

Women on Boards Quotas, Targets, and Their Unintended Effects: Evidence From the United Kingdom

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This study aims to increase the understanding of the unintended effects of state-sponsored initiatives for gender equality and the role of corporations in helping contribute to a more egalitarian society. State-interventions for women on corporate boards (WOB) are often used to address the pervasive gender disparities that have historically and systematically prevented women from achieving those positions. Yet, their unintended consequences are rarely explored. Exploiting a natural experiment created by the United Kingdom's soft law for WOB, I gathered a dataset of 3541 firm-year observations, to test the effects of the soft law on the probability of appointing more women directors after reaching the compliance threshold. Results demonstrated that although, at an aggregate level, women director's numbers doubled, at the compliance threshold, the probability of appointing women to FTSE 350 boards discontinuously decreased by 41%. This suggests that while the soft law helped shatter glass ceilings, it built a barrier around the minimum targets. Implications for theory and practice are discussed.

Keywords: women on corporate boards, Davies Review, natural experiment, regression discontinuity, soft law

INTRODUCTION

The slow progress towards reaching gender balance on corporate boards has contributed to increased calls for state intervention to enact more radical methods for achieving gender balance. Across Europe, the United States, and other nations, the implementation of state intervention as a means for addressing women's underrepresentation in corporate leadership has been under discussion. Some scholars have suggested that the increased calls for state intervention across nations are a "snowball" effect that started when in 2003, Norway became the first country to implement gender quotas for corporate boards (Engelstad & Teigen, 2012; MacHold et al., 2013), which increased women's representation on corporate boards from 7 percent in 2003 to 40 percent in 2009 (Teigen, 2015). The apparent success of the Norwegian quota law for corporate boards has been replicated in contexts where legislation has been enacted; recently—the now overturned—California's legislation (Senate Bill No. 826, 2018) resulted in increased women's representation on corporate boards from 14.6 percent in 2018 to 32.1 in 2021.

Currently, two different approaches of state intervention dominate the women on boards (WOB) discourse; the first one is gender quotas, also referred to as hard-law or affirmative action that aim to achieve equality of outcome. To enforce compliance with gender quotas, sanctions are often imposed. Belgium, France, Germany, Iceland, Finland, Italy, Norway, Spain, and the state of California are among the states that have enacted gender quotas to regulate the gender composition of corporate boards. The second

approach is the comply-or-explain approach, also referred to as soft-law, government-backed targets, or codes, which aim to afford equality of opportunity. Australia, Canada, and the United Kingdom have implemented soft laws to increase women's representation on corporate boards. The United Kingdom—context of this study—rolled out the Davies Review (2011) as a comply-or-explain approach, wherein a five-year target was set for the gender composition of corporate boards trading in the London Stock Exchange and listed in the Financial Times Stock Exchange FTSE-350 index.

State interventions for increasing women's representation on corporate boards appear to be an effective way to help women break into male-dominated positions that otherwise would not be available to them (Hughes et al., 2017; Terjesen et al., 2015); however, very little is known about whether and to what extent they contribute to the achievement of gender equality in the workforce. Although it is clear that after the implementation of gender quotas or targets, women's representation on corporate boards increases, women's boardroom participation has been increasing across the globe, including countries where quotas or targets have not been implemented. Therefore, the increase of women's boardroom representation during a quota or target cannot be fully attributed to the intervention.

The United Kingdom is an ideal context for examining the effects of soft laws for increasing women's representation on corporate boards. Since 1998, their Corporate Governance Code has used a comply or explain approach, which is widely regarded as an international benchmark for good corporate governance practice. In 2010, the code was revised to include, for the first time, board gender diversity; and in 2011, commissioned by the Government, the Davies Review set the minimum targets of the soft law for boards of publicly listed, FTSE 350-indexed organizations. I gathered a dataset of FTSE-indexed 3,541 firm-year observations to examine the effects of compliance to the United Kingdom's targets set by the Davies Review on opportunities for women on FTSE-350 boards. The study's findings demonstrate that quotas and targets increase opportunities for women on boards, but once targets are reached, opportunities for women significantly decrease.

LITERATURE REVIEW & HYPOTHESIS DEVELOPMENT

Gender Quotas, Targets and Women on Corporate Boards

Empirical research has suggested that the introduction of quotas has the most explanatory power for women's representation in political systems (Tripp & Kang, 2008), and corporate boards (Ahern & Dittmar, 2012). Yet, their effects appear to be limited to the minimum compliance levels set by the quota. Some scholars have argued that when diversity efforts are reduced to a measure of good performance, it may become the mechanism for concealment and reproduction of inequality (Ahern & Dittmar, 2012; Deem & Morley, 2006). In contexts in which quotas and targets have been enacted, progress towards gender parity on corporate boards has virtually stopped once compliance is achieved. For example, when the Norway quota first was enforced in 2008, 41.6% of corporate boards seats were occupied by women; however, for more than a decade, progress towards parity has remained stagnant (41.5% in 2021). Similarly, since Austria, Belgium, Germany, Italy, and Portugal implemented gender quotas that require a minimum representation of 30%-33% WOB, progress has stayed around the minimum threshold (see European Women on Boards, 2021).

The United Kingdom: Empirical Context

In the European Union (EU), gender equality is the area of social policy where the EU law has had its most significant influence due to its inclusion in the original Treaty of Rome (Hyman, 2008), with legal basis for any binding measures (Lisbon Treaty, Title X: Social Policy, Article 157(3), 2008) that aim at enforcing the principle of equal opportunities and equal treatment in employment and occupation (Article 157(4)). As the European Commission deliberated a proposal to introduce gender quota legislation for its member states—which the UK was at the time—the U.K. government, promptly acted to introduce an initiative to address gender imbalance on British corporate boards by rolling out the Davies Review (2011). Considering the UK's private sector strong opposition to legislative intervention, in favor of self-administered voluntary targets (Fagan & Rubery, 2018; Goyal et al., 2018; Teigen, 2012), the Davies

Review set the minimum targets of gender diversity for the boards of FTSE 350-indexed firms and was introduced shortly after an update to the comply-or-explain UK Corporate Governance Code came into effect, which, for the first time, included a principle for board appointments requiring due regard for the benefits of diversity on the board, including gender. The recommendations of the Davies Review initiative were submitted to the European Commission as the UK's alternative to mandated quotas supported by the principle of subsidiarity (Treaty of Amsterdam, Article 5, 1997, p.107), which states that decisions are retained by member states if the intervention of the European Union is not necessary. Accordingly, the soft law was delivered with the threat of much higher gender quotas imposed by the European Commission, if necessary, which strongly encouraged compliance.

The Davies Review was also the fulfillment of the U.K. coalition government's pledge to promote gender equality on boards in order to counter the many barriers to equal opportunity in Britain and help build a fairer society (HM Government, 2010, p.18). According to the 2021, Global Gender Gap Report (World Economic Forum, 2021), the UK ranked 23 (out of 156 countries), lagging behind 12 other European countries, due to existing gender disparities in health and survival, and economic participation and opportunity. Although over the past two decades, women have surpassed men in tertiary educational attainment, their progress in attaining corporate leadership roles lags behind men's. Furthermore, despite women's presence at the highest level of decision-making authority for 16 years, (i.e., Margaret Thatcher, Theresa May), gender stereotypes and gendered division of work persist (McMunn et al., 2020). British women are still underrepresented in political leadership (26.8%), corporate boards (32.6%). This is noteworthy as a country's basic institutions may contribute to gender disparities in corporations (Grosvold et al., 2016), as organizational practices mirror societal norms (Meyerson & Fletcher, 2000).

The Davies Review set a five-year target to increase female board representation in FTSE-350 boards, which was estimated considering one third female new board appointments effective immediately at the time of the announcement, February 2011 (Davies, 2011). With a starting point of 12.5 percent, the five-year target for FTSE 100 firms was 25%, and with a starting point of 7.9%, the five-year target for FTSE 250 firms was 22%¹. In evaluating the initiative, the 5-Year Summary (Davies, 2015) indicated that the goals set in 2011 had been exceeded; the boards of FTSE 350 organizations had collectively doubled their female representation, with FTSE 100 boards at 26.1% and FTSE 250 boards at 19.6%. the report indicated that the United Kingdom was a leader and role model on the international stage for having achieved such progress under a comply-or-explain approach rather than quota legislation (p.10) and asked that organizations keep their laser sharp focus on the WOB agenda, as in doing so "there is the potential to banish gender inequality in British business to the annals of history" (p.27).

Davies annual reviews reported the progress toward the goal for achieving gender parity on corporate boards. In these reviews, FTSE 350 organizations were ranked based on their percentages of WOB. Organizations with the highest percentages of WOB were praised and regarded as "leading the way" in gender equality (Hampton & Alexander, 2016, p.33). Such recognition can take the form of organizational pride (Prasad & Mills, 2012), block recognition of inequality, and create an illusion of gender-neutral practices. Diversity and equality measures impact firm reputation (Ahmed, 2007), which suggests that compliance to the Davies Review targets may positively impact the image and reputation of organizations, leading organizations to believe that they have done enough in relation to gender diversity, which may shift the focus of their efforts to other initiatives. Therefore, I expect that FTSE 350 firms will aim to comply with the Davies Review targets, rather than to achieve gender balance on their boards. Compliance targets will inform organizations' beliefs about how good they are at gender diversity, which will in turn, significantly and discontinuously decrease their gender diversity efforts. The first study's hypothesis predicts:

Hypothesis 1. *The probability of appointing women directors to FTSE 350 boards will significantly decrease at the Davies Review compliance threshold.*

RESEARCH DESIGN AND METHODS

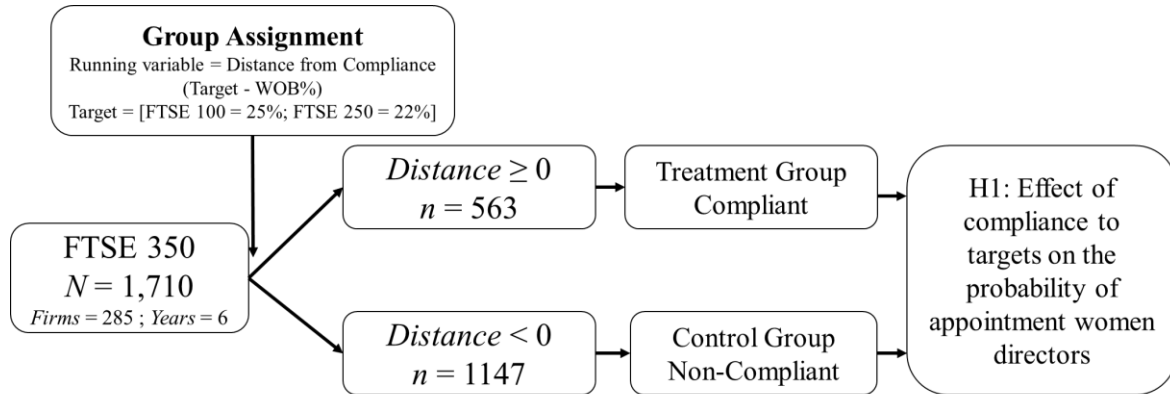
Dataset

Two datasets were used in this study. First, world development indicators from the World Bank were accessed to conduct an initial investigation of whether the phenomenon related to state-sponsored WOB interventions existed in other countries by gathering country-level predictors of board gender diversity (See Appendix A). However, the focus of the study was the United Kingdom with the firm-level as the unit of analysis. To test the effects of the Davies Review on FTSE organizations in the UK, I gathered data from FTSE ranked organizations in the FTSE 100, FTSE 250 (collectively known as FTSE 350). Additionally, for robustness tests, I collected data from FTSE Small Cap firms. The dataset contained observations for FTSE 350 and FTSE Small Cap organizations (collectively known as FTSE All Share) in the years 2008 to 2016 that were listed and indexed in the year the Davies Review was rolled out, 2011. To identify the available sample, this study started with the list of all publicly listed companies trading in the main market of the LSE in 2011 (N=1419), I narrowed the list to the 612 FTSE All-Share constituents and included 11 additional organizations that were trading in the LSE but entered the FTSE index a few months after the soft law went into effect and remained in the index through 2016. Excluding investment trust and delisted institutions, the baseline sample consisted of 413 firms. After attrition due to mergers, and acquisitions, and annual report availability, the final sample was 395 firms, and 3541 firm-year observations. The dataset contains annual variation of several organizational variables, including industry sector, firm size, executive and nonexecutive board members, CEO, chairperson, director board independence, executive board (c-suite) members, senior management population, total employee population, and gender demographics. I manually collected corporate governance data from annual reports of the 395 baseline firms from their official websites. The dataset was compared to data retrieved from BoardEx and verified with official filings to Companies House. Table 1 presents summary statistics of key variables in the dataset.

Empirical Strategy

To test the study's predictions, I applied a regression discontinuity design (RDD) to the data. Regression discontinuity is a quasi-experimental design that simulates experimental conditions that allow researchers to test causal relationships (Shadish et al., 2002; Thistlethwaite & Campbell, 1960). The distinguishing feature of the RD design is that it uses natural experiment situations, where observations are assigned to a treatment based on whether they are above or below a cutoff point on a continuously measured scale. The treatment effect is calculated from observations within the limits on each side of the cutoff score, also referred to as the non-parametric approach, which is the preferred approach in RDD (Hahn et al., 2001; Imbens & Lemieux, 2008; Van der Klaauw, 2008), and demonstrated by a discontinuous jump on the regression line at the cutoff as a function of the underlying continuous variable (Murnane & Willett, 2011). Although group assignment in RD designs is not random, it is assumed that around the threshold, assignment is as good as random. For example, if when testing the effect of the Davies Review targets on the gender composition of FTSE boards, I look at two FTSE 100 constituent organizations, and the first one, organization A, has 27 percent of women directors, and the other one, organization B, has 22 percent of female directors. In this study, I assign organization A to the treatment group with a score of 2 on the running variable because it is 2 percentage points above the 25 percent compliance target for FTSE 100 boards, and organization B to the comparison group with a score of -3, because it is 3 percentage points below the 25 percent compliance threshold. This assignment is essentially random because theoretically, this small difference in representation that would not be significant otherwise determines whether or not FTSE organizations are categorized and recognized as compliant to the Davies Review (see Figure 1). Results were estimated using the *rdrobust* package in R (Calonico et al., 2022).

FIGURE 1
DESIGN OF THE STUDY



Testing the Effects of the Davies Review Targets on Board Gender Composition

To test the prediction that, holding all else equal, opportunities for women on FTSE 350 firms decrease once organizations reach compliance to the Davies Review targets, I applied a sharp non-parametric (local) RDD to the data. If the efforts for achieving gender parity on the boards of FTSE 350 firms discontinuously drop at the compliance threshold set by the Davies Review, I can conclude that the Davies Review targets exerted a causal influence on organizational efforts to comply with the targets, which decreased opportunities for women on boards of compliant organizations. Although it is common in the literature to see RDD that include higher order polynomials, Gelman and Imbens (2019) recommend using linear or quadratic functions and advise against higher order polynomials due to noisy estimates and poor coverage of confidence intervals that fail to include zero and substantially increase rejection rates. Therefore, I estimated linear and quadratic forms of the local regressions. Using a nonparametric specification (see Hahn et al., 2001) allows me to further narrow my focus on observations near the threshold to compare organizations with very similar characteristics to identify the effect at the threshold as the difference between the regressions of treatment and comparison groups.

Cutoff score and group assignment. The percentage of women on boards of FTSE 350 organizations in the 2011 to 2015 period determined group assignment, $WOB\%_{it}$. For cutoff scores, I relied on the rationale for setting the minimum Davies Review targets, 25% for FTSE 100 boards, and 22% for FTSE 250 boards. Following recommendations in the literature (Cattaneo et al., 2016; Jung et al., 2005; McCrary & Royer, 2011; McEwan & Shapiro, 2008), the centering and pooling technique was used for the FTSE 100 and FTSE 250 samples. Equation 1 was used to predict the probability of increasing female board representation in the Davies Review period.

$$PrAdd_{it} = \beta_0 + \beta_1 T_{it} + \beta_2 Distance_{it} + \beta_3 Z + \varepsilon_i, \quad (1)$$

where the dependent variable, $PrAdd_{it}$, was the probability to add a woman director in a given organization i in year t during in the Davies Review, $Distance$ is the transformed group assignment variable, $WOB\%$ centered at the cutoff score, which represents the distance from compliance to the targets set by the Davies Review, T is the dummy variable for treatment, $T = [0 \text{ if } Distance < 0; 1 \text{ if } Distance \geq 0$. Variable Z is a vector of covariates selected based on their association to outcome variable, which could provide an alternative explanation for the study's findings: industry sector, board size, (Hillman et al., 2000). CEO gender and chairperson gender and tenure were included as they are indicators of endogenous gender diversity, which may influence future efforts; similarly log of total employees was included as previous research has shown its impact on board gender composition (Ahern & Dittmar, 2012; Bear et al., 2010; Westphal & Zajac, 1995). Baseline covariates in vector Z included board size, CEO gender, and chairperson

gender were included in vector Z. To control for heterogeneity, robust standard errors were clustered at the firm level.

TABLE 1
SUMMARY STATISTICS OF THE FTSE 100, FTSE 250, AND FTSE SMALL CAP DATASETS

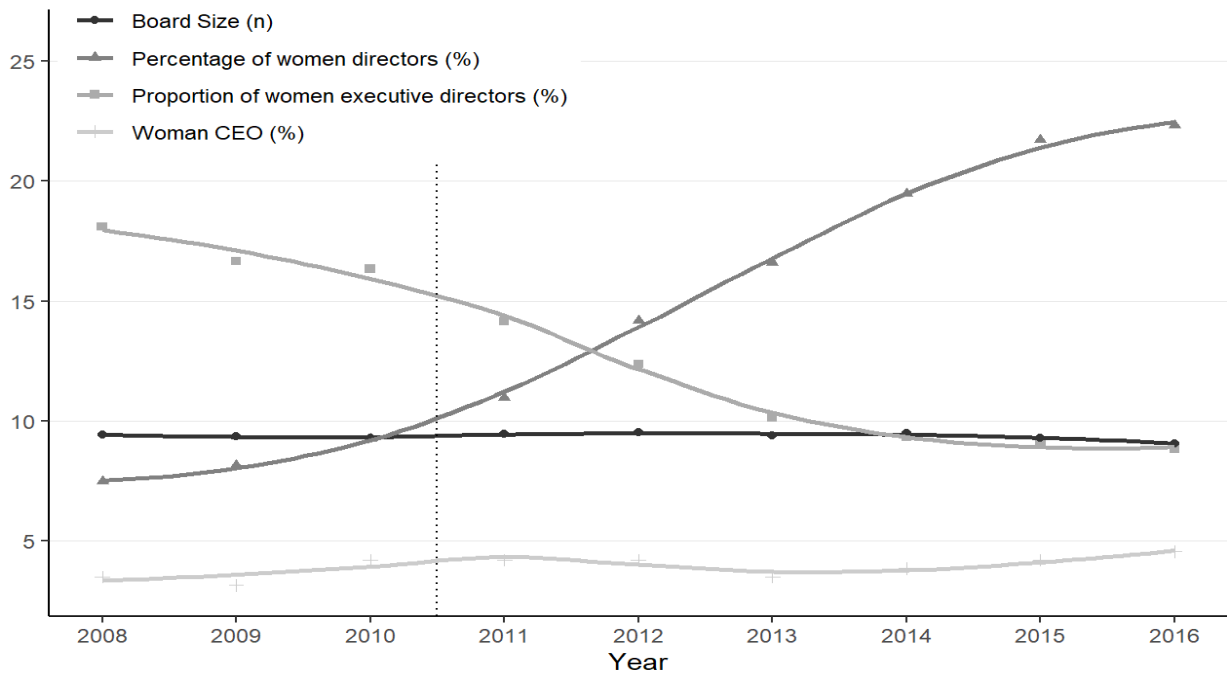
Index	2008	2009	2010	2011	2012	2013	2014	2015	2016
FTSE 100									
Board	11.19	11.09	10.95	11.24	11.25	11.04	11.24	10.96	10.67
WOB%	11.60	11.95	13.04	14.83	17.78	19.53	22.89	25.57	25.98
WED%	13.93	11.90	13.14	12.50	10.94	8.74	8.10	8.55	9.40
WNED%	86.07	88.10	86.86	87.50	89.06	91.26	91.90	91.45	90.60
Female CEO	3	3	4	4	4	2	3	4	4
Female chair	2	2	1	1	1	1	2	2	2
WExec%	11.24	11.17	14.68	13.74	12.56	14.76	14.81	17.59	17.88
WSM%	16.26	15.82	20.11	21.88	23.47	20.56	21.57	21.91	22.99
WEmp%	37.57	35.97	38.16	34.28	36.71	36.36	36.89	36.01	35.87
FTSE 250									
Board	8.51	8.49	8.43	8.57	8.66	8.58	8.61	8.45	8.27
WOB%	5.71	6.52	7.53	9.32	12.47	15.24	17.75	20.04	20.67
WED%	23.86	22.33	20.00	15.89	13.73	11.34	10.38	9.69	8.36
WNED%	76.14	77.67	80.00	84.11	86.27	88.66	89.62	90.31	91.64
Female CEO	7	6	8	8	8	8	8	8	9
Female chair	2	1	1	2	4	5	6	9	10
WExec%	8.79	9.06	11.54	11.63	12.07	15.32	14.29	15.87	14.65
WSM%	9.26	6.98	27.25	27.97	22.6	19.82	19.81	21	22.84
WEmp%	55.39	49.56	38.71	38.38	35.01	35.54	35.96	35.6	36.11
FTSE Small Cap									
Board	7.31	7.29	7.24	7.33	7.16	7.02	7.06	7.05	6.96
WOB%	5.22	5.61	6.16	7.69	8.76	10.10	11.07	12.65	14.10
WED%	28.57	26.67	24.49	24.19	18.84	13.92	12.79	12.24	10.19
WNED%	71.43	71.11	75.51	75.81	81.16	86.08	87.21	87.76	89.81
Female CEO	3	3	2	2	0	1	1	1	1
Female chair	0	0	1	4	4	5	4	4	4
WExec%	8.4	8.53	7.76	7.99	7.31	11.93	13.06	14.94	15.6
WSM%	-	16.67	17.56	17.8	27.58	20.54	19.24	20.78	21.02
WEmp%	35	38.23	36.71	35.88	38.67	33.63	35.31	35.95	36.1
Firms (<i>n</i>)	385	391	395	395	395	395	395	395	395
Board (<i>n</i>)	3397	3436	3441	3505	3504	3453	3484	3424	3353
WOB (<i>n</i>)	252	273	306	373	465	532	622	687	697

Note. *n*=sample size; *Board*=average number of board members; *WOB%*=percentage of women on boards; *WED%*=percentage of women executive directors to the total number of women directors; *WNED%* = percentage of women non-executive directors to the total number of women directors; *Female CEO* = count for the dummy variable that indicates that the CEO role is occupied by a woman [1=Yes; 0 = No]; *Female Chair* = count for the dummy variable that indicates that the chairperson role is occupied by a woman [1=Yes; 0=No]; *WExec%*= percentage of women executives; *WSM%* =percentage of women in senior management; *WEmp%*= percentage of women employed in the firm.

RESULTS

Table 2 reports the dataset's means, standard deviations, and bivariate correlations of key variables in the study. Figure 2 shows the average annual changes in the gender composition of FTSE 350 boards, which demonstrates that there has been an increasing trend in appointments of women to FTSE boards. Despite the significant increase in board gender diversity, it is evident that most appointments were to non-executive directorships, demonstrated in the steep decline in the proportion of appointments to executive director positions. Similarly, that the appointment of women to CEO or chairperson positions remained unchanged.

FIGURE 2
ANNUAL CHANGES IN GENDER COMPOSITION OF FTSE 350 BOARDS



Note. $n=295$, board size is the average number of board members, percentage of women directors % was measured in function of the total number of board seats; proportion of women executive directors was measured in relation to the total seats occupied by women. These results suggest that although the percentage of women directors increased in the duration of the Davies Review, most of the new appointments for non-executive directors. Similarly, the number of women CEOs and chairpersons remained stagnant.

As evidenced by the data's descriptive statistics, reported in Table 1, prior to the Davies Review, although slow, women's participation on British corporate boards followed an upwards trend, which may suggest endogeneity (cf. Antonakis et al., 2014) and threaten the argument that the increased gender diversity on FTSE 350 boards was caused by the soft law. Considering that the validity of a RDD relies on the assumption of exogeneity (Murnane & Willett, 2011), I tested whether the gender composition of FTSE 350 boards was impacted prior to the Davies Review. To that end, I examined the FTSE All Share sample from 2008 to 2016. I went back three years from the Davies Review announcement because since the Davies Review targeted only FTSE 350 boards, I expected that after the Davies Review announcement, there would be significant differences between FTSE 350 and FTSE Small Cap boards. Using package *nlme* in R (Pinheiro et al., 2022), I tested a mixed effects regression model for repeated measures data, where the percentage of women directors was estimated as a function of the interaction of time and index (FTSE 100, FTSE 250, and FTSE Small Cap) as factors, controlling for board size and industry sector. Following recommendations in (Baltagi, 2021), the specification included a random intercept at the firm level and

serially correlated error terms. As reported in Appendix B, for the years 2008 to 2011, changes in gender composition of FTSE All Share boards were not statistically significantly different across FTSE groups ($p > .05$). After the Davies Review announcement, annual changes in gender composition of FTSE Small Cap boards became statistically significantly different than FTSE 350 boards, which provided evidence that gender composition of FTSE 350 boards was not impacted prior to the Davies Review announcement, satisfying the assumption of exogeneity.

TABLE 2
BIVARIATE CORRELATIONS OF KEY VARIABLES IN THE STUDY

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Index	1												
2. Time	.00	1											
3. Sector	.00	.00	1										
4. Board	-.57***	-.02	-.07***	1									
5. WOB%	-.30***	.45***	-.12***	.20***	1								
6. WExec%	-.13***	.18***	-.10***	.08***	.31***	1							
7. WSM%	-.07**	.10***	-.33***	.09***	.19***	.35***	1						
8. WEmp%	-.03	-.02	-.41***	.16***	.22***	.27***	.61***	1					
9. Fem CEO	-.05***	.00	-.03	.02	.20***	.21***	.11***	.08***	1				
10. Fem chair	.02	.08***	-.03	-.06***	.16***	.08***	.06*	.08***	-.01	1			
11. CEO ten	-.05**	.00	-.03	.02	.20***	.21***	.11***	.08***	1.0***	-.01	1		
12. Chair ten	.02	.08***	-.03	-.06***	.16***	.08***	.06*	.08***	-.01	1.0***	-.01	1	
13. Log emp.	-.53***	.04**	-.02	.36***	.27***	.04	.00	.01	.03*	-.08***	.03*	-.08***	1
Mean	2.04	2.00	4.39	8.75	12.95	13.26	21.11	36.06	.03	.02	.18	.10	8.21
SD	0.72	2.58	2.26	2.49	10.77	11.91	11.34	16.16	.18	.15	1.14	.82	1.97

Note. $n=3541$. * $p < .05$; ** $p < .01$; *** $p < .001$. Index is the numeric variable for FTSE group [1=FTSE 100, 2=FTSE 250, 3=FTSE Small Cap]; Time is numeric indicator for year [from -2=2008 to 6=2016]; Sector is numeric indicator for industry sector that ranges from 1 to 9; Board is number of board members in an organization; WOB% is percentage of women directors; WExec% is the percentage of women on executive boards; WSM% is the percentage of women in senior management; WEmp% is the percentage of women employees; Fem CEO is a dummy variable for CEO gender [1=Female; 0=Male]; Fem chair is a dummy variable for chairperson gender [1=Female; 0=Male]; CEO ten is the tenure of a female CEO; Chair ten is the tenure of a woman chairperson; Log emp. is the log of total number of employees.

Another critical assumption in RDD for causal inference is that the group of participants around the cutoff are equal in expectation of confounders, other than exposure to treatment for the participants of the treatment group. The assumption was tested by regressing the forcing variable on baseline covariates to examine the smoothness of the regression line at the cutoff, which provided evidence of equal expectation of confounders. A threat to the validity of this assumption relates to the impact of any underlying relationship between the outcome and the forcing variable, for which a discontinuity may stem from the forcing variable rather than from the impact of the treatment that was available only for the treatment group. This threat was addressed in the design of the study by investigating any potential incentives or deterrents of board gender diversity. I restricted observations to 2016 to avoid the multiple confounders that may have impacted the study's outcomes. Among them, the Hampton Alexander Review (2016), which increased the targets to 33 percent, the multiple funds that were lunched to promote board gender diversity (e.g., Global Gender Equality UBS ETF, SHE Index Gender Diversity ETF, etc.), and Brexit, which removed the threat of imposed quotas by the EU. Although not problematic for this study, those confounders threaten the internal validity of a design including post 2016 data. Statistically, to strengthen the causal claim of the findings of this study, robustness tests were performed.

Results for the Effects of the Davies Review Targets

Hypothesis 1 that predicted a causal effect of the Davies Review on decreased opportunities for women on boards of compliant organizations was supported. Table 3 reports the results of the non-parametric RDD tests for Equation 1. I tested four models, Models 1 and 2 were unconditional (no covariates) models that tested linear and quadratic models, respectively. Models 3 and 4 added the vector of covariates described in Equation 1, and tested linear and quadratic forms of the regression, respectively. Robust estimates with clustered standard errors at the firm level were estimated for all four models. The four models tested were a good fit for the data and provided evidence of a significant treatment effect. Considering that covariates accounted for some of the difference between the treatment and control group, Model 3, the linear regression with covariates is interpreted. As shown in Figure 3, at an estimated at an optimal bandwidth of 3.975, which contained 476 effective observations, a significant discontinuity was detected at the threshold, $\beta_1 = -0.291$ ($SE = 0.118$, $p < .01$). This suggests that in average, the probability to add another woman director for FTSE 350 boards that were within 3.975 percentage points below compliance was 70.3%, compared to a probability of 41.2% for boards within 3.975 points above compliance, which results in the treatment effect ($.703 - .412 = 0.291$). The effect represents an average of 41.3% lower probability of appointment women directors when comparing the treatment to the control mean ($-.291/.703 = -.413$), which is significant.

TABLE 3
ROBUST RD ESTIMATES OF THE EFFECT OF DAVIES REVIEW TARGETS FOR WOB

Panel A. FTSE 350 Firms During Davies Review				
	Model 1	Model 2	Model 3	Model 4
Treatment Effect	-0.58*** (0.16)	-.057** (0.19)	-0.29** (0.12)	-0.31* (0.16)
Cutoff ↓	0.88	0.87	0.70	0.67
Cutoff ↑	0.29	0.30	0.41	0.36
Local polynomial	Linear	Quadratic	Linear	Quadratic
Covariates	No	No	Yes	Yes
Bandwidth	3.75	6.54	3.98	6.25
Effective observations	450	651	476	651
<i>n</i> Cutoff ↓	143	304	169	304
<i>n</i> Cutoff ↑	307	347	307	347
Panel B. Alternative Sample Not Targeted by Davies Review (n=1845)				
	Model 1	Model 2	Model 3	Model 4
Treatment Effect	-0.02 (0.14)	0.34 (0.55)	0.11 (0.17)	0.195 (0.38)
Cutoff ↓	0.20	0.58	0.14	0.08
Cutoff ↑	0.18	0.24	0.25	0.27
Local polynomial	Linear	Quadratic	Linear	Quadratic
Covariates	No	No	Yes	Yes
Bandwidth	5.41	6.26	5.30	6.93
Effective observations	360	403	300	435
<i>n</i> Cutoff ↓	249	251	207	302
<i>n</i> Cutoff ↑	111	152	93	133

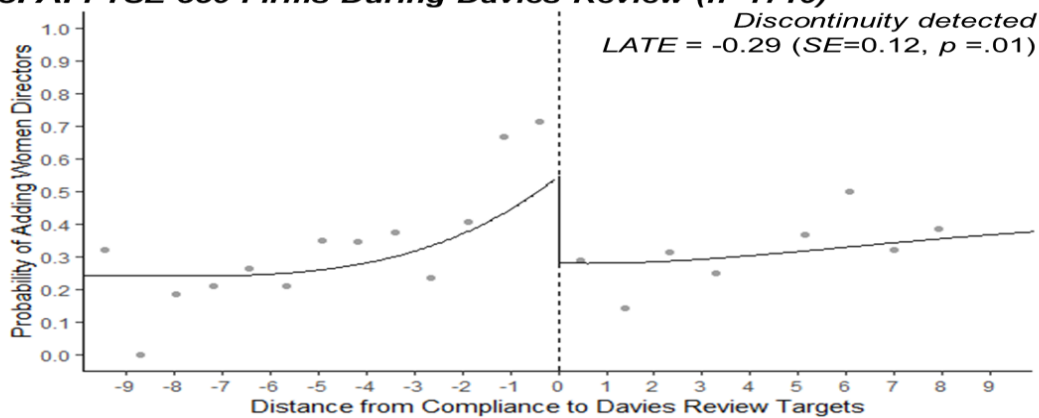
Note. *** $p < .001$, ** $p < .01$, * $p < .05$; robust standard errors in parentheses; n =effective observations; Panel A consisted of 2011 to 2016 FTSE 350 firm-year observations; Panel B consisted of 2008 to 2016 FTSE Small Cap, and 2008 to 2010 FTSE 350 firm-year observations; robust standard errors were clustered at firm level.

Robustness Tests

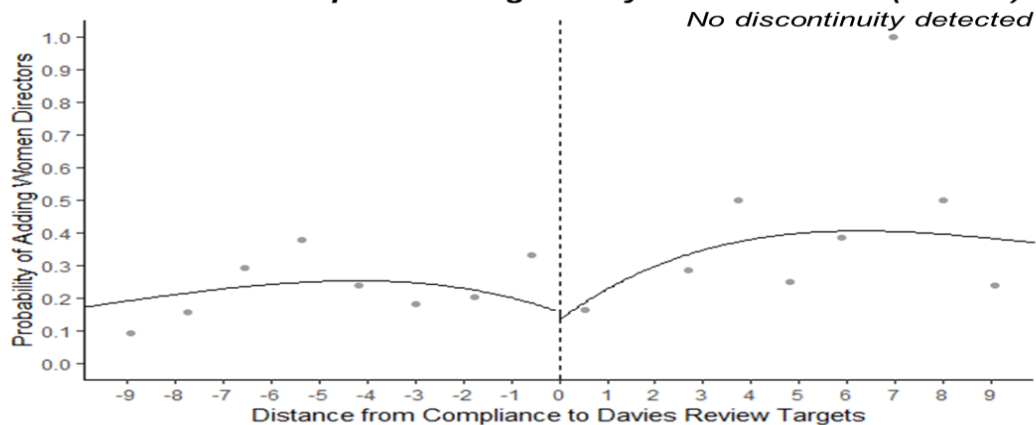
Following recommendations in Lemieux and Milligan (2008), I conducted falsification tests to present further evidence of the robustness of the results. I compared the results to those using alternative samples. Panel B, the alternative sample consisted of FTSE Small Cap observations from 2008 to 2016, and FTSE 350 observations from 2008 to 2010, prior to the Davies Review, which used the centering and pooling technique to treat it as one sample. Four different models were tested for which optimal bandwidths were estimated. As shown in Table 3, results did not find evidence of a treatment effect at the threshold for any of the models. Figure 3 shows that no discontinuity was detected at the threshold for Panel B, which supports the robustness of the results.

FIGURE 3
PROBABILITY OF ADDING A WOMAN DIRECTOR AS A FUNCTION OF
DISTANCE FROM COMPLIANCE

Panel A. FTSE 350 Firms During Davies Review (n=1710)



Panel B. Alternative Sample Not Targeted by Davies Review (n=1845)



Note. The X axis represents the distance from the compliance threshold (percentage of WOB centered at the compliance threshold). Panel A’s sample included FTSE 350 firms from 2011 to 2016. The discontinuity shown on Panel A’s plot provides evidence of a causal negative effect of the Davies Review targets on the probability of adding more women directors after reaching compliance. *LATE* = local average treatment effect. The *LATE* (-0.29**) is estimated as the difference between the regression lines within ± 3.975 points to the left (0.70) and right (0.41) of the cutoff. No discontinuities were detected for Panel B, which consisted of 2008 to 2016 FTSE Small Cap, and 2008 to 2010 FTSE 350 firm-year observations.

DISCUSSION

In this study, I aimed to increase the understanding of the unintended effects of state-sponsored initiatives for increasing women's representation on corporate boards. The study's findings add to the small but growing collection of studies that examine the effects of WOB initiatives on gender equality indicators. First, confirming previous findings, this study demonstrates that state intervention is an effective way for helping women break into male-dominated positions (Ahern & Dittmar, 2012; Bertrand et al., 2019; Ellwood & Garcia-Lacalle, 2015; Fortin et al., 2017); however, while the Davies Review helped shatter glass ceilings, it built a barrier around the compliance threshold, which is demonstrated by the significant decrease in appointments of women directors after organizations have reached their target. Second, as evidenced in the study's data, FTSE 350 firms significantly increased their percentages of WOB (as has happened in multiple states that have enacted policies or legislation for WOB) in the duration of the Davies Review. This suggests the existence of a supply of qualified women for those positions and exposes inadequate diversity, equity, and inclusion practices. Finally, findings of this study support the existence of the unintended effect that performance measures have on diversity initiatives (Ahmed, 2007). They shift the focus away from achieving gender balance to attaining the performance target, thus, they derail organizations' continued efforts towards the achievement of gender parity.

Limitations and Future Directions

I acknowledge that this study has several limitations that should be addressed in future research. First, this study examined data of publicly listed, FTSE-indexed firms in the UK; therefore, findings may not be generalizable to other countries, private firms, non-profits, or smaller organizations. However, it should be noted that the examination of country-level data shown in Appendix A provided evidence that this is not an isolated phenomenon, which implies that further examinations should be conducted. Second, the threats of imposed quotas from the EU, may have resulted in a higher likelihood of compliance; therefore, this study's findings may be more alike to quotas than to other soft law initiatives. Future research should focus on the examination of the effects of WOB in other contexts where soft laws have been implemented. In terms of individual characteristics of the directors in the sample, the sample was racially homogenous, which may not be representative of other contexts, in which more racially diverse boards may intersect with gender diversity. Future research should address that limitation.

CONCLUSION

This study is the first to examine the causal effects of the United Kingdom's soft law on the gender composition of FTSE boards. The analyses in the study provide evidence of a previously unexplored phenomenon that may contribute to the underrepresentation of women and minorities in leadership positions in organizations. By shedding light on the unintended effects of soft laws, the findings of this study contribute to theory, and inform practice and policy.

ENDNOTE

- ¹ The Davies Review (2011) applied a formula estimating achievable 5-year targets using board metrics for 2010, the total number of board seats, proportion of board positions held by women, assumed annual board turnover of 14%, and recommended new board appointments of 1/3 women and 2/3 men. FTSE 100 boards were given the target of 25%. FTSE 250 boards were instructed to follow the same 1/3 women rule for new appointments. However, the Davies Review stated that their 5-year target should be adjusted considering their lower starting position (p.19). Accordingly, the resulting adjusted target for FTSE 250 boards is 22% by the end of 2015.

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APPENDIX 1: COUNTRY-LEVEL TESTS OF THE EFFECTS OF QUOTAS AND TARGETS ON WOMEN'S REPRESENTATION ON PUBLICLY LISTED CORPORATE BOARDS

As shown in Figure A-1, gender diversity on corporate boards varies greatly across countries. I accessed the World Bank data using the *wbstats* package in R to identify the country-level factors that may impact board gender composition. Prior to fitting a dataset of 393 country-year observations for 41 countries, I run regressions on empty models grouping the data to estimate the intraclass correlation coefficient (ICC), which measures the variance explained by the grouping variable. The ICC revealed that 76% of variance in the percentage of women on corporate boards was explained by country, 39% was explained by the existence of a quota or target, and 4% was explained by time. After determining that the existence of a state initiative for WOB was a significant predictor, the data were fitted to a regression mixed effects regression model.

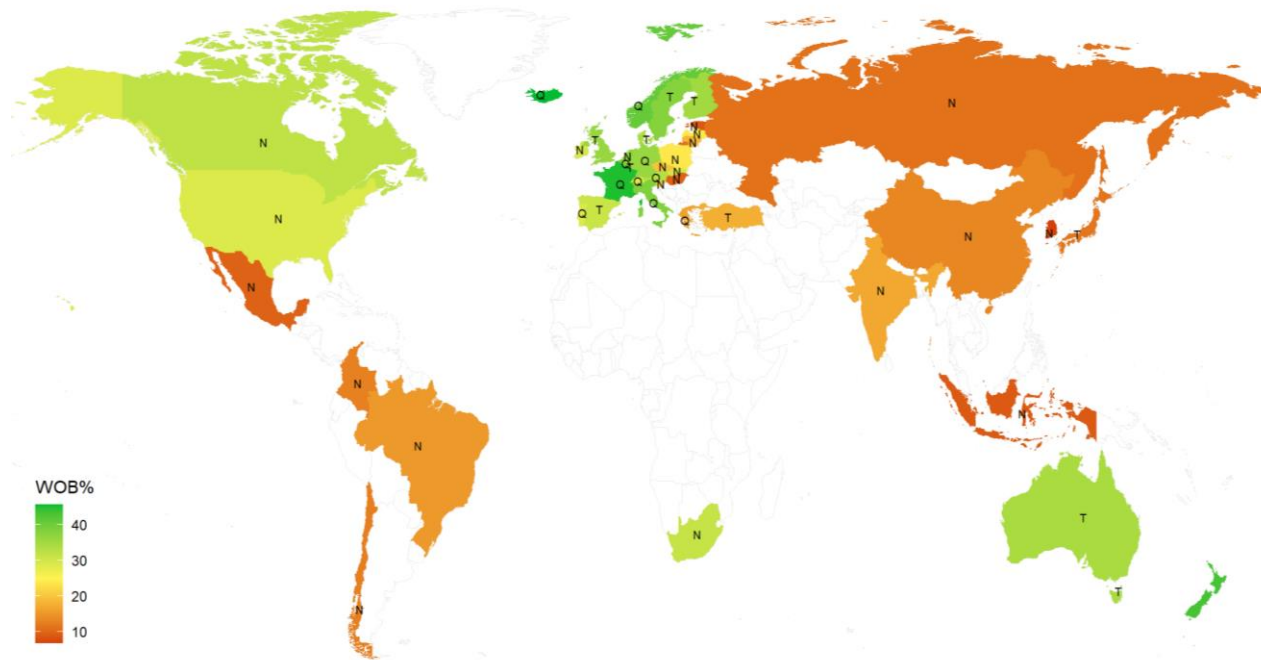
Table A-1 reports the results of the mixed-effects regression tests. Overall, the fixed effects and random effects explained 94% of the model (marginal $R^2 = .94$). Tests also revealed that although quotas and targets have a positive effect on the appointment of women to corporate boards, after the targets are met, the effect becomes negative ($\beta = -2.27$, $p = .004$).

TABLE A-1
DEPENDENT VARIABLE PERCENTAGE OF WOMEN ON BOARDS AT $T + 1$

Predictors	Estimates	CI 95%	<i>p</i>
<i>Fixed effects</i>			
(Intercept)	-5.940	-10.51 – -1.38	0.011
Intervention _{Quota}	4.500	3.22 – 5.78	<0.001
Intervention _{QuotaInForce}	3.100	1.01 – 5.19	0.004
Intervention _{Targets}	1.360	0.27 – 2.45	0.015
Intervention _{TargetsInForce}	1.710	-0.85 – 4.28	0.190
Target Met	-2.270	-3.80 – -0.75	0.004
Time	0.170	0.08 – 0.26	<0.001
Political empowerment	4.980	1.98 – 7.97	0.001
Women's enrolment in tertiary education, %	3.350	-0.28 – 6.98	0.070
GDP per capita in thousands	0.010	-0.01 – 0.03	0.441
WOB% _{<i>t</i>}	0.830	0.77 – 0.88	<0.001
Female to male labor force participation	3.840	-0.88 – 8.55	0.110
<i>Random Effects</i>			
σ^2	6.730		
$\tau_{00Country}$	0.760		
τ_{00Time}	0.040		
$N_{Country}$	41		
N_{Time}	15		
Observations	393		
Marginal R ² / Conditional R ²	0.936 / 0.943		

Note: CI=confidence interval. These results suggest that in countries where quotas or targets have been implemented, the proportion of women on boards significantly increases over time; however, after the target is met, the effect virtually disappears.

FIGURE A-1
MAP OF COUNTRY-LEVEL REPRESENTATION OF WOMEN ON CORPORATE BOARDS



Note. WOB% = percentage of women on corporate boards. Women’s representation on corporate boards across the globe varies significantly. The heat plot values indicated on the map are for statistics of 2021 for the 42 countries covered in our sample. The labels on each country indicate whether external interventions were in place [Q=gender quota; T= comply or explain targets; N= no external intervention in place].

APPENDIX 2

TABLE B-1
2008 – 2016 ANNUAL VARIATION OF WOMEN DIRECTORS ON FTSE BOARDS

Variable	Coefficient	SE	t-value
Fixed effects			
Intercept	10.613***	1.506	7.047
Time			
Year 2009	0.551	0.893	0.617
Year 2010	1.724	0.891	1.934
Year 2011	3.36***	0.891	3.771
Year 2012	6.445***	0.891	7.233
Year 2013	8.101***	0.891	9.091
Year 2014	11.492***	0.891	12.898
Year 2015	13.98***	0.891	15.688
Year 2016	14.445***	0.892	16.194
Index			
FTSE 250	-5.209***	1.151	-4.525
FTSE Small Cap	-5.105***	1.294	-3.944
Sector	-0.546***	0.152	-3.589
Board size	0.279**	0.085	3.297

Interaction Time: Index			
Year 2009: FTSE 250	0.304	1.099	0.277
Year 2010: FTSE 250	0.266	1.096	0.243
Year 2011: FTSE 250	0.304	1.096	0.278
Year 2012: FTSE 250	0.471	1.096	0.430
Year 2013: FTSE 250	1.683	1.097	1.535
Year 2014: FTSE 250	0.834	1.096	0.760
Year 2015: FTSE 250	0.586	1.096	0.534
Year 2016: FTSE 250	0.859	1.097	0.783
Year 2009: FTSE Small Cap	-0.144	1.217	-0.118
Year 2010: FTSE Small Cap	-0.805	1.216	-0.662
Year 2011: FTSE Small Cap	-1.115	1.216	-0.917
Year 2012: FTSE Small Cap	-2.729*	1.216	-2.244
Year 2013: FTSE Small Cap	-3.097*	1.216	-2.547
Year 2014: FTSE Small Cap	-5.574***	1.216	-4.583
Year 2015: FTSE Small Cap	-6.604***	1.216	-5.431
Year 2016: FTSE Small Cap	-5.625***	1.216	-4.626
Random effects			
Firm	2.85		
Residual variance	8.17		

Note. $N=3541$. * $p < .05$; ** $p < .01$; *** $p < .001$.