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When two tribes go to work: Board political diversity and firm performance

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ABSTRACT

A substantial literature has studied how increased diversity in terms of gender, age, education, and race amongst members of firms' boards affects decisions and performance. This paper studies whether ideological diversity in the boardroom affects firm performance. We find that whilst a board with a broader range of political opinions and beliefs is correlated with better performance *ceteris paribus*, that the causal impact of such an increase in diversity is negative and substantial. This negative effect is still present when diversity is measured excluding top management, and when diversity is defined in terms of the difference between firms' management and non-executive directors. In conclusion we consider the implication of these findings given the recent growth in both political polarization and ideological segregation.

1. Introduction

This paper studies whether ideological diversity in the boardroom affects firm performance. We find that whilst a board with a broader range of political opinions and beliefs is correlated with better performance *ceteris paribus*, that the causal impact of such an increase in diversity is negative and substantial.

This finding is in contrast to the largely positive effects documented by the previous literature on the effects of diversity in the boardroom, whether defined in terms of race and ethnicity, gender, education, or age (Bernile et al., 2018).[1] But, perhaps, this is to be expected. Pew (2016) documents that 70% of Democrats say Republicans are 'Closed-Minded' while fully 46% of Republicans say Democrats are 'Immoral', 'Lazy', and 'Dishonest'.[2] Around 40% of highly engaged members of both parties say it would be hard to get along with a neighbour who was a member of the other party. This paper shows that these negative perceptions and social difficulties play out in the boardroom too. One implication of this finding is that the continued increase in the degree of political polarization maybe impacting average firm performance.

There are good reasons why the positive effects associated with increasing other forms of diversity may not apply to political

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[1] A robust body of evidence suggests that increases in the share of women on corporate boards is associated with reduced risk-taking (Huang and Kisgen, 2013), fewer layoffs (Matsa and Miller, 2013), more innovation (Bernile et al., 2018), more monitoring (Adams and Ferreira, 2009), and higher dividends (Chen et al., 2017). The evidence is less clear whether there is an effect of these changes on market performance (Adams and Ferreira, 2009; Gregory-Smith et al., 2014; Sila et al., 2016).

[2] Specifically, 47%, 46%, and45% respectively.

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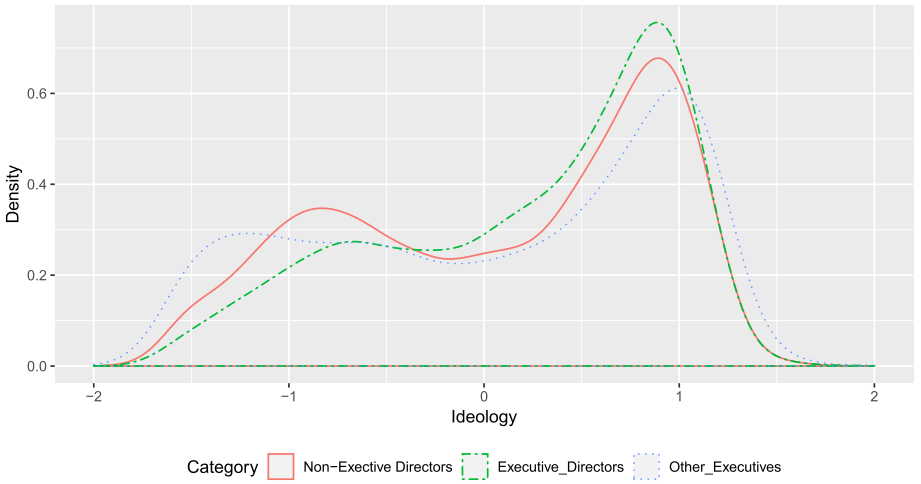

Fig. 1. Ideology of corporate America.

beliefs. Firstly, there is less reason to expect efficiency gains. Secondly, political division may hamper the performance of the board.

As we will see it is not the case that boardrooms are the exclusive preserve of those of a particular political persuasion. Thus, the efficiency concerns about other aspects of boardroom diversity, e.g. that talented women are being excluded to the advantage of less talented men does not apply in the same way. Moreover, the related concern that boards drawn from a narrow range of backgrounds may lack a sufficient range of experience does not seem as appropriate here. Not least as individuals with very similar backgrounds often have quite different politics.

In terms of the downsides, there are several reasons why such diverse political beliefs in the boardroom might hamper performance. Following Akerlof and Kranton (2000) the literature on economics and identity has emphasised that individuals' identities and perceptions thereof may affect behavior in ways that lead to outcomes quite different from those predicted by standard models. While, political affiliation cannot be conflated with race or gender as a basis for discrimination, the survey results above make it clear that it is a very real divide.

Similarly, differences in political beliefs can be thought of as creating groups in the boardroom. Goette et al. (2006) shows that such groups can form rapidly, even when the composition is arbitrary. Hargreaves Heap and Zizzo (2009) show that the existence of such groups leads to discrimination against non-group members, and lower aggregate levels of trust. Lee et al. (2014) provide evidence for this effect in the boardroom. CEOs who are politically aligned to independent directors are associated with lower firm performance, but a reduced likelihood of dismissal, and a weaker link between pay and performance.

Fig. 1 shows the distribution of ideological positions of US corporate elites, measured on the basis of which politicians they donated to. (This measurement is discussed in more detail below). We can see that while both the mean and the median are positive, and that there is a substantial peak around 0.9 implying that the average member of the corporate elite is right-of-centre.[3] The distribution is not quite uni-modal, however, with another peak at around −1 suggesting that there is also a second smaller group of left-of-centre executives and board members. Fig. 2 reports the average ideology by firm (for 2012). In comparison with Fig. 1 we can see that there is now, as might be expected, more mass in the centre of the ideological distribution but again a pronounced right of centre mode, with still a perceivable, albeit attenuated, left of centre mass point. In the presence of random assignment of directors and senior management to firms, we would expect to see (given the Central Limit Theorem) substantial shrinkage to the mean of the distribution and a normal distribution of average firm ideologies around it. That we do not observe this implies that assignment is not random, and that instead there is some process of assortative matching. The purpose of this paper is to understand the consequences of this matching for the performance of firms.

Given the results of the Pew (2016) survey it is not hard to imagine reasons for such a matching process. Such views of members of the opposite party may, unconsciously, bias firms towards hiring those with similar political views. Symmetrically, individuals may be more likely to pursue or take roles at firms that they feel are an ideological 'fit'. The implications of such assortative matching in people's personal lives have been studied by Economists and Political Scientists, for example, Hitsch et al. (2016), Banerjee et al. (2013). In the context of the large firms we study, the concerns are different, and are more similar to those studied in the literature on other forms of diversity and firm performance. Even in those states, such as New York or California, where overt discrimination on the basis of political belief is illegal, in the same way it is on the basis of race or gender, more subtle biases may remain. Aside from the obvious moral implications, Economists have argued since Becker (1957) that such discrimination is inefficient and should be associated with reduced performance, for recent evidence see Weber and Zulehner (2014).

This research contributes to a growing literature on the politics of corporate leaders. Bonica (2016) documents, using the same

[3] Bonica (2016) provides a similar figure that displays the positions of Fortune 500 Executives/Directors and Members of Congress.

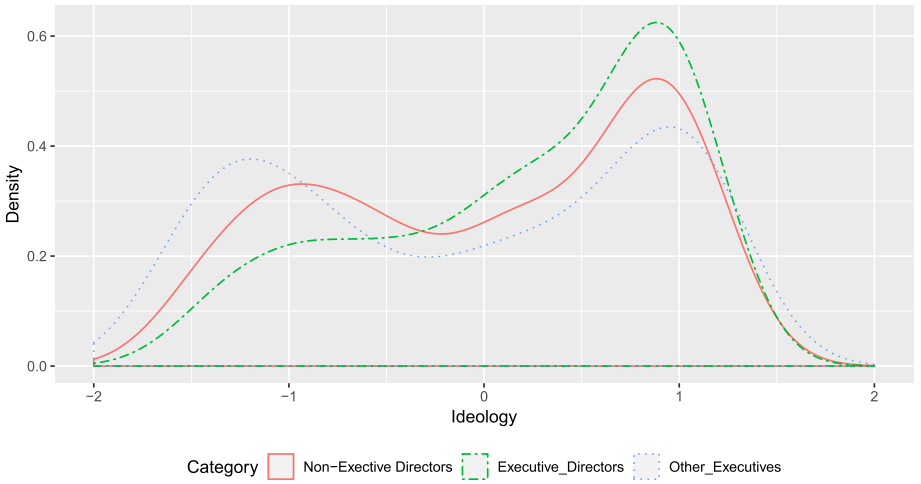

Fig. 2. Mean firm Ideology (2012).

Bonica (2014) database we build on, a number of important stylised facts about the political donations of corporate elites. Noting, that individual donations are commonplace and that there is substantial political heterogeneity within and across firms. Bayat (2017) shows that conservative CEOs are associated with larger dividends, other things equal. Chin et al. (2013) show that liberal CEOs are more likely to pursue corporate social responsibility initiatives. Political values also influence remuneration policy, and conservative boards pay CEOs more than their liberal equivalents.

Perhaps the closest paper to this work is Kim et al. (2013) who also study how ideological diversity affects firm performance. Using data for 500 randomly selected firms for the period 1999–2005 they find that ideologically diverse boards are associated with better firm performance, lower agency costs and reduced discretionary power of inside directors over firms' PACs. However, the data they use to build their diversity measure is much less rich than ours and they do not provide convincingly causal estimates.

This paper builds on this prior work by employing the dataset of Rockey and Zakir (2018), as well as some methodological refinements, to measure precisely ideological heterogeneity within firms, and between the board and senior management.

A key advantage of our approach is that we are able to exploit the variation in political orientation within the Republican and Democratic parties as well as between them. Given that moderates of both parties may have more in common with each other than they do with the more extreme wings of their parties, this is vital to measure the ideological heterogeneity of firms accurately. To see this consider the following two examples. The board and senior management of Firm A only make donations to Republicans, however half of the board are moderates and donate to centrist Republicans (we think of Susan Collins or Charlie Baker) whilst the other half are extremists and donate only to very right wing Republicans. Previous measures, such as that of Kim et al. (2013), based only on the share of Republican donations, will record this firm as being ideologically homogeneous. Our measure, will capture the heterogeneity accurately. Similarly, consider Firm B of which the board and senior management only make donations to moderates, in approximately equal amounts to those of both parties, i.e. 50% to centrist Republicans and 50% to centrist Democrats. A measure based on the share of Republican donations would record Firm B as being maximally ideologically heterogeneous. While our measure will capture the differences between those who support the Republicans and those who support the Democrats, but the small, if any, distance between them will mean the measured diversity will be very low.

A second important advantage is that we have data on not only directors and CEOs but all of each firm's top management. This allows us to study if ideological diversity exacerbates the principal-agent problem faced by the owners of a firm, as studied in the context of CEOs and independent directors by Lee et al. (2014). We also have a substantially larger sample than previous studies, we study all publicly traded companies over the period 1980–2012 since they became public.

This paper is organised as follows. Section 2 introduces our data, and how we measure diversity and performance. Section 3 describes our empirical strategy and discusses the results. Section 4 briefly concludes.

2. Data and descriptive statistics

Our main measure of political diversity is the variation in the ideological positions of a firm's top executives and directors. To compute this we have used the data introduced in Rockey and Zakir (2018) which combined two data sources: the DIME database of political donations and estimated ideological positions provided by Bonica (2014) and data on firms' management and performance from Bloomberg (2014).

First, Bloomberg provides the detailed information on each company's top management and board data since its inception. We hand collected this historical information as only contemporaneous data is accessible via an API for this category. We first gathered company-wise personal information including names, age, position, start and end dates (per position) of all board members and top management since each company started. We identified the independent directors and the insiders for each firm-year by matching

and comparing the top management and board data. Our sample thus consists of all directors and top executives who have ever served for all of the 2,346 currently listed companies in U.S.

We then used automated record-linkage methods to match these records on firms to data on political campaign contributions contained in the Database on Ideology, Money and Elections (DIME) Bonica (2014). The combined data thus contains both data on individual members of the corporate elite, the politicians they have donated to, their donations, and crucially for our purpose their ideological positions. We combine all of the individual contributions by a given donor to each candidate in an election cycle to obtain a dataset at the contributor-firm-cycle level. Note, the DIME data assumes that donors ideologies are fixed over time. Bonica (2016) presents evidence suggesting that corporate leaders' donations are ideologically consistent over time, validating this assumption. Further details of how corporate leaders' ideologies are measured may be found in Bonica (2014).

2.1. Measures of political diversity

Henceforth, for simplicity, we refer to board members and senior managers as "Directors". Let $\mathcal{J}$ be the set of directors and $\mathcal{I}$ the set of all firms. In a given year t, each firm $i \in \mathcal{I}$ is associated with a subset of directors $\mathcal{J}_{it} \subset \mathcal{J}$. Our measure of the ideological diversity of firm i in year t is then the standard deviation of the ideologies of its directors in that year. That is,

$$\text{Diversity}_{it} = \sqrt{\sum_{j \in \mathcal{J}_{it}} \left[\text{Ideo}_j - \overline{\text{Ideo}}_{\mathcal{J}}\right]^2} \tag{1}$$

Implicit in (1) is that the political preferences of those who do not donate (or who donate less than the $200 reporting minimum) are equal to the average of the rest of the firm.[4] That is, that the decision to donate is orthogonal to how different an individual's politics is to the average of their firm. In the appendix we provide sensitivity analyses showing that our main results go through employing two alternative assumptions. First, that those who do not donate are moderates, in that they are assumed to have (an average) ideology of 0, the centre of the scale used by Bonica (2014). This alternative assumption says that those who do not donate are representative of the population as a whole rather than their firm. The second alternative assumption we consider is that directors who do not donate are representative of directors in general across all firms. That is, we assume that their ideology is equal to that of the average firm. The assumption that those who do not donate are similar to the rest of their firm is our preferred assumption as it treats all firms equally. All other assumptions would increase measured diversity, but in an uneven way, increasing diversity in relatively extreme firms more than in comparatively centrist firms. This is unappealing, both statistically, but also substantively given the literature on value homophily which shows that people are drawn to others with the same values, beliefs, and preferences as their own (Srivastava and Banaji, 2011).

The directors of a firm maybe divided into two groups: management and non-management i.e. between executives and non-executive directors. Of the executives, some sit on the board, and particularly in larger corporations, some do not. We denote the management as $\mathcal{M}$, and the non-executive directors as $\mathcal{NE}$. The senior managers who do not sit on the board are denoted as $\mathcal{M}'$. We compute two further measures of ideological diversity so that we can disentangle whether the impact of diversity varies depending on whether it is within the board members or between the management and the board that is expected to hold it to account.

First we calculate the ideological diversity of the board, excluding those in each company's management. That is we recompute (1) for the subset $\mathcal{J}_{it} - \mathcal{M}'_{it}$. This allows us to understand whether diversity affects board performance beyond any impact of ideological differences with senior executives.

$$\text{Diversity}_{it}^{-\mathcal{M}} = \sqrt{\sum_{j \in \mathcal{J}_{it} - \mathcal{M}'_{it}} \left[\text{Ideo}_j - \overline{\text{Ideo}}_{\mathcal{J}-M'}\right]^2} \tag{2}$$

Second, we calculate the ideological diversity of the management relative to the non-executive directors. This captures a range of ideological differences between insider and outside directors in a symmetric way. It will take larger values if the average ideology of the insider directors is far to the left or the right of the outside directors, or indeed if the insider directors are very heterogenous. Essentially, instead of computing the second moment of the distribution of the ideologies of insider directors in a firm around the mean of that distribution, we now compute it around the mean of the distribution of ideologies of outside directors in that firm.

$$\text{Diversity}_{it}^{\mathcal{MB}} = \sqrt{\sum_{j \in \mathcal{J}_{it} - \mathcal{NE}_{it}} \left[\text{Ideo}_j - \overline{\text{Ideo}}_{o \in \mathcal{NE}}\right]^2} \tag{3}$$

Our final dataset then contains these diversity measures, Diversity_{it}, $\text{Diversity}_{it}^{-\mathcal{M}}$ and $\text{Diversity}_{it}^{\mathcal{MB}}$ as well as a number of other characteristics of firms' boards used in prior studies[5]: the proportion of independent directors, board size, the number of other directorships held, etc. It also contains key firm-level financial variables Tobin's Q, assets, revenues, leverage etc., which are taken from Bloomberg. Table 1 shows descriptive statistics for our sample at the individual and firm levels, and they are plotted in Fig. A1 in the appendix. We can see that there is substantial variation in each of our measures of diversity. Diversity_{it} and $\text{Diversity}_{it}^{-\mathcal{M}}$ are very similarly distributed whilst $\text{Diversity}_{it}^{\mathcal{MB}}$ has a higher average, is more dispersed, and exhibits some rightwards skew. This skew

[4] In recent elections small donors have risen in prominence but were much less important in the period we study.

[5] See for example, Bernile et al. (2018), Kim et al. (2013).

Table 1
Descriptive Statistics.

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
Diversity_{it}	36,370	0.6	0.4	0.0	0.3	0.8	2.2
$\text{Diversity}_{it}^{-\mathcal{M}}$	33,102	0.6	0.4	0.0	0.3	0.8	2.2
$\text{Diversity}_{it}^{\mathcal{MB}}$	24,177	1.1	1.6	0.0	0.2	1.3	23.1
Tobin's Q	30,766	2.0	1.4	0.8	1.1	2.2	9.2
Board size	47,548	10.1	6.7	1.0	4.0	15.0	66.0
Prop.Ind.Dir	42,630	0.6	0.2	0.05	0.4	0.7	1.0
Assets ($M)	33,622	9871.0	28,979.7	15.9	533.2	5924.0	219,977.3
Leverage	33,591	24.8	21.2	0.0	7.0	37.0	95.4
ENP	5703	1.7	0.4	1.0	1.4	2.0	2.8

Notes: This table provides descriptive statistics of our diversity measures, dependent variable, and the control variables used for the whole of our sample (1980–2012). Detailed definitions of variables are in Table B1 of the appendix. Also, accounting variables here are winsorized to exclude the top 1 percent and the bottom 99 percent.

is consistent with a small number of firms in which the management are of a different political persuasion to the firm's owners. Perhaps because of a recent change in ownership, or a sector in which managerial talent tends to be of a different political hue to the ownership. The financial variables are also, as expected, skewed, and the data show that we consider the full range of firms from the very largest with assets of more than $200 Billion, to relatively small firms with assets of around $16 million. ENP refers to the Effective Number of Parties, defined below in (5).

3. Empirical strategy and results

Our empirical analysis comprises two parts. Before moving on to analyse the causal relationship between ideological diversity and firm performance in Section 2.1 we build intuition by studying the OLS estimates. Specifically, we consider the following model.

$$\log Q_{it+1} = \beta X_{it} + \gamma \text{Diversity}_{it} + \tau_t + \upsilon_l + \epsilon_{it} \tag{4}$$

Where, our parameter of interest is γ. This measures the association between an increase in diversity and firm performance, as measured by (the log of) Tobin's Q. We work with the log both since, as can be seen in Fig. A2 in the appendix, the data are substantially skewed, and also so that we can interpret our estimates of γ as a percentage change in performance.[6] As is standard, and because we anticipate decisions made by boards to impact performance with some delay, we consider performance the following year, that is in period $t+1$. We include a vector of standard firm level controls, as well as year and industry fixed effects. The controls we include are the (log) value of the firms' assets, the degree of leverage, the (log) of the size of each firm's board, and the proportion of independent directors. The first two controls, along with the industry fixed effects, serve to normalise Q_{it} such that it is comparable across firms. Similarly, conditioning on board size and the share of independent directors partials out two key ways in which boards vary. The year effects control for the effects of aggregate changes in average company valuations over the period we study. We allow for dependence in firms' performance over time by clustering the standard errors at the firm level.

Table 2 reports the estimates of (4). Looking across all three specifications we can see that the control variables are all of the expected sign, with consistent coefficients, and are significant at conventional levels. (The only exception is log Board Size in column 3 which is smaller in magnitude than in columns 1 and 2 and insignificant.)

Looking now at the coefficient of interest we see that an increase in diversity is associated with a significant increase in firm performance. Specifically, a move from the 25th to the 75th percentile would be associated with an increase in firm performance of 2.2%. This is a large increase and suggests that ideological diversity amongst a firms directors is an important correlate of performance. Column 2 reports results for $\text{Diversity}_{it}^{-\mathcal{M}}$ and the coefficient is now around 15% larger although this difference will not be statistically significant. Column 3 reports results for $\text{Diversity}_{it}^{\mathcal{MB}}$, the ideological diversity of the management of the firm relative to the average politics of the non-executive directors. This coefficient is small and imprecise. The implication of columns 2 and 3 taken together is that it is not ideological diversity *between* executive and non-executive directors that is correlated with performance, but the ideological diversity *within* the set of board members. This is interesting as it might suggest that the positive impact of ideological diversity relates to something other than the similarity of the two sets of directors.

[6] Another potential concern is whether our data are non-stationary. To test this we performed Levin-Lin-Chu (Levin et al., 2002) panel unit root tests which suggest that all series are stationary.

Table 2
Board diversity and firm performance: Pooled OLS results.

	Dependent variable: Tobin's Qt+1		
	(1)	(2)	(3)
Diversity_{it}	0.045**		
	(0.019)		
$\text{Diversity}_{it}^{-\mathcal{M}}$		0.052***	
		(0.019)	
$\text{Diversity}_{it}^{B\mathcal{M}}$			0.0004
			(0.004)
log assets	−0.058***	−0.057***	−0.051***
	(0.006)	(0.006)	(0.006)
Leverage	−0.002***	−0.002***	−0.002***
	(0.0005)	(0.0005)	(0.0005)
log BoardSize	0.033**	0.040**	0.011
	(0.016)	(0.017)	(0.021)
Prop.Ind.Dir	0.166***	0.158***	0.168***
	(0.036)	(0.038)	(0.045)
Constant	0.640***	0.621	0.627***
	(0.193)	(0.397)	(0.176)
Ind/year Effects	Yes	Yes	Yes
Observations	24,033	22,976	18,493
R^2	0.402	0.404	0.408
Adjusted R^2	0.399	0.401	0.405

Notes: This table presents the results of (4) a pooled OLS regression that examines a relation between each of the three Ideological Diversity measures and firm value (measured by the log of Tobin's Q, one period ahead).

$$\log Q_{it+1} = \beta X_{it} + \gamma \text{Diversity}_{it} + \tau_t + \upsilon_l + \epsilon_{it}$$

See text for detailed definitions of the diversity measures, Prop.Ind.Dir is the proportion of independent directors in the board, detailed definitions of variables are in Table B1 of the appendix. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are also included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

3.1. Causal analysis

To understand the *causal* relationship between board diversity and firm performance we need to address the non-random matching of directors to firms and the consequent bias. To do this we employ a novel instrument that captures local political diversity.[7] The argument is that local political competition should not have a direct impact on firm performance, but will determine the diversity of political preferences in the local pool of potential directors. Given that most firms hire locally (Knyazeva et al., 2013), this will then be correlated with the diversity of their boards. Moreover, for those firms that hire non-locally, the ease with which they can attract candidates with preferences for either of the main two parties will depend on it not being perceived as a deep-blue or deep-red locale (congressional district).

Our identification strategy thus depends on two claims. Firstly, that a firm's location is a determinant of the membership of its board, and secondly, that local political competitiveness has no direct influence on the firm performance. We now discuss these two claims further.

One might imagine that the labour market for senior management and directors is a global one. If this were true, it would suggest that any relationship between the diversity in political preferences of the local population and that of the board would be weak. However, the evidence is that international appointments are comparatively rare. Specifically, Barrios et al. (2019) document that only 2% of the directors of US firms are foreign, compared to 9% in Norway or China. Of this 2%, most directors are either from Canada or Great Britain.

The question then becomes whether, within the US, hiring is local. Previous work suggests that, to a large extent, it is. Anderson et al. (2011) argue that local demographic diversity is reflected in board composition of local firms. In a prominent paper, Knyazeva et al. (2013) show that local labour markets are important for board composition, albeit less so for the very largest firms which account for a small fraction of our sample. Thus, we argue in a similar vein that is reasonable to conclude that the same processes that mean boards reflect local demographic and labour market characteristics also mean that the local political environment should be related

[7] Kim et al. (2013) also instrument based on the location of the firm. However, the instruments they use are neither excludable nor relevant. For example, turnout levels are used as an instrument but these are well known to be associated with local income and education levels, and such demographic factors may affect the composition of firms' boards and performance for other reasons. Similarly, the democratic vote share is not a natural instrument for diversity, (since the latter is non-monotonic in the former).

to the political diversity of local firms' boards. Tables C11–C13 in the appendix show that our results are essentially unaltered by omitting the largest 10% of firms.

Our argument that the local political environment matters for non-local directors and managers is again contrary to an intuition that such individuals, presumed to be career-concerned, will not be concerned by the locations of firms. Yet, upon further examination this view seems at odds with the evidence presented in the introduction of the almost visceral distaste members of each party have for members of the other. Indeed, we might even expect this effect to be stronger given that political engagement is greatest amongst the highest earners. It is also at odds with the findings of Barrios et al. (2019) that even in Europe, where geographical distances are much smaller, the vast majority of directors are local.

We now turn to our second claim, the exclusion restriction, of no direct relationship between political competition and firm outcomes. As always, we cannot demonstrate that the exclusion restriction holds. Instead, we will consider a series of natural concerns in the light of previous research. The first concern is that firms in more competitive districts face more uncertainty depressing their value. Such a mechanism would potentially reduce Q in more competitive districts, without any role for board polarization. However, we argue that this argument conflates the outcome of a local election with implemented policy, which should affect all firms and is dependent on the outcomes of all districts.

The other way in which political uncertainty may affect firms is through pork-barrel spending. The concern here is that firms in politically competitive districts may benefit from additional federal funding, because it is politically expedient. Unlike policy, pork-barrel spending is naturally geographically specific. But, while the literature has found important roles of committee chairs (Cohen et al., 2011), and political alignment of a district with both the majority party (Albouy, 2013) and the president (Larcinese et al., 2006), there is less evidence of a role for political competitiveness. Ansolabehere and Snyder (2006) find '*only weak evidence*' of a relationship between federal funding and a district being pivotal.

Moreover, we note that such a mechanism should be expected to operate in the opposite direction to the effect we find. Thus, if there are benefits to firms in more politically competitive districts, then this should bias our estimates upwards and thus any negative relationship between board political heterogeneity and performance will be a lower bound.

A similar argument applies to the final concern, which is that additional campaign spending may directly affect firms in more competitive districts. That is, since campaign funds are targeted to the most competitive districts firms in those districts may benefit from these expenditures. Whilst, we cannot rule out this possibility we discount it for two reasons. Firstly, while campaign workers may be employed locally, much of the expenditure for a political campaign will not be in the district itself. Advertisements are bought nationally, as are phone banks, or mailshots. Secondly, as above, this concern would suggest a positive effect of political competition on firm performance, again implying any negative effect would be a lower bound.

There are other potential concerns, but we argue that it is hard to identify a potential mechanism which is both in the right direction and likely to be of sufficient magnitude to explain our results. Thus, for these reasons we argue that our identification assumptions are plausible. However, we also note that in the absence of a natural experiment, we cannot rule out alternative approaches.

We measure local political diversity as the extent to which a district is politically competitive, employing a standard measure used in Political Science, the Effective Number of Parties (ENP), as proposed by Laakso and Taagepera (1979).[8]

$$\text{ENP} = \frac{1}{\text{Dem Share}^2 + \text{Rep Share}^2 + \text{Ind Share}^2} \tag{5}$$

Thus, when one party captures most of the votes then ENP is smaller, as effectively, there is only one party. When both parties have 50% of the vote then $ENP = 2$, and as the share of the vote of independent candidates grows, the ENP will also increase, other things equal.

We thus replace 4 with the following Instrumental Variable (IV) specification:

$$\text{Diversity}_{it} = \Pi X_{it} + \Theta \text{ENP}_{it} + \Lambda_t + \Phi_l + \zeta_{it} \tag{6}$$

$$\log Q_{it+1} = \pi X_{it} + \delta \widehat{\text{Diversity}}_{it} + \lambda_t + \varphi_l + \epsilon_{it} \tag{7}$$

Where we make the conventional exogeneity and relevance assumptions, i.e. $\mathbb{E}\left[\epsilon_{it}\text{ENP}\right] = 0$ and that $\Theta \neq 0$, as discussed above. Table 3 reports the estimates of (6) the first-stage regression. We can see that the coefficient on ENP is consistently positive and significant in columns 1–4. Given that there is only one excluded instrument (ENP) the usual first-stage F-statistic is just the square of the t-statistic on ENP. In the case of column 1 it is 67.99, and it is similarly large in columns 2–4. As will be consistently the case, it is not significant when we also include time effects as well as industry effects and controls, which as discussed below, is unsurprising.

Table 4 reports estimates of (7). Looking first at column 1 in which all coefficients other than δ are restricted to 0 we can see immediately that the estimated relationship between firm performance and Diversity_{it} is now negative and around twice as large in magnitude. This suggests that the previous results suggesting a positive correlation between ideological diversity and firm performance were being driven by the non-random matching of firms to directors.

Given the OLS results in Table 2 the inference is then that while better performing firms have more diverse boards other things equal, that an increase in ideological diversity reduces performance. That is, when board diversity increases due to the local supply of directors, that performance weakens. Note, that these two results are not incompatible. For example, it could be that some firms

[8] Note, this is simply the reciprocal of the more familiar Herfindahl index.

Table 3
Directors political diversity and firm performance: First stage.

	Dependent variable: Diversity$_{it}$				
	(1)	(2)	(3)	(4)	(5)
ENP	0.134***	0.139***	0.063***	0.067***	0.019
	(0.018)	(0.018)	(0.018)	(0.019)	(0.025)
logassets			−0.023***	−0.013**	−0.013**
			(0.005)	(0.006)	(0.006)
Leverage			−0.00002	0.001*	0.001*
			(0.0004)	(0.0004)	(0.0004)
logBoardSize			0.195***	0.194***	0.147***
			(0.014)	(0.015)	(0.019)
Prop.Ind.Dir			−0.282***	−0.311***	−0.282***
			(0.040)	(0.041)	(0.042)
Constant	0.318***	0.268***	0.310***	0.166*	−0.009
	(0.033)	(0.080)	(0.060)	(0.095)	(0.147)
Ind/year Effects	No	Yes/No	No	Yes/No	Yes/Yes
Observations	3671	3668	3092	3092	3092
R^2	0.018	0.074	0.130	0.195	0.208
Adjusted R^2	0.018	0.056	0.129	0.176	0.186

Notes: This table presents the results of the first-stage (6) of the 2SLS estimator in (7). We regress Diversity$_{it}$ (overall firm diversity) on the instrumental variable, local political diversity, as measured by the effective number of parties (ENP). The specification estimated is:

$$\text{Diversity}_{it} = \Pi X_{it} + \Theta \text{ENP}_{it} + \Lambda_t + \Phi_l + \zeta_{it}$$

Prop.Ind.Dir is the proportion of Independent directors in the board, detailed definitions of variables are in Table B1 of the appendix. Numbers in parentheses are robust standard errors (clustered at firm level). ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 4
Directors political diversity and firm performance: Second stage.

	Dependent variable: Tobin's Qt+1				
	(1)	(2)	(3)	(4)	(5)
Diversity$_{it}$	−0.845***	−0.626***	−2.301**	−1.351**	−2.250
	(0.277)	(0.205)	(0.921)	(0.561)	(3.785)
logassets			−0.156***	−0.065***	−0.078
			(0.027)	(0.016)	(0.060)
Leverage			−0.004***	−0.001	−0.0001
			(0.001)	(0.001)	(0.002)
logBoardSize			0.555***	0.306**	0.390
			(0.194)	(0.120)	(0.570)
Prop.Ind.Dir			−0.329	−0.284	−0.506
			(0.277)	(0.188)	(1.062)
Constant	1.060***	1.070***	2.000***	1.334***	0.742
	(0.159)	(0.142)	(0.405)	(0.238)	(0.512)
Ind/year Effects	No	Yes/No	No	Yes/No	Yes/Yes
Confidence Sets	[−1.474,−.379]	[−1.083,−.288]	[−6.390,−1.120]	[−3.354,−.539]	entire grid
Observations	3209	3209	2995	2995	2995
R^2	0.009	0.239	0.00005	0.134	0.060
Adjusted R^2	0.008	0.223	−0.002	0.113	0.033

Notes: This table presents the results of the two-stage least squares (2 SLS) regression of firm performance (Tobin's Q) on all director's diversity (Diversity$_{it}$). The specification estimated is (7):

$$\log Q_{it+1} = \pi X_{it} + \delta \widehat{\text{Diversity}}_{it} + \lambda_t + \varphi_l + \epsilon_{it}$$

Where $\widehat{\text{Diversity}}_{it}$ are the predicted values obtained from (6) as reported in Table 3. Prop.Ind.Dir is the proportion of independent directors in the board, detailed definitions of variables are in Table B1 of the appendix. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

are more appealing and this impacts both the composition of their board – directors want to be associated with them – and the choice and thus average quality of workers they can hire à la Becker (1957). On the other hand, the causal impact of an increase in board diversity separate from any factor such as appeal to workers, may decrease the effectiveness of the board and reduce firm performance. That is, board diversity may be associated with unobserved positive characteristics of firms, but itself be deleterious for performance.

Columns 2 to 5 progressively weaken the exogeneity assumption, replacing it with a series of weaker conditional exogeneity assumptions. In column 2 it is now $\mathbb{E}\left[\epsilon_{it}\text{ENP}|\varphi_l\right] = 0$, that is instead of a claim that there is no direct relationship between ENP and

Table 5
Non-executive directors diversity and firm performance: First stage.

	Dependent variable: $\text{Diversity}_{it}^{-\mathcal{M}}$				
	(1)	(2)	(3)	(4)	(5)
ENP	0.129***	0.135***	0.049***	0.052***	0.021
	(0.019)	(0.019)	(0.019)	(0.019)	(0.026)
logassets			−0.022***	−0.015***	−0.015***
			(0.005)	(0.006)	(0.006)
Leverage			0.0001	0.001*	0.001**
			(0.0004)	(0.0004)	(0.0004)
logBoardSize			0.204***	0.205***	0.169***
			(0.015)	(0.015)	(0.020)
Prop.Ind.Dir			−0.367***	−0.400***	−0.374***
			(0.040)	(0.042)	(0.043)
Constant	0.311***	0.200***	0.313***	0.145	0.037
	(0.034)	(0.074)	(0.062)	(0.088)	(0.171)
Ind/year Effects	No	Yes/No	No	Yes/No	Yes/Yes
Observations	3384	3381	2924	2924	2924
R^2	0.017	0.067	0.142	0.199	0.207
Adjusted R^2	0.016	0.048	0.141	0.180	0.184

Notes: This table presents the results of the first-stage (6) of the 2SLS estimator in (7). We regress $\text{Diversity}_{it}^{-\mathcal{M}}$ (diversity of non-executive directors) on the instrumental variable, local political diversity, as measured by the effective number of parties (ENP). The specification estimated is:

$$\text{Diversity}_{it} = \Pi X_{it} + \Theta \text{ENP}_{it} + \Lambda_t + \Phi_l + \zeta_{it}$$

Prop.Ind.Dir is the proportion of Independent directors in the board, detailed definitions of variables are in Table B1 of the appendix. Numbers in parentheses are robust standard errors (clustered at firm level). ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

firm performance we now have that there is no direct relationship between ENP and firm performance once we allow for industry. Column 3 instead allows for firm and board characteristics as in (4) and column 4 includes both. In both cases while the relative precision of our estimate of δ falls, the estimated coefficient increases substantially to around −3 and −1.5 respectively. These large coefficients, imply that the LATE is large, and thus that firms which change their board as a consequence of changes in the local political environment see large changes in performance. One interpretation of this is that these are firms which are previously constrained by their locale from hiring well-matched executives or outside directors, relaxation of that constraint then leads to large improvements.

Finally, column 5 additionally includes time effects. δ is no longer significant, although the coefficient remains negative and of a similar magnitude as in column 3. This is perhaps unsurprising and reflects the demanding nature of the specification. It suggests that including the year effects, in conjunction with the controls in X_{it} and the industry fixed effects, asks too much of the data given that both board composition and the degree of local political competition will evolve slowly over time. That is we are now studying the LATE of a change in the local ENP within years, within industries, conditional on firm characteristics, and as these changes in the ENP are expected to evolve slowly there is too little residual variation in the data to identify the effect precisely.

While, the first stage F-statistic is comfortably above the usual criterion of 10, the R^2 of the first stage is low, at just under 2%. Thus, a potential concern is that our estimates will be noisy and imprecise. To address this we also report, here and throughout the paper, confidence sets robust to arbitrarily weak identification Moreira (2003), Andrews (2016). We can see that these suggest our regression results are robust. In columns 1–4 we can see that in every case the robust confidence set is strictly negative. Although, again, this is not the case in column 5, where we can not rule out any value of δ.

Tables 5 and 6 report estimates of (6) and (7) respectively for our second measure of Diversity, that of board members only, $\text{Diversity}^{-\mathcal{M}}$. The results for the first stage again show that the instrument is relevant. The second stage results are similar to those in Table 4 for all directors: there is a consistent negative effect of an increase in ideological diversity. The effect is around three times larger conditional on firms' characteristics and 50% smaller when allowing for firm fixed effects. Again, the results including industry and year fixed effects as well as firm and board characteristics are insignificant but with a similar point estimate to those in columns 1–4.

Tables 7 and 8 report estimates of (6) and (7) respectively for our final measure of Diversity, how diverse the politics of executives are relative to the average of non-executive directors, Diversity^{MB}. Here, unlike for the OLS regressions we find that there is a positive (negative) impact of increased similarity (diversity) of the politics of a firm's management with its non-executive directors. This then suggests that both diversity within the set of board members, and between them and the firm's managers are harmful to firm performance. Our interpretation of this is that ideological diversity both hampers the effectiveness of the board members to work cohesively and also may exacerbate principal-agent problems with a firm's management. We note, in passing, that this causal effect of Diversity^{MB} is significant in contrast to the OLS results in Table 2 where no significant effect was found. To summarise, we find that there is a positive correlation between board diversity and firm performance. However, once we address the non-random nature of recruitment of board members we find a robust negative relationship. This suggests that an exogenous increase in board diversity will worsen firm performance. The results suggest that this is true both unconditionally, and controlling for observable and unobservable

Table 6
Non-executive directors diversity and firm performance: Second stage.

	Dependent variable: Tobin's Qt+1				
	(1)	(2)	(3)	(4)	(5)
$\text{Diversity}_{it}^{-\mathcal{M}}$	−0.952***	−0.574**	−3.082**	−1.584*	−1.262
	(0.313)	(0.225)	(1.572)	(0.824)	(2.501)
logassets			−0.168***	−0.069***	−0.064
			(0.040)	(0.020)	(0.044)
Leverage			−0.003*	0.00003	−0.0002
			(0.002)	(0.001)	(0.002)
logBoardSize			0.738**	0.375**	0.282
			(0.337)	(0.181)	(0.430)
Prop.Ind.Dir			−0.815	−0.504	−0.354
			(0.587)	(0.337)	(0.934)
Constant	1.090***	1.007***	2.226***	1.306***	0.896**
	(0.172)	(0.130)	(0.639)	(0.261)	(0.410)
Ind/year Effects	No	Yes/No	No	Yes/No	Yes/Yes
Confidence Sets	[−1.663,−.427]	[−1.074,−.203]	[…,−1.375]	[−6.270,−.552]	entire grid
Observations	2987	2987	2836	2836	2836
R^2	0.007	0.256	0.001	0.104	0.150
Adjusted R^2	0.007	0.239	−0.001	0.082	0.125

Notes: This table presents the results of the two-stage least squares (2 SLS) regression of firm performance (Tobin's Q) on board diversity ($\text{Diversity}_{it}^{-\mathcal{M}}$). The specification estimated is (7):

$$\log Q_{it+1} = \pi X_{it} + \delta \widehat{\text{Diversity}}_{it} + \lambda_t + \varphi_l + \epsilon_{it}$$

Where $\widehat{\text{Diversity}}_{it}^{-\mathcal{M}}$ are the predicted values obtained from (6) as reported in Table 5. Prop.Ind.Dir is the proportion of independent directors in the board, detailed definitions of variables are in Table B1 of the appendix. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table 7
Management Diversity in terms of Non-Executive Directors and Firm Performance: First Stage.

	Dependent variable: $\text{Diversity}_{it}^{B\mathcal{M}}$				
	(1)	(2)	(3)	(4)	(5)
ENP	0.182**	0.265***	0.286***	0.343***	0.075
	(0.076)	(0.082)	(0.086)	(0.096)	(0.125)
logassets			−0.092***	−0.070**	−0.067**
			(0.025)	(0.027)	(0.028)
Leverage			−0.003	−0.002	−0.001
			(0.003)	(0.003)	(0.003)
logBoardSize			−0.317***	−0.288**	−0.488***
			(0.118)	(0.113)	(0.133)
Prop.Ind.Dir			0.836***	0.621***	0.766***
			(0.222)	(0.236)	(0.234)
Constant	0.681***	0.856**	1.671***	1.719***	1.399
	(0.132)	(0.397)	(0.322)	(0.470)	(0.911)
Ind/year Effects	No	Yes/No	No	Yes/No	Yes/Yes
Observations	2370	2367	2164	2164	2164
R^2	0.002	0.080	0.036	0.098	0.107
Adjusted R^2	0.001	0.054	0.034	0.068	0.072

Notes: This table presents the results of the first-stage (6) of the 2SLS estimator in (7). We regress $\text{Diversity}_{it}^{B\mathcal{M}}$ (Diversity between management and non-executive directors) on the instrumental variable, local political diversity, as measured by the effective number of parties (ENP). The specification estimated is:

$$\text{Diversity}_{it} = \Pi X_{it} + \Theta \text{ENP}_{it} + \Lambda_t + \Phi_l + \zeta_{it}$$

Prop.Ind.Dir is the proportion of independent directors in the board, detailed definitions of variables are in Table B1 of the appendix. Numbers in parentheses are robust standard errors (clustered at firm level). ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

firm and industry characteristics. It also seems to be the case that diversity reduces performance both when measured only within the board itself and when defined in terms of the difference between executives and non-executive directors. This consistent pattern, and the fact that we work with the universe of firms and a precise measure of ideology suggests that this result reflects more than a something local to our sample.

Table 8
Management Diversity in terms of Non-Executive Directors and Firm Performance: Second Stage.

	Dependent variable: Tobin's Qt+1				
	(1)	(2)	(3)	(4)	(5)
$\text{Diversity}_{it}^{B,M}$	−1.008*	−0.405**	−0.678**	−0.295**	−0.501
	(0.564)	(0.183)	(0.279)	(0.127)	(1.019)
logassets			−0.152***	−0.054***	−0.069
			(0.034)	(0.017)	(0.075)
Leverage			−0.005**	−0.002	−0.002
			(0.003)	(0.001)	(0.002)
logBoardSize			−0.158	−0.072	−0.200
			(0.108)	(0.049)	(0.493)
Prop.Ind.Dir			0.996***	0.350***	0.514
			(0.311)	(0.134)	(0.763)
Constant	1.591***	1.308***	2.463***	1.607***	1.649
	(0.566)	(0.301)	(0.585)	(0.329)	(1.644)
Ind/year Effects	No	Yes/No	No	Yes/No	Yes/Yes
Confidence Sets	[...,−.394]	[−1.229,−.177]	[−2.082,−.321]	[−.719,−.113]	entire grid
Observations	2183	2183	2116	2116	2116
R^2	0.009	0.090	0.0003	0.157	0.076
Adjusted R^2	0.008	0.061	−0.002	0.128	0.038

Notes: This table presents the results of the two-stage least squares (2 SLS) regression of firm performance (Tobin's Q) on Diversity between Management and Non-Executive Directors ($\text{Diversity}_{it}^{B,M}$). The specification estimated is (7):

$$\log Q_{it+1} = \pi X_{it} + \delta \widehat{\text{Diversity}}_{it} + \lambda_t + \varphi_l + \epsilon_{it}$$

Where $\widehat{\text{Diversity}}_{it}^{B,M}$ are the predicted values obtained from (6) as reported in Table 7. Prop.Ind.Dir is the proportion of independent directors in the board, detailed definitions of variables are in Table B1 of the appendix. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

3.2. Dynamics

Thus far, we have sought to capture the fact that we expect the impact of increased board polarization to affect a firm progressively over time, i.e. dynamically, by using the lead of the Q as our dependent variable. We now consider whether the impact on firm performance of a change in board diversity is persistent or whether the effect is transitory. To test this we estimate a series of regressions in which we modify (7) by replacing Diversity with a lag of varying order. Specifically, we estimate separate regressions of the following form for $k = 1, \ldots, 10$:

$$\text{Diversity}_{i,t-k} = \Pi X_{it} + \Theta \text{ENP}_{i,t-k} + \Lambda_t + \Phi_l + \zeta_{it} \tag{8}$$

$$\log Q_{it+1} = \pi X_{it} + \delta_k \widehat{\text{Diversity}}_{i,t-k} + \lambda_t + \varphi_l + \epsilon_{it} \tag{9}$$

Results are reported in Fig. 3. Each line in the plot reports the estimates of δ_k of an individual regression. Looking down the plot, we can see that the point estimates of δ_k are represented by different symbols, a circle, square, triangle, etc. Either side of these, the thick line plots the 95% confidence interval, and the thinner line the 90% confidence interval. The dotted vertical line represents $\delta_k = 0$. Thus, when the thick line does not overlap with the dotted vertical line, it implies that coefficient is significant at the 90% level and similarly at the 95% for the thin lines. Thus, we can see that the coefficients δ_1 and δ_2 have estimates (represented by the circle and the square) of around -2.2, and that we can reject the hypothesis that $\delta_i = 0$. Moving down the plot we can see similar results for δ_3 and δ_4, but our estimate of δ_5, whilst of similar magnitude, is now noisier and we can't reject $\delta_5 = 0$ at the 95% level. This is then true at the 90% level for δ_6 and thereafter the coefficients shrink towards zero, with estimates of δ_9 and δ_{10} of almost exactly zero.

We interpret these estimates as suggesting that an increase in ideological diversity in the boardroom does not have a long-run effect on firms' valuations. This can be seen to be for two broad reasons. Firstly, because such increases are inherently temporary. Secondly, because of efforts to address boardroom dysfunction. That increases in ideological diversity are temporary is consistent with both the limited tenure of non-executive directors and churn in senior management, particularly in under-performing firms. We may also expect that part of the role of an effective chair is to notice and address such issues.

4. Conclusion

A substantial literature has studied how increased diversity in terms of gender, age, education, and race amongst members of firms' boards affects decisions and performance. This paper studies whether ideological diversity in the boardroom affects firm performance. We find that whilst a board with a broader range of political opinions and beliefs is correlated with better performance *ceteris paribus*, that the causal impact of such an increase in diversity is negative and substantial. This negative effect is present when

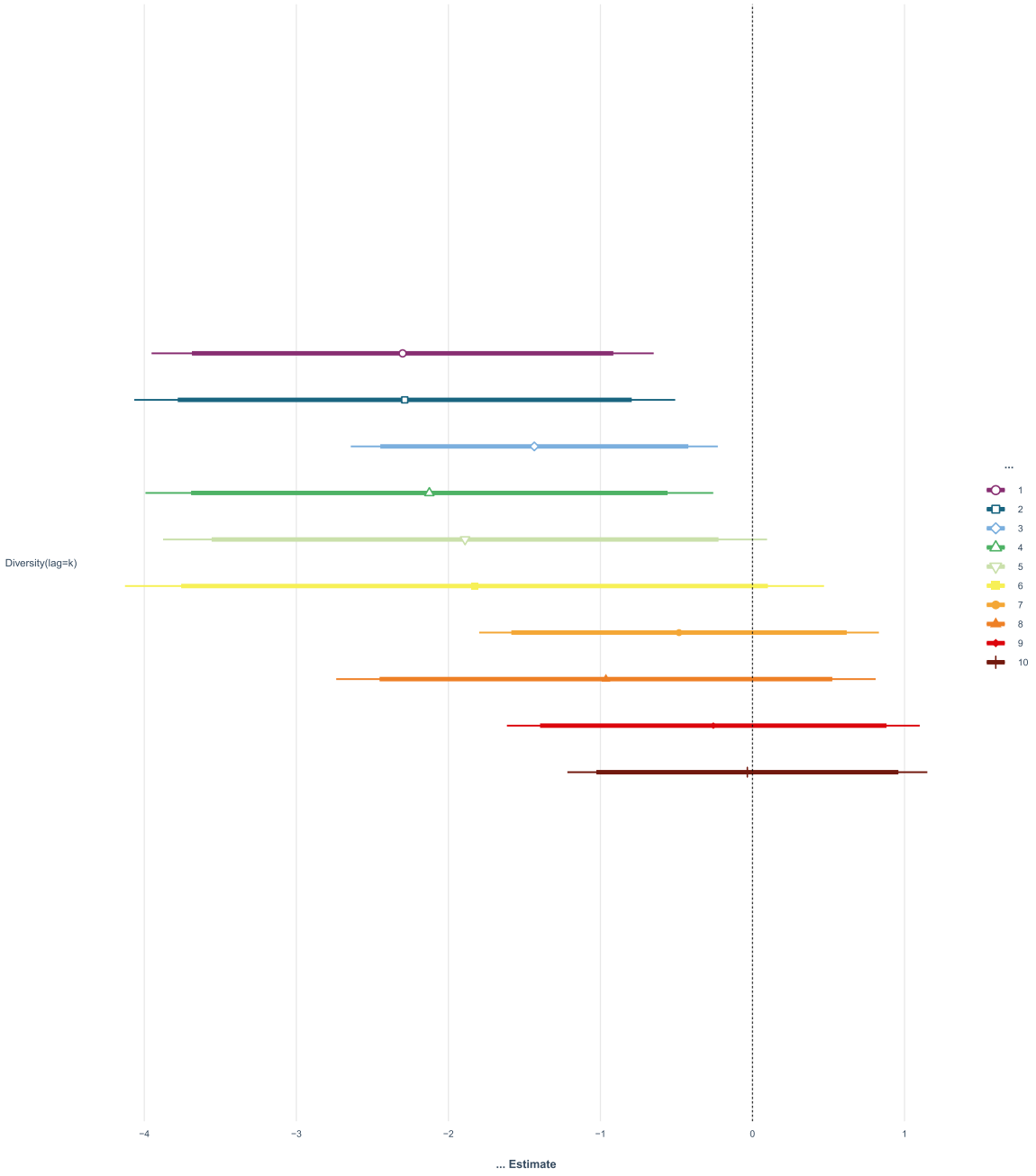

Fig. 3. Dynamics: Coefficient of δ at different lag orders. Figure plots estimates of the coefficient δ_k from Equation (9). Each is estimated from a separate regression, replacing Diversity_{it} with a lagged value with lags between 1 and 10 years. The thick line plots the 95% confidence interval, the thinner line the 90% confidence interval. The point estimates of δ is represented by the symbols in the legend. The dotted vertical line represents $\delta_k = 0$.

diversity is measured only within board members and when diversity is defined in terms of the difference between executive and non-executive directors.

Our results have several possible implications. Previous work has documented the deleterious effects of increased political polarization, see Fiorina and Abrams (2008), Abramowitz and Saunders (2008), as well as on the practice of politics and policy making Binder (2016). While, Autor et al. (2016) has documented how increased exposure to trade has led to increasing polarization. But, to date, there is little previous evidence that polarization may also impact the performance of firms. Given that we employ an instrumental variables strategy and do not propose a model to facilitate non-local inference the evidence does not support general statements about the relationship between political polarization and the performance of all firms. However, it is reasonable to suppose that increased political polarization will reduce the effective number of parties in many districts and it is this effect that we do identify. Thus, we can properly conclude that to the extent that polarization is reflected in reduced local political competition firm

performance will improve. This effect is of particular interest given trends in US political geography. The share of Americans living in so-called 'landslide counties' – counties in which one party won by a margin of more than 20% – had increased to 60% by 2016 compared to only 50% at the end of our sample in 2012.[9] This, implies a[10] substantial decrease in the average ENP and this[11] in turn, given the necessary caveats about out of sample projections, implies upwards pressure on firm performance. Thus, it may be the case that there are some economic benefits to increased polarization.

One limitation of this paper is that we are unable to provide evidence about the mechanisms that drive the relationship between political diversity and firm performance. This is in common with broader literature studying other forms of diversity and firm performance which is similarly unable to observe individual directors in boardrooms and elsewhere to measure differences in their behavior. However, the fact that political differences do matter even amongst highly remunerated, professional, members of the corporate elite is revealing *per se*. One interpretation is that this is because ideological differences reflect broader differences between people. For example, Haidt (2012) argues that conservatives are motivated by a different set of moral concerns than liberals. Amodio et al. (2007) document neurocognitive differences between liberals and conservatives, while Alford et al. (2005) present evidence that ideology may be genetically transmitted. Gerber et al. (2011) summarise the evidence as to how the 'big five' personality traits predict individual political behavior. What all of these approaches have in common is that differences in ideology are reflective of deeper differences, one explanation for our results is then that it is differences in basic moral concerns or personality traits that drive our results rather than differences in opinion about the issues of the day.

Declaration of competing interest

The authors confirm that they have no conflicts of interest.

A. Additional graphs

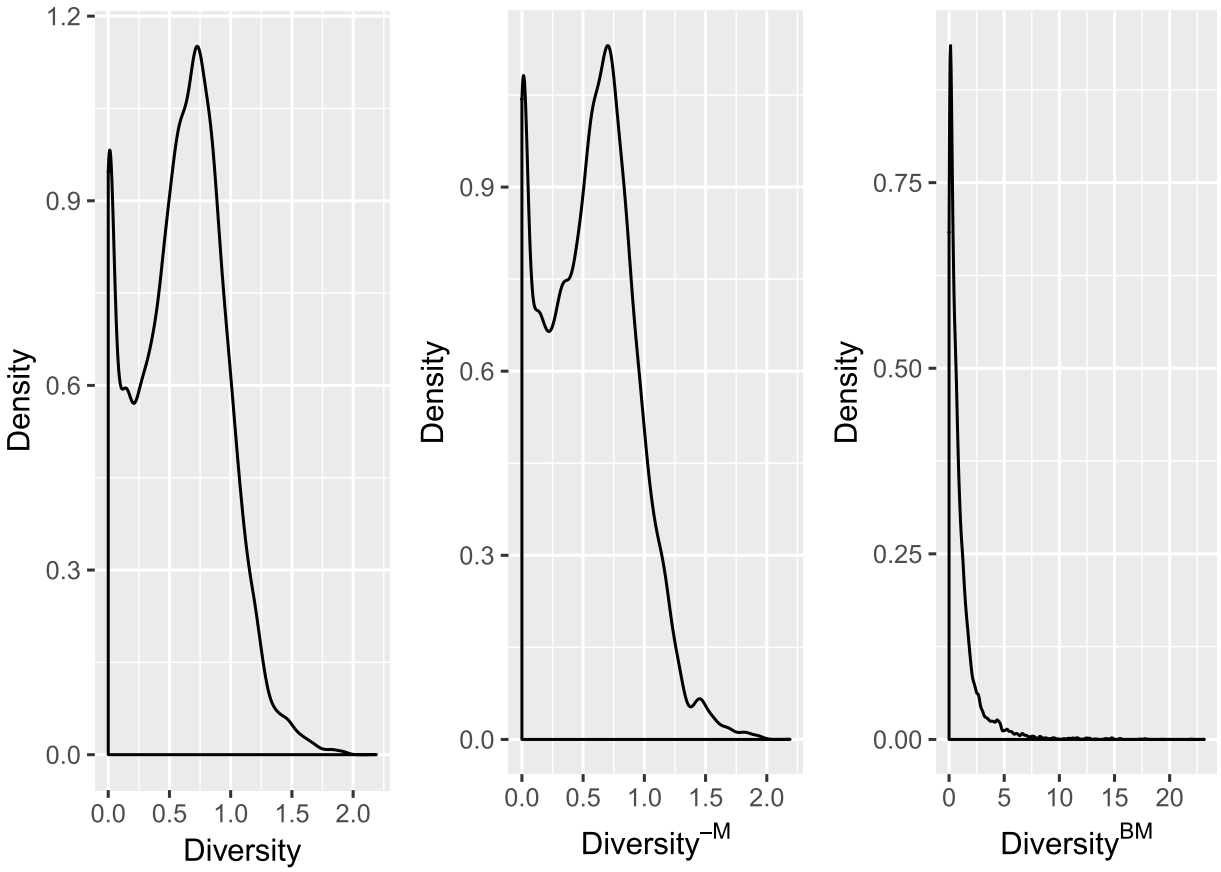

Fig. A1 Board diversity measures.

[9] Data are from Aisch et al. (2016).

[10] Results under alternative assumption 1 are reported in Tables C1-C5, and under alternative assumption 2 in Tables C6-C10.

[11] Fig. C.1 in the appendix plots these measures under alternative assumption 1.

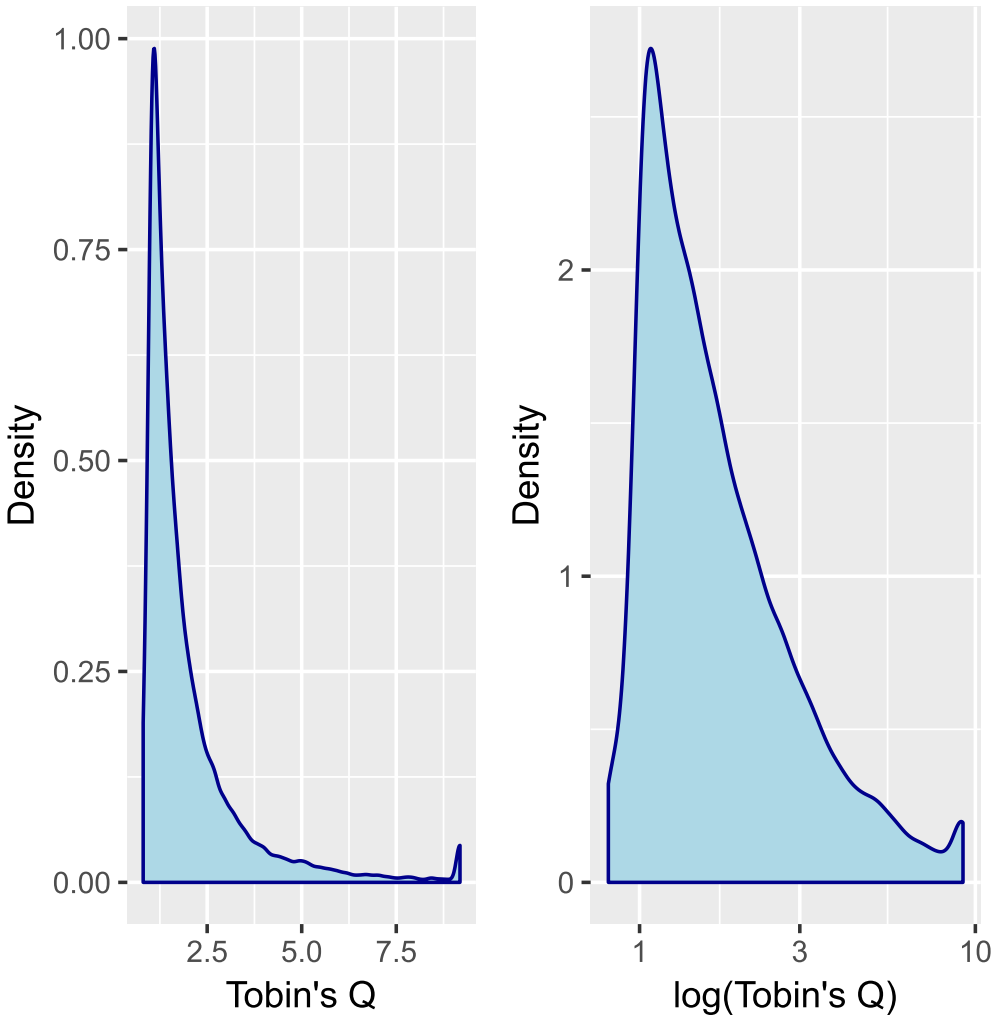

Fig. A2 Dependent variable: Tobin's Q.

B. Definitions of variables

Table B1
Definition of variables.

Variables	Definitions
Ideology	The estimated ideological position of each donor. *Source:* Bonica (2014)
ENP	A measure of local political competition proposed by Laakso and Taagepera (1979) as defined in (5). *Source:* Own Computation
Diversity	This is the overall diversity among all the firm's Directors and top Management *Source:* Own Computation
$Diversity^{-M}$	This is the measure of Diversity among board members (excluding top management who are not members of the board) as defined in)2 *Source:* Own Computation
$Diversity^{BM}$	Diversity between executives and non-executive Directors as defined in (3). *Source:* Own Computation
Tobin's Q	Ratio of the market value of a firm to the book value of the firm's assets. *Source:* Bloomberg (2014) and computed as: $\frac{\text{MarketCap+Total Liabilities+Preferred Equity+Minority Interest}}{\text{Total Assets}}$
Assets	The total of all short and long-term assets as reported on the Balance Sheet. *Source:* Bloomberg (2014)
Leverage	The ratio of total debt to total assets. *Source:* Bloomberg (2014)
Board Size	The number of Directors on the company's board. *Source:* Own Computation based on hand-collected data.
Prop.Ind.Dir	The proportion of independent (outside) directors on a board. *Source:* Own Computation based on hand-collected data.

C. Alternative measures of board diversity

C.1. Non-donors are representative of the U.S. population

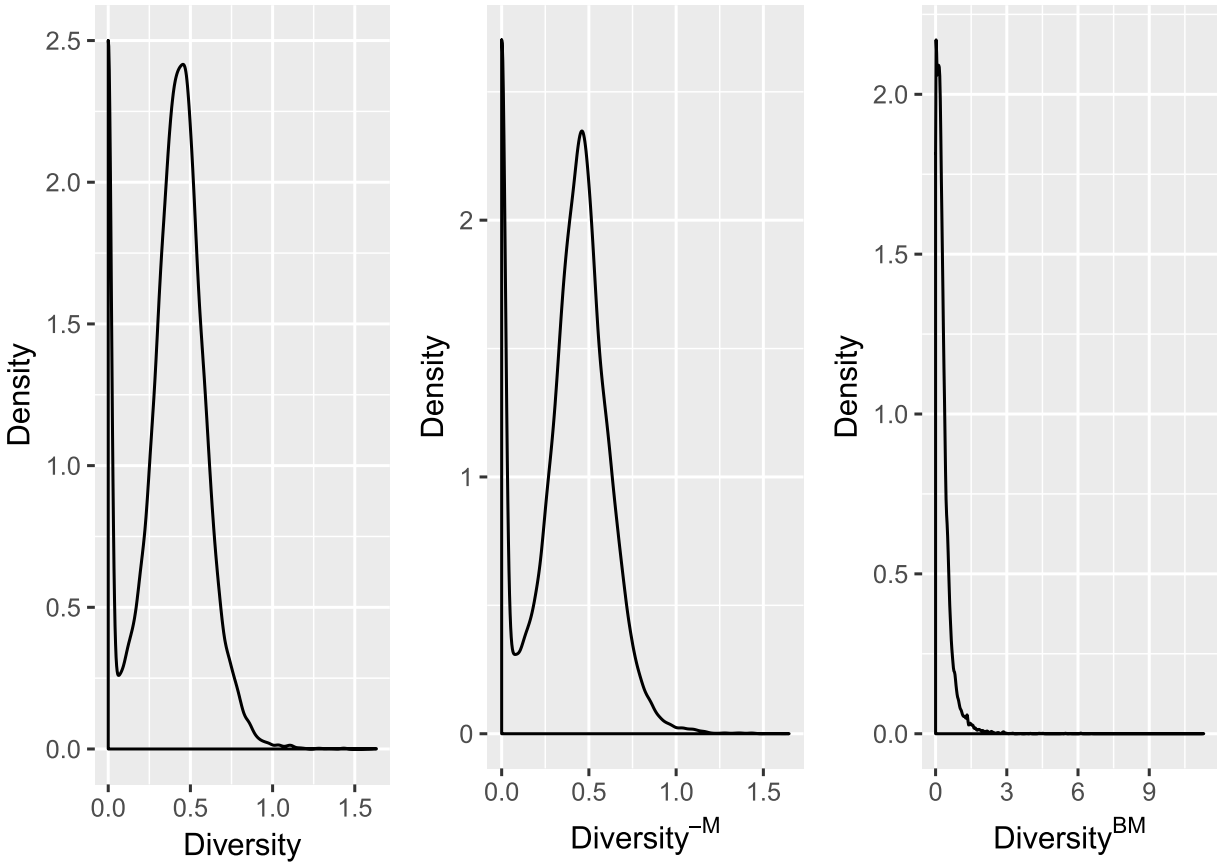

Fig. C1 Board diversity measures (Alternative-1).

Table C1
Board diversity and firm performance: Pooled OLS results. (Alternative 1:Non-Donors Are Representative of the U.S. Population)

	Dependent variable: Tobin's Qt+1		
	(1)	(2)	(3)
$Diversity_{it}$	0.118***		
	(0.036)		
$Diversity_{it}^{-\mathcal{M}}$		0.109***	
		(0.035)	
$Diversity_{it}^{\mathcal{BM}}$			0.002
			(0.017)
logassets	−0.057***	−0.057***	−0.055***
	(0.006)	(0.006)	(0.006)
Leverage	−0.002***	−0.002***	−0.002***
	(0.0004)	(0.0004)	(0.0004)
logBoardSize	0.038***	0.041***	0.036**
	(0.014)	(0.014)	(0.017)
Prop.Ind.Dir	0.149***	0.151***	0.145***
	(0.033)	(0.034)	(0.038)
Constant	0.319	0.318	0.844***
	(0.456)	(0.397)	(0.319)
Ind/year Effects	Yes	Yes	Yes
Observations	27,102	27,003	24,845
R^2	0.391	0.391	0.389
Adjusted R^2	0.389	0.389	0.387

Notes: This table presents the results of (4) a pooled OLS regression that examines a relation between each of the three Ideological Diversity measures and firm value (measured by the log of Tobin's Q, one period ahead).

$$\log Q_{it+1} = \beta X_{it} + \gamma \text{Diversity}_{it} + \tau_t + \upsilon_l + \epsilon_{it}$$

See text for detailed definitions of the diversity measures, Prop.Ind.Dir is the proportion of independent directors in the board, detailed definitions of variables are in Table B1 of the appendix. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are also included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table C2
Directors political diversity and firm performance: First stage. (Alternative 1:Non-Donors Are Representative of the U.S. Population)

	Dependent variable: $Diversity_{it}$				
	(1)	(2)	(3)	(4)	(5)
ENP	0.067***	0.070***	0.021**	0.022**	0.010
	(0.009)	(0.009)	(0.009)	(0.009)	(0.013)
logassets			−0.004	0.00004	−0.00004
			(0.003)	(0.003)	(0.003)
Leverage			−0.0002	0.0001	0.0001
			(0.0002)	(0.0002)	(0.0002)
logBoardSize			0.104***	0.102***	0.067***
			(0.008)	(0.008)	(0.010)
Prop.Ind.Dir			−0.116***	−0.124***	−0.097***
			(0.022)	(0.022)	(0.022)
Constant	0.249***	0.258***	0.219***	0.185***	0.115*
	(0.016)	(0.039)	(0.030)	(0.044)	(0.069)
Ind/year Effects	No	Yes/No	No	Yes/No	Yes/Yes
Observations	5068	5061	3815	3814	3814
R^2	0.013	0.048	0.156	0.198	0.224
Adjusted R^2	0.013	0.036	0.155	0.183	0.207

Notes: This table presents the results of the first-stage (6) of the 2SLS estimator in (7). We regress $Diversity_{it}$ (overall firm diversity) on the instrumental variable, local political diversity, as measured by the Effective Number of Parties (ENP). The specification estimated is:

$$\text{Diversity}_{it} = \Pi X_{it} + \Theta \text{ENP}_{it} + \Lambda_t + \Phi_l + \zeta_{it}$$

Prop.Ind.Dir is the proportion of independent directors in the board, detailed definitions of variables are in Table B1 of the appendix. Numbers in parentheses are robust standard errors (clustered at firm level). ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table C3
Directors political diversity and firm performance: Second stage. (Alternative 1:Non-Donors Are Representative of the U.S. Population)

	Dependent variable: Tobin's Qt+1				
	(1)	(2)	(3)	(4)	(5)
$Diversity_{it}$	−1.144***	−0.825***	−5.722*	−3.235*	−1.526
	(0.399)	(0.303)	(3.085)	(1.721)	(3.695)
logassets			−0.129***	−0.049***	−0.047***
			(0.025)	(0.013)	(0.012)
Leverage			−0.004***	−0.001	−0.001
			(0.001)	(0.001)	(0.001)
logBoardSize			0.716**	0.375**	0.155
			(0.339)	(0.186)	(0.251)
Prop.Ind.Dir			−0.369	−0.246	−0.005
			(0.381)	(0.231)	(0.345)
Constant	1.026***	0.996***	2.490***	1.657***	0.932*
	(0.154)	(0.121)	(0.807)	(0.420)	(0.517)
Ind/year Effects	No	Yes/No	No	Yes/No	Yes/Yes
Confidence Sets	[−2.052,−.472]	[−1.442,−.326]	[…,−2.370]	[−18.079,−1.067]	entire grid
Observations	4146	4145	3680	3680	3680
R^2	0.001	0.277	0.002	0.097	0.242
Adjusted R^2	0.001	0.265	0.0004	0.079	0.225

Notes: This table presents the results of the two-stage least squares (2 SLS) regression of firm performance (Tobin's Q) on all Director's diversity ($Diversity_{it}$). The specification estimated is (7):

$$\log Q_{it+1} = \pi X_{it} + \delta \widehat{\text{Diversity}}_{it} + \lambda_t + \varphi_l + \epsilon_{it}$$

Where $\widehat{\text{Diversity}}_{it}$ are the predicted values obtained from (6) as reported in Table C2. Prop.Ind.Dir is the proportion of independent directors in the board, detailed definitions of variables are in Table B1 of the appendix. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table C4
Non-executive directors diversity and firm performance: First stage. (Alternative 1:Non-Donors Are Representative of the U.S. Population)

	Dependent variable: $Diversity_{it}^{-\mathcal{M}}$				
	(1)	(2)	(3)	(4)	(5)
ENP	0.070***	0.071***	0.017*	0.018*	0.018
	(0.010)	(0.010)	(0.010)	(0.010)	(0.014)
logassets			−0.001	0.002	0.002
			(0.003)	(0.003)	(0.003)
Leverage			−0.0002	0.0001	0.0001
			(0.0002)	(0.0002)	(0.0002)
logBoardSize			0.111***	0.110***	0.082***
			(0.009)	(0.009)	(0.011)
Prop.Ind.Dir			−0.181***	−0.190***	−0.167***
			(0.023)	(0.024)	(0.024)
Constant	0.247***	0.259***	0.221***	0.190***	0.126*
	(0.017)	(0.041)	(0.033)	(0.048)	(0.070)
Ind/year Effects	No	Yes/No	No	Yes/No	Yes/Yes
Observations	4848	4841	3792	3791	3791
R^2	0.013	0.048	0.172	0.213	0.228
Adjusted R^2	0.013	0.034	0.170	0.198	0.211

Notes: This table presents the results of the first-stage (6) of the 2SLS estimator in (7). We regress $Diversity_{it}^{-\mathcal{M}}$ (Non-Executive Directors Diversity) on the instrumental variable, local political diversity, as measured by the Effective Number of Parties (ENP). The specification estimated is:

$$\text{Diversity}_{it} = \Pi X_{it} + \Theta \text{ENP}_{it} + \Lambda_t + \Phi_l + \zeta_{it}$$

Prop.Ind.Dir is the proportion of independent directors in the board, detailed definitions of variables are in Table B1 of the appendix. Numbers in parentheses are robust standard errors (clustered at firm level). ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table C5
Non-executive directors diversity and firm performance: Second stage. (Alternative 1:Non-Donors Are Representative of the U.S. Population)

	Dependent variable: Tobin's Qt+1				
	(1)	(2)	(3)	(4)	(5)
$\text{Diversity}_{it}^{-\mathcal{M}}$	−1.065***	−0.747**	−6.278	−3.596	−0.663
	(0.393)	(0.301)	(4.095)	(2.325)	(1.844)
logassets			−0.111***	−0.039***	−0.043***
			(0.023)	(0.015)	(0.009)
Leverage			−0.005***	−0.001	−0.001*
			(0.002)	(0.001)	(0.001)
logBoardSize			0.810*	0.436	0.107
			(0.471)	(0.267)	(0.153)
Prop.Ind.Dir			−0.809	−0.509	0.028
			(0.730)	(0.439)	(0.294)
Constant	0.995***	0.966***	2.587**	1.705***	0.819***
	(0.152)	(0.122)	(1.034)	(0.534)	(0.310)
Ind/year Effects	No	Yes/No	No	Yes/No	Yes/Yes
Confidence Sets	[−1.959,−.405]	[−1.359,−.251]	[…,−2.638]	[…,−1.118]	entire grid
Observations	4027	4026	3658	3658	3658
R^2	0.001	0.280	0.0003	0.069	0.342
Adjusted R^2	0.001	0.268	−0.001	0.050	0.327

Notes: This table presents the results of the two-stage least squares (2 SLS) regression of firm performance (Tobin's Q) on board diversity ($\text{Diversity}_{it}^{-\mathcal{M}}$). The specification estimated is (7):

$$\log Q_{it+1} = \pi X_{it} + \delta \widehat{\text{Diversity}}_{it} + \lambda_t + \varphi_l + \epsilon_{it}$$

Where ($\widehat{\text{Diversity}}_{it}^{-\mathcal{M}}$) are the predicted values obtained from (6) as reported in Table C4. Prop.Ind.Dir is the proportion of independent directors in the board, detailed definitions of variables are in Table B1 of the appendix. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

C.2. Non-donors are representative of the population of all directors

Table C6
Board diversity and firm performance: Pooled OLS results. (Alternative 2: Non-Donors are Representative of the Population of all Directors)

	Dependent variable: Tobin's Qt+1		
	(1)	(2)	(3)
Diversity_{it}	0.084		
$\text{Diversity}_{it}^{-\mathcal{M}}$		0.089***	
		(0.029)	
$\text{Diversity}_{it}^{B\mathcal{M}}$			0.001
			(0.019)
logassets	−0.058	−0.059***	−0.057***
		(0.006)	(0.006)
Leverage	−0.002	−0.002***	−0.002***
		(0.0004)	(0.0004)
logBoardSize	0.033	0.035**	0.037**
		(0.015)	(0.017)
Prop.Ind.Dir	0.162	0.164***	0.153***
		(0.035)	(0.039)
Constant	0.634	0.633***	0.849***
		(0.148)	(0.315)
Ind/year Effects	Yes	Yes	Yes
Observations	25,695	25,631	24,203
R^2	0.395	0.395	0.394
Adjusted R^2	0.392	0.392	0.392

Notes: This table presents the results of (4) a pooled OLS regression that examines a relation between each of the three Ideological Diversity measures and firm value (measured by the log of Tobin's Q, one period ahead).

$$\log Q_{it+1} = \beta X_{it} + \gamma \text{Diversity}_{it} + \tau_t + \upsilon_l + \epsilon_{it}$$

See text for detailed definitions of the diversity measures, Prop.Ind.Dir is the proportion of independent directors in the board, detailed definitions of variables are in Table B1 of the appendix. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are also included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table C7
Directors political diversity and firm performance: First stage. (Alternative 2: Non-Donors are Representative of the Population of all Directors)

	Dependent variable: Diversity_{it}				
	(1)	(2)	(3)	(4)	(5)
ENP	0.106***	0.106***	0.045***	0.046***	0.016
	(0.010)	(0.010)	(0.010)	(0.011)	(0.015)
logassets			0.001	0.008**	0.007**
			(0.003)	(0.003)	(0.003)
Leverage			−0.00004	0.0002	0.0002
			(0.0002)	(0.0002)	(0.0002)
logBoardSize			0.137***	0.133***	0.107***
			(0.008)	(0.008)	(0.010)
Prop.Ind.Dir			−0.102***	−0.109***	−0.091***
			(0.023)	(0.023)	(0.024)
Constant	0.096***	0.041	−0.050	−0.147***	−0.158**
	(0.018)	(0.041)	(0.034)	(0.050)	(0.072)
Ind/year Effects	No	Yes/No	No	Yes/No	Yes/Yes
Observations	4308	4303	3465	3464	3464
R^2	0.028	0.066	0.176	0.233	0.245
Adjusted R^2	0.028	0.051	0.175	0.217	0.227

Notes: This table presents the results of the first-stage (6) of the 2SLS estimator in (7). We regress Diversity_{it} (overall firm diversity) on the instrumental variable, local political diversity, as measured by the Effective Number of Parties (ENP). The specification estimated is:

$$\text{Diversity}_{it} = \Pi X_{it} + \Theta \text{ENP}_{it} + \Lambda_t + \Phi_l + \zeta_{it}$$

Prop.Ind.Dir is the proportion of independent directors in the board, detailed definitions of variables are in Table B1 of the appendix. Numbers in parentheses are robust standard errors (clustered at firm level). ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table C8
Directors political diversity and firm performance: Second stage. (Alternative 2: Non-Donors are Representative of the Population of all Directors)

	Dependent variable: Tobin's Qt+1				
	(1)	(2)	(3)	(4)	(5)
Diversity_{it}	−0.896***	−0.694***	−2.865***	−1.947***	−2.204
	(0.279)	(0.221)	(1.033)	(0.744)	(3.309)
logassets			−0.097***	−0.029**	−0.028
			(0.013)	(0.012)	(0.024)
Leverage			−0.004***	−0.001	−0.001
			(0.001)	(0.001)	(0.001)
logBoardSize			0.499***	0.298***	0.287
			(0.152)	(0.108)	(0.362)
Prop.Ind.Dir			0.015	−0.066	−0.059
			(0.138)	(0.108)	(0.313)
Constant	0.846***	0.899***	1.082***	0.813***	0.536
	(0.084)	(0.095)	(0.128)	(0.166)	(0.519)
Ind/year Effects	No	Yes/No	No	Yes/No	Yes/Yes
Confidence Sets	[−1.475,−.426]	[−1.144,−.287]	[−6.231,−1.335]	[−4.178,−.867]	entire grid
Observations	3669	3669	3354	3354	3354
R^2	0.001	0.289	0.004	0.160	0.141
Adjusted R^2	0.001	0.276	0.002	0.142	0.119

Notes: This table presents the results of the two-stage least squares (2 SLS) regression of firm performance (Tobin's Q) on all Director's diversity (Diversity_{it}). The specification estimated is (7):

$$\log Q_{it+1} = \pi X_{it} + \delta \widehat{\text{Diversity}}_{it} + \lambda_t + \varphi_l + \epsilon_{it}$$

Where $\widehat{\text{Diversity}}_{it}$ are the predicted values obtained from (6) as reported in Table C7. Prop.Ind.Dir is the proportion of independent directors in the board, detailed definitions of variables are in Table B1 of the appendix. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table C9
Non-executive directors diversity and firm performance: First stage. (Alternative 2:Non-Donors are Representative of the Population of all Directors)

	Dependent variable: $\text{Diversity}_{it}^{-\mathcal{M}}$				
	(1)	(2)	(3)	(4)	(5)
ENP	0.112***	0.112***	0.048***	0.049***	0.022
	(0.011)	(0.011)	(0.011)	(0.011)	(0.015)
logassets			0.002	0.008**	0.008**
			(0.003)	(0.003)	(0.003)
Leverage			−0.0001	0.0002	0.0002
			(0.0002)	(0.0002)	(0.0002)
logBoardSize			0.142***	0.140***	0.114***
			(0.008)	(0.008)	(0.011)
Prop.Ind.Dir			−0.157***	−0.166***	−0.147***
			(0.023)	(0.024)	(0.024)
Constant	0.096***	0.046	−0.041	−0.132**	−0.123
	(0.019)	(0.047)	(0.036)	(0.054)	(0.090)
Ind/year Effects	No	Yes/No	No	Yes/No	Yes/Yes
Observations	4195	4190	3449	3448	3448
R^2	0.029	0.066	0.179	0.234	0.245
Adjusted R^2	0.029	0.051	0.178	0.218	0.227

Notes:This table presents the results of the first-stage (6) of the 2SLS estimator in (7). We regress $\text{Diversity}_{it}^{-\mathcal{M}}$ (Non-Executive Directors Diversity) on the instrumental variable, local political diversity, as measured by the Effective Number of Parties (ENP). The specification estimated is:

$$\text{Diversity}_{it} = \Pi X_{it} + \Theta \text{ENP}_{it} + \Lambda_t + \Phi_l + \zeta_{it}$$

Prop.Ind.Dir is the proportion of independent directors in the board, detailed definitions of variables are in Table B1 of the appendix. Numbers in parentheses are robust standard errors (clustered at firm level). ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table C10
Non-executive directors diversity and firm performance: Second stage. (Alternative :Non-Donors are Representative of the Population of all Directors)

	Dependent variable: Tobin's Qt+1				
	(1)	(2)	(3)	(4)	(5)
$\text{Diversity}_{it}^{-\mathcal{M}}$	−0.804***	−0.610***	−2.589***	−1.732**	−1.400
	(0.264)	(0.210)	(0.938)	(0.679)	(2.029)
logassets			−0.093***	−0.028**	−0.031*
			(0.013)	(0.012)	(0.018)
Leverage			−0.004***	−0.001	−0.001
			(0.001)	(0.001)	(0.001)
logBoardSize			0.476***	0.279***	0.211
			(0.144)	(0.105)	(0.236)
Prop.Ind.Dir			−0.095	−0.136	−0.060
			(0.167)	(0.130)	(0.297)
Constant	0.826***	0.889***	1.096***	0.847***	0.690**
	(0.082)	(0.096)	(0.125)	(0.162)	(0.332)
Ind/year Effects	No	Yes/No	No	Yes/No	Yes/Yes
Confidence Sets	[−1.352,−.361]	[−1.036,−.224]	[−5.647,−1.199]	[−3.637,−.746]	entire grid
Observations	3610	3610	3339	3339	3339
R^2	0.002	0.298	0.003	0.170	0.217
Adjusted R^2	0.001	0.285	0.002	0.152	0.197

Notes: This table presents the results of the two-stage least squares (2 SLS) regression of firm performance (Tobin's Q) on board diversity ($\text{Diversity}_{it}^{-\mathcal{M}}$). The specification estimated is (7):

$$\log Q_{it+1} = \pi X_{it} + \delta \widehat{\text{Diversity}}_{it} + \lambda_t + \varphi_l + \epsilon_{it}$$

Where $\widehat{\text{Diversity}}_{it}^{-\mathcal{M}}$ are the predicted values obtained from (6) as reported in Table C9. Prop.Ind.Dir is the proportion of independent directors in the board, detailed definitions of variables are in Table B1 of the appendix. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

C.3. Excluding the largest 10% of firms

Table C11
Excluding the largest firms: Pooled OLS results.

	Dependent variable: Tobin's Qt+1		
	(1)	(2)	(3)
$Diversity_{it}$	0.043**		
	(0.020)		
$Diversity_{it}^{-\mathcal{M}}$		0.051**	
		(0.020)	
$Diversity_{it}^{B\mathcal{M}}$			−0.0003
			(0.004)
logassets	−0.081***	−0.079***	−0.073***
	(0.007)	(0.007)	(0.008)
Leverage	−0.002***	−0.002***	−0.002***
	(0.0005)	(0.0005)	(0.001)
logBoardSize	0.031*	0.035*	0.019
	(0.018)	(0.019)	(0.020)
Prop.Ind.Dir	0.163***	0.158***	0.139***
	(0.039)	(0.041)	(0.048)
Constant	0.761***	0.741***	0.881***
	(0.080)	(0.081)	(0.081)
Ind/year Effects	Yes	Yes	Yes
Observations	20,944	19,955	15,828
R^2	0.391	0.393	0.365
Adjusted R^2	0.388	0.390	0.362

Notes: This table presents the results of (4) a pooled OLS regression that examines a relation between each of the three Ideological Diversity measures and firm value (measured by the log of Tobin's Q, one period ahead).

$$\log Q_{it+1} = \beta X_{it} + \gamma \text{Diversity}_{it} + \tau_t + \upsilon_l + \epsilon_{it}$$

See text for detailed definitions of the diversity measures, Prop.Ind.Dir is the proportion of independent directors in the board, detailed definitions of variables are in Table B1 of the appendix. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are also included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table C12
Excluding the largest firms: First stage.

	Dependent variable: Diversity_{it}				
	(1)	(2)	(3)	(4)	(5)
ENP	0.137***	0.140***	0.068***	0.063***	0.006
	(0.020)	(0.020)	(0.021)	(0.021)	(0.028)
logassets			−0.026***	−0.014*	−0.016**
			(0.007)	(0.008)	(0.008)
Leverage			0.0001	0.001*	0.001*
			(0.0004)	(0.0004)	(0.0004)
logBoardSize			0.193***	0.197***	0.151***
			(0.018)	(0.018)	(0.022)
Prop.Ind.Dir			−0.287***	−0.329***	−0.299***
			(0.045)	(0.047)	(0.047)
Constant	0.321***	0.272***	0.328***	0.198*	0.040
	(0.037)	(0.084)	(0.068)	(0.104)	(0.139)
Ind/year Effects	No	Yes/No	No	Yes/No	Yes/Yes
Observations	3180	3177	2670	2670	2670
R^2	0.018	0.074	0.114	0.184	0.197
Adjusted R^2	0.017	0.054	0.113	0.162	0.172

Notes: This table presents the results of the first-stage (6) of the 2SLS estimator in (7). We regress Diversity_{it} (overall firm diversity) on the instrumental variable, local political diversity, as measured by the Effective Number of Parties (ENP). The specification estimated is:

$$\text{Diversity}_{it} = \Pi X_{it} + \Theta \text{ENP}_{it} + \Lambda_t + \Phi_l + \zeta_{it}$$

Prop.Ind.Dir is the proportion of Independent directors in the board, detailed definitions of variables are in Table B1 of the appendix. Numbers in parentheses are robust standard errors (clustered at firm level). ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table C13
Excluding the largest firms: Second stage.

	Dependent variable: Tobin's Qt+1				
	(1)	(2)	(3)	(4)	(5)
Diversity_{it}	−0.789***	−0.614***	−1.385*	−1.090*	−27.845
	(0.295)	(0.237)	(0.736)	(0.636)	(548.471)
logassets			−0.175***	−0.090***	−0.579
			(0.025)	(0.018)	(9.929)
Leverage			−0.003**	−0.0004	0.015
			(0.001)	(0.001)	(0.311)
logBoardSize			0.365**	0.263*	4.387
			(0.156)	(0.138)	(85.748)
Prop.Ind.Dir			−0.135	−0.259	−8.333
			(0.233)	(0.224)	(166.161)
Constant	1.042***	1.031***	1.911***	1.454***	2.544
	(0.171)	(0.159)	(0.346)	(0.254)	(34.596)
Ind/year Effects	No	Yes/No	No	Yes/No	Yes/Yes
Observations	2771	2771	2586	2586	2586
R^2	0.010	0.194	0.006	0.142	0.001
Adjusted R^2	0.010	0.175	0.004	0.119	−0.032

Notes: This table presents the results of the two-stage least squares (2 SLS) regression of firm performance (Tobin's Q) on all Director's diversity (Diversity_{it}). The specification estimated is (7):

$$\log Q_{it+1} = \pi X_{it} + \delta \widehat{\text{Diversity}}_{it} + \lambda_t + \varphi_l + \epsilon_{it}$$

Where $\widehat{\text{Diversity}}_{it}$ are the predicted values obtained from (6) as reported in Table 3. Prop.Ind.Dir is the proportion of independent directors in the board, detailed definitions of variables are in Table B1 of Appendix. Numbers in parentheses are robust standard errors (clustered at firm level). Industry and year dummies are included. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

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