A Diverse View on Board Diversity

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Why board diversity

- At the core of corporate governance, boards guide strategic direction and oversight.
- **Economic Advantage:** Diversity introduces varied perspectives, spurring innovation, and facilitating robust decision making.
- **Social Impact:** Promotes social upward mobility and equity by providing diverse role models and maximizing participation.
- **Combined Benefit:** Mirrors stakeholder diversity, fostering trust, expanding talent pools, and opening new business avenues.

Goal of Research

- Existent research predominantly centers on demographic attributes, particularly gender and race/ethnicity, from soft targets (e.g., "The Big Three" campaigns on gender diversity on corporate boards) to law/regulation-mandated quotas (e.g., Californian gender quota law in 2018, the Nasdaq board diversity rules in 2022).

- This study: Acknowledges that the concept of "diversity" is inherently diverse.
    - Presents comprehensive and granular information about multidimensional diversity by merging three leading board databases, supplemented by additional information collection.
    - Assesses the complementarity and trade-offs among dimensions of diversity in terms of demographics (gender, race/ethnicity), experience, skills, and viewpoints.

- Provides one mechanism for the much-discussed issue "partisan realignment" of American business (Hersh and Shah (2023)).

- Showcases the contribution of different dimensions of board diversity in guiding firms during Covid.

Data sources

- Create the most comprehensive director-level dataset to date with information filling and gap bridging in combining three leading board databases. A master database of 5,453 unique firms and 52,284 directors for 2000-2021, including 36,286 new director entries during the sample period.

- **BoardEx**: Primary database for board governance research, growing from 1,557 to 8,608 U.S. public firms. Board and individual director information, including education, achievements, and employment history.

- **BoardEdge by Equilar**: Covers 3,475 to 3,673 firms, in-depth bios for all, race/ethnicity classification for 16% of directors.

- **Institutional Shareholder Services (ISS)**: Directors from S&P 1500 firms, demographic data, including race/ethnicity for 64% of directors.

Master database: Venn diagram and coverage over time
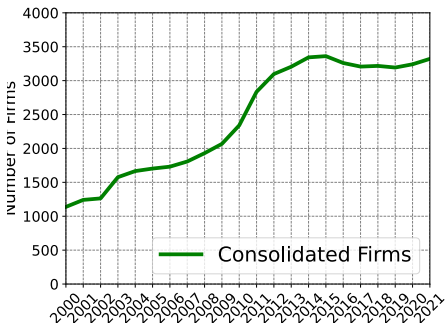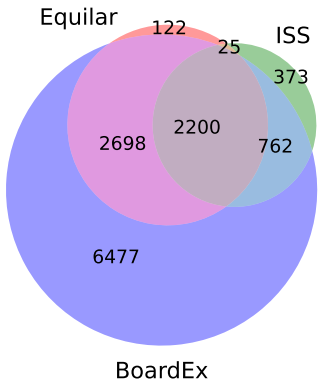
Demographic Diversity Measures

- **Gender Diversity:** %*Female* grows from 9.2% to 26.2% during the study period. Missing data imputed via first names, pronouns, etc., resulting in complate coding.

- **Racial and Ethnic Diversity:** %*AAPI*, %*Black*, and %*Hispanic* increased from 6.6%, 1.6%, and 1.4% to 11.0%, 4.0%, and 7.2% respectively.

  - Training data is the partial information from ISS and Equilar.

  - Training algorithm based on *NamePrism* (based on names); *Ethnicolor* (pre-trained on U.S. Census data) and *DeepFace* (Google Picture API) for ethnic probabilities.

  - A machine-learning based ensemble model achieved 93% precision in out-of-sample tests.

Experience and skill diversity

- Measures constructed based on dynamic bio information from the Equilar, ISS, and SEC filings, using up-to-date natural language processing (NLP) models. *Diversity* is one minus similarity or HHI measures.

- **Experience Diversity**: Based on textual similarity among directors' bios, with context and content filtering. BERT pairwise similarity averages 0.47.

- **Skill Diversity**: Mapping directors to a set of predefined executive skills (including Leadership, Law, Regulation/Government, Marketing, Finance/Accounting, Operation, Technology, and Academics) based on keywords, with a cap of two skills per director.
  - Over half possess Finance/Accounting skills, followed by Leadership expertise.
  - Skill diversity measure averages at 0.61.

Institutional diversity

- Director appointments often come from education and professional networks, a "Rolodex" effect that subtly influences board diversity.
  - Alumni from elite universities and top organizations (e.g., McKinsey, GE, Goldman Sachs) often carry distinct perspectives and approaches inherited from these institutions.

- **Institutional Diversity:** An inverse measure of pairwise shared education and employment backgrounds among board members. Average stands at 0.81.

- **Education Diversity:** Apply the same formula on ten types of education institutions. Average value is 0.53.

- Both measures signifies a "small world" effect, a less visible aspect of board diversity.

Viewpoint diversity

- Build on generational experiences and political stances that shape individual values and perspectives.

- **Age Diversity:** Range-normalized standard deviation, a proxy for perspectives from macro social-economic experience (Malmendier and Nagel, 2011, 2015).

- **Political Diversity:** Political stance reflects individual values that could impact reasoning and decision making.
  - Assessed through FEC-tracked political contributions to federally registered political committees.
  - Democratic or Republican based on comparing contribution to both sides, with a moving window of last ten years.
  - One minus the adjusted HHI is 0.46.

Time series of diversity
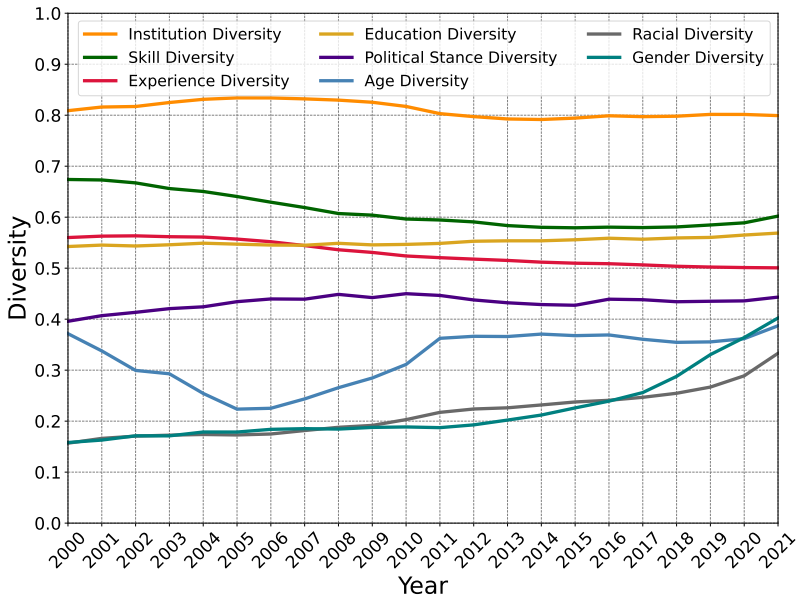
Correlations among high-dimensional diversity

	Experience Diversity (1)	Skill Diversity (2)	Political Diversity (3)	Racial Diversity (4)	Education Diversity (5)	Institution Diversity (6)	Age Diversity (7)	Gender Diversity (8)
(1) Experience	1.000							
(2) Skill	0.224	1.000						
(3) Political	0.009	-0.017	1.000					
(4) Racial	-0.088	0.013	0.028	1.000				
(5) Education	-0.033	-0.022	-0.001	0.022	1.000			
(6) Institution	0.167	0.061	0.019	-0.071	0.151	1.000		
(7) Age	0.008	0.030	-0.013	0.022	0.005	-0.073	1.000	
(8) Gender	-0.034	0.024	0.042	0.131	-0.018	0.063	-0.143	1.000

Does demographic diversity contribute to professional diversity

- Cross-sectional regression at the new director level (in the year of joining).
- Mostly yes, with the exception of education diversity (overall negative) and political diversity (overall no effect).
- Similar effects whether new directors are added for replacement or expansion.

	ΔPolitical Stance Diversity (1)	ΔExperience Diversity (2)	ΔSkill Diversity (3)	ΔEducation Diversity (4)	ΔInstitution Diversity (5)	ΔAge Diversity (6)
Female	0.0194	0.203***	0.264***	-0.0689***	0.128***	0.0128***
	(0.0141)	(0.0126)	(0.0127)	(0.0121)	(0.0125)	(0.00429)
Black	0.0152**	0.0442***	0.0487***	-0.0251***	0.00794*	0.00527***
	(0.00602)	(0.00498)	(0.00517)	(0.00479)	(0.00479)	(0.00170)
AAPI	-0.00238	0.0375***	0.0239***	0.00760	-0.000749	0.0237***
	(0.00568)	(0.00620)	(0.00550)	(0.00543)	(0.00577)	(0.00216)
Hispanic	0.00472	0.0483***	0.0163***	0.00962**	0.00298	0.00433***
	(0.00542)	(0.00539)	(0.00548)	(0.00488)	(0.00432)	(0.00156)
Observations	30,882	36,000	36,000	35,928	35,995	36,000
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Age Control	Yes	Yes	Yes	Yes	Yes	No

Democratic- and Republic-leaning boards

Republican- (Democratic-)leaning boards are more inclined to include minority directors with differing (the same) political views.

	ΔPolitical Diversity (1)	ΔExperience Diversity (2)	ΔSkill Diversity (3)	ΔEducation Diversity (4)	ΔInstitution Diversity (5)	ΔAge Diversity (6)
Republican leaning						
Female	0.180***	0.201***	0.266***	-0.0739***	0.113***	0.0245***
	(0.0220)	(0.0182)	(0.0187)	(0.0180)	(0.0175)	(0.00643)
Black	0.0906***	0.0258***	0.0558***	-0.0181**	0.0133**	0.00421*
	(0.0101)	(0.00707)	(0.00755)	(0.00744)	(0.00642)	(0.00248)
AAPI	0.0275**	0.0609***	0.0306***	0.0254***	0.00613	0.0256***
	(0.0109)	(0.00970)	(0.00991)	(0.00848)	(0.00892)	(0.00359)
Hispanic	0.0132	0.0591***	0.0253***	0.0117	0.0209***	0.00730***
	(0.00848)	(0.00836)	(0.00887)	(0.00750)	(0.00656)	(0.00243)
Observations	14,738	16,844	16,844	16,812	16,844	16,844
Democratic leaning						
Female	-0.150***	0.213***	0.258***	-0.0569***	0.138***	0.00638
	(0.0199)	(0.0203)	(0.0204)	(0.0199)	(0.0211)	(0.00656)
Black	-0.0618***	0.0580***	0.0384***	-0.0217***	0.0151*	0.00617**
	(0.00666)	(0.00822)	(0.00802)	(0.00749)	(0.00830)	(0.00270)
AAPI	-0.0342***	0.0298***	0.0177**	-0.00674	0.00307	0.0236***
	(0.00692)	(0.00870)	(0.00785)	(0.00833)	(0.00874)	(0.00318)
Hispanic	-0.00343	0.0432***	0.00828	0.00815	-0.00444	0.00237
	(0.00860)	(0.00924)	(0.00824)	(0.00850)	(0.00731)	(0.00252)
Observations	10,669	12,328	12,328	12,312	12,328	12,328
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Dem- and Rep-leaning boards, continued

| | (New Director is Political Minority) | | | |
	(1)	(2)	(3)	(4)
Female	0.0415***	0.208***	0.207***	0.157***
	(0.0102)	(0.0125)	(0.0126)	(0.0113)
Black	0.000685	0.274***	0.273***	0.185***
	(0.0161)	(0.0173)	(0.0174)	(0.0160)
AAPI	-0.0185	0.208***	0.207***	0.110***
	(0.0224)	(0.0295)	(0.0296)	(0.0280)
Hispanic	0.0138	0.0556	0.0552	-0.00184
	(0.0271)	(0.0364)	(0.0366)	(0.0328)
DemMaj	-0.0178*	0.170***	0.169***	0.0995***
	(0.00969)	(0.0116)	(0.0116)	(0.00981)
Female × DemMaj		-0.362***	-0.362***	-0.258***
		(0.0187)	(0.0188)	(0.0168)
Black × DemMaj		-0.589***	-0.588***	-0.410***
		(0.0258)	(0.0259)	(0.0237)
AAPI × DemMaj		-0.418***	-0.413***	-0.220***
		(0.0398)	(0.0400)	(0.0361)
Hispanic × DemMaj		-0.105**	-0.107**	-0.0246
		(0.0532)	(0.0534)	(0.0466)
Observations	14,590	14,590	14,496	14,200
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Firm Controls	No	No	Yes	Yes
Diversity Controls	No	No	No	Yes

- *DemMaj* is dummy for boards with more Democratic-leaning directors than Republican ones.

- Because both types of boards are more likely to admit new directors who are demographic minority, diversity movement led to "bluer boards."

- One hypothesis is that minority director candidates are majority liberal-leaning, hence the relation is supply-driven.

Demographic-minority executives are politically diverse

Political stance of ExecuComp. About 75% of the directors are corporate executives, therefore, ExecuComp executives serve as a proxy for the pool of director candidates.
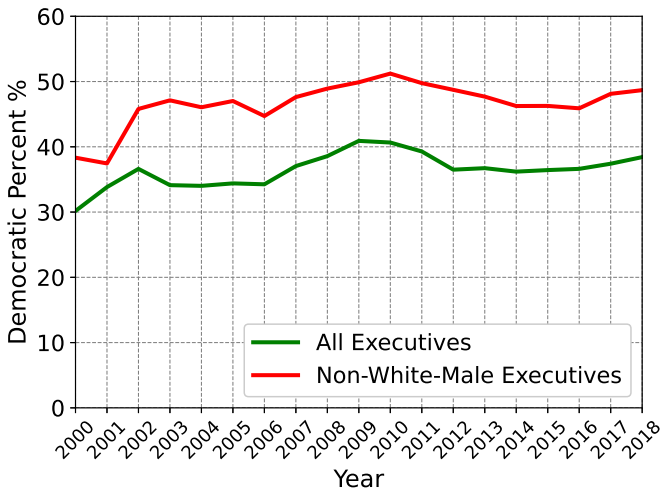
Test the talent supply hypothesis

- Regression at the new director level (during the year of addition).

- Two-way sorting of state and firm political leaning. Democratic-leaning firms do not respond to the supply of candidates with diverse political views.

	(1)	(2)	(3)	ΔPolitical Stance Diversity (4)	(5)	(6)	(7)	(8)
Female	0.180***	-0.139***	0.172***	-0.151***	0.171***	-0.148***	0.168***	-0.145***
	(0.0323)	(0.0474)	(0.0305)	(0.0221)	(0.0242)	(0.0257)	(0.0239)	(0.0258)
Black	0.0882***	-0.0568***	0.0978***	-0.0619***	0.0705***	-0.0577***	0.0730***	-0.0591***
	(0.0143)	(0.0148)	(0.0143)	(0.00772)	(0.0112)	(0.00945)	(0.0111)	(0.00947)
AAPI	0.00928	-0.0554***	0.0350**	-0.0280***	0.0283**	-0.0355***	0.0281**	-0.0356***
	(0.0162)	(0.0174)	(0.0147)	(0.00760)	(0.0127)	(0.00877)	(0.0126)	(0.00880)
Hispanic	0.0181	-0.0236*	0.00801	0.00364	0.00863	0.00858	0.00812	0.00823
	(0.0139)	(0.0140)	(0.0107)	(0.0104)	(0.0108)	(0.0108)	(0.00897)	(0.0108)
%DEM(Non-White-Male)					0.0198**	-0.00135		
					(0.00869)	(0.0129)		
%DEM							0.0184*	-0.0119
							(0.00977)	(0.0123)
Observations	6,712	2,557	7,998	8,074	11,771	7,487	11,984	7,518
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State	Rep	Rep	Dem	Dem	all	all	all	all
Firm Leaning	Rep	Dem	Rep	Dem	Rep	Dem	Rep	Dem

Do diverse directors fit in: Insights from Departures

- Departing to a "better" position means joining a firm at least 25% larger by market cap or moving to a higher seniority role, vice versa.
- Departures to "lesser" positions are unlikely to be desired, while departure to "better" positions could be a sign of human capital in high demand.
- Coefficients are "odds ratio,' with the unit being the neutal value.

	(1)			(2)		
	Better Positions	No Information	Lesser Positions	Better Positions	No Information	Lesser Positions
Female	1.086**	0.742***	0.150***	1.101**	0.716***	0.155***
	(0.0439)	(0.0150)	(0.0335)	(0.0455)	(0.0147)	(0.0350)
Black	1.226***	1.047*	0.431***	1.248***	1.017	0.425***
	(0.0836)	(0.0287)	(0.0933)	(0.0855)	(0.0284)	(0.0934)
AAPI	1.106	1.320***	0.870	1.079	1.328***	0.820
	(0.0846)	(0.0575)	(0.186)	(0.0874)	(0.0579)	(0.187)
Hispanic	1.087	1.032	0.519**	1.061	0.946	0.515**
	(0.117)	(0.0512)	(0.160)	(0.117)	(0.0443)	(0.165)
Age	0.964***	1.046***	0.969***	0.965***	1.046***	0.969***
	(0.00162)	(0.00129)	(0.00332)	(0.00168)	(0.00134)	(0.00347)
ΔExperience Diversity				1.151***	1.183***	1.056
				(0.0181)	(0.00919)	(0.0452)
ΔPolitical Stance Diversity				1.008	1.004	0.925
				(0.0141)	(0.00598)	(0.0459)
ΔSkill Diversity				0.932***	1.049***	1.025
				(0.0144)	(0.00669)	(0.0440)
ΔInstitution Diversity				0.931***	0.956***	0.777***
				(0.0153)	(0.00707)	(0.0334)
ΔEducation Diversity				1.034**	1.015**	1.044
				(0.0154)	(0.00640)	(0.0440)
Observations	471,133	471,133	471,133	449,558	449,558	449,558
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm Control	Yes	Yes	Yes	Yes	Yes	Yes

Crisis management: Risk factor adjusted

Crises, when astute leadership is in demand, presents an opportunity to assess whether diversity matters. Experience and skills of critical importance.

Dependent variable: DGTW (size, B/M, momemtum, and liquidity) adjusted return.

	(1)	(2)	(3)	(4)	(5)	(6)
Gender Diversity	-0.0258				-0.0160	-0.0201
	(0.0213)				(0.0224)	(0.0231)
Racial Diversity	0.0219				0.0269*	0.0242
	(0.0159)				(0.0161)	(0.0161)
Experience Diversity		0.0771**			0.0815**	0.0864**
		(0.0343)			(0.0345)	(0.0347)
Skill Diversity		0.0247			0.0368**	0.0352**
		(0.0173)			(0.0179)	(0.0179)
Age Diversity			0.00195		0.00111	0.00103
			(0.00299)		(0.00304)	(0.00316)
Political Diversity			-0.00826		-0.00726	-0.00615
			(0.0102)		(0.0102)	(0.0102)
Education Diversity				-0.0165	-0.00879	-0.00959
				(0.0136)	(0.0139)	(0.0138)
Institution Diversity				0.0195	0.0230*	0.0217
				(0.0132)	(0.0136)	(0.0136)
Technology skill						0.0376**
						(0.0177)
Female below 50						0.0112
						(0.0557)
Market Cap	0.00177	0.00155	0.00121	0.00112	0.00187	0.00169
	(0.00147)	(0.00139)	(0.00145)	(0.00139)	(0.00154)	(0.00154)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,414	2,414	2,297	2,410	2,296	2,296
R-squared	0.256	0.258	0.263	0.256	0.27	0.272

Conclusion

- Based on a newly constructed comprehensive database of board directors, this study provides multidimensional perspectives on board diversity.

- Demographic diversity has improved, while advancement in diversifying boards by experience, skills, institutional backgrounds, and political viewpoints has mostly been stagnant.

- Demographic diversification has been associated with more homogeneous political viewpoints on Democratic-leaning boards and more diverse viewpoints on Republican-leaning boards, both leading to "bluer" boards.

- The COVID-19 pandemic underscored the importance of experience and skill diversity of boards.