

Women on Bank Boards: Evidence from Gender Quotas around the World*

Rose C. Liao[†]
Gilberto Loureiro[‡]
Alvaro G. Taboada^{†‡}

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ABSTRACT

We examine the impact of board gender quota laws on bank risk taking and performance. Using a sample of 443 banks from 39 countries between 2008 and 2017, we show that quota laws lead to a significant increase in female board members, though with different qualifications from their male counterparts. We find an increase in risk taking post quota laws for banks with no female directors as of 2008. Finally, we document positive effects (lower risk taking and improved performance) of quota laws in countries with a larger pool of qualified women executives but find opposite effects in other countries.

Key words: Gender quotas; director independence; bank risk taking; bank performance

JEL Classification Codes: G15, G21, G28.

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[†]Associate Professor of Finance, Rutgers Business School, Rutgers University, Email: liao@business.rutgers.edu.

[‡]Associate Professor of Finance, University of Minho, School of Economics and Management & NIPE, Email: gilberto@eeg.uminho.pt.

^{†‡}BancorpSouth Associate Professor of Finance, Mississippi State University, Email: ataboada@business.msstate.edu.

1. Introduction

The underrepresentation of women in corporate boards around the world has been a topic of debate among policy makers, business leaders, and academics for some time. The arguments for the push to increase gender diversity go beyond promoting equality of opportunity and include plausible benefits in terms of firm performance and sustainable long-run economic growth.¹ Norway was a pioneer in its push to increase board gender diversity by enacting a gender quota law in 2003 requiring firms to have at least 40% female representation on boards of directors. Since then, many countries have passed reforms to increase female board representation (Belgium, 2011; Denmark, 2012; India, 2013, among others). While most countries first adopt voluntary corporate governance codes promoting gender diversity on boards, to accelerate progress, they tend to resort to legislation, typically accompanied with sanctions for noncompliance.²

The evidence to date on the impact of gender diversity reforms is mixed. Several studies document a negative impact of gender quota laws on firm value (e.g. Matsa and Miller, 2013; ; Ahern and Dittmar, 2012, for Norway; Hwang, Shivdasani, and Simintzi, 2018, for the U.S), while others point to no effect or even a positive impact for certain firms (e.g., Nygaard, 2011; Eckbo, Nygaard, and Thorburn, 2016). Though the lack of gender diversity in corporate boards is more pronounced in the banking industry (Adams and Kirchmaier, 2016b), little evidence exists as to

¹ The 2012 EC progress report on Women in Economic Decision-Making states “Indeed, there is a clear business case for greater gender diversity in corporate boards both from the microeconomic perspective – i.e. in terms of individual companies’ performance – as well as from a macroeconomic perspective – i.e. in terms of higher, sustainable rates of economic growth.” (EC, 2012, p. 7).

² For example, the 2003 Norwegian law became compulsory in 2006, following insufficient compliance. The 2012 EC progress report mentions that legislation, combined with sanctions, is the best way to achieve substantial progress towards greater gender diversity in boardrooms (EC, 2012).

how gender quota laws impact banks, or how gender diversity on bank boards affects bank performance and risk taking.³

In this paper, we aim to fill this gap in the literature by examining the impact of gender quota laws on a broad international sample of banks. We focus on the banking industry for several reasons. First, the banking industry is important to the overall economy. Second, bank boards tend to be less gender diverse relative to those in other industries (Adams and Kirchmaier, 2016a, b), rendering potentially differential impact of gender quota laws in the banking industry. Third, the banking industry is highly regulated, resulting in significant differences in governance from firms in unregulated industries (Adams and Mehran, 2003; 2012; De Haan and Vlahu, 2016).

We build a broad international sample of 443 banks from 39 countries, including 103 banks from eight countries that adopted gender quota laws during our sample period 2008 through 2017. We classify the rest of the banks into three groups: 1) Benchmark group, which consists of 151 banks from 15 countries without any board gender reforms between 2008 and 2017; 2) Governance code group, which consists of 160 banks from 12 countries that published governance codes that include recommendations to increase female representation on boards of directors; and 3) Other group, which consists of 29 banks from four countries (Israel, Norway, Spain, and Sweden) that passed board gender reforms before the start of our sample period.⁴ Our main control group includes banks from the benchmark and governance code groups, and we validate our findings using alternate control groups of banks.

³ The literature on the impact of female participation on bank boards on risk taking yields mixed results. Sahay et al. (2017) show that higher proportion of women on bank boards is positively associated with bank stability. In contrast, other studies show that board gender diversity in banks is associated with more risk taking (e.g. Berger, Kick, and Schaeck, 2014, Adams and Ragunathan, 2013). These studies do not examine the impact of gender quota laws directly and do not assess the effects of country characteristics.

⁴ We use the four countries that implemented reforms prior to 2008 as alternative benchmark countries in some robustness tests.

We take advantage of the staggered implementation of gender quota laws across countries and use a generalized difference-in-differences (DiD) design (Wooldridge, 2010) that takes as the control group all banks without reforms as of a particular time (i.e., banks in the control group and banks in other treatment countries prior to their reforms).⁵ The use of a shock-based research design mitigates endogeneity concerns that plague governance studies that explore the relation between board structure and performance (see e.g., Hermalin and Weisbach, 2003). This allows us to arguably provide more causal evidence of the impact of changes in board composition on bank risk taking and performance. To this end, our study also contributes to the broader literature on bank governance and risk taking (see e.g. De Haan and Vlahu, 2016; Stulz, 2016).

We find a significant increase of 4.3 percentage points (pp) in women representation on bank boards post quota laws, about 32% of the sample average. To isolate the effect of these quota laws from other confounding factors, including concurrent regulatory changes, we further examine the effects on banks that are expected to be most impacted by the quota laws ('most impacted' banks), defined as banks that have no female directors as of the start of the sample period (2008). We find that the increase in female board representation is even larger (7.9 pp, or about 46% of the treatment sample average) for most impacted banks.

We next study changes in the characteristics of bank boards post quota laws. We find that among the most impacted banks, boards become larger, less independent, and with longer average director. We also document important changes in director characteristics post quota laws. We follow Ahern and Dittmar (2012) and examine characteristics of new, retained, and exiting male and female directors. Post quota laws, we find that relative to exiting male directors, new female

⁵ While political and social factors play a role in the adoption of gender quota reforms (Terjesen, Aguilera, and Lorenz, 2015), these reforms are not specific to the banking industry, and are thus exogenous to the individual banks.

directors tend to be more independent, hold fewer outside boards, and have less attendance problems, but tend to have less executive experience and are less likely to be financial experts. These findings suggest that quota laws lead to significant changes in bank board composition and director characteristics, which may affect the board's monitoring function.

Next, we test whether these mandatory changes in board diversity also affect bank risk taking and performance. A priori, it is unclear how a mandated increase in female representation on bank boards may affect bank risk taking and performance. If women on boards behave similarly to the general population, an increase in female board members could reduce bank risk taking because women have been shown to be more risk-averse than their male counterparts (e.g. Croson and Gneezy, 2009; Eckel and Grossman, 2008, Sapienza et al., 2009). Female directors, who have been shown to allocate more effort to monitoring (Adams and Ferreira, 2009) could also help constrain excessive risk taking at banks, which could be value enhancing. These effects are conditional on the new female directors having the necessary skills and experience to carry out their roles effectively. On the other hand, increased female board participation could lead to increased bank risk taking. Adams and Funk (2012) document differences in core values and risk attitudes between male and female directors that are separate from those of the general population and find that female directors are more risk loving than their male counterparts, which suggests that banks with more female directors may take more risk. In addition, the characteristics of female directors (e.g., lack of financial expertise), as well as potential conflicts that may arise when female directors join bank boards may also impact how effectively these female directors can fulfill their duties.⁶ Thus, if the addition of female directors to the board results in a deterioration of the

⁶ For example, the increasing opacity and complexity of banks' operations (Adams, 2012) may require bank directors to have industry specific expertise to effectively carry out their monitoring duties; the literature on the impact of financial expertise on bank risk taking and performance yields mixed results (e.g. Minton, Taillard, and Williamson, 2014; Fernandes and Fich, 2009; Erkens, Hung, and Matos, 2012). In addition to expertise, conflicts created by the

board's monitoring ability, managers may feel less constrained to take on excessive risk, which may be detrimental to performance. Finally, if banks elect like-minded female directors to comply with the quota, or if the newly appointed female directors lack power to exert any influence on the bank's direction, we should observe no change in bank risk taking associated with the mandated gender quotas. Ultimately, assessing the impact of gender quota laws on bank risk taking is an empirical matter.⁷

Importantly, the impact of board gender reforms on bank risk taking and performance is likely to be affected by the size of the candidate pool of female directors with the necessary skills and experience, which is likely smaller than that of male executives. This is especially the case in the banking sector where gender diversity lags behind other industries (Adams and Kirchmaier, 2016b). Female labor force participation, cultural factors, and gender gaps in math scores have been shown to affect the candidate pool of female directors and help explain the lack of board gender diversity in finance firms (Adams and Kirchmaier, 2015; 2016b). Banks in countries with a larger (smaller) pool of qualified female executives should find it easier (harder) to add qualified female directors to the board to comply with the mandatory quotas without adversely affecting the quality of the board's monitoring ability. We thus examine the effects of gender reforms conditional on these country characteristics.

We find that among the most impacted banks, there is an increase in risk taking (higher non-performing loans and leverage), but no significant change in performance following quota

addition of female directors may disrupt board functioning. In the management literature, the concept of "faultlines" has been used to rationalize negative effects of diversity on firm performance (e.g. Lau and Murnighan, 1998). Faultlines may create divisions among groups (e.g. gender, race, or age) that lead to conflicts that adversely affect board effectiveness (e.g. Veltrop al., 2015).

⁷ We note that increases or decreases in bank risk taking could be value enhancing or detrimental. While a decrease (increase) in excessive risk taking could be value enhancing (detrimental), an increase (reduction) in risk taking that drives banks to take on (forego) value enhancing risky projects could be value enhancing (detrimental) (see e.g. Stulz, 2016).

laws. We next examine how the size and quality of the female labor pool, proxied by female labor force participation (*Female labor force*) and by the proportion of females in high skill occupations (*Females in high skill occupations*), affect the impact of gender quota laws on bank risk taking and performance. We find an increase (decrease) in bank risk taking and deterioration (improvement) in bank performance post quota laws in countries with a smaller (larger) pool of women candidates with the necessary skills and experience. These findings are consistent with the notion that the law changes might impose costly and suboptimal shifts in board structure, especially in countries with a smaller candidate pool of qualified female executives. We further evaluate the role of country-level institutions. Countries' legal and regulatory quality has been shown to affect the composition and characteristics of bank boards (e.g. Ferreira, Kirchmaier, and Metzger, 2012; Li and Song, 2013) as well as bank risk taking (Laeven and Levine, 2009). We thus focus on the impact of countries' governance and regulatory quality. Specifically, we examine how a country's governance, proxied by the governance index from the World Governance Indicators, affects the impact of board gender quota laws, and also assess the impact of banking sector regulatory quality, proxied by the stringency of bank capital requirements from Barth et al. (2013). Our results show that bank risk taking increases (decreases) and performance deteriorates (improves) post quota laws in countries with poor (strong) governance and poor (strong) regulatory quality. These results underscore the importance of considering countries' institutional quality to understand the potential effects of board gender reforms.

Our paper contributes to several strands of literature. First, we contribute to studies on governance, board composition, and bank risk taking. Prior studies that examine the relation between bank board composition and performance and risk taking yield mixed results. Adams and Mehran (2012) examine the relation between bank board structure and performance (Tobin's q)

and find that while board independence is not related to performance, board size is positively related to firm performance. A recent study by Anginer et al. (2018) documents that shareholder-friendly corporate governance (e.g. having an independent board) is associated with higher bank risk taking and systemic risk, especially for larger banks in countries with more generous financial safety nets.⁸ The literature examining the impact of female representation on bank boards and bank risk taking also yields mixed results. Sahay et al. (2017) show that higher share of women on bank boards is associated with greater bank stability. Similarly, Muller-Kahle and Lewellyn (2011) show that risky subprime lenders had busier and less gender diverse boards. In contrast, several studies find that higher female representation on bank boards is associated with higher risk-taking (e.g. Berger, et al., 2014; Adams and Raganathan, 2013). These studies do not assess the impact of mandated quota laws and do not explore the impact of country characteristics (as most are single-country studies). We add to this literature by documenting how an exogenous shock to board composition affects banks, thereby providing arguably more causal evidence on the impact of board composition on bank risk taking and performance; we are also able to evaluate heterogeneous effects across countries based on various country level characteristics that have been shown to affect board characteristics as well as the effectiveness of banks' internal governance mechanisms (Ferreira, et al., 2012; Li and Song, 2013).⁹

⁸ As argued by Stulz (2016), better governance does not make banks safer. The bulk of the evidence to date supports this view. Several studies document a positive relation between bank governance and bank risk taking (e.g. Laeven and Levine, 2009), and a related strand of literature documents that banks with more shareholder-friendly corporate governance performed worse during the financial crisis (e.g. Beltratti and Stulz, 2012; Fahlenbrach and Stulz, 2011; Erkens, et al., 2012).

⁹ Ferreira, et al. (2012) document how laws and regulations affect the composition of banks boards, through their impact on board independence. Li and Song (2013) show that bank regulation that improves private monitoring as well as stronger investor protection increases bank board independence. De Haan and Vlahu (2016) review the literature on bank governance and document the important role of countries' legal and regulatory quality when assessing the impact of bank governance on performance and risk taking.

We also contribute to the growing literature examining the impact of gender quota laws. While several papers have assessed the impact of the gender quotas on firm value and performance (e.g., Ahern and Dittmar, 2012; Matsa and Miller, 2013), to the best of our knowledge, ours is the first study to focus on the impact of gender quotas on bank risk taking. The focus on bank risk taking is of particular importance given the well-documented breakdowns in governance that have been blamed for the recent global financial crisis and the push by regulators and policy makers to rein in excessive risk taking in the banking industry (Kirkpatrick, 2009). Importantly, the bulk of the literature on gender quotas to date has been based on single country studies that use the passage of the Norwegian gender quota law as an exogenous shock to try to isolate the impact of changes in board diversity.¹⁰ These studies cannot answer important questions about how country characteristics may affect the impact of gender quotas, or gender diversity in boards, in general. Because banks tend to have less gender diverse boards than other firms (Adams and Kirchmaier, 2016a, b), gender quota laws may arguably have a more significant impact on banks. In addition, given that bank boards play a pivotal role in the effective governance, strategic direction, and risk culture of banks (see, e.g., Office of the Comptroller of the Currency, 2016), it is important to understand how changes in board composition brought about by gender quota laws affect bank risk taking. It could in turn affect the stability of the banking sector, which has been a key focus for policy makers and regulators around the world, especially since the global financial crisis.

2. Data and Methodology

2.1 Data

We begin our analysis of gender quota laws around the world by collecting information from a variety of sources on reforms that aim to increase boardroom gender diversity. Our primary

¹⁰ An exception is a contemporaneous study by Fauver, Hung, and Taboada (2018). They do not study the impact of quota laws on financial firms, however.

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 published 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, 20014). 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.

Table 1 reports the year of implementation of the boardroom gender diversity reforms by country. We provide an Online Appendix with more details on each of these reforms per country.¹¹ Our treatment countries consist of eight countries that enacted legislation to increase gender diversity on boards of directors during our sample period 2008 to 2017.¹² Five of these countries establish specific quotas, while India requires a minimum number of female directors, and two other countries (Australia and Denmark) require firms to set their own quotas. Most countries that have passed legislation to increase gender diversity first introduced governance codes with specific recommendations on gender diversity, usually a few years prior to the enactment of the legislation. The compliance periods and penalties vary across reforms. For example, in Germany, firms that fail to comply with the quotas can have their board member appointments contested, while in other countries, firms that do not comply may face fines (e.g. India and Italy) and other penalties, such as their exclusion from government contracts (e.g. Australia).

In our empirical analyses, we use two groups of banks as our baseline set of controls: 1) Benchmark group - banks from 15 countries that did not adopt any gender diversity board reforms

¹¹ We removed countries where we have fewer than 3 banks and we dropped countries with only one year of data available. This reduced our sample (total number of observations) by about 7%.

¹² We focus on publicly traded banks, and thus our treatment group does not include countries that enacted board gender reforms targeting state-owned firms (e.g. Sweden).

during the sample period; and 2) Governance code group- banks from countries that only have governance code reforms promoting gender diversity. In some robustness tests, we also include banks from four countries that passed gender diversity board reforms before the start of our sample period: Israel, Norway, Spain, and Sweden. Because the Institutional Shareholder Services' (ISS) board-level data become available beginning in 2008, our treatment sample (quota law countries) includes only countries that passed quota laws after 2008.

Figure 1, Panel A shows the changes in women participation on bank boards of directors during our sample period. We find that banks in quota law countries have the greatest increase in the percentage of female directors, 17.75 pp (from 8.97% in 2008 to 26.72% in 2017). Banks in the governance group have a relatively large increase of 13.81pp (from 7.51% to 21.32%), while banks from the benchmark group have a very small increase of 1.52 pp (from 9.38% to 11.00%).

To test the impact of gender quota laws, we collect board characteristics, bank-level, and country-level data from a variety of sources. 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 Governance Indicators (WGI) and the World Development Indicators (WDI).

Panel A of Table 2 shows descriptive statistics of the variables used in our main analyses. Appendix A provides variable definitions. Female directors represent 13.6% of directors on average in our sample (with a median of 11.1%). The average bank board has 11 directors; 49.9% are independent directors. Turning to bank risk taking and performance measures, Table 2 shows that the average bank has a z-score of 3.5, slightly higher than the 2.88 average in the sample of

banks in Laeven and Levine (2009), which implies a relatively low probability of default for banks in our sample. The other metrics measuring bank risk include the percentage of non-performing loans, with a mean of 4.9%, bank leverage, measured as the ratio of assets-to-equity, with a mean of 12.7, and volatility, the annualized standard deviation of weekly returns (mean of 0.35). We also examine various measures of bank performance, including *Market-to-book*, the market value of equity-to-the book value of equity, *Returns*, annual buy-and-hold returns, and *ROA*, net income-to-average assets. The average bank in our sample has a market-to-book ratio of 1.7, average annual returns of 10.4%, and average *ROA* of 1.4%.

Turning to the director characteristics, shown in Panel B of Table 2, we find that most directors have no attendance problems (only 2.8% of directors do have attendance problems).¹³ The average director serves on 0.77 outside boards, and the average tenure of directors is 6.5 years. The mean age of the directors is 59 years, less than 1% of directors have prior CEO experience, and only 5.2% are classified as a financial expert.

Panel C of Table 2 presents key statistics across different groups of sample banks. Treatment countries have the highest percentage of female directors (17.2%), compared to 12.6% in the governance code countries and 10% in the benchmark group. Interestingly, 33% of banks in governance code countries have no female directors on their boards as of the beginning of our sample period (*Most impacted*), compared to 18% of banks in quota law countries. Other board characteristics are more similar across different subsamples, such as board size, the average number of outside boards held by directors, director tenure, and the likelihood of the CEO being the chair of the board.

¹³ Attendance problem is captured by an indicator variable that is equal to one if the director failed to attend at least 75% of board meetings.

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:

$$Y_{i,c,t} = \alpha + \beta_{1\ i,c,t} Post + \beta_{2\ i,c,t} Post \times Most\ impacted_i + \gamma_i + \delta_t + \varepsilon_{ict}, \quad (1)$$

$Y_{i,c,t}$ refers to measures of a bank's board characteristics, or risk taking and financial performance. $Post$ is an indicator that is equal to one starting the year when the quota law is passed in the treatment country and zero otherwise.¹⁴ $Most\ impacted$ is an indicator that is equal to one for banks with no female directors as of the start of our sample period (2008) and zero otherwise, as banks with no female directors are likely to be the ones that will be most impacted by the quotas. Finally, γ_i and δ_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. We include the interaction between $Post$ and $Most\ impacted$, but not $Most\ impacted$ because there is no within-bank variation in this variable and our model includes bank fixed effects. In all regression estimations, we use robust standard errors clustered by bank.¹⁵

Our DiD approach implicitly takes as the control group all banks in countries without gender quota legislation as of a particular year. The DiD design, however, is vulnerable to the difference between treatment and control groups. To further strengthen the DiD design, we use a third difference, and thus a “triple difference” (DiDiD) design (Atanasov and Black, 2016). Specifically, by examining the changes for banks that are most impacted by the reforms, we obtain a DiDiD estimator (β_2) that uses banks that are least impacted by the quota laws as an additional

¹⁴ Our results are robust to the exclusion of the year in which the law is passed. These results are reported in our Online Appendix.

¹⁵ We use standard errors clustered by bank (not country) because some of our tests involve a small number of countries (e.g., we only have eight treatment countries). The clustered standard errors approach is not appropriate when the number of clusters is small relative to the number of observations in each cluster (Wooldridge, 2003). However, our results are robust to the use of country-clustered standard errors.

control group. That is, β_1 captures the change for the least impacted banks in the treatment group relative to the changes in the control group, while β_2 captures the incremental change for the most impacted banks in the treatment group relative to the changes in the least impacted banks in the treatment group. By doing so, we address the concern that other factors unrelated to the passage of the quota laws may affect banks in the treatment and benchmark countries differently.

3. Effects of Gender Diversity Reforms on Board and Director Characteristics

3.1 The Effect of Gender Quota Laws on Female Representation on Bank Boards

We first analyze the impact of gender quota laws on the percentage of female directors. Panel B of Figure 1 plots the percentage of female directors around the year of the quota laws in treatment countries. Consistent with our inference, we find that the most impacted banks experience a much greater increase in female directors than the other banks (i.e., least impacted banks).

To more formally test the impact of quota laws on board composition, we estimate Equation 1 using the percentage of female directors (*Female directors %*) as the dependent variable. Table 3 shows the estimation results for female representation on bank boards. In these baseline regressions, our control group is comprised of countries with governance codes as well as the benchmark group of countries without any board gender reforms during our sample period. We present four variations of our baseline model in each panel, depending on whether an interaction term of *Post x Most impacted* or additional bank-level controls are included. In Models (1) to (4) of Table 3 we show our baseline regressions and in Models (5)-(8) we add a control, *Governance code*, that is equal to one following the first year in which a governance code in a country includes recommendations about gender diversity on corporate boards, and zero otherwise.

We will focus our discussion below on Model 4, which includes both an interaction term *Post* x *Most impacted* and a comprehensive list of additional bank-level controls.

We first validate the effect of gender quota laws on female director participation. The results in Table 3 show that quota laws significantly increase the proportion of female directors on bank boards, especially for banks with no female directors at the start of our sample period (*Most impacted*). The coefficient on *Post* in Model (4) indicates that relative to the control group, the percentage of female directors for the least impacted banks in the treatment countries increases by 2.9 pp. The coefficient on *Post* × *Most impacted* indicates that the impact is even larger for the most impacted banks, which have an incremental increase of 5.6 pp relative to the least impacted banks. This incremental increase results in an overall increase in the percentage of female directors of 8.5 pp for the most impacted banks relative to the control group subsequent to the reforms. The changes are economically significant, compared to the average percentage of female directors of 17.2% in treatment countries (reported in Panel C of Table 2). The results in Models (5)-(8) of Table 3 also show a moderate increase in female director representation on bank boards post reform in countries that adopt governance codes that recommend gender diversity on boards; the coefficient on *Governance code* is positive and significant in Models (5) and (7). Unlike the impact of quota laws, the results for governance codes are weaker and are not robust to the inclusion of bank-level controls (Models (6) and (8)). Importantly, even after controlling for the impact of governance codes, our results continue to show a positive impact of quota laws on female board representation post reform. The coefficients on *Post* and *Post* x *Most impacted* are significant across all model specifications in Table 3.

3.2 The Effect of Gender Quota Laws on Bank Board Characteristics

We now turn to analyze the impact of quota laws on other board characteristics. We estimate Equation 1 using the following dependent variables: board size (*Log board size*), the percentage of independent directors (*% independent directors*), average tenure of directors (*Tenure*), director busyness (*# of outside boards*), and the proportion of female directors in audit, compensation, and nominating committees, respectively.

In Panel A of Table 4 we show results for the average impact of quota laws on board characteristics, while Panel B shows results for the *Most impacted* banks. Results in Panel A show that banks in quota law countries experience a significant decrease (5.5 pp) in the percentage of independent directors and an increase in the proportion of female directors in audit committees post quota laws (4.7 pp). Post quota laws, treatment bank boards tend to be less independent and have slightly more female directors in the audit committees, relative to the control group of banks. Given the importance of audit committees, by joining them, female directors in treatment countries may be more likely to affect bank risk taking and performance.

In Panel B of Table 4, the results show that the most impacted banks in treatment countries experience a relative increase in board size (*Log board size*), a decrease in the percentage of independent directors (*% independent directors*), and an increase in the average tenure of directors (*Tenure*). While on average female directors are more likely to join audit committees (from Panel A), there is no significant change in the proportion of female directors in committees for most impacted banks subsequent to the reforms.

Overall, the results in Table 4 suggest that quota laws are successful in increasing the percentage of female directors on bank boards, leading to an increase in board size and director

tenure, but a decrease in board independence. These changes in board structure could have significant effects on bank risk taking and performance.

3.3. *The Effect of Gender Diversity Reforms on Director Characteristics*

We now turn to examine the impact of quota laws on the characteristics of female directors. We perform this analysis using bank-director-year observations. We regress director-level characteristics on *Post*, *Female director*, a dummy variable indicating whether the director is female, and $Post \times Female\ director$, their interaction term. Our variable of interest is the coefficient on the interaction term, $Post \times Female\ director$, which indicates the change for female directors relative to the change for male directors subsequent to the quota laws. In all regressions we include bank and year fixed effects. We use the following director characteristics as dependent variables: 1) *Attendance problem*, an indicator equal to one if the director failed to attend at least 75% of the meetings in a year, 2) *Independent*, an indicator variable equal to one if the director is classified as being independent, 3) *# of outside boards*, the total number of outside boards held by a director, 4) *Tenure*, the number of years the director serves in the position, 5) *Director age*, 6) *Financial expert*, an indicator equal to one if the director is classified as a financial expert, and 7) *Prior CEO experience*, an indicator variable equal to one if the director has prior CEO experience.

Table 5 shows the results for the director-level regressions. Our control group includes directors from the benchmark countries. Results show that relative to the change in male directors, female directors in treatment countries are more independent, busier, have shorter tenure, and are more likely to have prior CEO experience subsequent to the reforms. These results are both statistically and economically significant. For example, the tenure of female directors in treatment countries after the reform is 1.2 years shorter, or 23% of the average tenure of directors in treatment

countries (5.2). This is despite the fact that the overall tenure of the board increased post quota law as we have seen in Table 4, which suggests that male directors have longer tenure subsequent to the reforms. Interestingly, female directors are more likely to have prior CEO experience (0.006) post reform, or a 60% increase in the probability of directors in treatment countries having prior CEO experience (0.01).

To shed light on the characteristics of directors post reform, we follow Ahern and Dittmar (2012) and compare characteristics of new, exiting, and retained male and female directors post reform for banks in treatment countries. We examine the following characteristics: *Attendance problem*; *Independent*; *# of outside boards*; *Director age*, *Financial expert*, and *Prior CEO experience*. Panel A of Figure 2 compares characteristics of new female directors with incumbent female directors in the post reform period. We find that new female directors tend to be more independent, younger, hold fewer directorships, have less prior CEO experience, and are less likely to be financial experts. Panel B of Figure 3 compares characteristics of new female directors to those of their exiting male counterparts (likely the ones they are replacing). We find that new female directors are more independent, younger, have less prior CEO experience, less attendance problems, and are less likely to be financial experts. These results highlight important differences in the characteristics of new female directors joining bank boards in the post quota law period.

Overall, these results suggest that quota laws significantly impact the composition of bank boards and the characteristics of directors. These changes could significantly affect bank risk taking and performance.

4. Effects of Gender Quota Laws on Bank Risk Taking and Performance

4.1 Gender Quota Laws and Bank Risk Taking

We now turn to analyze how gender quota laws affect bank risk taking behavior. Following the banking literature (see, e.g., Keeley, 1990; Demirgüç-Kunt and Huizinga, 2010); Laeven and Levine, 2009), we focus on four measures of bank risk taking: *z-score* (probability of default), *NPL-to-loans* (non-performing loans), *leverage*, and *volatility*. We perform this analysis by estimating Equation 1 using these four bank risk taking measures as our dependent variables. In addition to bank and year fixed effects, we include a set of baseline bank and country-level controls used in prior studies to explain bank risk taking (e.g., Anginer et al., 2014, 2018; Demirgüç-Kunt and Huizinga, 2010). Our bank-level controls, measured at lagged value, include: 1) *Size*, the log of the book value of assets, 2) *Deposits-to-assets*, to capture reliance on deposits for funding, 3) *Noninterest income-to-income*, to capture banks' reliance on nontraditional banking activities, and 4) *ROA*, return on assets, to capture profitability. Our country-level controls 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, and *Inflation* (percent change in the Consumer Price Index, CPI). As Demirgüç-Kunt and Huizinga (2010) argue, inflation may affect bank performance and influence bank risk taking. Finally, to control for the impact of bank regulation, which has been shown to affect bank risk taking (e.g., Laeven and Levine, 2009; Berger and Bouwman, 2013), we include three measures of regulatory quality from Barth et al. (2013): 1) *Restrictions on bank activities*, 2) *Official supervisory power*, and 3) *Stringency of capital requirements*. We also include the *Macroprudential policy index* from Cerutti et al. (2017) to control for the impact of changes in macroprudential policies at the country level as a result of the global financial crisis. Appendix A provides our variable definitions.

Table 6 shows the results for the impact of quota laws on bank risk taking. Models (1)-(4) assess the average impact of quota laws on bank risk taking, while Models (5)-(8) examine the effect on most impacted banks. Results in Models (1)-(4) of Table 6 show that banks in treatment countries do not experience significant changes in risk taking post quota laws relative to the control group of banks. In contrast, we find that the coefficients on $Post \times Most\ impacted$ are significantly positive in the *NPL-to-loans* and *Leverage* regressions, suggesting that the most impacted banks experienced an increase in risk taking post quota laws, relative to the control group of banks. Taking Model (7) as an example, while the average bank in treatment countries does not experience a significant change in leverage post quota law, the most impacted banks in the treatment countries experience a 4.04 increase in leverage after the enactment of the quota law. This implies a 24.7% increase relative to the average leverage ratio for banks in quota law countries (16.39).¹⁶ Results for *NPL-to-loans* (Model 6) are similar in terms of economic magnitude. Overall, the results in Table 6 are consistent with the view that changes in bank board composition imposed by quota laws lead to increased risk taking for banks most impacted by the quotas. The increase in risk taking post quota law could be either detrimental to firm value, if it represents excessive risk taking (bad risks), or it could be value enhancing, if it signals a shift towards taking risks that are profitable ex ante (good risks, as in Stulz, 2016). The size and quality of the pool of female executives could play a role in determining the kinds of risks that banks engage in post quota laws, because this may impact the board's monitoring ability. To further explore the impact of quota laws on bank risk taking, we next assess the impact of country level factors (female labor supply

¹⁶ From Model (7) in Table 6, following quota laws, most impacted banks experience an increase in leverage of 4.042 (-0.774+4.786), relative to the control group. The increase is significant at the 1% level (p -value of F-test for the sum of the coefficients $Post + Post \times Most\ impacted=0$ is 0.003).

and institutional quality) that could affect the size and quality of the candidate pool of female directors (see, e.g., Adams and Kirchmaier, 2016a, b).

4.2 Impact of Country Characteristics

We now turn to explore the extent to which labor market and institutional differences across countries moderate the impact of gender quota laws. The impact of quota laws on bank risk taking and performance will likely depend on the size and quality of the candidate pool of female directors. Banks in countries with a larger pool of female executives should be better able to find female directors with the necessary skills and expertise to carry out their monitoring and advisory duties, which could translate into a better functioning board of directors. Banks in such countries may in turn experience positive consequences (i.e. less excessive risk taking and better performance) after adding female directors to comply with the quotas. On the other hand, the size of the candidate pool of senior female executives is likely to be smaller in countries with a smaller female labor force. For banks in such countries, it may be difficult to find qualified female directors, or they may end up picking female directors from a smaller pool, plausibly resulting in busier female directors, who may not be able to perform their duties effectively. In these countries, the addition of inexperienced or busier female directors could result in a deterioration in the functioning of the board, which may have adverse consequences in terms of excessive risk taking and poor performance.

We examine the impact of the size and quality of the candidate pool of female directors using two proxies. First, we use the size of the female labor force, female labor force as a proportion of total labor force (*Female labor force*). Using the *Female labor force %*, we create an indicator variable, *High Female Labor force* that is equal to one for countries with values above

the cross-country median as of the prior year-end. As a proxy for the qualifications of the candidate pool of female directors, we use the proportion of females in high skill occupations. We obtain data on females in high skill occupations from ILOSTAT. High skill occupations are based on the International Standard Classification of Occupation (ISCO) and include managers, professionals, technicians and associate professionals (broad skill levels 3 and 4). Using the proportion of female in high skill occupations, we create a dummy variable, *High females in high skill occupations*, which is equal to one for countries with values above the cross-country median as of the prior year-end.

Figure 3 compares characteristics of female directors from countries with *High* female labor force to those with *low* female labor force. We document that female directors in countries with *Low Female Labor force* are more likely to have prior CEO experience, but are busier, older, have more attendance problems, and are less likely to have financial expertise than their female counterparts in countries with *High Female Labor force*. The differences in female director characteristics suggest that the impact of quota laws on bank risk taking and performance could depend on the size and quality of the candidate pool of female directors.

To more directly assess the role of country characteristics on bank risk taking post quota laws, we estimate Equation (1) including interactions between *Post* and the two indicator variables *High Female Labor Force* (*High females in high skill occupations*). Panel A of Table 7 presents the results on female labor force and females in high skilled occupations. Similar to Table 6, we include four measures of bank risk taking: *z-score* (probability of default), *NPL-to-loans* (non-performing loans), *leverage*, and *volatility*. We also include bank and year fixed effects in addition to a set of baseline bank and country-level controls used in Table 6, but we omit them from reporting for brevity.

The results in Panel A of Table 7 show that the increased risk taking subsequent to the quota laws is concentrated in banks from countries with a smaller female labor force and lower proportion of females in high skill occupations. In fact, among countries with larger female labor force and larger proportion of females in high skill occupations, we find that banks actually take less risk post quota laws. The results are both statistically and economically significant. Taking the coefficients in Model (2) as an example, relative to the control group, *NPL-to-loans* increases by 5.3 pp post quota laws for banks in countries with below median female labor force. In contrast, banks in countries with larger female labor force experience a significant decrease in *NPL-to-loans* of 2.04 pp, about 32.4% of the average *NPL-to-loans* for banks in quota law countries (6.31%).¹⁷ Results are similar when using other proxies for bank risk taking. Turning to the impact of females in high skill occupations, results show lower risk taking post quota laws for banks in countries with higher proportion of females in high skill occupations, but a relative increase in risk taking for banks in countries with lower proportion of high skilled females. As an example, while banks in countries with below median *females in high skill occupations* experience a significant increase in *NPL-to-loans* of 3.97 pp, banks in countries with *High females in high skill occupations* experience an incremental decrease of 7.02 pp in *NPL-to loans*, such that post quota laws, banks in countries with higher proportion of females in high skill occupations experience a significant decline of 3.05 pp in *NPL-to-loans*.¹⁸ Results are similar when using other proxies for risk.

¹⁷ From the coefficients in Model (2) of Panel A of Table 7, banks in countries with *High Female Labor Force*, experience a decrease of 2.043 (5.285 + -7.328) post quota law, relative to the control group. The decrease is statistically significant at the 1% level (*p*-value of the *F*-test for the sum of the coefficients on *Post* + *Post* x *High Female Labor Force*=0 is 0.007).

¹⁸ From the coefficients in Model (6) of Panel A of Table 7, banks in countries with below median *females in high skill occupations* experience an increase of 3.966 pp in *NPL-to-loans* post quota law, relative to the control group. In contrast, banks in *High females in high skill occupations* countries experience an incremental 7.017 pp decrease in *NPL-to-loans* post quota laws, leading to a significant 3.051 [-7.017+3.966] reduction in *NPL-to-loans* post-quota laws (*p*-value of the *F*-test for the sum of the coefficients on *Post* + *Post* x *High math gap*=0 is 0.001).

Countries' legal and regulatory quality have been shown to affect the composition and characteristics of bank boards (e.g. Ferreira, et al., 2012; Li and Song, 2013). The impact of gender quota laws could be affected by differences in these country characteristics. We now turn to examine the impact of governance and bank regulation. To do so, we use two proxies: *Governance index*, the average of the six governance quality indicators from the WGI, and *Stringency of capital requirements*, an index that captures the stringency of capital regulations in a country, from Barth et al. (2013). We choose capital stringency as a measure of regulatory quality because it has been shown to affect bank risk taking (Laeven and Levine, 2009). Using these two measures, we create indicator variables, *High Governance* and *High capital stringency*, which are equal to one for countries with values above the cross-country median as of the prior year-end and zero otherwise.¹⁹ As before, we estimate Equation 1 using interactions between *Post* and the indicators *High Governance* (*High capital stringency*).

Panel B of Table 7 presents the results on country-level governance and capital stringency. We show that the increased risk taking behavior subsequent to the quota laws is concentrated among banks in countries with poor country-level governance and low capital stringency. In fact, among countries with good governance and strict capital regulations, we find that banks actually take less risk post quota law reform. Taking the coefficients in Model (2) as an example, banks in countries with better governance scores actually decreased *NPL-to-loans* by 1.95 pp, which is 31% of the average *NPL-to-loans* for banks in quota law countries.²⁰

¹⁹ Because the capital stringency indices are not available annually, we use the values of the variables from the third survey (data as of 2005) for the period 2008 to 2010, and the value of the variables from the last survey for the period 2011 to 2017.

²⁰ From the coefficients in Model (2) of Panel B of Table 7, banks in countries with *High Governance index* experience a decrease of 1.954 pp (5.144 – 7.098) post-quota laws, relative to the control group, which represents 31% of the average *NPL-to-loans* for banks in quota law countries (6.31%- from Panel C of Table 2).

Overall, the results in this section highlight stark cross-country differences on the impact of board gender quota laws on bank risk taking. Specifically, the size and qualifications of the candidate pool of female directors, as well as countries' institutional and regulatory quality significantly affect the results. The results show that increased board gender diversity following quota laws limit bank risk taking for banks in countries with larger female labor force, higher proportion of skilled females, and stronger institutional quality. Our results also show that quota laws may have adverse consequences for bank risk taking in countries with a smaller female labor force and in those with weaker institutional or regulatory quality, where the constraints imposed by the quotas are likely greater. To assess whether these changes in risk taking are beneficial or detrimental to the banks, we next assess their impact on performance.

4.3 Impact of Quota Laws on Bank Performance

So far, we find that subsequent to the enactment of quota laws, there is a significant increase in female representation on bank boards. We also document that new female directors are more independent, younger, have less prior CEO experience, less attendance problems, and are less likely to be financial experts relative to exiting male directors post reforms. Interestingly, we document an increase in bank risk taking post reforms for banks most impacted by the quota laws that is concentrated in countries with smaller female labor force, lower proportion of females in skilled occupations, and weaker institutional quality. It is not yet clear whether the increased risk taking post quota laws is detrimental. By taking higher risks, banks can actually increase value, as long as the risks represent positive NPV projects (see e.g. Stulz, 2016). Better corporate governance does not imply safer banks (e.g. Stulz, 2016), so the observed increased risk taking could be a result of a shift towards more shareholder-friendly corporate governance, which has

been shown to be associated with more risk taking (see e.g. Anginer et al., 2018; Laeven and Levine, 2009).

We now turn to examine the impact of gender quota laws on bank performance to shed light on whether the observed changes in risk taking are detrimental, or value enhancing. To do so, we use three commonly used measures of bank performance: *Market-to-book*, the market value of equity-to-the book value of equity; *Returns*, annual buy-and-hold stock returns; and *ROA*, net income-to-average assets. In Table 8, we show results from regressions using these three performance measures as our dependent variables. All regressions include bank and year fixed effects and a set of baseline bank and country-level controls that include: *Size*; *Deposits-to-assets*; *Noninterest income*; *GDP growth*; *Log GDP per capita*; *Inflation*; *Restrictions on bank activities*; *Official supervisory power*; *Stringency of capital requirements*, and *Macroprudential policy index*.

In Panel A of Table 8, we fail to find significant changes in bank performance post quota laws. In addition, we do not observe a differential impact on bank performance for most impacted banks (Models 4 to 6). The latter results suggest that the observed increased risk taking post quota laws for most impacted banks may not be detrimental for bank performance. Among control variables, we find that larger banks tend to perform worse when performance is measured by returns and ROA.

Given the importance of country characteristics in assessing the impact of quota laws on bank risk taking, we now turn to explore how they affect bank performance. In Panel B of Table 8, we examine the impact of *Female labor force* and *Females in high skill occupations* on bank performance subsequent to the quota laws. We run similar regression specifications as in Table 7 using the three bank performance measures. Results show improvements in *ROA* and *market-to-book* post quota laws for banks in countries with a larger female labor force and higher proportion

of females in high skill occupations. The results are both statistically and economically significant. Taking the coefficients from Model (1) of Panel B of Table 8 as an example, banks in countries with smaller female labor force experience an insignificant change in *market-to-book* post quota law of -0.039 , while banks in countries with *High female labor force* experience a significant increase of 0.313 post quota law, relative to the control group of banks, which represents 18.6% of the sample average.²¹

In Panel C of Table 8, we examine how institutional quality affects the impact of quota laws on bank performance. As before, we run regressions using interactions between *Post* and the two indicators of institutional and regulatory quality: *High governance index* (*High capital stringency*). Results in Panel C show significant decreases in *ROA* and *market-to-book* post quota laws for banks in countries with low governance index (low capital stringency) and a relative improvement in performance for banks in countries with high governance index (high capital stringency).

Taken together, our results suggest that increased female representation on bank boards can have positive effects on bank risk taking and performance, but the effects depend on the size and quality of the female labor pool, as well as on countries' institutional and regulatory quality. Further, our results show that the constraints imposed by gender quota laws can have negative ramifications for bank risk taking and performance in countries in which the size of the candidate pool of female directors is smaller, in countries with lower proportion of females in high skill occupations, and in countries with weak institutional quality.

²¹ From Model (1) of Panel B of Table 8, banks in countries with low female labor force experience a -0.039 decrease in *market-to-book* post quota law, while banks in countries with high labor force experience an increase of 0.313 ($0.352 + -0.039$), significant at the 5% level (*F*-test of the significance of the sum of the coefficients *Post* + *Post* x *High Female labor force* is 4.45, *p*-value of 0.036). This represents 18.6% of the sample average (1.68- from Table 2).

4.4 Robustness Tests

We explore the robustness of our results and conduct several additional tests. First, to assess the parallel trends assumption underlying our DiD design, we conduct a test that includes an additional indicator for the pre-quota law period. Specifically, we include *Pre quota*, an indicator that is equal to one for years $t-2$ and $t-1$ relative to the year of the quota law and zero otherwise, and interactions between *Pre quota* and *Most impacted/High female labor force*. We show results in Panel A of Table 9. The coefficients on *Post* and *Post x Most impacted* or *Post x High female labor force* are all similarly significant as before (Table 6 and 7A). However, none of the coefficients on *Pre quota* and its interactions with *Most impacted/high female labor force* is significant at conventional levels. These findings suggest that, in the absence of treatment (i.e. the enactment of the quota law), our treatment and control groups of banks exhibit a similar trend in risk taking.

Next, as an attempt to isolate the impact of the quota laws from other confounding factors, we restrict our sample period to the five years around the quota law $(-5, +5)$.²² We replicate our baseline results from Table 6 for this period in Panel B of Table 9 (Models 1 - 4) and those from Table 7A in Models (5) – (8). We continue to find an increase in risk taking post quota law for most impacted banks and a decrease in risk taking in countries with large female labor force, confirming our prior results.

As another robustness check, we use banks from countries that passed gender quota reforms prior to the start of our sample period as additional controls. We show these results in Panel C of Table 9. The results using this expanded sample of controls confirm our prior findings.

²² We find qualitatively similar results using the periods $[-3, +3]$ and $[-4, +4]$ around the results.

In Panel D of Table 9, we report results replicating those in Table 7A, including additional controls for % of independent directors (Models 1 to 4), to account for the impact of governance on bank risk taking (e.g. Anginer et al., 2018), and using alternate measures of the quality of female labor force (Models 5 to 8). Specifically, we use the World Economic Forum's Gender Gap index as an additional proxy for the size and quality of the female labor force. The Gender Gap index examines the gap between men and women across four fundamental categories: Economic Participation and Opportunity, Educational Attainment, Health and Survival and Political Empowerment. It ranks countries according to their proximity to gender equality, with higher values indicating closer proximity to gender equality. As before, we use the Gender Gap Index to create an indicator variable, *High Gender GAP index*, that is equal to one for countries with above cross-country median values. The results in Panel D of Table 9 confirm our prior findings. Banks from countries with large female labor force and higher Gender GAP index experience a reduction in risk taking post quota laws, relative to the control group of banks.

5. Conclusion

We assess the impact of boardroom gender quota laws around the world on bank risk taking and performance. We exploit quota-oriented legislation to identify the change in gender diversity at the bank level. We document an increase in female directors on bank boards of about 32% of the sample average after the enactment of gender quota laws. The new female directors are more independent, younger, have less prior CEO experience, less attendance problems, and are less likely to be financial experts relative to exiting male directors post reforms.

We find an increase in bank risk taking post quota laws for banks most impacted by the quotas. Interestingly, we document important differences in female director characteristics (e.g.

independence; financial expertise) based on countries' female labor force, and their institutional and regulatory quality; these country characteristics are important determinants of the effect of gender quota laws on bank risk taking and performance. We observe a significant decrease in bank risk taking and improvements in bank performance post quota laws in countries with larger female labor force, higher proportion of females in high skill occupations, and better governance and regulatory quality. In contrast, we find evidence of increased risk taking and deterioration in bank performance post quota laws in countries with a smaller female labor force, with lower proportion of females in high skill occupations, and weaker institutional and regulatory quality.

Our findings relate to previous studies that document the effect of gender diversity reforms; these studies mostly examine the quota law in Norway (e.g. Ahern and Dittmar, 2012; Matsa and Miller, 2013). However, this literature and our study differ in a significant way: we assess the impact of legislation reforms on the *banking* sector, where boards tend to be less gender diverse, across a *large* number of countries and examine their impact on bank risk taking. Our results suggest that there are important differences across countries that affect the impact of quota laws on bank risk taking and performance. In this aspect, our paper relates to studies examining the relation between board gender diversity and economic outcomes. However, our study uses a shock-based research design, namely the quota laws, which reduces concerns related to endogeneity. We can therefore establish an arguably more causal relation between the impact of boardroom gender diversity on bank risk taking and performance.

Our evidence suggests that gender quota laws change the dynamics of the board by increasing female board representation. In turn, these female directors help to improve bank performance and lower bank risk taking, but only in countries where the candidate pool of qualified female directors is larger and in those with high institutional quality. In contrast, our evidence

suggests that quota laws may be harmful to bank performance in countries in which the pool of women with relevant skills and expertise is smaller. Our findings have important policy implications, as policy makers continue to debate the enactment of board gender diversity reforms. Our study echoes recent studies on how board gender diversity differs across industries (Adams and Kirchmaier, 2016a, b).

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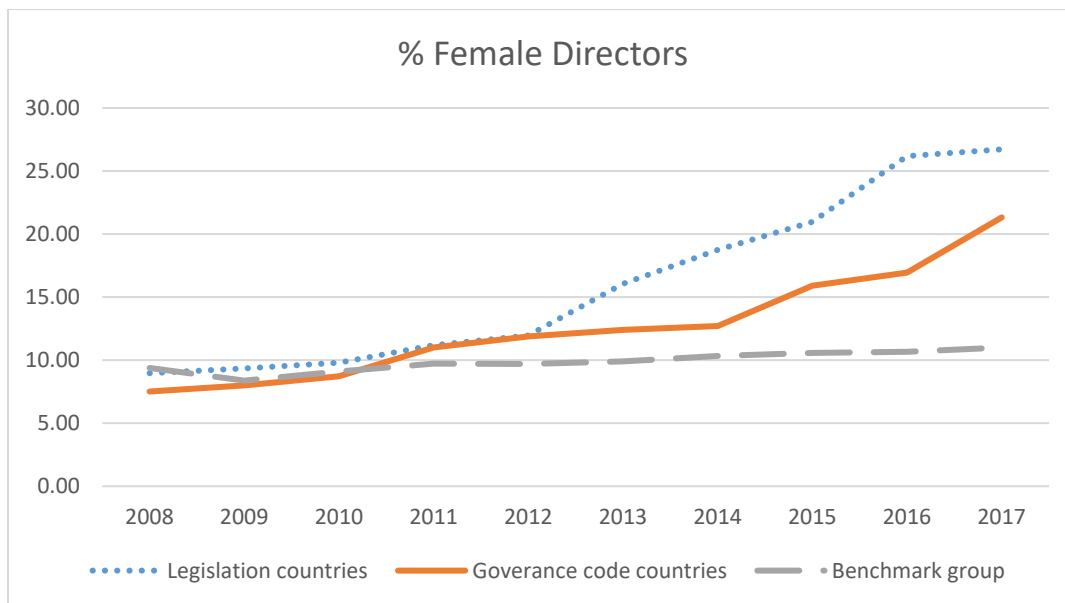
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Figure 1

Figure shows the evolution of women participation in boards of directors from 2008 through 2017 for our sample countries. Quota law countries are those that passed quota laws during our sample period that aim to increase the participation of women in boardrooms. Governance code group includes banks from countries with governance codes that recommend board gender diversity. Benchmark group includes banks from countries that do not have gender reforms during our sample period. In Panel B we show the proportion of female directors around the year of the quota law in the country. *Most impacted* banks are those with no female directors as of the start of the sample period (2008).

Panel A: % Female Directors



Panel B: % Female Directors around the Passage of Quota Laws

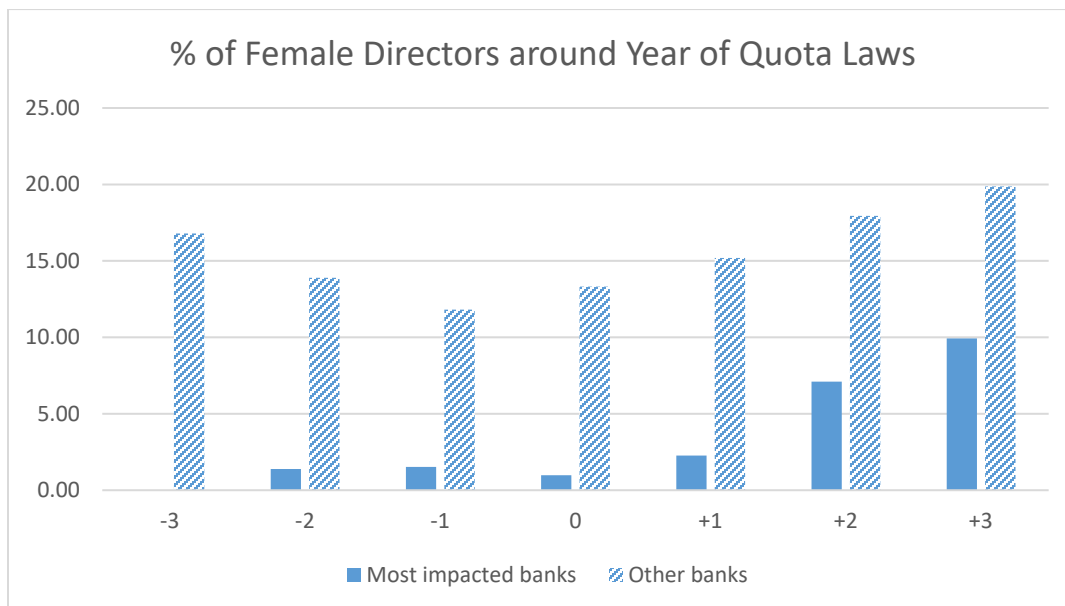
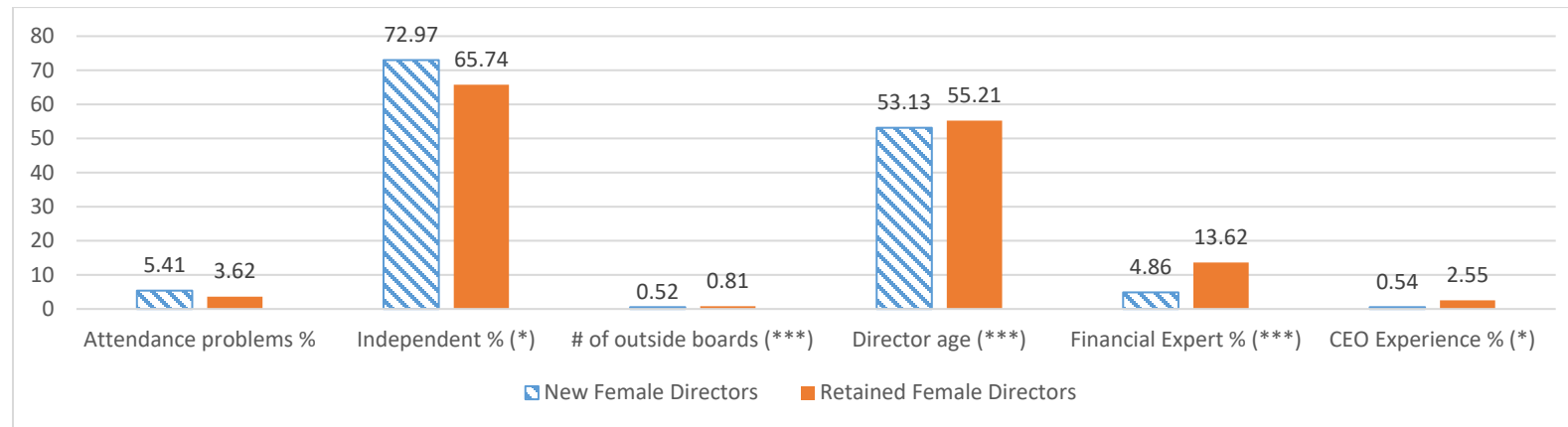


Figure 2 Characteristics of New Female, Retained Female and Exiting Male Directors

Figures show average female and male director characteristics from t+1 to t+5 following gender quota laws for banks in our treatment sample (quota law countries). Quota law countries are those that passed quota legislation during our sample period that aim to increase the participation of women in boardrooms. All variables are defined in Appendix A. Panel A (B) compares new female directors to retained female (exiting male) directors. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Panel A. New Female Directors and Retained Female Directors



Panel B. New Female Directors and Exiting Male Directors

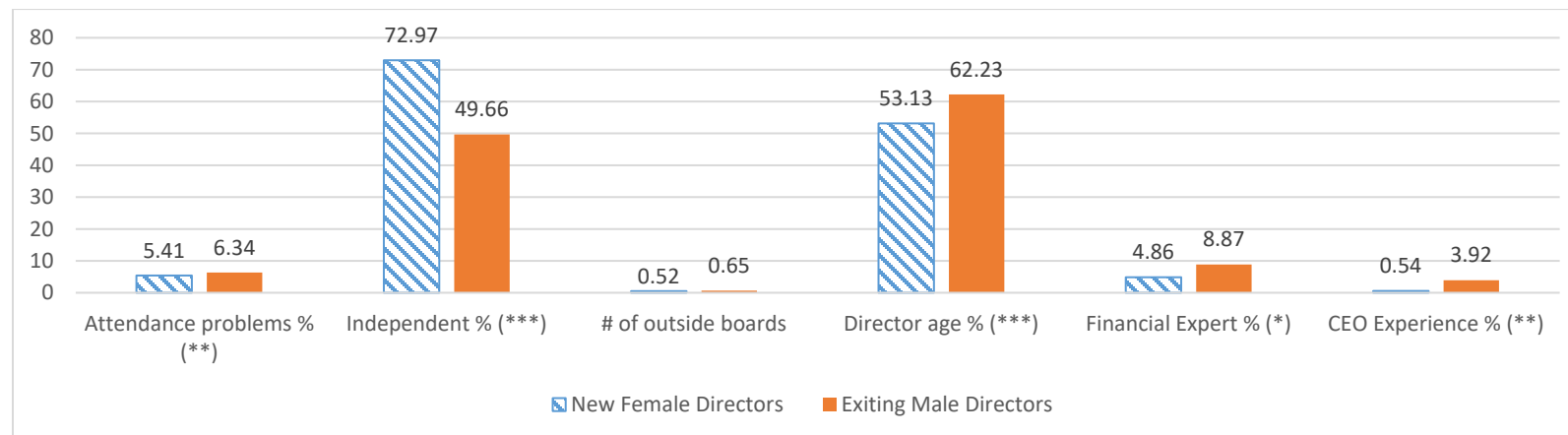


Figure 3. Characteristics of Female Directors Post-Quota Laws.

Figures show average female director characteristics from t+1 to t+5 following gender quota laws in countries with *High* (above median) and *Low female labor force* for banks in our treatment sample. Quota law countries are those that passed quota legislation during our sample period that aim to increase the participation of women in boardrooms. All variables are defined in Appendix A. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

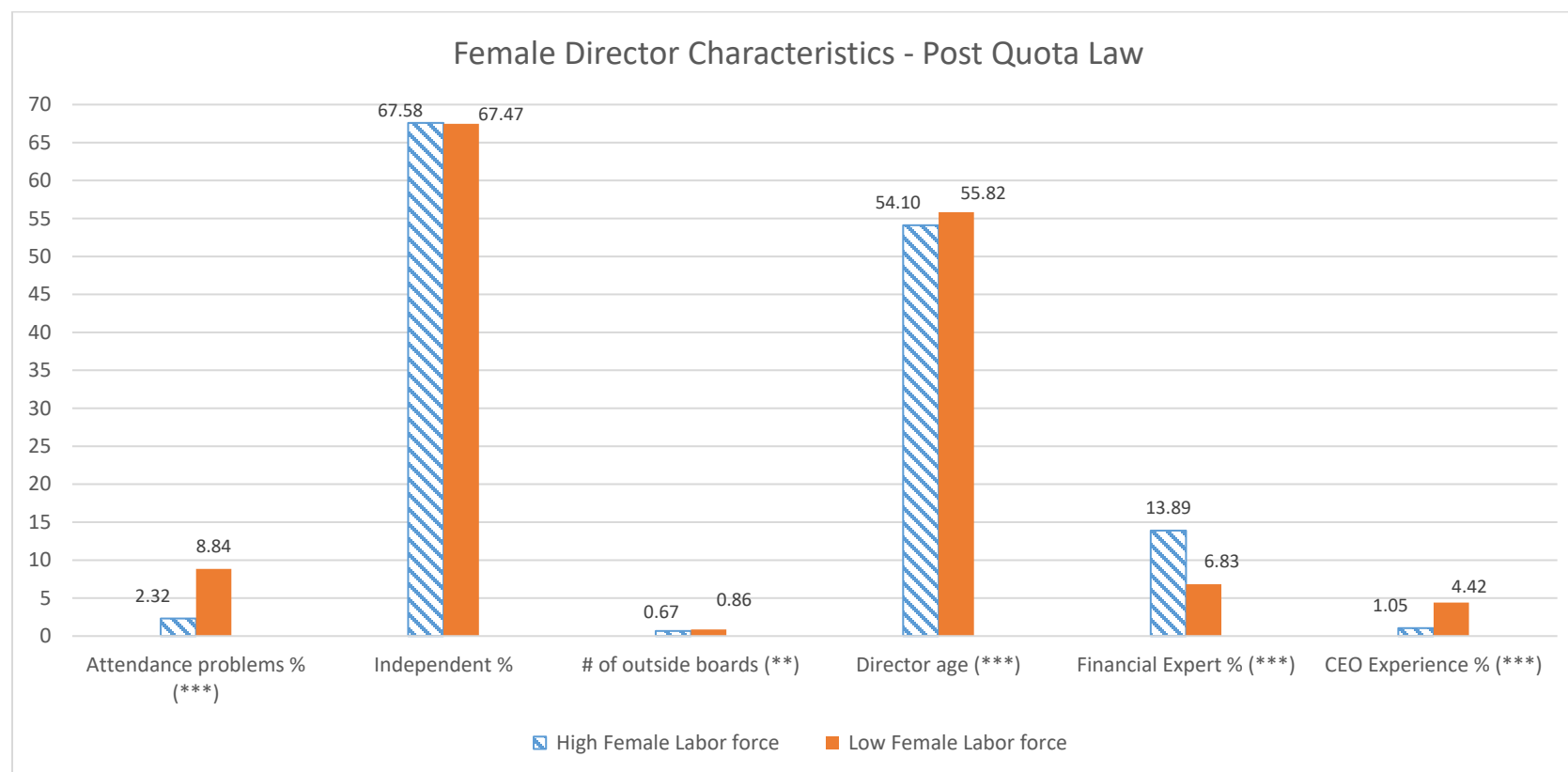


Table 1 Boardroom Gender Quota Laws. Sample Description.

The table reports characteristics and year of implementation of quota laws that aim to increase the participation of women in boardrooms. Treatment countries are those that passed gender quota laws during our sample period 2008-2017. Countries without board gender reforms are used as our control sample. Year of code is the first year in which the country's governance code includes recommendations associated with gender diversity on corporate boards.

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

Sample Description 2008-2017						
COUNTRY	# of banks	# of obs.	Year of quota law	Quota (Compliance year)	Treatment country	Year of code
ARGENTINA	4	31			0	.
AUSTRALIA	14	88	2012	Not specified.	1	2010
AUSTRIA	3	30	.		0	2009
BELGIUM	4	25	2011	33% (2017)	1	2009
BRAZIL	9	57	.		0	.
CANADA	23	171	.		0	.
CHILE	5	35	.		0	.
CHINA	15	68	.		0	.
COLOMBIA	4	14	.		0	.
DENMARK	6	42	2012	Not specified.	1	2008
FRANCE	11	68	2011	20% (2014); 40% (2017)	1	2010
GERMANY	13	81	2015	30% (2016)	1	2010
GREECE	7	44	.		0	2013
HONG KONG	16	82	.		0	2013
INDIA	25	96	2013	≥ 1female director	1	2014
INDONESIA	10	68	.		0	.
IRELAND	5	33	.		0	2010
ISRAEL*	7	52	1999	≥ 1female director	0	.
ITALY	24	165	2011	(20%) 2012; (33%) 2015	1	2011
JAPAN	5	39	.		0	2014
KOREA, REPUBLIC	24	136	.		0	.
MALAYSIA	16	102	.		0	2011
MEXICO	10	51	.		0	.
NETHERLANDS	6	40	2011	30% (2013)	1	2008
NORWAY*	5	25	2003	40% (2008)	0	2004
PHILIPPINES	13	70	.		0	.
POLAND	8	71	.		0	2010
PORTUGAL	3	27	.		0	.
RUSSIAN FEDERATI	4	27	.		0	.
SINGAPORE	7	48	.		0	2012
SOUTH AFRICA	13	79	.		0	2009
SPAIN*	10	69	2007	40% (2015)	0	2006
SWEDEN	7	59	.		0	2004
SWITZERLAND	20	132	.		0	2014
TAIWAN, PROVINCE	8	28	.		0	.
THAILAND	16	104	.		0	2012
TURKEY	16	110	.		0	.
UNITED ARAB EMIR	3	9	.		0	.
UNITED KINGDOM	44	263	.		0	2010
TOTAL	443	2,739				

Table 2 Descriptive Statistics

The table shows descriptive statistics of variables used in our analysis of board gender quota laws. Panel A presents the overall sample statistics. In Panel B we show director-level variables. Panel C presents mean and median for key attributes of different subsamples. *Female directors %* is the percentage of female directors on the board; *Most impacted* is an indicator variable that is equal to one for banks with no female directors as of 2008 and zero otherwise; *Board size (log)* is the log of the total number of directors; *Independent directors %* is the fraction of independent directors on the board; *# outside boards* is the average number of outside boards held by directors; *Tenure* is the average tenure of directors, and *CEO-Chair* is an indicator that is equal to one if the CEO is also Chair of the board. Risk measures include the log of *Z-score*, $(ROA + \text{equity/assets}) / \sigma(ROA)$; *NPL-to-loans %*, nonperforming loans-to-loans; *Leverage*, assets-to-equity, and *Volatility*, the annualized standard deviation of weekly stock returns. Other bank level variables include: *Market-to-book*, market value of equity-to-book value of equity; *Returns*, annual buy and hold returns; *ROA*, net income-to-average assets; *Size*, the log of the book value of assets; *Deposits-to-assets*, and *Noninterest income*, noninterest income-to-total income. Country level variables include *Log GDP per capita*, the annual log of real gross domestic product per capita; *GDP growth*, the annual growth in real GDP; *Inflation*, the percent change in the consumer price index, CPI; *Restrictions on bank activities*, an index of regulatory impediments to banks engaging in securities market activities, insurance activities, and real estate activities; *Capital stringency*, an index measuring the stringency of capital regulations; *Macroprudential policy index*, an index of existing macroprudential policies from Cerutti et al. (2017); *Female labor force*, the proportion of females in the labor force; *Females in high skill occupations*, the proportion of females in high skill occupations, and *Governance index*, the average of the six components of governance from the World Governance Indicators. Director characteristics include: *Attendance problems*, an indicator variable that is equal to one if a director did not attend at least 75% of meetings in a given year; *Independent*, an indicator that is equal to one if the director is classified as being independent; *# outside boards*, the number of outside boards held by a director; *Director age (tenure)*, the director's age (tenure); *Prior CEO experience*, an indicator that is equal to one if the director has had prior CEO experience, and *Financial expert*, an indicator that is equal to one if the director is classified as a financial expert. Financial data are from Fitch Fundamentals database; market data are from DataStream, and data on boards of directors are from Institutional Shareholders Services' (ISS) Global Directors Database. All variables are defined in Appendix A.

Panel A. Descriptive Statistics- Full Sample.						
	N	Mean	p25	p50	p75	Std. dev.
Board Characteristics						
Female director %	2,739	13.603	0.000	11.111	21.429	12.470
Most impacted	2,739	0.234	0.000	0.000	0.000	0.423
Board size (log)	2,739	2.358	2.079	2.398	2.639	0.419
Independent directors %	2,739	0.499	0.316	0.500	0.692	0.283
# outside boards	2,718	0.739	0.182	0.571	1.083	0.717
Tenure	2,595	6.389	3.700	5.667	8.500	3.727
CEO-Chair	2,739	0.072	0.000	0.000	0.000	0.259
Risk Measures						
Z-score (log)	2,338	3.489	2.867	3.533	4.145	0.984
NPL-to-loans %	1,996	4.859	1.155	2.960	5.755	6.297
Leverage	2,739	12.720	7.045	11.309	15.992	10.295
Volatility	2,360	0.353	0.227	0.314	0.432	0.181
Other bank-level variables						
Market-to-book	2,701	1.744	0.747	1.148	1.831	2.940
Returns (%)	2,701	10.444	-14.282	7.704	29.743	42.684
ROA	2,718	1.421	0.339	0.832	1.680	2.573
Size (Log assets US\$ M)	2,739	10.287	8.951	10.365	11.616	2.094
Deposits-to-assets	2,599	0.607	0.487	0.697	0.801	0.257
Noninterest income	2,653	34.161	15.138	24.351	43.401	28.163
Country-level variables						
Log GDP per capita	2,711	9.960	9.269	10.425	10.724	1.026
GDP growth	2,711	0.033	-0.042	0.033	0.095	0.109
Inflation	2,706	0.027	0.009	0.022	0.036	0.028
Restrictions on bank activities	2,739	6.586	5.000	6.000	8.000	2.173
Official supervisory power	2,739	10.507	8.500	11.000	12.000	2.329
Capital stringency	2,739	6.574	5.000	7.000	8.000	2.071
Macroprudential policy index	2,625	2.493	1.000	2.000	3.000	1.837
Female labor force	2,477	42.764	41.122	45.087	46.401	5.683
Females in high skill occupations	2,699	0.446	0.427	0.457	0.490	0.075
Governance index	2,477	0.791	-0.014	0.844	1.516	0.775

Table 2 Descriptive Statistics. Continued.

Panel B. Director Characteristics						
	N	Mean	p25	p50	p75	Std. dev.
Attendance problem	30,236	0.028	0.000	0.000	0.000	0.166
Independent	30,236	0.486	0.000	0.000	1.000	0.500
# outside boards	29,339	0.769	0.000	0.000	1.000	1.361
Tenure	27,775	6.469	2.000	4.000	9.000	6.681
Age	27,034	58.880	53.000	59.000	65.000	9.150
Prior CEO exp.	30,236	0.008	0.000	0.000	0.000	0.089
Financial expert	30,236	0.052	0.000	0.000	0.000	0.221

Panel C. Descriptive Statistics for Treatment and Control Groups									
	Quota law countries			Governance code group			Benchmark group		
	N	Mean	p50	N	Mean	p50	N	Mean	p50
<i>Board Characteristics</i>									
Female director %	605	17.24	16.67	1027	12.60	11.11	902	10.04	8.33
Most impacted	605	0.18	0.00	1027	0.33	0.00	902	0.20	0.00
Board size	605	2.42	2.40	1027	2.29	2.30	902	2.38	2.40
Independent directors %	605	0.56	0.58	1027	0.51	0.53	902	0.43	0.36
# outside boards directorships	601	0.68	0.50	1023	0.94	0.78	889	0.57	0.33
Tenure	585	5.23	4.70	966	7.17	6.36	843	6.42	6.00
CEO-Chair	605	0.08	0.00	1027	0.05	0.00	902	0.10	0.00
<i>Risk Measures</i>									
Z-score (log)	503	3.39	3.49	915	3.47	3.49	743	3.53	3.55
NPL-to-loans %	454	6.31	3.74	678	5.70	3.32	696	3.30	2.10
Leverage	605	16.39	14.66	1027	10.90	10.06	902	11.12	9.98
Volatility	533	0.38	0.33	889	0.34	0.30	742	0.35	0.32
<i>Other bank-level variables</i>									
Market-to-book	602	1.68	0.96	1013	1.73	1.23	881	1.70	1.21
Returns (%)	599	8.94	7.00	1016	8.46	8.08	892	13.79	7.98
ROA	602	0.81	0.40	1023	1.83	1.02	888	1.59	1.15
Size (Log assets US\$ M)	605	10.83	10.83	1027	9.84	10.06	902	10.31	10.19
Deposits-to-assets	590	0.58	0.62	922	0.59	0.73	887	0.65	0.73
Noninterest income	595	32.12	22.62	992	42.16	27.88	867	27.39	20.24
<i>Director Characteristics</i>									
Attendance problem	7,195	0.05	0.00	10,490	0.03	0.00	10,068	0.01	0.00
Independent	7,195	0.52	1.00	10,490	0.49	0.00	10,068	0.43	0.00
# outside boards	6,971	0.69	0.00	10,233	0.98	0.00	9,792	0.63	0.00
Tenure	6,608	5.16	4.00	9,689	7.30	5.00	9,080	6.68	4.00
Age	6,435	59.08	59.00	9,648	59.02	59.00	8,795	58.58	58.00
Prior CEO exp.	7,195	0.01	0.00	10,490	0.01	0.00	10,068	0.01	0.00
Financial expert	7,195	0.08	0.00	10,490	0.03	0.00	10,068	0.05	0.00

Table 3 Changes in % Female Directors Subsequent to the Gender Quota Laws

The table shows results from regressions assessing the impact of gender quota laws during our sample period. The dependent variable is *Female directors %*, the percentage of female directors on the board. *Post* is an indicator variable equal to one starting the year when the gender quota law is passed in the country and zero otherwise. *Most impacted* is an indicator variable that is equal to one for banks with no female directors as of the start of the sample period (2008) and zero otherwise. Control groups are banks from countries with only governance codes that recommend gender diversity, and those from countries that do not have gender reforms during our sample period. Governance code is an indicator variable equal to one starting the first year a country's governance code mentions that gender should be considered in board appointments and zero otherwise. See Table 1 for the reform country and year and Table 2 for summary statistics of control variables. All variables are defined in Appendix A. *t*-statistics, in parentheses, are based on standard errors clustered at the bank level. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Dependent variable	Female directors %							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post	4.282*** (3.56)	3.872*** (2.79)	3.452** (2.52)	2.928* (1.89)	3.893*** (3.09)	3.793*** (2.65)	3.122** (2.24)	2.879* (1.84)
Post x Most impacted			4.418** (2.17)	5.568** (2.33)			4.205** (1.97)	5.489** (2.27)
Log(assets) t-1		-0.530 (-0.55)		-0.550 (-0.57)		-0.536 (-0.56)		-0.555 (-0.57)
Board size t-1		0.735 (0.34)		0.382 (0.18)		0.733 (0.34)		0.385 (0.18)
% of independent directors t-1		1.559 (0.80)		1.767 (0.92)		1.582 (0.81)		1.782 (0.92)
# of outside boards		-0.076 (-0.10)		-0.001 (-0.00)		-0.068 (-0.09)		0.004 (0.00)
Tenure t-1		-0.286* (-1.75)		-0.331** (-2.03)		-0.295* (-1.82)		-0.337** (-2.09)
Log GDP per capitat-1		-25.203*** (-4.23)		-24.759*** (-4.22)		-25.075*** (-4.19)		-24.664*** (-4.18)
GDP growth t-1		9.298*** (3.68)		9.087*** (3.60)		9.321*** (3.69)		9.108*** (3.60)
Governance code					1.509** (2.01)	0.518 (0.64)	1.434* (1.94)	0.408 (0.51)
Observations	2,534	1,891	2,534	1,891	2,534	1,891	2,534	1,891
R-squared	0.768	0.802	0.769	0.803	0.769	0.802	0.770	0.803
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R2	0.722	0.750	0.723	0.751	0.723	0.750	0.724	0.751
# banks	414	378	414	378	414	378	414	378

Table 4 Changes in Board Characteristics Subsequent to the Gender Quota Laws

The table presents the impact of gender quota laws on bank board characteristics. Control groups are banks from countries with only governance codes that recommend gender diversity, and those from countries that do not have gender reforms during our sample 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. *Most impacted* is an indicator variable that is equal to one for banks with no female directors as of the start of the sample period (2008) and zero otherwise. Controls (omitted in Panel B to conserve space) include: *Size* (log of assets); *Log GDP per capita*, and *GDP growth*. In Panel A we report results for the average effect of quota laws on banks from treated countries. In Panel B, we show results that include the interaction term, *Post x Most impacted*, that teases out the incremental effect of quota laws on banks most impacted by the quota laws. See Table 1 for the reform country and year and Table 2 for summary statistics of control variables. All variables are defined in Appendix A. *t*-statistics, in parentheses, are based on standard errors clustered at the bank level. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Panel A. Legislation-based reforms

Dependent variable	Board characteristics				Committee composition (% female)		
	Log (board size)	% independent directors	Director tenure	# of outside boards	Audit	Compensation	Nominating
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Post	-0.021 (-0.88)	-0.055** (-2.17)	0.145 (0.44)	0.002 (0.03)	0.047* (1.87)	-0.004 (-0.14)	-0.026 (-0.81)
Log(assets) t-1	0.032* (1.74)	-0.051*** (-2.67)	-0.172 (-0.61)	0.019 (0.42)	-0.012 (-0.71)	0.025 (1.56)	0.016 (1.01)
Log GDP per capitat-1	0.124 (1.07)	-0.250** (-2.57)	3.912*** (2.81)	0.299 (1.32)	-0.338*** (-3.16)	-0.482*** (-4.93)	-0.374*** (-3.39)
GDP growth t-1	-0.089* (-1.95)	0.229*** (4.42)	-1.401** (-2.28)	0.188 (1.59)	0.131*** (2.70)	0.044 (0.85)	-0.005 (-0.10)
Observations	2,506	2,506	2,386	2,496	2,350	2,045	1,882
Bank fixed effects	0.882	0.741	0.810	0.782	0.613	0.567	0.586
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# banks	406	406	401	406	395	357	330

Panel B. The Effect of Quota Laws on Most Impacted Banks

Dependent variable	Board characteristics				Committee composition (% female)		
	Log (board size)	% independent directors	Director tenure	# of outside boards	Audit	Compensation	Nominating
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Post x Most impacted	0.142** (2.14)	-0.167*** (-3.57)	2.102*** (3.46)	-0.159 (-1.37)	0.065 (1.39)	0.047 (1.28)	0.030 (0.52)
Post	-0.047** (-2.15)	-0.025 (-0.93)	-0.210 (-0.61)	0.031 (0.45)	0.036 (1.28)	-0.010 (-0.33)	-0.030 (-0.83)
Observations	2,506	2,506	2,386	2,496	2,350	2,045	1,882
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.883	0.743	0.813	0.782	0.614	0.567	0.585
# banks	406	406	401	406	395	357	330

Table 5 Changes in Director Characteristics Subsequent to the Gender Quota Laws

The table presents results from director-level regressions assessing the impact of gender quota laws on director characteristics. Control groups are banks from countries that do not have gender reforms during our sample period. *Female director* is an indicator variable equal to one for female directors and zero otherwise. *Post* is an indicator variable equal to one starting the year when the gender quota law is passed in the country and zero otherwise. See Table 1 for the reform country and year and Table 2 for summary statistics of control variables. F-test for $Post \times Female\ director + Female\ director = 0$ are shown in the last row. All variables are defined in Appendix A. *t*-statistics, in parentheses, are based on standard errors clustered at the bank level. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Dependent variable	Attendance problem	Independent	# outside boards	Tenure	Director's age	Financial expert	Prior CEO experience
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Post x Female director (A)	-0.008 (-0.74)	0.164*** (3.99)	0.257** (2.45)	-1.196** (-2.55)	-1.202 (-1.51)	0.018 (0.72)	0.006** (2.35)
Post	0.006 (0.40)	-0.025 (-1.08)	-0.075 (-1.08)	0.479 (1.31)	-0.522 (-1.29)	0.012 (1.19)	-0.007** (-2.00)
Female director (B)	-0.007* (-1.88)	-0.008 (-0.26)	-0.174** (-1.97)	-1.263*** (-3.79)	-4.111*** (-6.43)	0.006 (0.58)	-0.013*** (-5.52)
Observations	6,233	17,263	16,763	15,688	15,230	17,263	17,263
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.0751	0.246	0.237	0.289	0.186	0.147	0.0351
# banks	240	255	252	247	241	255	255
F-test [A+B=0]	0.01	13.25***	2.66	2.18	4.77**	1.41	0.06

Table 6. The Effect of Board Gender Quota Laws on Bank Risk Taking

This table reports the results assessing the impact of quota laws on bank risk taking. The dependent variables are *Z-score*, the log of *Z-score*, measured as $(ROA + \text{equity/assets}) / \sigma(ROA)$; *NPL-to-loans* %, nonperforming loans-to-loans; *Leverage*, assets-to-equity, and *Volatility*, the annualized standard deviation of weekly stock returns. Control group includes banks from countries with only governance codes that recommend gender diversity, and those from countries that do not have gender reforms during our sample period. In Panel A we report results for the average effect of quota laws on bank risk taking in treated countries in Models (1)-(4). In Models (5)-(8), we show results that include the interaction term, *Post x Most impacted*, that tests the incremental effect of quota laws on banks most impacted by the quota laws. *Post* is an indicator variable equal to one starting the year when the gender quota law is passed in the country and zero otherwise. *Most impacted* is an indicator variable that is equal to one for banks with no female directors as of the start of the sample period (2008) and zero otherwise. See Table 1 for the reform country and year and Table 2 for summary statistics of control variables. F-statistics from tests of the sum of the coefficients *Post + Post x Most impacted*=0 are shown in the last row. All variables are defined in Appendix A. *t*-statistics, in parentheses, are based on standard errors clustered at the bank level. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

The Impact of Quota Laws on Bank Risk Taking								
Dependent variable:	Z-score	NPL-to-loans	Leverage	Volatility	Z-score	NPL-to-loans	Leverage	Volatility
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post	-0.206 (-1.20)	1.152 (1.63)	-0.076 (-0.10)	0.019 (1.01)	-0.153 (-0.82)	0.776 (1.08)	-0.744 (-0.80)	0.011 (0.54)
Post x Most impacted					-0.419 (-0.96)	3.854* (1.73)	4.786*** (2.65)	0.063 (1.09)
Log(assets) t-1	-0.155 (-0.98)	-2.267** (-2.13)	5.114*** (4.50)	0.022 (1.02)	-0.154 (-0.97)	-2.156** (-2.01)	5.114*** (4.52)	0.023 (1.06)
Deposits-to-assets t-1	-0.097 (-0.23)	5.571* (1.73)	1.080 (0.33)	0.076 (1.19)	-0.076 (-0.18)	5.454* (1.69)	0.780 (0.24)	0.074 (1.15)
Noninterest income t-1	0.005* (1.93)	0.040* (1.87)	-0.036* (-1.67)	-0.001** (-2.41)	0.005** (2.01)	0.036* (1.76)	-0.039* (-1.77)	-0.001** (-2.48)
ROA t-1	0.065*** (3.98)	-1.083*** (-4.20)	-0.305* (-1.73)	-0.005* (-1.90)	0.064*** (3.87)	-1.045*** (-3.98)	-0.292* (-1.66)	-0.005* (-1.85)
Log GDP per capitat-1	1.507** (2.09)	-4.870 (-1.16)	-2.620 (-0.79)	-0.021 (-0.25)	1.425* (1.96)	-4.619 (-1.10)	-2.341 (-0.73)	-0.017 (-0.21)
GDP growth t-1	0.071 (0.30)	0.881 (0.62)	-3.443** (-2.05)	-0.179*** (-3.39)	0.070 (0.30)	0.948 (0.67)	-3.427** (-2.04)	-0.179*** (-3.37)
Inflation t-1	3.054*** (3.03)	-9.425** (-2.56)	-2.984 (-0.35)	-0.076 (-0.33)	3.037*** (3.01)	-9.107** (-2.45)	-2.775 (-0.32)	-0.072 (-0.31)
Restrictions on bank activities	0.035 (1.19)	-0.381** (-2.41)	0.013 (0.08)	-0.013** (-2.59)	0.030 (1.02)	-0.334** (-2.08)	0.051 (0.32)	-0.013** (-2.49)
Official supervisory power	0.009 (0.39)	0.077 (0.66)	0.131 (0.70)	0.001 (0.42)	0.015 (0.59)	0.014 (0.11)	0.067 (0.34)	0.000 (0.15)
Stringency of capital requirements	-0.017 (-0.70)	0.398** (2.26)	-0.210 (-0.92)	-0.000 (-0.08)	-0.015 (-0.64)	0.390** (2.23)	-0.218 (-0.97)	-0.001 (-0.12)
Macroprudential policy index	0.034 (0.59)	-0.637** (-2.43)	0.018 (0.04)	-0.018* (-1.91)	0.033 (0.58)	-0.587** (-2.23)	0.034 (0.08)	-0.018* (-1.93)
Observations	1,898	1,696	2,188	1,868	1,898	1,696	2,188	1,868
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.617	0.826	0.807	0.709	0.618	0.829	0.808	0.709
# banks	362	280	368	323	362	280	368	323
F-test Post + Post x most impacted=0					2.037	4.752**	8.973***	2.039

Table 7. The Effect of Board Gender Quota Laws on Bank Risk Taking: By Country Characteristics

This table reports the cross-country impact of characteristics of the female labor force (Panel A) and governance and bank regulatory quality (Panel B) on the effect of quota laws on bank risk taking. The dependent variables are *Z-score*, the log of *Z-score*, measured as $(ROA + \text{equity/assets}) / \sigma(ROA)$; *NPL-to-loans* %, nonperforming loans-to-loans; *Leverage*, assets-to-equity, and *Volatility*, the annualized standard deviation of weekly stock returns. Control group includes banks from countries with only governance codes that recommend gender diversity and those from countries that do not have board gender reforms during our sample 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. *High female labor force* (*High females in high skill occupations*) is an indicator variable that is equal to one if the country's female labor force % (share of females in high skill occupations) is above the cross-country median and zero otherwise. In Panel B we show results using proxies for institutional quality and bank regulation. Specifically, *High Governance index* (*High capital stringency*) is an indicator variable that is equal to one if the country's governance index (Stringency of capital regulation) is above the cross-country median in the year and zero otherwise. *Governance index* is the average of the six governance indicators from the World Governance Indicators. *Stringency of capital requirements* is an 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 (Barth et al., 2013). Regressions include the same bank and country level controls used in Table 6 but are not reported for brevity. See Table 1 for the reform country and year and Table 2 for summary statistics of control variables. All variables are defined in Appendix A. F-statistics from tests of the sum of the coefficients $Post + Post \times High = 0$ are shown in the last row of each panel. *t*-statistics, in parentheses, are based on standard errors clustered at the bank level. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Panel A. Size of Female Labor Force and Females in High Skill Occupations								
	Z-score	NPL-to-loans	Leverage	Volatility	Z-score	NPL-to-loans	Leverage	Volatility
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post	-0.877*** (-3.14)	5.285*** (5.35)	3.172*** (2.79)	0.096*** (3.63)	-0.723*** (-3.01)	3.966*** (4.89)	3.119** (2.54)	0.092*** (3.42)
Post x High female labor force	1.049*** (2.95)	-7.328*** (-5.98)	-4.734** (-2.36)	-0.157*** (-4.09)				
High female labor force	-0.418** (-2.02)	-1.005** (-2.28)	0.334 (0.85)	-0.005 (-0.28)				
Post x High females in high skill occupations					0.992*** (3.08)	-7.017*** (-5.59)	-7.092** (-2.29)	-0.182*** (-4.32)
High females in high skill occupations					0.050 (0.34)	1.216 (1.52)	-0.785 (-0.45)	0.009 (0.31)
Observations	1,731	1,552	2,006	1,711	1,861	1,674	2,148	1,840
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.558	0.823	0.777	0.618	0.530	0.807	0.768	0.657
# banks	360	279	368	323	356	276	362	318
F-test Post + Post x High=0	0.57	7.44***	1.49	6.38**	1.25	10.42***	2.98*	9.63***

Table 7. The Effect of Board Gender Quota Laws on Bank Risk Taking: By Country Characteristics. Continued.

Panel B. Governance and Regulatory quality								
	Z-score	NPL-to-loans	Leverage	Volatility	Z-score	NPL-to-loans	Leverage	Volatility
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post	-0.886*** (-3.20)	5.144*** (5.06)	4.144*** (3.03)	0.134*** (4.35)	-1.236*** (-3.21)	6.958*** (5.12)	7.194*** (3.93)	0.205*** (4.95)
Post x High Governance index	1.090*** (3.25)	-7.098*** (-5.72)	-6.273*** (-3.01)	-0.187*** (-4.95)				
High Governance index	0.630*** (3.09)	-0.302 (-0.38)	0.886 (1.12)	0.047*** (3.07)				
Post x High capital stringency					1.236*** (3.00)	-6.946*** (-4.75)	-8.801*** (-3.74)	-0.237*** (-5.16)
High capital stringency					0.122 (0.57)	-0.984 (-1.30)	0.663 (0.49)	0.061** (2.26)
Observations	1,898	1,566	1,977	1,684	1,898	1,696	2,188	1,868
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.538	0.804	0.760	0.660	0.535	0.803	0.771	0.658
# banks	362	278	367	322	362	280	368	323
F-test Post + Post x High=0	0.98	6.43**	2.48	5.18**	0.00	0.00	2.77*	2.43

Table 8. The Effect of Board Gender Quota Laws on Bank Performance

This table reports the impact of gender quota laws on bank performance. The dependent variables are *Market-to-book*; *Returns*; and *ROA*. Control group includes banks from countries with only governance codes that recommend gender diversity, and those from countries that do not have gender reforms during our sample 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. *Most impacted* is an indicator variable that is equal to one for banks with no female directors as of the start of the sample period (2008) and zero otherwise. In Panel B, we show results using indicators of *High female labor force* (*High Females in High Skill Occupation*), that equal one if the country's female labor force % (share of females in high skill occupations) is above the cross-country median and zero otherwise. In Panel C we show results using proxies for institutional quality and bank regulation: *High Governance index* (*High capital stringency*) is an indicator variable that is equal to one if the country's *Governance index* (*Stringency of capital regulation*) is above the cross-country median in the year and zero otherwise. Regressions include the same bank and country level controls used in Table 6, but are not reported in Panel B, for brevity. See Table 1 for the reform country and year and Table 2 for summary statistics of control variables. All variables are defined in Appendix A. *F*-statistics from tests of the sum of the coefficients $Post + Post \times High = 0$ are shown in the last row of panels B and C. *t*-statistics, in parentheses, are based on standard errors clustered at the bank level. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Panel A. Impact of Quota Laws on Bank Performance						
Dependent variable:	Market-to-book	Returns	ROA	Market-to-book	Returns	ROA
	(1)	(2)	(3)	(4)	(5)	(6)
Post	0.061 (0.61)	5.813 (1.31)	-0.314** (-2.11)	0.082 (0.74)	5.845 (1.25)	-0.213 (-1.30)
Post x most impacted				-0.152 (-0.56)	-1.200 (-0.12)	-0.529 (-1.40)
Log(assets) t-1	-0.138 (-0.90)	-22.418*** (-5.63)	-0.744* (-1.96)	-0.137 (-0.89)	-21.159*** (-5.08)	-0.723* (-1.84)
Deposits-to-assets t-1	0.505 (0.88)	4.392 (0.31)	-0.882 (-0.93)	0.515 (0.90)	1.486 (0.10)	-0.943 (-0.95)
Noninterest income t-1	-0.000 (-0.10)	-0.150 (-1.26)	0.018 (1.49)	-0.000 (-0.08)	-0.141 (-1.14)	0.019 (1.43)
Log GDP per capitat-1	-0.657 (-1.45)	-34.302 (-1.48)	0.478 (0.48)	-0.666 (-1.48)	-31.297 (-1.32)	0.449 (0.44)
GDP growth t-1	0.337 (1.53)	42.201*** (2.80)	0.672 (1.37)	0.336 (1.52)	40.876** (2.56)	0.599 (1.18)
Inflation t-1	-2.698** (-2.39)	201.966** (2.35)	-1.289 (-0.84)	-2.706** (-2.40)	169.438** (1.99)	-1.226 (-0.76)
Restrictions on bank activities	0.013 (0.53)	-1.194 (-1.39)	-0.089 (-1.49)	0.012 (0.46)	-1.323 (-1.40)	-0.083 (-1.55)
Official supervisory power	0.031 (1.49)	-0.068 (-0.10)	0.011 (0.43)	0.033* (1.71)	-0.139 (-0.18)	0.016 (0.57)
Stringency of capital requirements	-0.017 (-0.70)	-0.527 (-0.64)	0.027 (0.58)	-0.017 (-0.68)	-0.554 (-0.65)	0.021 (0.48)
Macroprudential policy index	-0.018 (-0.28)	1.921 (1.11)	-0.176** (-2.35)	-0.018 (-0.28)	1.266 (0.68)	-0.175** (-2.25)
Observations	2,183	2,385	2,391	2,183	2,251	2,257
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.955	0.301	0.515	0.955	0.304	0.502
# banks	366	369	369	366	368	368
F-test $Post + Post \times most\ impacted = 0$				0.09	0.23	3.53*

Table 8. The Effect of Board Gender Quota Laws on Bank Performance. Continued.

Panel B. Size of Female Labor Force and Females in High Skill Occupations						
Dependent variable:	Market-to-book	Returns	ROA	Market-to-book	Returns	ROA
	(1)	(2)	(3)	(4)	(5)	(6)
Post	-0.039 (-0.32)	21.813** (2.45)	-0.527** (-2.29)	-0.197* (-1.77)	4.599 (0.79)	-0.461** (-2.55)
Post x High female labor force	0.352* (1.78)	-15.634 (-1.54)	0.644** (2.56)			
High female labor force	-0.206* (-1.85)	-20.108** (-2.22)	-0.334* (-1.88)			
Post x High females in high skill occupations				0.682** (2.57)	4.127 (0.49)	0.461** (2.01)
High females in high skill occupations				-0.234 (-1.59)	7.344 (1.20)	-0.915* (-1.77)
Observations	2,003	2,205	2,211	2,143	2,339	2,345
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
Adjusted R	0.965	0.245	0.559	0.956	0.300	0.517
# banks	366	368	369	360	363	363
F-test Post + Post x High=0	4.45**	1.15	0.40	4.76**	1.70	0.00
Panel C. Governance and Regulatory quality						
Dependent variable:	Market-to-book	Returns	ROA	Market-to-book	Returns	ROA
	(1)	(2)	(3)	(4)	(5)	(6)
Post	-0.304** (-2.10)	0.367 (0.05)	-1.023*** (-4.13)	-0.457** (-2.29)	18.451* (2.11)	-1.600*** (-5.27)
Post x High governance index	0.533** (2.24)	1.183 (0.15)	0.908*** (3.70)			
High governance index	-0.133 (-1.13)	-0.854 (-0.16)	-0.236 (-1.04)			
Post x High capital stringency				0.572** (2.26)	-14.694 (-1.54)	1.540*** (4.87)
High capital stringency				0.313* (1.84)	-2.415 (-0.40)	-0.071 (-0.21)
Observations	1,991	2,177	2,181	2,183	2,385	2,391
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
Adjusted R ²	0.958	0.307	0.529	0.955	0.301	0.518
# banks	366	368	368	366	369	369
F-test Post + Post x High=0	2.06	0.10	0.41	1.05	0.57	0.15

Table 9. Robustness Tests. The Effect of Board Gender Quota Laws on Bank Risk Taking.

This table reports the results from various robustness tests assessing the impact of quota laws on bank risk taking. The dependent variables are *Z-score*, *NPL-to-loans*, *Leverage*, and *Volatility*. In Panel A we show results that include an indicator that equals to one for years prior to passage of quota laws. In Panel B we replicate our main results on bank risk taking measures with restricted sample period of five years around the quota law in a country. In Panel C, we replicate our main results on bank risk taking measures with additional controls banks from four countries that adopted gender quota reforms prior to the start of our sample period. In Panel D, we include alternative governance controls and proxies for gender gaps. *Post* is an indicator variable equal to one starting the year when the quota law is passed in the country and zero otherwise. *Pre quota* is an indicator that is equal to one for years t-2 and t-1 relative to the year in which the quota law is passed and zero otherwise; *Most impacted* is an indicator variable that is equal to one for banks with no female directors as of the start of the sample period (2008) and zero otherwise. *High gender gap* is an indicator that is equal to one if the World Economic Forum's *Gender Gap Index* is above the cross country median and zero otherwise. Regressions include the same bank and country level controls used in Table 6 but are not reported for brevity. See Table 1 for the reform country and year and Table 2 for summary statistics of control variables. All variables are defined in Appendix A. *t*-statistics, in parentheses, are based on standard errors clustered at the bank level. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 two-tailed levels, respectively.

Panel A: Parallel Trends								
Dependent variable:	Z-score	NPL-to-loans	Leverage	Volatility	Z-score	NPL-to-loans	Leverage	Volatility
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Pre quota x Most impacted	0.041 (0.18)	0.029 (0.04)	0.128 (0.07)	-0.060 (-1.18)				
Post x Most impacted	-0.393 (-0.98)	3.842* (1.95)	4.783** (2.11)	0.023 (0.40)				
Pre quota x High female labor force					-0.043 (-0.20)	0.908 (1.37)	-3.849 (-1.62)	0.002 (0.04)
Post x High female labor force					1.028*** (2.77)	-6.858*** (-5.69)	-6.592** (-2.53)	-0.156*** (-4.41)
High female labor force					-0.416** (-2.01)	-1.019** (-2.32)	0.423 (1.14)	-0.005 (-0.28)
Pre quota	-0.008 (-0.07)	-0.323 (-0.86)	-1.240 (-0.77)	-0.033 (-1.55)	-0.048 (-0.29)	-0.178 (-0.35)	0.603 (0.89)	-0.006 (-0.19)
Post	-0.157 (-0.84)	0.618 (0.87)	-1.354 (-1.03)	-0.003 (-0.17)	-0.902*** (-3.23)	5.198*** (5.16)	3.409*** (3.17)	0.093*** (3.86)
Observations	1,898	1,696	2,188	1,868	1,731	1,552	2,006	1,711
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.521	0.792	0.767	0.645	0.558	0.823	0.778	0.617
# banks	362	280	368	323	360	279	368	323

Table 9. Robustness Tests. The Effect of Board Gender Quota Laws on Bank Risk Taking. Continued.

Panel B. Period (-5, +5) around quota law								
	Z-score	NPL-to-loans	Leverage	Volatility	Z-score	NPL-to-loans	Leverage	Volatility
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post	-0.182 (-0.96)	1.009 (1.42)	-0.474 (-0.51)	0.016 (0.80)	-0.848*** (-3.07)	4.998*** (5.22)	2.976** (2.57)	0.087*** (3.56)
Post x Most impacted	-0.344 (-0.81)	3.944** (1.97)	3.890** (2.25)	0.051 (1.01)				
Post x High female labor force					0.981*** (2.79)	-6.512*** (-5.71)	-4.334** (-2.09)	-0.140*** (-4.13)
High female labor force					-0.423** (-2.05)	-0.965** (-2.26)	0.402 (1.05)	-0.004 (-0.21)
Observations	1,857	1,646	2,117	1,805	1,699	1,508	1,944	1,656
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.527	0.781	0.760	0.650	0.564	0.811	0.775	0.629
# banks	358	277	364	319	356	276	364	319

Panel C. Countries with pre-2008 quota reforms as additional control								
	Z-score	NPL-to-loans	Leverage	Volatility	Z-score	NPL-to-loans	Leverage	Volatility
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post	-0.165 (-0.89)	0.761 (1.06)	-0.794 (-0.84)	0.014 (0.66)	-0.877*** (-3.14)	5.369*** (5.49)	3.064*** (2.68)	0.105*** (3.90)
Post x Most impacted	-0.417 (-0.98)	3.840* (1.74)	4.771*** (2.65)	0.066 (1.13)				
Post x High female labor force					1.013*** (2.86)	-7.359*** (-6.09)	-4.675** (-2.35)	-0.164*** (-4.26)
High female labor force					-0.391** (-2.21)	0.574 (0.47)	-1.827* (-1.73)	-0.001 (-0.03)
Observations	2,071	1,864	2,385	2,056	1,888	1,706	2,186	1,883
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.529	0.788	0.778	0.628	0.564	0.819	0.789	0.614
# banks	391	304	397	351	389	303	397	351

Table 9. Robustness Tests. The Effect of Board Gender Quota Laws on Bank Risk Taking. Continued.

Panel D The Impact of Quota Laws on Bank Risk Taking								
	ADDITIONAL CONTROLS				ALTERNATE PROXY- GENDER GAP INDEX			
	Z-score	NPL-to-loans	Leverage	Volatility	Z-score	NPL-to-loans	Leverage	Volatility
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Post	-0.879*** (-2.66)	4.968*** (4.81)	3.640** (2.46)	0.087*** (2.64)	-0.778*** (-3.20)	3.675*** (5.40)	1.743** (2.09)	0.083*** (4.37)
Post x High female labor force	1.037*** (2.71)	-6.992*** (-5.12)	-5.192** (-2.20)	-0.147*** (-3.48)				
High female labor force	-0.434** (-2.06)	-1.111** (-2.37)	0.248 (0.58)	-0.007 (-0.38)				
Post x High Gender Gap index					0.978*** (3.14)	-4.887*** (-6.03)	-2.399 (-1.51)	-0.128*** (-5.27)
High Gender Gap index					-0.253 (-1.56)	1.776*** (3.32)	1.143 (1.58)	0.078*** (3.87)
% of independent directors t-1	0.077 (0.33)	-0.502 (-0.38)	-0.349 (-0.29)	-0.047 (-1.44)				
CEO-Chair	0.100 (0.68)	0.200 (0.58)	-0.267 (-0.67)	0.009 (0.55)				
Observations	1,511	1,375	1,759	1,496	1,661	1,494	1,934	1,639
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.565	0.835	0.766	0.621	0.561	0.808	0.773	0.618
# banks	318	259	356	312	344	266	352	307
F-test Post + Post x High=0	0.54	6.19**	1.21	6.51**	0.80	2.79*	0.30	4.35**

Appendix A. Variable Definitions

Variables	Description	Source
Variables of interest		
<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>Volatility</i>	The annualized standard deviation of weekly stock returns.	DataStream. Authors' calculations.
<i>Post</i>	An indicator that is 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 (2017), Catalyst (2018).
<i>Most impacted</i>	An indicator that is equal to one for banks with no female directors as of the start of our sample period (2008) and zero otherwise.	ISS Global Directors Database
Board-level characteristics		
<i>Board size</i>	Total number of directors.	ISS Global Directors Database
<i>Independent directors %</i>	Percentage of independent directors on the board.	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
<i>CEO-Chair</i>	Indicator variable that is equal to one if the CEO is also chair of the board and zero otherwise.	ISS Global Directors Database
Other bank-level variables		
<i>Market-to-book</i>	The market value of equity-to-the book value of equity.	Fitch Fundamentals Financial data; DataStream
<i>Returns</i>	Annual buy and hold returns.	DataStream
<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>Noninterest income</i>	Noninterest income-to-total income.	Fitch Fundamentals database
Country-level controls		
<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

Appendix A. Variable Definitions. Continued.

Variables	Description	Source
<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>Official supervisory power</i>	Index measuring whether supervisory entities have authority to take action to prevent and correct problems. The index ranges from 0-14, with higher values indicating greater power.	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>Macroprudential policy index</i>	An index of macroprudential policies that is the sum of indicators signaling the existence 12 macroprudential policy instruments. Index value ranges from 0-12.	Cerutti, et al. (2017)
<i>Gender gap index</i>	An index that examines the gap between men and women across four fundamental categories: Economic Participation and Opportunity, Educational Attainment, Health and Survival and Political Empowerment. It ranks countries according to their proximity to gender equality rather than to women's empowerment. Higher values indicate closer proximity to gender equality.	World Economic Forum
<i>Female labor force %</i>	Female labor force as a proportion of total labor force.	World Bank; ILOSTAT
<i>Females in high skill occupations</i>	Females in high skill occupations as proportion of total employment in high skill occupations. High skill occupations are based on the International Standard Classification of Occupation (ISCO). High skill occupations include managers; professionals, and technicians and associate professionals (board skill levels 3 and 4).	ILOSTAT
<i>Governance index</i>	The average of all six governance indicators: political stability, voice and accountability, government effectiveness, regulatory quality, control of corruption, and rule of law. Each of the indices ranges from -2.5 to 2.5, with higher values indicating better governance.	World Governance Indicators
<i>ASDI</i>	The anti-self-dealing index from Djankov et al. (2008). The index that measures the level of difficulty for minority shareholders to thwart the consumption of private benefits by controlling shareholders.	
Director characteristics		
<i>Attendance problem</i>	Indicator variable that is equal to one if the director did not attend at least 75% of meetings and zero otherwise.	ISS Global Directors Database
<i>Independent</i>	Indicator that is equal to one if the director is independent and zero otherwise.	ISS Global Directors Database
<i># outside boards</i>	The number of outside boards held by a director.	ISS Global Directors Database
<i>Tenure</i>	Tenure of the director.	ISS Global Directors Database

Appendix A. Variable Definitions. Continued.

Variables	Description	Source
<i>Age</i>	Director's age.	ISS Global Directors Database
<i>Prior CEO experience</i>	Indicator variable that is equal to one if the director has prior CEO experience and zero otherwise.	ISS Global Directors Database
<i>Financial expert</i>	Indicator that is equal to one if the director is classified as a financial expert and zero otherwise.	ISS Global Directors Database