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**WORKING PAPER**

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**“Gender Quotas and Bank Risk”**

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## Gender Quotas and Bank Risk\*

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### ABSTRACT

We assess the effects of board gender quota laws using a sample of banks from 39 countries. We document an increase in both stand-alone and systemic risk post-quota among banks that did not meet the quota pre-reform; the effect is stronger for banks in countries with a smaller pool of women in finance and low gender equality. We find that the propagation of poor governance practices by overlapping female directors and deterioration in the information environment post quota are likely channels driving the results. The evidence is consistent with some banks “gaming” the reform by strategically appointing insiders, which weakens the board’s monitoring function. Our results have policy implications and suggest that supply-side factors are key determinants of the outcome of mandated quotas.

**Key words:** Gender quotas; board of directors; stand-alone bank risk, systemic risk; risk management; board monitoring.

**JEL Classification Codes:** G15, G21, G28

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## 1. Introduction

As of 2018, women held 16.9% of all global board seats and only 5.3% of board chair positions (Catalyst, 2020). This lack of gender diversity on corporate boards has led to the enactment of gender quotas in many countries, which may lead to substantial changes in the structure of corporate boards. This provides a unique opportunity to assess the impact of exogenous changes in board composition on firm outcomes.

The evidence to date on the effects of gender quotas and their impact on corporate governance is inconclusive and primarily consists of single-country studies of non-financial firms (e.g., Matsa and Miller, 2013; Ahern and Dittmar, 2012; Hwang, Shivdasani, and Simintzi, 2018; Nygaard, 2011; Eckbo, Nygaard, and Thorburn, 2021). There is scant evidence on the impact of such laws on banks, which is surprising because the lack of gender diversity on corporate boards is more pronounced in the banking industry (Adams and Kirchmaier, 2016b). In this paper we take a first step in answering several important but unanswered questions about the effects of gender quotas on banks. What is the impact of gender quota laws on bank stand-alone and systemic risk? How do gender quotas affect banks' corporate governance through their impact on boards and their monitoring function? Do the effects of gender quotas vary based on countries' culture or labor market constraints?

We explore these questions using a difference-in-differences (DiD) research design and a sample of 462 banks from 39 countries from 2008 through 2017. Following Ahern and Dittmar (2012), we exploit variation across banks in the pre-quota percentage of women on the board to better identify the effects of mandated quota laws. We find that banks failing to meet the gender quota requirement prior to the enactment of the legislation (*Constrained banks*) experience an increase in stand-alone risk (lower distance-to-default and higher non-performing loans) and systemic risk (higher expected capital shortfall and market leverage) post quota laws.

Our evidence supports the view that bank managers may take advantage of the mandated changes in board gender composition to appoint directors who are insiders and are more beholden to the CEO, thus less likely to effectively monitor management (e.g., Adams and Ferreira, 2009; Boone et al., 2007; Linck, Netter, and Yang, 2008; Ferreira, Kershaw, Kirchmaier and Schuster, 2021). Our results show that

*Constrained banks* are more likely to add younger female directors who are insiders, to retain male directors who are less independent, and to replace independent and/or experienced male directors. We further document that the unintended consequences of the quota laws are concentrated among those banks where new female directors are added to important committees responsible for monitoring, reviewing and approving incentive compensation plans, among others. Banks that add more women, especially to the audit and/or compensation committee, indeed experience a more significant increase in stand-alone and systemic risk post quota.

We next examine the likely channels driving our results. First, we find supporting evidence of a propagation of poor governance/risk management practices by overlapping female directors post quota laws. In addition, we document a deterioration in the information environment (an increase in bank opacity) post quota laws for *Constrained* banks and for those that add more female directors to the board. These changes adversely affect the board's monitoring function and contribute to the observed increase in risk post quota.

Finally, we assess the role of the supply of female directors using proxies for the size and quality of the female labor pool in each country as well as cultural factors that capture gender attitude within each country. We find significant differences in the speed of compliance between banks in countries with a large pool of women candidates and those without, suggesting that supply constraints are likely binding. The increase in stand-alone and systemic risk post quota law is concentrated in countries with a smaller pool of women candidates and in countries with low gender equality, where newly appointed female directors are less likely to have a voice. The increase in stand-alone and systemic risk post quota for banks in countries with a smaller pool of women candidates (lower gender equality) appears to be driven by the characteristics of female directors added to the board (they are more likely to have attendance problems at board meetings and are more likely to be insiders). The evidence supports the view that banks forced to add female directors could be gaming the system by using the quota as an opportunity to have more insiders who are less likely to effectively monitor management.

Our paper builds upon several strands of literature. First, our findings add to a growing literature that examines the impact of gender quota laws (e.g., Ahern and Dittmar, 2012; Matsa and Miller, 2013; Greene et al., 2020; Hwang et al., 2018; Ferreira et al., 2018; von Meyerinck et al., 2021; Arnaboldi et al., 2020), and to studies assessing the impact of board diversity (e.g., Adams and Raganathan, 2015; Berger, Kick, and Schaeck, 2014; Muller-Kahle and Lewellyn, 2011; Griffin, Li, and Xu, 2021; Bernile, Bhagwat, and Yonker, 2018; Lu, 2019). A major contribution of our paper is that it uses a broad cross-country sample to provide more generalizable evidence of the impact of gender quotas on bank stand-alone and systemic risk, in contrast to earlier studies that focus on single countries. Importantly, we are able to examine how supply-side and cultural factors moderate the impact of gender quotas (e.g., Greene et al., 2020; Hwang et al., 2018). To this end, we complement studies assessing the role of supply-side factors on board composition (see e.g., Linck et al., 2008; Knyazeva, Knyazeva, and Masulis, 2013; Lu, 2019).

We also contribute to studies on governance, board composition and its impact on bank risk. Several forces may induce excessive risk-taking in banks, including the lack of effective monitoring by the board due to poor governance structures; opportunistic behavior that takes advantage of the safety net (Merton, 1977; Martynova, Ratnovski and Vlahu, 2020), or other strategic (e.g., political) considerations (Thakor, 2021). Our results add new evidence on the mixed findings of the effect of governance on bank risk (e.g., Garel, Petit-Romec and Vander Venne, 2022; De Young and Huang, 2021; Anginer et al., 2016, 2018; Beltratti and Stulz, 2012; Erkens, Hung, and Matos, 2012) by examining an exogenous change in board composition that leads to a deterioration in the board's monitoring function and by establishing the channels driving this effect.

## **2. Data and Methodology**

### **2.1. Sample Description**

We begin by collecting information from a variety of sources on reforms that aim to increase boardroom gender diversity. Our primary sources for quota laws are Catalyst (2018a; 2018b) and Deloitte (2017), as well as prior studies (Ahern and Dittmar, 2012; Smith, 2014). We also collect information on countries that

publish governance codes that include recommendations to increase gender diversity on corporate boards from the European Corporate Governance Institute (ECGI), as well as from prior studies and reports (Ahern and Dittmar, 2012; EC, 2012; Smith, 2014). For these codes, we follow Ahern and Dittmar (2012) and identify the first year in which a governance code recommends gender diversity on corporate boards. Details on the sources of quotas and governance codes is summarized in the Internet Appendix Table IA.1.

Data on bank director characteristics are from the ISS Global Directors Database. The database contains information on 129,637 directors in 15,762 firms holding a total of 472,486 directorships (firm-year board positions) in 102 countries over the period 2008-2017. We obtain bank financials from Fitch Fundamentals Financial Data and stock price data from DataStream. Finally, country level data are from the World Bank's World Development Indicators (WDI) and the International Labour Organization's ILOSTAT. All variables and data sources are defined in Appendix A.

Table 1 reports the year of implementation of boardroom gender diversity reforms by country. Our treatment group includes banks from eight countries that enact legislation to increase gender diversity on boards of directors during our sample period 2008 to 2017. Five of these countries establish specific quotas, while India requires a minimum number of female directors, and two countries (Australia and Denmark) require firms to set their own quotas.<sup>1</sup> The baseline control group consists of banks from 28 countries that do not adopt a quota law: 15 do not adopt any gender diversity reforms during the sample period and 13 have governance code reforms.<sup>2</sup> Figure 1 shows that the percentage of female directors increased by 18.80 percentage points (pp) (from 8.58% in 2008 to 27.38% in 2017) for banks in quota law countries, compared to an increase of 6.80 pp (from 8.75% to 15.55%) for banks in the control group, suggesting that quota laws are effective in increasing female representation on the board.

Following the literature, our measures of stand-alone risk include *Z-score*, the log of *Z-score*, estimated as  $(ROA + \text{equity}/\text{assets})/\sigma(ROA)$ ; *NPL-to-loans*, non-performing loans-to-total loans; and

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<sup>1</sup> We loosely refer to all the treatment countries as “quota law countries” throughout the paper for brevity although two countries (Australia and Denmark) do not have specific quotas.

<sup>2</sup> We use banks from three countries (Israel, Norway, and Spain) with board gender reforms prior to 2008 as additional controls in some robustness tests and find similar results.

*Leverage*, book value of assets-to-book value of equity (see, e.g., Keeley, 1990; Demirgüç-Kunt and Huizinga, 2010; Laeven and Levine, 2009). We also use three measures of systemic risk: *SRISK*, the expected capital shortfall (in US\$ million) of a bank conditional on a crisis event, scaled by its market capitalization (Brownlees and Engle, 2017); *MES* (Acharya et al., 2017), the average bank return during the worst 5% of market return days in a year (multiplied by -1, for ease of interpretation); and *LVG*, market leverage, computed as the market value of equity plus the book value of liabilities, scaled by the market value of equity.

The descriptive statistics of the variables used in our main analyses are shown in Table 2. The sample includes all banks from the treatment and the baseline control groups with data available on female directors. We restrict the sample period to the years [-3, +3] around the gender quota law for banks in our treatment countries. On average, female directors represent 12.05% of directors in our sample. The average bank board has about 10 directors and is comprised of 48.28% independent directors. On average, 30% (13%) of directors have prior board (bank board) experience, and about 14% of directors have served on committees. Turning to the director characteristics, the average director serves on 0.80 outside boards, the average age (tenure) of directors is 59 (6.65) years, only 4.0% are classified as financial experts and only 3.0% of directors have attendance problems.

## 2.2. Research Design

To analyze the impact of board gender quota laws, we use a generalized difference-in-differences (DiD) design and run various specifications of the following model:

$$Y_{i,c,t} = \alpha + \beta_{1\ i,c,t}Post + \beta_{2\ i,c,t}Post \times Constrained_{i,c} + \gamma_i + \delta_t + \mathbf{X}_{i,c,t-1} + \boldsymbol{\theta}_{c,t-1} + \varepsilon_{ict}, \quad (1)$$

$Y_{i,c,t}$  refers to measures of a bank's stand-alone, systemic risk, or board/director characteristics.  $Post$  is an indicator equal to one starting the year when the quota law is passed in the treatment country and zero otherwise.  $Constrained$  is an indicator equal to one for banks that do not meet the gender quota as of year  $t-1$  relative to the enactment of the quota law and zero otherwise. Finally,  $\gamma_i$  and  $\delta_t$  are bank and year fixed

effects, which help identify the within-bank and within-year change in  $Y$  between treatment and control groups when countries enact the quota laws. Following prior studies (e.g., Anginer et al., 2014, 2018; Demirgüç-Kunt and Huizinga, 2010), our bank-level controls, measured at lagged value ( $X_{i,c,t-1}$ ), include: 1) *Size*, the log of the book value of assets and 2) *Deposits-to-assets*, to capture reliance on deposits for funding. Because the effects of quotas could be attributed to changes in other board characteristics, we include two board-level controls: (1) *Board size (log)*, and (2) *% Independent directors*. Our country-level controls ( $\theta_{c,t-1}$ ) include *GDP growth*, to control for the business cycle and economic conditions; the log of real GDP per capita (*Log GDP per capita*), as a measure of economic development; *Inflation*—percent change in the Consumer Price Index, CPI, to capture the effect of inflation on performance and bank risk-taking (Demirgüç-Kunt and Huizinga, 2010), and two measures of regulatory quality from Barth, Caprio, and Levine (2013): 1) *Restrictions on bank activities*, and 2) *Capital stringency*, because regulation may affect bank risk-taking (e.g., Laeven and Levine, 2009; Berger and Bouwman, 2013). In some robustness tests, we include additional bank-level controls, such as return on assets (*ROA*), net income divided by average book value of assets, to control for the impact of bank profitability on risk (e.g., Martynova et al., 2020) and institutional ownership (*IO %*)—the percentage of shares held by institutional investors, as banks with higher institutional ownership have been shown to operate with higher capital and thus lower systemic risk (Garel et al., 2022), and country-level controls, such as *Macroprudential policy index* from Cerutti et al. (2017) to control for the impact of changes in macroprudential policies at the country level following the global financial crisis. In all regression estimations, we use robust standard errors clustered by bank unless noted explicitly.

Because the DiD design is vulnerable to differences between treatment and control groups, we use a third difference, and thus a “triple difference” (DiDiD) design (Atanasov and Black, 2016) by including the interaction between *Post* and *Constrained*, but not *Constrained* because there is no within-bank variation in this variable and our model includes bank fixed effects. The coefficient on the interaction term,  $\beta_2$ , captures the incremental change for *Constrained* banks in the treatment group relative to other banks in



the treatment group. We also restrict our sample period to the three-year window around the quota law [-3, +3] to mitigate concerns about confounding events that may cloud the effect of the quota law. In robustness tests, we also employ and compare different treatment and benchmark groups, different sample windows, and use different estimation techniques that address potential biases associated with the staggered DiD approach (see e.g., Barrios, 2021).

### 3. Results

#### 3.1. Quotas and Bank Risk

We first examine the impact of gender quota laws on bank stand-alone and systemic risk in Panel A of Table 3, which shows the main results from the estimation of Equation (1). These tests are designed to assess how quotas affect bank stand-alone and systemic risk, taking advantage of the exogenous variation in exposure to quota laws. Gender quotas impose a binding constraint on banks (*Constrained*) that do not meet the gender quota requirement prior to the legislation's enactment.

We find that quotas have significant effects on bank stand-alone and systemic risk. The coefficients on the interaction term (*Post x Constrained*) are significantly negative (positive) in the *Z-score (NPL-to-loans)* regressions, suggesting that *Constrained* banks experience a relative increase in stand-alone risk post quota law compared to other banks in treatment countries. Taking Model (2) as an example, while there is no change in *NPL-to-loans* for other banks in treatment countries relative to the control group post quota law, *Constrained* banks experience a 31% increase in *NPL-to-loans* relative to its mean.<sup>3</sup> Results are similar when using *Z-score*, *SRISK* and *LVG* (Models (1), (4) and (6)). The *F*-test on the sum of the coefficients on *Post* and *Post x Constrained*, reported on the bottom row, indicates that *Constrained* banks experience an increase in systemic risk post quota law relative to the control group across all three measures of systemic risk. To shed light on the drivers of the changes in risk, Figure 2 examines the characteristics of women directors in *Constrained* banks vs. others. We find that women directors in *Constrained* banks display

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<sup>3</sup> 31% =  $[(-0.68+2.14)/4.68]$ , where -0.68 (2.14) is the coefficient on *Post (Post x Constrained)* in Model (2) of Panel A of Table 3 and 4.68 is the average *NPL-to-loans* for the full sample (Table 2).

characteristics that likely worsen the board’s monitoring function: they have less prior board/committee experience, and the new female directors are more likely to be insiders.

Panel B of Table 3 presents the results exploring whether a critical mass is needed for female directors to affect bank stand-alone and systemic risk. If the observed effect of quota laws is driven by the addition of female directors, the impact should be concentrated in banks that achieve a critical mass of female directors (e.g., Konrad, Kramer, and Erkut, 2008). To examine this hypothesis, we create an indicator variable, *Increase of two female directorships*, that equals one if a bank adds two or more female directors in the post quota law period; we compute the change in female directors as the difference between the number of female directors as of  $t-1$ , and the maximum number of female directors in years  $t+1$  to  $t+3$ . We then estimate Equation (1), using interactions between *Post* and *Increase of two female directorships*. Consistent with our hypothesis that the effect is driven by the addition of female directors, we find a larger increase in stand-alone and systemic risk (lower *Z-score*, higher *NPL-to-loans*, higher *SRISK* and *LVG*) post quota law for banks with an increase of two or more female directorships. Our evidence suggests that the addition of more female directors who are younger and less experienced to the traditionally male-dominated bank boards could lead to a deterioration of the board’s monitoring ability, which may explain the observed increase in bank risk.

We next examine whether *Constrained* banks might differ from other banks and follow a different trend in stand-alone and systemic risk prior to the quotas, violating the parallel trends assumption underlying the DiD design. To test this, we estimate Equation (1) including several indicators for the pre- and post-quota law period, controlling for size and other board characteristics. Specifically, we include indicators for  $t-2$ ,  $t-1$ ,  $t$ ,  $t+1$ ,  $\geq t+2$  relative to the year of the quota law ( $t$ ), as well as interactions with *Constrained*. The results shown in Table IA.2 of our Internet Appendix confirm our prior findings – the coefficients on the interaction terms pre quota ( $t-2$ ,  $t-1$ , and  $t \times \text{Constrained}$ ) are insignificant across all model specifications, suggesting that *Constrained* banks follow similar trends in stand-alone and systemic risk as other banks in the treatment countries pre quota. The increase in risk takes place after the quota, as

many of the coefficients on the interaction terms post quota ( $t+1$  and  $\geq t+2$  x *Constrained*) are statistically and economically significant.

### 3.2. Assessing the Channels Driving the Changes in Risk

In this section, we explore the likely channels through which quota laws may affect bank risk. Many critics of top-level initiatives, such as quota laws or state mandates, question whether these initiatives produce substantive change, or are simply symbolic (Aguilera, Kuppaswamy, and Anand, 2021). For example, the 2018 California mandate that requires companies to add at least one female board member by the end of 2019 was met with claims that new female board members would be selected simply to fulfill the mandatory quota for window dressing.

To check whether and how board characteristics might change post quota, we first examine whether women directors are simply added to the board or whether they are added to replace other male directors. It is unlikely that the observed changes in risk post quota are driven by banks that simply add women to the board. Table IA.3 of our Internet Appendix presents summary statistics for banks that add female directors post quota laws. We find that among *Constrained* banks, 77.8% (73.0%) of female directors are added to replace other (male) directors in the post period. The proportion of female directors replacing other (male) directors is similarly high among unconstrained banks post quota law. Thus, on average we find that new female directors tend to replace mostly male directors.

To shed light on the type of directors added, those who are retained, and those replaced by new directors, Table 4 compares the characteristics of new women directors, retained male directors, and exiting male directors among *Constrained* banks. Specifically, we run regressions using the proportion of each type of directors with certain characteristics (e.g., insiders). We find that post quota, *Constrained* banks are more likely to add insider female directors, retain male directors who are less independent, and replace male directors who are more independent and have more financial expertise, all of which likely worsen the board's monitoring function.

To examine how board characteristics change post quota, we conduct director-level regressions limiting our sample to bank-years where female directors replace other directors (male directors) in Table IA.4 of our Internet Appendix. Following Adams and Ferreira (2009), we examine whether committee assignments vary by gender, and whether this changes in the post-quota law period, especially for *Constrained* banks. Specifically, we estimate linear probability models where the dependent variable is equal to one if a director is a member of a committee, and of the audit, or compensation committee, respectively. We include interactions between *Post*, an indicator for female directors (*Female director*), and the *Constrained* bank indicator. Our results suggest that post-quota, female directors in *Constrained* banks are indeed more likely than men to be members of committees in general, and of the audit and compensation committees, in particular. *Constrained* banks are thus adding female directors to important committees responsible for monitoring, reviewing and approving incentive compensation plans, among others. By adding female directors to such key committees, *Constrained* banks may indeed be changing the effectiveness of the monitoring function of banks, which could lead to the observed adverse effects on bank risk.

We investigate characteristics of female directors appointed to committees relative to their male counterparts in Models (4) to (6) of Table IA.4 of our Internet Appendix. In *Constrained* banks, we find that post-quota law female directors appointed to committees are busier (hold more outside boards) and are significantly younger than their male counterparts. This evidence suggests that changing the composition of key committees by adding busier female directors may help explain the adverse effects on bank risk.

In Table IA5 of our Internet Appendix, we examine more directly the impact of adding female directors to key committees on bank stand-alone and systemic risk. Specifically, we estimate Equation (1) using interactions between *Post*, *Constrained* bank and *Add female to audit (compensation) committee*, an indicator that equals one if there is an increase in the number of female audit (compensation) committee members and zero otherwise. For each committee, we compute the change in female members as the difference between the number of female directors as of  $t-1$ , and the maximum number of female directors during years  $t+1$  to  $t+3$ .

Panel A (B) of IA5 of our Internet Appendix shows results for banks adding female directors to audit (compensation) committees. There is a significant increase in stand-alone risk in the post quota law period (lower *Z-score*, higher *NPL-to-loans*) for banks that add female directors to the audit committee, but we find no impact on systemic risk. In Panel B, we find a significant increase in both stand-alone (lower *Z-score*, higher *NPL-to-loans*) and systemic risk (higher *SRISK* and *LVG*) post quota for banks that add female directors to the compensation committee. Compensation committees are in charge of setting CEO compensation schemes, which can directly affect risk-taking incentives, although there is an ongoing debate as to how different compensation schemes may affect risk-taking (see e.g., Bebchuk, Cohen, and Spamann, 2010; Fahlenbrach and Stulz, 2011; Bhagat and Bolton, 2014; Thanassoulis and Tanaka, 2018). Changes in the structure or functioning of this key committee is likely to have an effect on bank stand-alone and systemic risk. Our results corroborate this hypothesis.

### *3.2.1. The influence channel of affiliated female directors*

If banks are forced to appoint female directors to comply with quota laws, it is likely that those that are more distant from compliance will appoint female directors who already serve on other boards; results in Table IA.4 of our Internet Appendix indeed suggest that female directors appointed to committees in *Constrained* banks post-quota law are busier (hold more outside boards) than their male counterparts. As shown by Bouwman (2011), such directors could then propagate corporate governance practices from other boards through the network of overlapping female directors. To examine whether this channel potentially explains what we observe in bank risk-taking behavior, we follow Bouwman (2011) to construct a governance gap measure (*Independence GAP*) using the % *independent directors*; the *Independence GAP* captures the difference in % *independent directors* between each bank and the weighted average of other banks with overlapping female directors. We focus on board independence, as this has been shown to be a key aspect of good corporate governance.

For each female director in bank  $b$  in year  $t$ , we first compute the average value of the % of independent directors across all other banks  $j$  ( $j \neq b$ ), as follows:

$$\overline{IND}_{b,i,t} = \sum_{j=1}^{n_i} \frac{IND_{j,i,t}}{n_{i,t}} \quad (2)$$

where  $IND_{j,i,t}$  is the % of independent directors of bank  $j$  where female director  $i$  is a board member in year  $t$ ;  $n_{i,t}$  is the number of other bank boards held by female director  $i$  in year  $t$ .  $\overline{IND}_{b,i,t}$  is the average % of independent directors of all other banks in which director  $i$  sits. We then compute the weighted average board independence for each bank, ( $WAIND$ ) as follows:

$$WAIND_{b,t} = \sum_{i=1}^N \frac{\overline{IND}_{b,i,t}}{N_{b,t}} \quad (3)$$

Where  $N_{b,t}$  is the number of bank  $b$ 's female directors in year  $t$ . As in Bouwman (2011), we set  $\overline{IND}_{b,i,t}$  equal to bank  $b$ 's % of independent directors for unaffiliated female directors. Finally, we compute the governance gap,  $Independence\ GAP_{b,t} = WAIND_{b,t} - IND_{b,t}$ , where  $IND_{b,t}$  is the % of independent directors in bank  $b$  in year  $t$ .<sup>4</sup>

To test whether the propagation of poor governance practices may help explain our results, we first examine its impact on risk management practices. Specifically, we estimate regressions using proxies for risk management as dependent variables, including interactions between *Post*, *Constrained* banks and *Low Independence GAP*, an indicator equal to one if the lagged *Independence GAP* is below the country median and zero otherwise; the indicator captures instances where the governance of other banks is lower (i.e., poor governance). We measure risk management practices using a risk management index, *RMI*, similar to that in Ellul and Yerramilli (2013). *RMI* is the first principal component of four indicators: 1) *CRO* – an indicator equal to one if the bank has a Chief Risk Officer; 2) *Risk committee* – an indicator that equals one if the bank has a risk committee and zero otherwise; 3) *Risk committee experience* – an indicator that equals one if the bank has a risk committee and at least one independent member of the audit committee is classified

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<sup>4</sup> The *Independence GAP<sub>b</sub>* is set to zero for banks with no female directors in year  $t$ . In unreported results (available upon request), we document that female directors propagate governance practices across banks in our sample, confirming Bouwman's (2011) results.

as a financial expert, and 4) *Active risk committee* – an indicator equal to one if the bank has a risk committee and its audit committee meets more frequently than the median audit committee in its country in a given year. We show the results for the impact of the propagation (influence) effect on banks' risk management practices among *Constrained* banks using *RMI* and each of its components as dependent variables in the Internet Appendix, Table IA.6. Our results show evidence of a propagation of poor governance/risk management practices by overlapping female directors in *Constrained* banks post quota. The triple interaction term *Post x Constrained x Low Independence GAP* is negative and significant in regressions using *RMI*, *Risk committee*, and *Risk committee experience*.

Table 5 examines whether the propagation of poor governance practices through overlapping female directors helps explain our results on stand-alone and systemic risk by estimating Equation (1) using interactions between *Post*, *Constrained* banks, and *Low Independence Gap*. We find strong evidence that the propagation of poor governance/risk management practices by overlapping female directors is a channel that helps explain our results. The increase in stand-alone risk (lower *Z-score*, higher *NPL-to-loans*, and *Leverage*) and systemic risk (higher *SRISK* and *LVG*) post quota is significantly larger for *Constrained* banks with a *Low independence GAP*. The triple interaction term *Post x Constrained x Low Independence GAP* is significant across all regression specifications, except for Model (5), which examines *MES*. Taken together, the results suggest that the addition of female directors who serve on other bank boards with poor risk management/governance practices leads to a deterioration in banks' risk management function, which is a channel through which the addition of female directors leads to increased stand-alone and systemic risk.

### 3.2.2. *The information channel and weak monitoring*

Finally, we assess whether changes in board composition post-quota laws may be associated with weaker ability to monitor by testing for changes in the quality of information made available to the board in banks that add more female directors and those that appoint women to key committees. Akin to the CEO-board communication game of Song and Thakor (2006), bank CEOs may strategically exploit the earlier documented busyness and lack of experience of newly appointed female directors by reducing the quality

of information they provide to the board. If that is the case, the ability of the board to monitor risk management activities weakens, which may explain the observed higher risk post quota.

We follow prior studies (Beatty and Liao, 2014; Jiang, Levine, and Lin, 2016) and measure the quality of bank information using a proxy for bank opacity based on discretionary loan loss provisions (*LLP*). Specifically, we first estimate Beatty and Liao's (2014) preferred *LLP* model as in Jiang et al. (2016) as follows:

$$LLP_{bct} = \alpha_0 dNPL_{bct+1} + \alpha_1 dNPL_{bct} + \alpha_2 dNPL_{bct-1} + \alpha_3 Size_{bct-1} + \alpha_4 dLoans_{bct} + \alpha_5 GDPGROWTH_{ct} + \alpha_6 dUNEMP_{ct} + \gamma_c + \varepsilon_{bct} \quad (4)$$

$LLP_{bct}$  refers to bank  $b$  in country  $c$ 's loan loss provisions, scaled by lagged total loans;  $dNPL$  is the annual change in non-performing loans, scaled by lagged total loans; following Bushman and Williams (2012) and Jiang et al. (2016), we include the contemporaneous, lead, and lagged  $dNPL$  measures.  $Size$  is the natural logarithm of total assets;  $GDPGROWTH_{ct}$ , the annual growth in real GDP in country  $c$ , and  $dUNEMP_{ct}$  is the annual change in the unemployment rate in country  $c$ ; finally,  $\gamma_c$  represents country fixed effects.

Following the literature (e.g., Beatty and Liao, 2014), our measure of bank opacity (*DLLP*) is the absolute value of the residuals from the estimation of Equation (4). We also use the three-year moving sum of *DLLP* (*DLLP-ms*) as an alternate proxy for bank opacity (see Hutton, Marcus, and Tehranian, 2009). We use each of these measures as a dependent variable and estimate Equation (1) to examine whether there is a deterioration in disclosure quality post quota among the most impacted banks. In these regressions, we add equity-to-assets and lagged *LLP* to our baseline controls, following prior studies (Jiang et al., 2016). We estimate regressions using interactions between *Post* and *Constrained* (*Increase of two female directorships*) indicators.

Results in Table 6 show a significant increase in discretionary LLP post quota for *Constrained* banks. From the coefficients in Model (1), *Constrained* banks experience a relative increase in *DLPP* post quota of 0.002, or 24.1% relative to its mean (0.008). Using the alternate measure (*DLLP-ms*), we obtain stronger results. From Model (3) *Constrained* banks experience a relative increase in *DLLP-ms* of 0.01 post



quota, which represents a 45.4% increase relative to its mean (0.022). Results also reveal that the deterioration in information quality is present in banks that add two or more female directors to the board, in line with our prior findings. Overall, these results suggest that the increase in bank opacity is one way that facilitates the increase in risk we observe in *Constrained* banks post quota.

### 3.3. Country-level Factors

In this section, we assess how female labor supply and national culture towards gender equality affect our results. The supply-side constraints are likely binding for banks in countries with a smaller pool of female executives. Figure IA.1 in the Internet Appendix reveals that a larger fraction of banks in countries with a large (above median) pool of women in finance comply with the quotas within a year compared to banks in other countries. Even by the third year, there are still fewer banks in countries with smaller pool of women candidates that comply with the gender quota (65%).

We examine the impact of the size of the candidate pool of qualified female directors using the proportion of females in the finance industry (*Women in finance %*) and use the *Gender inequality index* to proxy for gender attitude in each country. To facilitate interpretation, we create indicator variables based on the time-series averages of the various proxies. For example, *Low Women in finance* equals to one for countries with values below the cross-country median and zero otherwise. Our results are robust to alternate ranking methods.

Panel A (B) of Table 7 presents the results on the role of female labor supply (gender equality). As before, we include bank and year fixed effects in addition to the set of baseline controls used in Table 3, but we omit them from reporting for brevity. The results in Table 7 show that *Constrained* banks in countries with a smaller pool of qualified women experience an increase in stand-alone and systemic risk post quota. Taking the coefficients in Model (3) of Panel A as an example, *Constrained banks* in *Low women in finance* countries experience a relative increase in *Leverage* of 9.1 pp (75% of the sample average) post quota law. In contrast, results do not show any change in *Leverage* post quota law for *Constrained*

*banks in High women in finance* countries (the coefficient on the interaction term *Post x Constrained* is insignificant). Results are similar when using other proxies for stand-alone and systemic risk.

The results in Panel B of Table 7 show that banks in countries with lower gender equality experience an increase in stand-alone and systemic risk post quota. The magnitude of the results is similar to that in Panel A of Table 7. The evidence that the impact of quota laws is stronger in less egalitarian countries suggests that one additional likely channel at play could be the disruption to the functioning of the board created by the addition of female directors in countries where women are viewed in a different light. While we cannot directly test this, we cannot rule out this alternate explanation of our findings.

To further investigate whether the increase in bank stand-alone and systemic risk post quota is driven by some banks “gaming” the reform, we examine the characteristics and qualifications of newly added female directors across banks and countries. Figure 3 compares female directors from countries with *High* and *Low Women in finance* (Panel A) and those with *High* and *Low gender equality* (Panel B). They are indeed very different. Female directors in countries with a smaller pool of women candidates/lower gender equality are more likely to have attendance problems and are more likely to be insiders, which is consistent with the view that banks forced to add female directors could be gaming the system, using the quota as an opportunity to have more insiders who are less likely to effectively monitor management. We caution the readers, however, that in cross-country analyses the identification strategy may be challenged by other factors that vary across countries and may undermine the effects attributed to changes in quota laws shown in Figure 3.

#### **3.4. Robustness and Additional Tests**

We perform a series of robustness tests and report results in the Internet Appendix. Most of the results are consistent with the main findings discussed above. We first examine whether our results are robust to the inclusion of additional controls that have been shown to affect bank risk (e.g., Martynova et al., 2020; Garel et al., 2022) and to the use of alternate control samples. In Panel A of Table IA.7 of our Internet Appendix, we replicate results in Panel A of Table 3 using *ROA* and *Institutional ownership* as

additional controls. Results confirm our earlier findings and reveal that more profitable banks have lower stand-alone and systemic risk, while institutional ownership does not affect bank risk. In Panel B of Table IA.7, we confirm our findings in Table 3 using banks from the three countries (Israel, Norway, and Spain) that passed gender quota laws prior to 2008 as additional controls.

In Table IA.8, we examine whether the impact of quota laws varies based on the level of institutional ownership. Specifically, we estimate Equation (1) adding interactions with *High IO* – an indicator variable equal to one for banks with above-median *Institutional ownership*. The triple interaction term, *Post x Constrained x High IO* is insignificant across all regression specifications, except when using *MES*. Thus, institutional ownership does not appear to materially affect the deleterious effect of quotas on bank risk.

In Table IA.9, we replicate results in Panels A of Table 3 adding the Macroprudential policy index from Cerutti et al. (2017) as an additional control and find similar results. In Table IA.10, we replicate our main results using an alternate definition of *Constrained* banks, *Constrained-all male*, an indicator equal to one for banks with all-male boards in year  $t-1$  and zero otherwise. Our results are robust to this alternate definition of *Constrained* banks.

In Table IA.11, we test an alternate interpretation of our findings, namely that banks in countries most affected by the GFC are unable to attract qualified female directors. We examine whether the proportion of female directors post quota law is lower in such countries. We find no differential impact in the percentage of female directors post quota law between countries with above (below) median returns during the GFC.

We also address the potential biases associated with the staggered DiD approach (see e.g., Barrios, 2021). Table IA.12 shows results from additional analyses using event-based stacked regressions that include never-treated banks and not-yet-treated banks as controls, following De Chaisemartin and D’Haultfoeuille (2021). These regressions include bank-cohort and year-cohort fixed effects with standard errors clustered at the country-cohort level. Results from stacked regressions continue to show an increase in stand-alone and systemic risk post quota for *Constrained* banks.

Finally, in Table IA.13, we examine changes in the banks' composition of assets and funding structure to shed light on how the female directors may affect bank policies. Our results show a reduction in *Commercial and Industrial loans* and in *Personal loans* for *Constrained* banks post quota. In addition, results show that *Constrained* banks experience an increase in nontraditional banking activities (trading assets and derivatives), and an increased reliance on volatile short-term funding post quota. The increased focus on nontraditional banking activities and reliance on volatile funding sources helps explain the observed increase in both stand-alone and systemic risk, as both noninterest income sources and volatile funding have been shown to increase bank stand-alone and systemic risk (e.g., Brunnermeier, Dong, and Palia, 2020; Demirgüç-Kunt and Huizinga, 2010) and to contribute to bank failures (De Young and Torna, 2013).

#### **4. Discussion and Conclusion**

Our study is intended to contribute to the understanding of the effects of gender quota laws and to shed light on the ongoing debate on gender diversity reforms around the world. Understanding the effects of gender diversity reforms in corporate boardrooms is crucial because corporate boards are at the core of corporate governance and directors have the tasks of monitoring and advising management. To date, the literature on gender diversity in corporate boardrooms finds mixed results and typically focuses on single-country studies of non-financial firms. We assess the impact of gender quotas on the banking sector, where there is significant underrepresentation of female directors on bank boards and focus on the effects on stand-alone and systemic risk. A major contribution of our paper is that it uses a broad cross-country sample to provide more generalizable evidence of the impact of gender quotas on bank stand-alone and systemic risk, in contrast to earlier studies that focus on single countries.

We document a significant increase in stand-alone risk and in systemic risk post quota among banks that are forced to add female directors, indicating potentially diverse effects of quotas. These effects are more pronounced in banks that add more women to the board, suggesting that changes in gender composition of the board drive the observed increase in risk.

We also offer new insights, previously overlooked, about the potential constraints banks may face and about gaming the system, by analyzing the characteristics of newly added women directors. The women directors among banks with shortfalls of female directors appear to be younger and are more likely to be insiders than the exiting male directors they replace. We further find that female directors in *Constrained* banks are indeed more likely than their male counterparts to be members of committees in general, and of the audit and compensation committees, in particular, and that banks that add female directors to the audit and/or compensation committee indeed experience a more significant increase in stand-alone risk and systemic risk post quota.

We find supporting evidence of an “influence” effect (Bouwman, 2011) and find that the propagation of poor governance/risk management practices by overlapping female directors post quota laws seems to be a channel that helps explain our risk results. In addition, we find that bank opacity (proxied by discretionary loan loss provisions) increases post quota for *Constrained* banks, and for those that add more female directors to the board. In line with the communication game between CEOs and the board (Song and Thakor, 2006), these results suggest that the increase in bank opacity, perhaps because of the CEO providing poor quality information to the board to exploit the inexperience of the new female directors, is one way that facilitates the increase in risk we observe in those banks post quota.

Following research that finds that female director appointments post quota are constrained by the potential supply of executives with industry experience (Knyazeva et al., 2013), we postulate and find that specific country factors affect the speed of compliance with quotas and moderate its impact on bank risk. Not surprisingly, *Constrained* banks in countries with a smaller pool of women in finance and low gender equality, where newly appointed female directors are less likely to have a voice, experience the highest increase in stand-alone and systemic risk. Unique to our study is the finding that some bank executives “game” the reform by using the quota as an opportunity to add more female insiders who are less likely to effectively monitor management.

Our study is timely and has important practical and policy implications, as many countries continue to propose and implement reforms to increase gender diversity in corporate boardrooms. One of the largest

exchanges in the world—Nasdaq—in a recent proposal filed with SEC, recommended imposing quotas on Nasdaq-listed firms to retain at least one board member who self-identifies as female. However, these reforms have been criticized by many on the grounds of “violation of equal-protection principles and the First Amendment” (Gray and Berry, 2021). Our study echoes recent studies on how board gender diversity differs across industries (Adams and Kirchmaier, 2016a, b) and those highlighting the importance of supply-side factors as key determinants of the outcome of mandated quotas (Hwang et al., 2018; Sultana, Cahan, and Rahman, 2019; Lu, 2019; Greene et al., 2020). Our findings also suggest that ticking a box to satisfy the nominal quota requirement is not necessarily useful, as Boyallian et al. (2020) suggest by showing that smaller firms tend to lag behind larger firms in the pursuit of gender balance. One caveat is that the quotas are quite recent, and we do not have a long enough sample period to study differential impact due to compliance periods and penalties.

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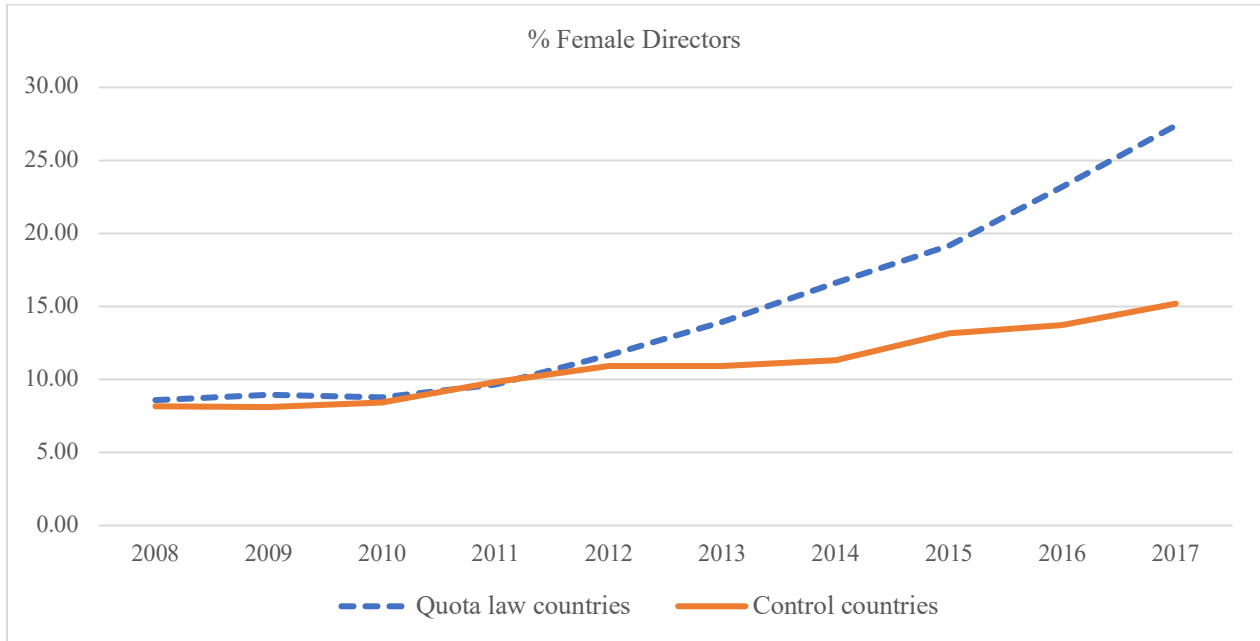
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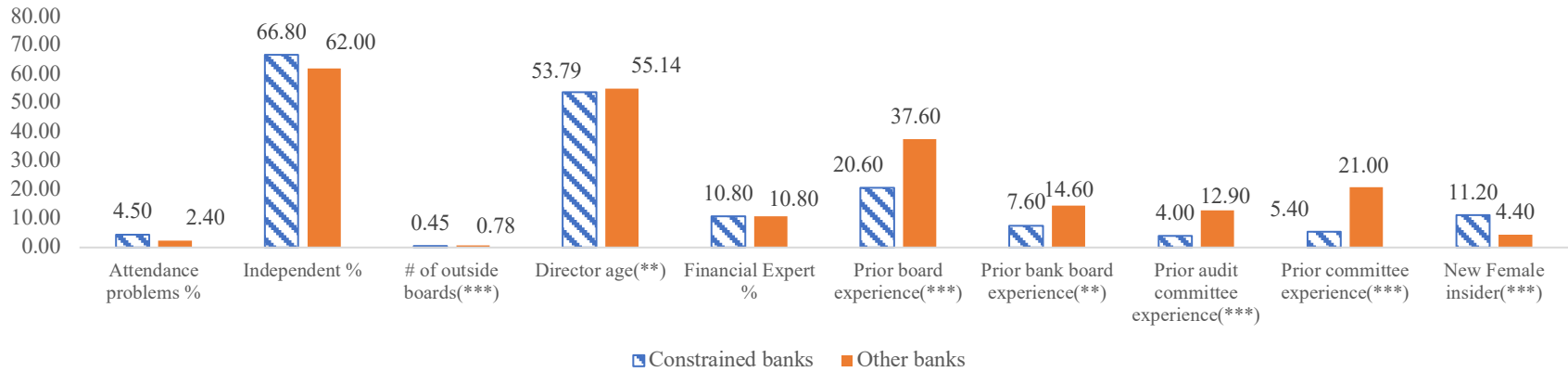
**Figure 1. Percentage Female Directors Over Time**

This figure shows the evolution of women participation in bank boards of directors from 2008 through 2017 for our sample countries. Quota countries are Australia, Belgium, Denmark, France, Germany, India, Italy, and Netherlands. The control countries consist of 28 countries that did not adopt quotas during our sample period. See Table 1 for the full list.



**Figure 2. Characteristics of Female Directors**

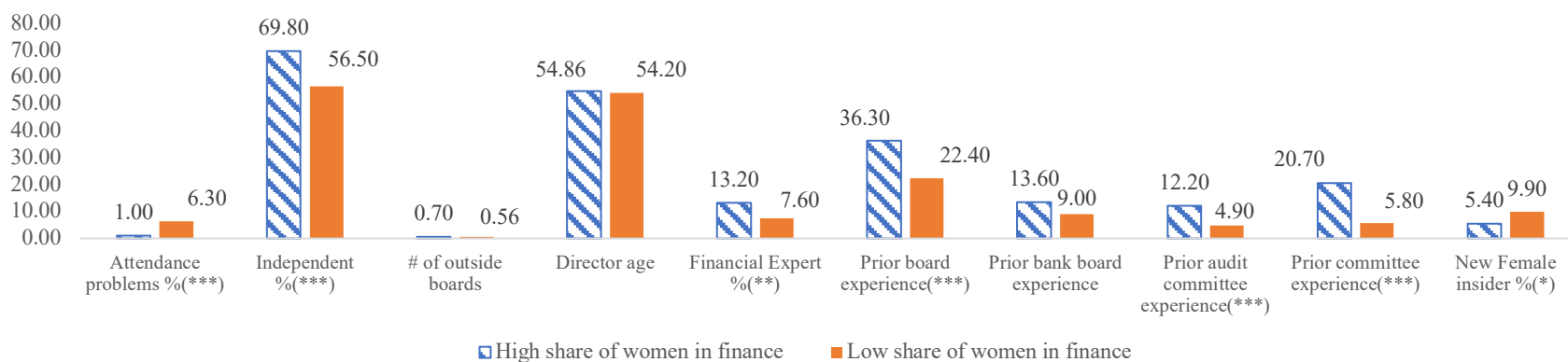
Figure show average female director characteristics from  $t+1$  to  $t+3$  following gender quota laws for banks in our treatment sample. We compare female directors among *Constrained* banks vs others. All variables are defined in Appendix A. \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.



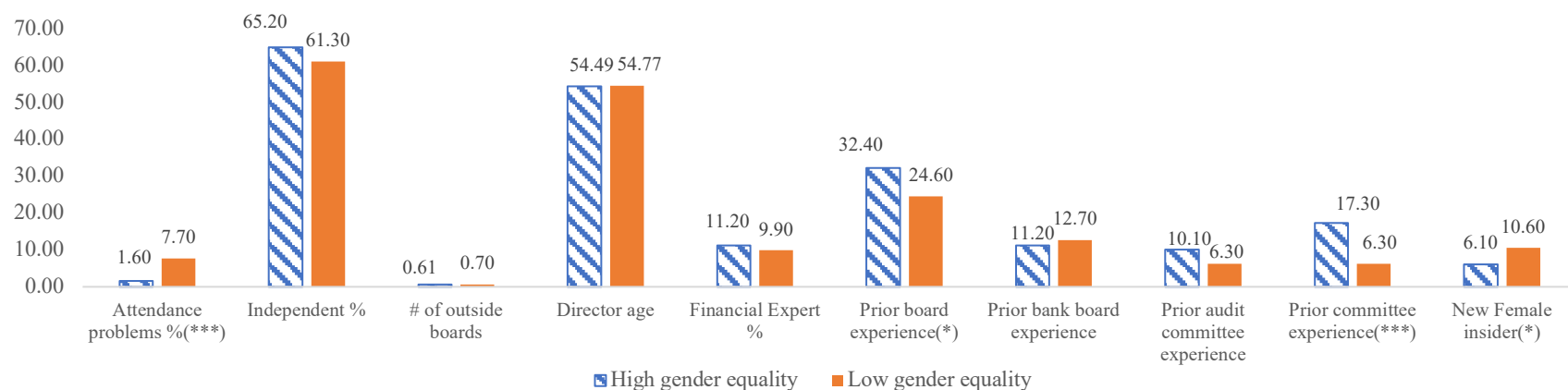
### Figure 3. Characteristics of Female Directors in High vs Low Women in Finance/Gender Equality

Panel A (B) shows the average female director characteristics from  $t+1$  to  $t+3$  following the quotas in countries with *High* and *Low share of women in finance (gender equality)* for banks in our treatment sample. *High share of women in finance (gender equality)* are defined as those countries with above-median *share of women in finance (gender equality)*. See Table 1 for the full list of countries. All variables are defined in Appendix A. \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Panel A: *Low Women in Finance vs High Women in Finance*



Panel B: *Low Gender Equality vs High Gender Equality*



**Table 1. Boardroom Quotas.**

The table reports characteristics and year of implementation of gender quotas. Treatment countries are those that pass quotas during our sample period 2008-2017. Countries without legislative board gender reforms and those that passed the law before our sample period are used as our baseline control sample. We use countries that passed gender quota laws before the start of our sample period as additional controls in robustness tests. Year of code is the first year in which the country's governance code includes recommendations associated with gender diversity on corporate boards.

<b>Treatment</b>	<b># of banks</b>	<b># of obs.</b>	<b>Year of quota law</b>	<b>Year of quota code</b>	<b>Quota (Compliance year)</b>
Australia	17	73	2012	2010	Not specified.
Belgium	4	28	2011	2009	33% (2017)
Denmark	6	36	2012	2008	Not specified.
France	8	50	2011	2010	20% (2014); 40% (2017)
Germany	12	59	2015	2010	30% (2016)
India	27	164	2013	2014	≥ 1 female director
Italy	21	121	2011	2011	(20%) 2012; (33%) 2015
Netherlands	5	33	2011	2008	30% (2016)
<b>Total</b>	<b>100</b>	<b>564</b>			

<b>Control</b>	<b># of banks</b>	<b># of obs.</b>	<b>Year of quota law</b>	<b>Year of quota code</b>	<b>Quota (Compliance year)</b>
Argentina	4	32	.	.	
Austria	3	30	.	2009	
Brazil	10	66	.	.	
Canada	24	183	.	.	
Chile	5	37	.	.	
China	18	88	.	.	
Colombia	4	19	.	.	
Greece	8	52	.	2013	
Hong Kong	18	103	.	2013	
Indonesia	10	84	.	.	
Ireland	5	39	.	2010	
Japan	5	45	.	2014	
Korea, Republic	27	150	.	.	
Malaysia	16	112	.	2011	
Mexico	11	66	.	.	
Philippines	13	83	.	.	
Poland	9	84	.	2010	
Portugal	3	27	.	.	
Russia	5	42	.	.	
Singapore	8	65	.	2012	
South Africa	13	99	.	2009	
Sweden	7	65	.	2004	
Switzerland	21	169	.	2014	
Taiwan	9	62	.	.	
Thailand	18	110	.	2012	
Turkey	14	111	.	.	
United Arab Emirates	5	13	.	.	
United Kingdom	47	357	.	2010	
<b>Total</b>	<b>340</b>	<b>2393</b>			

<b>Alternate control</b>	<b># of banks</b>	<b># of obs.</b>	<b>Year of quota law</b>	<b>Year of quota code</b>	<b>Quota (Compliance year)</b>
Israel*	6	54	1999	.	≥ 1 female director
Norway*	5	30	2003	2004	40% (2008)
Spain*	11	73	2007	2006	40% (2015)
<b>Total</b>	<b>22</b>	<b>157</b>			

\*These countries are not part of our treatment sample because the quotas were passed before the start of our sample period.

**Table 2. Descriptive Statistics**

The table shows descriptive statistics of variables used in our analysis of board quotas. Our sample period is 2008-2017. The sample includes banks with available data on female directors from ISS Global Directors Database. We restrict the sample period to the years [-,3+3] around the gender quota law for banks in our treatment countries. The control sample includes banks from 28 countries that do not enact gender quotas during our sample period. The sample excludes the banks from Israel, Norway, and Spain, which passed gender quota laws before the start of our sample period. We use banks from those countries as controls in robustness tests. All variables are defined in Appendix A.

	N	Mean	p25	p50	p75	Std. dev.
<b>Board Characteristics</b>						
Female directors %	2,957	12.05	0.00	10.00	20.00	11.76
Constrained	2,957	0.11	0.00	0.00	0.00	0.32
Constrained- All male board	2,957	0.07	0.00	0.00	0.00	0.26
Ln(board size)	2,957	2.27	2.08	2.30	2.64	0.51
Independent directors %	2,957	48.28	27.27	50.00	69.23	29.65
Tenure	2,822	6.64	3.75	5.88	8.88	4.03
Director age (average)	2,831	58.55	55.57	58.43	61.27	4.95
Financial expert on board	2,957	0.24	0.00	0.00	0.00	0.43
# outside boards	2,925	0.75	0.17	0.57	1.10	0.75
% with attendance problems	2,957	2.65	0.00	0.00	0.00	6.97
% with prior board experience	2,957	29.71	7.69	27.27	46.15	25.37
% with prior bank board experience	2,957	12.94	0.00	7.14	20.00	17.30
% with audit committee experience	2,957	9.01	0.00	6.67	14.29	11.57
% with compensation committee experience	2,957	7.74	0.00	0.00	12.50	11.14
% with nominating committee experience	2,957	7.82	0.00	0.00	12.50	11.58
% with committee experience	2,957	13.91	0.00	11.11	22.22	14.80
<b>Risk Measures</b>						
Z-score	2,415	3.45	2.83	3.48	4.10	0.97
NPL-to-loans	1,983	4.68	1.12	2.94	5.63	5.97
Leverage	2,776	11.98	6.47	10.62	15.10	10.30
SRISK	2,850	0.63	0.00	0.04	0.69	1.31
MES %	2,866	2.74	1.39	2.35	3.67	1.95
LVG	2,852	13.90	4.13	8.96	16.23	16.91
<b>Other bank-level variables</b>						
Deposits-to-assets	2,719	0.60	0.46	0.70	0.81	0.27
Log (assets) - US\$ M	2,886	10.09	8.70	10.18	11.48	2.17
Chief Risk Officer	1,435	0.19	0.00	0.00	0.00	0.39
RMI	1,301	-0.05	-1.67	0.55	1.14	1.42
DLLP	1,416	0.008	0.002	0.005	0.008	0.016
DLLP-ms	1,131	0.022	0.007	0.013	0.023	0.042
ROA (%)	2,843	1.73	0.49	1.07	2.04	2.78
Institutional Ownership (%)	2,926	26.99	9.18	20.37	41.04	22.88
<b>Country-level variables</b>						
Capital stringency	2,957	6.47	4.40	7.00	8.00	2.18
GDP growth t-1	2,954	2.75	1.38	2.39	4.81	3.41
Inflation t-1	2,945	3.09	1.16	2.40	4.35	2.89
Log GDP per capitat-1	2,954	9.85	9.16	10.30	10.71	1.09
Restrictions on bank activities	2,957	6.57	5.00	6.00	8.00	2.26
Women in finance	2,567	0.48	0.44	0.49	0.53	0.09
Gender inequality index	2,784	0.23	0.10	0.16	0.36	0.16
MPI	2,895	2.90	2.00	3.00	4.00	1.90
<b>Director Characteristics</b>						
# outside boards	31,104	0.80	0	0	1	1.39
Age	28,621	58.79	53	59	65	9.17
Attendance problem	31,955	0.03	0	0	0	0.17
Financial expert	31,955	0.04	0	0	0	0.20
Independent	31,955	0.47	0	0	1	0.50
Tenure	29,368	6.65	2	5	9	6.76



**Table 3. The Effect of Board Quotas on Bank Risk**

This table reports the results assessing the impact of quotas on bank risk in a [-3,+3] window centered around the quota year. *Post* is an indicator variable equal to one starting the year when the gender quota law is passed in the country and zero otherwise. “*Constrained*” banks are defined those did not meet the gender quota requirement as of year *t*-1 relative to the enactment of the quota. For countries without specific quotas (i.e., Australia and Denmark), *Constrained* banks are those with no female directors in the pre-quota law period. *Increase of two female directorships* is an indicator equal to one for banks that add two or more female directors in the post-quota law period, and zero otherwise. Models (1) to (3) examine bank stand-alone risk measures and Models (4) to (6) examine systemic risk measures. Panel B presents regressions results where more female directors are added to board to achieve “critical mass.” Bank level controls include *Size*; *Deposits-to-assets*; *Board size (log)*; *% Independent directors*. Country-level controls include *GDP growth*; *Log GDP per capita*; *Inflation*, and two measures of regulatory quality from Barth, Caprio, and Levine (2013): *Restrictions on bank activities* and *Capital stringency*. All variables are defined in Appendix A. *F*-statistics from tests of the sum of the coefficients  $Post + Post \times Constrained$  (*Increase of two female directorships*)=0 are shown in the last row. Robust *t*-statistics, with standard errors clustered at the bank level are in parentheses. \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Panel A. Impact on Constrained Banks.						
Dependent variable:	Stand-alone Risk			Systemic Risk		
	Z-score	NPL-to-loans	Leverage	SRISK	MES %	LVG
	(1)	(2)	(3)	(4)	(5)	(6)
Post x Constrained [A]	-0.508** (-2.05)	2.137** (2.19)	1.441 (1.01)	0.610*** (2.89)	0.170 (0.82)	7.294*** (2.85)
Post [B]	0.170 (1.13)	-0.682 (-0.96)	-0.237 (-0.40)	0.204 (1.41)	0.174 (1.40)	2.333 (1.30)
Log(assets) <sub>t-1</sub>	-0.159 (-1.34)	-1.346 (-1.40)	2.881*** (4.04)	0.365*** (2.72)	0.376*** (2.73)	5.368*** (3.18)
Deposits-to-assets <sub>t-1</sub>	0.203 (0.67)	5.029 (1.63)	-2.081 (-1.14)	-0.286 (-1.00)	-0.541 (-1.08)	-1.174 (-0.32)
Board size (log) <sub>t-1</sub>	-0.097 (-1.21)	0.002 (0.00)	0.366 (1.08)	0.233*** (2.88)	-0.008 (-0.06)	2.839*** (2.80)
% of independent directors <sub>t-1</sub>	0.001 (0.67)	-0.007 (-0.71)	-0.010 (-1.30)	-0.001 (-0.65)	-0.003 (-1.50)	-0.011 (-0.62)
Log GDP per capita <sub>t-1</sub>	1.526** (2.24)	-19.112*** (-2.82)	5.849 (1.11)	2.750*** (5.74)	-2.390*** (-2.77)	36.050*** (5.85)
GDP growth <sub>t-1</sub>	-0.001 (-0.18)	0.029 (0.47)	-0.284** (-2.21)	-0.083*** (-4.43)	0.003 (0.16)	-1.050*** (-4.57)
Inflation <sub>t-1</sub>	0.017 (1.13)	-0.064 (-0.61)	0.126 (0.86)	0.026 (1.49)	-0.002 (-0.08)	0.414* (1.84)
Restrictions on bank activities	0.025 (0.97)	-0.207 (-1.57)	0.324** (2.28)	0.041 (1.50)	-0.107*** (-3.42)	0.636* (1.86)
Capital stringency	-0.031 (-1.40)	0.702*** (3.90)	-0.290 (-1.55)	-0.072* (-1.81)	-0.035 (-0.89)	-0.839* (-1.70)
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,973	1,711	2,254	2,269	2,280	2,270
Number of Banks	373	307	413	399	401	400
Adjusted R <sup>2</sup>	0.118	0.197	0.0893	0.182	0.331	0.189
F-test [A+B]=0	2.78*	2.25	0.75	18.97***	3.10*	18.32***

**Table 3. The Effect of Board Quotas on Bank Risk – Cont'd**

<b>Panel B: Critical Mass</b>						
<b>Dependent variable:</b>	<b>Stand-alone Risk</b>			<b>Systemic Risk</b>		
	<b>Z-score (log)</b>	<b>NPL-to-loans</b>	<b>Leverage</b>	<b>SRISK</b>	<b>MES %</b>	<b>LVG</b>
	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>
Post x Increase of two female directorships [A]	-0.507* (-1.75)	2.024** (2.23)	1.907 (1.23)	0.453* (1.76)	-0.148 (-0.58)	5.934* (1.90)
Post [B]	0.085 (0.60)	-0.399 (-0.52)	-0.131 (-0.13)	0.380*** (2.87)	0.317* (2.46)	4.255*** (2.70)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank and year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,973	1,711	2,254	2,269	2,280	2,270
Number of Banks	373	307	413	399	401	400
Adjusted R <sup>2</sup>	0.118	0.197	0.0901	0.178	0.331	0.186
F-test [A+B]=0	2.67	3.21*	2.11	11.03***	0.46	11.06***

**Table 4. The Effect of Board Quotas on Board Characteristics and Director Committees Membership**

This table reports the results assessing the impact of quotas on board characteristics in a [-3,+3] window centered around the quota year. *Post* is an indicator variable equal to one starting the year when the gender quota law is passed in the country and zero otherwise. “*Constrained*” banks are defined those did not meet the gender quota requirement as of year *t-1* relative to the enactment of the quota. For countries without specific quotas (i.e., Australia and Denmark), *Constrained* banks are those with no female directors in the pre-quota law period. Models (1)-(3) present regression results using the proportion of new female directors, retained male directors, and replaced male directors on the board and their characteristics. For example, *% new females* is the number of new female directors added in year *t*, scaled by the board size. Bank and country-level controls (not reported for brevity) include *Size*; *Deposits-to-assets*; *Board size (log)*; *% Independent directors*; *GDP growth*; *Log GDP per capita*; *Inflation*; *Restrictions on bank activities* and *Capital stringency*. All variables are defined in Appendix A. Robust *t*-statistics, with standard errors clustered at the bank level are in parentheses. \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Dependent variable:	% New Females	% New Female Insiders	% Retained Males Independent	% Retained Males Financial Expertise	% Replaced Males Independent	% Replaced Males Financial Expertise
	(1)	(2)	(3)	(4)	(5)	(6)
Post x Constrained [A]	0.030*** (3.15)	0.013* (1.69)	-0.073** (-2.06)	0.020 (1.29)	0.032* (1.67)	0.019** (2.42)
Post [B]	-0.007 (-0.89)	-0.004 (-0.56)	0.021 (0.88)	-0.005 (-0.60)	-0.026* (-1.86)	-0.014** (-2.03)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,313	2,313	2,313	2,313	2,313	2,313
Number of Banks	414	414	414	414	414	414
Adjusted R <sup>2</sup>	0.067	0.036	0.165	0.048	0.050	0.014
F-test [A+B]=0	12.83***	4.30**	3.49*	1.34	0.20	1.81

**Table 5. Impact of Quotas on Bank Risk through the Propagation Effect**

This table reports the results assessing whether female directors added to the board post quotas propagate risk management practices among boards that share the same directors. The table presents the impact of quotas on bank risk through the propagation of bank governance practices. As before, we examine the [-3,+3] window centered around the quota year. *Post* is an indicator variable equal to one starting the year when the gender quota law is passed in the country and zero otherwise. *Constrained* banks are defined those did not meet the gender quota requirement as of year  $t-1$  relative to the enactment of the quota. For countries without specific quotas (i.e., Australia and Denmark), *Constrained* banks are those with no female directors in the pre-quota law period. *Low Independence Gap* is equal to one when the lagged *Independence Gap*, the difference in board independence ( $WAIND_{b,t} - IND_{b,t}$ ) is below median (see Bouwman, 2011).  $WAIND_{b,t}$  is the weighted average % of independent directors at other banks with overlapping female directors, and  $IND_{b,t}$  is bank  $b$ 's % of independent directors in year  $t$ . Models (1) to (3) examine bank stand-alone risk measures and Models (4) to (6) examine systemic risk measures. Bank and country-level controls (not reported for brevity) include *Size*; *Deposits-to-assets*; *Board size (log)*; *% Independent directors*; *GDP growth*; *Log GDP per capita*; *Inflation*; *Restrictions on bank activities* and *Capital stringency*. Risk management variables (in Panel A) are obtained from NRG Metrics and cover the period 2011-2017. All variables are defined in Appendix A. Robust  $t$ -statistics, with standard errors clustered at the bank level are in parentheses. \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Dependent variable:	Stand-alone Risk			Systemic Risk		
	Z-score (1)	NPL-to-loans (2)	Leverage (3)	SRISK (4)	MES % (5)	LVG (6)
Post x Constrained x Low Indep. GAP	-1.264*** (-2.72)	3.970*** (2.65)	8.045* (1.83)	1.503** (2.41)	0.706 (1.16)	18.391** (2.42)
Post x Constrained	0.401 (1.12)	-0.562 (-0.43)	-4.981 (-1.20)	-0.842 (-1.45)	-0.531 (-0.93)	-10.208 (-1.43)
Post x Low Indep. GAP	0.200 (0.69)	0.331 (0.31)	0.570 (0.66)	-0.544 (-0.95)	-0.129 (-0.31)	-6.798 (-0.99)
Post	0.128 (0.47)	-1.222 (-1.18)	-0.881 (-1.26)	0.612 (1.09)	0.218 (0.57)	7.444 (1.09)
Constrained x Low Indep GAP	0.615*** (3.10)	-2.679*** (-3.11)	-0.680 (-0.24)	-0.289* (-1.83)	0.182 (0.78)	-3.890** (-2.20)
Low Indep. GAP	-0.049 (-0.54)	0.120 (0.34)	-0.272 (-0.83)	-0.078 (-1.22)	-0.065 (-0.49)	-1.083 (-1.41)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,709	1,528	1,981	1,990	1,999	1,991
# Banks	360	297	403	390	393	391
Adjusted R <sup>2</sup>	0.138	0.208	0.111	0.203	0.345	0.212

**Table 6. The Effect of Board Quotas on Bank Opacity.**

This table reports the results assessing the impact of quotas on bank opacity. Following prior studies (Beatty and Liao, 2014; Jiang et al., 2016), our measures of bank opacity are based on discretionary loan loss provisions LLP. Specifically, we first estimate Beatty and Liao's (2014) preferred LLP model:

$$LLP_{bct} = \alpha_0 dNPL_{bct+1} + \alpha_1 dNPL_{bct} + \alpha_2 dNPL_{bct-1} + \alpha_3 Size_{bct-1} + \alpha_4 GDPGROWTH_{ct} + \alpha_5 dUNEMP_{ct} + \gamma_c + \varepsilon_{bct}$$

*LLP* refers to bank *b* in country *c*'s loan loss provisions, scaled by lagged total loans; *dNPL* is the annual change in non-performing loans, scaled by lagged total loans; following Bushman and Williams (2012) and Jiang et al. (2016), we include the contemporaneous, lead, and lagged *dNPL* measure; *Size* is the natural logarithm of total assets; *GDPGROWTH* is the annual growth in real GDP; *dUNEMP* is the annual change in the unemployment rate in country *c*, and  $\gamma_c$  refers to country fixed effects. From the model, we create two bank opacity measures: 1) *DLLP* – is the absolute value of the residuals from estimation of the above equation; 2) *DLLP-ms* is the three-year moving sum of *DLLP*, following Hutton et al. (2009). *Constrained* (*Increase of two female directorships*) is an indicator for banks that did not meet the gender quota requirement as of year *t-1* relative to the enactment of the quota (banks that add two or more female directorships in the post quota law period). For countries without specific quotas (i.e., Australia and Denmark), *Constrained* banks are those with no female directors in the pre-quota law period. *Post* is an indicator variable equal to one starting the year when the gender quota law is passed in the country and zero otherwise. In Models (1)-(2) we show results using *DLLP*, and we use *DLLP-ms* in Models (3) and (4). All variables are defined in Internet Appendix A. Robust *t*-statistics, with standard errors clustered at the bank level are in parentheses. \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Dependent variable:	<i>DLLP</i>	<i>DLLP</i>	<i>DLLP-ms</i> 3-year moving sum	<i>DLLP-ms</i> 3-year moving sum
	(1)	(2)	(3)	(4)
Post x Constrained	0.002* (1.86)		0.010*** (3.62)	
Post x Increase of two female directorships		0.002* (1.77)		0.008*** (2.63)
Post	0.001 (0.99)	0.001 (1.06)	-0.001 (-0.43)	0.001 (0.45)
Log(assets) <sub>t-1</sub>	-0.001 (-1.29)	-0.001 (-1.33)	0.014** (2.40)	0.013** (2.37)
Equity-to-assets <sub>t-1</sub>	-0.000 (-1.62)	-0.000* (-1.65)	0.000 (0.50)	0.000 (0.46)
LLP <sub>t-1</sub>	0.054 (1.15)	0.054 (1.16)	0.125 (0.54)	0.130 (0.57)
Log GDP per capita <sub>t-1</sub>	0.002 (0.40)	0.002 (0.39)	-0.034* (-1.86)	-0.032* (-1.77)
GDP growth <sub>t-1</sub>	0.000** (2.58)	0.000*** (2.60)	-0.000 (-0.55)	-0.000 (-0.50)
Inflation <sub>t-1</sub>	-0.000 (-1.14)	-0.000 (-1.17)	0.001 (1.00)	0.001 (0.92)
Restrictions on bank activities	-0.000 (-0.32)	-0.000 (-0.38)	0.003** (2.34)	0.003** (2.24)
Capital stringency	0.000 (0.67)	0.000 (0.73)	-0.002 (-1.41)	-0.002 (-1.38)
Year fixed effects	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes
Observations	1,357	1,357	1,074	1,074
# Banks	266	266	255	255
Adjusted R <sup>2</sup>	0.032	0.032	0.060	0.057

**Table 7. Diverse Effect of Board Quotas: Female Labor Supply and Gender Equality**

This table reports the diverse effect of quotas on bank risk in a [-3,+3] window centered around the quota law year, depending on labor market constraint and national culture. *Post* is an indicator variable equal to one starting the year when the gender quota law is passed in the country and zero otherwise. *Low Women in Finance (Low gender equality)* is an indicator variable equal to one if the country's share of women in the financial services industry (gender equality measure) is below the cross-country median and zero otherwise. To rank countries, we first obtain the time series average by country and rank countries based on the median value of this variable. "Constrained" banks are defined those did not meet the gender quota requirement as of year *t-1* relative to the enactment of the quota. For countries without specific quotas (i.e., Australia and Denmark), *Constrained* banks are those with no female directors in the pre-quota law period. Bank and country-level controls (not reported for brevity) include *Size*; *Deposits-to-assets*; *Board size (log)*; *% Independent directors*; *GDP growth*; *Log GDP per capita*; *Inflation*; *Restrictions on bank activities* and *Capital stringency*. All variables are defined in Appendix A. Robust *t*-statistics, with standard errors clustered at the bank level are in parentheses. \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

<b>Panel A: Women in Finance</b>						
<b>Dependent variable:</b>	<b>Stand-alone Risk</b>			<b>Systemic Risk</b>		
	<b>Z-score</b>	<b>NPL-to-loans</b>	<b>Leverage</b>	<b>SRISK</b>	<b>MES %</b>	<b>LVG</b>
	(1)	(2)	(3)	(4)	(5)	(6)
Post x Constrained x Low Women in Fin (C)	0.202 (0.34)	-1.235 (-0.63)	9.089*** (2.72)	1.278*** (2.86)	0.034 (0.08)	15.789*** (2.97)
Post x Constrained (B)	-0.633 (-1.28)	1.006 (1.12)	-4.701 (-1.60)	-0.227 (-0.70)	-0.038 (-0.14)	-2.951 (-0.79)
Post x Low Women in Finance	-0.098 (-0.32)	4.253*** (3.43)	-1.290 (-1.24)	-0.440* (-1.73)	0.438* (1.79)	-5.612* (-1.78)
Post (A)	0.227 (1.29)	-2.552*** (-3.66)	0.406 (0.49)	0.447** (2.17)	0.061 (0.38)	5.344** (2.09)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,722	1,489	1,953	1,969	1,979	1,970
# Banks	319	267	355	342	344	343
Adjusted R <sup>2</sup>	0.112	0.241	0.106	0.198	0.346	0.202
<b>Panel B: Gender Equality</b>						
<b>Dependent variable:</b>	<b>Stand-alone Risk</b>			<b>Systemic Risk</b>		
	<b>Z-score</b>	<b>NPL-to-loans</b>	<b>Leverage</b>	<b>SRISK</b>	<b>MES %</b>	<b>LVG</b>
	(1)	(2)	(3)	(4)	(5)	(6)
Post x Constrained x Low Gender Equality (C)	0.104 (0.19)	-0.674 (-0.36)	6.872** (2.31)	0.896** (2.11)	-0.124 (-0.31)	11.484** (2.24)
Post x Constrained (B)	-0.266 (-0.85)	0.139 (0.20)	-1.905 (-0.80)	0.149 (0.57)	-0.048 (-0.21)	1.661 (0.53)
Post x Low Gender Equality	-0.811** (-2.09)	5.574*** (3.73)	-0.616 (-0.44)	-0.105 (-0.34)	1.045*** (3.96)	-2.313 (-0.61)
Post (A)	0.359** (2.33)	-1.849** (-2.52)	-0.099 (-0.13)	0.232 (1.22)	-0.123 (-0.89)	2.956 (1.26)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,854	1,619	2,133	2,135	2,146	2,136
# Banks	347	286	386	372	374	373
Adjusted R <sup>2</sup>	0.120	0.226	0.101	0.189	0.322	0.195

## Appendix A. Variable Definitions

Variables	Description	Source
<b>Variables of interest</b>		
<i>% female directors</i>	Percentage of female directors on the board.	ISS Global Directors Database
<i>Z-score</i>	The log of Z-score. Z-score is estimated as: $(ROA+equity/assets) / \sigma(ROA)$ ; the standard deviation of ROA, $\sigma(ROA)$ , is estimated as a 3-year moving average using quarterly data.	Fitch Fundamentals Financial data
<i>NPL-to-loans %</i>	Total non-performing loans (past-due 90 days or more) divided by total loans.	Fitch Fundamentals Financial data
<i>Leverage</i>	Total assets divided by the book value of equity.	Fitch Fundamentals Financial data
<i>MES (%)</i>	The negative of the average stock return of the bank when the country's stock market is in the 5% left tail of returns.	DataStream. Authors' calculations.
<i>SRISK</i>	SRISK, scaled by market capitalization. SRISK is the expected capital shortfall (US \$million) when the country's stock market is in the 5% left tail of returns. $SRISK_{i,t} = kD_{it} - (1 - k)W_{it}(1 - LRMES_{it})$ . LRMES is the long-run marginal expected shortfall. $LRMES = 1 - \exp(-18 \times MES)$ ; W is the market value of equity, and k is the prudential capital ratio (set to 8%), and D is the book value of debt.	DataStream; Fitch Fundamentals Financial data. Authors' calculations.
<i>LVG</i>	Market leverage. The market value of equity plus the book value of liabilities, scaled by the market value of equity.	DataStream; Fitch Fundamentals Financial data. Authors' calculations.
<i>Post</i>	An indicator equal to one starting the year after a treatment country enacts legislation or adopts corporate governance codes addressing board gender composition, and zero otherwise.	EU (2012), Smith (2014), Deloitte (2016), Catalyst (2018).
<i>Constrained</i>	An indicator variable equal to one for banks that do not meet the gender quota requirement as of year $t-1$ relative to the enactment of the quota law and zero otherwise.	ISS Global Directors Database
<i>Add two or more female directorships</i>	An indicator variable equal to one for banks that add two or more female directorships in the post quota law period and zero otherwise; we compute the change in female directors, as the difference between the number of female directors as of $t-1$ , and the maximum number of female directors years $t+1$ to $t+3$ .	ISS Global Directors Database
<i>Constrained -All male board</i>	An indicator variable equal to one for banks with all-male boards as of year $t-1$ relative to the enactment of the quota law and zero otherwise.	ISS Global Directors Database
<b>Board-level characteristics</b>		
<i>Attendance problem</i>	The proportion of directors with attendance problems (failed to attend 75% of board meetings in a year).	ISS Global Directors Database
<i>Board size (log)</i>	Log of the total number of directors.	ISS Global Directors Database
<i>Director age (average)</i>	Average age of directors.	ISS Global Directors Database
<i>Financial expert on board</i>	Indicator variable equal to one if the board has a financial expert and zero otherwise.	
<i>% Independent directors</i>	Percentage of independent directors on the board. Independent directors are those classified by ISS as Independent Outsiders (those with no material connections to the company other than the board seat).	ISS Global Directors Database
<i># Outside boards</i>	Average number of outside boards held by bank's directors.	ISS Global Directors Database
<i>Tenure</i>	The average tenure of the bank's directors.	ISS Global Directors Database

## Appendix A. Variable Definitions. Continued.

<b>Variables</b>	<b>Description</b>	<b>Source</b>
<b>Other bank-level variables</b>		
<i>ROA</i>	Net income divided by average book value of assets.	Fitch Fundamentals Financial data
<i>Size</i>	The log of the book value of assets.	Fitch Fundamentals database
<i>Deposits-to-assets</i>	The ratio of total deposits to the book value of assets.	Fitch Fundamentals database
<i>Active risk committee</i>	An indicator equal to one if the bank has a risk committee and its audit committee meets more frequently than the median audit committee in its country each year.	NRG Metrics.
<i>CRO</i>	An indicator variable that equals one if the bank has a Chief Risk Officer and zero otherwise.	NRG Metrics.
<i>Risk committee</i>	An indicator variable that equals one if the bank has Risk Management Committee and zero otherwise.	NRG Metrics.
<i>Risk committee experience</i>	An indicator that equals one if the bank has a risk committee and at least one independent member of the audit committee is classified as a financial expert.	NRG Metrics.
<i>RMI</i>	A risk management index, following Ellul and Yerramilli (2013). The first principal component of four indicators: Chief Risk Officer (CRO) presence; Risk committee; Risk committee experience; and Active audit/risk committee.	NRG Metrics.
<i>Institutional ownership %</i>	Total institutional ownership as of year-end. The proportion of shares held by institutional investors.	Refinitiv Eikon
<b>Country-level controls</b>		
<i>Log GDP per capita</i>	The log of real GDP per capita.	World Development Indicators
<i>GDP growth</i>	Annual growth rate of real GDP.	Worldwide Development Indicators
<i>Inflation</i>	Percent change in Consumer Price Index (CPI).	World Development Indicators
<i>Restrictions on bank activities</i>	Index measuring regulatory impediments to banks engaging in securities market activities, insurance activities, and real estate activities.	Barth, Caprio, and Levine. (2013)
<i>Capital stringency</i>	Index measuring the stringency of regulations regarding how much capital banks must hold, as well as the sources of funds that count as regulatory capital. The index ranges from 0-10, with higher values indicating greater stringency.	Barth, Caprio, and Levine. (2013)
<i>Women in Finance %</i>	Women's share of employment in the financial services industry. From ILO Employment by Sex and Economic Activity, Revision 4 (ISIC Rev. 4).	ILOSTAT
<i>Gender Inequality Index</i>	An index for measurement of gender disparity introduced by the United Nations Development Programme. It is a composite measure to quantify the loss of achievement within a country due to gender inequality, with higher values associated with more inequality.	United Nations Human Development Report
<i>MPI</i>	The updated macroprudential policy index that describes the extent of use of 12 macroprudential instruments.	Cerutti et al. (2017). <a href="https://www.eugeniocerutti.com/datasets">https://www.eugeniocerutti.com/datasets</a> .
<i>Unemployment rate</i>	Total unemployment rate.	Datastream



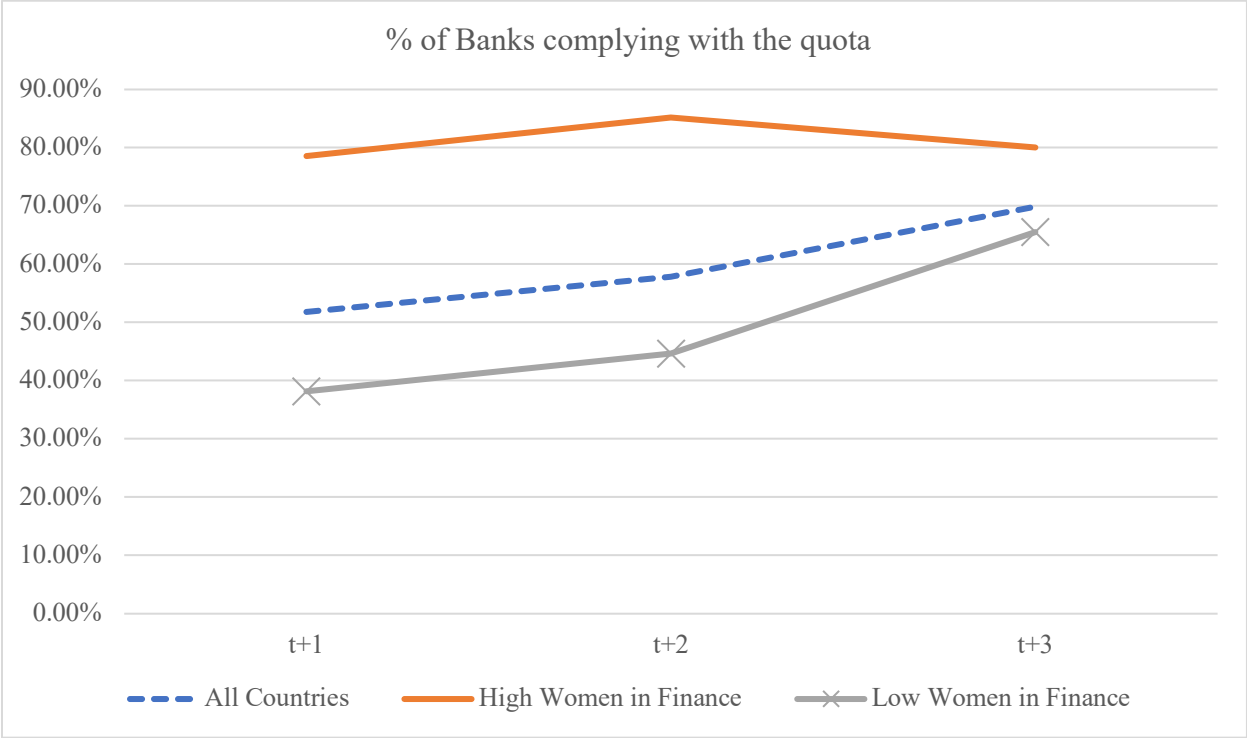
**Appendix A. Variable Definitions. Continued.**

<b>Variables</b>	<b>Description</b>	<b>Source</b>
<i>Director characteristics</i>		
<i># outside boards</i>	The number of outside boards held by a director.	ISS Global Directors Database
<i>Age</i>	Director's age.	ISS Global Directors Database
<i>Audit experience</i>	Indicator variable equal to one if the director has prior audit committee experience and zero otherwise.	ISS Global Directors Database
<i>Attendance problem</i>	Indicator variable equal to one if the director did not attend at least 75% of meetings and zero otherwise.	ISS Global Directors Database
<i>Board experience</i>	Indicator variable equal to one if the director has prior board experience and zero otherwise.	ISS Global Directors Database
<i>Bank board experience</i>	Indicator variable equal to one if the director has prior bank board experience and zero otherwise.	ISS Global Directors Database
<i>Compensation experience</i>	Indicator variable equal to one if the director has prior compensation committee experience and zero otherwise.	ISS Global Directors Database
<i>Financial expert</i>	Indicator equal to one if the director is classified as a financial expert by ISS and zero otherwise.	ISS Global Directors Database
<i>Independent</i>	Indicator equal to one if the director is independent and zero otherwise. Independent directors are those classified by ISS as Independent Outsiders (those with no material connections to the company other than the board seat).	ISS Global Directors Database
<i>Nominating experience</i>	Indicator variable equal to one if the director has prior nominating committee experience and zero otherwise.	ISS Global Directors Database
<i>Tenure</i>	Tenure of the director.	ISS Global Directors Database

**Internet Appendix  
to  
“Gender Quotas and Bank Risk”**

**Figure IA.1. Speed of Compliance**

This figure shows the percentage of banks in quota law countries that comply with the quota in years  $t+1$  through  $t+3$  around the enactment of the quota law. Countries with *High (low) women in finance* are those with above (below) median share of women in the financial services industry. For banks in countries without a specific quota (Australia and Denmark), we code banks as being in compliance in year  $t$  if the bank has at least one female director on board in year  $t$ . See Table 1 for the details on reform countries and quotas.



**Table IA.1. Board Gender Diversity Regulation (Law/Code) by treatment and control countries**

Treatment Country	Regulation	Year	Description	Source
Australia	Code	2010	On a comply-or-explain basis, the Australian Corporate Governance Code states that "companies should establish a policy concerning diversity and disclose the policy or a summary of that policy. The policy should include requirements for the board to establish measurable objectives for achieving gender diversity and for the board to assess annually both the objectives and progress in achieving them." (...) "The measurable objectives should identify ways in which the achievement of gender diversity is measured, for example, the proportion of women employed by (or consultants to) the company, in senior executive positions and on the board."	Australian Corporate Governance Principles and Recommendations, 2010.
	Law	2012	The Australian Stock Exchange board gender diversity recommendation of 2012 was later amended by the Australian Institute of Company Directors, in 2015, to set a voluntary <b>30% female</b> board representation. Firms that fail to comply with the minimum standard or do not improve board female representation in the following two years are asked to explain. Non-compliers may also be excluded from government contracts or financial assistance. <b>Not binding.</b>	Deloitte (2016); Catalyst (2018b)
Belgium	Code	2009	On a comply-or-explain basis, the Corporate Governance Code states that the board composition of publicly traded firms should reflect gender diversity and diversity overall, as well as skills, experience, and knowledge.	Catalyst (2018a)
	Law	2011	Under Belgium Law (July 28, 2011) public companies and government-owned firms are required to have <b>at least one third</b> of male and female directors in their boards. Large public companies are required to comply by 2017; other listed companies are required to comply by 2019. <b>Binding.</b>	Deloitte (2016)
Denmark	Code	2008	On a comply-or-explain basis, the Committee for Corporate Governance Recommendations states that "to ensure the quality of board work and thus increase the supervisory board's contribution to the value creation, it is important that the composition of the supervisory board is regularly reviewed, including as regards diversity in relation to gender and age, etc."; "...when assessing its composition, the supervisory board takes diversity into consideration in relation to gender, age, etc."	Committee for Corporate Governance Recommendations, 2008; Catalyst (2018a)
	Law	2012	Listed companies, large nonlisted companies, state-owned companies and governmental institutions are required to comply with a <b>40% quota</b> for both genders on the board. Companies that do not comply are required to publicly disclose their progress towards gender equality. This also applies to management positions. <b>Not binding.</b>	Deloitte (2016)

Treatment Country	Regulation	Year	Description	Source
France	Code	2010	On a comply-or-explain basis the Corporate Governance Code of April 2010, states that companies should have at least 20% of female directors by 2013 and 40% by 2016. Companies with no female directors should nominate a female to the board either through replacement of a male or appointment of a new director. In companies with less than nine board members, the gap between men and women at the end of six years, cannot be greater than two.	Corporate Governance Code of Listed Corporations, 2010; Catalyst (2018a)
	Law	2011	Gender Equality Law of 2011 requires a <b>40% quota</b> for both gender, effective in 2017 (and at least 20% as of 2014). If the board has less than nine directors, no gender can hold more than a two-seat difference. The quota applies to publicly traded companies, governmental organizations, and private firms with sales or assets above €50 million and more than 500 employees for three consecutive years. <b>Binding.</b>	Deloitte (2016)
Germany	Code	2010	On a comply-or-explain basis, the German Corporate Governance Code states that appointments to executive and supervisory boards should respect gender diversity. The supervisory board should define target quotas for women representation. These goals and their implementation status should be published in the Corporate Governance Report.	German Corporate Governance Code, 2014; Catalyst (2018a)
	Law	2015	German Law requires that companies set a <b>quota, no lower than 30%</b> as of 2016, for women representation in their supervisory and executive boards. Non-compliance can have their member appointments contested. <b>Binding.</b>	Deloitte (2016)
India	Law	2013	The Companies Act of August 2013 requires <b>at least one woman in the board</b> of public companies (i.e., companies with paid-up capital shares above 100 billion rupees or turnover above 300 billion rupees. After a women director leaves the board, she needs to be replaced within three months, or in the next board meeting, whichever is later. Fines can be applied to non-compliance (from 50K to 500K rupees). <b>Binding.</b>	Deloitte (2016); Catalyst (2018b)
	Code	2014	The Listing Agreement Requirement of the Security Exchange Board of India states that all listed companies should have at least one female in the board of directors.	Catalyst (2018a)

Treatment Country	Regulation	Year	Description	Source
Italy	Code	2011	The Corporate Governance Code of 2011 states that board of directors is required to carry out a self-assessment "to verify that the various members (executive, non-executive, independent) and the professional and managerial competences, including international experience, are adequately represented, taking into account also the benefits that could stem from the presence of different genders, age and seniority".	Corporate Governance Code, 2011.
	Law	2011	The gender quota Law 120 of July 2011 applies to publicly traded companies in regulated markets and companies subject to public scrutiny. The law requires a minimum of <b>1/3 of female</b> and male members in the board of directors and in the board of statutory auditors (the requirement is 1/5 for 2012). This requirement should be reached by 2015. The provisions of the law apply in occasion of the first renewal of the board of directors and the board of statutory auditors. The same applies to government-owned companies. New director appointments for the less represented gender are required to be carried out in accordance with the law. Non-compliants are notified by the Italian securities regulator and are given four months to comply. Fines are applied if after that period non-compliance persists (€100K to €1M in case of the board; €20K to €200K in case of the statutory auditors). Continued noncompliance can result in the board of directors or the board of statutory auditors being replaced. <b>Binding.</b>	European Commission (2012); Deloitte (2016)
Netherlands	Code	2008	The Dutch Corporate Governance Code of 2008 states that "the supervisory board shall aim for a diverse composition in terms of such factors as gender and age." (...) "An important means of promoting independent action of the supervisory board is to ensure the diversity of its composition in terms of such factors as age, gender, expertise, social background or nationality."	Dutch Corporate Governance Code, 2008.
	Law	2011	Under the Dutch Management and Supervisory Act <sup>1</sup> , large legal entities should have <b>at least a 30 percent</b> representation of each gender on their management and supervisory boards as of 2013. While the act formally expired in 2016, it was extended in early 2017 by the Dutch Parliament under the same terms. The government has stated that if the targets are not met, a mandatory gender quota will come into effect. <b>Not binding</b> but need to explain in case of non-compliance.	European Commission (2012); Deloitte (2016)

Control Country	Regulation	Year	Description	Source
Austria	Code	2009	The Austrian Code of Corporate Governance states that "the aspects of diversity of the supervisory board with respect to the international background of the members, the representation of both genders, and the age structure are to be taken into account." On a comply-or-explain basis, the Austrian Commercial Code recommends that the Corporate Governance Reports should state the firms' procedures to promote female participation in the executive and supervisory boards.	Austrian Corporate Governance Code, 2009; Catalyst (2018a)
Greece	Code	2013	The Hellenic Corporate Governance Code for Listed Companies of 2013 states that "the responsibilities of the nomination committee should include (...) proposing the board diversity policy including gender balance; (...) evaluating the balance of skills, views, competences, knowledge, qualifications and experience, relevant to the business objectives, as well as gender diversity and, in light of this evaluation, preparing a description of the role and capabilities required for a particular appointment". Moreover, it also states that companies' policies for board gender balance should be published in their websites.	Hellenic Corporate Governance Code, 2013.
Hong Kong	Code	2013	On a comply-or-explain basis, the Hong Kong Corporate Governance Code requires that boards should have a policy to promote diversity, which should be disclosed and explained in the corporate governance report. The Code defines diversity in several dimensions that include gender, age, cultural background, educational, professional experience, among others.	Catalyst (2018a)
Ireland	Code	2010	Ireland follows the United Kingdom Corporate Governance Code (see below)	Catalyst (2018a)
Israel	Law	1999	Israeli Companies Law states that in companies with board composed of only one gender, any new appointments must be of the other gender. Requirements are stronger for government-owned companies: all government-owned companies should have an equal number of women in their boards (1993 amendment of 1975 Governmental Companies Law). Government-owned corporations must have an equal number of female and male board seats within two years of the resolution's date (Government Resolution No. 1362 of March of 2007).	Deloitte (2016)
Japan	Code	2014	The Japanese Corporate Governance Code of 2014 suggests companies to report the current status of women's representation on corporate boards. More generically, the Code states that "companies should promote diversity of personnel, including the active participation of women."	Japan's Corporate Governance Code, 2014; Catalyst (2018a)
Malaysia	Code	2011	The Securities Commission Malaysia recommends publicly traded firms to reach a 30% female board representation by 2016.	Securities Commission Malaysia, 2011; Catalyst (2018a)

Control Country	Regulation	Year	Description	Source
Norway	Code	2004	The Norwegian Code of Practice for Corporate Governance states that "the composition of the board of directors as a whole should represent sufficient diversity of background and expertise to help ensure that the board carries out its work in a satisfactory manner. In this respect due attention should be paid to the balance between male and female members of the board."	Norwegian Code of Practice for Corporate Governance, 2004.
	Law	2003	The relevant gender quota law, adopted in 2003, set a target of <b>40% for both genders</b> in corporate boards to be reached before 2008. The Norwegian Public Limited Liability Companies Act was amended to state: "1. If the board of directors has two or three members, both sexes shall be represented. 2. If the board of directors has four or five members, each sex shall be represented by at least two members. 3. If the board of directors has six to eight members, each sex shall be represented by at least three members. 4. If the board of directors has nine members, each sex shall be represented by at least four members, and if the board of directors has more members, each sex shall represent at least 40 percent of the members of the board." Disclosure of the state of diversity within the company is also required under the Norwegian Accounting Act. <b>Binding</b>	European Commission (2012); The Norwegian Public Limited Liability Companies Act (2003); Deloitte (2016)
Poland	Code	2010	The Warsaw Stock Exchange Code of Best Practice for Listed Companies "recommends to public companies and their shareholders that they ensure a balanced proportion of women and men in management and supervisory functions in companies, thus reinforcing the creativity and innovation of the companies' economic business."	Code of Best Practice for WSE Listed Companies, 2010.
Singapore	Code	2012	The Corporate Governance Code of Singapore (2012) states that "the Board and its board committees should comprise directors who as a group provide an appropriate balance and diversity of skills, experience, gender and knowledge of the company."	Singapore Corporate Governance Code, 2012.
South Africa	Code	2009	Under the South African Corporate Governance Code, boards should consider diversity in its composition; diversity includes gender among other characteristics, such as academic qualifications, expertise, industry knowledge, nationality, age, and race.	Catalyst (2018a)
Spain	Code	2006	The Spanish Unified Code of Corporate Governance of 2006 states that "when women directors are few or non-existent, the Board should state the reasons for this situation and the initiatives taken to correct it." "The Nomination Committee should take steps to ensure that: a. The process of filling Board vacancies has no hidden bias against women candidates; b. the company makes a conscious effort to include women with the target profile among the candidates for Board places."	Unified Code of Corporate Governance, 2006.
	Law	2007	"Law of Equality" of 2007 recommends public companies to increase the number of female board seats up to <b>40%</b> until 2015. <b>Not binding</b> . However, companies that do not comply will be penalized in public contracts.	European Commission (2012); Deloitte (2016)



Control Country	Regulation	Year	Description	Source
Sweden	Code	2004	On a comply-or-explain basis, the Swedish Code of Corporate Governance states that "the board is to have an appropriate composition, exhibiting diversity and breadth in the directors' qualifications, experience and background. An equal gender distribution on the board is to be an aim."	Swedish Code of Corporate Governance, 2004; Catalyst (2018a)
Switzerland	Code	2014	The Swiss Code of Best Practice for Corporate Governance (2014) states that "the Board of Directors should be comprised of male and female members. They should have the necessary abilities to ensure an independent decision-making process in a critical exchange of ideas with the Executive Board." (...) "The Board of Directors should guarantee that there is an appropriate diversity among its members."	Swiss Code of Best Practice for Corporate Governance, 2014.
Thailand	Code	2012	Under the Principles of Good Corporate Governance for Listed Companies, the Stock Exchange of Thailand recommends that "the board should be comprised of directors who as a group provide an appropriate balance and diversity of skills, experience, gender and at least one non-executive director having prior working experience in the major industry the company is operating in. The board should ensure that the board's diversity policy and the number of years each director has been with the company are disclosed in the annual report and the company's website."	Stock Exchange of Thailand, 2012.
United Kingdom	Code	2010	On a comply-or-explain basis the United Kingdom Corporate Governance Code states that "the search for board candidates should be conducted, and appointments made, on merit, against objective criteria and with due regard for the benefits of diversity on the board, including gender." The Nominating committee should specify the board's policy on gender diversity. The evaluation of the board should include among other things its gender diversity.	The United Kingdom Corporate Governance Code, 2010; Catalyst (2018a)

References:

Catalyst, 2018a. "Regulatory Board Diversity".

Catalyst, 2018b. "Legislative Board Diversity".

Deloitte, 2016. "Women in the Boardroom: A global perspective", 5th ed.

European Commission, 2012. "Women in the economic decision-making in the EU: Progress report".

**Table IA.2. Validity of DiD Research Design**

This table reports the results assessing the impact of quotas on bank risk in a [-3,+3] window centered around the quota year. The results use five separate indicators that correspond to  $t-2$ ,  $t-1$ ,  $t$ ,  $t+1$ ,  $t \geq 2$ , with  $t$  being the year of passage of quota law. *Constrained* is an indicator variable equal to one for banks that do not meet the gender quota requirement as of year  $t-1$  relative to the enactment of the quota law and zero otherwise. Bank and country-level controls (not reported for brevity) include *Size*; *Deposits-to-assets*; *Board size (log)*; *% Independent directors*; *GDP growth*; *Log GDP per capita*; *Inflation*; *Restrictions on bank activities* and *Capital stringency*. All variables are defined in Appendix A. Robust  $t$ -statistics, with standard errors clustered at the bank level are in parentheses. \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Dependent variable:	Z-score	Stand-alone Risk			Systemic Risk	
		NPL-to-loans	Leverage	SRISK	MES %	LVG
	(1)	(2)	(3)	(4)	(5)	(6)
t-2 x Constrained	0.079 (0.26)	0.178 (0.13)	-7.949 (-1.33)	-0.155 (-0.49)	-0.249 (-0.70)	-2.500 (-0.65)
t-1 x Constrained	-0.203 (-0.65)	1.853 (1.26)	-6.657 (-1.19)	0.044 (0.15)	0.142 (0.40)	0.485 (0.13)
t=0 x Constrained	0.000 (1.14)	-0.001 (-0.85)	0.003 (0.92)	-0.000 (-0.58)	0.000 (0.82)	-0.001 (-0.47)
t+1 x Constrained	-0.427 (-1.06)	2.221 (1.38)	-6.050 (-0.96)	0.533 (1.64)	0.847** (2.30)	5.916 (1.49)
$\geq t+2$ x Constrained	-0.732* (-1.70)	4.382** (2.25)	-5.392 (-0.92)	0.594* (1.73)	0.085 (0.20)	6.962* (1.71)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,973	1,711	2,254	2,269	2,280	2,270
Number of Banks	373	307	413	399	401	400
Adjusted R <sup>2</sup>	0.124	0.220	0.112	0.196	0.343	0.202

### Table IA.3. Are Female Directors Replacing Other Directors Post Quota Laws?

The table presents summary statistics for banks that added female directors post quota laws. Column 1 presents the % of banks that had at least one exiting director in the same year when the female director was added. Column 2 presents the % of banks that had at least one exiting male director in the same year when the female director was added. “*Constrained*” banks are those that did not meet the gender quota requirement as of year  $t-1$  relative to the enactment of the quota. For countries without specific quotas (i.e., Australia and Denmark), *Constrained* banks are those with no female directors in the pre-quota law period.

	(0, +3)	
	% Replaced Directors	% Replaced Male Directors
	(1)	(2)
Constrained Banks	77.8%	73.0%
Unconstrained Banks	86.4%	75.0%

**Table IA.4. Director-Level Regressions: The Effect of Board Quotas on Director Committees Membership.**

This table reports the results assessing the impact of quotas on director committee membership and member characteristics in a [-3,+3] window centered around the quota year. *Post* is an indicator variable equal to one starting the year when the gender quota law is passed in the country and zero otherwise. “*Constrained*” banks are defined those did not meet the gender quota requirement as of year *t*-1 relative to the enactment of the quota. For countries without specific quotas (i.e., Australia and Denmark), *Constrained* banks are those with no female directors in the pre-quota law period. The table presents regression results on directors’ committee membership for all directors in Models (1)-(3) and director characteristics where female directors are added to committees in Models (4) to (6). Bank and country-level controls (not reported for brevity) include *Size*; *Deposits-to-assets*; *Board size (log)*; % *Independent directors*; *GDP growth*; *Log GDP per capita*; *Inflation*; *Restrictions on bank activities* and *Capital stringency*. All variables are defined in Appendix A. Robust *t*-statistics, with standard errors clustered at the bank level are in parentheses. \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Dependent variable:	All Directors			Directors on Committees		
	Committee member	Audit committee	Compensation committee	Log (# of outside boards)	Former CEO	Log (Age)
	(1)	(2)	(3)	(4)	(5)	(6)
Post x Constrained x Female director	0.330*** (3.26)	0.263*** (3.38)	0.182* (1.94)	0.326*** (2.76)	-0.010 (-1.62)	-0.071** (-2.38)
Post x Constrained	0.014 (0.40)	0.026 (0.87)	-0.077*** (-3.15)	-0.026 (-0.41)	0.011 (1.33)	-0.002 (-0.12)
Post x Female director	-0.124** (-2.37)	-0.085* (-1.71)	-0.093* (-1.88)	0.024 (0.34)	0.012*** (2.91)	0.014 (0.70)
Constrained x Female director	-0.221** (-2.56)	-0.199*** (-2.73)	-0.038 (-0.51)	-0.414*** (-4.89)	0.007 (1.25)	0.036 (1.36)
Post	0.042* (1.75)	0.018 (0.92)	0.057*** (3.01)	0.030 (0.62)	-0.010 (-1.63)	-0.007 (-0.77)
Female director	0.034* (1.85)	0.055*** (2.87)	-0.012 (-0.70)	-0.023 (-0.68)	-0.010*** (-2.71)	-0.087*** (-9.34)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	26,119	26,119	26,119	12,119	12,195	11,461
Adjusted R <sup>2</sup>	0.150	0.0841	0.0972	0.295	0.0716	0.277

**Table IA.5. The Effect of Board Quotas on Bank Risk – Add Female Directors to Committees**

This table reports the results assessing the impact of quotas on bank risk in a [-3,+3] window centered around the quota year. *Post* is an indicator variable equal to one starting the year when the gender quota law is passed in the country and zero otherwise. “*Constrained*” banks are defined those did not meet the gender quota requirement as of year *t*-1 relative to the enactment of the quota. For countries without specific quotas (i.e., Australia and Denmark), *Constrained* banks are those with no female directors in the pre-quota law period. Models (1) to (3) examine bank stand-alone risk measures and Models (4) to (6) examine systemic risk measures. Panel A (Panel B) presents regressions results where female directors are added to audit (compensation) committees. Bank and country-level controls (not reported for brevity) include *Size*; *Deposits-to-assets*; *Board size (log)*; *% Independent directors*; *GDP growth*; *Log GDP per capita*; *Inflation*; *Restrictions on bank activities* and *Capital stringency*. All variables are defined in Appendix A. Robust *t*-statistics, with standard errors clustered at the bank level are in parentheses. \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

<b>Panel A: Add Female Directors to Audit Committees</b>						
<b>Dependent variable:</b>	<b>Z-score</b>	<b>Stand-alone Risk</b>		<b>Systemic Risk</b>		
		<b>NPL-to-loans</b>	<b>Leverage</b>	<b>SRISK</b>	<b>MES %</b>	<b>LVG</b>
	(1)	(2)	(3)	(4)	(5)	(6)
Post x Constrained x Add female to audit	-1.152** (-2.36)	3.666** (2.11)	1.876 (0.65)	0.273 (0.66)	0.379 (0.95)	3.487 (0.69)
Post x Constrained	-0.031 (-0.11)	0.345 (0.28)	0.671 (0.36)	0.487* (1.94)	0.016 (0.06)	5.708* (1.93)
Post x Add female to audit	0.307 (1.13)	-0.989 (-0.86)	-0.581 (-0.63)	0.092 (0.35)	-0.344 (-1.60)	1.572 (0.48)
Post	0.032 (0.15)	-0.197 (-0.21)	0.011 (0.01)	0.170 (1.03)	0.311** (2.27)	1.734 (0.86)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,973	1,711	2,254	2,269	2,280	2,270
# Banks	373	307	413	399	401	400
Adjusted R <sup>2</sup>	0.128	0.202	0.0891	0.182	0.331	0.190

<b>Panel B: Add Female Directors to Compensation Committees</b>						
<b>Dependent variable:</b>	<b>Z-score</b>	<b>Stand-alone Risk</b>		<b>Systemic Risk</b>		
		<b>NPL-to-loans</b>	<b>Leverage</b>	<b>SRISK</b>	<b>MES %</b>	<b>LVG</b>
	(1)	(2)	(3)	(4)	(5)	(6)
Post x Constrained x Add female to comp.	-1.059** (-2.27)	3.380** (1.97)	3.363 (1.21)	0.965** (2.47)	0.397 (1.03)	11.787** (2.50)
Post x Constrained	0.006 (0.02)	0.375 (0.30)	-0.173 (-0.16)	0.165 (0.67)	-0.008 (-0.03)	1.854 (0.63)
Post x Add female to comp.	0.159 (0.55)	-1.776 (-1.58)	-1.012 (-1.06)	-0.228 (-0.89)	-0.319 (-1.50)	-2.655 (-0.84)
Post	0.088 (0.50)	0.192 (0.19)	0.232 (0.30)	0.306* (1.68)	0.312** (1.98)	3.514 (1.54)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,973	1,711	2,254	2,269	2,280	2,270
# Banks	373	307	413	399	401	400
Adjusted R <sup>2</sup>	0.129	0.200	0.091	0.187	0.331	0.194

**Table IA.6. Propagation of Bank Risk Management Practices**

This table reports the results assessing whether female directors added to the board post quotas propagate risk management practices among boards that share the same directors. We examine whether shared female directors influence changes in bank risk management practices post quota. As before, we examine the [-3,+3] window centered around the quota year. *Post* is an indicator variable equal to one starting the year when the gender quota law is passed in the country and zero otherwise. *Constrained*<sup>2</sup> banks are defined those did not meet the gender quota requirement as of year *t*-1 relative to the enactment of the quota. For countries without specific quotas (i.e., Australia and Denmark), *Constrained* banks are those with no female directors in the pre-quota law period. *Low Independence Gap* is equal to one when the lagged *Independence Gap*, the difference in board independence ( $WAIND_{b,t} - IND_{b,t}$ ) is below median (see Bouwman, 2011).  $WAIND_{b,t}$  is the weighted average % of independent directors at other banks with overlapping female directors, and  $IND_{b,t}$  is bank *b*'s % of independent directors in year *t*. Bank and country-level controls (not reported for brevity) include *Size*; *Deposits-to-assets*; *Board size (log)*; *% Independent directors*; *GDP growth*; *Log GDP per capita*; *Inflation*; *Restrictions on bank activities* and *Capital stringency*. Risk management variables (in Panel A) are obtained from NRG Metrics and cover the period 2011-2017. All variables are defined in Appendix A. Robust *t*-statistics, with standard errors clustered at the bank level are in parentheses. \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Dependent variable:	Risk				
	RMI	Risk committee	Chief Risk Officer	Committee Experience	Active Risk Committee
	(1)	(2)	(3)	(4)	(5)
Post x Constrained x Low Independence GAP	-1.888*** (-5.21)	-0.764*** (-7.91)	0.031 (0.29)	-0.744*** (-7.32)	-0.219 (-0.53)
Post x Constrained	2.062*** (7.87)	0.803*** (8.96)	0.095 (0.87)	0.776*** (8.45)	0.013 (0.03)
Post x Low Independence GAP	0.024 (0.14)	0.019 (0.41)	0.057 (0.66)	0.003 (0.06)	-0.072 (-0.55)
Post	0.021 (0.13)	-0.025 (-0.63)	-0.108 (-1.22)	-0.000 (-0.00)	0.217* (1.86)
Constrained x Low Independence GAP	1.448** (2.38)	0.622*** (2.63)	-0.271 (-1.40)	0.603** (2.47)	0.135 (0.60)
Low Independence GAP	0.070 (0.53)	0.026 (0.57)	0.026 (0.69)	0.050 (1.06)	0.029 (0.44)
Controls	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	1,072	1,184	1,184	1,184	1,329
# Banks	224	238	238	238	241
Adjusted R <sup>2</sup>	0.071	0.094	0.015	0.054	0.179

**Table IA.7. The Effect of Board Quotas on Bank Risk. Additional Controls.**

This table reports the results assessing the impact of quotas on bank risk in a [-3,+3] window centered around the quota year. *Post* is an indicator variable equal to one starting the year when the gender quota law is passed in the country and zero otherwise. “*Constrained*” banks are defined those did not meet the gender quota requirement as of year *t*-1 relative to the enactment of the quota. For countries without specific quotas (i.e., Australia and Denmark), *Constrained* banks are those with no female directors in the pre-quota law period. Models (1) to (3) examine bank stand-alone risk measures and Models (4) to (6) examine systemic risk measures. Panel B presents results using banks from countries that passed gender quotas before 2008 (Israel, Norway, and Spain) as additional controls. Bank level controls include *Size*; *Deposits-to-assets*; *Board size (log)*; *% Independent directors*. In Panel A, we use *ROA*; and *Institutional Ownership (%)* as additional controls. Country-level controls include *GDP growth*; *Log GDP per capita*; *Inflation*, and two measures of regulatory quality from Barth, Caprio, and Levine (2013): *Restrictions on bank activities* and *Capital stringency*. All variables are defined in Appendix A. *F*-statistics from tests of the sum of the coefficients *Post* + *Post* x *Constrained* (*Increase of two female directorships*)=0 are shown in the last row. Robust *t*-statistics, with standard errors clustered at the bank level are in parentheses. \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Panel A. Additional Bank-Level Controls						
Dependent variable:	Stand-alone Risk			Systemic Risk		
	Z-score (1)	NPL-to-loans (2)	Leverage (3)	SRISK (4)	MES % (5)	LVG (6)
Post x Constrained [A]	-0.497** (-2.05)	1.940** (2.08)	1.484 (1.09)	0.640*** (2.96)	0.197 (0.93)	7.621*** (2.91)
Post [B]	0.155 (1.05)	-0.484 (-0.72)	-0.237 (-0.39)	0.205 (1.38)	0.158 (1.25)	2.414 (1.32)
Log(assets) <sub>t-1</sub>	-0.161 (-1.35)	-1.019 (-1.35)	2.806*** (4.03)	0.358** (2.56)	0.406*** (2.96)	5.270*** (3.02)
Deposits-to-assets <sub>t-1</sub>	0.271 (0.89)	5.140 (1.65)	-2.494 (-1.34)	-0.397 (-1.37)	-0.638 (-1.31)	-2.495 (-0.67)
ROA <sub>t-1</sub>	0.047*** (3.30)	-0.564*** (-2.69)	-0.185** (-2.27)	-0.018* (-1.79)	0.020 (1.18)	-0.268** (-2.16)
Institutional ownership % <sub>t-1</sub>	0.004 (1.53)	-0.043* (-1.82)	0.018 (1.07)	0.006 (1.48)	-0.000 (-0.07)	0.078 (1.57)
Board size (log) <sub>t-1</sub>	-0.094 (-1.21)	0.249 (0.47)	0.241 (0.69)	0.204*** (2.62)	-0.022 (-0.17)	2.458** (2.54)
% of independent directors <sub>t-1</sub>	0.001 (0.65)	-0.005 (-0.53)	-0.010 (-1.32)	-0.001 (-0.90)	-0.004* (-1.87)	-0.015 (-0.81)
Log GDP per capita <sub>t-1</sub>	1.405** (2.11)	-19.651*** (-3.19)	6.435 (1.22)	2.796*** (5.79)	-2.585*** (-3.00)	36.805*** (5.97)
GDP growth <sub>t-1</sub>	-0.000 (-0.01)	-0.022 (-0.55)	-0.288** (-2.14)	-0.083*** (-4.21)	0.001 (0.06)	-1.042*** (-4.30)
Inflation <sub>t-1</sub>	0.019 (1.29)	-0.126 (-1.31)	0.135 (0.91)	0.026 (1.51)	-0.001 (-0.04)	0.416* (1.89)
Restrictions on bank activities	0.020 (0.79)	-0.187 (-1.54)	0.303** (2.14)	0.041 (1.50)	-0.103*** (-3.29)	0.622* (1.83)
Capital stringency	-0.020 (-0.95)	0.669*** (3.98)	-0.330* (-1.74)	-0.082** (-2.03)	-0.032 (-0.81)	-0.959* (-1.94)
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,953	1,689	2,213	2,230	2,241	2,231
Number of Banks	369	304	408	395	397	396
Adjusted R <sup>2</sup>	0.135	0.259	0.093	0.189	0.333	0.196
F-test [A+B]=0	2.95*	2.62	0.91	19.36***	3.19*	18.94***

**Table IA.7. The Effect of Board Quotas on Bank Risk. Additional Controls. Continued.**

Panel B. Banks from Israel, Norway, and Spain as additional controls						
Dependent variable:	Stand-alone Risk			Systemic Risk		
	Z-score	NPL-to-loans	Leverage	SRISK	MES %	LVG
	(1)	(2)	(3)	(4)	(5)	(6)
Post x Increase of two female directorships [A]	-0.509** (-2.06)	2.060** (2.11)	1.381 (0.96)	0.601*** (2.86)	0.166 (0.80)	7.203*** (2.83)
Post [B]	0.158 (1.04)	-0.598 (-0.86)	-0.205 (-0.36)	0.186 (1.29)	0.219* (1.81)	2.037 (1.14)
Log(assets) <sub>t-1</sub>	-0.163 (-1.38)	-1.282 (-1.35)	2.854*** (4.10)	0.349*** (2.69)	0.407*** (2.93)	5.136*** (3.16)
Deposits-to-assets <sub>t-1</sub>	0.179 (0.59)	4.246 (1.38)	-2.270 (-1.23)	-0.189 (-0.68)	-0.679 (-1.36)	0.037 (0.01)
Board size (log) <sub>t-1</sub>	-0.026 (-0.28)	-0.012 (-0.02)	0.752 (1.65)	0.220*** (2.83)	0.042 (0.35)	2.657*** (2.73)
% of independent directors <sub>t-1</sub>	0.002 (1.04)	-0.005 (-0.50)	-0.005 (-0.74)	-0.001 (-0.64)	-0.002 (-1.09)	-0.012 (-0.69)
Log GDP per capita <sub>t-1</sub>	1.516** (2.28)	-19.194*** (-2.94)	5.787 (1.18)	2.533*** (5.32)	-2.235** (-2.58)	33.131*** (5.38)
GDP growth <sub>t-1</sub>	0.001 (0.13)	0.007 (0.11)	-0.273** (-2.25)	-0.079*** (-4.26)	0.003 (0.18)	-0.996*** (-4.39)
Inflation <sub>t-1</sub>	0.008 (0.57)	-0.004 (-0.04)	0.115 (0.82)	0.023 (1.31)	0.006 (0.29)	0.360 (1.62)
Restrictions on bank activities	0.023 (0.89)	-0.198 (-1.51)	0.287** (2.05)	0.041 (1.48)	-0.102*** (-3.17)	0.629* (1.84)
Capital stringency	-0.023 (-1.02)	0.642*** (3.53)	-0.279 (-1.51)	-0.072* (-1.80)	-0.028 (-0.71)	-0.843* (-1.71)
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,087	1,826	2,386	2,399	2,413	2,400
Number of Banks	393	327	435	420	423	421
Adjusted R <sup>2</sup>	0.120	0.186	0.089	0.173	0.333	0.178
F-test [A+B]=0	3.02*	2.33	0.71	18.07***	3.92**	17.26***



**Table IA8. The Moderating Role of Institutional Ownership on the Effect of Board Quotas on Bank Risk.**

This table reports the results assessing the role of institutional ownership on the impact of quotas on bank risk in a [-3,+3] window entered around the quota year. *Post* is an indicator variable equal to one starting the year when the gender quota law is passed in the country and zero otherwise. “*Constrained*” banks are those did not meet the gender quota requirement as of year *t-1* relative to the enactment of the quota. For countries without specific quotas (i.e., Australia and Denmark), *Constrained* banks are those with no female directors in the pre-quota law period. High IO is an indicator equal to one for banks with *Institutional ownership* (the proportion of shares held by institutional investors) above the median in its country. Models (1) to (3) examine bank stand-alone risk measures and Models (4) to (6) examine systemic risk measures. Bank level controls (not shown for brevity) include *Size*; *Deposits-to-assets*; *Board size (log)*; *% Independent directors*; and *ROA*. Country-level controls include *GDP growth*; *Log GDP per capita*; *Inflation*, and two measures of regulatory quality from Barth, Caprio, and Levine (2013): *Restrictions on bank activities* and *Capital stringency*. All variables are defined in Appendix A. *F*-statistics from tests of the sum of the coefficients *Post + Post x Constrained=0* are shown in the last row in Panel B. Robust *t*-statistics, with standard errors clustered at the bank level are in parentheses. \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Panel B	Z-score	Stand-alone Risk		Systemic Risk		
		NPL-to-loans	Leverage	SRISK	MES %	LVG
	(1)	(2)	(3)	(4)	(5)	(6)
Post x Constrained x High IO%	-0.176 (-0.41)	-1.567 (-1.02)	0.702 (0.33)	-0.488 (-1.46)	-0.677* (-1.86)	-5.274 (-1.29)
Post x Constrained	-0.398 (-1.18)	2.838*** (2.74)	1.332 (0.77)	0.867*** (3.59)	0.499* (1.74)	10.165*** (3.57)
Constrained x High IO%	0.100 (0.26)	0.830 (0.51)	-1.380 (-0.72)	0.139 (0.48)	0.958** (2.31)	1.430 (0.41)
Post x High IO%	0.158 (0.63)	1.762* (1.85)	0.926 (1.40)	0.177 (1.08)	0.136 (0.78)	2.347 (1.15)
Post	0.067 (0.30)	-1.476** (-2.01)	-0.780 (-1.32)	0.102 (0.66)	0.070 (0.42)	1.047 (0.57)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,953	1,689	2,213	2,230	2,241	2,231
Number of Banks	369	304	408	395	397	396
Adjusted R <sup>2</sup>	0.135	0.259	0.093	0.184	0.333	0.193
F-test [A+B]=0	2.91*	4.04**	2.12	11.04***	0.40	11.10***

**Table IA.9. The Effect of Board Quotas on Bank Risk. Controlling for Macroprudential Policies.**

This table reports the results assessing the impact of quotas on bank risk in a [-3,+3] window centered around the quota year. *Post* is an indicator variable equal to one starting the year when the gender quota law is passed in the country and zero otherwise. “*Constrained*” banks are those did not meet the gender quota requirement as of year *t*-1 relative to the enactment of the quota. For countries without specific quotas (i.e., Australia and Denmark), *Constrained* banks are those with no female directors in the pre-quota law period. Models (1) to (3) examine bank stand-alone risk measures and Models (4) to (6) examine systemic risk measures. All variables are defined in Appendix A. *F*-statistics from tests of the sum of the coefficients  $Post + Post \times Constrained=0$  are shown in the last row in Panel B. Robust *t*-statistics, with standard errors clustered at the bank level are in parentheses. \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Dependent variable:	Stand-alone Risk			Systemic Risk		
	Z-score (log)	NPL-to-loans	Leverage	SRISK	MES %	LVG
	(1)	(2)	(3)	(4)	(5)	(6)
Post x Constrained	-0.510** (-2.06)	2.134** (2.18)	1.449 (1.01)	0.624*** (2.95)	0.203 (0.99)	7.413*** (2.89)
Post	0.173 (1.15)	-0.675 (-0.95)	-0.253 (-0.43)	0.195 (1.34)	0.149 (1.22)	2.245 (1.24)
Log(assets) <sub>t-1</sub>	-0.156 (-1.28)	-1.158 (-1.14)	2.866*** (3.93)	0.358*** (2.64)	0.382*** (2.76)	5.285*** (3.11)
Deposits-to-assets <sub>t-1</sub>	0.147 (0.48)	5.130 (1.63)	-2.052 (-1.11)	-0.274 (-0.96)	-0.549 (-1.10)	-1.008 (-0.27)
Board size (log) <sub>t-1</sub>	-0.090 (-1.08)	-0.040 (-0.06)	0.351 (1.00)	0.233*** (2.82)	-0.024 (-0.18)	2.847*** (2.73)
% of independent directors <sub>t-1</sub>	0.001 (0.70)	-0.007 (-0.72)	-0.010 (-1.31)	-0.001 (-0.64)	-0.003 (-1.55)	-0.011 (-0.60)
Log GDP per capita <sub>t-1</sub>	1.448* (1.90)	-20.257*** (-2.84)	5.848 (1.06)	2.931*** (5.95)	-1.883** (-2.03)	37.431*** (5.90)
GDP growth <sub>t-1</sub>	-0.002 (-0.23)	0.027 (0.41)	-0.293** (-2.14)	-0.089*** (-4.52)	-0.005 (-0.26)	-1.112*** (-4.59)
Inflation <sub>t-1</sub>	0.017 (1.13)	-0.056 (-0.54)	0.130 (0.88)	0.025 (1.39)	-0.005 (-0.24)	0.403* (1.78)
Restrictions on bank activities	0.024 (0.90)	-0.220 (-1.60)	0.321** (2.20)	0.047* (1.69)	-0.094*** (-2.92)	0.677** (1.98)
Capital stringency	-0.031 (-1.41)	0.697*** (3.91)	-0.295 (-1.55)	-0.074* (-1.83)	-0.035 (-0.88)	-0.855* (-1.72)
MPI	0.011 (0.27)	0.170 (1.03)	0.058 (0.41)	-0.028 (-1.41)	-0.090* (-1.68)	-0.179 (-0.72)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,923	1,675	2,204	2,219	2,230	2,220
Number of Banks	364	299	404	390	392	391
Adjusted R <sup>2</sup>	0.115	0.200	0.0884	0.184	0.328	0.189
F-test Post + Post x Constrained=0	2.76*	2.242	0.73	19.18***	3.33*	18.38***

**Table IA.10. The Effect of Board Quotas on Bank Risk – Alternative Definition of Constrained**

This table reports the results assessing the impact of quotas on bank risk in a [-3,+3] window centered around the quota year. Control group includes banks from countries that do not enact quotas during our sample period. *Constrained - All male board* is an indicator variable equal to one for banks with all-male boards as of year t-1 relative to the enactment of the quota law and zero otherwise. Models (1) to (3) examine bank stand-alone risk measures and Models (4) to (6) examine systemic risk measures. All variables are defined in Appendix A. *F*-statistics from tests of the sum of the coefficients *Post + Post x Constrained = 0* are shown in the last row. Robust *t*-statistics, with standard errors clustered at the bank level are in parentheses. \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Dependent variable:	Stand-alone Risk			Systemic Risk		
	Z-score (log)	NPL-to-loans	Leverage	SRISK	MES %	LVG
	(1)	(2)	(3)	(4)	(5)	(6)
Post x Constrained – All Male Board	-0.372 (-1.17)	3.386*** (2.78)	2.855* (1.91)	0.533** (2.14)	0.263 (1.11)	6.521** (2.16)
Post	0.009 (0.06)	-0.436 (-0.61)	-0.255 (-0.25)	0.378** (2.55)	0.187 (1.32)	4.360** (2.44)
Log(assets) <sub>t-1</sub>	-0.146 (-1.23)	-1.471 (-1.55)	2.845*** (4.02)	0.353*** (2.65)	0.372*** (2.71)	5.224*** (3.13)
Deposits-to-assets <sub>t-1</sub>	0.209 (0.69)	4.826 (1.57)	-2.095 (-1.15)	-0.280 (-0.97)	-0.538 (-1.08)	-1.096 (-0.30)
Board size (log) <sub>t-1</sub>	-0.096 (-1.19)	-0.026 (-0.05)	0.329 (0.98)	0.227*** (2.77)	-0.011 (-0.09)	2.769*** (2.69)
% of independent directors <sub>t-1</sub>	0.001 (0.55)	-0.004 (-0.47)	-0.009 (-1.17)	-0.001 (-0.46)	-0.003 (-1.45)	-0.008 (-0.43)
Log GDP per capita <sub>t-1</sub>	1.631** (2.41)	-19.411*** (-2.91)	5.647 (1.07)	2.629*** (5.36)	-2.425*** (-2.84)	34.606*** (5.48)
GDP growth <sub>t-1</sub>	-0.002 (-0.24)	0.028 (0.46)	-0.283** (-2.21)	-0.082*** (-4.37)	0.003 (0.17)	-1.044*** (-4.52)
Inflation <sub>t-1</sub>	0.016 (1.05)	-0.062 (-0.60)	0.128 (0.87)	0.027 (1.55)	-0.002 (-0.07)	0.427* (1.89)
Restrictions on bank activities	0.029 (1.12)	-0.225* (-1.71)	0.320** (2.27)	0.038 (1.35)	-0.108*** (-3.44)	0.591* (1.72)
Capital stringency	-0.035 (-1.62)	0.728*** (4.14)	-0.277 (-1.47)	-0.067* (-1.66)	-0.033 (-0.85)	-0.770 (-1.56)
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,973	1,711	2,254	2,269	2,280	2,270
Number of Banks	373	307	413	399	401	400
Adjusted R <sup>2</sup>	0.114	0.203	0.0921	0.179	0.331	0.187
F-test Post + Post x Constrained = 0	1.72	5.94**	4.67**	16.07***	4.14**	15.39***

**Table IA.11. Are Changes in Percentage of Female Directors Related to Negative Financial Shocks?**

This table presents the impact of quota law on % of female directors, in a [-3,+3] window centered around the quota law year. *Post* is an indicator variable equal to one starting the year when the gender quota law is passed in the country and zero otherwise. In Panel A, we restrict the treatment group to “*Constrained*” banks (i.e., those that did not meet the gender quota requirement as of year *t*-1 relative to the enactment of the quota law); In Panel B, we show results using the full sample of banks. The control group includes banks from countries that do not enact quotas during our sample period. We use interactions between *Post* and various proxies of negative financial shocks. Following Fahlenbrach and Stulz (2011), we define *Low market (bank index) returns* equal to 1 if the country's buy-and-hold stock market (bank index) returns during July 2007-December 2008 are below the median across all countries and zero otherwise. Regressions include the same bank and country level controls used in Table 2. All variables are defined in Appendix A. *F*-statistics from tests of the sum of the coefficients  $Post + Post \times Low = 0$  are shown in the last row. Robust *t*-statistics, with standard errors clustered at the bank level are in parentheses. \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

	<i>Panel A: Only Constrained banks in treatment countries</i>				<i>Panel B: All banks in treatment countries</i>			
Dependent variable:	% of female directors							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post	6.549*** (2.63)	4.126 (1.44)	13.387* (1.93)	5.869 (1.56)	3.354** (2.51)	2.441** (1.99)	7.259* (1.79)	3.184 (1.45)
Post x Low market return (GFC)	-3.719 (-1.27)				-0.959 (-0.51)			
Post x Low bank sector return (GFC)		0.216 (0.07)				0.768 (0.42)		
Post x Market return (GFC)			20.249 (1.41)				10.361 (1.11)	
Post x Bank sector return (GFC)				2.630 (0.40)				0.486 (0.11)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank and year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,178	2,178	2,178	2,178	2,354	2,354	2,354	2,354
Adjusted R <sup>2</sup>	0.232	0.230	0.232	0.230	0.220	0.220	0.220	0.220
# banks	379	379	379	379	414	414	414	414
F-test Post x Low + Post=0	3.70*	7.66***	2.52	0.71	3.08*	5.52**	1.76	0.32

**Table IA.12. The Effect of Board Quotas on Bank Risk. Event-Based Stacked Regressions.**

This table reports the results assessing the impact of quotas on bank risk in a [-3,+3] window using the event-based regressions that include never-treated and not-yet-treated banks as the control group. “*Constrained*” banks are those did not meet the gender quota requirement as of year  $t-1$  relative to the enactment of the quota). For countries without specific quotas (i.e., Australia and Denmark), *Constrained* banks are those with no female directors in the pre-quota law period. *Post* is an indicator variable equal to one starting the year when the gender quota law is passed in the country and zero otherwise. Models (1) to (3) examine bank stand-alone risk measures and Models (4) to (6) examine systemic risk measures. All variables are defined in Internet Appendix A. Robust  $t$ -statistics, with standard errors clustered at the country-cohort level are in parentheses. \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

	<u>Stand-alone Risk</u>			<u>Systemic Risk</u>		
	<u>Z-score (log)</u>	<u>NPL-to-loans</u>	<u>Leverage</u>	<u>SRISK</u>	<u>MES %</u>	<u>LVG</u>
	<u>(1)</u>	<u>(2)</u>	<u>(3)</u>	<u>(4)</u>	<u>(5)</u>	<u>(6)</u>
Post x Constrained	-0.489*	1.973*	1.506	0.638**	0.181	7.666**
	(-1.90)	(1.79)	(0.63)	(2.04)	(0.93)	(2.00)
Post	0.119	-0.577	0.171	0.240	0.140	2.774
	(0.69)	(-0.43)	(0.30)	(1.38)	(0.62)	(1.22)
Log(assets) <sub><math>t-1</math></sub>	-0.218***	-0.982*	3.130***	0.353***	0.332***	5.285***
	(-2.62)	(-1.95)	(6.04)	(3.66)	(3.22)	(4.40)
Deposits-to-assets <sub><math>t-1</math></sub>	0.397**	5.311***	-3.385**	-0.330	-0.322	-2.308
	(2.23)	(3.16)	(-2.35)	(-1.57)	(-1.05)	(-0.87)
Board size (log) <sub><math>t-1</math></sub>	-0.136***	-0.163	0.444*	0.190***	0.025	2.246***
	(-2.65)	(-0.50)	(1.93)	(2.97)	(0.28)	(2.90)
% of independent directors <sub><math>t-1</math></sub>	-0.000	-0.007	-0.003	0.001	-0.003*	0.011
	(-0.22)	(-1.07)	(-0.55)	(0.85)	(-1.94)	(0.88)
Log GDP per capita <sub><math>t-1</math></sub>	1.501*	-22.259***	8.238**	3.918***	-2.147**	51.213***
	(1.91)	(-2.77)	(2.16)	(5.54)	(-2.13)	(5.71)
GDP growth <sub><math>t-1</math></sub>	-0.002	0.025	-0.266***	-0.079***	0.011	-1.012***
	(-0.26)	(0.57)	(-2.86)	(-3.69)	(0.70)	(-3.78)
Inflation <sub><math>t-1</math></sub>	0.006	0.034	0.084	0.030	-0.005	0.441*
	(0.48)	(0.37)	(0.89)	(1.58)	(-0.19)	(1.82)
Restrictions on bank activities	0.019	-0.111	0.289**	0.030	-0.102***	0.454
	(1.01)	(-1.00)	(2.23)	(1.15)	(-3.75)	(1.40)
Capital stringency	-0.035**	0.614***	-0.335**	-0.075**	-0.021	-0.888**
	(-2.17)	(3.46)	(-2.17)	(-2.33)	(-0.63)	(-2.23)
Bank-cohort fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year-cohort fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,608	4,598	6,022	5,941	5,964	5,942
Adjusted R <sup>2</sup>	0.611	0.841	0.818	0.680	0.669	0.710

**Table IA.13. The Effect of Board Quotas on Bank Asset and Funding Structure.**

This table reports the results assessing the impact of quotas on banks asset and funding structure opacity. The dependent variables include :1) *Loans* – the ratio of gross loan to total assets; 2) *RE loans*- real estate loans-to-gross loans; 3) *C&I loans* - commercial and industrial loans-loans; 4) *Personal loans*- personal loans-to-total loans; 5) *Other loans*- other loans-to-total loans; 5) *Trading assets* total trading assets and derivatives-to-total assets; 6) *ST funding* – non-deposit short-term fudding-to-total deposits and short-term funding, and 7) *Deposits*- deposits, scaled by assets. *Constrained* banks are those did not meet the gender quota requirement as of year  $t-1$  relative to the enactment of the quota). For countries without specific quotas (i.e., Australia and Denmark), *Constrained* banks are those with no female directors in the pre-quota law period. *Post* is an indicator variable equal to one starting the year when the gender quota law is passed in the country and zero otherwise. Bank level controls include *Size*; *Deposits-to-assets*; *ROA*; *Board size (log)*; *% Independent directors*; Country-level controls include *GDP growth*; *Log GDP per capita*; *Inflation*, and two measures of regulatory quality from Barth, Caprio, and Levine (2013): *Restrictions on bank activities* and *Capital stringency*. All variables are defined in Internet Appendix A. Robust  $t$ -statistics, with standard errors clustered at the bank level are in parentheses. \*, \*\*, and \*\*\* indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Dependent variable:	<i>Panel A: Only Constrained banks in treatment countries</i>				<i>Panel B: All banks in treatment countries</i>			
	Loans	RE loans	C&I loans	Personal loans	Other loans	Trading assets	ST funding	Deposits
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post x Constrained	-0.024 (-1.62)	0.011 (0.41)	-0.041** (-2.08)	-0.077* (-1.93)	0.055 (1.23)	0.034*** (2.64)	0.030* (1.94)	-0.003 (-0.24)
Post	-0.008 (-0.69)	-0.015 (-0.58)	-0.044** (-2.22)	0.042 (1.17)	-0.062* (-1.86)	-0.021* (-1.90)	-0.003 (-0.26)	0.033*** (2.91)
Log(assets) <sub><math>t-1</math></sub>	0.019 (1.01)	-0.011 (-0.86)	0.013 (0.70)	-0.024 (-1.56)	0.046* (1.67)	0.022** (1.98)	0.035*** (2.68)	0.015 (0.62)
Deposits-to-assets <sub><math>t-1</math></sub>	0.111* (1.89)	0.016 (0.47)	0.056 (1.17)	0.086*** (2.62)	-0.175** (-2.23)	0.022 (0.49)	0.115 (1.22)	
ROA <sub><math>t-1</math></sub>	0.000 (0.24)	-0.000 (-0.12)	0.004 (1.40)	0.000 (0.15)	0.008 (1.40)	0.001 (0.25)	-0.006** (-2.56)	-0.002 (-1.28)
Log GDP per capita <sub><math>t-1</math></sub>	0.093 (1.49)	-0.011 (-0.13)	0.351** (2.13)	0.046 (0.64)	0.343** (2.40)	-0.003 (-0.09)	-0.049 (-1.10)	-0.114* (-1.84)
GDP growth <sub><math>t-1</math></sub>	0.003*** (2.81)	0.003*** (2.75)	0.004* (1.83)	0.004** (2.15)	-0.007** (-2.12)	-0.001* (-1.66)	-0.001 (-1.44)	-0.000 (-0.40)
Inflation <sub><math>t-1</math></sub>	-0.001 (-0.78)	0.005*** (2.67)	0.015*** (4.06)	0.008*** (3.06)	-0.017*** (-4.24)	0.000 (0.21)	0.000 (0.10)	-0.004*** (-3.15)
Restrictions on bank activities	-0.002 (-0.85)	0.007* (1.79)	-0.028*** (-3.76)	-0.007* (-1.80)	-0.015* (-1.78)	0.008** (2.32)	-0.005 (-1.59)	-0.005 (-1.64)
Capital stringency	0.004 (1.59)	-0.002 (-0.48)	0.012*** (2.91)	0.007*** (2.94)	0.001 (0.13)	-0.003 (-0.90)	0.003 (1.05)	-0.000 (-0.17)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank and year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,130	2,153	2,153	2,153	2,153	1,876	2,095	2,576
Adjusted R <sup>2</sup>	0.085	0.026	0.149	0.105	0.062	0.031	0.056	0.036
# Banks	373	375	375	375	375	296	329	422
F-test Post x Constrained + Post=0	<b>9.52***</b>	<b>0.15</b>	<b>38.75***</b>	<b>7.47***</b>	<b>0.04</b>	<b>1.41</b>	<b>5.55**</b>	<b>6.81***</b>

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