

Online Appendix for
Did board gender quotas break the glass ceiling in Europe?

David A. Matsa
Northwestern University

Amalia R. Miller
University of Virginia

Supplementary Figures

Figure S1. Full Sample Effects of Quotas on Female Leadership	1
Figure S2. Effects on Other Measures of Female Leadership.....	2
Figure S3. Full Sample Effects on Other Measures of Female Leadership	3

Supplementary Tables

Table S1. Analysis of WMID Sample, 2012-2023	4
Table S2. Female Representation by Country, 2023	5
Table S3. Effects at Firms with Unitary vs. Dual Boards	6

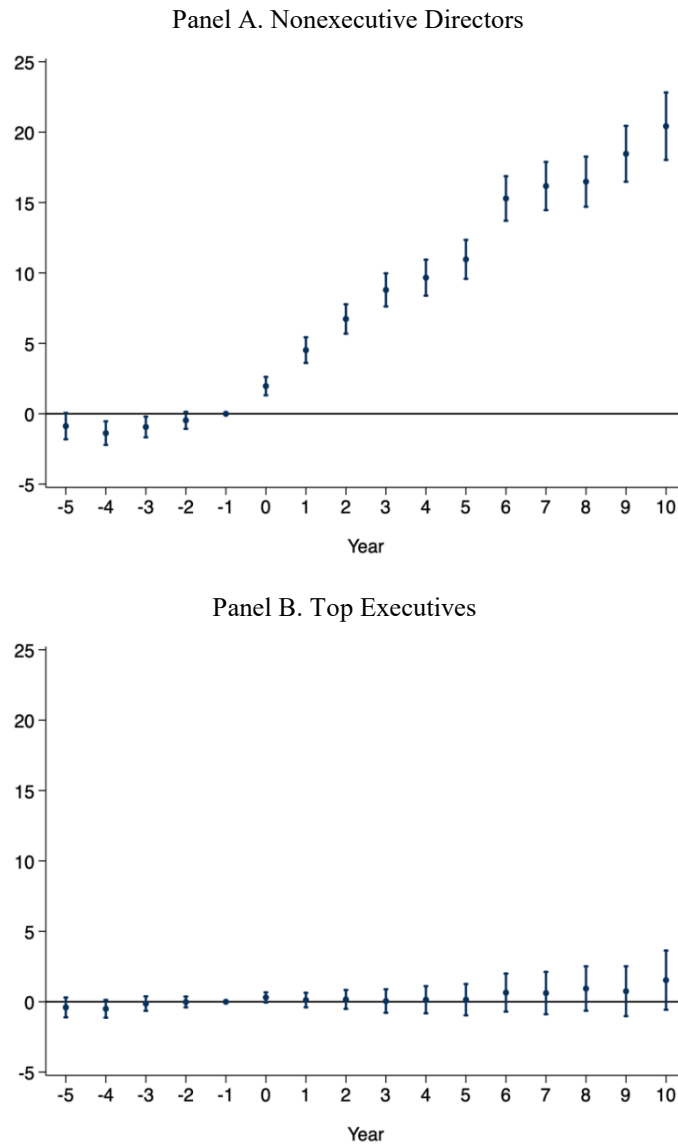


Figure S1. Full Sample Effects of Quotas on Female Leadership

Note: This figure plots changes in the female share of nonexecutive directors (Panel A), and executive directors and senior managers (Panel B), measured in percentage points, relative to the year before a board gender quota's adoption. The dots depict point estimates from regression models that control for firm and year fixed effects and an indicator for having an executive director quota in place. The bars represent 95% confidence intervals, which are adjusted for clustering at the firm level. These estimates correspond to those presented in Figures 1 and 2 in the paper, but include all countries in the sample, including countries with more recent quota adoptions that lack a full post period.

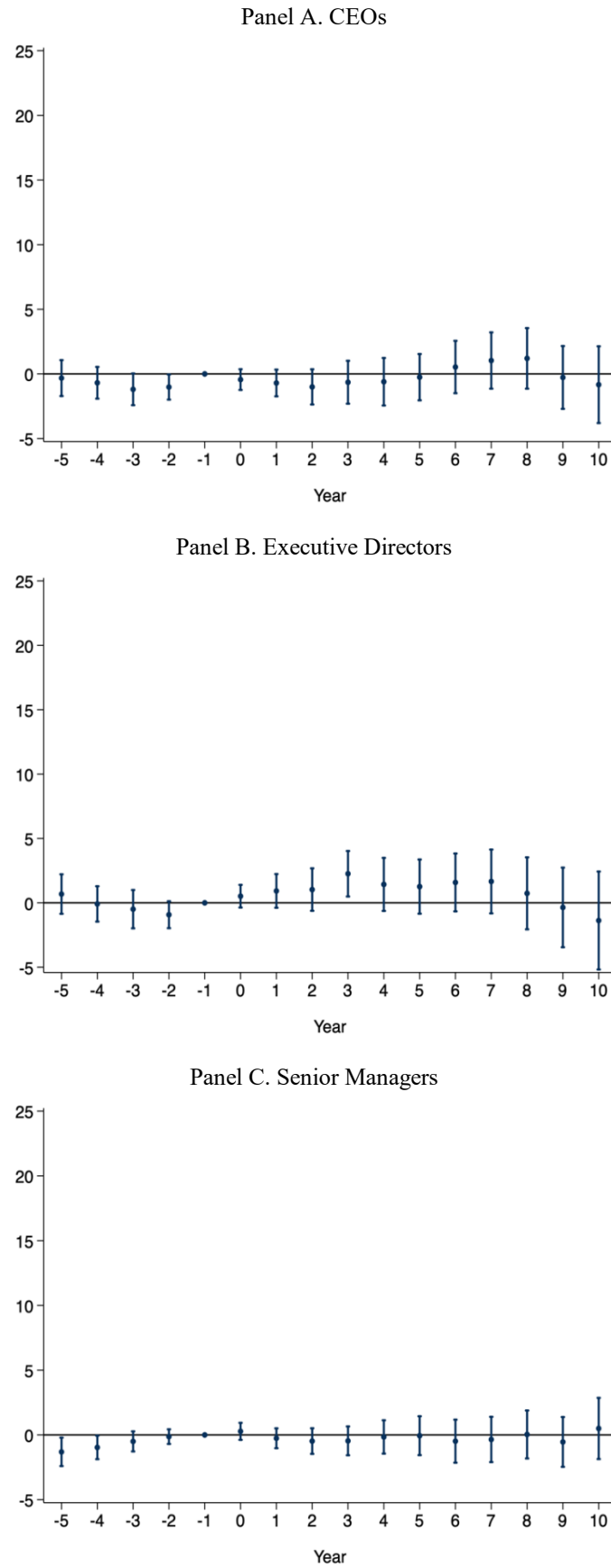


Figure S2. Effects on Other Measures of Female Leadership

Note: This figure plots changes in the female shares of CEOs (Panel A), executive directors (Panel B), and senior managers (Panel C), measured in percentage points, relative to the year before a board gender quota's adoption. The dots depict point estimates from regression models that control for firm and year fixed effects and an indicator for having an executive director quota in place. The bars represent 95% confidence intervals, which are adjusted for clustering at the firm level. As in Figures 1 and 2 in the paper, countries with quotas adopted after 2013 are excluded from the estimation sample.

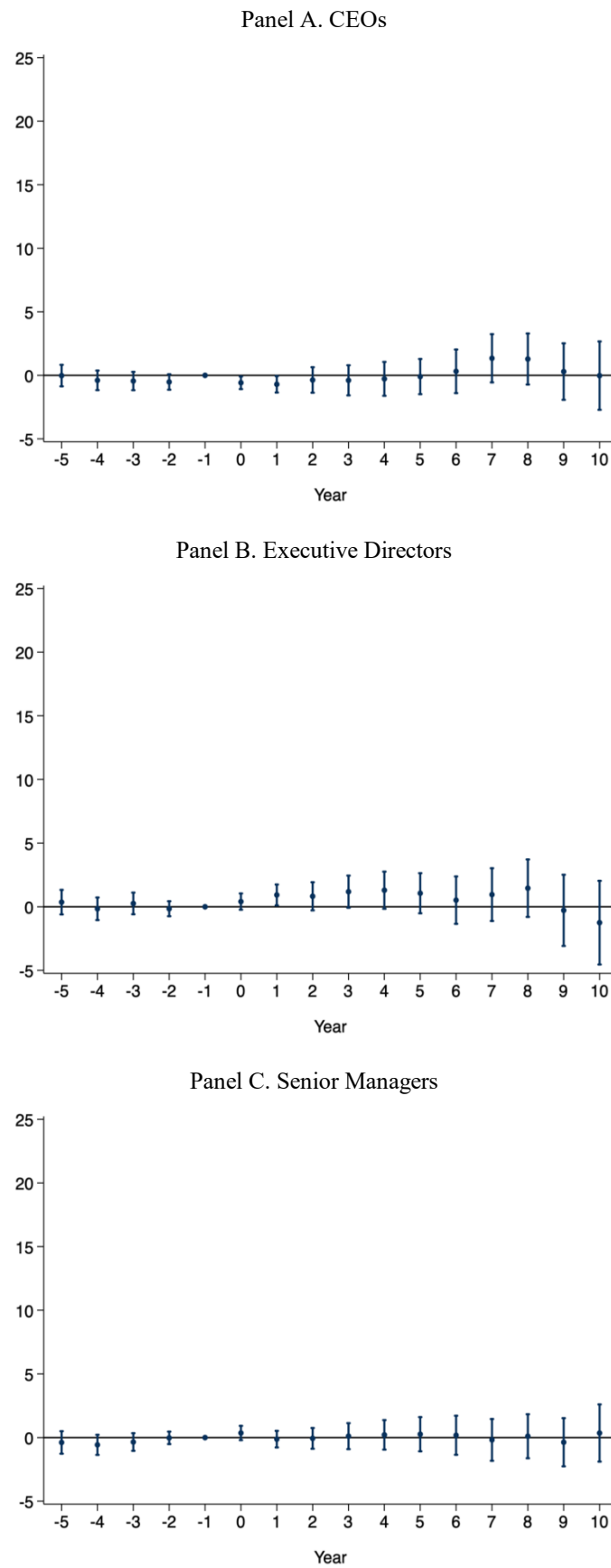


Figure S3. Full Sample Effects on Other Measures of Female Leadership

Note: This figure plots changes in the female shares of CEOs (Panel A), executive directors (Panel B), and senior managers (Panel C), measured in percentage points, relative to the year before a board gender quota's adoption. The dots depict point estimates from regression models that control for firm and year fixed effects and an indicator for having an executive director quota in place. The bars represent 95% confidence intervals, which are adjusted for clustering at the firm level. These estimates correspond to those presented in Figures S2 in the paper, but include all countries in the sample, including countries with more recent quota adoptions that lack a full post period.

Table S1. Analysis of WMID Sample, 2012-2023

	(1) ND	(2) CEO	(5) Executives
Gender Quota	8.973*** (1.274)	-0.396 (0.766)	-1.073 (0.678)
Observations	348	348	348
R-Squared	0.874	0.516	0.814
Dep. Var. Mean	24.39	6.344	17.03

Notes: This table summarizes the results from country-panel regressions of measures from the European Commission's Women and Men in Decision-making (WMID) database, distributed by the European Institute for Gender Equality (EIGE). The share, measured in percentage points, of nonexecutive directors (ND), chief executive officers (CEO), or executives is regressed on an indicator for whether the country where the firm is headquartered has adopted a gender quota and a set of controls. In all regressions, the controls include country and year fixed effects and an indicator for having an ED quota in place. Robust standard errors are reported in parentheses.

*** Significant at the 1 percent level.

Table S2. Female Representation by Country, 2023

	Female Share in Role (%)					Number of Firms
	ND	CEO	ED	SM	EDSM	
Austria	32.4	6.1	8.3	24.4	20.6	44
Belgium	41.7	6.1	9.6	24.3	23.0	65
Croatia	37.5	25.0	22.7	33.3	28.6	5
Cyprus	7.4	0.0	0.0	20.0	17.9	6
Czech Republic	28.9	0.0	12.9	29.6	23.5	6
Denmark	35.6	8.0	23.2	22.3	22.3	64
Estonia	21.1	0.0	15.4	60.0	34.8	3
Finland	33.9	11.2	5.9	31.6	31.4	91
France	47.0	11.3	15.8	26.5	25.9	308
Germany	33.2	6.4	16.4	18.4	18.1	290
Greece	32.6	7.9	12.7	25.8	24.0	31
Hungary	21.4	0.0	6.7	21.7	20.3	7
Iceland	41.8	6.7	0.0	30.9	30.5	12
Ireland	44.1	2.3	11.1	27.4	25.8	37
Italy	50.4	15.5	12.8	23.3	22.3	169
Liechtenstein	26.7	0.0	20.0	9.6	10.5	2
Lithuania	40.0	0.0	27.3	32.0	30.6	2
Luxembourg	36.6	3.3	9.3	23.6	21.8	23
Malta	20.0	0.0	0.0	27.7	26.1	7
Netherlands	39.5	11.9	17.3	22.0	21.4	94
Norway	44.4	10.6	16.7	28.6	28.6	139
Poland	24.8	10.5	16.2	33.7	25.7	58
Portugal	38.8	5.6	16.1	29.1	26.8	33
Romania	21.6	50.0	33.3	33.8	33.8	5
Slovakia	25.0	0.0	30.8	25.0	28.6	2
Slovenia	25.9	0.0	14.3	28.8	25.8	3
Spain	39.7	2.3	7.0	20.3	19.5	111
Sweden	37.3	9.9	8.6	28.2	27.9	235
Switzerland	28.8	4.9	4.7	19.4	19.1	179

Notes: This table reports the female shares of the following leadership roles on December 31, 2023, at listed companies with stock market capitalization of at least 200 million euros: nonexecutive directors (ND), chief executive officers (CEO), executive directors (ED), other senior managers (SM), and a category that includes both ED and SM roles (EDSM). The information on corporate leaders is from BoardEx and on stock market capitalization is from the European Federation of Employee Share Ownership database. The final column reports the number of sample firms in each country on December 31, 2023.

Table S3. Effects at Firms with Unitary vs. Dual Boards

	(1) ND	(2) CEO	(3) ED	(4) SM	(5) EDSM
<i>Panel A: Unitary Boards</i>					
Gender Quota	10.01*** (1.07)	0.39 (1.08)	2.85*** (1.05)	0.53 (0.95)	1.55* (0.90)
Firm, Year FE	Y	Y	Y	Y	Y
Observations	13,600	13,276	12,364	16,037	16,134
Firms	819	818	789	828	830
R-Squared	0.707	0.509	0.564	0.710	0.713
Dep. Var. Mean	20.95	3.786	5.488	21.80	20.21
<i>Panel B: Dual Boards</i>					
Gender Quota	7.95*** (0.68)	-0.47 (0.76)	-0.32 (0.70)	-0.01 (0.68)	-0.34 (0.63)
Firm, Year FE	Y	Y	Y	Y	Y
Observations	26,051	24,743	17,604	30,952	31,253
Firms	1,457	1,451	1,138	1,477	1,479
R-Squared	0.655	0.486	0.575	0.715	0.710
Dep. Var. Mean	19.10	4.474	6.416	23.30	20.90

Notes: This table summarizes the results from firm-panel regressions of the share, measured in percentage points, of nonexecutive directors (ND), chief executive officers (CEO), executive directors (ED), other senior managers (SM), or a category that includes both ED and SM roles (EDSM) on an indicator for whether the country where the firm is headquartered has adopted a gender quota and a set of controls. The sample in Panel A is firms with unitary (single-tiered) boards, while the sample in Panel B is firms with dual (two-tiered) boards. Firms with unitary or dual boards are identified using the European Federation of Employee Share Ownership database. In all regressions, the controls include firm and year fixed effects and an indicator for having an ED quota in place. Robust standard errors, clustered at the firm level, are reported in parentheses.

*** Significant at the 1 percent level.

* Significant at the 10 percent level.