* (4-digit) by subtracting *Entropy Across* (2-digit) from it to estimate *Entropy Within* the 2-digit level. If firms diversify when presented with a climate-related proposal, this decomposition should allow me to assess how drastic shifts in asset allocations or sales efforts are. As presented by Jacquemin and Berry (1979), *Total Entropy* is constructed as:

$$E_T = \sum_{i=1}^{n} P_i \, ln\, {}^{1}\!/_{P_i}$$

Where *P* is the share of a firm's assets (sales) in each industry, *i*, at the 4-digit level. Similarly, *Entropy Across* each firm's assets (sales) occurs at the 2-digit level and the sum of the shares, *P*, in each segment, *s*, is multiplied by the inverse log of that share:

$$E_A = \sum_{i=1}^{n} P_s \, ln\, {}^{1}\!/_{P_s}$$

Entropy Within is the difference between the above two measures of entropy.

$$E_W = E_T - E_A$$

The diversification proxies are averaged from year t to year t+2, as employed in other corporate finance settings for dependent variables (Cassell et al., 2012; Bhandari and Javakhadze, 2017).

3.2.3 Control Variables

I follow a vast literature for control variables with well-documented effects on diversification. The controls for my main regressions and subsequent analyses include: Size, Tobin's Q, Firm Age, Revenue Growth, Stock Returns, and Leverage.

As has been discovered in prior literature, Size has a powerful impact on diversification. Large firms tend to be more diversified. In fact, Lang and Stulz (1994) allow that "diversification [could] simply proxy for size." (p. 1254) I decide on the natural log of revenues as my proxy for size, to avoid any mechanical correlations which may result from other variables being scaled by assets. I follow Perfect and Wiles (1994) and Baker, Stein and Wurgler (2003) for my measurement of Tobin's Q: the difference between market value and book value of equity plus total assets all divided by total assets. Firm Age is taken from a firm's listing on Compustat. Revenues Growth is the percentage change of a firm's annual revenues. Stock Returns are the annual change in a firm's stock price. Leverage is the ratio of long-term debt and its short-term portion to total assets.

The control variables for stock returns (in the performance regressions) follow Bhandari and Javakhadze (2017). Size is constructed as the natural log of the market value of assets: the market value of equity plus the book value of total liabilities. Market-to-Book is the ratio of the market value of equity to the book value of equity. Leverage is the same as above: the ratio of long-term debt and its short-term portion to total assets. Momentum is the prior 24 months of compounded stock returns.

3.2.4 Performance Measures

As a focused way to test the strength of "voice" and ability of shareholders to impact their investments through proposals, I construct accounting and stock returns over a three-year period. Accounting performance includes returns on assets and investment, as well as asset turnover. Return on assets (*ROA*) is calculated as net income divided by beginning of period assets. Return on investment (*ROI*) is calculated as earnings before interest, taxes, depreciation and amortization divided by beginning invested capital. Asset turnover (*TAT*) is calculated as total revenues divided by beginning total assets. Stock returns are compounded monthly beginning one year from the current fiscal year end and ending three years hence for a three-year buy-and-hold return (*BH Return*). To adjust for risk, the monthly factors on Ken French's website are employed to determine Jensen's alpha (*Jensens*) and the Carhart four-factor alpha (*FF-Mom*). Risk is constructed as the standard deviations of accounting (ROA and ROI) and stock returns (BH Return).

3.2.5 Descriptive Statistics and Correlations

As the basis (sales or assets) and level (SIC two- or four-digit level) are largely empirical questions, I consider five different diversification measures and their relations with key variables: Herfindahl at the 4-digit and 2-digit levels, and Entropy Total, Across and Within. The summary statistics are reported in Table 1A.

The pairwise correlations (Table 1B) show that *Ln Running* has a positive correlation with all measures of diversification that are statistically significant at the 1% level but economically weak (the greatest correlation is 0.057 with Total Entropy Sales). *Ln Running* also has a significantly positive correlation with Size and Age that is stronger than those with the diversification proxies. Other correlations confirm prior literature: positive between diversification and size, age and leverage, negative between diversification and Tobin's Q, stock returns and revenue growth.

Table 1C provides a two-sample t-test of means with equal variance, which enables a formal test of differences between the average Compustat firm and the average firm which receives a climate-proposals. In comparison to firms that received a proposal related to climate change, the average firm is less diversified across all measures (Herfindahl and Entropy). Relative to the average treated firm, the average Compustat firm is significantly smaller in size and younger in age but with greater revenue growth and stock returns. The control and treated firms are similar in Tobin's Q, leverage and market-to-book.

4.0 Results

4.1 Main Diversification OLS Regressions

Tables 2A and 2B explore which diversification measures matter beyond correlations. Motivated by the literature, I expect firms that receive shareholder proposals related to climate change to turn to diversification as a defense. The level (SIC 4-digit or 2-digit), the measure (Herfindahl or Entropy) and base (Assets or Sales) are largely empirical questions that Tables 2A and 2B begins to answer. Columns 3 and 4 of Table 2A show that the Herfindahl measures for both assets and sales at the two-digit level are significantly, negatively related to *Ln Running* when a full set of control variables, time and industry (4-digit SIC) invariant factors enter the regressions. Standard errors are clustered by firm. My interpretation of these results is that, overall, firms diversifying less at higher industry classifications, contrary to my expectations. If this general indication holds, does this high-level diversification take place across or within the

2-digit level? Is it related or unrelated diversification? This is precisely the decomposition that Jacquemin and Berry (1979) allow with their Entropy measures.

Table 2B entertains the same empirical exploration of all Entropy measures. Here, we see that a highly significant, negative effect of *Entropy Across* conflicts with highly significant, positive effect of *Entropy Within*, leaving *Entropy Total* largely unaffected. As firms accumulate shareholder proposals related to climate change, the they diversify less at higher industry classifications but more at lower industry classifications, both for sales and assets. On average, a 10% increase in proposal "pressure," proxied by the logged average running total, would decrease the average *Entropy Across Sales* measure by 0.003 and would increase *Entropy Within Sales* by 0.006. In effect, climate-related proposals exert twice as much positive influence on related diversification (Within) than they do negative influence on unrelated diversification (Across).

Overall, I find some interesting associations for my main regressions. The broad indication of the Herfindahl measure would suggest less diversification, but the decomposition (provided by the Entropy measures) reveals that firms are diversifying more into familiar lines of business but less into unfamiliar industries, where the former effect is greater than the latter. These findings corroborate my expectation that diversification can serve as a defense, with insight that it is related diversification.

4.2 Endogeneity Concerns

In order to assist with the identification of a unique impact that proposals related to climate change have on diversification, I employ a matching estimator and fixed effects.

Following Krueger (2016), firms are matched based on size, industry and year, using the Coarsened Exact Matching (CEM) estimator to address endogeneity, as introduced by Blackwell, Iacus, King and Porro (2009). The CEM estimator has been used other corporate finance settings (Balsmeier, Fleming and Manso (2017). Once matched, the characteristics are tested (Rubin, 2001) to ensure a good match, as shown in Table 3, where the variance ratio of treated to control is 1.04 for Size, which is well within the relevant range of 0.79 to 1.26. Table 3A reports the results for assets as the base and 3B reports the results for sales as the base for the Herfindahl and Entropy measures.

Table 3A (assets) are similar to previous regressions, except the effect on *Entropy Across* which becomes ambiguously negative, while *Entropy Total* gains a high level of significance and remains positive once firms are match. Table 3B (sales) displays opposing directions of *Ln Running* on diversification under the Herfindahl measures, both of which are highly significant: negative at the SIC two-digit level and positive at the four-digit level. This would suggest that firms feeling the "pressure" of climate-related proposals diversify less at higher industry classifications but more at lower classifications. The Entropy measures confirm this suggestion. When matched, the effect of *Ln Running* is no longer ambivalent with respect to *Entropy Total* (using sales), as it was in the main regressions of Table 2B. When matched, the dominant impact of increased *Entropy Within* over the decline in *Entropy Across* is reflected in the increase in *Entropy Total*, all of which are significant at the 1% level or better. When matched by size, year and industry, firms diversify into related lines of business but become less diversified in unrelated industries. With the CEM estimator, I am able to disentangle some of the mixed indications from prior regressions. Overall, firms that accumulate more proposals related to climate change diversifying more, which takes place within the two-digit classification.

Table 4 further addresses endogeneity concerns. The two-way fixed effects model considers firm- and year-invariant confounders. The results from prior regressions are reinforced by including fixed effects. The evidence in Table 4 is strongest for *Entropy Within Sales*, as shown by the positive coefficient that is significant at the 5% level (column 3) and roughly three times the magnitude of the coefficient as *Entropy Across Sales* (column 2). The asset bases for the entropy measures display a similar pattern but with increased significance for *Across* and diminished significance for *Within*. Unobserved heterogeneity is less likely to be driving prior results, allaying concerns of omitted variable bias. Firms in receipt of climate-related proposals diversify more into related industries and less into unrelated segments, even once we control for unobserved difference that are time invariant across firms.

4.3 Shareholder Proposals, Diversification and Firm Performance

To determine the impact on firm performance spurred by proposal-influenced firm behaviors, I consider returns and risk from accounting and stock perspectives. The CEM estimator is used to match firms based on size, industry and year. I take the fitted estimates of diversification from regression (4) (with controls and time and industry dummies) and use them in the following regression:

$$\overline{Accounting\ Performance}_{i,t+1,t+3} = \alpha_t + \boldsymbol{\beta_1} \widehat{Diversification}_{i,t} + \sum Accounting\ Controls_{i,t} + year_t + industry_j + \varepsilon_t \quad (7)$$

As described in section 3.2.4, accounting performance is proxied by return on assets (ROA), return on investment (ROI) and total asset turnover (TAT), each averaged over a three-year period starting at t+1 and continuing through t+3.

Similarly, stock performance is estimated based on $\widehat{diversification}$ predicted by regressing each proxy against *Ln Running*, a set of controls for stock returns, time and industry invariant factors, then utilized in the following regression:

$$\overline{Stock\ Performance}_{i,t+1,t+3} = \alpha_t + \boldsymbol{\beta_1} \widehat{Diversification}_{i,t} + \sum Stock\ Controls_{i,t} + year_t + industry_j + \varepsilon_t \quad (8)$$

Stock Performance includes buy-and-hold returns for three-year periods on unadjusted stock returns and risk adjusted returns, using Jensen's alpha and the Carhart four-factor alpha. Stock returns are compounded monthly beginning a year from current year and ending three years hence for a three-year buy-and-hold return. To adjust for risk, the monthly factors on Ken French's website are employed to determine Jensen's alpha and the Carhart four-factor alpha. The control variables for stock returns follow Bhandari and Javakhadze (2017). Size is the market value of all assets. Market-to-Book is the ratio of the market value of equity to the book value of equity. Leverage is the ratio of long-term debt and its short-term portion to total assets. Momentum is the prior 24 months of compounded stock returns. Indicator variables are added to the regressions for industry (four-digit SIC) and year.

Table 5A reports the impact on accounting performance of diversification predicted (or fitted) by *Ln Running*. *Fitted Total* and *Fitted Within* both have significant (5% level), positive impacts on ROA, and marginally significant (10% level), negative impacts on TAT. *Fitted Across* has the opposite effect on accounting performance: negative on ROA and positive on TAT. Table 5B reports the impact on stock returns of proposal-influenced diversification. Stock performance is enhanced by *Entropy Total* and *Within* influenced by *Ln Running*, but stock performance suffers in the presence of *Fitted Across*. Table 5C demonstrates that there is no statistically significant impact that fitted diversification has on the variability of accounting and stock returns. This agrees with the literature which finds that diversification *per se* is not a profitable strategy (Chang and Thomas, 1989) but can lead to positive outcomes in some circumstances (Beneish et al, 2008; Gormley and Matsa, 2011). Firm performance is enhanced by diversifying policies prompted by shareholder proposals, when that diversification occurs in related lines of business. Diversification appears to be a good defense

5.0 Robustness

5.1 Placebo and ISS sample

While my hand-collected sample may add to the originality in the evaluation of shareholder proposals, it also opens the possibility for error that the data has not been vetted by a professional data-manger. To address this possibility, I rerun my main regressions on diversification using the relevant "Item Code" from ISS which relates to climate proposals. In addition, I also compare firms in receipt of climate-related proposals, according to ISS, to firms in receipt of any other type of shareholder proposals (or "non-climate-related" proposals), as a placebo test. Afterall, proposal-receiving firms may be more prone to diversify. In other words, there may be nothing special about firms which receive climate-related proposals. That a firm receives any proposal, climate or otherwise, may be driving the results.

The results for diversification appear in table 6. The results from this placebo test using an alternative database confirm prior regressions. For diversification, the coefficients on climate-related proposals are two to three times larger than for non-climate-related proposals, both of which are significant at conventional levels. Thus, my results are robust along both dimensions: an alternative data source (ISS) and by comparison to a placebo.

5.2 Time Blocks and Traction

Another way to proxy shareholder "pressure" through proposals is use the number of proposals per year, instead of a running total of proposals. As Figure 2 demonstrates and a recent Wall Street Journal article confirmed,[13] a greater frequency of these proposals over time has occurred. Climate-related proposals have gained traction recently. Quite possibly, they have become a "thing."[14] To test the effect of proposal intensity, I examine four general trends in Figure 2: fairly flat from 1994 to 2004, incline from 2005 to 2008, slight decline from 2010 to 2013 and dramatic increase from 2014 to 2017. The more recent increase in proposal pressure should have a noticeable impact on diversification, if firms turn to it in defense. The coefficients in the 2014-2017 time block should be larger than in prior sub-samples.

Table 7 reports the results from regressions of diversification against *Ln Proposals*, the natural log one plus the number of climate-related proposals in a single year for a firm, a full set of controls with time and industry invariant factors. To enhance presentation and conserve space, only the coefficients on the variable of interest, *Ln Proposals*, are reported for each of the diversification dependent variables. Interesting patterns unfold.

With assets used as the basis for calculating the Entropy measure, the coefficients of *Ln Proposals* against *Across* declines over time, loses significance and even becomes positive with marginal significance. As proposal pressure becomes more intense, the pattern of these coefficients suggest that firms may be turning to diversification in unrelated segments. For *Total* and *Within* diversification, nearly all of the significance occurs in the most recent time block (2014-2017), and the positive coefficient increases by almost 40% for *Ln Proposals* against *Entropy Within* between 2010-2013 and 2014-2017.

[13] Rubin, G. (2019) "Show Us Your Climate Risks, Investors Tell Companies." "Companies are expected to face a record of 75 or more climate-related shareholder proposals at coming annual meetings." Wall Street Journal. https://www.wsj.com/articles/show-us-your-climate-risks-investors-tell-companies-11551349800 Feb. 28, 2019 5:30 a.m. ET

[14] Posner, C. (2017) "Are Shareholder Proposals on Climate Change Becoming a Thing?" Harvard Law School Forum on Corporate Governance. Posted June 21, 2017 https://corpgov.law.harvard.edu/2017/06/21/are-shareholder-proposals-on-climate-change-becoming-a-thing/

When a firm's sales are used as a basis for the Entropy measure, an entirely different pattern emerges. *Ln Proposals* against *Total* is not significant during any of the time blocks, but against *Across* the greatest effect significant at the 5% level occurs from 2005 onward and the coefficients diminish in magnitude over the time blocks. *Ln Proposals* against *Within* is significant at the 5% level from 2005 onward, and the positive coefficients also diminish.

Like any investment, shareholder proposals need to gain traction over time to have an impact. Although the first time-block (1994-2004) is twice as long as the others, no significant effect on diversification occurs. Interestingly, proposal influence on diversification emerges for sales before assets. Sales are largely the result of consumer preference. Asset allocations, on the other hand, are the deliberate efforts of management. If shareholder proposals are a means of ameliorating agency conflicts, as Karpoff et al (1996) suggest, the results of this time block analysis indicate that agents have only recently taken measures to diversify assets, despite the prior responsiveness of sales branching into different lines of business.

5.3 Vote for Climate Proposals

Yet another way to proxy shareholder "pressure" is to use the percent of votes at the annual meetings in favor of a climate-related proposal, also collected by ISS. Similar to the increasing number of proposals that a firm receives in a year, the vote outcome in support of these proposals also has increased over time on average. Table 8 reports the OLS regression results for both sales and assets used as a basis for calculating the three measures of Entropy, against *Vote For Percentage*, the percentage of the vote that a climate proposal receives at an annual meeting. The evidence from this alternative measure of proposal "pressure" reinforces prior regressions: a stronger positive on *Within* than on *Across* with *Total* somewhat ambivalent.

5.4 Poisson

As discussed above, some firms receive a single proposal over the entire period, while other firms receive up to five proposals per year. To gauge the impact that receiving multiple proposals in a single year has, I run Poisson regressions on the Entropy measures. The results are displayed in Table 9. A general pattern emerges from one to three proposals per year:[15] coefficient magnitudes increase. As proposal "pressure" increases, firms become more diversified.

5.5 Changes and Lagged Changes

For changes in diversification, I take the first difference in three-year moving averages of the Entropy measures (Total, Across and Within) for both bases (Sales and Assets) in table 10 and regress them according to the same specifications in table 2B. I discover a similar pattern of sign, but only *Ln Running* against *Entropy Total* and *Within* are significant. When considering first-differenced changes, *Entropy Across* is no longer distinguishable from zero.

Although management becomes aware of climate proposals almost a half-year before they are voted upon, proposals may take more time to affect diversification policies. Additionally, by constructing forward averages for diversification and backward averages of running total proposals, the identification of the proposal effect on subsequent diversification is enhanced. To further address endogenous concerns of reverse causality, I also lag all independent variables. The results in table 11A (one lag) and 11B (two lags) are consistent with prior regressions. The changes in diversification (*Entropy Total* and *Within*) respond positively to *Ln Running* lagged one and two years. The effect is strongest when assets are used as a basis for the Entropy measures, lending credence to an interpretation that these climate-related

[15] Only five firms receive four or more proposals in a year.

proposals make a lasting impression on management decisions to allocate assets several years hence.

5.5 Proposal Only Sample

As tested with the placebo above, there may be something “special” about firms that receive shareholder proposals (of any type) which is difficult to identify. Further, firms that receive proposals related to climate change may be “especially special.” To allow for such a special quality to be driving results, the sample is limited to only firms that have ever received at least one of these climate proposals. Do these firms that have been subject to climate proposals alter their diversification policies?

The results of Table 12 suggest that only diversification of firm sales is affected by *Ln Running*, where magnitude and significance is a strong positive for *Entropy Within*, which also holds when fixed effects control for unobserved, time invariant factors across firms (model 7). Among only firms who have ever received a proposal related to climate change, there does not appear to be any evidence of deliberate decisions by management to allocate assets into different lines of business or industries. However, sales diversification – more a reflection consumer preference – increase significantly into familiar lines of business in response to climate related proposals.

5.6 Board Independence

Given the discussion of Staff Legal Bulletins (SLB) in section 2.1 above, the SEC has repeatedly contemplated the role of the board of directors when providing guidance on grounds for excluding proposals from annual meetings. Management seeks to exclude a non-trivial portion of proposals every year: 40% on average with the SEC granting permission most (72%) of the time, according to Soltes et al (2017). In 2009, SLB 14E indicated the SEC’s inclination to supersede the board's role for significant policy matters. In 2017, SLB 14I suggested that boards must provide well-reasoned analyses to support management petitions for No-Action. In essence, the SEC reminded the board to do its job as objective liaison between owner and agent. Absent some evidence of a properly functioning board, the SEC would tend to side with owners and allow their proposals to be heard at annual meetings. Board Independence is a well-established proxy for whose interest a board serves. Hoechle et al. (2012) explore the effect of board independence on diversification policies and find that the "discount" lessens in the presence of independence and other forms of stronger governance.

Institutional Shareholder Services (ISS) provides a measure of independence for board members, defined as "no significant connections with the firm." I take the number of independent board members as a percentage of the entire board and distinguish firms as Less or More Independent, based on being below or above average independence.[16]

Tables 13 A and B report the results of using Board Independence to distinguish firms and examine their differences in diversification policies when also in receipt of a climate-related proposal. When assets are used as the basis for constructing the entropy measure (Table 13A), more independent boards are associated with more Total (model 2) and Within Entropy (model 6), whereas less independent boards have no meaningful relationship to these two measures of entropy (models 1 and 5). However, less independent boards do have a meaningful impact on Across Entropy (model 3). When Board Independence is added as a control variable (in models 7-9), only Within Entropy is significantly affected by climate proposals and continue to show a positive influence on related diversification.

[16] The average board is 73% independent.

When sales are used as the basis for constructing the entropy measure (Table 13B), more independent boards are associated with more Total (model 2) and Within Entropy (model 6), but so are less independent boards (model 5). In fact, the coefficient on *Ln Running* in model 5 (less independent) is greater than that coefficient in model 6 (more independent). However, less independent boards continue to have a more meaningful impact on Across Entropy (model 3): a stronger negative. When Board Independence is added as a control variable (in models 7-9), all Entropy measures are significantly affected by climate proposals, but Within Entropy continues to display the more dominant positive influence. Taken together, comparing diversification policies on assets and sales, more independent boards are more important to asset diversification than to sales diversification. The main takeaway from this robustness test is not whether another form of governance (board independence) is a complement or substitute to the governance role of proposals. Rather, this test reinforces that asset allocation (a deliberate choice by management) becomes more diversified when the board of directors is more objective. By contrast, diversification of sales (ultimately decided by consumers) is not as clearly influenced by board independence. When agents are given complete discretion (over assets) and operate with less oversight (from directors), diversification policies are largely ambivalent. Quite possibly, agents do not need to turn to diversification as a defense against climate proposals, as more sympathetic boards will defend management. Marketing efforts and consumer purchases, however, are more ambivalent to board independence; sales diversification expands whether boards are less or more independent, when firms receive climate-related proposals.

My results are robust to alternative specifications. The sign and size of the coefficients are similar whether I use my hand-collected sample or one based on information provided by

ISS. My sample was collected on a simple, straight-forward basis: the appearance of "climate change" directly in a proposal sponsored by a shareholder. ISS has Item Codes and a brief description of the resolution, making it difficult to determine if all climate-related proposals are included in the sample and ones not specifically concerned with climate change are excluded. Regardless, ISS allows me to compare proposals that are related to climate change with those that are not. The placebo comparison provides support for the conjecture that the content of the proposal (climate change) is responsible for the increase in diversification, and not the proposal process itself. When considering the intensity in a single year of climate change proposals, firms diversify less into unfamiliar territory but more into related industries. When considering changes in diversification, firms expand into existing, related lines of business. When given more time to respond by lagging the independent variables, the effect on related diversification holds. Dissecting the sample over time and limiting it to only firms that receive climate-related proposals confirms the robustness of prior results. Splitting the samples based on board independence confirms not only the sign and size of prior regressions, but also the emphasis on sales diversification over diversified asset allocations. Upon closer inspection, diversification policies are more responsive to climate proposals when sales are used as a basis for constructing the Entropy measures, rather than decision about assets allocation that managers make.

6.0 Conclusion

The literature suggests that diversification in and of itself is not a profitable endeavor. Firm value is better served by improving focus, not branching into other lines of business. As a response to poor prospects or adversity, however, diversification can provide relief. In the context of climate change, diversification offers an alternative to business as usual. Increasingly, with more frequency, high shareholder support and across more industries, shareholders have expressed concern at annual meetings over firm practices staying the course on their climate policies. Diversification is a response to shareholder demands that the literature suggests.

I find that firms are responsive to shareholder pressure exerted through their proposals and that diversification is one such response. Curiously, though, firm response is more prominent on the leading edge of firm activity where it interacts with the customer, with sales, than it is on the back end of firm investment in assets. Given that Rule 14a-8 was designed to provide shareholders with a low-cost means of expressing concerns to management, and given that the SEC actively maintains Berle-Means distance, any statement about shareholder proposals forcing change in corporate behavior may defy their very construction. Nonetheless, causality tests can strengthen claims that shareholder proposals exert a unique influence on diversification policies, properly attributable to the resolutions sponsored. I am assured by the consistent direction of results from a matching estimator, fixed effects and a placebo. Further reassurance is gained through alternative proxies for proposal pressure, the changes in diversification and lagging proposal influence, as well as dissecting the sample into time blocks, limiting it to only firms that have received climate proposals and splitting the sample based on board independence. In response to shareholder proposals referencing climate change, firms diversify more into related lines of business, which assists accounting and stock returns while leaving risk largely unaffected.

In a narrow decision, the SEC recently voted 3-2 in favor of raising the thresholds for resubmitting shareholder proposals in subsequent years: from 3-6-10% to 5-15-25%. Further, ownership thresholds were also raised: from $2,000 for one year to $2,000 for three years, $15,000 for two years or $25,000 for one year. These changes will not become effective until 2022. Proponents of the change in proposal rules foresee conserved firm resources, so that they will not be exploited by “gadflies” at annual meetings. Those opposed to the change fear that the democracy of corporate voice will be silenced. Raising the threshold for resubmission to 25% by the third year may have eliminated climate change discussions at annual meeting prematurely, as it took over twenty years for average support of these proposals to cross that threshold. Although meant mostly as a robustness test, the analysis of time blocks provides insight on how long it takes for collective opinion to form. My research suggests that climate-related proposals were statistically meaningless for the first ten years, at least with respect to diversification. Further, the analysis of board independence also suggests that the SEC was correct to question the governance role of the board. Firms with more independent boards diversify more. The effect of shareholder proposals is more real in the presence of stronger governance.

Given enough time and “a proper subject for action,” shareholders with a $2,000 investment can potentially affect billions in asset allocations and sales efforts. In the context of climate change, shareholder voice at annual meetings takes a while to be heard, but once voice applies enough pressure and finds consensus, it can have real effects.

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Tables

Description of Variables and Sources

Variable	Description	Source
<u>Diversification</u>		
Herfindahl: Herf4Assets $_{t, t+2}$ Herf4Sales $_{t, t+2}$ Herf2Assets $_{t, t+2}$ Herf2Sales $_{t, t+2}$	Calculated as one minus the sum of the percent assets (sales) of each segment, s, defined at the 4-digit (2-digit) level: $H_{SIC} = (1 - \sum_{s=1}^{n} P_s\, P_s)$. Three-year forward moving average, from t to t+2.	Jacquemin and Berry (1979)
Total Entropy: Entropy Total Assets $_{t, t+2}$ Entropy Total Sales $_{t, t+2}$	Calculated as the sum of the shares of assets (sales) for each industry, i, defined at the 4-digit SIC level, that a firm operates in times the log inverse of that share: $E_T = \sum_{i=1}^{n} P_i \, ln \, {}^{1}/_{P_i}$ Three-year forward moving average, from t to t+2.	Jacquemin and Berry (1979)
Entropy Across: Entropy Across Assets $_{t, t+2}$ Entropy Across Sales $_{t, t+2}$	Calculated as the sum of the shares of assets (sales) for each segment, s, defined at the 2-digit SIC level, that a firm operates in times the log inverse of that share: $E_A = \sum_{i=1}^{n} P_s \, ln \, {}^{1}/_{P_s}$ Three-year forward moving average, from t to t+2.	Jacquemin and Berry (1979)
Entropy Within: Entropy Within Assets $_{t, t+2}$ Entropy Within Sales $_{t, t+2}$	The difference between Total Entropy and Entropy Across. Three-year forward moving average, from t to t+2.	Jacquemin and Berry (1979)
<u>Climate-Related Proposals</u>		
Ln Running $_{t, t-2}$	The natural log of one plus a three-year, backward moving average of a running total of proposals in which the term “climate change” appears at least once in a shareholder proposal, from t to t-2.	Hand collected from SEC Edgar and SeekEdgar cloud technology.
Proposals (per yr)	Number of proposals a firm receives in a single year where the term “climate change” appears.	Hand collected from SEC Edgar and SeekEdgar cloud technology.
Vote For Percentage	The percentage of votes in favor of a climate-related shareholder proposal	ISS

Controls		
Size (ln revenues)	The natural log one plus of revenues.	Compustat
Tobin's Q	Calculated as the Market Value of Equity minus the Book Value of Equity plus Book Value of Assets divided by Book Value of Assets.	Perfect and Wiles, 1994
Firm Age	Natural log of one plus the number of years that a firm is listed in Compustat.	Compustat
Revenue Growth	Measured as the annual change in revenues.	Compustat
Stock Return	Measured as the annual change in the adjusted stock price.	Compustat
Leverage	Calculated as total Liabilities divided by total Assets.	Compustat
Market:Book	Ratio of the market value of equity to the book value of equity.	Compustat
Momentum (24mos)	Past twenty-four months of stock returns.	Compustat
Accounting Performance		
Avg ROA $_{t+1,+3}$	Return on assets (net income divided by assets) averaged over the next three years.	Compustat
Avg ROI $_{t+1,+3}$	Return on investment (EBITDA divided by invested capital) averaged over the next three years.	Compustat
Avg TAT $_{t+1,+3}$	Total asset turnover (total revenues divided by assets) averaged over the next three years.	Compustat
Stock Performance		
BH Return $_{t+1,+3}$	Buy-and-Hold stock return from one year ahead to three-years ahead.	CRSP
J Alpha $_{t+1,+3}$	Jensen's alpha: excess return over CAPM, where the market is defined as value-weighted return of all US stocks, from one year ahead to three-years ahead.	CRSP, Ken French's website
FF-Mom $_{t+1,+3}$	Excess return over CAPM, Fama-French and Momentum factors, from one year ahead to three-years ahead.	CRSP, Ken French's website
Risk		
SD ROA	Standard deviation of return on assets.	Compustat
SD ROI	Standard deviation of return on investment.	Compustat
SD BH Return	Standard deviation of buy-and-hold return.	CRSP

Table 1A: Summary statistics

	N	Mean	Median	St.Dev	min	max	p25	p75	skewness	kurtosis
Climate-Related Shareholder Proposals										
Proposals (per yr)	22605	0.015	0.000	0.148	0.000	5.000	0.000	0.000	13.955	287.474
Running Total	22605	0.047	0.000	0.729	0.000	36.000	0.000	0.000	31.018	1217.231
Ln Running $_{t, t-2}$	22605	0.016	0.000	0.140	0.000	3.565	0.000	0.000	13.242	223.319
Diversification										
Herf4Assets $_{t, t+2}$	22605	0.487	0.545	0.332	0.000	1.000	0.169	0.740	-0.184	1.824
Herf2Assets $_{t, t+2}$	22605	0.266	0.086	0.334	0.000	1.000	0.000	0.470	1.075	2.902
Herf4Sales $_{t, t+2}$	22605	0.446	0.514	0.292	0.000	0.878	0.167	0.692	-0.379	1.751
Herf2Sales $_{t, t+2}$	22605	0.139	0.000	0.200	0.000	0.695	0.000	0.255	1.253	3.246
Entropy Total Assets $_{t, t+2}$	22605	0.679	0.644	0.629	0.000	2.097	0.000	1.178	0.418	1.952
Entropy Across Assets $_{t, t+2}$	22605	0.224	0.000	0.339	0.000	1.287	0.000	0.410	1.431	3.991
Entropy Within Assets $_{t, t+2}$	22605	0.453	0.285	0.509	-0.000	1.850	0.000	0.795	0.908	2.806
Entropy Total Sales $_{t, t+2}$	22605	0.865	0.885	0.630	0.000	2.247	0.296	1.337	0.137	2.037
Entropy Across Sales $_{t, t+2}$	22605	0.237	0.000	0.337	0.000	1.289	0.000	0.433	1.362	3.863
Entropy Within Sales $_{t, t+2}$	22605	0.627	0.565	0.563	-0.000	2.050	0.000	1.035	0.571	2.371
Controls										
Size(rev)	22605	8.311	8.168	1.368	5.032	11.685	7.350	9.214	0.308	2.767
Tobin's Q	22605	1.661	1.363	0.919	0.687	6.189	1.087	1.883	2.426	10.211
Firm Age	22605	3.108	3.091	0.695	1.386	4.190	2.565	3.761	-0.210	2.001
Revenue Growth	22605	0.079	0.059	0.213	-0.466	1.164	-0.022	0.152	1.438	9.035
Stock Return	22605	0.113	0.072	0.430	-0.768	2.020	-0.140	0.292	1.269	6.719
Leverage	22605	0.609	0.610	0.198	0.127	1.193	0.481	0.735	0.065	3.159
Performance										
Avg ROA $_{t+1,+3}$	17068	0.043	0.041	0.058	-0.175	0.200	0.015	0.075	-0.485	5.268
Avg ROI $_{t+1,+3}$	17043	0.211	0.190	0.125	-0.093	0.687	0.134	0.266	1.084	5.466
Avg TAT $_{t+1,+3}$	17068	0.863	0.708	0.655	0.052	3.556	0.411	1.097	1.721	6.589
BH Return $_{t+1,+3}$	17068	0.317	0.227	0.633	-0.806	3.140	-0.071	0.571	1.535	7.186
J Alpha $_{t+1,+3}$	17068	0.004	0.004	0.016	-0.043	0.053	-0.005	0.012	0.020	4.109
FF-Mom $_{t+1,+3}$	17068	0.003	0.003	0.015	-0.043	0.052	-0.006	0.011	0.064	4.285
SD ROA $_{t+1,+3}$	17068	0.032	0.017	0.044	0.001	0.281	0.007	0.035	3.216	15.276
SD ROI $_{t+1,+3}$	17020	0.045	0.028	0.058	0.002	0.395	0.014	0.053	3.602	19.257
SD BH Return $_{t+1,+3}$	17068	0.271	0.170	0.319	0.011	2.042	0.087	0.322	3.072	14.725

Table 1B: Pairwise Correlations

Variables	Running	Herf4	Herf2	Total	Across	Within	Size	Q	Age	Growth	Return	Lever
Ln Running $_{t, t-2}$	1.000											
Herf4Sales	0.048*	1.000										
Herf2Sales	0.019*	0.448*	1.000									
Entropy Total Sales $_{t, t+2}$	0.057*	0.974*	0.436*	1.000								
Entropy Across Sales $_{t, t+2}$	0.022*	0.451*	0.990*	0.451*	1.000							
Entropy Within Sales $_{t, t+2}$	0.051*	0.814*	-0.109*	0.842*	-0.098*	1.000						
Size(rev)	0.141*	0.244*	0.167*	0.278*	0.186*	0.197*	1.000					
Tobin's Q	-0.017*	-0.113*	-0.091*	-0.105*	-0.096*	-0.060*	0.049*	1.000				
Firm Age	0.114*	0.164*	0.206*	0.154*	0.207*	0.048*	0.200*	0.015	1.000			
Revenue Growth	-0.034*	-0.043*	-0.025*	-0.037*	-0.023*	-0.028*	0.030*	0.127*	-0.121*	1.000		
Stock Return	-0.015	-0.033*	-0.009	-0.037*	-0.011	-0.035*	-0.021*	0.226*	-0.044*	0.150*	1.000	
Leverage	0.011	0.088*	0.043*	0.084*	0.045*	0.068*	0.102*	-0.218*	0.073*	-0.063*	-0.025*	1.000

* *p<0.01*

Table 1C: Two-sample t test with equal variances

This table provides a t-test of the difference in means between populations which either have received climate-related proposals (Treated) or have not received such proposals (Control). The difference in means and variance are assumed to be equal.

Variable	Control N	Treated N	Control Mean	Treated Mean	dif	St_Err	t_value	p_value
Herf4Sales	22310	295	.445	.524	-.079	.017	-4.6	0
Herf2Sales	22310	295	.139	.163	-.024	.011	-2	.043
Entropy Total Sales $_{t, t+2}$	22310	295	.863	1.061	-.199	.037	-5.35	0
Entropy Across Sales $_{t, t+2}$	22310	295	.236	.281	-.044	.02	-2.25	.025
Entropy Within Sales $_{t, t+2}$	22310	295	.614	.779	-.166	.035	-4.7	0
Size (ln revenues)	22310	295	8.293	9.633	-1.34	.08	-16.8	0
Age (ln)	22310	295	3.101	3.654	-.553	.041	-13.65	0
Sales Growth	22310	295	.08	.017	.064	.013	5.05	0
Stock Return	22310	295	.114	.034	.081	.025	3.2	.002
Tobin's Q	22310	295	1.662	1.584	.079	.054	1.45	.146
Leverage	22310	295	.609	.617	-.009	.011	-.7	.478
Market:Book	22310	295	2.694	2.614	.08	.184	.45	.666

Table 2A: Herfindahl Measures

This table uses ordinary least square regressions with Herfindahl measures of diversification defined as $H_{SIC4(2)} = (1 - \sum_{i(s)=1}^{n} P_{i(s)} P_{i(s)})$, where P is the percent of total assets (sales) for each industry, *i* (segment, *s*). *Herf4* and *Herf2* designate Herfindahl at the SIC 4-digit and 2-digit levels, respectively. *Ln Running* is the natural log of one plus a three-year average of an accumulated total of the climate-related shareholder proposals that a firm has received from 1994 to 2017. Control variables are defined above in the Description of Variables.

	(1)	(2)	(3)	(4)
	Herf4Asset	Herf4Sales	Herf2Asset	Herf2Sales
Ln Running $_{t, t-2}$	-.027	.018	-.082***	-.046***
	(-1.162)	(.854)	(-4.712)	(-2.937)
Size(rev)	.068***	.065***	.038***	.022***
	(13.476)	(14.934)	(6.552)	(7.208)
Tobin's Q	-.033***	-.037***	-.021***	-.02***
	(-4.886)	(-6.934)	(-2.896)	(-5.853)
Firm Age	.022**	.034***	.018*	.041***
	(2.502)	(4.597)	(1.866)	(7.053)
Revenue Growth	-.022**	-.027***	-.013	-.009
	(-2.154)	(-3.131)	(-1.163)	(-1.561)
Stock Return	.009*	.013***	.003	.008***
	(1.694)	(2.94)	(.517)	(3.16)
Leverage	.033	.044*	.013	.014
	(1.044)	(1.662)	(.407)	(.722)
_cons	.002	-.182***	.293*	.049
	(.015)	(-2.582)	(1.773)	(.715)
Obs.	22605	22605	22605	22605
R-squared	.296	.371	.227	.42
Industry Dummy	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes

T-values are in parenthesis
*** p<0.01, ** p<0.05, * p<0.1

Table 2B: Entropy Measures

This table uses ordinary least square regressions with the Jacquemin and Berry (1979) *Entropy* measures of diversification defined above and averaged from t to t+2. *Ln Running* is the natural log of one plus a three-year average (from t to t-2) of an accumulated total of the climate-related shareholder proposals that a firm has received from 1994 to 2017. Control variables include: Size, Tobin's Q, Age, Revenue Growth, Stock Returns, and Leverage, defined above.

	(1)	(2)	(3)	(4)	(5)	(6)
	Assets			Sales		
	Total	Across	Within	Total	Across	Within
Ln Running $_{t, t-2}$	.076	-.049**	.127***	.059	-.078***	.138***
	(1.431)	(-2.11)	(2.93)	(1.211)	(-2.929)	(2.993)
Size(rev)	.126***	.043***	.082***	.156***	.04***	.114***
	(12.774)	(7.845)	(10.462)	(16.331)	(7.831)	(13.046)
Tobin's Q	-.058***	-.027***	-.03***	-.075***	-.032***	-.042***
	(-5.295)	(-5.224)	(-3.359)	(-6.703)	(-5.985)	(-4.063)
Firm Age	.095***	.077***	.018	.065***	.069***	-.004
	(5.481)	(8.042)	(1.235)	(4.062)	(7.033)	(-.277)
Revenue Growth	-.019	-.004	-.014	-.055***	-.013	-.041**
	(-1.041)	(-.435)	(-.867)	(-2.946)	(-1.454)	(-2.354)
Stock Return	.032***	.017***	.014*	.02**	.012***	.008
	(3.636)	(4.184)	(1.869)	(2.253)	(2.931)	(.928)
Leverage	.042	.011	.033	.092*	.021	.074
	(.778)	(.367)	(.77)	(1.649)	(.662)	(1.435)
_cons	-.916***	-.168	-.74***	-.727***	.024	-.742***
	(-4.546)	(-1.18)	(-7.192)	(-4.844)	(.275)	(-4.195)
Obs.	22605	22605	22605	22605	22605	22605
R-squared	.373	.427	.292	.384	.433	.315
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes

T-values are in parenthesis *** p<0.01, ** p<0.05, * p<0.1

The Coarsened Exact Matching (CEM) estimator was developed by Blackwell, Iacus, King and Porro (2009), which "temporarily coarsen each variable into substantively meaningful groups, exact match on these coarsened data, and then retain only the original (uncoarsened) values of the matched data." (p.527).

Tables 3A and 3B use ordinary least square regressions with Herfindahl and Entropy measures of diversification defined above and averaged from t to t+2.
Ln Running is the natural log of one plus a three-year average (from t to t-2) of an accumulated total of the climate-related shareholder proposals that a firm has received from 1994 to 2017. Control variables are defined above in the Description of Variables.

Table 3: CEM Test of Match

	Mean		t-test			
Variable	Treated	Control	%bias	t	p>t	V(T)/V(C)
Size (ln revenues)	9.583	9.557	1.8	0.280	0.780	1.040

* if variance ratio outside [0.79; 1.26]

Table 3A: CEM: ASSETS

	(1) Herf_4	(2) Herf_2	(3) Entropy Total	(4) Entropy Across	(5) Entropy Within
Ln Running $_{t,\,t-2}$	-.04***	-.094***	.103***	-.022	.13***
	(-2.915)	(-6.205)	(3.289)	(-1.394)	(5.222)
_cons	-.122	-.13	.305	.301***	.031
	(-1.452)	(-1.398)	(1.598)	(3.061)	(.202)
Observations	3540	3540	3540	3540	3540
R-squared	.477	.473	.432	.533	.409
Industry Dummy	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes

Table 3B: CEM: SALES

	(1) Herf_4	(2) Herf_2	(3) Entropy Total	(4) Entropy Across	(5) Entropy Within
Ln Running $_{t,\,t-2}$	.038***	-.038***	.085***	-.071***	.162***
	(3.126)	(-4.634)	(3.125)	(-5.096)	(6.266)
_cons	-.005	.205***	-.171	.332***	-.458***
	(-.073)	(4.05)	(-1.034)	(3.9)	(-2.905)
Observations	3540	3540	3540	3540	3540
R-squared	.492	.575	.534	.597	.487
Industry Dummy	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes

t-values are in parentheses
**** p<.01, ** p<.05, * p<.1*

Table 4: Fixed Effects

The following table employs two-way fixed effects clustered both at the firm level and by year, using the Jacquemin and Berry (1979) *Entropy* measures of diversification defined above and averaged from t to t+2. *Ln Running* is the natural log of one plus a three-year average (from t to t-2) of an accumulated total of the climate-related shareholder proposals that a firm has received from 1994 to 2017. Control variables are defined above in the Description of Variables.

	(1)	(2)	(3)	(4)	(5)	(6)
	Sales			Assets		
	Total	Across	Within	Total	Across	Within
Ln Running $_{t,\ t-2}$	.08	-.036	.119**	.033	-.068**	.101*
	(1.725)	(-1.501)	(2.509)	(.695)	(-2.866)	(2.041)
Size(rev)	.131***	.056***	.073***	.122***	.058***	.062***
	(6.762)	(5.411)	(4.194)	(6.515)	(5.829)	(3.949)
Tobin's Q	-.029**	-.021***	-.007	0	-.011***	.01
	(-2.782)	(-5.444)	(-.749)	(.006)	(-3.118)	(1.421)
Firm Age	.104**	.08***	.022	.046	.076***	-.031
	(2.343)	(3.318)	(.52)	(.976)	(3.042)	(-.766)
Revenue Growth	-.002	-.004	.004	.005	-.002	.009
	(-.106)	(-.507)	(.217)	(.3)	(-.27)	(.678)
Stock Return	-.002	.01**	-.011	.007	.011***	-.003
	(-.223)	(2.166)	(-1.485)	(1.126)	(3.279)	(-.561)
Leverage	.087*	.044	.043	.08	.033	.05
	(1.884)	(1.535)	(.939)	(1.708)	(1.189)	(1.083)
_cons	-.551**	-.468***	-.062	-.528**	-.498***	-.018
	(-2.83)	(-4.643)	(-.337)	(-2.708)	(-4.865)	(-.107)
Obs.	22362	22362	22362	22362	22362	22362
R-squared	.799	.853	.763	.794	.835	.746

T-values are in parenthesis
*** p<0.01, ** p<0.05, * p<0.1

Table 5A: Accounting Performance and Fitted Diversification

After the Coarsened Exact Matching (CEM) method is applied to match on size, industry and year, Diversification is fitted by regressing Entropy (Sales) *Total, Across* or *Within* on *Ln Running* and a set of control variables, all defined in Description of Variables above. Accounting Performance is the dependent variable averaged over the next three-years and proxied by: return on assets (*ROA*) calculated as net income divided by beginning of period assets, return on investment (*ROI*) calculated as earnings before interest, taxes, depreciation and amortization divided by invested capital, and total asset turnover (*TAT*) calculated as total revenues divided by beginning total assets. Control variables are defined above in the Description of Variables.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	ROA_avg	ROI_avg	TAT_avg	ROA_avg	ROI_avg	TAT_avg	ROA_avg	ROI_avg	TAT_avg
Fitted Total	.145**	-.178	-1.39*						
	(2.414)	(-.372)	(-1.846)						
Fitted Across				-.123**	.15	1.177*			
				(-2.414)	(.372)	(1.846)			
Fitted Within							.064**	-.079	-.617*
							(2.414)	(-.372)	(-1.846)
_cons	.023	-.342**	-.267	-.056*	-.245	.497*	-.02	-.289**	.153
	(.706)	(-2.138)	(-1.038)	(-1.753)	(-1.172)	(1.757)	(-.725)	(-2.124)	(.862)
Obs.	2237	2237	2237	2237	2237	2237	2237	2237	2237
R-squared	.529	.335	.786	.529	.335	.786	.529	.335	.786
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

T-values are in parenthesis
*** p<0.01, ** p<0.05, * p<0.1

Table 5B: Stock Performance and Fitted Diversification

After the Coarsened Exact Matching (CEM) method is applied to match on size, industry and year, Diversification is fitted by regressing Entropy (Sales) *Total*, *Across* or *Within* on Ln Running and a set of control variables, all defined in Table 1. Stock Performance is the dependent variable proxied with buy-and-hold returns (*BH_Return*), Jensen's Alpha (*Jensens*) and Fama-French plus Momentum (*FF-Mom*) over the next three-years. Control variables include: Size (market value of assets), Market:Book, Leverage and the two prior years of Stock Momentum, as defined above in the Description of Variables.

	(1) BH_Return	(2) Jensens	(3) FF-Mom	(4) BH_Return	(5) Jensens	(6) FF-Mom	(7) BH_Return	(8) Jensens	(9) FF-Mom
Fitted Total	1.891***	.063***	.066***						
	(2.652)	(2.98)	(3.112)						
Fitted Across				-3.867***	-.128***	-.134***			
				(-2.652)	(-2.98)	(-3.112)			
Fitted Within							1.215***	.04***	.042***
							(2.652)	(2.98)	(3.112)
_cons	2.796***	.052***	.054***	1.612***	.012	.013	2.378***	.038***	.04***
	(6.302)	(4.965)	(5.756)	(3.986)	(1.169)	(1.33)	(6.364)	(4.532)	(5.482)
Obs.	2237	2237	2237	2237	2237	2237	2237	2237	2237
R-squared	.343	.345	.273	.343	.345	.273	.343	.345	.273
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

T-values are in parenthesis
*** p<0.01, ** p<0.05, * p<0.1

Table 5C: Risk and Diversification

After the Coarsened Exact Matching (CEM) method is applied to match on size, industry and year, Diversification is fitted by regressing Entropy (Sales) *Total, Across* or *Within* on Ln Running and a set of control variables, all defined in Table 1. Risk is proxied by the standard deviation over the period t+1 to t+3 for return on assets (*ROA*), return on investments (*ROI*) and buy-and-hold returns (*BH_Return*). Control variables for ROA and ROI include: Size, Tobin's Q, Age, Revenue Growth, Stock Returns, and Leverage, as defined above in the Description of Variables. Control variables for the BH Return include: Size (market value of assets), Market:Book, Leverage and the two prior years of Stock Momentum, as defined above.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	SD_ROA	SD_ROA	SD_ROA	SD_ROI	SD_ROI	SD_ROI	SD_BH_Return	SD_BH_Return	SD_BH_Return
Fitted Total	.068			.064					
	(1.473)			(.911)					
Fitted Across		-.058			-.054				
		(-1.473)			(-.911)				
Fitted Within			.03			.029			
			(1.473)			(.911)			
Fitted Total							.785		
							(1.32)		
Fitted Across								-1.604	
								(-1.32)	
Fitted Within									.504
									(1.32)
_cons	.149***	.112***	.129***	.171***	.135***	.151***	1.562***	1.071***	1.389***
	(5.067)	(4.013)	(5.017)	(3.86)	(3.182)	(3.904)	(6.081)	(3.875)	(7.12)
Obs.	2237	2237	2237	2236	2236	2236	2237	2237	2237
R-squared	.303	.303	.303	.346	.346	.346	.357	.357	.357
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

T-values are in parenthesis *** p<0.01, ** p<0.05, * p<0.1

Table 6: Placebo Test (ISS)

This table employs ordinary least square regression weighted by the Coarsened Exact Matching (CEM) method to match on size, industry and year. The dependent variables for diversification are Entropy for *Total*, *Across or Within*, as defined in Table 1. *Ln CCProp* is the natural log of one plus an accumulated total of climate-related shareholder proposals that a firm has received from 1994 to 2017, according to ISS Item Code. *Ln Non-CCProp* is the natural log of one plus an accumulated total of all other shareholder proposals that a firm has received from 1994 to 2017, according to ISS. The Control variables are defined above in the Description of Variables.

Assets Diversification

	(1) Total	(2) Total	(3) Across	(4) Across	(5) Within	(6) Within
Ln ISS CC Proposals $_{t, t-2}$	.078**		.011		.065**	
	(2.346)		(.654)		(2.399)	
Ln ISS Non-CC Proposals $_{t, t-2}$		.001		-.015***		.016***
		(.147)		(-4.934)		(3.321)
_cons	-.067	-.387***	.073	-.194***	-.108	-.147*
	(-.329)	(-4.146)	(.71)	(-4.087)	(-.646)	(-1.848)
Observations	3215	13163	3215	13163	3215	13163
R-squared	.406	.395	.513	.452	.398	.339
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes

t-values are in parentheses
**** p<.01, ** p<.05, * p<.1*

Sales Diversification

	(1) Total	(2) Total	(3) Across	(4) Across	(5) Within	(6) Within
Ln ISS CC Proposals $_{t, t-2}$	.077***		-.03**		.108***	
	(2.709)		(-1.964)		(3.938)	
Ln ISS Non-CC Proposals $_{t, t-2}$		-.003		-.011***		.01*
		(-.463)		(-3.896)		(1.885)
_cons	.185	.107	.315***	.228***	-.105	-.096
	(1.056)	(1.212)	(3.394)	(5.016)	(-.624)	(-1.144)
Observations	3215	13163	3215	13163	3215	13163
R-squared	.547	.436	.571	.48	.496	.384
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes

t-values are in parentheses
**** p<.01, ** p<.05, * p<.1*

Table 7: Time Blocks

This table reruns the regressions from the Coarsened Exact Matching (CEM) method for the following time periods: 1994 to 2004, 2005 to 2008, 2010 to 2013, 2014 to 2017 and the total sample from 1994 to 2017. The dependent variables for diversification are Entropy for *Total*, *Across or Within*, as defined above. The coefficients shown (and t-values) are for *Ln Proposals*, the natural log of one plus the number of climate-related shareholder proposals that a firm receives in a single year for the time periods indicated. The Control variables are defined above in the Description of Variables.

Entropy Assets					
CEM	1994-2004	2005-2008	2010-2013	2014-2017	1994-2017
	Flat	Incline	Decline	Incline	Entire
Total	.047	-.03	.101	.237***	.102**
	(.287)	(-.266)	(1.043)	(3.938)	(2.404)
Across	-.065	-.105*	-.039	.036	-.039*
	(-.729)	(-1.774)	(-.785)	(1.195)	(-1.786)
Within	.113	.076	.14*	.201***	.141***
	(.902)	(.784)	(1.817)	(4.006)	(4.011)
Entropy Sales					
CEM	1994-2004	2005-2008	2010-2013	2014-2017	1994-2017
	Flat	Incline	Decline	Incline	Entire
Total	-.018	.065	.081	.038	.049
	(-.136)	(.667)	(.922)	(.711)	(1.283)
Across	-.002	-.12**	-.109**	-.054**	-.081***
	(-.031)	(-2.299)	(-2.523)	(-1.977)	(-4.184)
Within	-.016	.186*	.19**	.092*	.13***
	(-.124)	(1.942)	(2.282)	(1.793)	(3.612)
Observations	429	894	1755	2381	5259
Industry Dummy	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes

*t-values are in parentheses, *** p<.01, ** p<.05, * p<.1*

Table 8: Vote For

This table contains regressions on diversification for matched (CEM) samples from 1994 to 2017. The dependent variables for diversification are Entropy for *Total, Across or Within*, as defined in Table 1. *Vote for Percentage* is the percent support for a climate-related proposal that the proposal receives at annual meetings from 1994 to 2017, according to ISS Item Code. The Control variables are defined above in the Description of Variables.

	(1)	(2)	(3)	(4)	(5)	(6)
	Sales			Assets		
	Total	Across	Within	Total	Across	Within
Vote For Percentage	.001	-.002**	.003*	.003*	-.001	.004**
	(.515)	(-2.521)	(1.898)	(1.729)	(-.801)	(2.56)
_cons	-.148	.497***	-.646**	.228	.302**	-.074
	(-.56)	(3.652)	(-2.556)	(.779)	(2.044)	(-.305)
Observations	2681	2681	2681	2681	2681	2681
R-squared	.48	.568	.4	.39	.523	.346
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes

t-values are in parentheses

**** p<.01, ** p<.05, * p<.1*

Table 9: Poisson

The following tables contain Poisson regressions that use the number of proposals that a firm receives in a single year. The dependent variables for diversification are Entropy for *Total, Across or Within*, as defined in the Description of Variables. *Proposals* is a variable which counts per year the number of shareholder proposals in which the term “climate change” is used. Other control variables include: Size, Tobin’s q, Firm Age, Revenue Growth, Stock Returns, and Leverage, as defined above in the Description of Variables.

	(1)	(2)	(3)	(4)	(5)	(6)
	Sales			Assets		
	Total	Across	Within	Total	Across	Within
1.proposals	-.026	-.253***	.064	-.036	-.224**	.06
	(-.619)	(-2.731)	(1.196)	(-.634)	(-2.478)	(.905)
2.proposals	.121	-.567**	.445***	.161	-.407***	.518***
	(1.219)	(-2.413)	(3.093)	(1.175)	(-3.026)	(3.269)
3.proposals	.122	-.929***	.721***	-.269	-.7**	.228
	(.657)	(-9.78)	(4.011)	(-.898)	(-2.407)	(.694)
4.proposals	.084	-.549	.431***	.235	-.184	.558***
	(.71)	(-1.428)	(4.447)	(1.422)	(-.663)	(4.658)
5.proposals	.023	-1.039***	.42***	.187	-.479*	.603***
	(.274)	(-3.942)	(3.565)	(1.35)	(-1.914)	(5.657)
_cons	-2.395***	-2.926***	-3.296***	-3.122***	-3.654***	-4.123***
	(-14.852)	(-12.078)	(-11.368)	(-6.941)	(-7.587)	(-8.069)
Obs.	27969	27969	27969	27969	27969	27969
Pseudo R^2	.092	.171	.093	.121	.186	.109
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes

T-values are in parenthesis

*** p<0.01, ** p<0.05, * p<0.1

Table 10: Change

The following table replicates table 2B, the ordinary least square regressions, using first differences of the Entropy measures as the dependent variables: *Total*, *Across or Within*, as defined in the Description of Variables, using either Sales or Assets as the basis. *Ln Running* is the natural log of one plus a three-year average of an accumulated total of the climate-related shareholder proposals that a firm has received from 1994 to 2017. Control variables include: Size, Tobin's Q, Age, Revenue Growth, Stock Returns, and Leverage, defined above. Standard errors are clustered by industry.

	(1)	(2)	(3)	(4)	(5)	(6)
	Sales			Assets		
	Total	Across	Within	Total	Across	Within
Ln Running $_{t,\, t-2}$	.006	-.005	.011**	.013**	.001	.012***
	(1.004)	(-1.47)	(2.14)	(1.994)	(.13)	(2.662)
_cons	.101***	.057***	.043***	.072***	.055***	.017*
	(7.213)	(9.093)	(3.509)	(5.082)	(7.338)	(1.739)
Obs.	22605	22605	22605	22605	22605	22605
R-squared	.075	.053	.064	.057	.042	.053
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes

T-values are in parenthesis
*** p<0.01, ** p<0.05, * p<0.1

Table 11: Lagged Change

The following table replicates table 2B (Entropy), the ordinary least square regressions, using lagged first differences of the Entropy measures as the dependent variables: *Total, Across or Within*, as defined in the Description of Variables, using either Sales or Assets as the basis. *Ln Running* is the natural log of one plus a three-year average of an accumulated total of the climate-related shareholder proposals that a firm has received from 1994 to 2017. Control variables include: Size, Tobin's Q, Age, Revenue Growth, Stock Returns, and Leverage, defined above. Standard errors are clustered by industry.

Table 11A: 1 Lag

	(1)	(2)	(3)	(4)	(5)	(6)
	Sales			Assets		
	Total	Across	Within	Total	Across	Within
Ln Running $_{t-1, t-3}$	.005	-.006	.011	.016*	.003	.013**
	(.722)	(-1.489)	(1.537)	(1.873)	(.664)	(2.051)
_cons	.108***	.056***	.053*	.09***	.056***	.034
	(4.305)	(5.829)	(1.828)	(3.625)	(6.013)	(1.172)
Obs.	20112	20112	20112	20112	20112	20112
R-squared	.062	.054	.055	.049	.042	.046
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes

T-values are in parenthesis
*** p<0.01, ** p<0.05, * p<0.1

Table 11B: 2 Lags

	(1)	(2)	(3)	(4)	(5)	(6)
	Sales			Assets		
	Total	Across	Within	Total	Across	Within
Ln Running $_{t-2, t-4}$	.007	-.005	.011	.018**	.004	.014**
	(.777)	(-1.035)	(1.391)	(2.451)	(.909)	(2.248)
_cons	.046	.031***	.015	.05*	.031***	.018
	(1.406)	(4.668)	(.456)	(1.67)	(4.626)	(.626)
Obs.	17891	17891	17891	17891	17891	17891
R-squared	.047	.056	.043	.04	.044	.039
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes

T-values are in parenthesis
*** p<0.01, ** p<0.05, * p<0.1

Table 12: Proposal Only Firms

The following table replicates prior regression but only for firms that have ever received a proposal related to climate change. The Entropy measures are the dependent variables: *Total*, *Across or Within*, as defined in the Description of Variables, using either Sales or Assets as the basis. *Ln Running* is the natural log of one plus a three-year average of an accumulated total of the climate-related shareholder proposals that a firm has received from 1994 to 2017. Control variables include: Size, Tobin's Q, Age, Revenue Growth, Stock Returns, and Leverage, defined above. Standard errors are clustered by industry.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Assets			Sales			
	Total	Across	Within	Total	Across	Within	Within
Ln Running $_{t, t-2}$	.01	-.027	.038	.09**	-.02	.112***	.079**
	(.205)	(-1.278)	(.943)	(2.189)	(-1.23)	(2.786)	(2.322)
_cons	-.651**	-.302**	-.342	-.66	-.393***	-.264	7.065
	(-2.026)	(-2.537)	(-1.14)	(-1.402)	(-3.89)	(-.596)	(1.458)
Observations	4938	4938	4938	4938	4938	4938	4935
R-squared	.522	.615	.451	.558	.657	.489	.752
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	No	No	No	No	No	No	Yes
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes

t-values are in parentheses

**** p<.01, ** p<.05, * p<.1*

Table 13: Board Independence

The following table splits the sample based on firms whose board of director is less or more independent than the average firm, where independence is defined by ISS as directors who have "no significant connections with the firm." The Entropy measures are the dependent variables: *Total, Across or Within*, as defined in the Description of Variables, using either Sales or Assets as the basis. *Ln Running* is the natural log of one plus a three-year average of an accumulated total of the climate-related shareholder proposals that a firm has received from 1994 to 2017. Control variables include: Size, Tobin's Q, Age, Revenue Growth, Stock Returns, and Leverage, defined above. Standard errors are clustered by industry.

Table 13A: Assets based Entropy

	(1) Less Total	(2) More Total	(3) Less Across	(4) More Across	(5) Less Within	(6) More Within	(7) Total	(8) Across	(9) Within
Ln Running $_{t, t-2}$	-.006	.125*	-.087***	-.013	.09	.139**	.082	-.034	.121**
	(-.079)	(1.757)	(-2.699)	(-.529)	(1.187)	(2.274)	(1.284)	(-1.519)	(2.177)
Percent Independent							-.032	-.06	.026
							(-.405)	(-1.41)	(.359)
_cons	-.698***	-1.174***	.077	-.005	-.772***	-1.17***	-.879***	.057	-.932***
	(-5.195)	(-6.628)	(.908)	(-.044)	(-6.606)	(-8.19)	(-6.452)	(.761)	(-8.098)
Observations	6258	5800	6258	5800	6258	5800	12058	12058	12058
R-squared	.501	.543	.544	.58	.378	.462	.478	.522	.365
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 13B: Sales based Entropy

	(1) Less Total	(2) More Total	(3) Less Across	(4) More Across	(5) Less Within	(6) More Within	(7) Total	(8) Across	(9) Within
Ln Running $_{t, t-2}$	.087	.125**	-.07**	-.033*	.167**	.155***	.1**	-.044**	.147***
	(1.358)	(2.362)	(-2.124)	(-1.736)	(2.293)	(2.803)	(2.111)	(-2.399)	(2.998)
Percent Independent							-.048	-.019	-.025
							(-.583)	(-.464)	(-.322)
_cons	-1.039***	-.951***	.103	.187**	-1.134***	-1.146***	-.994***	.129*	-1.123***
	(-7.68)	(-5.595)	(1.338)	(2.141)	(-8.951)	(-6.849)	(-7.772)	(1.921)	(-9.237)
Observations	6258	5800	6258	5800	6258	5800	12058	12058	12058
R-squared	.465	.529	.559	.597	.377	.446	.457	.54	.364
Industry Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*t-values are in parentheses*** p<.01, ** p<.05, * p<.1*

Figures

Figure 1: Shareholder Proposal Feedback Loop

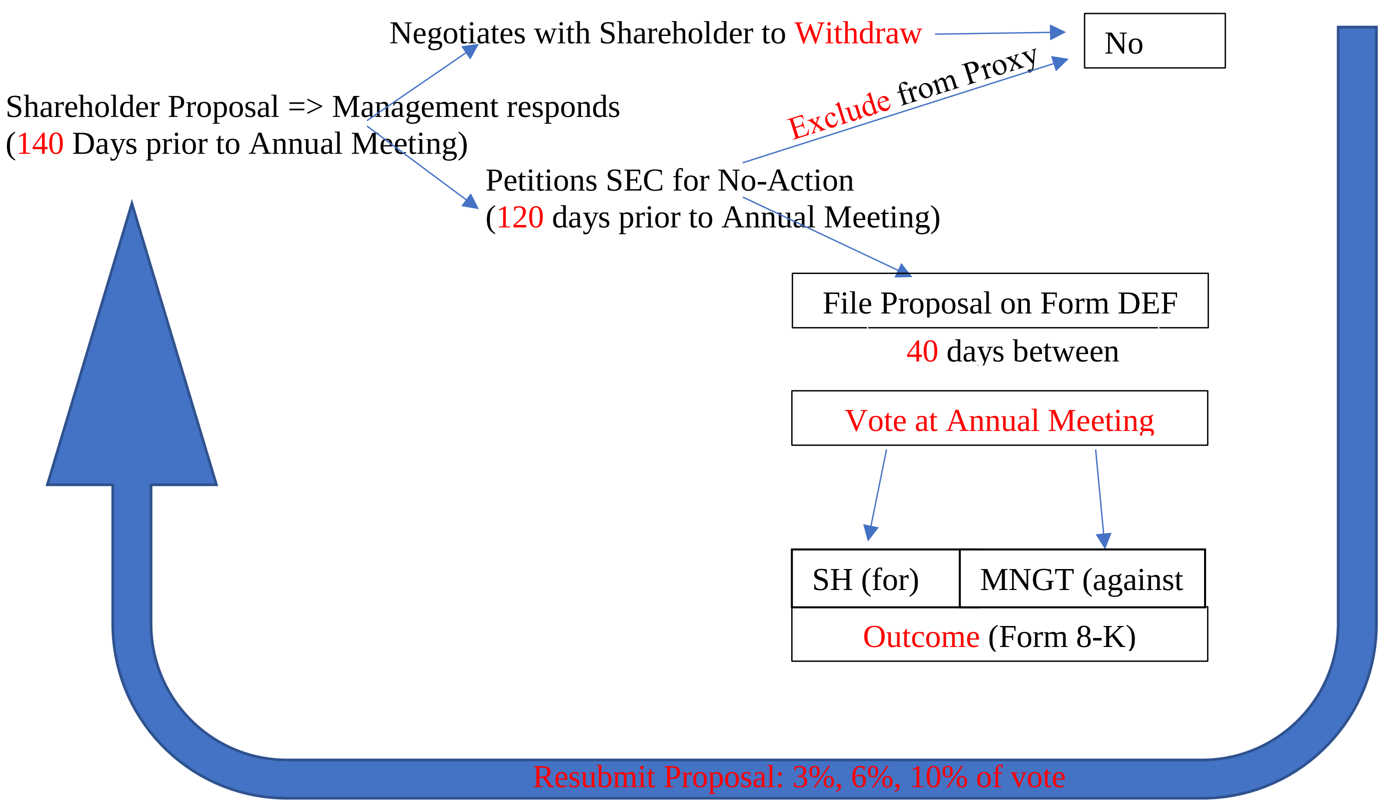

Figure 2: Climate Proposal "Pressure" at Ford

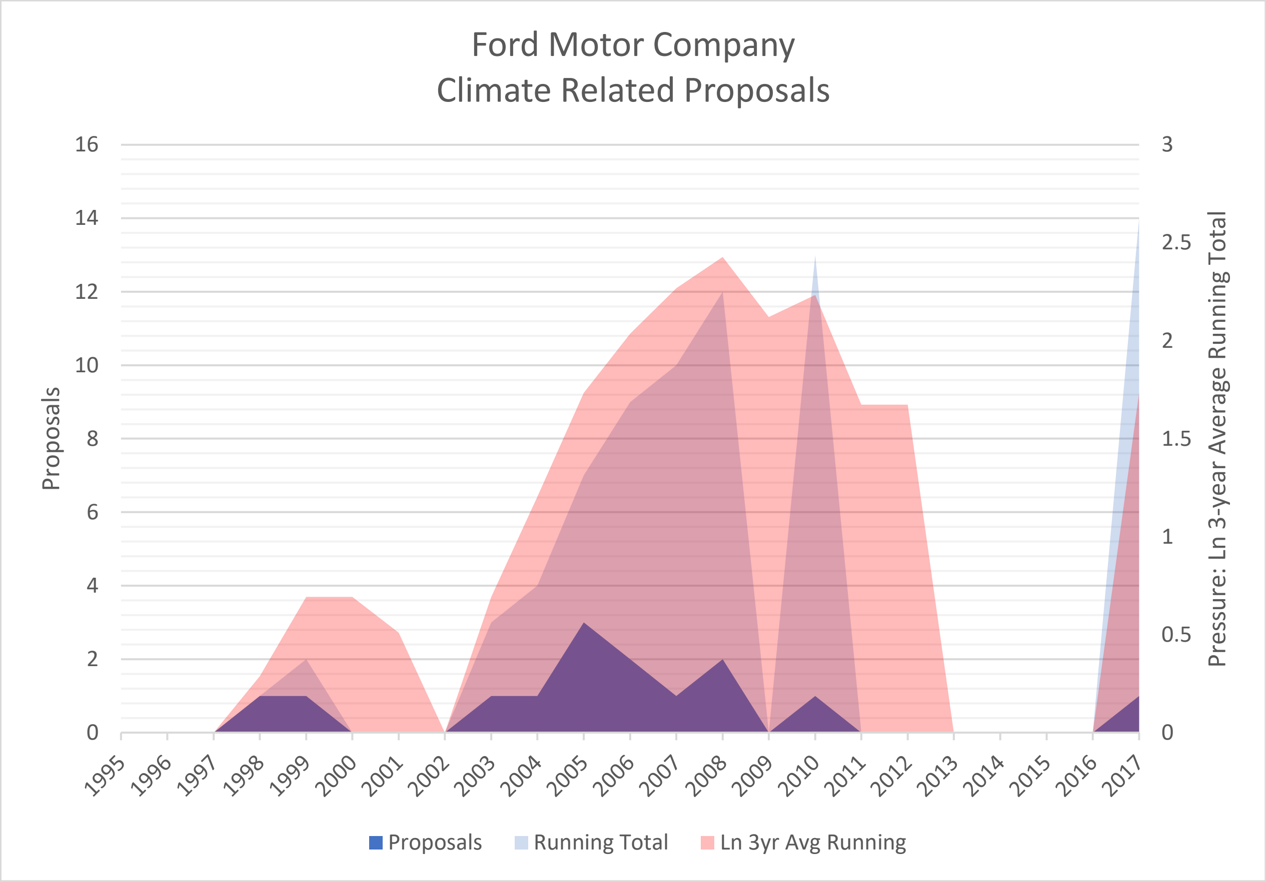

Figure 3: Frequency of Climate Change Proposals

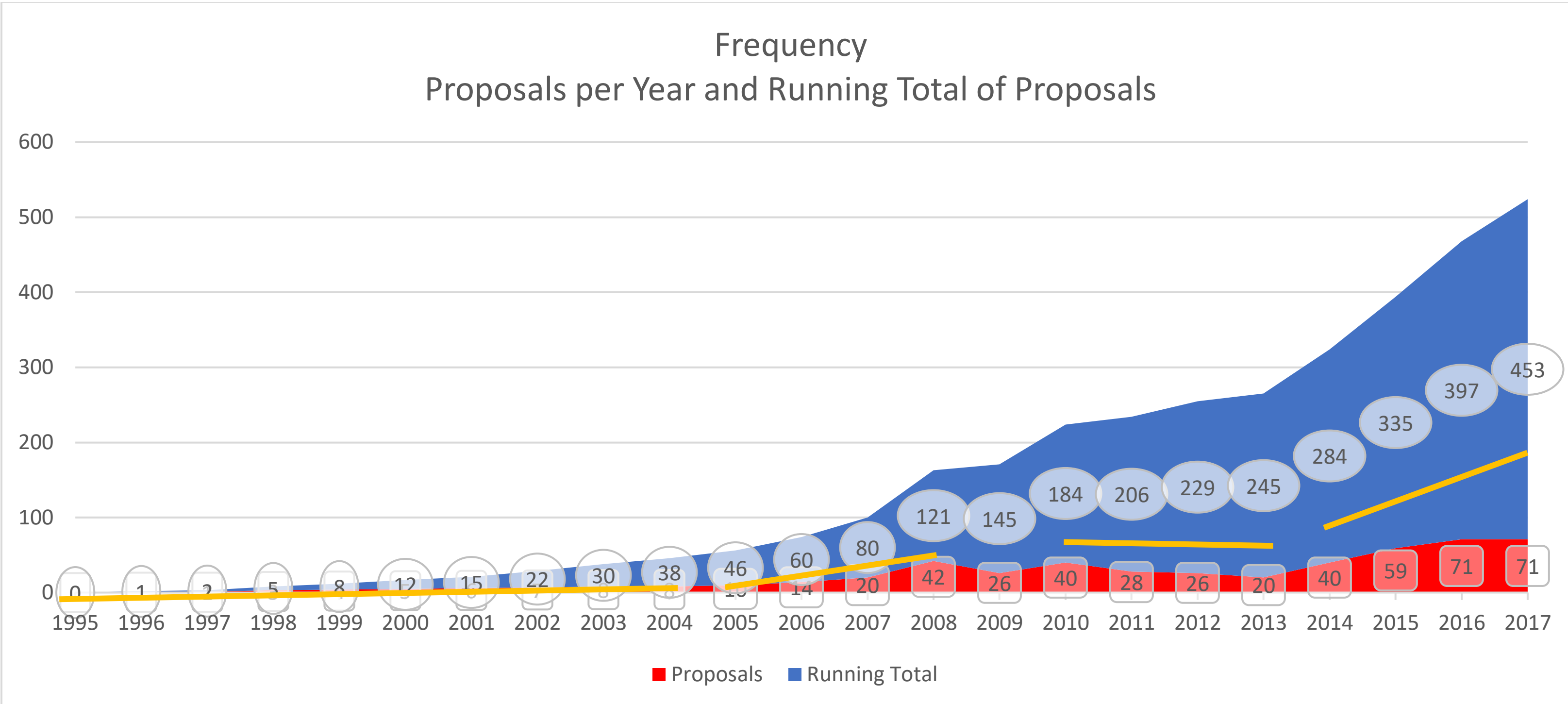

Figure 4: Frequency by Sponsor Type