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**IDEOLOGICAL HOMOPHILY IN BOARD COMPOSITION AND INTERLOCK
NETWORKS: DO LIBERAL DIRECTORS INHIBIT VIEWPOINT DIVERSITY?**

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ABSTRACT

Research Issue: A consistent feature of social networks is homophily: the tendency for people to interact with similar others. Psychological and sociological research suggests that homophily is most pronounced along ideological lines, with conflicting evidence as to whether this tendency is higher among individuals who hold liberal or conservative beliefs. Based on this literature, we conduct the first study of ideological homophily in two key organizational networks: the intra-firm connections among directors on the board, and the inter-firm connections created by board interlocks.

Research Insights: In a panel of 408 U.S. firms between 2000 and 2020, we find that liberalism increases homophily both within and between boards. Furthermore, we find that homophily has decreased over time, but that this has been driven by conservative boards while the effect of liberalism has strengthened in recent years. These findings provide the first evidence for an ideological component in the composition of intra- and inter-organizational networks.

Academic Implications: Most research on director selection and interlock formation has focused on situational or demographic antecedents. Our findings contribute to the development of a broader theoretical framework that accounts for individual dispositional factors in these processes.

Practitioner Implications: Our findings bring attention to the issue of ideological homogeneity in firms. Given the growth of homophilic tendencies among liberal directors in recent years, we suggest that it may be increasingly important for directors to become aware, and mitigate the effects of, their ideological biases in order to maintain cognitive diversity in information networks and decision-making.

Keywords: board interlocks; boards of directors; homophily; social networks

INTRODUCTION

The board of directors is the “apex of decision control” (Fama & Jensen, 1983, p. 311), setting the strategic direction and objectives of the firm (Bailey & Peck, 2013). Board interlocks—formed when a director serves on the board of two firms (Mizruchi, 1996)—are a key conduit of information for boards’ decision-making, providing access to market intelligence (Yoshikawa,

Shim, Kim, & Tuschke, 2019), aiding in the diffusion of new and best practices (Beckman & Haunschild, 2002), and opening access to critical resources (Withers, Hillman, & Cannella, 2012). Consequently, the composition of the board and the firm's position within interlock networks are pertinent topics in organizational research for two reasons: (1) interlocks affect the volume and content of interfirm information flows (Li, 2019; Yoshikawa et al., 2019); and, (2) the cognitive frameworks of directors influences how this information is used in decisions (Bailey & Peck, 2013; Van Ees, Gabrielsson, & Huse, 2009).

Both board composition (Withers et al., 2012) and interlock formation (Bazerman & Schoorman, 1983) are consequences of the social embeddedness of corporate boards, being substantially influenced by social and individual factors beyond the economic considerations of the firm and its shareholders (Van Ees et al., 2009; Westphal & Zajac, 1995). Specifically, the appointment of new directors—and thus the formation of board interlocks—is necessarily limited by extant social connections and dependent upon interpersonal political factors and individual biases (Bazerman & Schoorman, 1983; Withers, Howard, & Tihanyi, 2020). Antecedents to the composition of boards and interlock networks are therefore both *situational*, pertaining to the operating environment of firms or social context of interpersonal interactions, and *dispositional*, related to the cognitive and affective biases of individuals (c.f. Kelley, 1973).

Most research to date has examined situational factors, leading to a theoretical understanding of board composition and network formation that may understate the role of directors' cognitive and affective frames (Gupta & Wowak, 2017; Shropshire, 2010), despite longstanding recognition that the values, beliefs, and attitudes of decision-makers affect firm-level outcomes (Chin, Hambrick, & Treviño, 2013). Research on TMTs (Chin & Semadeni, 2017; Chin et al., 2013; Christensen, Dhaliwal, Boivie, & Graffin, 2015; Gupta, Fung, &

Murphy, 2020; Hutton, Jiang, & Kumar, 2014; Kashmiri & Mahajan, 2017), and some notable exceptions to the situational focus in board research (Di Giuli & Kostovetsky, 2014; Gupta & Wowak, 2017; Park, Boeker, & Gomulya, 2020), highlight a key dispositional factor: *ideology*. This refers to an individual's internally consistent belief system, comprising the attitudes and values that underlie thought and behavior (Jost, 2006; Tedin, 1987), and is observable and measurable by political orientations (Chin et al., 2013; Erikson & Tedin, 2003; Jost, Federico, & Napier, 2009). The liberal-conservative spectrum is most commonly applied, as the distinction has remained stable over time (Jost, 2006), predictably correlates with personality traits (Gerber, Huber, Doherty, & Dowling, 2011), cognitive biases (Fatke, 2017), and values (Carney, Jost, Gosling, & Potter, 2008), and provides a framework for action across a range of domains (Jost et al., 2009).

Accordingly, there is evidence for effects of decision-makers' ideologies on a range of firm outcomes. Liberal CEOs are more likely to engage in corporate social responsibility (CSR) (Chin et al., 2013) and appoint CSR executives (Gupta et al., 2020), and have a higher rate of new product introductions (Kashmiri & Mahajan, 2017). Firms with conservative managers have lower levels of debt, higher profitability, and less risky investments (Hutton et al., 2014), greater pay dispersion within the TMT (Chin & Semadeni, 2017) and lower rates of tax avoidance (Christensen et al., 2015). At the board level, conservatism is associated with higher CEO compensation and a stronger correlation between compensation and performance (Gupta & Wowak, 2017), higher rates of CEO dismissal following financial misconduct (Park et al., 2020), and lower adoption of CSR policies (Di Giuli & Kostovetsky, 2014). These outcomes are predictably aligned with the personality characteristics typically associated with each pole of the political spectrum, such as differences in risk tolerance and perceptions of fairness (c.f.

Gerber, Huber, Doherty, Dowling, & Ha, 2010; Haidt, 2001). To date, however, there have been no studies of the influence of ideology on the structure of board interlock networks and the position of the firm within these (Gupta & Wowak, 2017), despite evidence that the ideologies of peer firms are salient to decision-makers at the TMT level (Gupta et al., 2020). Similarly, the relationship between ideology and board composition has only been studied tangentially to the monitoring effectiveness of inside and outside directors (Kim, Pantzalis, & Park, 2013).

We posit that director ideology is an overlooked dispositional antecedent to board composition and interlocks. We base this assertion in the psychological literature on *homophily*, a “remarkably consistent structural feature” of social connections whereby individuals demonstrate a preference for forming ties to similar others (McPherson, Smith-Lovin, & Cook, 2001, p. 429). Thus, director appointment may preferentially select for ideologically similarity to incumbent board members. As this process also determines the structure of the board interlock network, we examine two outcomes: *board ideological homophily*, the degree of homogeneity in political orientations among directors, and *network ideological homophily*, the degree of homogeneity in political orientations of the boards to which a focal firm connects.

We make an ostensibly counterintuitive prediction: *liberalism will increase ideological homophily*, such that boards with more liberal directors will exhibit less viewpoint diversity within the board and establish fewer ideologically incongruent interlocks. This conflicts with the stereotype of the ‘open-minded liberal’ (Jost, Glaser, Kruglanski, & Sulloway, 2003), but aligns with studies of social and professional networks (Inbar & Lammers, 2012, p. e.g. ; Yoo, Ng, & Johnson, 2018), and psychological evidence (e.g. Brandt, Reyna, Chambers, Crawford, & Wetherell, 2014; Crawford, Brandt, Inbar, Chambers, & Motyl, 2017) that indicates greater ideological intolerance among liberals. We examine why these discrepancies have emerged and

posit that the social context of the board is likely to induce the latter effect, with liberals' beliefs about the social purpose of business encouraging the maintenance of ideological homogeneity.

Analysis of data on board composition and interlocks from 408 large U.S. firms between 2000 and 2020 demonstrates that board liberalism increases homophily at both the intra- and inter-organizational level. Furthermore, despite overall levels of ideological homophily decreasing over the 20 years of our sample, the effect of liberalism on board and network homophily has increased. This suggests that increases in the ideological diversity of boards and interlock networks have been primarily driven by conservative directors.

This study provides the first theoretical rationale and empirical evidence for an ideological component in the composition of boards and the structure of interlock networks, with implications for understanding the dispositional antecedents to director selection. Notably, our findings run counter to the long-held assumption in political psychology of the 'rigidity of the right', i.e. the attribution of ideological intolerance as primarily a conservative trait (Jost et al., 2003). This has recently been challenged on the grounds of methodological limitations in survey studies and potentially biased assumptions in the field, with mounting evidence for ideological intolerance among liberals (Conway et al., 2016; Malka, Lelkes, & Holzer, 2017; Malka, Soto, Inzlicht, & Lelkes, 2014). By utilizing an objective assessment of political ideology and examining the actual formation of network ties rather than stated preferences, we thus provide a complement to these recent studies that further substantiates this more nuanced perspective. Specifically, our findings align with recent research demonstrating that differences in ideological homophily across the political spectrum may be issue- or context-specific (e.g. Brandt et al., 2014; Crawford et al., 2017), suggesting that liberal and conservative views on the role of firms in society may differentially induce homophily in the organizational setting.

Accordingly, while our findings ostensibly conflict with the behavioral differences between liberals and conservatives that have thus far been substantiated in management research (e.g. Gupta et al., 2020; Park et al., 2020), these may be explained by the well-documented tendency for conservatives to manage primarily according to the profit motive (Chin et al., 2013) compared with the increasing propensity for liberal ideologies to influence the strategic actions of firms (Bhagwat, Warren, Beck, & Watson, 2020; Moorman, 2020). The internal manifestations of this trend towards corporate sociopolitical activism have not yet been explored. Our findings thus have practical significance in bringing attention to the issue of ideological homogeneity in firms, as has recently been highlighted in other organizational settings (Duarte et al., 2015; Haidt & Lukianoff, 2018). Ideological diversity within teams can lead to more creative and novel problem-solving (Mannix & Neale, 2005; Page, 2008) whereas a lack of viewpoint diversity can prevent the recognition and correction of errors (Duarte et al., 2015). Similarly, network ties to dissimilar firms constitutes a form of board social capital that facilitates access to heterogeneous knowledge resources (Withers et al., 2012). Ideological homophily within boards and interlock networks thus has clear implications for strategic decision-making (e.g. Cumming & Leung, 2021; Klarner, Yoshikawa, & Hitt, 2018; Westphal & Zajac, 1995), and understanding the factors that contribute to ideological homogeneity is pertinent to firms. Considering the temporal variation we find in the homophilic effects of board liberalism, it may be increasingly important for directors to become aware, and mitigate the effects of, their ideological biases.

THEORY AND HYPOTHESES

The ‘rigidity of the right’ versus ‘repressive tolerance’

Homophily involves the selective and preferential formation of social connections to similar others. This effect is stronger for certain dimensions of similarity. For example, groups exhibit

stronger homophily along the lines of race and ethnicity than gender or age (see McPherson et al., 2001 for a review). The most significant attribute upon which homophilic ties are formed is ideology: similarity in values, beliefs, and attitudes (Lazarsfeld & Merton, 1954). This is the “arena where most people spontaneously recognize that similarity breeds fellowship” (McPherson et al., 2001, p. 428) and experimental evidence has long substantiated the tendency for preferential association along ideological lines (Huston & Levinger, 1978). Ideological homophily may occur intentionally, as individuals learn about the beliefs of others and consciously choose to associate with similar others (Kossinets & Watts, 2009). However, homophily may also occur on the basis of behavior and thus unintentionally result in ideological homophily, as similar behavioral patterns are likely to reflect similar underlying belief structures (Gerber et al., 2011; Jost et al., 2009). Accordingly, much of what appears as demographic homophily can be explained by ‘hidden’ value congruence and/or the inclination to assume that demographically similar individuals hold similar ideological positions (Huckfeldt & Sprague, 1995; McPherson et al., 2001).

Political orientation has been established as a key measure of ideology in the study of homophily (Huckfeldt & Sprague, 1995; Knoke, 1990), with the liberal-conservative spectrum considered the most parsimonious and practical classification for over 200 years (Jost, 2006). Regarding social beliefs, conservatives prefer gradual change and respect existing norms and institutions (Carney et al., 2008), whereas liberals show greater tolerance of revolutionary change, risk, novelty, and complexity (Thórisdóttir & Jost, 2011). In economic terms, conservatives’ emphasis on individual agency and proportionality in rewards leads to a preference for free markets, property rights, and capitalism (Tetlock, 2000) whereas liberals’ focus on collective agency and social justice leads to an emphasis on egalitarianism and social

safety nets (Gerber et al., 2010). This spectrum is a valid proxy for individuals' belief systems due to a strong and persistent association with underlying personality traits and values (Carney et al., 2008; Gerber et al., 2011; Gerber, Huber, Doherty, & Dowling, 2012), stability over time (Jost, 2006), and evidence for behavioral implication across multiple domains (Jost et al., 2009).

Evidence of the close correspondence between political ideology and personality predisposition appears to offer a clear prediction: conservatives will exhibit higher levels of homophily. Conservatives tend to view risk and novelty in more negative terms, feel a greater need to maintain safety and order, and are more likely to adopt rigid solutions to minimize perceived threats (Gerber et al., 2011; Jost, Nosek, & Gosling, 2008). Conversely, liberals score higher on measures of openness to experience (Carney et al., 2008; Mondak & Halperin, 2008) and exhibit greater tolerance for opposing points of view (Jost et al., 2003; Thórisdóttir & Jost, 2011). However, findings from experimental psychology and survey studies challenge the assumption of conservative closed-mindedness, popularized in the 'rigidity of the right' model (Jost et al., 2003), finding that liberals and conservatives are equally intolerant against those with opposing views (Brandt et al., 2014; Brandt & Van Tongeren, 2017; Chambers, Schlenker, & Collisson, 2013). Furthermore, intolerance is greater among liberals on economic issues, suggesting that prior results may arise from a conflation of social and economic aspects of political beliefs (Crawford et al., 2017; Malka et al., 2014). Similarly, liberals are more intolerant than conservatives when questionnaires are phrased in opposition to the respondents' ideology (for example, assessing intolerance to 'religious groups' or 'environmental groups' for liberals and conservatives, respectively) (Conway et al., 2016). Moreover, conservatives' emphasis on constitutionalism and thus the individual's right to freedom of speech and association may lessen the willingness to exclude others as a result of ideological intolerance (Wetherell, Brandt, &

Reyna, 2013) and, paradoxically, liberal open-mindedness increases intolerance of people who do not share this trait (Brandt, Chambers, Crawford, Wetherell, & Reyna, 2015).

Overall, experimental and survey evidence points to similar levels of ideological intolerance across the political spectrum. However, evidence from online and professional social networks shows revealed preferences among liberals that demonstrate *less* tolerance of opposing views (see also Haidt, 2012; Haidt & Lukianoff, 2018). For example, liberalism increases ‘unfriending’ behavior on social media, with conservatives playing a lesser role in the dissolution of network ties (Yoo et al., 2018). This is reflected in liberals’ social graphs: Colleoni, Rozza, and Arvidsson (2014) found that 88 percent of connections from liberal social media accounts are to other liberal accounts, whereas only 24 percent of connections from conservative accounts are ideologically congruent. This homophily also appears in offline networks. In a study of hiring and grant application decisions among social psychologists, Inbar and Lammers (2012) found that 82 percent of liberals admit to discriminating against those with opposing political beliefs, in comparison to 33 percent of moderates and 17 percent of conservatives. While this remains an understudied phenomenon (c.f. Duarte et al., 2015), the available evidence suggests that liberalism may increase homophily in certain social and professional contexts.

This raises the question of why recent studies diverge from common expectations about liberals’ and conservatives’ behavior. Two interrelated causes have been identified. First, research has highlighted methodological issues in the surveys used to demonstrate the ‘rigidity of the right’, where early surveys conflate cognitive rigidity with attributes that are more common among conservatives, such as religiosity (Malka et al., 2017). In addition, measures of threat sensitivity were constructed around issues that are salient to conservatives, such as crime and terrorism, whilst omitting salient liberal issues such as climate change and police violence

(Duarte et al., 2015). Later studies, which modified questions according to the ideologies of subjects, report significantly higher rates of intolerance among liberals (Conway et al., 2016, and see above). Notably, these studies find little difference in conservative intolerance between the original and modified scales, substantiating the claim that earlier instruments were biased towards capturing conservative intolerance (Malka et al., 2017). Second, these methodological issues may be partly explained by the ideological composition of psychology as an academic field (Haidt & Lukianoff, 2018), where some of the most stark differences in intolerance have been observed. The acceptance of open discrimination along ideological lines documented by Inbar and Lammers (2012) has been attributed to the tendency for social groups, such as occupational fields, to serve as moral communities from which their members derive a shared sense of acceptable beliefs and behavior (Hardin & Higgins, 1996). This normalizes intolerance against the ideological ‘outgroup’, who are seen to violate the shared morality of the community, and thus perpetuates homogeneity (Haidt, 2012). The resultant composition of the field, which is dominated by liberals in a ratio of 14-to-1 in some areas (Duarte et al., 2015) and has become increasingly homogenous in recent years (Haidt & Lukianoff, 2018), constrains the identification and correction of limitations when researching politicized topics (Baumeister, 2015). The above methodological issues may thus be the unintentional consequence of ideologically influenced propensities to view certain issues as more worthy of examination (Duarte et al., 2015).

Homophily in intra- and inter-organizational networks

The trend towards ideological homogeneity in organizational settings is noteworthy due to the well-documented benefits of ideological diversity for the functioning of decision-making groups (Page, 2008). When members of a team approach a problem with divergent mental models, the process of reconciling disagreements requires individuals to justify and reevaluate their

assumptions, surfaces potential blind spots, and consequently improves the quality of resultant decisions (Rindova, 1999). Accordingly, ideologically heterogeneous teams have consistently been shown to produce more creative and novel solutions to problems (Mannix & Neale, 2005; Triandis, Hall, & Ewen, 1965). Conversely, ideological homogeneity discourages the exploration of ideas that conflict with the dominant assumptions of the group (Westphal & Zajac, 1995), preventing the recognition of important questions and errors (Baumeister, 2015; Duarte et al., 2015), which are then amplified by the commitment of the majority (Frey & van de Rijt, 2020). A lack of consensus can therefore be critical to effective decision-making (Klarner et al., 2018). The appropriate setting to study ideological homophily in organizations is thus the level at which innovative solutions and erroneous decisions are most consequential. The board of directors, as the body that sets the strategic direction and objectives of the firm and must consider the impact of decisions on multiple stakeholders (Bailey & Peck, 2013), meets this condition.

Ideological diversity is also pertinent at the level of the board interlock network due to the importance of shared directors in the process of information dissemination (Withers et al., 2020; Yoshikawa et al., 2019). Interlocks with dissimilar firms, which have primarily been studied in terms of industry membership, provide access to novel sources of information that may otherwise be outside of the focal firm's attention (Geletkanycz & Hambrick, 1997; Li, 2019; Srinivasan, Wuyts, & Mallapragada, 2018). Heterogeneity in board interlocks therefore constitutes a form of board social capital which facilitates access to varied knowledge resources (c.f. Withers et al., 2012). In the inter-organizational setting, cognitive differences between ideologically dissimilar boards may therefore confer a benefit to firms that form connections across the liberal—conservative spectrum, increasing exposure to divergent perceptions and interpretations of information.

Ideological homophily may therefore be consequential at two levels: within the intra-organizational group of directors and the inter-organizational network between firms. Despite recent calls for research into the dispositional antecedents of board and network composition (Gupta & Wowak, 2017), the literature is silent on the effects of directors' ideologies on the structure of organizational networks and the position of the firm within these.

We propose that ideological homophily in the intra- and inter-organizational setting is a likely outcome of the two-sided matching problem that underlies the director selection process. New directors are generally proposed by the nominating committee and voted on by shareholders. While there is debate regarding the degree to which director selection is influenced by either rational economic concerns or sociological considerations (Withers et al., 2012), these two perspectives share a recognition that the personal attributes of directors and their alignment with incumbent board members are major factors in the nomination process (Hillman & Dalziel, 2003). Furthermore, the appointment of new directors is not solely determined by the choices of the firm, but depends also on the preferences of potential directors. On this side of the matching problem, congruence of values is a key motivation for the acceptance or rejection of board appointments (Finkelstein, Cannella, Hambrick, & Cannella, 2009; Withers et al., 2012). Board interlocks are also an outcome of this process, as an interlock is formed when an incumbent director at one firm is appointed to serve on the board of another firm. However, this is not merely a byproduct of new director appointments, but often an intentional choice driven by the sociological and psychological consequences of network ties (Mizruchi, 2013; Withers et al., 2020); for example, seeking connections with prestigious firms as a means of increasing perceived legitimacy within the corporate ecosystem (Connelly, Certo, Ireland, & Reutzel, 2011; Mizruchi, 1996).

In sum, director appointments – and the resultant interlock network – are influenced by the desire of incumbent and potential board members to affiliate with peers that are deemed similar or favorable (Koenig, Gogel, & Sonquist, 1979). Considering the strong tendency for ideological homophily in interpersonal relationships (McPherson et al., 2001), we expect that ideology will play a critical role in these evaluations. Expressions of personal political values are becoming increasingly common among firm leaders (e.g. Moorman, 2020), and the political activity of high-profile individuals is more visible than ever due to the widespread use of social media and public availability of campaign finance data. Consequently, directors have ample opportunities to learn about the ideology of their peers both within and across firms, even if such issues are not explicitly discussed in the director selection process. Furthermore, political ideology is highly correlated with a number of behaviors, including directors' decision-making on firm-level issues that are easily observable across companies and directly relevant to evaluations of whether a potential board member is compatible with a firm's governance approach (e.g. Di Giuli & Kostovetsky, 2014; Gupta & Wowak, 2017; Park et al., 2020). Homophily may therefore also include an ideological component as directors preferentially form connections with those that behave in similar ways, rather than because they explicitly seek peers of similar political orientations (c.f. McPherson et al., 2001).

Accordingly, ideological homophily in board composition and network ties may occur in two ways. First, given the socially embedded nature of the board, the nomination of new directors will be constrained by the attentional scope, social connections, and personal biases of incumbent directors (Bazerman & Schoorman, 1983; Withers et al., 2020), encouraging both a conscious and unintentional preference for ideologically similar individuals (Koenig et al., 1979). Second, potential directors may accept or refuse board nominations based on alignment of

values and behaviors with the incumbent board, whether or not these are explicitly recognized as arising from ideological similarity (c.f. McPherson et al., 2001; Withers et al., 2012). On both the supply and demand sides of this process, the ideology of the incumbent board is a hitherto unexamined criterion for matching.

Given the lack of previous research on ideological homophily in firms, we derive our hypotheses from both organizational and psychological research. Following the reasons for the discrepancy between emerging psychological research and the ‘rigidity of the right’ model, and drawing upon recent research in organizations, we identify three factors that suggest we will observe greater ideological homophily among liberals in the board context: (1) *the relative importance of shared versus individual identity*; (2) *differences in the diversity of beliefs within political ideologies*; and (3) *differing perceptions of the relevance of ideology in firm decisions*.

First, liberal politics has recently shifted from the traditional focus on economic disparities toward cultural and social issues that are based in notions of group identity (Fukuyama, 2018), placing increasing emphasis on the creation and maintenance of shared values and behaviors (see Bernstein, 2005). The presence of ideologically divergent individuals within a social group threatens this cohesion and the ‘shared reality’ of members (Hardin & Higgins, 1996). Furthermore, while liberalism has maintained a focus on addressing inequality and oppression, the philosophical foundation of this emerging form of ‘identity politics’ contrasts the materialist underpinnings of the traditional left-wing view, being substantially influenced by postmodernism (Horowitz, Haynor, & Kickham, 2018). This has led to an increasing focus on the power of language to reinforce or disrupt social hierarchies (Bernstein, 2005). Influenced by the concept of ‘repressive tolerance’ (Moore, Marcuse, & Wolff, 1965), there has been increasing acceptance of the notion that the liberation of historically oppressed

groups necessitates the suppression of ideologies that are understood to support this oppression (Haidt & Lukianoff, 2018; Pluckrose & Lindsay, 2020). As conservatives are seen to uphold the status quo and thus the perceived oppression, intolerance of their presence within institutions becomes justified in the new liberal worldview (Epstein, 2020; Horowitz et al., 2018). The implications of this for homophily are evident in the academy (Haidt & Lukianoff, 2018) and media (Pluckrose & Lindsay, 2020), the ideological composition of which has increasingly shifted towards liberalism as a result of organic homophilic processes and active attempts to exclude conservative viewpoints (Epstein, 2020). This tendency conflicts with the conservative emphasis on freedom of association (Lister, 2013), which attenuates conservatives' propensity to actively exclude ideologically incongruent others from social settings (Wetherell et al., 2013), and thus may be expected to induce greater homophily among liberals.

Second, the liberal focus on shared identity is juxtaposed by contemporary conservatism, which encompasses multiple distinct ideological groups (Feldman & Johnston, 2014; Klein & Stern, 2005). Many conservatives identify (and vote) as such because of a strong preference for free market economics (Iyer, Koleva, Graham, Ditto, & Haidt, 2012) without sharing the social and religious views traditionally associated with both conservatism and ideological intolerance (Keckler & Rozell, 2015). Conversely, social and economic values are more closely correlated among liberals (Duarte et al., 2015). Social attitudes are more likely to form the basis of a shared group ideology as these tend to be more personally meaningful and emotive (Crawford, 2017), which has been shown to contribute to higher levels of ideological intolerance among liberals on such issues (Crawford et al., 2017; Johnston, Lavine, & Federico, 2017; Malka et al., 2014). Furthermore, social issues have increasingly replaced economics in the landscape of political debate (Fukuyama, 2018). Consequently, we may expect greater ideological homophily among

liberals, as conservatism as a political affiliation lacks the shared social values that are (a) most relevant to formation of an in-group identity and (b) most salient in contemporary politics.

Third, two streams of research suggest that liberals and conservatives hold divergent views regarding the relevance of ideological considerations in the business context. A growing literature in strategic management examining the influence of decision-makers' ideologies on firm outcomes shows that while conservatives view their responsibility towards shareholders as primary, liberals consider a broader range of stakeholder needs as relevant to the goals of the firm (Chin et al., 2013). Accordingly, there is a robust relationship between liberalism and CSR activities at both the top management and board level (Chin et al., 2013; Di Giuli & Kostovetsky, 2014; Gupta et al., 2020), while conservative managers have been associated with higher financial performance (Hutton et al., 2014). More recently, the marketing literature has begun to explore the antecedents and consequences of corporate sociopolitical activism, where firms take a public stance on divisive political or social issues (Bhagwat et al., 2020). While decision-makers' ideologies have not been examined as a contributing factor in the decision to undertake such actions, these studies consistently report higher levels of activism regarding liberal social causes (e.g. Bhagwat et al., 2020; Hydock, Paharia, & Blair, 2020). Furthermore, the temporal increase in corporate sociopolitical activism has been attributed to the growing perception that firms have a social responsibility to use their positions of power to promote societal change (Moorman, 2020), reflecting the progressive worldview and focus on power dynamics that are central to contemporary liberal perspectives (Fukuyama, 2018; Jost et al., 2009).

These findings concur with studies of ideology in academia, which find that liberals are more likely to view the promotion of ideological aims as relevant to their professional role (Haidt & Lukianoff, 2018; Horowitz et al., 2018). If a certain progressive aim is viewed as

desirable, and promotion of this aim seen as a central responsibility of the firm, liberal directors may be more likely to seek ideological congruence as a means of generating consensus and thus facilitating achievement of these aims (c.f. Rindova, 1999). Conversely, the lower salience of ideological aims among conservatives in relation to firm decisions suggests that such considerations will not influence intra- and inter-firm relationship formation to the same extent.

Taken together, these three factors suggest that liberals will exhibit greater homophily than conservatives in both the relations between directors and the network of connections between boards. We therefore propose that *board liberalism*, the extent to which incumbent directors hold liberal rather than conservative political affiliations, will lead to higher levels of *board ideological homophily*, manifest as less ensuing diversity in directors' political views:

Hypothesis 1 (H1): Board liberalism is positively related to board ideological homophily, such that higher liberalism among directors leads to lower ideological diversity within the board

Similarly, we predict that board liberalism will lead to higher levels of *network ideological homophily*, i.e., preferential connections to other ideologically congruent boards:

Hypothesis 2 (H2): Board liberalism is positively related to network ideological homophily, such that higher liberalism among directors leads to lower ideological diversity within the board interlock network

As suggested at multiple points in the preceding discussion, many reasons to expect greater ideological homophily among liberals have emerged or accelerated in recent years (Haidt & Lukianoff, 2018). We therefore hypothesize that these effects exhibit temporal variation, with liberalism exhibiting a stronger relationship with ideological homophily over time.

Hypothesis 3 (H3): The positive effect of board liberalism on (i) board homophily, (ii) network homophily has increased over time.

METHOD

Data and sample

Following common practice in board research (Withers et al., 2020) and due to the availability of data (Zhu, Shen, & Hillman, 2014), we based our study on large U.S. firms. We obtained data from BoardEx to derive measures of board composition, director characteristics, and to identify board interlocks. Corresponding firm-year data from Compustat was used for firm- and industry-level variables. For measurement of political ideology, we obtained data on the campaign contributions of individuals from the U.S. Federal Election Committee (FEC), the regulatory agency that records campaign financing for all donations over 200 USD. Per the coverage of these databases, our sample covers publicly traded firms that have at least one establishment and one director in the U.S. We removed firms operating in highly regulated or noneconomic sectors (SIC codes 60-69 and 91-99) and those with less than 100 million USD in total assets. This ensures that our sample excludes firms in which incumbent directors have little influence over board composition and smaller firms in which the board has relatively little influence over strategy formulation (Finkelstein & Hambrick, 1996; Withers et al., 2020). Our final sample comprises 2,172 observations of 408 firms between 2000 and 2020. Table 1 summarizes all measures and data sources. Table 2 provides descriptive statistics and correlations.

--- *Insert Tables 1 & 2 Here* ---

Measures

Independent variable. Following prior research (e.g. Chin & Semadeni, 2017; Chin et al., 2013; Gupta et al., 2020), we measured political ideology using political campaign contributions recorded by the U.S. FEC. We focused on donations to the two major parties, as third party

contributions are rare in our data (200,000, compared to over 32 million donations to major parties) and support for Democrats and Republicans is strongly related to ideological liberalism and conservatism, respectively (Jost, 2006). We constructed this measure from individual directors' donations, as corporate contributions tend to be motivated by non-ideological aims (i.e., lobbying), whereas directors will use their personal contributions to express ideological preferences (Ansolabehere, De Figueiredo, & Snyder, 2003; Fremeth, Richter, & Schaufele, 2013). We matched U.S. FEC donations to the director data in BoardEx based on correspondence between individuals' names, organizations, and occupations, employing automated matching and manual cross-verification to avoid false negatives/positives.

We coded individual directors' yearly campaign contributions as either Democrat or Republican and calculated four measures of ideology for each director-year in our sample, using a rolling window of the previous 10 years of donation data. This window encompasses five congressional and two presidential election cycles, enabling meaningful inference about an individual's stable ideology (Chin et al., 2013). The four measures are: (1) the number of donations to Democrats divided by the total number of donations to both parties; (2) the number of years in which a donation is made to a Democrat divided by the total number of years in which a donation is made to either party; (3) the number of unique Democrat recipients divided by the total number of unique recipients across both parties; and, (4) the dollar amount of donations to Democrats divided by the total dollar amount of donations to both parties. In line with previous usage, we found similar means and distributions across these measures and high internal reliability (Cronbach's $\alpha = .99$), and thus created a composite measure of liberalism by calculating the mean. As each measure is a ratio, director ideology is thus measured on a zero to one scale, with higher values representing liberalism. We imputed a value of .5 for directors who

made zero donations, thus assuming these individuals to be ideologically moderate. This is justified and validated by Chin et al. (2013), who combine donation-based measures of ideology with executive surveys and find close correspondence, including for moderates and non-donors.

We then computed *board liberalism* as the average liberalism across directors in each firm-year, i.e. the sum of the ideology scores of individual directors divided by the number of directors on the board. Our measure of board liberalism is thus time-varying for two reasons. First, the ideology of individual directors may change over time as the rolling 10-year window of donations changes. Accordingly, the ideology score assigned to each director is primarily driven by the long-run trend in donation behavior while also accounting for recent changes. Second, board liberalism will vary over time as directors enter and leave a firm's board. As ideology tends to remain fairly consistent within individuals (Chin et al., 2013; Jost, 2006), we expect most temporal variation to arise from these changes in board composition.

Dependent variables. We hypothesize that board liberalism will affect the structure of intra- and inter-organizational networks, respectively termed board and network homophily. We computed these variables from a combination of FEC and BoardEx data and took measures for each firm-year in the sample, allowing network structure and position to vary over time. To construct a network of board interlocks, we first created a bimodal network representing (i) the connections between directors and the boards on which they serve and (ii) the connections between boards, defined by the presence of a shared director. From this, a unimodal network of inter-firm connections was derived, enabling computation of network variables (Borgatti & Everett, 2006).

Board homophily. Using the composite measure of board liberalism defined above and the corresponding director-level measures of ideology, we calculated board homophily by first computing the coefficient of variation in board ideology: the standard deviation in liberalism

across directors scaled by the mean liberalism of the board (Narayan, Sidhu, & Volberda, 2020). This captures the variation in political ideology among the firm's directors independent of the overall level of liberalism or conservatism on the board (c.f. Harrison & Klein, 2007). To measure homophily, we therefore took the inverse of this measure, such that higher values represent lower variation in ideology among directors.

Network homophily. Our measure of network homophily was similarly derived from the composite board liberalism score calculated above. We first counted the number of interlocks between the focal firm and other firms in the network, assigning indicators for ideologically congruent interlocks (i.e., liberal-to-liberal or conservative-to-conservative boards) based on whether board liberalism is above or below moderate (.5) for the focal and connected board. We did not count moderate-to-moderate interlocks as ideologically congruent, per the argument that moderates' lack of ideological commitment attenuates any ideologically motivated behaviors (Ansolabehere et al., 2003; Gupta & Wowak, 2017). We then calculated network homophily as the ratio of ideologically congruent interlocks to the total number of interlocks.

Using donation-based measures of individual ideology overcomes a key issue in the study of homophily: disentangling the effects of real ideological similarity from the effects of (mis)perceived similarity that arises from cognitive biases (Huckfeldt & Sprague, 1995; McPherson et al., 2001). In previous studies of political ideology homophily, it has been unclear whether individuals form ties based on actual ideological similarity or on demographic characteristics that tend to be correlated with political beliefs (McPherson et al., 2001). Using donation data addresses this confounding effect, as it avoids the subjectivity inherent in self-reported measures of one's own and others political beliefs. Controlling for key demographic characteristics (see below) further mitigates this issue.

Controls. We included various controls that affect the implications of director ideology (e.g. Gupta & Wowak, 2017; Park et al., 2020), the composition of boards and interlock networks (Withers et al., 2020), and the extent to which homophily is ideologically driven (McPherson et al., 2001). At the board-level, we controlled for *board tenure*, measured as the average number of years that directors have served on the board; *board size*, the number of directors; *board independence*, the proportion of outside directors; *director gender diversity*, the proportion of female directors; *director nationality diversity*, the proportion of non-U.S. directors; *director age diversity*, the standard deviation in directors' ages; and *CEO duality*, an indicator that takes the value of 1 if the CEO also serves as board Chair. At the firm-level, we controlled for *firm size*, measured as the natural log of total assets, and *firm performance*, for which we use Tobin's Q to capture future and present market and financial aspects. We also included controls for *peer firm outcome*, calculated as the average of the dependent variable across other firms (excluding the focal firm) in the same 2-digit SIC code. As network structure is necessarily dependent on other firms, this serves to isolate the focal firm's outcomes from broader changes in the network.

All models were also estimated with industry and year dummies. Controlling for year effects serves two main purposes in our analyses. First, directors' contributions to political campaigns are likely to differ based on the presidential and congressional candidates in each election. Second, directors may alter their contributions according to the macroeconomic environment; for example, reducing their donations during recession years.¹ We therefore include year fixed effects to mitigate these issues (c.f. Fremeth et al., 2013).

¹ We credit an anonymous reviewer for highlighting the potential effects of the business cycle in our model. As a result, we also estimated our main models with an additional control variable representing the cyclical component of GDP, derived using the Hodrick and Prescott (1997) (HP) filter. The magnitude and significance of results was consistent with those of the analyses presented below. Accordingly, we infer that the inclusion of year fixed effects sufficiently accounts for the influence of the macroeconomic environment.

Model specification and estimation

We tested Hypotheses 1 and 2 using generalized estimating equations (GEE) to deal with multiple observations of the dependent variables, non-independent observations, and unobserved firm heterogeneity. We specified a Gaussian distribution as our dependent variables are normally distributed, an identity link function, and exchangeable correlation structure (tests of the correlation structure assumptions are provided in the robustness checks). All variables were standardized to aid interpretation of coefficients.

We implemented several methods for addressing endogeneity, which may arise from unobserved heterogeneity or reverse causality. As in prior research utilizing variables based on political ideology (Chin & Semadeni, 2017; Chin et al., 2013; Gupta & Wowak, 2017), fixed effects estimation is inappropriate to address firm heterogeneity as our dependent variables exhibited moderate intertemporal correlation within firms (board homophily = .397; network homophily = .271). Instead, we included comprehensive controls for alternative explanations of network structure and position at the board-, firm-, industry-, and year-level. Including the average dependent variable among peer firms as a control is critical here, as this helps to capture current and historical influences on the focal firm's network (Wooldridge, 2013). We also examined the impact threshold for a confounding variable (ITCV) (c.f. Harmon, 2019; Hill, Johnson, Greco, O'Boyle, & Walter, 2020) and found that our results are unlikely to be driven by the effects of a correlated omitted variable. Details of these tests are provided in the robustness checks.

A further concern related to omitted variables is that homophily may be largely driven by a baseline component, reflecting opportunity constraints rather than active selection (Borgatti & Foster, 2003; McPherson et al., 2001). For example, women show greater heterophily in male-

dominated professions: despite a preference for demographic homophily, these ties are inevitable given the baseline availability of network ties (Ibarra, 1993). A similar concern may be present in our data if liberal directors are more prevalent than conservatives. However, the mean and standard deviation of board ideology in our sample indicated a platykurtic normal distribution centered on moderate positions (mean = .526, SD = .335), suggesting that homophily in inter-firm networks is not significantly driven by a baseline component. The distribution of individual directors' liberalism (mean = .513, SD = .436) also suggested that baseline homophily in intra-firm networks is not an issue, in line with prior research (Kleinbaum, Stuart, & Tushman, 2013).

Reverse causality may also be a concern in our models: individuals have a propensity to form ties with similar others, but are ideologically influenced by those with whom they interact, which may induce ideological homogeneity as a result, rather than antecedent, of network proximity (Carley, 1991; Kilduff & Corley, 2000). We address this in four ways. First, we measured all independent variables one period prior to our dependent variables, thus predicting future network structure from current ideology to mitigate concerns of simultaneity. Second, to address intertemporal correlation in our dependent variables, we included the average of the dependent variable among peer firms as a control to isolate the changes in network structure within the focal firm. Third, we tested for endogeneity using two-stage least squares (2SLS) instrumental variables regression. This requires an instrument that is theoretically relevant (i.e. a strong predictor of the potentially endogenous variable of board ideology) and exogenous (i.e. uncorrelated with the error term in our main model) (Bascle, 2008). Following prior research (Gupta & Wowak, 2017), we used peer firm liberalism as our instrumental variable, which is a significant predictor of focal firm board liberalism ($F = 1474.380$; $p < .001$). 2SLS analyses indicated that there are no endogeneity concerns for our key independent variable: a Durbin-Wu-

Hausman test did not reject the null hypothesis that board liberalism was exogenous (board homophily: $F = .340, p = 0.560$; network homophily: $F = .100, p = 0.752$). We thus conclude that the instrumental variables approach is unnecessary and present results estimated with GEE (Wooldridge, 2013). Finally, we employed a panel instruments approach (Arellano & Bond, 1991), where lagged values of the focal variables are employed as instrumental variables. Results are in accordance with our main models and reported in the robustness checks.

To examine Hypothesis 3, we specified a mixed effects model with time as a linear random component, enabling the examination of time as a focal predictor of homophily. We assumed a Gaussian distribution for the overall error structure and independence of the variance parameters for the firm-level and temporal random effects (Raudenbush & Bryk, 2002). We included all control variables listed above.

RESULTS

Table 3 presents the results of the GEE models corresponding to tests of Hypotheses 1 and 2. Table 4 presents the results of two mixed effects models corresponding to tests of Hypothesis 3 regarding temporal shifts in homophilic behavior at the board- and network-level.

--- *Insert Table 3 & 4 Here* ---

H1 predicted that board liberalism would lead to greater ideological homophily within the board. We find support for this: the effect of board liberalism is positive and significant at the 1% level ($0.062, p < .001$). H2 likewise predicted that board liberalism would lead to greater homophily within the board interlock network. This is also supported by a positive and highly significant effect ($0.094, p = .001$). We therefore find strong support for the notion that board liberalism increases ideological homophily in both intra- and inter-firm networks.

In terms of temporal variation (H3), we first observe that both board and network ideological homophily have decreased between the years of 2000 and 2020, as indicated by the negative effect of time in both models (board: $-0.157, p < .001$; network: $-0.231, p = .001$). We also find that the interaction of board liberalism and time has a positive and significant effect on both dependent variables. In the case of board ideological homophily ($0.125, p = .023$), this effect is lesser in absolute magnitude than the negative temporal change. From these results we can conclude that (1) while overall homophily among directors has decreased in recent years, this effect is less pronounced among liberals and (2) the positive effect of liberalism on board ideological homophily has increased over time. Figure 1 illustrates these effects.

We observe a different temporal trend for the effect of board liberalism on network ideological homophily. Again, the contingent effect is positive ($.392, p < .001$). However, this is substantially larger than the negative effect of time, resulting in a positive marginal effect. As shown in Figure 2, these results indicate that the general decrease in network ideological homophily is absent among liberal boards; instead, there has been a decrease in homophilic ties among conservative boards, stability among moderates, and an increase among liberals. In both models, the main effect of board liberalism becomes nonsignificant when the interaction with time is included, further validating a temporal shift in homophilic behavior among liberal boards.

--- *Insert Figures 1 & 2 Here* ---

Overall, we find support for H1 and H2, indicating positive effects of board liberalism on board- and network-level ideological homophily. We also find support for H3, though the nature of temporal change differs between the outcomes of board and network ideological homophily.

Robustness checks

We examined the robustness of our results in several ways. First, we assessed the correlation structure assumptions of our GEE models using the quasi-likelihood under the independence model criterion (QIC) test (Cui & Qian, 2007). Table 5 displays the results for three common correlation structures across our models. With the assumption of unstructured correlation, we did not achieve model convergence. From the remaining correlation structures, we observe a lower QIC for the exchangeable structure in each of the models, thus indicating that this is the most appropriate assumption for our estimation.

--- *Insert Table 5 Here* ---

Second, we tested the impact threshold for a confounding variable (ICTV) (Frank, 2000; Pan & Frank, 2003). The ICTV estimates the size of the effect of an omitted variable that would be required to invalidate the results of a model. As shown in Table 6, the required impact is substantially greater than the impact of all other control variables. Under the assumption that the included control variables are appropriate, the ICTV test therefore suggests that our results are unlikely to be driven by the effects of a correlated omitted variable.

--- *Insert Table 6 Here* ---

Third, as a further check against potential endogeneity we estimated all models using the panel instruments approach of Arellano and Bond (1991). As reported in the main text, we conducted 2SLS and determined that this was not necessary as a Durbin-Wu-Hausman test did not reject the null hypothesis that board liberalism was exogenous for each model. However, this test relies on the assumption that the instrumental variables used in 2SLS are valid, which cannot be directly tested (Semadeni, Withers, & Certo, 2014). Given this concern and the intertemporal

correlation of our dependent variables, we employed the Arellano and Bond estimator as an alternative method of accounting for endogeneity without requiring the introduction of additional instruments. Table 7 reports the results. In each model, we observe effects of board liberalism that correspond to our main results.

--- *Insert Table 7 Here* ---

DISCUSSION

This study addresses the lack of research examining how the dispositional characteristics of directors influence both board- and network-level outcomes (Gupta & Wowak, 2017; Shropshire, 2010), providing new evidence for the role of ideology in the composition of board and the formation of interlocks. Ostensibly, our findings diverge from the present body of evidence on director ideology, which supports the stereotypical view of the liberal—conservative behavioral divide (e.g. Gupta & Wowak, 2017; Park et al., 2020). Our results instead echo recent evidence that challenges traditional assumptions and demonstrates that the values and behavior of liberals and conservatives may be issue- or context-specific (Brandt et al., 2014; Crawford et al., 2017; Malka et al., 2017). Specifically, we suggest that the higher levels of ideological homophily observed among liberal boards may be due to the differing salience of ideology in the business setting, with liberal directors increasingly viewing the role of the firm in social and political terms whereas conservatives uphold the primacy of shareholder responsibility (c.f. Bhagwat et al., 2020; Moorman, 2020). Manifestations of this trend within the firm have not yet been examined; thus, we highlight the need for greater recognition of these factors in the firm setting. This is important given the recent and ongoing rise in political polarization in the U.S. and other major economies – developing an understanding of the characteristics and behavioral tendencies

of those with opposing views that transcends established stereotypes may be imperative for managing intraorganizational tensions in the contemporary political environment.

Our findings mirror those of recent investigations into the structure of academic fields, where there have been concerns regarding the effect of (liberal) ideological homogeneity within research domains due to the documented benefits of ideological diversity (Duarte et al., 2015). Politically heterogeneous teams have consistently been shown to produce more creative and novel solutions to a variety of problems (Page, 2008). Conversely, lack of ideological diversity can prevent the recognition of important questions and new ideas (Westphal & Zajac, 1995) and correction of errors (Duarte et al., 2015), leading to poorer group decision-making when there is a clear ideological majority as mistakes become self-perpetuating (Frey & van de Rijt, 2020). The absence of consensus among key decision-makers can therefore improve strategic decisions (Klarner et al., 2018; Rindova, 1999). Similarly, heterogeneity in network ties increases the likelihood that a firm will be exposed to novel sources of information (Geletkanycz & Hambrick, 1997; Li, 2019; Srinivasan et al., 2018), constituting a form of board social capital that enables access to knowledge resources (Withers et al., 2012).

Considering the key differences between liberals and conservatives, homogeneity in political ideologies may be particularly consequential for these two benefits. At the board-level, for example, the tension between novelty- or risk-seeking behaviors (liberal) and maintenance of order and routine (conservative) reflects the need to balance managerial discretion with preventing agency problems in corporate governance (Fama & Jensen, 1983) and exploration versus exploitation in developing and utilizing firm capabilities (Kang & Kim, 2020). Similarly, competing emphases on egalitarianism (liberal) and proportionality (conservative) may be beneficial in creating compensation policies that mitigate the problems of pay disparities while

effectively incentivizing performance (Gupta & Wowak, 2017). At the network-level, homophily may limit the information that firms choose to share, limiting the diffusion of relevant knowledge. For example, if conservative boards are more likely to encourage adoption of governance practices, and liberal boards of CSR, among interlocked firms (as postulated by Gupta & Wowak, 2017), network homophily may inhibit the spread of best practices – a key benefit of interlock networks (Yoshikawa et al., 2019).

Accordingly, while ideological homogeneity may facilitate the pursuit of certain progressive aims, this could hinder the adoption of other beneficial policies and practices. The observed temporal variation in the homophilic tendencies of liberal boards indicates that it may be more important than ever for directors to be aware, and mitigate the effects, of their personal ideological biases; for example, by seeking to appoint directors with differing political views, establishing interlocks with ideologically incongruent firms, or simply actively challenging their own assumptions (c.f. Baumeister, 2015). A fruitful avenue for further research may be to examine the performance implications of this, particularly under the presently increasing focus on stakeholder-oriented governance practices that are typically associated with liberal ideologies (c.f. McGahan, 2021).

On a broader level, we contribute to the growing literature demonstrating that ideological intolerance is prevalent on both sides of the liberal—conservative spectrum and greater among liberals under certain circumstances (e.g. Brandt et al., 2015; Crawford et al., 2017; Inbar & Lammers, 2012). Our approach is particularly pertinent, as these recent contributions have developed from methodological criticisms of earlier work: specifically, the use of survey instruments that are arguably biased toward capturing ideological intolerance among conservatives and measure opinion rather than behavior (Malka et al., 2017). We present an

alternative method that circumvents the issues inherent in questionnaire design by utilizing a secondary measure of ideology and capturing revealed preferences for homophily by examining network ties. Our results complement recent studies in political psychology that further corroborates a more nuanced perspective of intolerance across the ideological spectrum.

We also recognize several limitations of our study that present opportunities for further research. While our use of secondary data provides some advantages over previous methodologies, this also limits our ability to examine the motivations for ideological homophily. Survey-based research may therefore offer a path toward elucidating whether board and network homophily along ideological lines is deliberate or unintentional. Furthermore, our data source (BoardEx) does not provide information on the source of board appointments or interlocks, i.e. whether a director is appointed to a second board following nomination by shareholders, the CEO/top management team, or incumbent directors. We assume considerable influence of the extant board in both composition and network formation (see Mizruchi, 2013; Withers et al., 2020), however, more in-depth information gathered from firms' archival sources may elucidate how the appointment of new directors influences the extent of ideological homophily. As a preliminary hypothesis, we would expect higher levels of homophily when directors have greater control over this process, due to their involvement in the resultant social networks and thus greater motivation to influence these towards ideological congruence. If this is the case, increased involvement of shareholders and managers in the appointment of new directors may be an effective method of mitigating ideological homophily.

Using data from the U.S. FEC also necessarily limits our investigation (as in prior research on directors' and executives' ideologies) to the U.S. context. However, the effects of personal politic ideologies on tolerance and homophily have been found to differ across national

contexts, where the liberal—conservative distinction is not reflected in a clear left—right party divide (Malka et al., 2017; Malka et al., 2014). Furthermore, as in prior research, we do not consider the political ideologies of directors who donate to third parties – yet psychological research suggests a more nuanced classification of political affiliation may provide valuable information about the beliefs and behaviors of individuals. For example, while libertarians are often economically aligned with conservatives in the U.S. due to a shared focus on free market capitalism and individualism, these groups exhibit stark differences in their openness to new ideas and deference to established norms (Iyer et al., 2012): traits that may be consequential for strategic decisions due to their effects on innovation and risk-taking (Christensen et al., 2015; Kashmiri & Mahajan, 2017) The idiosyncrasies of the U.S. political spectrum may therefore contribute to our ostensibly counterintuitive finding of greater tolerance among conservatives. Research in other political contexts with a variety of potential party affiliations (such as European countries) could therefore clarify our results, as well as providing insight into whether the effects we observe here are present under differing national systems of corporate governance.

CONCLUSION

This study presents the first examination of ideological homophily in two key organizational networks: the intra-firm connections among directors on a firm’s board and the inter-firm network of interlocks between boards with shared directors. We hypothesize and demonstrate that board liberalism increases the propensity towards ideologically congruent ties at both levels. Further, we find that this effect has increased in recent years: while both the composition of boards and the connections between boards have become more ideologically diverse in recent years, this effect has been driven by conservatives while liberal directors have reduced their ties to those with opposing political views, particularly at the inter-firm level. Our review of the

psychological and management literature highlights three primary reasons for these findings: (1) the increasing emphasis placed on shared identity among liberals; (2) the trend towards convergence of ideological positions within the liberal end of the political spectrum, as opposed to growing differences among social and economic conservatives; and, (3) the greater tendency among liberals to view ideological considerations as relevant to firm-level decisions.

In providing the first evidence for an ideological component in the composition of boards and board networks, this study advances present understanding of the dispositional antecedents to director selection and network formation, with theoretical and practical implications for corporate governance and broader conversations regarding homophilic tendencies across the political spectrum. For researchers, our findings contribute to the development of a more holistic theoretical framework of director selection and interlock formation that accounts for individual dispositional factors in addition to the more commonly studied situational and dispositional antecedents. For directors, these results bring attention to the presence and growth of homophilic tendencies within firms, suggesting that it may be increasingly important to be aware, and mitigate the effects of, one's own ideological biases in order to maintain cognitive diversity in information networks and decision-making.

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TABLES AND FIGURES

TABLE 1 Variable operationalizations and sources

Variable	Definition	Source
Board liberalism	Average of directors' political ideology, where director ideology is calculated as the average of four measures over the previous 10 years: (1) number of donations to Democrat campaigns divided by total number of contributions (to Republican and Democrat campaigns), (2) dollar amount of donations to Democrat campaigns divided by total dollar amount of donations, (3) number of years in which a donation is made to Democrat campaigns divided by the total number of years in which a donation is made, (4) number of unique Democrat recipients of donations divided by total number of donation recipients.	U.S. FEC, BoardEx
Board ideological homophily	Inverse of the coefficient of variation in directors' personal political ideologies (standard deviation divided by mean)	U.S. FEC, BoardEx
Network ideological homophily	Ratio of ideologically congruent director interlocks to total number of interlocks, where ideologically congruent interlocks are defined as a director serving on a liberal (conservative) focal board and a liberal (conservative) connected board	U.S. FEC, BoardEx
Board tenure	Average number of years that directors have served on the board	BoardEx
Board size	Number of directors	BoardEx
Board independence	Proportion of outside directors	BoardEx
Director gender diversity	Female directors as a percentage of all directors	BoardEx
Director nationality diversity	Non-U.S. directors as a percentage of all directors	BoardEx
Director age diversity	Standard deviation in directors' age	BoardEx
CEO duality	Indicator that takes the value of 1 if the CEO is also the board Chair; zero otherwise	BoardEx
Firm size	Natural log of total assets	Compustat
Firm performance	Tobin's Q, calculated as the market value of the firm plus liabilities divided by the book value of assets	Compustat

Variables are standardized in all models to aid interpretation of coefficients.

TABLE 2 Descriptive statistics and correlations

Variable	Mean	SD	1	2	3	4	5
1 Board liberalism	.526	.335					
2 Board ideological homophily	.925	.177	.162				
3 Network ideological homophily	.530	.358	.139	.064			
4 Board tenure	8.775	4.138	-.038	-.044	.005		
5 Board size	8.969	2.269	-.018	-.081	.005	-.037	
6 Board independence	8.190	2.334	-.017	-.076	.005	-.042	.984
7 Director gender diversity	.118	.107	.084	-.055	.017	-.057	.320
8 Director nationality diversity	.093	.167	.037	.025	.023	-.126	.134
9 Director age diversity	7.550	2.392	.007	.008	-.011	.132	-.039
10 CEO duality	.553	.497	-.044	-.025	-.014	.024	.004
11 Firm size	7.396	1.560	-.008	-.086	-.017	-.108	.571
12 Firm performance	1.402	1.313	-.002	-.044	-.028	.002	-.050
Variable	6	7	8	9	10	11	
7 Director gender diversity	.317						
8 Director nationality diversity	.140	.058					
9 Director age diversity	-.035	-.146	-.026				
10 CEO duality	-.101	.018	-.016	-.051			
11 Firm size	.565	.311	.173	-.180	.076		
12 Firm performance	-.050	.023	.054	.033	.009	-.062	

Variables are standardized in all models to aid interpretation of coefficients.

TABLE 3 Effects of board liberalism on network structure and position

<i>Dependent variable</i>	(1)		(2)	
	Board ideological homophily		Network ideological homophily	
<i>Effects of interest</i>				
Board liberalism	0.062	(.000)***	0.094	(.001)***
<i>Controls</i>				
Board tenure	-0.042	(.453)	-0.002	(.988)
Board size	-0.311	(.367)	1.203	(.065)*
Board independence	0.208	(.541)	-1.010	(.113)
Director gender diversity	-0.023	(.470)	0.054	(.369)
Director nationality diversity	0.025	(.364)	0.035	(.490)
Director age diversity	-0.066	(.222)	-0.151	(.139)
CEO duality	-0.004	(.785)	-0.061	(.018)**
Firm size	-0.012	(.794)	0.004	(.955)
Firm performance	-0.058	(.528)	0.137	(.415)
Peer firm board ideological homophily	0.197	(.038)**		
Peer firm network ideological homophily			0.071	(.292)
Year dummies	Included		Included	
Industry dummies	Included		Included	
Constant	0.674	(.000)***	0.411	(.051)*
Wald χ^2	260.180	(.000)***	136.180	(.000)***

* $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$ (two-tailed).

TABLE 4 Temporal change in effects of board liberalism on network structure

<i>Dependent variable</i>	(1)		(2)	
	Board ideological homophily		Network ideological homophily	
<i>Effects of interest</i>				
Board liberalism	-0.010	(.752)	-0.111	(.103)
Time	-0.157	(.000)***	-0.231	(.001)***
Board liberalism x Time	0.125	(.023)**	0.392	(.000)***
<i>Controls</i>				
Board tenure	-0.037	(.509)	-0.016	(.880)
Board size	-0.165	(.646)	0.727	(.272)
Board independence	0.071	(.839)	-0.565	(.382)
Director gender diversity	0.007	(.831)	0.076	(.209)
Director nationality diversity	0.025	(.361)	0.010	(.839)
Director age diversity	-0.013	(.808)	-0.129	(.202)
CEO duality	-0.007	(.639)	-0.043	(.109)
Firm size	-0.011	(.787)	-0.062	(.363)
Firm performance	0.087	(.313)	0.184	(.237)
Peer firm board ideological homophily	-0.148	(.052)*		
Peer firm network ideological homophily			0.136	(.022)**
Industry dummies	Included		Included	
Constant	1.062	(.000)***	0.427	(.002)***
Wald χ^2	44.040	(.000)***	42.010	(.000)***

* $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$ (two-tailed).

TABLE 5 Tests of correlation structure assumptions for GEE models

<i>Dependent variable</i>	Correlation	QIC
(1) Board ideological homophily	Unstructured	Convergence not achieved
	Independent	143.302
	Exchangeable	134.162
(2) Network ideological homophily	Unstructured	Convergence not achieved
	Independent	175.940
	Exchangeable	174.673

TABLE 6 Tests of impact threshold of a confounding variable for GEE models

<i>Dependent variable</i>	(1) Board ideological homophily	(2) Network ideological homophily
ICTV	0.053	0.031
<i>Observed impact</i>		
Board tenure	0.000	-0.000
Board size	0.003	-0.002
Board independence	0.003	-0.002
Director gender diversity	-0.001	0.001
Director nationality diversity	0.001	0.002
Director age diversity	-0.000	-0.000
CEO duality	-0.000	0.006
Firm size	0.004	0.003
Firm performance	-0.001	-0.001
Peer firm board ideological homophily	-0.004	
Peer firm network ideological homophily		0.003

TABLE 7 Panel instruments estimation of effects of board liberalism

<i>Dependent variable</i>	(1)		(2)	
	Board ideological homophily		Network ideological homophily	
<i>Effects of interest</i>				
Board liberalism	0.148	(.000)***	0.171	(.000)***
<i>Controls</i>				
Board tenure	0.020	(.833)	0.329	(.118)
Board size	0.459	(.374)	0.398	(.712)
Board independence	-0.512	(.314)	-0.337	(.747)
Director gender diversity	0.022	(.617)	0.049	(.615)
Director nationality diversity	0.013	(.754)	0.005	(.954)
Director age diversity	0.046	(.601)	-0.371	(.056)*
CEO duality	-0.034	(.090)*	0.011	(.789)
Firm size	-0.260	(.026)**	-0.118	(.678)
Firm performance	-0.011	(.934)	-0.807	(.006)***
Peer firm board ideological homophily	1.124	(.000)***		
Peer firm network ideological homophily			0.764	(.000)***
Lagged dependent variable	0.034	(.123)	-0.029	(.305)
Constant	-0.136	(.364)	0.682	(.009)***
Wald χ^2	261.720	(.000)***	165.290	(.000)***

* $p \leq 0.1$, ** $p \leq 0.05$, *** $p \leq 0.01$ (two-tailed).

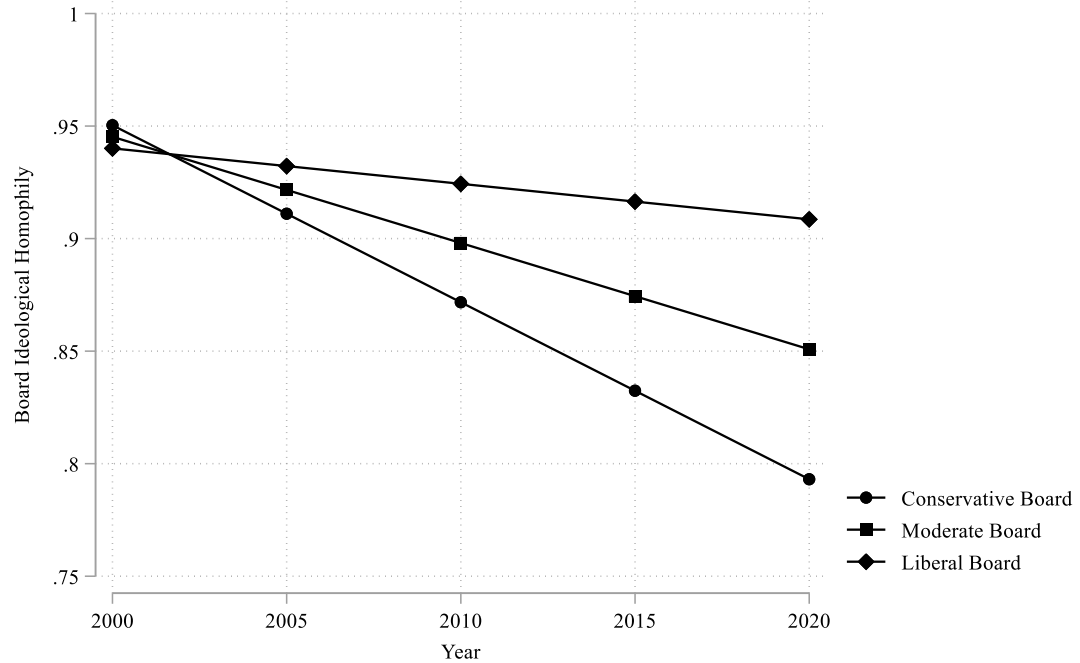


FIGURE 1 Temporal effects of board liberalism on board ideological homophily

Conservative, moderate, and liberal boards indicate linear predictions at board liberalism values of 0, 0.5, and 1, respectively.

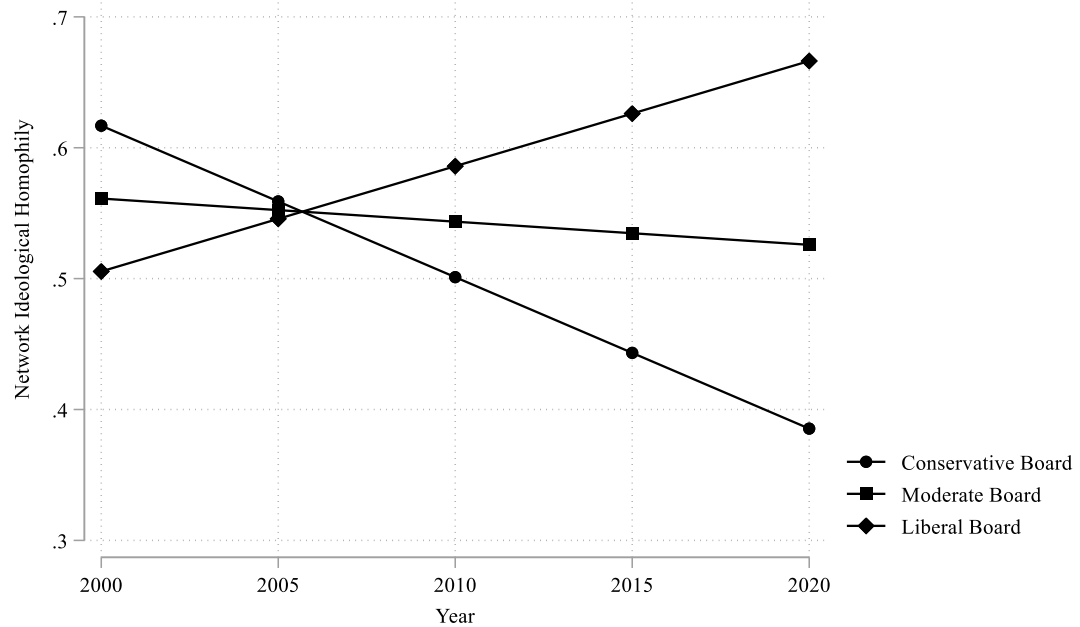


FIGURE 2 Temporal effects of board liberalism on network ideological homophily

Conservative, moderate, and liberal boards indicate linear predictions at board liberalism values of 0, 0.5, and 1, respectively.