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Board diversity's antecedents and consequences: A review and research agenda

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ABSTRACT

For several decades, the boards of directors have been relatively homogeneous groups consisting of white old men (the so-called 'good-old boys'). This static and apparently immutable feature has been changed recently, as social movements and the evolution of corporate law and good governance codes promoted an increasing diversity in the boardroom. In parallel with the diffusion of more diverse boards, leadership and governance scholars have started to analyze the consequences of board diversity. Based on the idea that members' diversity increases group experiences and viewpoints, most scholars argued that higher board diversity positively affects board decisions and firm outcomes. However, despite the soundness of this perspective and the number of previous studies, the empirical evidence provides only partial, mixed and inconclusive findings. Building on these premises, we did a systematic and interdisciplinary literature review aimed at taking stock of our understanding of board diversity's antecedents and consequences. Our analysis and critical assessment of 184 studies synthesizes major results, identifies main gaps, and highlights important avenues for further research. Finally, we outline several ways to overcome current (theoretical and methodological) barriers and further advance research on board diversity.

Introduction

The board of directors is the leadership team at the top of the firm (e.g., Fama & Jensen, 1983). Boards fulfill their legal responsibilities by performing monitoring and service roles (Hillman & Dalziel, 2003). The effective performance of these two board roles – i.e., a careful monitoring of top managers and a valuable contribution to strategic decision-making – is assumed to positively influence firm performance (Forbes & Milliken, 1999).

For several decades, boards of directors have been relatively homogeneous groups of people. Board members were either top managers (e.g., CEOs, CFOs, COOs), or retired executives of large companies (Hillman, Cannella, & Harris, 2002). They were considered a 'good old boys' club, i.e., a large corporate elite consisting of white old businessmen highly connected by personal and professional ties (Lorsch & MacIver, 1989). This homogeneous composition of boards has been recently modified by social movements and the evolution of corporate laws and good governance codes, which have either promoted quota laws (i.e., a minimum ratio or number of female directors) or encouraged companies to increase their boardroom diversity (e.g., in term of gender, nationality and age). Thanks also to the active support of large institutional investors, the new regulations and recommendations have increased the diversity of listed companies' boards around the world (e.g., Geletkanycz, 2020; Kirsch, 2018).

Relying on the increasingly available data on board diversity and using the theoretical frameworks used to analyze group-level diversity (e.g., Harrison & Klein, 2007; Lau & Murnighan, 1998; Milliken & Martins, 1996; Williams & O'Reilly, 1998), leadership and governance scholars started to explore if and how board diversity impacts board decisions or firm outcomes (e.g., Kirsch, 2018; Kumar & Zattoni, 2016; Post & Byron, 2015). Building on the idea that higher group-level diversity increases its members' experiences and viewpoints, most previous studies argued that boards' diversity may improve their ability to perform the monitoring and services roles (e.g., Minichilli, Zattoni, & Zona, 2009), and may so positively affect firm performance (e.g., Post & Byron, 2015).

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Two characteristics of extant literature on board diversity suggest the timely relevance to perform a systematic literature review on the topic. First, despite a large and increasing amount of research, the empirical evidence on the consequences of board diversity on board and firm outcomes is still partial and inconclusive (see the reviews by Johnson, Schnatterly, & Hill, 2013; Kirsch, 2018). The mixed empirical evidence induced scholars to argue that board diversity is a double-edged sword that produces both positive and negative effects (e.g., Milliken & Martins, 1996; Tasheva & Hillman, 2019). So, to mature a better understanding of its consequences on board or firm outcomes, scholars should further explore either the moderating (e.g., Johnson et al., 2013; Post & Byron, 2015) or the mediating role of key contextual factors (e.g., Miller & Triana, 2009).

Second, most board research focused on the investigation of a specific type of diversity, i.e., gender diversity, by analyzing its antecedents (e.g., Chizema, Kamuriwo, & Shinozawa, 2015; Geletkanycz, 2020; Sojo et al., 2016) and, above all, its implications on firm outcomes (e.g., Adams, 2016; Kirsch, 2018). While the large number of studies on board gender diversity has allowed scholars to take stock of the knowledge accumulated through both systematic literature reviews (e.g., Kirsch, 2018; Terjesen, Sealy, & Singh, 2009) and *meta*-analyses (e.g., Byron & Post, 2016; Post & Byron, 2015), the emphasis on a single dimension of diversity left relatively unexplored other potentially relevant dimensions. For example, it does not help us to understand if different types of board diversity may produce different consequences on board or firm outcomes (Tasheva & Hillman, 2019). Further, since board diversity is multidimensional, considering only one or few diversity dimensions may imply biases in the results (Adams, Akyol, & Verwijmeren, 2018).

Starting from these premises, this review article aims to fill this gap in leadership literature by producing a high-impact scholarly analysis on the antecedents and consequences of board diversity. In particular, we aim at addressing three related questions: i.e., i) which are the major factors promoting board diversity, ii) which are the outcomes of board diversity, and iii) which key relationships are moderated by board diversity. This comprehensive and interdisciplinary literature review synthesizes and critically assesses relevant studies with the purpose to highlight major results, identify main gaps, and outline important avenues for further research.

To this purpose, following established practices (e.g., Cuomo, Mallin & Zattoni, 2016; Zattoni et al., 2020), we selected empirical studies on board diversity published in high ranked journals (i.e., journals classified as 4 and 4* in the Academic Journal Guide or AJG) integrated by the premiere journal on corporate governance (i.e., Corporate Governance: An International Review, or CGIR, currently classified as 3 in AJG list). Then, we reviewed all relevant studies on board diversity by analyzing three dimensions: (i) theoretical framework: e.g., use of theories, role of diversity, main research topic; (ii) research method: e.g., type of research, data analysis, research settings, samples, statistical tests; (iii) diversity variable: e.g., type of diversity, operationalization, measures.

Our results show that the research interest in board diversity has grown enormously in the last decade. Previous studies have mostly used agency and socio-psychological theories to investigate the influence of board diversity on several board and firm outcomes; adopted quantitative research designs to analyze the effects of board diversity in companies listed in one country (usually the US or the UK); considered diversity as variety of one type (mostly gender) and measured it with one or two proxies (e.g., dummy, number or proportion of female directors) using archival data.

Our review provides three contributions to board diversity literature. First, it highlights several ways to strengthen and enrich the theoretical frameworks. Second, it presents key methodological problems affecting past studies, and suggests how to address them. Finally, it raises various concerns on the operationalization of the diversity variable and describes ways to address these issues.

Literature review

Group diversity

Diversity is a complex group-level construct with different interpretations (Williams & O'Reilly, 1998). Scholars typically use the term 'diversity' to indicate the 'distribution of personal attributes among interdependent members of a work unit' (Jackson, Joshi, & Erhardt, 2003: 802). While this is the most common definition, Harrison and Klein (2007) highlight that diversity may have three different meanings: i.e., separation, variety, or disparity. In the first meaning, diversity regards separation, i.e., (horizontal) differences in opinions or disagreements among group members caused by different values, attitudes or beliefs. In the second one, diversity indicates variety, i.e., differences of experiences, information or knowledge among the group members caused by their diverse functional background or industry experience. Finally, in the third meaning, diversity indicates disparity, i.e., (vertical) differences in resources or status like an unequal distribution of wealth, prestige, or power among group members.

Diversity literature discriminates between observable, visible or surface-level diversity – concerning demographic attributes like age, gender or race – and less detectable, underlying or deep-level diversity – concerning human capital attributes (like functional background or industry experience) and social capital ones (like personal network or relationships) (e.g., Harrison, Price, & Bell, 1998; Tasheva & Hillman, 2019). Previous studies show that those two types of diversity may imply different negative effects and may be more or less relevant for organizations (Milliken & Martins, 1996). First, surface-level diversity may promote negative emotions, conflicts and turnover, while deep-level diversity may increase divergences and coordination costs (Williams & O'Reilly, 1998). Second, deep-level differences among group members seem to have a bigger impact on group results than surface-level differences (e.g., Jackson, May, & Whitney, 1995; Nkomo et al., 2019).

Literature also highlights that diversity may have both positive and negative effects on group results (e.g., Milliken & Martins, 1996; Williams & O'Reilly, 1998). On the one hand, building on information processing theory, scholars argue that higher group diversity widens the perspectives considered in the decision-making process and so produces higher quality decisions (e.g., Jackson et al., 1995; Milliken & Martins, 1996). On the other hand, building on social identity and social categorization theories, scholars argue that higher group diversity may promote disagreements, conflicts, and turnover (Williams & O'Reilly, 1998). These negative consequences are particularly evident when there are faultlines, i.e., when groups are divided in subgroups based on one or more of their members' attributes (Lau & Murnighan 1998: 328). As a result, group diversity is interpreted as a double-edged sword that both increases the experiences and the viewpoints represented in the decision-making process and, at the same time, reduces members' engagement and identification with the group (e.g., Milliken & Martins, 1996).

Board diversity

Governance literature argues that board composition is a key driver of board effectiveness in performing its monitoring and service roles and may so have a positive impact on firm results (Johnson et al., 2013). Using available archival data on board composition, early governance studies explored if board size or the presence of non-executive directors may increase boards' ability to affect firm results. More precisely, building on the resource dependence theory, scholars argue that board size may positively affect the board service role (Pfeffer & Salancik, 1978) and, building on the agency theory, they suggest that the number of non-executive (or independent) directors may improve the board monitoring role (Fama & Jensen, 1983). However, despite the soundness of these theoretical frameworks, the empirical evidence on the impact of board size and board independence on firm results produced only mixed and inconclusive results (e.g., Dalton, Daily, Ellstr & Johnson, 1998; Dalton, Daily, Ellstr & Johnson, 1999; Hermalin & Weisbach, 2003).

In the following years, thanks to the availability of new archival data, scholars expanded their investigation of the consequences of board composition by including new variables measuring the average or the variety of several board attributes like age, gender, professional background (Johnson et al., 2013). Building on the idea that directors' demographics, human and social capital attributes may be used to infer their beliefs and behaviors (e.g., Hambrick & Mason, 1984; Pfeffer, 1983), a growing area of research explored the direct effect of these board attributes on board or firm outcomes. However, like previous studies on board size and independence, also the analysis of these additional board attributes failed to identify clear causal links with board or firm results (e.g., Johnson et al., 2013).

Within this stream of research, a growing number of studies have started to explore the antecedents of board (mostly gender) diversity (e.g., Geletkanycz, 2020; Kirsch, 2018) together with its potential consequences on board or firm results (e.g., Adams, 2016; Adams & Ferreira, 2009). Studies on the antecedents of board diversity show that several variables at various levels – e.g., national institutions favoring the active role of women in the society and the business, the high number of female employees in the industry, or the presence of female directors in the nomination committee – may promote female representation on corporate boards (e.g., Adams, 2016; Hillman, Shropshire & Cannella, 2007; Kirsch, 2018). Studies on the influence of board gender diversity on board or firm outcomes fail, instead, to provide clear and unambiguous findings due to the complexity of the relationship, that may be both moderated by some contextual variables (e.g., at national-, industry- and firm-level) and affected by endogeneity concerns (e.g., Adams, 2016; Post & Byron, 2015).

The mixed and ambiguous findings produced by the large and growing literature on board composition and diversity invite scholars to go beyond current theoretical and methodological choices (Johnson et al., 2013; Kirsch, 2018). Based on these premises, our systematic interdisciplinary literature review aims at analyzing the theoretical frameworks, the research methods, and the results of previous studies on board diversity. Our ultimate goal is to take stock of the accumulated knowledge, to highlight open or unaddressed issues, and to identify new avenues of research aimed at improving our understanding of the antecedents and consequences of board diversity.

Method

Sample

Our interdisciplinary review aims at examining peer-reviewed studies on board diversity published in accounting, business, finance, management, and organization journals. To address this purpose, we focused on articles published in the highest ranked journals (i.e., the one classified as 4 and 4*) in the AJG journal list. We also included an additional journal – i.e., Corporate Governance: An International Review, currently ranked as 3 in AJG journal list – as it is the leading journal in the corporate governance field and so likely includes several relevant articles on the topic.

Consistently with the structured approach of previous literature reviews (e.g., Pugliese et al, 2009; Zattoni et al., 2020), we searched for relevant studies using the electronic database Business Source Ultimate. Our search strategy was based on the simultaneous use of relevant keywords: i.e., the journal name (e.g., Leadership Quarterly) in the field "SO Publication Name" together with the term "board" and specific types of diversity in the field "AB Abstract or Author-Supplied Abstract". We used both the general term (i.e., "diversity") and several specific terms (i.e., "gender", "age", "race", "ethnic*", "nationality", "education", "tenure", "background", "exper*", "human capital", "heter*", "relig*", "directors' ties", "personal relationships", "social standing", "interlock") to identify all potentially relevant articles on board diversity (Milliken & Martins, 1996).

We conducted our search at the beginning of February 2022 and we considered all publications until 31st December 2021. As we used a wide explorative search strategy, a large number of articles (i.e., 779) matched our keywords. After this first step, we did a preliminary selection aimed at eliminating records different than journal articles, e.g., book reviews, business press articles, call for papers. Then, we read all remaining articles to identify the studies focusing on the core of our research. In this stage, we eliminated a number of studies that did not cover board diversity as, for example, analyze top management teams' diversity. While our final sample includes only empirical articles, we carefully read and integrated in our literature review also (i) conceptual papers, (ii) previous reviews, (iii) journal editorials or commentaries, and (iv) purely descriptive or practitioners' papers on board diversity. Table 1 shows the journal distribution of the 184 empirical articles in our sample.

Data analysis

For all articles in our sample, we collected some general information (i.e., authors' name, title, year, journal, subject) to understand the scholarly interest in the topic. Then, following previous reviews (e.g., Cuomo et al., 2016; Zattoni et al., 2020), we coded all articles along three key dimensions: i.e., theoretical framework, research method, and the diversity variable. The theoretical framework includes the following categories: number of theories, type of theories (e.g., agency, resource dependence, socio-psychological), role of diversity (e.g., independent, dependent, and moderating variable), and main research topic (i.e., the dependent variable). The research method analyzes research design (i.e., qualitative, quantitative, mixed method, experiment), country setting (number of countries, single or multiple-country), research setting (i.e., various types of national economies – i.e., liberal market, coordinated market, emerging, and transition economies – or a global representative sample), type of companies (i.e., private or public), data analyses (i.e., cross-sectional, longitudinal, multilevel), economic significance of results (measured or not measured), and endogeneity concern (i.e., addressed or not,

Table 1
Number of relevant articles in the selected journals.

A/A	Abbr.	Journal Name	#
1	AOM	Academy of Management Journal	18
2	TAR	Accounting Review	5
3	ASQ	Administrative Science Quarterly	8
4	BJM	British Journal of Management	14
5	BEQ	Business Ethics Quarterly	1
6	CAR	Contemporary Accounting Research	8
7	CGIR	Corporate Governance: An International Review	46
8	JAE	Journal of Accounting and Economics	6
9	JCF	Journal of Corporate Finance	26
10	JFE	Journal of Financial Economics	5
11	JFQA	Journal of Financial Quantitative Analysis	5
12	JOM	Journal of Management	2
13	JOMS	Journal of Management Studies	4
14	JWB	Journal of World Business	1
15	LQ	Leadership Quarterly	3
16	MANSCI	Management Science	5
17	ORSCI	Organization Science	7
18	OS	Organization Studies	1
19	RAST	Review of Accounting Studies	2
20	SMJ	Strategic Management Journal	17
		Total	**184**

number and type of endogeneity tests). Finally, we analyzed and coded several dimensions regarding the diversity variable: meaning of diversity (i.e., separation, variety, disparity), type of diversity (e.g., gender, age, education, tenure, ethnic), operationalization of diversity (e.g., number and type of operationalization), measurement of diversity (i.e., self-declared or archival), and the number of measures of diversity (i.e., one or multiple measures).

We pre-tested the coding scheme to check its ability to capture all relevant dimensions for our analysis and to assess raters' skills to apply it consistently. To this purpose, all raters coded individually a sub-sample of 20 articles from different disciplines. After having finalized this task, all raters met to compare the results and to discuss differences across them. In the same meeting, raters decided the final list of items and how to analyze each of them. After we finalized the coding scheme, group members coded a sub-sample of articles fitting their disciplinary background. At the end, all data independently coded by the group members were assembled. In a final meeting, all raters collectively analyzed the database in order to eliminate any personal bias and to guarantee coding reliability.

Once data collection and preliminary checks were finished, we carefully explored the database to identify the salient characteristics of each dimension of analysis, i.e., theoretical framework, research method, and diversity variable. Secondly, we analyzed the literature on board diversity to identify the key findings and challenges that can shape the future research agenda. Specifically, we analyzed the main characteristics, the major results, and the limitations of all articles divided in three sub-samples based on the use of board diversity as: (1) independent variable, (2) dependent variable, or (3) moderating variable.

Results

Main characteristics of previous studies

Our final sample includes 184 articles on board diversity published in 20 journals between 1986 and 2021 (see Table 1). Most of the papers (104) were published in management and organization journals, but also accounting and finance journals (80) contributed significantly to the extant literature. The journal that published the largest number of studies is CGIR (45), followed by the Journal of Corporate Finance (26), the Academy of Management Journal (18), the Strategic Management Journal or SMJ (17) and the British Journal of Management (14). All other journals have single-digit publications.

Fig. 1 highlights that board diversity has been relatively under-investigated until 2007. Since then, it becomes a key topic most likely due to the increasing impact of social movements and the diffusion of quota laws or good governance codes' recommendations promoting board (gender) diversity (Geletkanycz, 2020; Kirsch, 2018). As most studies (128) have been published in the last decade and the year 2021 is by far the one with the highest number of articles (28 or 15 %), research on board diversity is topical and growing.

Table 2 reports the main results on the theoretical frameworks. There is a wide proliferation of theoretical lenses employed and studies use on average more than 2 theories. Most of the studies that do not explicitly employ a theoretical framework are accounting and finance studies (23). Previous articles mostly apply agency theory (61 or 27 %) (e.g., Krishnan, Wen, & Zhao, 2011; Zona, Zattoni & Minichilli, 2013) and social-psychological theories (60 or 26 %) (e.g., Delis, Gaganis, Hasan, & Pasiouras, 2017; Li & Wahid, 2018). However, while agency theory is the dominant one (38 %) among finance and accounting studies, socio-psychological theories (34 %) are the most common in management and organization articles. Other commonly used theories are the resource dependence theory (11 %), the human capital theory (7 %), and the institutional theory (6 %).

Previous works predominantly examine board diversity as independent variable (83 %), while relatively few (mostly management and organization) studies include it as dependent (13 %) or moderating variable (7 %). The most common dependent variables are various dimensions of boards of directors (33 %), that are more common in management and organization papers, and firm performance (34 %), most frequently explored in accounting and finance studies. The use of boards of directors as dependent variable regards mainly board composition and structure (22 %), and only rarely board roles (8 %) or processes (3 %). Other popular research topics are financial reporting quality (11 %) in accounting and finance literature, and strategy (10 %) and corporate governance topics unrelated to the board (e.g., CEO, top management teams, investors) (9 %) in management and organization studies.

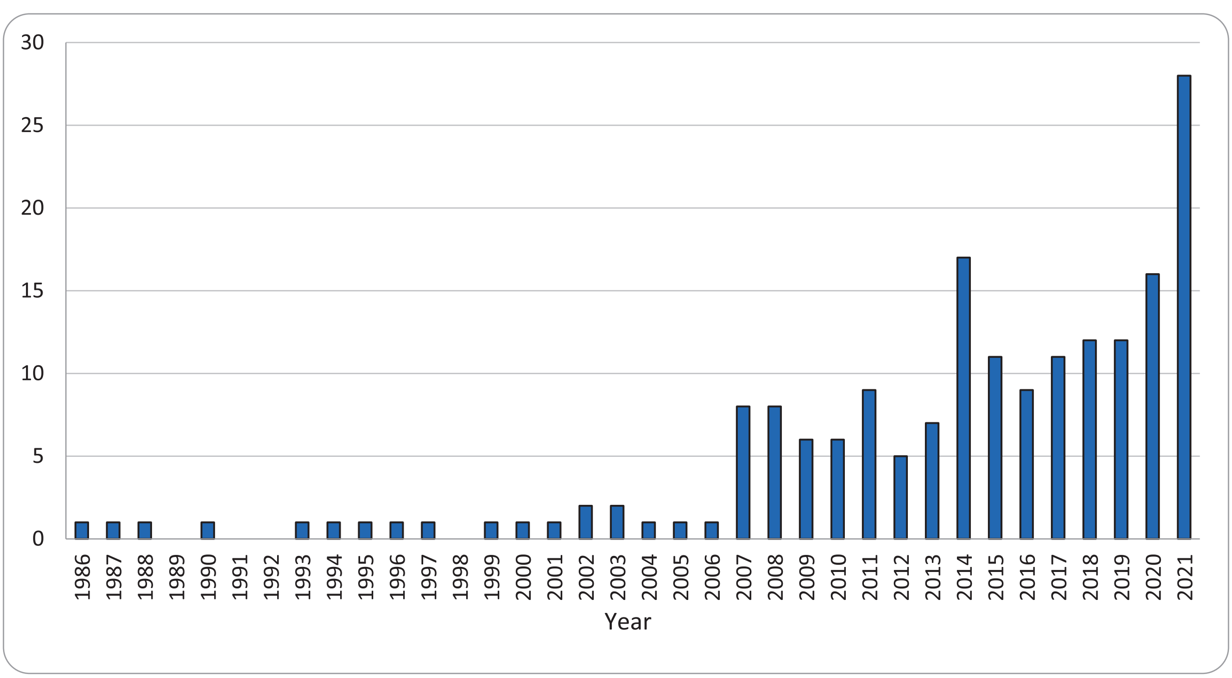

Fig. 1. Number of papers published in each year.

Table 2
Descriptive statistics on the theoretical framework.

	Total	
	No	%
Use of Theories		
Theoretical lenses (number)	229	
Theoretical lenses (average)	2.46	
Agency theory	61	26.64 %
Human capital	17	7.42 %
Critical Mass or Tokenism	11	4.80 %
Resource dependence	25	10.92 %
Institutional theory	13	5.68 %
Upper Echelons	8	3.49 %
Social Psychology	60	26.20 %
Ethics or glass ceiling	7	3.06 %
Stakeholder theory	5	2.18 %
Other	22	9.61 %
No theory (or implicit)	29	
Diversity as		
Dependent variable	24	13.04 %
Independent variable	153	83.15 %
Mediating or moderating variable	13	7. 07 %
Main research topic (i.e., dependent variable)		
Corporate governance	17	9.24 %
Board	60	32.61 %
- Board composition and structure	40	21.74 %
- Board processes	5	2.72 %
- Board roles or task performance	15	8.15 %
Compensation	15	8.15 %
Innovation	10	5.43 %
Strategy	19	10.33 %
Performance	62	33.70 %
Financial reporting quality	27	14.67 %
CSR or Sustainability	7	3.80 %
Other	11	5.98 %
Total number of articles	**184**	

Note: The percentages reported on table above are calculated using the number of papers published in each category (i.e., 184). In some cases (e.g., main research topic), it is possible to code more than one category (e.g., the sample includes more than one DV) and so the total is higher than the total number of papers.

Table 3
Descriptive statistics on research method.

	Total	
	No	%
Research design		
Quantitative	177	96.20 %
Qualitative	3	1.63 %
Mixed method	2	1.09 %
Experiment	2	1.09 %
Number of countries		
Single-country study	163	88.59 %
Multiple-country study	21	11.41 %
Research setting		
Liberal Market Economies	137	74.46 %
Coordinated market economies	28	15.22 %
Emerging Economies	15	8.15 %
Transition economies	10	5.43 %
Global representation	11	5.98 %
Companies		
Public	173	94.02 %
Private	23	12.50 %
Data analyses		
Cross-sectional	57	30.98 %
Longitudinal	125	67.93 %
Multilevel	3	1.63 %
Economic significance		
Measured	69	37.50 %
Not measured	115	62.50 %
Endogeneity concern		
Addressed	111	60.33 %
No of ways	206	185.59 %
Reverse causality	95	85.59 %
Omitted variables	69	62.16 %
Measurement error	10	9.01 %
Selection	32	28.83 %
Total number of articles	**184**	

Note: The percentages reported on table above are calculated using the number of papers published in each category (i.e., 184). In some cases (e.g., companies), it is possible to code more than one category (e.g., the sample includes both private and public companies) and so the total is higher than the total number of papers.

Table 3 reports the main results on the research methods. The table suggests that the research methods employed may lead to a segmentation in current knowledge. Previous studies rely, in fact, almost only on quantitative research methods (96 %) and use mostly longitudinal (68 %) and, to a lesser extent, cross-sectional analyses (31 %). Moreover, literature is dominated by single country studies (89 %), with most samples from the US or the UK (74 %). Our results also show that research on board diversity is relatively rare in coordinated market (15 %), emerging (8 %), and transition economies (5 %). In addition, while almost all studies include public firms (94 %), only few (mostly management and organization) papers include also or explore only private firms (12 %). The majority of studies (60 %) – and a higher number (80 %) among accounting and finance papers – consider endogeneity threats and try to address, on average, two of them (for a total of 206 tests). The most popular tests to address endogeneity concerns are reverse causality (86 %) and omitted variables problem (62 %). Finally, a relatively limited number of studies, mostly in accounting and finance, measure and discuss the economic significance of the results (37 %).

Finally, Table 4 reports the main results on the diversity variable. Using the categorization of Harrison & Klein (2007), our analysis shows that most studies have, explicitly or implicitly, viewed diversity as variety (90 %), while only few (mostly management and organization) studies investigated diversity as separation (7 %) or disparity (8 %). Previous studies include, on average, two types of board diversity, with a relatively higher number among management and organization studies. Following the categorization of Johnson, Schnatterly, and Hill (2013), our results show that the majority of studies explore the surface-level demographic diversity of directors: i.e., gender (51 %), age (14 %), education (12 %), ethnic (13 %), and nationality (7 %). A number of studies – mostly from management and organization – explore the human capital diversity of directors, i.e., either their professional (18 %), functional (18 %) and industry expertise (15 %), or their tenure (14 %). Finally, several studies explore the social capital diversity of boards through directors' interlocks, ties, social connections, and relationships (27 %). Literature uses, on average, more than one measure (1.5) to operationalize board diversity. The most common one is a dummy to indicate its presence (49 %) or the proportion of a certain type of directors over the board size (42 %), while relatively less common are the absolute number of diverse directors (29 %) or the use of heterogeneity proxies (like the Blau index) (17 %). The large majority of studies use single measures of diversity (92 %) and only few works employ multiple measures (8 %), such as indices or interactions among different types of diversity. Finally, almost all studies measure board diversity relying on archival data (98 %), while only few works employ self-declared measures of diversity (2 %).

Board diversity as independent variable

Literature on board diversity as independent variable appears to be mainly concentrated on its impact on: (i) firm performance, (ii) strategy and innovation, (iii) boards of directors (i.e., composition, structure, and board practices), and (iv) governance and control.

Table 4
Descriptive statistics on diversity's variable.

	Total	
	No	%
Meaning of diversity		
Separation	13	7.07 %
Variety	166	90.22 %
Disparity	14	7.61 %
Type of diversity		
Gender	93	50.54 %
Age	26	14.13 %
Education	22	11.96 %
Ethnic/race	24	13.04 %
Nationality	13	7.07 %
Tenure	26	14.13 %
Professional Expertise	34	18.48 %
Functional Expertise	34	18.48 %
Industry Expertise	28	15.22 %
Interlocking/social ties/relationships	50	27.17 %
Other	8	4.35 %
Operationalization of diversity		
Number of operationalizations	285	
Number	54	29.35 %
Dummy	90	48.91 %
Proportion	78	42.39 %
Heterogeneity	31	16.85 %
Other	32	17.39 %
Data collection/Measurement		
Self-declared measure	4	2.17 %
Archival measure	180	97.83 %
Measures of diversity		
One measure	169	91.85 %
Multiple measures	15	8.15 %
Total number of articles	**184**	

The impact of board diversity on firm performance

Studies exploring the influence of board diversity on firm performance using composite diversity measures report both positive (Ararat, Aksu, & Cetin, 2015; Ben-Amar et al., 2013) and negative associations (Adams et al., 2018). However, results on risk are more conclusive suggesting that board diversity reduces corporate risk taking (e.g., Bernile, Bhagwat & Yonker, 2018).

A significant amount of this literature examines the impact of gender diversity. Findings from the US and the UK suggest that gender diverse boards increase portfolio risk (Berger, Kick & Schaeck, 2014) and decrease shareholder value (Adams & Ferreira, 2009; Evgeniou & Vermaelen, 2017), and that financial markets react negatively to trades by and appointment of female directors (Gregory, Jeanes, Tharyan & Tonks, 2013). However, studies conducted in transition economies (e.g., China, Russia, Indonesia) demonstrate significant positive effects on operating and financial performance (Herdhayinta, Lau, & Hsin-han Shen, 2021; Kim, Kuang, & Qin, 2020; Liu, Wei, & Xie, 2014). Further findings from the financial sector suggest that higher board gender diversity leads to superior bank performance (Cardillo, Onali, & Torluccio, 2021) and promotes a reduction of firms' loan spreads (Karavitis, Kokas, & Tsoukas, 2021).

Contrary to gender diversity, literature on board expertise diversity is more conclusive, reporting overall positive outcomes. In particular, top-level board diversity experience (Feldman & Montgomery, 2015) and accounting and finance expertise (Bédard, Coulombe, & Courteau, 2008; Chan & Li, 2008) may increase corporate value. Importantly, in the banking industry, diversity related to the resource dependence role of directors – as business experts, support specialists, or community leaders – significantly improves M&A performance (Hagendorff, Collins, & Keasey, 2010). Results however are not monotonic, since when there is significant decision uncertainty, domain expertise diversity may undermine effective decision making and increase the likelihood of company failure (Almandoz & Tilcsik, 2016). Further, Schnatterly, Calvano and Berns (2014) suggest that while expertise "misalignment" has negative implications for firm performance, it may also motivate appropriate board reconfiguration, which may positively affect future performance. Finally, academic expertise diversity in science, medicine, and engineering produces positive market reactions (White, Woidtke, Black & Schweitzer, 2014).

Regarding other types of diversity, literature seems to indicate that ethnic diversity has positive outcomes, since minority- (Erhardt, Werbel, & Shrader, 2003) and genetic-diverse boards (Delis et al., 2017) increase firm operating performance. Networks' diversity appears to incrementally increase firm value, under some conditions (Joh & Jung, 2018), which are not univocal (Grove et al., 2011). Literature on tenure diversity provides mixed findings (Huang & Hilary, 2018; Kim, Mauldin & Patro, 2014), with some recent studies suggesting that tenure may have an inverted U-shaped relationship with accounting performance and firm value (Li & Wahid, 2018). While education and age diversity appear to have some positive impact on corporate performance, the limited literature does not allow to draw generalizations (Berger, Kick & Schaeck, 2014).

The impact of board diversity on strategy and innovation

Relatively few papers – all published in management and organization journals, mostly SMJ and CGIR – study the association between board diversity and strategy or strategic decision making. While, it is not possible to derive solid conclusions, previous articles generally find that board diversity influences a variety of strategy related variables. Connelly, Johnson, Tihanyi and Ellstrand's (2011) examination of the social network of interlocking directors in US companies show that ties to unsuccessful or successful adopters of strategic expansion to China have nearly equal and opposing effect on the probability of adoption of such foreign strategies. Relatedly, Tuschke, Sanders and Hernandez (2014) find that the variety in board interlocks affect foreign investments in a sample of German firms. Chen, Crossland and Huang (2016) find evidence that female board representation affects the likelihood of firms' acquisitions. Sundaramurthy, Pukthuanthong, and Kor (2014) underline that directors' scientific educational backgrounds may have positive synergies on IPO performance, where industry-specific experiences produce either positive or negative effects based on firm age and profitability. Haynes and Hilman (2010) observe a positive association between the extent and the variety of board capital and strategic change, where Oehmichen, Schrapp and Wolff (2017) find that the relationship between industry expertise and strategic change is moderated by the institutional environment. Sidhu, Feng, Volberda and Van Den Bosch (2021) show complex associations between gender diversity and strategic change. Finally, Nekhili, Bennouri, and Nagati (2021) find that board gender diversity is negatively associated with related party transactions.

Literature on board diversity and innovation is conclusive and supports a positive impact. Greater board diversity promotes R&D investments, the efficiency of innovation processes (Bernile et al., 2018), new technology in unfamiliar areas, and the number of (most-cited and uncited) patents (An et al., 2018). Taken together, those studies suggest that more diverse boards provide better advice, and that their benefits are larger in more complex firms and more experienced boards. Literature on specific types of board diversity suggests that companies with gender diverse boards have both more and novel patents, and higher innovation efficiency (Griffin, Li, & Xu, 2021), an effect which is more pronounced in male-dominated industries (Cumming & Leung, 2021). Miller and Triana (2009) demonstrate that both gender and racial diversity enhances corporate innovation. Giannetti and Zhao (2019) find that firms with higher ancestral diverse boards have more numerous and more cited patents as their strategies deviate from industry peers. Finally, education, industry specific experience, and interlocking diversity enhance R&D investment and innovation outcomes (Chen, 2014; Chang & Wu, 2021).

Literature on corporate social responsibility (CSR) or sustainability predominantly investigates the impact of gender diversity and underlines that board diversity enhances the CSR agenda. In more detail, gender diverse boards improve CSR performance (McGuinness, Vieito, & Wang, 2017), promote renewable energy consumption (Atif, Hossain, Alam & Goergen, 2021), and reduce the probability to experience environmental lawsuits (Liu, 2018). Interestingly, Luo, Chen and Chen (2021) find that foreign experience produce similar benefits.

The impact of board diversity on boards of directors

In our sample there are approximately 36 articles – mostly published in management and organization journals and CGIR (24) – that address the association between board diversity and board composition, structure, and practices. Regarding board composition, robust evidence demonstrates that minorities and women are less represented in boards (e.g., McDonald & Westphal, 2013) and are less likely members of important board core committees like audit, nomination and finance (e.g., Peterson, Philpot & O'Shaugnessy, 2007). In addition, previous studies highlight that director independence is associated with women and foreign directors (Ruigrok, Peck & Tacheva, 2007), whereas women inside directors earn less than their male counterparts and are less likely to hold other directorships (e.g., Zelechowski & Bilimoria, 2004). Then, Chen and Guay (2020) observe a positive relationship between busy directors' age and tenure diversity and shareholder satisfaction, while Naumovska, Wernicke, and Zajac (2020) underline that the underrepresentation of women and ethnic minorities is positively associated with the relative reputational immunity of these directors.

About changes in board composition, Farrell and Hersch (2015) find that the likelihood of a company to add a female director is responsive to either internal or external reasons. Concerning board practices, Field, Souther and Yore (2020) conclude that while board gender and minority diversity has increased, female and minority directors have a lower probability to assume leadership roles despite they have higher qualifications than other directors. Furthermore, Souther (2018) finds that boards with more homogeneous background (in terms of education, employment, and family) experience lower director turnover and new director appointments are more frequently connected with incumbent directors. Iliev and Roth (2018) highlight that nationality diversity and international experience diversity are positively related to the adoption of "non-domestic" practices. Finally, Marcel and Cowen (2014) report that, after a fiscal fraud or other governance weaknesses, high-capital directors are less likely to leave the board than low-capital directors.

The impact of board diversity on governance and control

The variety of topics in this area is large. In an early study, Westphal (1997) concludes that the presence of CEO-directors may promote the change in board control, compensation and strategy, in case (other) outside directors diffuse contested ideas. Regarding the association between board diversity and board task performance, Adams and Ferreira (2009) show that more gender-diverse boards are more involved in monitoring. Similarly, Schwartz-Ziv (2017) show that a balanced gender representation (over a threshold of three members) is positively associated with board engagement. Board gender balance is also positively correlated with board involvement in strategic control (Nielsen & Huse, 2010). However, diversity in background is negatively related to board behavioral control (Minichilli et al., 2009) and a more balanced representation of diverse subgroups can create faultlines that may hamper board effective functioning (Veltrop, Hermes, Postma, & de Haan, 2015).

About CEO monitoring, Zhu and Shen (2016) find that board diversity increases the likelihood that newly appointed outside CEOs will be replaced within their early years of tenure, while CEOs that previously served in more diverse boards develop experiences and skills that may increase their tenure. Alkalbani, Cuomo and Mallin (2019) show that the presence of female directors in the remuneration committee reduces the likelihood of shareholder dissent on say on pay procedures. Similarly, previous studies underline that gender diversity is positively related to board attendance, CEO accountability, and risk taking (Boutchkova, Gonzalez, Main, & Sila, 2021) and negatively related to CEO-turnover performance sensitivity (Kim et al., 2020) and the incidence of legal risk (Bao, Fainshmidt, Nair & Vracheva, 2014). Finally, some studies report salary and total compensation gaps between female and male executives mainly due to greater female risk aversion. Carter, Franco, and Gine (2017) find that (i) while female CEOs do not experience a pay gap, the other female executive directors are discriminated, and (ii) female managers working in 'male' dominated industries face a smaller pay gap. Importantly, Geiler and Renneboog (2015) show that the gender pay gap becomes bigger in case of marriage and parenthood.

Literature on financial reporting quality, a key topic in accounting research, underline that board diversity brings statistical and economic significant benefits, irrespective of how the dependent variable is measured or which diversity type is employed. Precisely, financial, accounting, supervisory, or legal expertise significantly lowers the levels of accounting irregularities and abnormal accruals, reduces the likelihood of disclosing material weakness, and enhances overall financial reporting quality (Badolato, Donelson & Ege, 2014; Chychyla, Leone, & Minutti-Meza, 2019; Krishnan et al., 2011). Further, firms with gender-diverse boards have higher earnings quality (Srinidhi, Gul, & Tsui, 2011) or demand and have better audit quality (Lai et al., 2017). The diversity of relations, proxied by directorships in other corporate boards, is associated with enhanced reporting quality as measured, inter alia, by audit pricing (Carcello et al., 2002) and internal control material weakness (Cheng, Felix, & Indjejikian, 2019). Finally, firms with tenure-diverse audit committees are more likely to enhance their monitoring effectiveness and less likely to experience financial restatements (Li & Wahid, 2018).

As the majority of articles in our sample explore board diversity as independent variable, we decided to further analyze these studies in order to assess the stability or the variance of their characteristics and results across three key dimensions, i.e., time of publication, types of diversity and country setting. First, about the variance over time, our analysis underlines that there is a link between the time of publication, the sophistication of the method to address endogeneity, and the results of the study. Precisely, while early studies that do not consider endogeneity concerns tend to support a positive association between board diversity and firm performance – measured by return on assets and investments (Erhardt et al., 2003), returns of bidding banks (Hagendorff, Collins, & Keasey, 2010) and efficiency of resource allocation (De Andrés-Alonso, Azofra-Palenzuela, & Romero-Merino, 2010), studies employing sophisticated methods for addressing endogeneity (e.g., Adams & Ferreira, 2009, Adams et al., 2018; Yang et al., 2019) tend to report a negative association between board diversity and firm performance. Based on this contradictory evidence, we invite governance scholars to be cautious in interpreting results of previous studies with weak or no tests for endogeneity. For example, including studies that do not address or weakly address endogeneity concerns may decrease the credibility of *meta*-analyses or review studies (see Antonakis, Bendahan, Jacquart & Lalive, 2017).

Second, our results show that most of previous studies (1 1 3) investigated one type of diversity (i.e., demographic, human capital, and social capital), with an emphasis on demographic (65) followed by human capital (33) and social capital (15) diversity. The remaining (71) studies focused on more than one type of diversity simultaneously, making so difficult to discriminate research characteristics and results across different types of diversity. With this limitation in mind, our analysis shows that studies analyzing the different types of board diversity have characteristics in line with the overall sample (e.g., they mostly consider board diversity as variety and explore its impact on firm performance), and that only literature on social capital diversity develops as a relatively separate area of research with more or less distinct research questions – e.g., positive and negative implications of network embeddedness – and methodologies (e.g., the use of network analysis). Moreover, our analysis shows that research results slightly differ across the various types of diversity: i.e., while studies on expertise and ethnic diversity are more conclusive in indicating a positive impact on performance, studies on the remaining types of diversity provide only mixed or partial evidence.

Third, about the country setting, our results underline that for several years literature on board diversity analyzed only US companies and, only after 2006, started to explore non-US samples (e.g., Minichilli, Zattoni & Zona, 2009; Ravasi & Zattoni, 2006). In the first phase most of these studies were published by one journal (i.e., CGIR), while more recently they appeared in several other journals. In the last decade, scholars accumulated a richer knowledge on the global consequences of board diversity by investigating samples both from unexplored countries (e.g., Argentina: Bazel-Shohama et al., 2020; Indonesia: Herdhayinta, Lau, & Shen, 2021; Korea: Joh & Jung, 2018) or from several countries (e.g., see the two *meta*-analyses by Byron and Post, 2016, and Post and Byron, 2015). These studies have the merit to underline that both formal (e.g., law, regulations) and informal (e.g., culture, religion) institutions play a key role in affecting the relationship between board diversity and firm results.

In sum, the literature on the impact of board diversity on firm performance is mostly inconclusive due to differences concerning the institutional and industrial contexts, the theoretical underpinnings, and the research design (e.g., constructs, estimation windows, model specification, and statistical analysis) (Adams, 2016; Yang, et al., 2019). Only studies on board expertise and ethnic diversity seem to indicate a positive impact on performance. However, literature largely shows that board (mainly gender, ethnic and expertise) diversity has a positive impact on various firm outcomes, like financial reporting quality, innovation and CSR or sustainability. Finally, literature presents several associations between board diversity and variables related to board composition, strategy decision making, and corporate governance.

Board diversity as moderating variable

Very few (13) papers in our sample have focused on the moderating effect of board diversity, the majority of which (7) has been published between 2020 and 2021, mainly in management and organization journals. Most of this research analyzes board gender diversity as a moderator of a baseline relationship (e.g., Karavitis et al., 2021; Mitra, Post, & Sauerwald, 2021; Triana, Miller, & Trzebiatowski, 2014; Tuggle, Schnatterly & Johnson, 2010; Westphal & Stern, 2007). Specifically, Triana et al. (2014) show that female directors' power and firm performance positively moderate the board gender diversity's impact on strategic change. Mitra, Post and Sauerwald (2021) show that shareholders express less dissent against female directors when female board representation is low, but this behavior changes when shareholder value is decreasing. Westphal and Stern (2007) show that both ethnic minorities and women directors are less likely to receive a board appointment than male Caucasians if they provide frequent advices, engage in ingratiatory behaviors, or attenuate CEO's control. In a recent study, Tuggle et al. (2022) highlight that the presence of additional underrepresented (i.e., female or Black) directors positively moderate the negative relationship between underrepresented demographic directors and their participation in board meetings.

A second set of papers looks at board experience (Feng & Xiao, 2022; Pérez-Calero, Larrañeta, & Wright, 2019; Veltrop, Molleman, Hooghiemstra & van Ees, 2017; Zorn, DeGhetto, Ketchen & Combs, 2020). Zorn et al. (2020) show that board diversity experience may significantly influence the relationship between board composition and CEO pay or dismissal. In a recent study, Feng and Xiao (2022) document that directors' academic experience moderates the relationship between new directors and firm risks. Veltrop et al. (2017) underline that directors' financial expertise positively impacts their social status and conformity within the board, while directors' industry-specific expertise does not. Moreover, Pérez-Calero et al. (2019) show that the diversity of experience between the CEO and the board mitigates the relationship between the extensiveness of prior shared experience and IPO valuation.

A third set of papers focuses on the directors' diversity of interlocking and networks. Cheng et al. (2021) underline that directors' interlocks are channels by which firms share information about IT investments: i.e., when the board is active, the similarity in IT investments between firms is positively moderated by interlocked directors' background. Omer, Shelly and Tice (2020) show that the audit committee's connection through directors' networks increases the financial reporting quality and reduces the likelihood of annual financial misstatements.

Finally, a fourth set of papers focus on the diversity of the interactions among board members. Vandebeek et al. (2021) show that the relationship between firm performance and CEO dismissal is negatively moderated by social category faultlines, and this effect is stronger in boards that do not engage in self-assessment or have a higher number of committees. Moreover, focusing on multiple dimensions of diversity, Zhu (2013) shows that demographic homogeneity among board members can reduce group polarization by facilitating effective information exchange among directors.

In sum, an emerging area of research shows that board diversity moderates a baseline relationship, so refining and contextualizing its understanding. Specifically, directors' diversity in terms of gender, experience and networks is a channel to enhance various board outcomes. First, diversity improves board's ability to perform its monitoring (i.e., making decisions on CEO pay, CEO dismissal, and financial reporting quality) and service roles (i.e., making decisions on IT investments and IPO valuation). Second, diversity may also moderate and change the interactions among board members, in terms of both cohesiveness of the underrepresented directors (Tuggle et al., 2022), and interpersonal trust and openness (Zhu, 2013).

Board diversity as dependent variable

Only a limited number of papers in our sample – mostly published in management and organization journals – address the determinants of diversity. However, our preliminary findings suggest some interesting results and advance questions for a more comprehensive analysis of board diversity.

First, at the directors' level, an early study by Hillman et al. (2002) reports structural differences in professional background, education, and board affiliation among different types of directors (i.e., white male and female, African-American male and female) in Fortune 1000 boards. This result suggests that demographic characteristics are correlated with deep-level diversity, or that there are barriers to diversity within boards. Second, at the firm level, some articles observe firm-specific contingencies that may affect board diversity. Focusing on performance, Mulcahy and Linehan (2014) find over representation of women in boards of companies that are precarious. Daily and Dalton (2003) find that larger firms with director stock requirements and annual stock awards have higher board representation by women and minorities. Cannella, Jones and Withers (2015) observe that firm identity is correlated with observed board heterogeneity. Third, at a *meso* level, recent research suggests that recruitment practices based on networks may have implications for board (gender) diversity, given that different genders belong to different networks and that directors' and CEOs' networks affect their appointment (Allemand, Bédard, Brullebaut & Deschênes, 2022). Fourth, at a macro level, Chang, Milkman, Chugh, and Akinola (2019) find that threshold effects and social norms (tokenism) may explain underrepresentation of women and minorities within boards. Then, few multi-country studies (e.g., Chizema et al., 2015; Grosvold & Brammer, 2011) suggest that several legal, cultural and social institutions are key drivers of board gender diversity in the country.

In sum, board diversity literature emphasizes that some variables at firm-level (e.g., size, identity or performance), at *meso*-level (e.g., directors' networks), and at macro-level (e.g., formal institutions like corporate and labor law, or informal institutions like culture and religiosity) may contribute to explain board diversity. However, the limited number of papers on the determinants of board diversity does not permit to draw solid conclusions. Given that this research area is not yet developed to its full potential, there are still interesting questions to investigate. For example, it may be relevant to analyze structural member-, firm-, and context-specific barriers to board diversity.

An agenda for future research on board diversity

Building on the results of our systematic and interdisciplinary literature review, this section will present suggestions to refine the theoretical frameworks, strengthen the research methods, and expand the questions under investigation. In this way, we aim at helping leadership and governance scholars to advance our understanding of board diversity's antecedents and implications.

How to refine the theoretical frameworks

Some characteristics of previous studies indicate that scholars should strengthen their theoretical models in order to improve our understanding of board diversity. In particular, we focus on some key issues like the conceptualization of diversity, the underlying causal mechanisms between board diversity and board- or firm-level outcomes, the role of board processes as intermediate variables, the role of contextual variables, and the need of a multi-level analysis.

First, while diversity has different meanings (Harrison & Klein, 2007), our results show that most of previous studies on board diversity has focused on one of them: i.e., the variety of directors' demographic, human and social capital. However, exploring almost exclusively how board variety (or heterogeneity) affects board- and firm-level outcomes leaves unaddressed several interesting research issues related to power differences or discrimination within boards. To address this gap, future studies should increasingly conceptualize diversity as separation and, building on theories like similarity-attraction or social categorization, analyze if directors' horizontal differences of opinions or values may have negative consequences on, for example, board cohesion and board roles (e.g., Forbes & Milliken, 1999; Harrison & Klein, 2007). In addition, future studies may increasingly conceptualize diversity as disparity and, building on distributive justice or equity theories, explore if directors' vertical differences in pay or status may increase their frustration or turnover – and so reduce their cohesion and performance – also in relatively formal and collective decision-making teams like boards of directors (e.g., Harrison & Klein, 2007; Nkomo et al., 2019). Finally, we invite future studies to further explore the determinants of board diversity – especially as separation or disparity – as most of the research focuses only on its implications.

Second, our results show that previous studies have mostly found ambiguous and mixed findings about the influence of board diversity on board and firm outcomes. Moreover, also in research areas where scholars have identified statistically significant associations, there is still a relatively scant knowledge on the underlying causal mechanisms behind the hypothesized relationships. This may be due to several causes related to the research methods or the operationalization of diversity (see the next two sections), but also to theory development. For example, past studies implicitly argue that one type of diversity (e.g., gender) may produce the same consequences of a different type of diversity (e.g., functional background), or that female board members are a homogeneous group on all demographic, human and social capital dimensions (Zattoni, 2020). As diversity is a multidimensional construct, the simplified treatment of the theoretical construct of diversity – i.e., categorizing individuals with one dimension (e.g., Nkomo et al., 2019) – may be inappropriate and may lead to bias interpretations. So, we invite future studies to develop a more solid theoretical framework, for example, by measuring the underlying socio-cognitive differences among different types of directors (e.g., Adams & Funk, 2012; Kirsch, 2018), or by exploring the large variety characterizing boards of directors (e.g., female board members) and its consequences on board behavior and roles. Finally, as management scholars have highlighted that also the same type of diversity may produce both positive and negative effects on board and firm outcomes, future studies should develop more complex theoretical models disentangling the causal mechanisms behind these opposing effects (Martins & Sohn, 2022).

Third, similar to other leadership and governance studies, board diversity research is dominated by input–output studies exploring how board diversity constructs (and simple related measures) affect firm-level outcomes (Kirsch, 2018). While this approach has its own advantages – i.e., it uses easily available, objective, and parsimonious archival data – it ignores that board intermediate processes may significantly affect the relationship between board diversity and board outcomes (Forbes & Milliken, 1999). Future studies may so aim at opening the black box of board diversity, by collecting rich process data either through qualitative methods (e.g., interviews, participant observation, video recording of meetings) or rich questionnaire surveys (e.g., Minichilli et al., 2009; Zattoni & Pugliese, 2019). Alternatively, while it is not easy to involve board members in experiments, the adoption of an experimental design would allow scholars to better explore the causal mechanisms explaining the relationship between board diversity, processes, and outcomes (e.g., McNulty, Zattoni, & Douglas, 2013).

Fourth, most of previous studies explores board diversity's main effects on board or firm outcomes. However, leadership literature highlights that limiting the analysis to the direct effects may not help scholars to gain a full understanding of the influence of TMTs or boards on team- or firm-level outcomes (e.g., Blettner, Chaddad, & Bettis, 2012; Haynes et al., 2019). Consistently, to advance our knowledge on the main effects of diversity, scholars should adopt a contingency perspective aimed at investigating in more detail how contextual boundary conditions may moderate the baseline relationship (Joshi & Roh, 2009). For example, future studies may investigate if board diversity main effects on board or firm outcomes may be moderated by key contextual variables (e.g., Martins & Sohn, 2022; Nkomo et al., 2019), like formal and informal institutions (e.g., Post & Byron, 2015), industry characteristics (Cumming & Leung, 2021), firm complexity (Zona et al., 2013), or board tasks (e.g., Tasheva & Hillman, 2019).

Finally, most of previous studies have largely explored board-level diversity, ignoring to consider that diversity at the micro- or at the macro-level may interact with board diversity. About the micro-level, Tasheva and Hillman (2019) argue that diversity within each director (i.e., the personal range) may interact with board diversity producing either complementary or substitutive effects depending on the source of diversity and the type of board task. From this perspective, it may be particularly interesting to explore how CEOs' or chairs' personal range interact with board diversity in affecting board or firm-level outcomes. Concerning the macro-level, most of previous studies collected data on one country (traditionally almost only on the US or the UK). However, the few studies using multi country samples underline that formal and informal national institutions may both promote or hinder board (gender) diversity, and enhance or undermine the impact of board (gender) diversity on board and firm results. So future studies may contribute to develop a global understanding of board diversity by investigating samples of companies from several countries, including also emerging and transition economies (e.g., Nkomo et al., 2019; Martins & Sohn, 2022). More precisely, future studies should theorize and investigate how different legal, regulatory, social and cultural contexts may affect the relationship between board diversity, processes, and outcomes, while paying attention to avoid the use of country scores as proxies for group or individual cultural scores (e.g., Kirkman, Lowe, & Gibson, 2017; Taras, Kirkman, & Steel, 2010). In sum, as most of previous studies are developed at a single-level (i.e., the board one), we invite governance scholars to develop a multi-level understanding of board diversity (e.g., Johnson et al., 2013), that includes also variables at the individual-, committee-, board-, company-, or country-level.

How to strengthen the research methods

Endogeneity is a great threat in business studies that aim to correctly specify models and make causal claims (e.g., Antonakis et al., 2014). This is an inherent problem in board literature as boards of directors are governance mechanisms that are endogenously determined to address agency concerns (Hermalin & Weisbach, 2003). From this perspective, board diversity literature may be affected by limitations related to data, collection techniques, variable operationalization and measurement, and model specification (Adams, 2016; Yang et al. 2019). This concern is also more critical if we consider that a significant number of studies in our sample (around 40 % and mostly in management and organization) do not acknowledge or address endogeneity (e.g., Carcello et al., 2002; Farrell & Hersch, 2005). In addition, several studies addressing endogeneity do not clearly discuss its causes or refer only to one or more methods addressing some endogeneity concerns (e.g., Ararat et al., 2015). As a result, subsequent research tends to replicate the method for addressing endogeneity without solving the problem, because the more recent study may be affected by different endogeneity concerns (e.g., Antonakis, Bendahan, Jacquart & Lalive, 2010; Certo et al., 2016; Hill et al., 2021). Finally, as we have highlighted before, our analysis shows that studies that use sophisticated techniques to address endogeneity concerns may produce results that do not overlap with (or even contradict) the results of studies that do not satisfactorily address the endogeneity issues.

As regards the various endogeneity concerns, omitted variables problem might be the most intuitive and difficult to address in board diversity literature since the best way to do it is to include all relevant diversity types and measures in model specification. However, this is not possible as (i) it is not easy to empirically capture all types of diversity (think to sexual orientation, religious and political beliefs, physical and mental abilities), and (ii) researchers naturally confront problems of data availability. Moreover, a recent study by Adams et al. (2018) emphasize the importance of variable inclusion and the measurement of directors' multidimensional characteristics, and underline that empirical inferences may become problematic due to co-dependencies of diversity measures. To addresses unobserved heterogeneity, some studies include fixed effects in model specifications (e.g., Adams & Ferreira; 2009; Iliev & Roth, 2018). This might work when the omitted diversity is constant for all observations with the same fixed effect, but it is subject to various limitations (for a thorough review see Bliese et al. 2020). The most popular way to address omitted variable bias is to add further controls (e.g., Carcello et al. 2002). It is gaining popularity also the use of instrumental variables (IV), as it might be the most valid way for unbiased estimates (e.g., Krishnan et al., 2011; Wooldridge, 2010). However, an inherent problem concerns the identification of acceptable instruments, since they need to be justified theoretically, as the exogeneity condition cannot be tested directly, and empirically, to establish the strength of the instruments (Wooldridge, 2010). IV models in diversity literature apply mainly two-stage least squares (2SLS) (e.g., An et al., 2021) and three-stage least squares (3SLS) (e.g., Chakravarty & Hedge, 2019), while maximum likelihood and generalized method of moments (GMM) are less popular (e.g., Liu et al., 2014). In an important deviation from studies following one approach, Gilani, Keasey, and Vallascas (2021) apply all methods reaching similar conclusions.

Reverse causality (or simultaneity) requires particular attention in diversity literature (Adams, 2016: 373). This endogeneity problem happens when there is the likelihood of reverse association, e.g., board diversity is hypothesized to impact financial performance, but financial performance may also impact the decision to have a more diverse board (see Adams et al., 2018). A popular path to address reverse causality is to apply lagged variables (Baran & Frost, 2015), which however has some limitations related to autocorrelation, serial correlation, or serial dependency (Dodge, 2006). Simultaneity may be also seen as an omitted variable problem, where the omitted variable is prior performance, if it is correlated with both board diversity and current performance (Hill et al., 2021). Thus, by applying IV, scholars may try to address problems concerning variable omission and reverse causality.

A third cause of endogeneity – not often acknowledged or addressed – is measurement error, i.e., diversity is imperfectly measured (Chizema et al., 2015). If the measurement error concerns the dependent variable, then it will be captured by the error term and thus will create an endogeneity bias. Since most previous studies obtain board diversity data from commercial databases and regressed it against corporate outcomes, scholars implicitly assume that there is zero measurement error (Kennedy, 2008: 160). However, since diversity measures are rarely self-declared, proxies are sometimes combinations of various measures. In addition, also data coming from surveys might create, to a different extent, potential measurement errors. When these errors are known, the cause is an omitted variable (Antonakis et al., 2010) and the remedies discussed before can be applied. This is why some scholars (e.g., Chizema et al., 2015; Delis et al., 2017) claim that, by applying IV models, it is possible to address measurement errors, reverse causality and omitted variables bias.

A fourth endogeneity issue concerns the sample selection bias, that might occur through two separate channels. The first one is more common in surveys and happens when observations are not randomly sampled, but "selected" by the scholar or the survey respondents. The second one is more relevant in archival studies and happens when diversities are "selected" (e.g., ethnicity may be endogenous if corporate strategies make it more likely to have board members from a specific ethnic group). Our analysis suggests that previous studies under-considered the selection bias and so their reported results may be affected by this problem. Studies addressing the selection bias mainly consider difference in difference designs (e.g., Yang et al., 2019) and matching techniques, the most popular of which is the propensity score matching (Lai et al., 2017). Relatively few studies employ, instead, the Heckman treatment model (Mitra et al., 2021).

Concluding, we indicate that diversity studies are likely to suffer multiple endogeneity problems due to several causes and endogenous variables. We stress the importance of both a clear diagnosis of the endogeneity problem and the justification of the technique used to address it. Our analysis highlights a growing trend of materially improved diagnosis and justification of applied methods addressing multiple causes of endogeneity (e.g., Lin et al., 2018; Ye et al., 2019). We invite future studies on board diversity to identify and satisfactorily address all potential endogeneity concerns. While the best way to solve endogeneity problems is to adopt an experimental design, our sample includes very few (1 %) experimental studies. So, we invite governance scholars to employ more often experiments and quasi-experiments to overcome endogeneity challenges and prevent alternative explanations on key findings. (Adams, 2016).

Probably, the clearest way to establish causality is with a randomized trial where the causal effect of a diversity measure on the dependent variable under investigation is isolated through random assignment. This ensures that, with adequate sample sizes and when specific conditions are met, endogeneity causes are counteracted

(Hill et al. 2021). While experimental trials are not theoretically and empirically without problems, the possibility to collect experimental data with directors is quite complex and this severely limits the number of experimental studies in the board diversity literature. Quasi experiments may help scholars to overcome some problems related to data collection with experiments. For example, difference in differences (diff-in-diff) studies could be particularly useful, as they build on both data available in commercial databases and various interventions or exogenous events relevant to board diversity research agendas. In short, as experiments and quasi experiments are very important methods in uncovering casual relationships and addressing questions that would otherwise be difficult to answer (Floyd & List, 2016, p. 437), we call for further studies on board diversity employing them.

Finally, the discussion of the economic versus the statistical significance of results is common in economics literature (e.g., Hoovera & Siegler, 2008; McCloskey, 1985), while it is less often developed by management and organization studies. Consistently, only a minority (37 %) of previous studies on board diversity – mostly from accounting and finance – report the economic significance or "how much it matters" (Miller & van der Meulen Rodgers, 2008). Moreover, there is a wide variation on the way and the extent they discuss it. While some studies analytically discuss the economic substance of all their findings, some others briefly show and comment the impact of the main results (Krishnan et al., 2011). We invite future research in board diversity to communicate more actively the empirical research findings beyond their 'statistical significance' so to include also their 'economic importance'. Since diversity studies provide arguments to social movements and relevant policy makers, the discussion of the economic substance of their results will be helpful to a wide audience.

How to better conceptualize and measure board diversity

Our results clearly demonstrate that the construct of board diversity has many different operationalizations and may so require a closer investigation on their validity (e.g., Harrison & Klein, 2007). Most of the previous studies focus on single dimensions of surface-level diversity (e.g., gender, age, ethnicity), measured through simple and easy to operationalize proxies – such as dummies indicating the presence or the absence of a characteristic within the board (Gow, Wahid, & Yu, 2018), the number or proportion of directors with a characteristic (Chen & Guay, 2020; Iliev & Roth, 2018) or a combination of these proxies (Krishnan et al., 2011). Looking at the type of diversity, the aforementioned 'usual suspects' dominate the literature, but recently, new 'types', such a political or ideological diversity (e.g., Lee, Lee & Nagarajan, 2014; Hudson & Morgan, 2021), prestige (Tuggle et al., 2022) and linguistic diversity (Bazel-Shoham et al., 2020) have been analyzed.

The large number of different 'diversities' indicates that the field is rich in variety of typologies, determinants and implications. However, this "richness" may also indicate challenges. First, a stream of literature argues that "boards are multidimensional" (Adams et al., 2018) and therefore multiple diversity dimensions should be considered. Building on this insight, some studies employ concentration measures of heterogeneity – such as the Blau (Zhu & Shen, 2016) or the Herfindahl indices (Giannetti & Zhao, 2019) – or develop a variety of indices (see, for example, Bernile et al., 2018). Second, it can be argued that not only the board, but also its members are multidimensional (Tasheva & Hillman, 2019). Indeed, any director represents a unique combination of multiple diversities that may affect its cognitive contributions to the board. Future studies may so investigate the complex relationship between personal range (or intrapersonal diversity) and board diversity, and how they complement or substitute each other (Tasheva & Hillman, 2019). In this way, they will contribute to address the causal ambiguity implicit in previous studies (Nkomo et al., 2019; Thatcher and Patel 2012)

Third, our review demonstrates that most studies use objective and surface-level measures of diversity, and only few of them rely on self-reporting measures (Boehmer et al., 2002). This approach is grounded on the assumption that the observable measure is a perfect proxy for cognitive (deep-level) diversity (such as personality, values, and beliefs). However, some scholars underline that this is arbitrary and it would be more appropriate to measure explicitly the underlying cognitive diversity (Jackson et al., 2003). As what matters is "the diversity of mind", future studies may contribute to the field by including or developing more direct indicators of cognitive diversity among directors or combining indicators of surface-level and deep-level diversity (e.g., Harrison et al., 2002). Similarly, while team literature highlights that actual diversity translates into perceived diversity (e.g., Riordan, 2000), the literature on board diversity does not consider diversity as a process. In addition, diversity among or differences between individuals are related to identity and alternative identities, and so are cognitive constructs by themselves. Diversely from robots whose identities and decisions are determined by algorithms and machine learning (Tsai et al., 2022), human beings' identities and decisions reflect deep felt individual notions and emotions (related to gender, sexuality or ethnicity). As a result, scholars should understand which diversity they measure when their constructs are built on surface-level characteristics.

Practical implications

The fragmented nature of the literature on board diversity makes very difficult to draw solid practical conclusions. Nevertheless, here we advance some general suggestions that may hopefully help practitioners and policymakers to improve the quality of their decisions.

First, our literature review underlines that the ability to nominate and integrate diverse board members may help boards to address their leadership responsibilities, that are increasingly challenged by the complexity of the economic and institutional environment (Zattoni & Pugliese, 2021). However, to reach this purpose, board nomination committees should devote a particular care in both assessing the implications of various types of diversity and preventing the formation of board factions or faultlines. In addition, board chairs should learn how to manage an increasing diversity in the boardroom (e.g., Zhu & Shen, 2016), e.g., how to integrate various experiences and viewpoints while preserving the cohesiveness among board members.

Furthermore, our results show that the influence of board diversity on board or firm results is moderated by some contextual variables, like national institutions, industry characteristics and firm attributes (e.g., size and identity) (e.g., Cannella et al., 2015; Cardillo et al., 2021; Daily & Dalton, 2003; Post & Byron, 2015). As a consequence, we invite policymakers to consider the characteristics of country-, industry-, and firm-level factors when they design corporate polices or codes' recommendations. Still, we urge investors and board nomination committees to carefully consider company and board characteristics when they select new directors, as the diversity of directors' experiences and skills should fit with board decision-making needs (as emphasized by the competencies and skills matrices used by board advisors) (e.g., Zattoni, 2020).

Limitations and future avenues of research

In designing and performing our literature review, we took some decisions that may limit the generalizability of our results. First, following previous review studies (e.g., Zattoni et al., 2020) we limit our search to empirical articles published in highly reputed journals. To attenuate this potential bias, we considered empirical articles coming from several disciplines and we included the premiere journal on corporate governance (i.e., CGIR). Moreover, our review analyzes also conceptual studies, reviews, and *meta*-analyses on board diversity. Future studies may expand our results by including other types of publications (e.g., books, consulting or policy reports) and articles published in less reputed journals. Second, the final sample is the result of our search strategy that led us to identify 184 papers on board diversity. While we used a relatively comprehensive approach and accumulated a relatively large sample of articles, we cannot be sure that we have analyzed all relevant articles on board diversity. For this reason, future studies may expand our search strategy so to identify and analyze further studies on board diversity.

Conclusion

This systematic and interdisciplinary review takes stock of the results produced by the growing literature on board diversity. Our analysis shows that past and current research has mostly explored board diversity' influence on board or firm outcomes, and that this highly investigated research area has mainly produced partial and ambiguous results. We argue that the lack of conclusive results may be explained considering both the complexity of the board diversity concept, and previous studies' theoretical and methodological choices. Building on our findings, we provide several suggestions on how to overcome current theoretical and methodological barriers in board diversity literature, so to advance our understanding of this complex, relevant, and interesting topic.

References

Adams, R. (2016). Women on boards: The superheroes of tomorrow? *The Leadership Quarterly, 27*(3), 371–386.

Adams, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics, 94*, 291–309.

Adams, R. B., & Funk, F. (2012). Beyond the glass ceiling: Does gender matter? *Management Science, 58*(2), 219–235.

Adams, R. B., Akyol, A. C., & Verwijmeren, P. (2018). Director skill sets. *Journal of Financial Economics, 130*(3), 641–662.

Allemand, I., Bédard, J., Brullebaut, B., & Deschênes, J. (2022). Role of old boys' networks and regulatory approaches in selection processes for female directors. *British Journal of Management, 33*(2), 784–805.

Alkalbani, N., Cuomo, F., & Mallin, C. (2019). Gender diversity and say-on-pay: Evidence from UK remuneration committees. *Corporate Governance: An International Review, 27*(5), 378–400.

Almandoz, J., & Tilcsik, A. (2016). When experts become liabilities: Domain experts on boards and organizational failure. *Academy of Management Journal, 59*(4), 1124–1149.

An, H., Chen, C. R., Wu, Q., & Zhang, T. (2021). Corporate innovation: Do diverse boards help? *Journal of Financial and Quantitative Analysis, 56*(1), 155–182.

Antonakis, J. D. (2017). On doing better science: From thrill of discovery to policy implications. *The Leadership Quarterly, 28*(1), 5–21. https://doi.org/10.1016/j.leaqua. 2017.01.006.

Antonakis, J., Bendahan, S., Jacquart, P., & Lalive, R. (2010). On making causal claims: A review and recommendations. *The Leadership Quarterly, 21*(6), 1086–1120.

Antonakis, J., Bendahan, S., Jacquart, P., & Lalive, R. (2014). Causality and endogeneity: Problems and solutions. In D. V. Day (Ed.), *The Oxford Handbook of Leadership and Organizations* (pp. 93–117). Oxford: Oxford University Press.

Ararat, M., Aksu, M., & Cetin, A. T. (2015). How board diversity affects firm performance in emerging markets: Evidence on channels in controlled firms. *Corporate Governance: An International Review, 23*(2), 83–103.

Atif, M., Hossain, M., Alam, S., & Goergen, M. (2021). Does board gender diversity affect renewable energy consumption? *Journal of Corporate Finance, 66*, 1016–1055.

Badolato, D., Donelson, C., & Ege, M. (2014). Audit committee financial expertise and earnings management: The role of status. *Journal of Accounting and Economics, 58*(2), 208–230.

Bao, S., Fainshmidt, S., Nair, A., & Vracheva, V. (2014). Women in upper echelons of management. *British Journal of Management, 25*(2), 388–405.

Baran, L., & Forst, A. (2015). Disproportionate insider control and board of director characteristics. *Journal of Corporate Finance, 35*, 62–80.

Bazel-Shoham, O., Lee, S. M., Rivera, M. J., & Shoham, A. (2020). Impact of the female board members and gaps in linguistic gender marking on cross-border M&A. *Journal of World Business, 55*(2) 100909.

Bédard, J., Coulombe, D., & Courteau, L. (2008). Audit committee, underpricing of IPOs, and accuracy of management earnings forecasts. *Corporate Governance: An International Review, 16*(6), 519–535.

Ben-Amar, W., Francoeur, C., Hafsi, T., & Labelle, R. (2013). What makes better boards? A closer look at diversity and ownership. *British Journal of Management, 24*(1), 85–101.

Berger, A. N., Kick, T., & Schaeck, K. (2014). Executive board composition and bank risk taking. *Journal of Corporate Finance, 28*, 48–65.

Bernile, G., Bhagwat, V., & Yonker, S. (2018). Board diversity, firm risk, and corporate policies. *Journal of Financial Economics, 127*(3), 588–612.

Blettner, D. P., Chaddad, F. R., & Bettis, R. A. (2012). The CEO performance effect: Statistical issues and a complex fit perspective. *Strategic Management Journal, 33*(8), 986–999.

Bliese, P. D., Schepker, D. J., Essman, S. M., & Ployhart, R. E. (2020). Bridging methodological divides between macro-and microresearch: Endogeneity and methods for panel data. *Journal of Management, 46*(1), 70–99.

Boehmer, U., Kressin, N. R., Berlowitz, D. R., Christiansen, C. L., Kazis, L. E., & Jones, J. A. (2002). Self-reported vs administrative race/ethnicity data and study results. *American Journal of Public Health, 92*(9), 1471–1472.

Boutchkova, M., Gonzalez, A., Main, B. G. M., & Sila, V. (2021). Gender diversity and the spillover effects of women on boards. *Corporate Governance: An International Review, 29*(1), 2–21.

Byron, K., & Post, C. (2016). Women on boards of directors and corporate social performance: A meta-analysis. *Corporate Governance: An International Review, 24*(4), 428–442.

Cannella, A. A., Jr., Jones, C. D., & Withers, M. C. (2015). Family versus lone founder controlled public corporations: Social identity theory and boards. *Academy of Management Journal, 58*(2), 436–459.

Carcello, J. V., Hermanson, D. R., Neal, T. L., & Riley, R. A. (2002). Board characteristics and audit fees. *Contemporary Accounting Research, 19*(3), 365–384.

Cardillo, G., Onali, E., & Torluccio, G. (2021). Does gender diversity on banks' boards matter? Evidence from public bailouts. *Journal of Corporate Finance, 71* 101560.

Carter, M. A., Franco, F., & Gine, M. (2017). Executive gender pay gaps: The roles of female risk aversion and board representation. *Contemporary Accounting Research, 34*(2), 1232–1264.

Certo, S. T., Busenbark, J. R., Woo, H. S., & Semadeni, M. (2016). Sample selection bias and Heckman models in strategic management research. *Strategic Management Journal, 37*(13), 2639–2657.

Chakravarty, S., & Hedge, P. (2021). The joint entrance exam, overconfident directors and firm performance. *Journal of Corporate Finance, 56*, 298–318.

Chan, K. C., & Li, J. (2008). Audit committee and firm value: Evidence on outside top executives as expert-independent directors. *Corporate Governance: An International Review, 16*(1), 16–31.

Chang, C.-H., & Wu, Q. (2021). Board networks and corporate innovation. *Management Science, 67*(6), 3168–3654.

Chang, E. H., Milkman, K. L., Chugh, D., & Akinola, M. (2019). Diversity thresholds: How social norms, visibility, and scrutiny relate to group composition. *Academy of Management Journal, 62*(1), 144–171.

Chen, C.-L. (2014). Board capital, CEO power and R&D investment in electronics firms. *Corporate Governance: An International Review, 22*(5), 422–436.

Chen, G., Crossland, C., & Huang, S. (2016). Female board representation and corporate acquisition intensity. *Strategic Management Journal, 37*, 303–313.

Chen, K. D., & Guay, W. R. (2020). Busy directors and shareholder satisfaction. *Journal of Financial and Quantitative Analysis, 55*(7), 2181–2210.

Cheng, S., Felix, R., & Indjejikian, R. (2019). Spillover effects of internal control weakness disclosures: The role of audit committees and board connections. *Contemporary Accounting Research, 36*(2), 934–957.

Cheng, Z., Rai, A., Tian, F., Xin, X. u., & S. (2021). Social learning in information technology investment: The role of board interlocks. *Management Science, 67*(1), 547–576.

Chizema, A., Kamuriwo, D. S., & Shinozawa, Y. (2015). Women on corporate boards around the world: Triggers and barriers. *The Leadership Quarterly, 26*(6), 1051–1065.

Chychyla, R., Leone, A. J., & Minutti-Meza, M. (2019). Complexity of financial reporting standards and accounting expertise. *Journal of Accounting and Economics, 67*(1), 226–253.

Connelly, B. L., Johnson, J. L., Tihanyi, L., & Ellstrand, A. E. (2011). More than adopters: Competing influences in the interlocking directorate. *Organization Science, 22*(3), 688–703.

Cumming, D., & Leung, T. Y. (2021). Board diversity and corporate innovation: Regional demographics and industry context. *Corporate Governance: An International Review, 29*(3), 277–296.

Cuomo, F., Mallin, C., & Zattoni, A. (2016). Corporate governance codes: A review and research agenda. *Corporate Governance: An International Review, 24*(3), 222–241.

Daily, C. M., & Dalton, D. R. (2003). Are director equity policies exclusionary? *Business Ethics Quarterly, 13*(4), 415–432.

Dalton, D. R., Daily, C. M., Ellstrand, A. E., & Johnson, J. L. (1998). Meta-analytic reviews of board composition, leadership structure, and financial performance. *Strategic Management Journal, 19*, 269–290.

Dalton, D. R., Daily, C. M., Johnson, J. L., & Ellstrand, A. E. (1999). Number of directors and financial performance: A meta-analysis. *Academy of Management Journal, 42*, 674–686.

De Andrés-Alonso, P., Azofra-Palenzuela, V., & Romero-Merino, M. E. (2010). Beyond the disciplinary role of governance: How boards add value to Spanish foundations. *British Journal of Management, 21*, 100–114.

Delis, M. D., Gaganis, C., Hasan, I., & Pasiouras, F. (2017). The effect of board directors from countries with different genetic diversity levels on corporate performance. *Management Science, 63*(1), 231–249.

Dodge, Y. (2006). *The Oxford dictionary of statistical terms*. Oxford: Oxford University Press.

Erhardt, N. L., Werbel, J. D., & Shrader, C. B. (2003). Board of director diversity and firm financial performance. *Corporate Governance: An International Review, 11*(2), 102–111.

Evgeniou, T., & Vermaelen, T. (2017). Share buybacks and gender diversity. *Journal of Corporate Finance, 45*, 669–686.

Fama, E., & Jensen, M. C. (1983). Separation of ownership and control. *Journal of Law and Economics, 26*, 301–325.
Farrell, K. A., & Hersch, P. L. (2005). Additions to corporate boards: The effect of gender. *Journal of Corporate Finance, 11*, 85–106.
Feldman, E. R., & Montgomery, C. A. (2015). Are incentives without expertise sufficient? Evidence from Fortune 500 firms. *Strategic Management Journal, 36*, 113–122.
Feng, H., & Xiao, J. Z. (2022). Board change and firm risk: Do new directors mean unstable corporate policies? *Corporate Governance: An International Review, 30*(2), 212–231.
Field, L. C., Souther, M. E., & Yore, A. S. (2020). At the table but can not break through the glass ceiling: Board leadership positions elude diverse directors. *Journal of Financial Economics, 137*(3), 787–814.
Floyd, E., & List, J. A. (2016). Using field experiments in accounting and finance. *Journal of Accounting Research, 54*(2), 437–475. https://doi.org/10.1111/1475-679X.12113.
Forbes, D. P., & Milliken, F. J. (1999). Cognition and corporate governance: Understanding boards of directors as strategic decision-making groups. *Academy of Management Review, 24*, 489–505.
Geiler, P., & Renneboog, L. (2015). Are female top managers really paid less? *Journal of Corporate Finance, 35*, 345–369.
Geletkanycz, M. (2020). Social movement spillover: Barriers to board gender diversity posed by contemporary governance reform. *The Leadership Quarterly, 31*(6), 1014–1038.
Giannetti, M., & Zhao, M. (2019). Board ancestral diversity and firm-performance volatility. *Journal of Financial & Quantitative Analysis, 54*(3), 1117–1155.
Gilani, U., Keasey, K., & Vallascas, K. (2021). Board financial expertise and the capital decisions of US banks. *Journal of Corporate Finance, 72* 102091.
Gow, I. D., Wahid, A. S., & Yu, G. (2018). Managing reputation: Evidence from biographies of corporate directors. *Journal of Accounting & Economics, 66*(2/3), 448–469.
Gregory, A., Jeanes, E., Tharyan, R., & Tonks, I. (2013). Does the stock market gender stereotype corporate boards? Evidence from the market's reaction to directors' trades. *British Journal of Management, 24*, 174–190.
Griffin, D., Li, K., & Xu, T. (2021). Board gender diversity and corporate innovation: International evidence. *Journal of Financial and Quantitative Analysis, 56*(1), 123–154.
Grosvold, J., & Brammer, S. (2011). National institutional systems as antecedents of female board representation: An empirical study. *Corporate Governance: An International Review, 19*(2), 116–135.
Grove, H., Patelli, L., Victoravich, L. M., & Xu, P. (2011). Corporate governance and performance in the wake of the financial crisis: Evidence from US commercial banks. *Corporate Governance: An International Review, 19*(5), 418–436.
Hagendorff, J., Collins, M., & Keasey, K. (2010). Board monitoring, regulation, and performance in the banking industry: Evidence from the market for corporate control. *Corporate Governance: An International Review, 18*(5), 381–395.
Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review, 9*(2), 193–206.
Harrison, D. A., Price, K. H., & Bell, M. P. (1998). Beyond relational demography: Time and the effects of surface- and deep-level diversity on work group cohesion. *Academy of Management Journal, 41*, 96–107.
Harrison, D. A., Price, K. H., Gavin, J. H., & Florey, A. T. (2002). Time, teams, and task performance: Changing effects of surface- and deep-level diversity on group functioning. *Academy of Management Journal, 45*(5), 1029–1045.
Harrison, D. A., & Klein, K. J. (2007). What's the difference? Diversity constructs as separation, variety, or disparity in organizations. *Academy of Management Review, 32*(4), 1199–1228.
Haynes, K. T., & Hillman, A. (2010). The effect of board capital and CEO power on strategic change. *Strategic Management Journal, 31*(11), 1145–1163.
Haynes, K. T., Zattoni, A., Boyd, B., & Minichilli, A. (2019). Figureheads or potentates? CEO power and board oversight in the context of Sarbanes Oxley. *Corporate Governance: An International Review, 27*(6), 402–426.
Herdhayinta, H., Lau, J., & Hsin-Han Shen, C. (2021). Family female directors versus non-family female directors: Effects on firm value and dividend payouts in an extreme institutional environment. *British Journal of Management, 32*(4), 969–987.
Hermalin, B. E., & Weisbach, M. S. (2003). Boards of directors as an endogenously determined institution: A survey of the economic literature. *Economic Policy Review, 9*(1), 7–26.
Hill, A. D., Johnson, S. G., Greco, L. M., O'Boyle, E. H., & Walter, S. L. (2021). Endogeneity: A review and agenda for the methodology-practice divide affecting micro and macro research. *Journal of Management, 47*(1), 105–143.
Hillman, A. J., Cannella, A. A., Jr., & Harris, I. C. (2002). Women and racial minorities in the boardroom: How do directors differ? *Journal of Management, 28*(6), 747–763.
Hillman, A. J., & Dalziel, T. (2003). Boards of directors and firm performance: Integrating agency and resource dependence perspectives. *Academy of Management Review, 28*(3), 383–396.
Hillman, A. J., Shropshire, C., & Cannella, A. (2007). Organizational predictors of women on corporate boards. *Academy of Management Journal, 50*, 941–952. https://doi.org/10.5465/amj.2007.26279222.
Hoovera, K. D., & Siegler, M. V. (2008). Sound and fury: McCloskey and significance testing in economics. *Journal of Economic Methodology, 15*(1), 1–37.
Huang, S., & Hilary, G. (2018). Zombie board: Board tenure and firm performance. *Journal of Accounting Research, 56*(4), 1285–1329.
Hudson, K., & Morgan, R. E. (2021). Ideological homophily in board composition and interlock networks: Do liberal directors inhibit viewpoint diversity? *Corporate Governance: An International Review*, 1–18.
Iliev, P., & Roth, L. (2018). Learning from directors' foreign board experiences. *Journal of Corporate Finance, 51*, 1–19.
Jackson, S. E., Joshi, A., & Erhardt, N. L. (2003). Recent research on team and organizational diversity: SWOT analysis and implications. *Journal of Management, 29*, 801–830.
Jackson, S. E., May, K. E., & Whitney, K. (1995). Understanding the dynamics of diversity in decision-making teams. In R. A. Guzzo & E. Salas (Eds.), *Team effectiveness and decision making in organizations* (pp. 204–261). San Francisco: Jossey-Bass.
Joh, S. J., & Jung, J. Y. (2018). When do firms benefit from affiliated outside directors? Evidence from Korea. *Corporate Governance: An International Review, 26*(6), 397–413.
Johnson, S. G., Schnatterly, K., & Hill, A. D. (2013). Board composition beyond independence: Social capital, human capital, and demographics. *Journal of Management, 39*(1), 232–262.
Joshi, A., & Roh, H. (2009). The role of context in work team diversity research: A meta-analytic review. *Academy of Management Journal, 52*(3), 599–627.
Karavitis, P., Kokas, S., & Tsoukas, S. (2021). Gender board diversity and the cost of bank loans. *Journal of Corporate Finance, 71* 101804.
Kennedy, P. (2008). *A guide to econometrics*. Malden: Blackwell.
Kim, K., Mauldin, E., & Patro, S. (2014). Outside directors and board advising and monitoring performance. *Journal of Accounting and Economics, 57*(2–3), 110–131.
Kim, O., Kuang, Y. F., & Qin, B. (2020). Female representation on boards and CEO performance induced turnover: Evidence from Russia. *Corporate Governance: An International Review, 28*(3), 235–260.
Kirkman, B. L., Lowe, K. B., & Gibson, C. B. (2017). A retrospective on culture's consequences: The 35-year journey. *Journal of International Business Studies, 48*(1), 12–29.
Kirsch, A. (2018). The gender composition of corporate boards: A review and research agenda. *The Leadership Quarterly, 29*(2), 346–364.
Krishnan, J., Wen, Y., & Zhao, W. (2011). Legal expertise on corporate audit committees and financial reporting quality. *The Accounting Review, 86*(6), 2099–2130.
Kumar, P., & Zattoni, A. (2016). Corporate governance, board gender diversity and firm performance. *Corporate Governance: An International Review, 24*(4), 388–389.
Lai, K. M. Y., Srinidhi, B., Gul, F. A., & Tsui, J. S. L. (2017). Board gender diversity, auditor fees, and auditor choice. *Contemporary Accounting Research, 34*(3), 1681–1714.
Lau, D. C., & Murnighan, J. K. (1998). Demographic diversity and faultlines: The compositional dynamics of organizational groups. *Academy of Management Review, 23*(2), 325–340.
Lee, J., Lee, K. J., & Nagarajan, N. J. (2014). Birds of a feather: Value implications of political alignment between top management and directors. *Journal of Financial Economics, 112*(2), 232–250.
Li, N., & Wahid, A. S. (2018). Director tenure diversity and board monitoring effectiveness. *Contemporary Accounting Research, 35*(3), 1363–1394.
Lin, K. Z., Mills, L. F., Zhang, F., & Li, Y. (2018). Do political connections weaken tax enforcement effectiveness? *Contemporary Accounting Research, 35*(4), 1941–1972.
Liu, C. (2018). Are women greener? Corporate gender diversity and environmental violations. *Journal of Corporate Finance, 52*, 118–142.
Liu, Y., Wei, Z., & Xie, F. (2014). Do women directors improve firm performance in China? *Journal of Corporate Finance, 28*, 169–184.
Lorsch, J. W., & MacIver, E. (1989). *Pawns or Potentates – The Reality of America's Corporate Boards*. Boston: Harvard Business School Press.
Luo, J., Chen, J., & Chen, D. (2021). Coming back and giving back: Transposition, institutional actors, and the paradox of peripheral influence. *Administrative Science Quarterly, 66*(1), 133–176.
Marcel, J. J., & Cowen, A. P. (2014). Cleaning house or jumping ship? Understanding board upheaval following financial fraud. *Strategic Management Journal, 35*(6), 926–937.
Martins, L. L., & Sohn, W. (2022). How does diversity affect team cognitive processes? Understanding the cognitive pathways underlying the diversity dividend in teams. *Academy of Management Annals, 16*(1), 134–178.
McCloskey, D. N. (1985). The loss function has been mislaid: The rhetoric of significance tests. *American Economic Review, 75*(2), 201–205.
McDonald, M. L., & Westphal, J. D. (2013). Access denied: Low mentoring of women and minority first-time directors and its negative effect on appointments to additional boards. *Academy of Management Journal, 56*(4), 1169–1198.
McGuinness, P. B., Vieito, J. P., & Wang, M. (2017). CSR performance in China: The role of board gender and foreign ownership. *Journal of Corporate Finance, 42*, 75–99.
McNulty, T., Zattoni, A., & Douglas, T. (2013). Developing corporate governance research through qualitative methods: A review of previous studies. *Corporate Governance: An International Review, 21*(2), 183–198.
Miller, J. E., & van der Meulen Rodgers, Y. (2008). Economic importance and statistical significance: Guidelines for communicating empirical research. *Feminist Economics, 14*(2), 117–149.
Miller, T., & Triana, M. (2009). Demographic diversity in the boardroom: Mediators of the board diversity – Firm performance relationship. *Journal of Management Studies, 46*(5), 755–786.
Milliken, F. J., & Martins, L. L. (1996). Searching for common threads: Understanding the multiple effects of diversity in organizational groups. *Academy of Management Review, 21*(2), 402–433.
Minichilli, A., Zattoni, A., & Zona, F. (2009). Making boards effective: An empirical examination of board task performance. *British Journal of Management, 20*(1), 55–74.
Mitra, A., Post, C., & Sauerwald, S. (2021). Evaluating board candidates: A threat-contingency model of shareholder dissent against female director candidates. *Organization Science, 32*(1), 86–110.

Mulcahy, M., & Linehan, C. (2014). Females and precarious board positions: Further evidence of the glass cliff. *British Journal of Management, 25*(3), 425–438.
Naumovska, I., Wernicke, G., & Zajac, E. J. (2020). Last to come and last to go? The complex role of gender and ethnicity in the reputational penalties for directors linked to corporate fraud. *Academy of Management Journal, 63*(3), 881–902.
Nkomo, S. M., Bell, M. P., Roberts, L. M., Joshi, A., & Thatcher, S. M. B. (2019). Diversity at a critical juncture: New theories for a complex phenomenon. *Academy of Management Review, 44*(3), 498–517.
Nielsen, S., & Huse, M. (2010). The contribution of women on boards of directors: Going beyond the surface. *Corporate Governance: An International Review, 18*(2), 136–148.
Oehmichen, J., Schrapp, S., & Wolff, M. (2017). Who needs experts most? Board industry expertise and strategic change—a contingency perspective. *Strategic Management Journal, 38*(2), 645–656.
Omer, T. C., Shelley, M. K., & Tice, F. M. (2020). Do director networks matter for financial reporting quality? Evidence from audit committee connectedness and restatements. *Management Science, 66*(8), 3361–3388.
Pérez-Calero, L., Larraneta, B., & Wright, M. (2019). Initial public offering valuation and prior shared experience in the boardroom of threshold ventures: A study of industry effects. *Corporate Governance: An International Review, 27*(5), 322–340.
Peterson, C. A., Philpot, J., & O'Shaughnessy, K. C. (2007). African-American diversity in the boardrooms of the US Fortune 500: Director presence, expertise and committee membership. *Corporate Governance: An International Review, 15*(4), 558–575.
Pfeffer, J. (1983). Organizational Demography. In L. L. Cummings & B. M. Staw (Eds.). *Research in Organizational Behavior* (vol. 5, pp. 299–357). Greenwich: JAI Press.
Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations: A resource dependency perspective*. New York: Harper and Row.
Post, C., & Byron, K. (2015). Women on boards and firm financial performance: A meta-analysis. *Academy of Management Journal, 58*(5), 1546–1571.
Pugliese, A., Bezemer, P., Zattoni, A., Huse, M., Van Der Bosch, F., & Volberda, H. (2009). Boards of directors' contribution to strategy: A literature review and research agenda. *Corporate Governance: An International Review, 17*(3), 292–306.
Ravasi, D., & Zattoni, A. (2006). Exploring the political side of board involvement in strategy: A study of mixed-ownership institutions. *Journal of Management Studies, 43*(8), 1673–1704.
Riordan, C. M. (2000). Relational demography within groups: Past developments, contradictions, and new directions. *Research in Personnel and Human Resources Management, 19*, 131–173.
Ruigrok, W., Peck, S., & Tacheva, S. (2007). Nationality and gender diversity on Swiss corporate boards. *Corporate Governance: An International Review, 15*(4), 546–557.
Schnatterly, K., Calvano, F., & Berns, J. P. (2014). Positive and negative synergies between the CEO's and the corporate boards; human and social capital: A study of biotechnology firms. *Strategic Management Journal, 2*(11), 2162–2191.
Schwartz-Ziv, M. (2017). Gender and Board Activeness: The role of a critical mass. *Journal of Financial and Quantitative Analysis, 52*(2), 751–780.
Sidhu, J. S., Feng, Y., Volberda, H. W., & Van Den Bosch, F. A. J. (2021). In the shadow of social stereotypes: Gender diversity on corporate boards, board chair's gender and strategic change. *Organization Studies, 42*(11), 1677–1698.
Sojo, V. E., Wood, R. E., Wood, S. A., & Wheeler, M. A. (2016). Reporting requirements, targets, and quotas for women in leadership. *The Leadership Quarterly, 27*(3), 519–536.
Souther, M. E. (2018). The effects of internal board networks: Evidence from closed-end funds. *Journal of Accounting and Economics, 66*(1), 266–290.
Srinidhi, B., Gul, F. A., & Tsui, J. S. L. (2011). Female directors and earnings quality. *Contemporary Accounting Research, 28*(5), 1610–1644.
Sundaramurthy, C., Pukthuanthong, K., & Kor, Y. (2014). Positive and negative synergies between the CEO's and the corporate board's human and social capital: A study of biotechnology firms. *Strategic Management Journal, 35*, 845–868.
Taras, V., Kirkman, B. L., & Steel, P. (2010). Examining the impact of culture's consequences: A three-decade, multilevel, meta-analytic review of Hofstede's cultural value dimensions. *Journal of Applied Psychology, 95*(3), 405.
Thatcher, S. M. B., & Patel, P. C. (2012). Group faultlines: A review, integration, and guide to future research. *Journal of Management, 38*(4), 969–1009.
Tasheva, S., & Hillman, A. J. (2019). Integrating diversity at different levels: Multilevel human capital, social capital, and demographic diversity and their implications for team effectiveness. *Academy of Management Review, 44*(4), 746–765.
Terjesen, S., Sealy, R., & Singh, V. (2009). Women directors on corporate boards: A review and research agenda. *Corporate Governance: An International Review, 17*(3), 320–337.
Triana, M., Miller, T. L., & Trzebiatowski, T. M. (2014). The double-edged nature of board gender diversity: Diversity, firm performance, and the power of women directors as predictors of strategic change. *Organization Science, 25*(2), 609–632.
Tsai, C.-Y., Marshall, J. D., Choudhury, A., Serban, A., Hou, Y. T. Y., Jung, M. F., ... Yammarino, F. J. (2022). Human-robot collaboration: A multilevel and integrated leadership framework. *The Leadership Quarterly*. https://doi.org/10.1016/j.leaqua.2021.101594.
Tuggle, C. S., Schnatterly, K., & Johnson, R. A. (2010). Attention patterns in the boardroom: How board composition and processes affect discussion of entrepreneurial issues. *Academy of Management Journal, 53*(3), 550–571.
Tuggle, C. S., Sirmon, D. G., Borgholthaus, C. J., Bierman, L., & Bass, A. E. (2022). From seats at the table to voices in the discussion: Antecedents of underrepresented director participation in board meetings. *Journal of Management Studies*. https://doi.org/10.1111/joms.12778.
Tuschke, A., Sanders, W. G., & Hernandez, E. (2014). Whose experience matters in the boardroom? The effects of experiential and vicarious learning on emerging market entry. *Strategic Management Journal, 35*(3), 398–418.
Vandebeek, A., Voordeckers, W., Huybrechts, J., & Lambrechts, F. (2021). Corporate performance and CEO dismissal: The role of social category faultlines. *Corporate Governance: An International Review, 29*(5), 436–460.
Veltrop, D. B., Hermes, N., Postma, T. J. B. M., & de Haan, J. (2015). A Tale of two factions: Why and when factional demographic faultlines hurt board performance. *Corporate Governance: An International Review, 23*, 145–160.
Veltrop, D. B., Molleman, E., Hooghiemstra, R. B. H., & van Ees, H. (2017). Who's the boss at the top? A micro-level analysis of director expertise, status and conformity within boards. *Journal of Management Studies, 54*(7), 1079–1110.
Westphal, J. D. (1997). Defections from the inner circle: Social exchange, reciprocity, and the diffusion of board independence in U.S. corporations. *Administrative Science Quarterly, 42*(1), 161–183.
Westphal, J. D., & Stern, I. (2007). Flattery will get you everywhere (especially if you are a male Caucasian): How ingratiation, boardroom behavior, and demographic minority status affect additional board appointments at U.S. companies. *Academy of Management Journal, 50*(2), 267–288.
White, J. T., Woidtke, T., Black, H. A., & Schweitzer, R. L. (2014). Appointments of academic directors. *Journal of Corporate Finance, 28*, 135–151.
Williams, K. Y., & O'Reilly, C. A. III, (1998). Demography and diversity in organizations: A review of 40 years of research. *Research in Organizational Behavior, 20*, 77–140.
Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*. Boston: MIT Press.
Yang, P., Riepe, J., Moser, K., Pull, K., & Terjesen, S. (2019). Women directors, firm performance, and firm risk: A causal perspective. *The Leadership Quarterly, 30*(5) 101297.
Ye, D., Denga, J., Liub, Y., Szewczykc, S. H., & Chend, X. (2019). Does board gender diversity increase dividend payouts? Analysis of global evidence. *Journal of Corporate Finance, 58*, 1–26.
Zattoni, A. (2020). *Corporate governance – How to design good companies*. Milano: Bocconi University Press.
Zattoni, A., & Pugliese, A. (2021). Corporate governance research in the wake of a systemic crisis: Lessons and opportunities from the COVID-19 pandemic. *Journal of Management Studies, 58*(5), 1405–1410.
Zattoni, A., Dedoulis, E., Leventis, S., & Van Ees, H. (2020). Corporate governance and institutions – A review and research agenda. *Corporate Governance: An International Review, 28*(6), 465–487.
Zattoni, A., & Pugliese, A. (2019). Opening the black box of boards of directors: Taking stock of recent studies on board dynamics. In J. Gabrielsson, W. Khlif, & S. Yamak (Eds.), *Research handbook on boards of directors* (pp. 102–117). Cheltenham: Edward Elgar.
Zelechowski, D. D., & Bilimoria, D. (2004). Characteristics of women and men corporate inside directors in the US. *Corporate Governance: An International Review, 12*(3), 337–342.
Zhu, D. H., & Shen, W. (2016). Why do some outside successions fare better than others? The role of outside CEOs' prior experience with board diversity. *Strategic Management Journal, 37*(13), 2695–2708.
Zhu, D. H. (2013). Group polarization on corporate boards: Theory and evidence on board decisions about acquisition premiums. *Strategic Management Journal, 39*(7), 800–822.
Zona, F., Zattoni, A., & Minichilli, A. (2013). A contingency model of boards of directors and firm innovation: The moderating role of firm size. *British Journal of Management, 24*(3), 299–315.
Zorn, M. L., DeGhetto, K., Ketchen, D. J., & Combs, J. G. (2020). The impact of hiring directors' choice-supportive bias and escalation of commitment on CEO compensation and dismissal following poor performance: A multimethod study. *Strategic Management Journal, 41*(2), 308–339.