The effects of a gender quota on the board of German largest corporations

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April 2018

Abstract

In 2015 the *Law on Equal Participation of Women and Men in Leadership Positions in the Private and Public Sector* imposed a gender quota in supervisory boards of around 100 companies in Germany. We examine the effect of the introduction of this quota on the share of women in the firm's representative bodies, exploiting the heterogeneity in the application of the law across different firms to perform a differences-in-differences analysis. We find that the law was only able to increase the share of women on non-executive boards - where it was mandatory - whereas there is no discernible effect for executive and managerial boards. Furthermore, we do not find any effect of the gender quota on the financial outcomes of the firm, and limited impact in layoffs and investment.

JEL Classification: J78, L25.

Keywords: Gender quota, Firm organization.

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1 Introduction

In this paper we study the introduction of a gender quota for company boards in Germany and its effect on the gender composition of the firm's representative bodies.

Gender quotas have gained traction in recent years in many countries in private as well as public spheres. The EU Comission has stated that it expects to adopt the 2012 Women on Board Directive in the near future, with its sights at pressuring member states to improve gender diversity. The main argument in favour of a gender quota is the underrepresentation of women in positions of power and leadership. For example, in Germany only 1% of CEOs in the DAX30 and MDAX50 companies are female.[1] In response to this "gender gap" the Law on Equal Participation was adopted on March 2015, mandating a 30% quota of female representation on non-executive boards of firms listed and subject to codetermination from the 1st of January 2016. "The quotas for women are the biggest contribution to equal rights since the vote for women was introduced," said SPD Justice Minister Heiko Maas, adding that the legislation would give impetus for cultural change in Germany.

Norway was the first country in the world to impose a gender quota in 2003 requiring at least 40 percent of public limited company board members to be women. Other countries, including France, Spain and the Netherlands, followed suit. In Germany, some politicians and lobbies for women rights have been advocating in its favour for more than a decade. So the legislation introducing a gender quota in Germany came as no surprise. However, the exact details of its implementation were unknown, thus making it difficult for a firm to anticipate its effects. First of all, an attempt to pass a similar law had been rejected once before in the Budesrat. Secondly, the extent to which firms would be affected and the exact nature of those firms was unanticipated. And, also, it was not clear whether compliance would be mandatory or rather it would be on a voluntary basis (actually, the bill contains both a mandatory and a voluntary part in its current form). Therefore, the German Law on Equal Participation provides a quasi-experimental set-up to investigate the consequences of the introduction of a gender quota for company boards.

This is an important question since positive discrimination measures are controversial.

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[1]According to the study "CEO and Board practice: Route to the top" by the consulting firm Heidrick & Struggles.

Arguments against are that the absence of women in leading roles may be simply due to their unwillingness to perform such roles and that gender should not be a requirement to fill in a post because that is inefficient. As the President of the Economic Council Germany, Kurt Lauk, put it: "gender shall not replace qualifications; that applies to both men and women".[2]

The limited empirical literature that has looked at legislation changes introducing a gender quota has focused on the Norwegian case (Matsa and Miller, 2013; Nygaard, 2011; Ahern and Dittmar, 2012; Dale-Olsen et al., 2013). This case is different from Germany's because the Norwegian law affected all listed and non-listed companies, which were required to increase the share of women on their boards up to 40%. This legislative design makes it more difficult to find a group of untreated firms and several authors have used firms from other Nordic countries as controls (Ahern and Dittmar, 2012; Matsa and Miller, 2013). Our set-up allows us to compare treated and untreated firms within the same country. In our empirical strategy the control group is made of the companies that do not meet the two requirements of the law: they are either unlisted, or not subject to codetermination or neither. Hence, the comparison group is closer to the treated group than a comparison of listed and unlisted companies as in Matsa and Miller (2013). We also also provide alternative control groups: first, a sample of companies matched on the base of their pre-treatment characteristics and, secondly, the subsample of companies listed in the DAX index.

In Ahern and Dittmar (2012) the authors use the pre-quota cross-sectional variation in female board representation as an instrument. They find a large negative impact of the quota on firm value. In particular, the quota led to a lower Tobin's Q and a deterioration in operating performance. Matsa and Miller (2013) also find that the quota affects negatively the firm's short-run profits, in their case using a diff-in-diff-in-diff approach. In our analysis we find that the introduction of the quota has indeed increased the share of women in the board of the firms affected by the law, compared to the ones that did not meet the law requirements, but it only did so for the mandated quota (on the supervisory board) and not for the voluntary one (on the management board). Moreover, we run placebo tests and

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[2]"Gesetzliche Quote ist Symbolpolitik", (2014, March 25). *Deutschlandfunk*. Retrieved from http://www.deutschlandfunk.de.

rule out that any increase took place in a randomly selected sample of firms nor on other different years. Within a similar post-treatment time span than the Norwegian studies, we find no effect of the gender quota in Germany neither on the revenues, the earnings per share, the dividends, nor the cash-flow of affected firms relative to the unaffected ones. We therefore find evidence that the quota was effective to increase female participation at the (non-executive) board, where it was mandated, at no cost for the finances of the firm during the first two years after the reform.

The rest of the paper is organized as follows: section 2 presents the reform introduced by the law, the data and the empirical strategy are described in section 3 and, in section 4 and 5, we explore the effects of the introduction of the gender quota on the composition of the corporate boards and the firm's financial outcomes, respectively. Section 6 presents some robustness checks. Finally, section 7 concludes.

2 The Law on Equal Participation of Women and Men in Leadership Positions in the Private and Public Sector

2.1 Antecedents of the law

Back in 2001, the German Federal government and the Central Associations of German Business on Promoting Equal Opportunities for Women and Men in the Private Sector reached a voluntary agreement to increase proportion of women in executive positions. However, this did not lead to any considerable change. More than ten years later, increased interest in gender equality culminated into the creation of the 2015 statutory gender quota in supervisory boards. In May 2011 the Government Commission of the German Corporate Governance Code extended their recommendations to include due consideration for appointment of women to supervisory and executive boards. By October 2011 representatives of DAX companies presented voluntary targets for increasing the proportion of women in executive management.

The political support for the specific instrument of a gender quota started to build up as well. In 2011 the Association of German Women Entrepreneurs supported the goal of quota; federal justice ministers took a majority decision "that a federal gender quota for executive positions in company boards is not only permissible under the constitution but also urgently needed" (reference needed); Federal Minister of Labor and Social Affairs, Ursula von der Leyen, called for a quota system, Federal Minister for Family Affairs, Senior Citizens, Women and Youth, Kristina Schröder, advocated voluntary participation and, if necessary, a flexi-quota. On the other hand, the rare political initiatives in that direction taken by individual political groups were unsuccessful. In November 2011 a bill was submitted by North Rhine-Westphalia in the Bundesrat to introduce quota in supervisory and executive boards but it was rejected. Other similar motions initiated by the SPD and The Left parliamentary groups to introduce quota met the same fate. In 2012 a draft law was proposed by Länder of Hamburg and Brandenburg governed by the SPD and supported by CDU led coalition from Saxony-Anhalt and Saarland. The draft contained a statutory 40% quota for women on supervisory boards of listed and co-determined companies and applied to both shareholder and employee representatives on the board. The quota was envisaged to be met in two stages with a transition period lasting until 1st January, 2023. Finally, the "The Law on Equal Participation of Women and Men in Leadership Positions in the Private and Public Sector"[3] was approved in March 2015 with different provisions from the draft. All largest German companies shall adopt: i) a mandatory 30% quota of the underrepresented sex on non executive boards, i.e. supervisory boards (*Aufsichtsrat*) or administrative boards (*Verwaltungsrat*) and ii) voluntary quotas individually determined by each company for the members of its executive or management board (*Vorstand*). This requirement should be met by January, 1st 2016, with binding commitments to be set by the firms themselves before September 30th 2015. However, there is likely to be a phase-in effect of the quota on gender board composition as the mandate affect new appointments, with no effect on ongoing member terms.

The law affects around 100 companies in Germany; on the condition that they are listed

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[3]*Gesetz für die gleichberechtigte Teilhabe von Frauen und Männern an Führungspositionen in der Privatwirtschaft und im öffentlichen Dienst*, Bundesgesetzblatt Jahrgang 2015 Teil I Nr. 17, Bonn 30. April 2015.

on the stock exchange and subject to parity co-determination.[4] But it also applies to the newly awarded seats of the federal government in committees, where the government holds more than two seats.

Sanctions for non-compliance are foreseen, in which case the seats on the board will remain empty or the firm might face administrative fines. Supervisory board election that do not comply with the quota requirements will be declared void. The seats will remain vacant until new elections are held or a member is appointed by court. Even if vacant seats are not an obstacle to the functioning of the board, as long as there is a quorum, it could imbalance the voting power between the employer and the employee sides of the board. Additionally, failure to meet a quota constitutes an administrative offence that can be punished with up to 50.000 euros fines. It is unclear, though, whether such fines will be effectively applied.

Before Germany, only Norway had introduced a gender quota affecting the board composition of firms in 2003. Currently other eleven European countries have explicitly set the goal of a target representation of women on boards but most of them operate on a voluntary basis: Austria (introduced in 2011), Belgium (2011), Denmark (2000), Finland (2004), France (2011), Ireland (2004), Italy (2011), Netherlands (2010), Spain (2007), Norway (2005) and Iceland (2010). The legislation usually applies to public or state-participated countries and, in some cases, listed companies or large companies (in number of employees or assets) as well. The target proportion of women to be attained ranges form 25% to 40%; although most of the countries set the 40% target, none goes as far as imposing absolute parity. The main difference across the legislations are the sanctions for non-compliance. Some countries incorporate no sanctions (Austria, Netherlands, Spain), others fines (Belgium, Italy) or annulment of the board (France, Italy). In Germany, all listed companies with full co-determination are subject to a minimum 30% reserve of seats on their supervisory board for the underrepresented gender. It is not one of the most ambitious laws regarding the target quota but it applies to companies other than public ones and it foresees measures to force compliance.

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[4]Under the Codetermination Act (*Mitbestimmungsgesetz*), in companies with more than 2000 employees (1000 employees for the coal and steel industry companies), half of the members of the supervisory board must be representatives of the workers.

3 The data and the empirical strategy

3.1 Data description

The dataset contains information on the biggest German firms from the Muessing database [bibliographic reference to the CD to be added] and specifically, on the composition and membership of their boards of directors, both the supervisory board (*Aufsichtsrat*) and the executive board (*Vorstand*), from the year 2000 to 2015. The total number of observations in the dataset is 12,491. The dataset contains 2763 individual firms, of which 8.14% are banks, 9.04% are insurance companies and the rest are non-financial firms. Among them, companies ranged from automobile industries (1.31%), chemical companies (4.70%), sale and purchase associations (1.29), food and beverage companies(1.73%), pharma companies (1.38%), steel industries (1.31%), services sector (2.43%) , power supply companies (4.94%), whole and retail food trade (1.02%), trade (1.39%), holding (3.61%) car import (1.20%), car equipment industries (2.45%), mechanical engineering (4.68%), media (1.46%), mineral oil industry (1.08%) and retail trade (1.44%).

The länder of Nordhein-Westfalen was home to the largest number of firms in the dataset amounting to a total of 29.84% of the total firms. Bayern and Hessen had 15.9% and 15% firms each followed by Baden-Württemberg, which had the fourth largest number of firms at 13.03%. All the other regions combined amount to 26.23%. About 34% of firms considered in the sample are of the form Aktiengesellschaft (AG) while the second biggest block of companies takes the form of Kapitalgesellschaft (28%). Other company forms include Genossenschaft, Stiftung, Einzelunternehmen, Societas Europaea, Kommaditgesellschaft, public corporations etc.

Summary statistics of the main variables can be found in Table 1:

[Table 1 about here.]

The information on the number of firms is detailed in Table 2, divided by the type of company (banks, non-financial companies and insurance companies) for each year of the sample. Due to issues with data availability in the earliest years we choose to focus our

analysis from 2008 onwards. Since the gender quota passed in 2015, we believe this timeframe is enough to study the consequences of the reform.[5]

[Table 2 about here.]

Finally, in Table 3, we can observe the fraction of firms that were subject to being affected by the law in 2014, before it was approved. This is captured in a variable called "eligible" that takes value 1 if the firm is under the law and 0 if it is not. Around 90% of the firms in the sample are not under the effect of the law and this share did not change significantly in the year right before the reform (2014) or immediately after (2015).

[Table 3 about here.]

3.2 Empirical specification

We want to examine the effect of the reform introduced by the Law of Equal Participation for the firms. We are going to use a difference-in-difference set-up and estimate the following baseline specification by OLS with robust standard errors:

$$Y_{i,t} = \alpha + \beta_1 \text{Treatment}_i + \beta_2 \text{Time dummy}_t + \beta_3 \text{Treatment}_i \times \text{Time dummy}_t + \theta_i + \tau_t + u_{i,t}, \quad (3.1)$$

where $Y_{i,t}$ is the outcome of interest, α is a constant, Treatment is a dummy variable that takes value 1 if the firm is affected by the reform and 0 if it is not, Time dummy takes value 1 in the post-treatment years and 0 in the pre-treatment years. The specification includes time and individual fixed effects. The coefficient of the treatment variable, β_1, is the estimated mean difference in Y between the treatment and control groups prior to the reform. β_2 reflects the mean change in outcome over time in the control group. β_3 is the difference in differences estimator. We account for repeated, non-independent observations by using fixed effects in regression (3.1). Standard errors are robust.

The specification compares the group of treated firms, whose outcome post reform, is compared to the outcome of a control group, used as reference. Under the assumption that,

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[5]In the regression analysis we further restrict the sample to the years 2011 and onwards; the reason is that we want to have a more balanced time dimension in the panel before and after the reform.

in the absence of the treatment, the average outcome in the treated and the control group would have followed their pre-treatment trend. In case of a significance change of trend in the treated group only, it will be considered a consequence of the reform.

4 Effect of the quota on board gender composition

In order to assess whether the Law on Equal Participation brought changes to the boardroom of firms, let us focus first on compliance with the regulation. The law mandates a 30% female quota in the supervisory board (and voluntary goals for the management board) for eligible firms.[6] In Table 4 we can find the evolution of the share of women over time distinguishing the group of firms that satisfy the eligibility requirements (treated firms) and those that do not (non-treated firms). The presence of women on the supervisory board is higher than that of the management board, both for treated and non-treated firms. The increase after the reform is also more pronounced for the supervisory board. After 2015 more women could be found in the supervisory board, reaching an average 22% in the treated group while it remained 13% in the control group. Notice, however, that those percentages are still far from the target 30% required by the law. This is not unexpected given the phase-in effect we discussed earlier.

[Table 4 about here.]

Graphically, figure 1 plots the share of women in eligible firms (solid line) versus ineligible (doted line). The increase in the difference in the average share of women across firm groups is the largest on the supervisory board, as opposed to the management board where the difference is not noticeable for treated and non-treated firms. Also the rate of growth in the supervisory board is larger for the eligible firms than for the ineligible ones. From the graph, however, it is not clear whether this effect is driven by the introduction of the law or it is part of a secular trend.

[Figure 1 about here.]

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[6]Firms that are listed and subject to full co-determination.

The effect of the introduction of a gender quota on the supervisory board can be found in Table 4, which summarizes the results of the estimation of equation (3.1). The pre-existent differences between the groups before the reform is captured by the coefficient of Eligible; eligible firms have a higher share of women on their boards. The share of women also increases over time for all firms, regardless of the reform. β_3 is the focus of interest: it tells us whether the expected mean change in outcome from before to after was different in the two groups. The effect is positive and significative in the baseline specification for the whole sample (column 1). The average share of women on the supervisory board increased almost 4 percentage points more in the firms affected by the introduction of the gender quota than in the rest of the companies after the year 2015.

The estimated mean difference in the share of women between the treatment and control groups after the reform, $\beta_1 + \beta_3$, is about 13%. This is a sizeable economic effect.

The difference in differences estimator is still positive and around the same size when we look at the aggregated average share of women before and after the treatment (column 2) and when we repeat the regressions only for non-financial firms (column 3) and only for firms in the former West Germany(column 4).[7]

[Table 5 about here.]

Table 6 looks at the effect of the reform on the gender composition of the management board, where the quotas for women representation instituted by the law were voluntary. The difference in differences estimator is negative or not significant. The group of firms under the effect of the law still increased the share of women in the board of directors more than the rest of the firms and, in general, this share has been raising over time but there is no discernible effect for the treated group after the implementation of the law when compared to the control group.

[Table 6 about here.]

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[7]For firms in the former East Germany the coefficient is insignificant.

5 Effects of the quota on the firm's attributes

In this section we investigate the effects of the reform on the outcomes of the firm. We find no effect of the changes in the gender composition of the supervisory board in any of the variables that we analyze, namely, the number of layoffs, the return on assets, earnings per share, investment over assets, dividends per share, cash-flow over assets nor asset turnover as can be seen in Table 7. We chose this variables due to data availability and, in some circumstances (as in the number of layoffs) for comparability with the literature. In particular, studies that have looked at the introduction of the gender quota in Norway found that profits decreased and the number of layoffs as well. It seems as if, in our case, the negative effects for efficiency that were discussed in the Norwegian case are more limited.

[Table 7 about here.]

Notice, however, that in section 6, we perform the same analysis with a reduced control group that has been selected to match as closely as possible the characteristics of the treated group. In the results presented in Table 10, we do find a decrease in layoffs and lower investment in the treated firms after the reform. The coefficients are statistically significant, although they are economically small (3% less layoffs and 1.5% less investment).

6 Robustness analysis

In this section we perform several tests to study the robustness of our results to the choice of the year and the definition of an eligible firm under the Law of Equal Participation. We further explore various definitions of the control group of firms.

First, we focus on how the share of women on the supervisory board evolved over time, inspecting the coefficient of the leads and lags around the treatment year (2015) in Table 8. The coefficient of year 2013 is the only one which is significantly different from zero, apart from the one of the treatment year. This can be rationalised an an anticipation effect of the introduction of the law draft in the Bundesrat in 2012. For the management board no effect is found.

[Table 8 about here.]

We then look at the same baseline regression as in (3.1) but using as a definition of eligible firms a subset of the sample randomly selected. As expected, there is no effect found for the placebo group of treated firms in the results in Table 9. The effect of the passage of time on the increase of women across all boards - as reflected in the coefficient of the dummy for the year 2015 - is consistent with the previous results.

[Table 9 about here.]

In our baseline specification we have used as control all the remaining firms in the sample that have not been defined as eligible. Next, we will look at a reduced control group using propensity score matching to select the non-treated firms that are closest to the eligible firms from the point of view of the pre-treatment characteristics. This process takes place in two steps. First, we estimate a probit regression of the eligibility on the several characteristics of the firm (number of employees, revenues and organizational form) and then we select the 'closest neighbours' for each treated firm as predicted by the probit regression.[8] Results can be found in Table 10.

[Table 10 about here.]

7   Conclusion

We examine the effect of the introduction of a gender quota, mandated by the *Law on Equal Participation of Women and Men in Leadership Positions in the Private and Public Sector*, on the share of women in the firm's representative bodies in Germany. We exploit the heterogeneity in the application of the law across different firms to perform a differences-in-differences analysis. We find that the law was only able to increase the share of women on non-executive boards - where it was mandatory - whereas there is no discernible effect for executive and managerial boards. Furthermore, we do not find any effect of the gender

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[8]Our implementation of propensity score matching still employs all firms in the control group but weighted by their relative closeness to the treated units.

quota on the financial outcomes of the firm, and limited impact in layoffs and investment, of the affected firms relative to the unaffected ones. The first analysis of the German reform two years into the application of the law seems to indicate that, contrary to the experience in Norway, the gender quota was effective to increase female participation at the (non-executive) board while leaving the finances of the firm mostly unaffected.

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Figure 1: Evolution of the share of women on executive boards and boards of directors from 2008 to 2016 by eligibility of the firm.
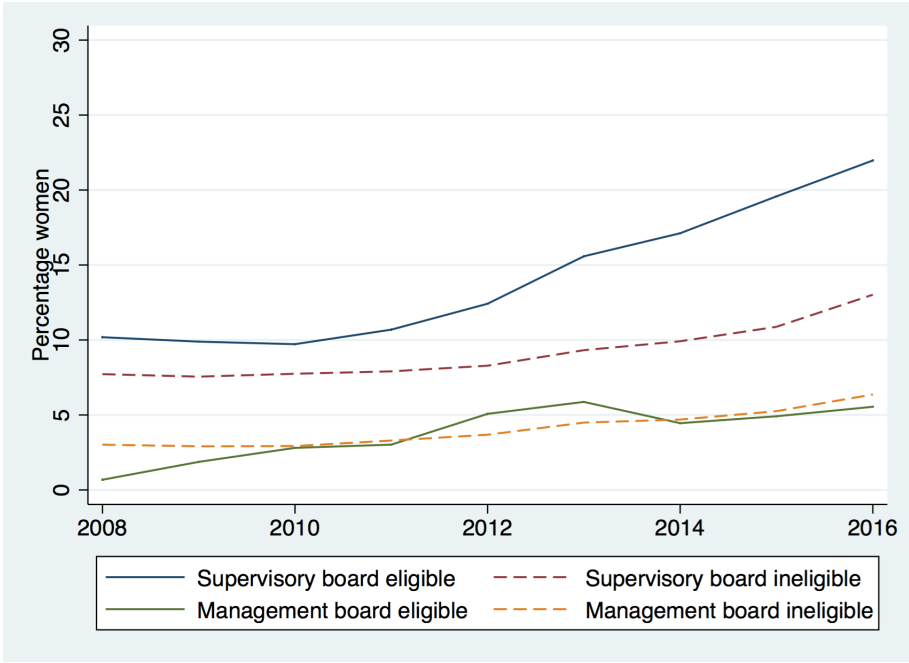
Table 1: Summary statistics of the main variables.

	count	mean	sd	min	max
Firm	12491	1337.224	1000.345	1	2763
Employees	8756	18227.19	46423.95	5	610076
Dividends	1698	2.068657	10.35791	0	265
Sales revenue	7116	6121.901	13286.81	52	213292
Profit	4268	382.5619	1095.382	0	24587
Investment	3477	612.289	1679.741	0	24182
Assets	3874	9183.509	26395.09	31	381935
Cash-flow	2244	959.9648	2113.824	0	20462
Earnings per share	1370	3.293869	8.36304	-42	118.61
Region	12426	6.595445	3.820239	1	16
Share women non-executive	10245	8.310546	10.1556	0	100
Share women executive	12433	3.089341	10.1275	0	100

Note: Firm is an identifier for each individual firm, Region is a categorical variable for the German Länder, Employees is the number of workers in the firm, Earnings per share is expressed as a percentage and the rest of variables are expressed in euros. Share women non-executive and Share of women executive refers to the proportion of women in the supervisory and the management board respectively. The first column presents the number of observations, the second presents the mean value, the third presents the standard deviation, and the fourth and fifth columns present the minimum and maximum value respectively. Source: Muessig Database.

Table 2: Number of observations by year and type of company

| Year | | Type of firm | | Total |
	Banks	Firms	Insurance	
2000	0	541	0	541
	(0.0)	(100.0)	(0.0)	(100.0)
2001	52	596	52	700
	(7.4)	(85.1)	(7.4)	(100.0)
2002	54	592	64	710
	(7.6)	(83.4)	(9.0)	(100.0)
2003	56	605	65	726
	(7.7)	(83.3)	(9.0)	(100.0)
2004	65	641	65	771
	(8.4)	(83.1)	(8.4)	(100.0)
2005	67	670	70	807
	(8.3)	(83.0)	(8.7)	(100.0)
2006	65	281	75	421
	(15.4)	(66.7)	(17.8)	(100.0)
2007	65	1	75	141
	(46.1)	(0.7)	(53.2)	(100.0)
2008	65	731	75	871
	(7.5)	(83.9)	(8.6)	(100.0)
2009	65	751	77	893
	(7.3)	(84.1)	(8.6)	(100.0)
2010	71	763	81	915
	(7.8)	(83.4)	(8.9)	(100.0)
2011	75	771	81	927
	(8.1)	(83.2)	(8.7)	(100.0)
2012	72	779	78	929
	(7.8)	(83.9)	(8.4)	(100.0)
2013	67	686	72	825
	(8.1)	(83.2)	(8.7)	(100.0)
2014	61	688	68	817
	(7.5)	(84.2)	(8.3)	(100.0)
2015	61	687	67	815
	(7.5)	(84.3)	(8.2)	(100.0)
2016	56	562	64	682
	(8.2)	(82.4)	(9.4)	(100.0)
Total	1017	10345	1129	12491
	(8.1)	(82.8)	(9.0)	(100.0)

Note: Percentages are in parentheses.

Table 3: Number of observations

Eligibility	Not eligible	Eligible	Total
2008	805	66	871
	(92.4)	(7.6)	(100.0)
2009	823	70	893
	(92.2)	(7.8)	(100.0)
2010	842	73	915
	(92.0)	(8.0)	(100.0)
2011	855	72	927
	(92.2)	(7.8)	(100.0)
2012	856	73	929
	(92.1)	(7.9)	(100.0)
2013	752	73	825
	(91.2)	(8.8)	(100.0)
2014	742	75	817
	(90.8)	(9.2)	(100.0)
2015	739	76	815
	(90.7)	(9.3)	(100.0)
2016	608	74	682
	(89.1)	(10.9)	(100.0)
Total	7022	652	7674
	(91.5)	(8.5)	(100.0)

Note: Percentages are in parentheses.

Table 4: Share of women on the supervisory and management board in the treated and control groups separated by year.

| | Compliance with the law | | | |
| | Supervisory board | | Management board | |
	Treated	Non-treated	Treated	Non-treated
2008	10.2	7.7	0.7	3.0
2009	9.9	7.6	1.9	2.9
2010	9.7	7.7	2.8	2.9
2011	10.7	7.9	3.0	3.3
2012	12.4	8.3	5.1	3.7
2013	15.6	9.3	5.9	4.5
2014	17.1	9.9	4.5	4.7
2015	19.6	10.9	4.9	5.3
2016	22.0	13.0	5.5	6.4
Total	14.2	9.0	3.9	4.0

Note:

Table 5: Effect of the reform on the share of women on the supervisory board

	Supervisory board			
	All sample		Non-financial firms	Firms West Germany
	(1)	(2)	(3)	(4)
	Share women	Average share	Share women	Share women
Time dummy	4.832***	2.748***	3.947***	4.912***
	(0.404)	(0.176)	(0.420)	(0.412)
Eligible	9.556*	9.672*	9.400*	9.537*
	(4.061)	(3.875)	(4.062)	(4.055)
Time dummy X Eligible	3.861***	3.948***	4.584***	3.860***
	(0.594)	(0.406)	(0.611)	(0.598)
Time FE	Yes	No	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes
Observations	3937	4152	3291	3839
R-squared	0.82	0.91	0.83	0.82
F-statistic	49.95	191.78	40.69	49.63

Source: DATA, own calculations.

Note: Robust standard errors in parentheses. Significance * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 6: Effect of the reform on the share of women on the management board

| | Management board | | |
	All sample	Non-financial firms	Firms West Germany
	(1)	(2)	(3)
	Share women executive	Share women executive	Share women executive
Time dummy	3.330***	2.923***	3.136***
	(0.496)	(0.565)	(0.509)
Eligible	-4.184	-3.769	-4.204
	(2.316)	(2.251)	(2.316)
Time dummy X Eligible	-1.214*	-1.726**	-1.023
	(0.592)	(0.618)	(0.598)
Time FE	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes
Observations	4976	4154	4649
R-squared	0.70	0.70	0.69
F-statistic	9.77	5.73	8.38

Source: DATA, own calculations.

Note: Robust standard errors in parentheses. Significance * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 7: Effect of the reform on the financial outcomes of the firm

	(1) Layoffs	(2) Return on assets	(3) Earnings per share	(4) Investment	(5) Dividends	(6) Cash-flow	(7) Asset turnover
Time dummy	0.00127	-0.00835	-1.598*	0.00181	0.0730	-0.0119	0.0333
	(0.0219)	(0.0126)	(0.794)	(0.00552)	(0.238)	(0.00751)	(0.141)
Eligible	0.130	0.0189**	4.477*	0.00586	0.697*	-0.0225	-0.105*
	(0.129)	(0.00691)	(2.115)	(0.0138)	(0.346)	(0.0160)	(0.0457)
Time dummy X Eligible	-0.0191	-0.00222	0.388	-0.0000220	0.0661	-0.00112	0.0522
	(0.0114)	(0.00522)	(0.892)	(0.00411)	(0.150)	(0.00690)	(0.0574)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3211	1183	512	920	601	727	1228
R-squared	0.35	0.65	0.76	0.86	0.96	0.61	0.94
F-statistic	3.39	2.48	2.69	1.27	0.75	1.11	3.65

Source: DATA, own calculations.

Note: Robust standard errors in parentheses. Significance * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 8: Effect of the reform on the share of women on the supervisory board over time

	Supervisory board			Management board
	All sample	Non-financial firms	Firms West Germany	All sample
	(1)	(2)	(3)	(4)
	Share women	Share women	Share women	Share women
eligible	6.424**	6.166**	6.315**	-2.832
	(2.229)	(2.238)	(2.229)	(1.456)
eligible2008	0	0	0	0
	(.)	(.)	(.)	(.)
eligible2009	-0.264	-0.0320	-0.318	1.608
	(0.762)	(0.793)	(0.772)	(1.142)
eligible2010	-0.227	0.0811	-0.170	0.717
	(0.764)	(0.743)	(0.773)	(1.073)
eligible2011	1.027	0.851	1.057	-0.0983
	(0.859)	(0.819)	(0.870)	(1.059)
eligible2012	1.061	0.716	1.107	1.663
	(0.871)	(0.782)	(0.882)	(0.930)
eligible2013	2.357**	1.976*	2.560**	-0.252
	(0.865)	(0.793)	(0.876)	(1.045)
eligible2014	0.903	1.166	0.882	-1.743
	(0.917)	(0.920)	(0.926)	(1.059)
eligible2015	1.691*	2.477**	1.577	-0.294
	(0.828)	(0.856)	(0.835)	(0.852)
Time FE	Yes	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes	Yes
Observations	6283	5040	5882	7639
R-squared	0.79	0.81	0.79	0.61
F-statistic	46.41	37.51	44.92	10.42

Source: DATA, own calculations.

Note: Robust standard errors in parentheses. Significance * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 9: Effect of the reform on the share of women for random eligible firms

| | Supervisory board | | Management board |
	All sample	Non-financial firms	All sample
	(1)	(2)	(3)
	Share women	Share women	Share women
Time dummy	5.323***	4.722***	3.544***
	(0.435)	(0.453)	(0.566)
Placebo eligible	0.515*	0.501*	0.180
	(0.222)	(0.236)	(0.264)
Time dummy X Eligible	0.0920	-0.106	-0.703
	(0.446)	(0.474)	(0.512)
Time FE	Yes	Yes	Yes
Individual FE	Yes	Yes	Yes
Observations	4108	3291	4976
R-squared	0.81	0.82	0.70
F-statistic	41.38	29.68	9.35

Source: DATA, own calculations.

Note: Robust standard errors in parentheses. Significance * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 10: Effect of the reform using propensity score matching

| | Share women | | Financial outcomes | | | | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
	Supervisory board	Management board	Layoffs	Return on assets	Earnings per share	Investment	Dividends	Cash-flow	Asset turnover
Time dummy	5.714***	2.475***	0.0291**	-0.0117	0.113	0.00482	-0.805	-0.00868	0.352*
	(0.476)	(0.363)	(0.00912)	(0.00760)	(1.474)	(0.00630)	(1.185)	(0.00862)	(0.162)
Eligible	2.709***	-0.158	0.0112***	-0.000467	0.165	0.000739	-0.833*	0.00387	-0.831***
	(0.248)	(0.189)	(0.00333)	(0.00240)	(0.454)	(0.00190)	(0.375)	(0.00254)	(0.0536)
Diff-in-diff	4.478***	0.586	-0.0375***	0.00895	-0.298	-0.0157*	0.949	-0.00701	-0.383
	(0.643)	(0.490)	(0.0117)	(0.00955)	(1.826)	(0.00785)	(1.484)	(0.0106)	(0.207)
Individual FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6715	8215	6325	3502	1349	3009	1590	2052	3664
R-squared	0.12	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.07
F-statistic	308.04	44.21	6.09	0.87	0.05	2.02	1.71	2.98	92.52

Source: DATA, own calculations.

Note: Robust standard errors in parentheses. Significance * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.