Gender of firm decision-makers and within-firm wage disparity

This version: January 16, 2023

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We are grateful for comments and suggestions to Tjeerd Boonman, Tanja Artiga Gonzalez, Kose John and Florian Peters on earlier versions of this paper. We also thank participants at the 2023 FMA Annual Meeting, the 6th Erasmus Corporate Governance Conference, the 12th International Conference of the Financial Engineering and Banking Society (FEBS), the 25th International Conference on Macroeconomic Analysis and International Finance (ICMAIF), and participants in research seminars at Audencia Business School, Fordham University, and Toulouse Business School.

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Abstract

We empirically examine the hypothesis that the gender of firm decision makers, i.e., small firm owners and large firm board directors, significantly affects within-firm wage disparity, defined as the ratio of decision makers' to average employees' compensation. Using unique data for both small and large firms, we find that female decision makers lower within-firm wage disparity. We identify skill/specialization level of decision makers as a key reason for this relation, based on the important role of R&D and innovation. We also identify a moderating role for proxies for business ethics, such as poor financial-reporting quality and other types of misconduct.

Keywords: Gender of firm decision makers; within-firm wage disparity; innovation; business ethics

JEL classification: D90; G34; J16; J31; J54

1. Introduction

Wage inequality has been increasing in the United States and elsewhere over the past four decades (e.g., Saez and Zucman, 2020). For example, estimates on the top 1% pre-tax income share rose from approximately 10% in 1980 to more than 18% in 2020. Surprisingly, within-firm inequality (within-firm pay disparity) does not follow a similar trend. Song, Price, Guvenen, Bloom and Von Wachter (2019) show that only one-third of the rise in earnings variance stems from within-firm disparity, while the remainder is found between different firms. An interesting opposite trend is that of female representation as business owners of small firms or as directors in large firms (collectively termed firm decision makers). According to data from the Diligent Institute and many other sources, female representation in the boardroom increased to record highs in 2021 in most Western economies (e.g., Frimpong, 2021).

In this paper, we establish and empirically examine the hypothesis that an important factor controlling within-firm wage disparity is the increase in the number and share of female firm decision makers. We define wage disparity as the ratio of the average firm decision maker's compensation to that of the average employee (excluding decision makers' compensation). This measure is key to our research since it shows how much firm decision makers decide to compensate themselves (and thus value themselves in their firm) compared to the decisions they make to compensate their employees.

Our theoretical framework encompasses two general elements. First, we propose that female decision makers might be willing to accept lower compensation, thus lowering within-firm wage disparity. A large set of anecdotal evidence supports a lower level of compensation for female executives, attributing it to factors such as lower education, less work experience, and male-dominated boardrooms.[1] A wrinkle in this proposition is that female decision makers

[1] See e.g., the research by New Street Consulting Group, 2021, at: https://nscg.com/insight/female-ftse-100-directors-pay-still-significantly-lower-than-males/.

should be significantly better paid in innovation-intensive firms compared to those in less innovation-oriented firms. Thus, any negative relation between the gender of firm decision makers and within-firm wage disparity might be less potent in firms/industries requiring specialized skills.

Second, we link female decision makers to higher-than-average employee compensation. The reasons behind this link are mostly behavioral and relate to gender socialization theory, under which females are seen as more caring and attentive. For instance, from a corporate-governance perspective, evidence shows that female directors create fewer agency problems, are more stakeholder-oriented, and tend to be more compliant to business ethics. We posit that these female social and ethical traits lead to an incentive for greater equity in the workplace, which translates to higher employee salaries.

We draw empirical inferences on these theoretical considerations from two separate samples. The first is a sample of more than 15,000 small European firms, for which we have confidential information on several characteristics, including owner gender, firm wage disparity, and credit score. Importantly, in some instances we observe changes in ownership from a female to a male owner, thereby allowing a staggered differences-in-differences (DID), by adding a firm fixed effect, with the firm identity being separate from the owner's identity. The validity of this exercise survives in all relevant identification tests, such as sensitivity to the timing of the event, and checking for pre-trends and/or reversals. Moreover, our results remain stable when (i) using the model of Callaway and Sant'Anna (2021) who, as in our case, consider DID estimation robust to treatment heterogeneity in the presence of variation in treatment timing, and (ii) adding a triple difference by exploiting changes from a female to a male owner when the female owner has her first dependent (first child). In the triple differences exercise, the underlying reason for the change (a family expansion) is clearly exogenous to firm operations.

Our baseline results from this sample show a conditional correlation of 4.5% between male firm ownership and within-firm wage disparity, which reduces to approximately 2.5% in our DID and the triple-differences models. Most of the increase in wage disparity after a change from a female to a male owner comes from a positive change in the numerator (the owner's income), which increases, on average, by approximately 4%. The decrease in the denominator (the average employees' income) is also statistically significant but is economically less potent.

We uncover similar results when using data for large U.S. public firms and focus on gender diversity in the boardroom. Most of our data are from ExecuComp/BoardEx (directors' compensation, gender diversity in the boardroom, etc.) and Compustat (firm financial characteristics, including personnel/operating expenses). Our main measure of gender diversity is the standard deviation of director gender; however, our results are robust to different measures (e.g., constructs from Blau or Shannon indices, simple female-to-male ratios, etc.). Empirical identification in this sample exploits the well-established result in the literature (e.g., Adams and Ferreira, 2009) that an instrumental variable (IV) for diversity in the boardroom satisfying both relevance and exclusion conditions is the proportion of male directors on the board who sit on other boards on which there are female directors.

Results show that a one-standard-deviation increase in our main gender-diversity measure (reflecting higher female participation) lowers wage disparity by 2.2%. In this respect, our results are fully consistent with those from the sample of small firms. This finding is generally robust to several tests, including a Heckman-type model for sample selection (to address the probability that firms select at least one female in the boardroom).

Given results from both samples, and consistent with our theoretical considerations, we aim to pinpoint the mechanisms through which the gender of firm decision makers affects within-firm wage disparity. We first examine the premise that female decision makers may behave more ethically, as shown in their firms' better financial reporting quality and less fraud and other types of misconduct. Although we find some evidence that wage disparity increases in firms with poor financial-reporting quality, this finding is not confirmed when we consider alternative proxies of business ethics.

Next, we examine the role of firm innovation (using R&D expenses) as a means through which female business owners or directors affect within-firm wage disparity. Results from both samples show that the easing effect of gender diversity is almost entirely reversed for innovative firms, as these firms are more likely to invest in skilled labor, thereby reducing within-firm wage disparity. Such a reversal is also evident for firms operating in sectors with a strong female-employee presence (and consequently female directors). Thus, we posit that level of skill/education is the most important mechanism through which the effect of gender of firm decision makers transmits to wage disparity.

The rest of the paper proceeds as follows. Section 2 provides the conceptual framework, places our paper within the extant literature, and theoretically identifies the mechanisms through which decision makers' gender might affect wage disparity. Section 3 presents the analysis and empirical results based on a sample of small firms, and section 4 provides the equivalent analysis and results based on a sample of large firms. Section 5 concludes the paper.

2. Conceptual framework and hypothesis development

Our key premise is that the gender of a firm's owner/board director (collectively gender of firm decision makers) reflects different background characteristics and personality traits between female and male decision makers. These, in turn, might affect compensation dynamics and consequently pay disparity between the firm decision makers and their employees.

Perhaps the most direct way to observe lower within-firm wage disparity is through lower compensation of decision makers. Female owners'/directors' lower compensation compared to that of their male counterparts should be reflected in a decrease in one of the components (the numerator) of within-firm wage disparity. Evidence has shown that female directors are paid less relative to male directors. Women typically make fewer investments in education and work experience (e.g., Tharenou, Latimer and Conroy, 1994) and consistent with this finding, female-owned small and medium-sized enterprises (SMEs) have, on average, less educated owners that do not usually invest in R&D for firm expansion.[2]

In large firms, male-dominated boards do not generally offer women the same organizational rewards such as training and development, with negative implications for their future promotion and salaries (Oakley, 2000). As such, female directors, who also tend to be younger than male directors, have shorter tenure periods and less board experience (e.g., Singh and Vinnicombe, 2004; Zelechowski and Bilimoria, 2004; Ruigrok, Peck and Tacheva, 2007; Terjesen, Sealy and Singh, 2009). This handicap in turn reinforces a commonly held (but outdated) assumption that female directors do not possess the adequate human capital for board positions (Burke, 2000).[3] The importance of this can be seen within the context of human capital theory, where prior experience affects directors' ability to avoid out-group biases and exert influence on the board. Since female directors are presumed to have limited focal experience relative to male directors, they are also presumed to exert more limited influence over the board's decisions and strategy (Westphal and Milton, 2000).

Based on the above premises, we expect that the average compensation of decision makers will be lower in female-owned SMEs or in large firms with more female board directors.

We further expect decision makers' gender to affect the degree of within-firm disparity through the salaries of firm employees. According to gender-socialization theory, men and women are taught different behaviors, with the latter being generally more caring,

[2] For inclusive information, please refer to the documents and statistics in the OECD's Women's Entrepreneurship Initiative, at: https://www.oecd.org/cfe/smes/we-initiative.htm.
[3] This assumption is, however, not verified by an examination of new directors in the UK, where female directors are more likely to have MBA degrees and international experience (Singh, Terjesen and Vinnicombe, 2008).

compassionate, and attentive to others' needs. In fact, empirical research shows that female directors are more stakeholder-oriented (Adams, Licht and Sagiv, 2011; Matsa and Miller, 2013) and less likely to pursue personal goals that do not add shareholder value, such as mergers and acquisitions (Levi, Li and Zhang, 2014). Moreover, greater representation of female directors on the board is associated with greater corporate social responsibility and more ethical business administration (Byron and Post, 2016; McGuinness, Vieito and Wang, 2017), at least as seen by their limiting effect on corporate misconduct (Liu, 2018; Wahid, 2019; Arnaboldi, Casu, Gallo, Kalotychou and Sarkisyan, 2021).

In our context, this more social and ethical behavior by female decision makers fosters an administration style that is more attentive to the interests of firm employees. As salary constitutes a key aspect of internal labor markets, largely affecting employee satisfaction (e.g., Larkin, Pierce and Gino, 2012), we expect this administration style to result in a within-firm increase in average employee salary.

Based on the above premises we expect that the average compensation of employees will be higher in female-owned SMEs or in firms with more female board directors. Taken together with potentially negative effects on the compensation of female owners or directors, our main hypothesis is as follows:

H1: Within-firm wage disparity is lower in female-owned SMEs or in firms with more female board directors.

The effects of decision makers' gender on within-firm wage disparity might be heterogeneous, and we theoretically identify two sources of such heterogeneity. First, female directors are frequently appointed for symbolic reasons, i.e., as "tokens" to convey a positive signal about the firm's diversity initiatives or due to regulatory requirements (in place or upcoming). Thus, unless a board contains a "critical mass" of female directors (e.g., three or more), gender might act as a barrier to communication, i.e., female directors may be more likely to feel uncomfortable, constrained, and not supported to raise issues (Joecks, Pull and Vetter, 2013; Liu, Wei and Xie, 2014; Schwartz-Ziv, 2017). In this context, for any causal relation between the addition of female directors and the average employees' salary to exist, a critical mass of female board directors might be required.

Second, we expect heterogeneous effects based on the degree of corporate innovation. Innovative firms face a challenge of mitigating the inherent risk in corporate innovation without sacrificing long-term value. In the literature, male owners/directors are associated with greater managerial risk-taking and overconfidence, which might lead them to choose risky innovation projects with negative net present values (e.g., Heaton, 2002; Baker and Wurgler, 2013).

From a different perspective, excessive focus on short-term profits can result in management rejection of innovative projects of a more exploratory nature and with longer payoff periods (Graham, Harvey and Rajgopal, 2005; Krehmeyer, Orsagh and Schacht, 2006). Recent work suggests, however, that female directors help mitigate both excessive risk-taking and excessive short-term focus in corporate innovation practices, resulting in lower-cost and more novel innovation (Griffin, Li and Xu, 2021).

Considering this evidence, we expect that selection of female owners/directors in firms with high R&D intensity will be based more on skill level, *ceteris paribus*. Thus, the effect of decision makers' gender on within-firm pay disparity might be ameliorated in more R&D-intensive firms.

3. Evidence from small firms

3.1. Data and sample selection issues

In this section, we use confidential data from small European firms. These firms obtain credit from a large North European bank and have a majority owner who also applies for the loan and manages her/his firm (these firms naturally do not have a board). We have a balanced firm-year panel of 234,420 observations from 2002 to 2016, corresponding to 15,628 firms. We possess unique information on both the majority owner and the firm. Importantly, we know the owner's gender, education level, marital status, number of dependents, and personal annual income and wealth. Equally important, we have information on the firm's credit score (the most important variable on the firm's financial soundness given by the bank) and other firm characteristics such as numbers of employees and total personnel expenses. Table 1 provides detailed information on our panel (including the number of firms and years, number of changes in firm owner's gender, etc.) and defines the variables used in our empirical analysis. Table 2 reports summary statistics.

[Insert Tables 1 & 2 about here]

For this part of our analysis, we restrict our sample to majority owners of small firms because owner characteristics and gender impacts are almost uniquely tied to their firms' characteristics. We find that this choice does not introduce sample selection into the main variables of our analysis by running two checks to establish that our panel of firms is similar to the European universe across important dimensions of our analysis.

First, using data from Orbis on small firms (the same average size as in our panel) from core Western European countries (Austria, Belgium, Denmark, France, Germany, and the Netherlands), we find that average leverage and profitability ratios are similar to those in our panel. Specifically, on average, the firms in our sample have only a 1.1% lower leverage ratio and 0.76% higher ROA. Other firm ratios (reflecting operating expenses, capital expenses, etc.) are also at levels that are very similar to firms in our panel.

Second, the percentage of female entrepreneurs in our panel is 28% of the total number, which is close to the 29% reported in 2012 across Western Europe (European Commission, 2014). Any discrepancy probably occurs because our sample begins in 2002, at which time our data show lower entrepreneurship rates for females. Piacentini (2013) suggests that the proportion of female employers was fairly stable during the 2000s at around 25%. We also document similar differences in the earnings of female and male entrepreneurs with those reported by the OECD (2017). All in all, the characteristics of our sample are very similar to aggregate data obtained for Western European countries. We conduct more formal empirical work to safeguard out analysis from sample selection bias.

3.2. Empirical model and identification

We estimate a staggered DID model (the change in owner gender is repeated multiple points in time for multiple groups of observations). This setting is useful to mitigate concerns regarding violation of the parallel-trend assumption (e.g., Gormley and Matsa, 2011). The econometric form of the model is:

$$Wage\ disparity_{it} = a_i + a_t + a_1 Gender_{it} + a_2 Controls_{it} + u_{it}. \tag{1}$$

We define *Wage disparity* as the natural logarithm of the ratio between the salary of firm *i*'s owner in year *t* and the mean employee salary in firm *i* (calculated from the ratio of personnel expenses to the total number of employees). *Gender* takes the value of 1 for a male owner and 0 for a female owner. *Controls* is a vector of observables potentially affecting *Wage disparity*. The parameters a_i denote firm fixed effects, controlling for the treatment dummy in each event (change in ownership from female to male); a_t denote year fixed effects, controlling for the post dummy in each event; and u_{it} is the disturbance. This is a DID model in which treatment (a change in the gender of firm i's owner) can take place in different years, with the number of time periods being larger than 2 (as is the case in the standard DID).[4]

Based on our hypothesis, we expect that a_1 is positive and statistically significant, reflecting a causal effect. We have no theoretical reasons to believe that the treatment is nonrandom, i.e., a *change* in firm ownership is more likely because of compensation-related issues (for the owner, the employees, or both), especially because, most often, the owner is the founder of the firm.

We complement these theoretical considerations with empirical observations. Figure 1 is a DID graph, bringing together all changes from female to male firm owners in the same year *t*, which is an application of the approach by Cerulli and Ventura (2019). The blue line plots the lag and lead coefficients (up to five years) from the model of *Wage disparity* on *Gender*, and we include several confidence intervals in bars. The pre-treatment pattern is statistically equal to zero (the difference from zero is easily inside even the 70% confidence interval). The post-treatment pattern shows the positive effect of moving from a female to a male owner, with a value increasing from about 1.5% in the year of the change (year *t*) to slightly less than 3% from *t*+2 onward. The test of parallel trends using the leads has a p-value equal to 0.962 (pass) and the test for parallel trends using the time trend has a p-value equal to 0.262 (also a pass). We see no significant pretreatment trends or posttreatment reversals. Moreover, timing of the events coincides perfectly with the responses. Given these results, we treat the DID model in equation 1 as our baseline.

[Insert Figure 1 about here]

To completely preclude that the treatment is nonrandom, we also employ triple differences (difference-in-differences-in-differences). Specifically, we hypothesize that the

[4] This is a DID model because of a two-way fixed effects transformation across dimensions *i* and *t*, which drops the rest of the usual DID terms (see Gormley and Matsa, 2011; Callaway and Sant'Anna, 2021; Goodman-Bacon, 2021; Wooldridge, 2021).

effect of *Gender* on *Wage disparity* will be larger for firms sold e.g. from female to male entrepreneurs after the female owner's family has its first dependent[5] (variable *First dependent* equals 1, and 0 otherwise). The functional form of the triple differences model is:

$$Wage\ disparity_{it} = a_i + a_t + a_1 Gender_{it} + a_2 First\ dependent_{it} + a_3 Gender_{it} \times First\ dependent_{it} + a_4 Controls_{it} + u_{it}. \quad (2)$$

Consistent with the discussion of equation 1, we expect a_1 to remain positive and statistically significant; we also expect that a_3 is positive and statistically significant, amplifying the effect of a_1.

3.3. Baseline results

Table 3 reports the baseline results from the estimation of equation 1. The first two specifications are conditional correlations with and without controls, as they include only year fixed effects. We report these tests for comparative purposes to show the importance of firm fixed effects in rendering equation 1 a DID model. Given that *Wage disparity* is in logs, column 1 (column 2) shows that a change from female to male ownership increases *Wage disparity* by 6.2% (4.5%).

We include firm fixed effects from specification 3 onwards, implying identification from firms with a change in owner gender. The coefficient on *Gender*, which is statistically significant at the 1% level, shows that a change from female to male ownership increases *Wage disparity* by 2.8%, a value that is significantly lower than the relevant estimates in the first two specifications, which do not include firm fixed effects. Adding the control variables in specification 4 or additional fixed effects in specifications 5 and 6 barely affects the estimate

[5] This mostly reflects the first child.

on *Gender* or the R-squared of the regression.[6] Thus, consistent with our discussion in section 3.2 and the analysis of Figure 1, adding controls does not affect the coefficient on *Gender* or its standard error; what seems to make treatment random is the inclusion of the DID via the firm fixed effects. Nevertheless, given the improvement in the R-squared comparing specification 3 to specification 4, we maintain the latter as our baseline.

[Insert Table 3 about here]

Given issues highlighted on such staggered DID models as the one estimated so far (e.g., Baker, Larcker and Wang, 2022), we use an additional model as robustness tests. Specifically, we use the model of Callaway and Sant'Anna (2021) who, as in our case, consider DID estimation robust to treatment heterogeneity in the presence of variation in treatment timing and when the "parallel trends assumption" holds potentially only after conditioning on observed covariates. We report the results in specifications 7 (replicates specification 3 without controls) and 8 (replicates 4 with controls, even though Stata does not report them). The results are fully consistent with our baseline, reflecting that treatment heterogeneity is not an important problem in our panel.

Despite showing that the characteristics of our bank and firms in our sample are very similar to the ones of other major European banks / small firms, we do more to safeguard our analysis against sample selection bias using Heckman (1979) regressions. In the first stage (probit model), we use data for all small and micro firms in the bank's country (data from Orbis) to examine the probability that a firm obtains credit from our bank. This yields 531,128 observations in the first stage. The explanatory variables in the probit model are the firm characteristics of Table 1 plus the number of branches of our bank in the firm's region (as a

[6] The R-squared substantially increases from specification 3 to specification 4, but the estimate on *Gender* remains largely unaffected. The basic idea is that the stability of the coefficient across specifications is informative (and consistent with the validity of our DID approach) given the change in the R-squared as more controls are added (Oster, 2019).

variable predicting the probability of a firm being matched with our bank). The second stage is equation 1 plus the inverse Mills ratio. The results in the last specification of Table 3 show that Lambda is statistically insignificant (evidence against sample selection bias in our sample) and that all the second-stage estimates are very similar to the ones of previous specifications.

Table 4 reports the results from the estimation of equation 2. The main term on *Gender* remains positive and statistically significant, capturing a positive effect of *Gender* that is common to groups both with and without a *First dependent*. The estimate is stable across all four specifications, which differ based on the inclusion of control variables and fixed effects. The main term on *First dependent* is statistically insignificant, showing that firms whose owners change to a dependent from no dependents are not systematically different in terms of *Wage disparity*. This is an important finding, signifying that *Wage disparity* is exogenous to having a first dependent (untabulated results show that having more dependents does not affect *Wage disparity* either).

[Insert Table 4 about here]

As noted in section 3.2, of key importance is the coefficient on the interaction term *Gender* × *First dependent*. Consistent with our expectations, the coefficient is positive and statistically significant (at the 1% level). Based on the results of specification 2, a female owner selling her firm to a male when the first dependent is added to her family implies a 1% additional increase in *Wage disparity*, adding to the 2.4% level effect (coefficient on the main term on *Gender*). Thus, the results of the triple-differences equation 2, are fully consistent with those from the double-differences equation 1.

3.4. Components of wage disparity

Having established a positive effect of *Gender* on *Wage disparity*, we move to examining whether the effect comes from the owner's compensation (numerator of *Wage disparity*) or the employee's average compensation (denominator of *Wage disparity*). We report the relevant results in Table 5. The first column reports the results from equation 1, where the dependent variable changes from *Wage disparity* to *Owner's income*. The estimate shows that a change from a female to a male owner increases the owner's income by 4.5%. The equivalent effect on the *Average employee income* in column 2 is -1%, statistically significant at the 5% level and economically smaller.

We see a similar picture when considering the equivalent results from the triple-difference model in columns 3 and 4. In column 3 and effect shown on *Gender* is amplified for those firms with the former owner having a first dependent in the same year. The two coefficients add up to 4.5%, fully consistent with the result in column 1. In column 4, we find a negative coefficient on both *Gender* and *Gender* × *First dependent*. None of the coefficients are independently statistically significant, but they add up to 0.9%, which is equivalent to the 1% in column 2. Pooled together, the results suggest that our baseline results in Tables 3 and 4 come from an increase in owner's income (numerator of *Wage disparity*), while the effect on *Average employee income* (denominator of *Wage disparity*) adds to the baseline findings (albeit to a lesser extent).

[Insert Table 5 about here]

3.5. Mechanisms

In this section, we examine why female owners of small firms reduce within-firm wage disparity. Based on our theoretical considerations, we identify corporate innovation and business ethics as potential key characteristics.

In specification 1 of Table 6, we introduce an interaction term between *Gender* and *Higher education*, which is a dummy equal to 1 if the firm owner holds a university degree (equal to 0 otherwise). We expect that owners with a higher level of education might, on average, increase their own compensation as a means to value their expertise. The effect of *Gender* equals 2.2% (a small drop from the 2.7% of the baseline specification), remaining statistically significant at conventional levels. The interaction term adds another 1.2% to that effect (statistically significant at the 1% level).[7] This finding is first indication that expertise is important in the relation between *Gender* and *Wage disparity*.

In specification 2, we demonstrate that an important determinant of the relation between *Gender* and *Wage disparity* is innovation. Specifically, the interaction term between *Gender* and *R&D* (a dummy equal to 1 if R&D expenses are above the sample median, and equal to 0 otherwise) is negative and statistically significant, while the main term on *Gender* remains positive and significant. The two estimates show that high R&D explains 1.9% of the 3.2% of the effect of *Gender* on *Wage disparity*. Importantly, we find that this effect comes mainly from the denominator of *Wage disparity* (average employee income), which increases for high R&D firms changing from female to male owners. This is strong indication that high R&D firms invest in skilled labor, reducing within-firm wage disparity.

In specification 3, we show that the triple interaction term *Gender* × *Higher education* × *R&D* enters with a negative and significant coefficient. This specification shows that the positive effect of a change from female to male owners with higher education totals 3.8% (2.8% + 1.0%). However, this effect reverses for high R&D firms (by 1.6%), and this negative force is more pronounced when the firm's owner has a higher education level and the firm is R&D-intensive. The overall marginal effect of *Gender* reduces to 1.5%. Thus, the most important part of the effect of gender is explained by greater corporate innovation conducted by male owners.

[Insert Table 6 about here]

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[7] In untabulated results, we find that this effect mainly emanates from an increase in the owner's income (and not so much from a decrease in average employee compensation).

Given the theoretical premise that female decision makers are more likely to exercise ethical behavior, we next turn to the role of business ethics in within-firm wage disparity. Identifying measures of business ethics for small firms is challenging, however, especially when targeted survey data are not available. We resort to two accounting-based measures.[8] The first measure is performance-adjusted discretionary accruals, as developed by Kothari et al. (2005). Specifically, we estimate a model of total accruals scaled by lagged total assets as a function of the annual change in revenues over total assets, fixed assets over total assets, and ROA; we use the residuals from this model multiplied by -1 as our firm-year measure of discretionary accruals. To improve the expositional brevity of our results, we construct a dummy termed *High firm accruals,* when the measure is above the upper tercile, and 0 otherwise. The second measure is the probability that the firm revises certain measures on its financial statements in a given year. Specifically, we estimate a model of the probability that a firm revises one of the variables listed in Table 2 as a function of these variables, and use the prediction of this regression as our second firm-year measure. Similar to the previous measure, we construct a dummy based on the upper tercile (termed *Accounting revision*). Overall, we assume that firms displaying *High firm accruals* and a high probability of *Accounting revision*, have a lower level of business ethics.

Both measures moderately reverse the positive effect of *Gender* on *Wage disparity*. In specific, *Wage disparity* falls by 1.2% for firms with high values of discretionary accruals (top tercile of our sample); this represents approximately 40% of the main effect attributed to the main term of *Gender* (the coefficient on *Gender* × *High firm accruals* and *Gender,* respectively, in column 4). This reversal increases to 53% for firms with a high probability of revising their financial statements (column 5).

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[8] Several studies note a highly significant correlation between financial-reporting quality and business ethics, suggesting that the former is a good proxy for the latter (see, e.g., Labelle, Makni Gargouri and Francoeur, 2010; Choi and Pae, 2011; Wang, Cao and Ye, 2018).

4. Evidence from large public firms

4.1. Data and empirical model

We complement the results from small firms with the equivalent from large public firms, where our focus is on boards of directors. Our sample comprises more than 1,500 U.S. firms during the period from 1992 to 2018. We derive our data from three sources: Firm executive compensation and director characteristics from ExecuComp and BoardEx and firm financial characteristics from Compustat. We calculate *Wage disparity* as the natural logarithm of the ratio of the average director compensation and the average employee salary (Mueller, Ouimet, and Simintzi, 2017a; Bloom, Ohlmacher, and Tello-Trillo, 2018; Moser, Saidi, Wirth, and Wolter, 2021). Average director compensation is the sum of total compensation (salary and bonus) for each director divided by the number of directors on the board. Average employee salary is the total expense for employee salaries (excluding board compensation) divided by the number of employees (excluding directors on the board).

In robustness tests, we calculate alternative wage-disparity measures by replacing the average director compensation (salary and bonus) in the numerator with a) directors' salary compensation, b) directors' total compensation as reported in SEC filings (including, in addition to total compensation, items such as stock and option awards, non-equity incentive plan compensation, change in pension value and non-qualified deferred compensation earnings, and all other compensation), or c) directors' total direct compensation (including, in additional to total compensation, restricted stock grants, LTI, and all other compensation).

Compustat has limited observations for firm total expenses for employee salaries. To overcome this constraint, we generate predicted values of firm total employee expenses using total operating expenses. Specifically, since salaries are by far the biggest component of total operating expenses (e.g., Ghosh, 2001; Ohlson, 2006) and the two variables have a correlation coefficient equal to 92% for the available observations, we thus predict total employee expenses from the regression:

$$Firm\ staff\ expense_{it} = a_0 + a_1 Operating\ expenses_{it} + u_{it}, \tag{3}$$

where *Firm staff expense* is the natural logarithm of the total expenses for employee salaries for firm i in year t and *Operating expenses* is the natural logarithm of the firm's total operating expenses. The vector a_0 denotes different types of fixed effects and u is the stochastic disturbance. This approach increases our sample approximately eight times.[9] We also show that our results are robust when using the smaller sample with actual personnel expenses. We report results from the estimation of equation 3 in Table A1 in the Appendix (including different sets of fixed effects). Consistent with high correlation between the two variables, a 1% increase in firm total operating expenses is associated with a 0.99% increase in firm total staff expenses.

Our end sample has a maximum of 15,620 observations from 1,539 firms during the period 1992 through 2018. We provide variable definitions and sources in Table 7 and basic descriptive statistics in Table 8.

[Insert Tables 7 and 8 about here]

We estimate an equation of the form:

$$Wage\ disparity_{it} = a_0 + a_1 Gender\ diversity_{it-1} + a_2 Controls_{it} + u_{it}, \tag{4}$$

[9] A large literature in economics and finance uses a similar approach to expand the number of available observations (e.g., Ashraf and Galor, 2013).

where *Gender diversity* is:

$$Gender\ diversity_{it} = \sqrt{\frac{1}{N}\sum_{d \in N}(Director\ gender_{dit} - \mu)^2}\,. \quad (5)$$

This standard deviation measure reflects gender diversity in the board of firm i in year t, with μ being the average value for the *N*-member board.

Gender diversity equals zero for boards where all directors are of the same gender, which is the case for 11,141 firm-year observations in our sample or approximately 71% (we do not observe any all-female boards). The variable takes a positive value (less than one) when at least one of the board directors is female. We note that this measure not only captures female representation and general gender composition of the board, but also the spread of female directors within the board. Consider, for example, a board of directors with four male directors and one female director and a board with eight male and two female directors. Female directors comprise 20% of both boards. However, in the former board our measure equals 0.44, while in the latter it equals 0.42. Thus, our measure captures the relative reliance on female directors because, *a priori*, it is more likely to observe/add more female directors in more populous boards.

We complement our gender-diversity measure with two composite measures, namely the Blau index of diversity and the Shannon index of diversity (Campbell and Mínguez-Vera, 2008; Joecks, Pull and Vetter, 2013). The former measures how equally male and female directors are represented on the board. The index is equal to one minus the sum of the squared percentage of directors in each gender category g on the board of directors of firm i in year t, for a total number of N gender categories, or:

$$Blau\ index_{it} = 1 - \frac{1}{N} \sum_{g \in N} Director\ ratio_{git}^2 \tag{6}$$

The Blau index assumes values between 0, when the board comprises only male directors, and 0.5 when the number of male and female directors is equal and therefore, the diversity of the board is maximized (Blau, 1977).

The Shannon index is a measure of variety and reflects whether both genders are represented on boards of directors. The index is equal to the negative sum of the product of the percentage of directors in each gender category g on the board of directors of firm i in year t with the natural logarithm of this percentage, for a total number of N gender categories:

$$Shannon\ index_{it} = -\frac{1}{N} \sum_{g \in N} (Director\ ratio_{git} \times \ln Director\ ratio_{git}) \tag{7}$$

The Shannon index assumes values between 0 for all-male boards, and 0.69 for boards with an equal number of male and female directors (Shannon, 1948).

By construction, any diversity index reaches its maximum value when the number of male directors on the board equals that of female directors. Since the presence of female directors is usually low [in our sample, the average percentage of female directors to the total number of directors in the board equals 6.0% (Table 1)], however, in alternative specifications, we consider additional measures suggested by previous studies (e.g., Adams and Ferreira, 2009; Gul, Srinidhi and Ng, 2011; Srinidhi, Gul and Tsui, 2011; Adams and Mehran, 2012; Ahern and Dittmar, 2012). These measures include the number of female directors, the percentage of female directors on the board, and the ratio of female to male directors.

4.2. Identification problems

Important potential identification problems are omitted-variable bias and selection issues. To reduce the omitted-variable bias, we first control for several variables that might affect board compensation and/or firm employee expense and consequently the relation between the two.

The first group of control variables reflects board characteristics. We use many board characteristics available in ExecuComp and BoardEx that might explain within-firm wage dynamics and have been shown to affect corporate performance (e.g., Bebchuk, Cremers, and Peyer, 2011; Peters and Wagner, 2014; Mueller, Ouimet, and Simintzi, 2017a; 2017b). We include an indicator for the presence of a male CEO (*Male CEO*), an indicator for CEO duality (*CEO and chair*), the average number of years that directors have held their current roles (*Time in role*) and the ratio of independent directors to total directors on the board (*Independent director ratio*).

In robustness checks, we further include the total number of directors and executive directors on the board (*Number of directors* and *Number of executive directors*, respectively), the ratio of interlocked directors to total directors (*Interlocked director ratio*), the average age of directors (*Director age*), the percentage of company shares owned by directors (*Director ownership*), indicators for male CEO duality (*Male CEO and chair*) and the deviation of director compensation (*Deviation in board compensation*).

The second group of control variables relates to firm financial characteristics. Consistent with related studies (e.g., Adams and Ferreira, 2009; Mueller, Ouimet, and Simintzi, 2017b; Rouen, 2020), we control in our baseline specification for firm size (*Firm size*), return on assets (*Firm ROA*), debt-to-assets ratio (*Firm debt*), tangible assets to total assets (*Firm tangibility*), and Tobin's Q (*Firm Tobin's Q*). In robustness tests, we control for the capital expenditures-to-assets ratio, sales growth, cash holdings, and additional earnings and profitability indicators such as net income ratios.

We also use several fixed effects. We initially consider a specification with only firm fixed effects and year fixed effects. The firm fixed effects saturate our model from the unobserved effect of time-invariant firm characteristics, and essentially imply identification with firms that have experienced changes in their board gender diversity. This is already a restrictive specification because any confounding effects on wage disparity should change at the same time as that in board gender diversity. In additional specifications, we use industry fixed effects to isolate any time-invariant developments that affect all firms in the same industry. On the same line, by including state fixed effects, we control for state-level socioeconomic and political effects on within-firm wage disparity.[10]

A different identification concern is selection/reverse causality, especially if director compensation structure and employee salaries (and consequently the relation between the two) are likely to affect the incentives of women to join firms or the incentives of firms to hire female directors. Therefore, besides using the control variables and fixed effects, we address the identification problems using an instrumental-variable (IV) method.

We define our instrument as the proportion of male directors on the board who sit on other boards on which there are female directors.[11] Although the informal social connections between male and female directors are unobserved, we observe networks that occur because directors sit on multiple boards within our sample. The first stage of our IV model takes the form:

$$Gender\ diversity\ in\ the\ board_{it} = a_0 + a_1 Male\ directors\ with\ board\ connections_{it} + \\ + a_2 Controls_{it} + u_{it}. \qquad (8)$$

[10] Several studies examine such macro effects on within-firm disparity and inequality (e.g., Barth, Bryson, Davis and Freeman, 2016; Bloom, Guvenen, Smith and von Wachter, 2018).

[11] This instrument has a long tradition in gender-diversity studies (e.g., Adams and Ferreira, 2009; Gregory-Smith, Main and O'Reilly III, 2014; Levi, Li and Zhang, 2014).

The relevance condition for this IV is based on the informal social network linking directors consisting primarily of men (Medland, 2004), which is an important impediment to female directorships. Thus, the more connected male directors are to women, the more female directors should be observed in our sample.

In turn, considering the exclusion restriction, our instrument is unlikely to affect within-firm wage disparity directly; it can, however, affect wage disparity only through the inclusion of more women on the board. Intuitively, working relationships with female directors at other companies should only affect within-firm wage disparity in the current company through the increased likelihood that female directors will be appointed to its board. Differently phrased, male directors assuming positions on other boards with female directors should not be automatically reflected in their personal compensation; if anything, their salary prospects should be affected by their overall network.

One possibility, however, is that the proportion of male directors with professional connections to women is correlated with wage disparity through industry or time-varying industry effects. We address this possibility by including firm fixed effects and/or industry × year fixed effects. Another possibility is that this instrument is a proxy for the connectedness of the board, which could correlate with average board compensation (the numerator of our within-firm wage-disparity measure). To address this possibility, we control for additional direct measures of board connectedness, namely the total number of external board seats by directors or the total number of external board seats by male directors (Adams and Ferreira, 2009).

4.3. Baseline results

Table 9 reports our baseline results (coefficient estimates and t-statistics obtained from standard errors clustered by firm). Specification 1 includes year and firm fixed effects, and specifications 2 and 3 add industry and state fixed effects, respectively. Across all specifications, the coefficient on *Gender diversity* is negative and statistically significant, standing at -0.128. According to the results of specification 2, a one-unit increase in *Gender diversity* (i.e., switching from a male-only to a female-only board) decreases *Wage disparity* by approximately 13.7% ($= \exp(-0.128) - 1$) for the average firm in our sample. A more informative interpretation is the equivalent decrease in *Wage disparity* for a one-standard-deviation increase in our gender-diversity measure (equal to 0.20). This decrease amounts to a 2.7% ($= 13.7\% \times 0.20$) decrease in *Wage disparity*.

[Insert Table 9 about here]

To mitigate any potential endogeneity concerns regarding our gender-diversity measure, we subsequently replicate specifications 1-3 of Table 9 using an IV approach. Following the discussion in section 4.3, we estimate the system of equations (8) and (4) using two-stage least-squares (2SLS) technique and employing as the instrument the proportion of male board directors who sit on other boards with female directors (*Male directors with board connections*). We present results from the first stage in Appendix Table A2, where we observe that our instrument is positively and strongly correlated with each of our board gender-diversity measures. Columns 4-6 of Table 9 include estimates from the second-stage regressions. Results mirror those from columns 1-3. According to column 4, a one-standard-deviation increase in our predicted variable (equal to 0.19) lowers wage disparity by 2.2%; this effect is consistent throughout all specifications.[12]

Overall, results from Table 9 confirm the easing effect of board gender diversity on within-firm wage disparity. Our preferred specification includes year and firm fixed effects, as estimates from specifications with additional fixed effects are almost identical. Moreover, to

[12] We further estimate second-stage regressions, where, as in Adams and Ferreira (2009), we include as additional control variables other direct measures of board connectedness, such as the total number of external board seats held by directors or the total number of external board seats held by male directors; results are presented in Table A3 and are qualitatively and quantitatively similar to our baseline.

rule out any possibility that our gender-diversity measure is endogenous to our response variable and set of control variables, we present estimates from the IV approach in all subsequent specifications, Please note, however, that the corresponding OLS specifications provide similar (if not less conservative) results.

In Table 10, we use alternative board gender-diversity measures. In the first two specifications we use the Blau and Shannon indices. We report results in columns 1 and 2, respectively, and find that a one-standard-deviation increase in either of these indices reduces *Wage disparity* by approximately 2.1-3.3%.[13] We next use the proportion of female directors relative to the total number of directors (column 3) or to the number of male directors (column 4). In both cases, an increase in the percentage of women on the board causes a decrease in within-firm wage disparity. These results are further confirmed when considering the number of female board directors: the inclusion of one more female director reduces *Wage disparity* by approximately 4.0%. Across all specifications, different measures of board gender diversity exert a negative effect on within-firm wage disparity. This effect is even more pronounced relative to that exerted by our baseline measure, suggesting that estimates from the latter are somewhat conservative.

[Insert Table 10 about here]

We report the results from several additional robustness tests in the Appendix. In Table A4, we sequentially add variables reflecting attributes of the board of directors and firms' financial characteristics. In Table A5, we cluster standard errors by year, firm *and* year, firm *and* industry, and firm *and* industry *and* year. In Table A6, we consider alternative within-firm wage disparity measures, where we successively replace the numerator in our baseline wage disparity measure with alternative measures of average director compensation, namely average

[13] The standard deviation of the fitted values of each index from its regression on the instrumental variable *Male directors with board connections* is 0.20.

director salary and average direct compensation. The results from all these exercises are consistent with our baseline.

A separate endogeneity concern is that our model is subject to sample-selection bias, in the sense that the variables driving our findings might further determine a firm's decision to include a female director on the board (e.g., the impact of board gender diversity on within-firm wage disparity is due to certain firms being more likely to add female directors). Following similar analyses by Hillman, Cannella Jr, and Harris (2002), and Srinidhi, Gul, and Tsui (2011), we employ Heckman's (1979) two-stage model.

The first-stage probit estimates the firm's decision to include at least one female board director, assuming that this decision is a function of the main determinants of board composition. Thus, in the probit regression, we include board- and firm-level characteristics, as well as year, firm, state, and industry dummies. The results (columns 1-4 of Panel A of Table 11), show that inclusion of female directors is more likely for firms with female CEOs and where directors have shorter board tenure. Moreover, female directors are more likely to be added to more populous boards with younger directors, as well as to boards of smaller and more profitable firms.

[Insert Table 11 about here]

Estimates from the second-stage regressions (columns 1-4 of Panel B) confirm the negative impact of our gender-diversity measure on within-firm wage disparity: across all specifications, a one-standard-deviation increase in *Gender diversity* lowers *Wage disparity* by approximately 1.8% to 2.2%. In Appendix Table A7, we replicate the specifications of Table 11 by replacing our instrumental variable (i.e., the fitted values of *Gender diversity in the board* from its regression on *Male directors with board connections*) with our endogenous variable (*Gender diversity on the board*) and using OLS. Again, estimates from this exercise are similar to those in Table 11.

4.4. Components of wage disparity

In this section, we focus on the components of the pay gap, i.e., *Average board compensation* and *Average staff expense* and use each separately as dependent variables, replacing *Wage disparity*.

The estimates in columns 1 of Table 12 show *Gender diversity on the board* exerts an easing effect on the average compensation of board directors. We further observe that the coefficient on *Average staff expense*, although positive, is not statistically significant at conventional levels (column 2). However, as estimates in columns 3 and 4 reveal, each of the components of *Average staff expense* (i.e., the total expense for company employees and the total number of employees, respectively) responds significantly to our board gender-diversity measure. This response is negative for both components, thereby absorbing any impact of *Gender diversity on board* on average company-employee salary.

The important takeaway from this analysis is that both components contribute to the effect of board gender diversity on wage disparity. While board gender diversity directly affects directors' compensation (and consequently average board compensation), it further exerts an indirect effect on the average salary of company employees. Thus, our results can be distinguished from the literature on the effect of gender diversity on executive compensation, where adding lower-compensated female directors decreases the average firms' executive compensation (Kulich, Trojanowski, Ryan, Alexander Haslam and Renneboog 2011; Bugeja, Matolcsy and Spiropoulos, 2012; Carter, Franco, and Gine, 2017; Cook, Ingersoll and Glass, 2019).

[Insert Table 12 about here]

4.5. Mechanisms

In this section, we focus on potential explanations of our baseline findings for large public firms, among them business ethics, corporate innovation, and sectors with a strong female director presence.

4.5.1. Business ethics

We first examine whether our results depend on certain aspects of ethical firm behavior. Our measures in this section are different from those for small firms because finding similar measures for both samples is almost impossible. One side of business ethics is the extent of earnings management.[14] For example, firms often manage their accruals-based earnings to conceal their true economic performance by changing accounting methods or estimates within generally accepted accounting principles (e.g., Zhang, 2012). The literature provides evidence that firms' earnings management affects executive compensation, as well as the ability to retain personnel (e.g., Gao, Zhang and Zhang, 2018).

We calculate accrual-estimation errors as a proxy for firms' accruals quality and ethical behavior. We focus on the absolute value of the error, where its high value indicates poor accruals quality and vice versa (e.g., McNichols, 2002; Srinidhi, Gul and Tsui, 2011; Owusu, Zalata, Omoteso and Elamer, 2020). We next create an indicator equal to one for values above the upper tercile of our sample (*High firm accruals*), and zero otherwise. By interacting this indicator with our gender-diversity measure, we examine the differential effect on within-firm wage disparity and its components.

We present results in Table 13, where column (1) shows that our gender-diversity measure retains its negative and statistically significant sign. However, its easing effect is largely reversed for firms with poor accruals quality (the positive and statistically significant

[14] An obvious measure of business ethics is the ESG score. However, adding such scores in our analysis leaves us with a low number of observations, making our analysis incomparable with previous results due to a strong sample-selection bias.

coefficient on the interaction term). Specifically, a one-standard-deviation increase in *Gender diversity on the board* raises *Wage disparity* by 2.8% for firms with high values of discretionary accruals (top tercile of our sample); this is approximately an 85% reversal of the generic fall in wage disparity due to an increase in gender diversity alone. In columns 2 and 3, respectively, we replace *Wage disparity* as dependent variable with *Average board compensation* and *Average staff expense*. According to estimates in column 2, the coefficient on the interaction term, albeit positive, falls below statistical significance levels, suggesting no effect on director compensation. Arguably, firms opting for manipulation of accruals-based earnings are more likely to lower the average salary of employees (the negative and statistically significant coefficient on the interaction term in column 3).

[Insert Table 13 about here]

Although we find that firm earnings management is important for within-firm wage disparity, we observe no significant effect stemming from alternative ethics variables. This is evident in columns 4 and 5, where we employ indicators for the dismissal of CEO due to misconduct (Peters and Wagner, 2014) and for the commitment of fraud by misstating financial-statement information (Bao, Ke, Li, Yu and Zhang, 2020); in both cases, the interaction of our gender-diversity measure with the relevant indicator remains below conventional levels of statistical significance. Taken together, results in this section provide some evidence that firm business ethics (and especially accounting practices) affect the relation between decision makers' gender and within-firm wage disparity; however, this result does not generalize to several proxies of business ethics, which prompts us to examine some alternative channels.

4.5.2. Corporate innovation and sectoral characteristics

Based on our theoretical considerations, a key candidate to affect the relation between board gender diversity and within-firm wage disparity is corporate innovation. Female directors have been shown to mitigate both excessive risk-taking and excessive short-term focus in corporate innovation practices which, in turn, results in lower-cost and more novel innovation (see Griffin, Li and Xu, 2021). Valuing female directors more highly in innovative firms might thus lead to an increase in the compensation of female board members, thereby reversing the easing effect of board gender diversity on within-firm wage disparity. We examine this premise in Table 14, where we interact our gender-diversity measure with an indicator for R&D intensive firms (i.e., with R&D expenditures above our sample mean).

Estimates in column 1 show that a one-standard-deviation increase in *Wage disparity* lowers this variable by approximately 4.3%. However, the negative and statistically significant coefficient on the interaction term suggests that this easing effect is almost entirely reversed for innovative firms, i.e., a one-standard-deviation increase in our gender-diversity measure raises wage disparity in R&D-intensive firms by 4.1% (the coefficient on the interaction term). Importantly, as column 2 suggests, this reversal results from a simultaneous increase in average of board-member compensation and a decrease in average staff expense (column 3). We identify this pattern for firms with R&D spending of at least 3.4% of total assets, suggesting that female directors on the boards of firms that compete for human capital may be highly compensated. This is not surprising, as female directors are shown to improve board effectiveness in risk management with respect to R&D investment (see Chen, Ni and Tong, 2016; Griffin, Li and Xu, 2021).

[Insert Table 14 about here]

We next differentiate between firms operating in sectors with a strong female-employee presence (and consequently female directors) and firms in sectors where female employees are in the minority. If firms in female-friendly sectors rely on the skills of female employees, we expect that female directors will be more likely to join the boards for reasons other than acting as tokens. Estimates from specification 4 confirm this conjecture, as we observe a reversal in the easing effect of board gender diversity on wage disparity for firms in female-friendly sectors, a shift that materializes through a concurrent increase in average board compensation and a decrease in the average salary of firm employees (columns 5 and 6 respectively).

Overall, estimates from this exercise reveal that female directors are valued more on the boards of R&D-intensive firms and those with a strong of female-employee presence, thereby raising average board compensation and consequently, within-firm wage disparity.

6. Conclusions

In this paper, we examine the effect of the gender of firms' decision makers on within-firm wage disparity. We conduce analyses on two panels, one on a panel of small European firms for which we identify the owner's gender and another using a firm-year measure of gender heterogeneity on corporate boards of directors.

According to our estimates, female owners / more female directors exert a negative, statistically and economically significant effect on pay disparity within the firm. This easing effect materializes through both components of wage disparity, that is lower compensation of decision makers and increases in the average salary of company employees. Importantly, this effect survives in several identification methods and robustness tests (including the two different samples).

Nevertheless, greater gender diversity does not automatically translate to lower within-firm wage disparity. We pinpoint two mechanisms at work. First, we find some evidence in both samples that female decision makers behave more ethically, as shown in their firms' better financial reporting quality and less fraud and other types of misconduct. Second, we find an important role for firm innovation (using R&D expenses). Specifically, results from both samples show that the easing effect of gender diversity is almost entirely reversed for innovative firms, as these firms are more likely to invest in skilled labor, thereby reducing within-firm wage disparity. Such a reversal is also evident for firms operating in sectors with a strong female-employee presence (and consequently female directors). Thus, we posit that level of skill/education is the most important mechanism through which the effect of gender of firm decision makers transmits to wage disparity.

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Figure 1. Change in the owner's gender and pay disparity: SMEs sample

The figure plots the lags and leads coefficients with confidence intervals. *Wage disparity* is represented on the vertical axis and years on the horizontal axis. Treatment is placed on the same year *t*, even though it takes place in different years for different firms during our panel's period. The post-treatment pattern shows the positive effect of treatment, wheras the pre-treatment pattern lays very close to zero.

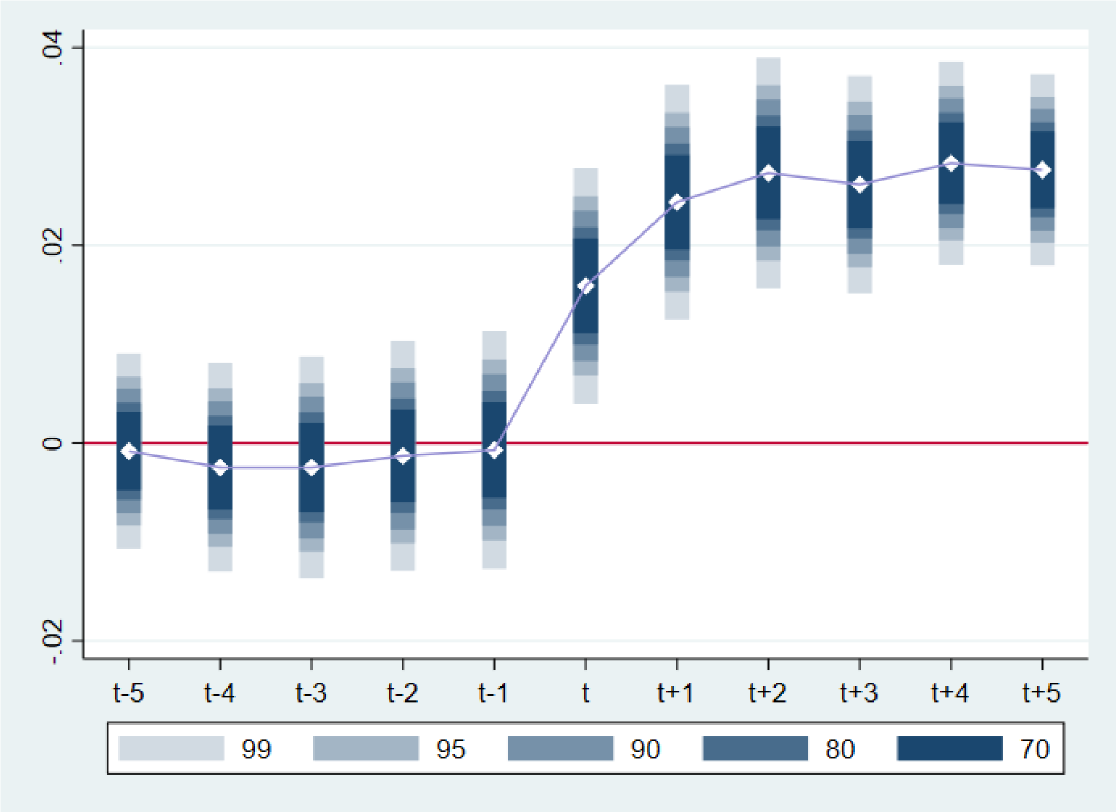

Table 1. Data and variable definitions for the SMEs sample

Variable	Description
A. Dimension of the data	
Individuals	Loan applicants who have an exclusive relationship with the bank, are majority owners (own more than 50%) of a firm and personally manage their firms. These borrowers apply to the bank for one or more business loans during the period 2002-2016 and the loan is either originated or denied. Due to the exclusive relationship, the bank holds information on the applicants even outside the year of loan application.
Firms	The firms that individuals are majority owners and sole managers (these firms do not have a board of directors). A 28% of these firms are owned and managed by female entrepreneurs. We observe 511 cases in our sample, where there is a change in the owner's gender. The panel of firms is balanced.
Year	The years covering the period 2002-2016.
B. Variables	
Wage disparity	The natural logarithm of the ratio between the salary of the firm i's owner in year t (named *Owner's income*) and the mean employee salary in firm i , calculated from the ratio of personnel expenses to the total number of employees (named *Average employee income*).
Gender	A dummy variable equal to 1 if the firm's owner is male and 0 if the firm's owner is female.
Owner's wealth	The natural logarithm of the euro amount of the firm's owner total wealth other than the assets of the firm and minus total debt.
Education	An ordinal variable ranging between 0 and 5 if the individual completed the following education. 0: No secondary; 1: Secondary; 2: Post-secondary, non-tertiary; 3: Tertiary; 4: MSc, PhD or MBA.
Higher education	A dummy variable equal to 1 if the firm's owner has tertiary education and higher and 0 otherwise.
Age	The owner's age.
Dependents	The owner's number of dependents.
Married	A dummy variable equal to 1 if the owner is married and 0 otherwise.
Credit score	The credit score of the applicant, as calculated by the bank. There is a 0 cutoff: positive values indicate that the loan is granted and negative values indicate that the loan is denied. The credit score includes both hard and soft information on the firm, facilitating the bank's decision to grant the loan or not.
Firm size	The natural logarithm of total firm's assets.
Firm leverage	The ratio of firm's total debt to total assets.
Firm capital	The ratio of firm's total capital expenditure to total sales.
Firm ROA	The ratio of firm's after tax profits to total assets.
Firm tangibility	The ratio of firm's tangible assets to total assets.
Firm R&D	A dummy equal to 1 if the firm's R&D expenses to total expenses are above the sample's median and 0 otherwise.

Table 2. Summary statistics for the SMEs sample

The table reports summary statistics (number of observations, mean, standard deviation, minimum and maximum values) for all variables used in the estimations concerning the SMEs sample. All variables are defined in Table 1.

	Obs.	Mean	Std. dev.	Min.	Max.
Wage disparity	234,420	0.63	0.72	-0.09	1.96
Gender	234,420	0.72	0.45	0.00	1.00
Owner's income	234,420	11.07	1.40	9.80	12.74
Average employee income	234,420	10.44	2.11	9.33	13.04
Wealth	218,792	12.18	0.56	7.80	14.29
Education	234,420	2.96	1.01	0.00	5.00
Higher education	234,420	0.491	0.47	0.00	1.00
Age	234,420	48.98	15.88	21.82	76.04
Dependents	234,420	3.49	2.29	0.00	7.00
Married	234,420	0.47	0.50	0.00	1.00
Credit score	234,420	0.70	1.36	-2.95	2.10
Firm size	234,420	9.83	0.80	2.50	12.32
Firm leverage	234,420	0.21	0.02	0.13	0.92
Firm capital	234,420	0.101	0.242	0.00	1.83
Firm ROA	234,420	0.08	0.10	-0.39	0.53
Firm tangibility	234,420	0.56	0.14	0.24	0.84
Firm R&D	234,420	0.21	0.29	0.00	1.00

Table 3. The effect of owner's gender on wage disparity: Baseline results from the SMEs sample

The table reports coefficients and standard errors (in parentheses) from the estimation of equation 1. The dependent variable is *Wage disparity* and all variables are defined in Table 1. The estimation method is OLS with standard errors clustered by firm. Specifications 1 to 6 have different controls and fixed effects. Specifications 7 and 8 replicate specifications 3 and 4 but estimated with the model of Callaway and Sant'Anna (2021) and reports the average treatment effect (results on the control variables in specification 8 not reported, as Stata does not report them), as well as the p-value of the test for pretrends (the null being that all pretreatment equal to zero). Specification 9 replicates specification 4 using the Heckman's (1979) model described in the text. Each specification includes the fixed effects given in the lower part of the table. The *, **, and *** marks denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Gender	0.062***	0.045***	0.028***	0.027***	0.026***	0.025***	0.030***	0.029***	0.033***
	(0.014)	(0.012)	(0.009)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)	(0.012)
Education		0.029***		0.024***	0.026***	0.022***			0.026***
		(0.006)		(0.005)	(0.005)	(0.005)			(0.005)
Age		0.008***		0.007***	0.007***	0.007***			0.007***
		(0.002)		(0.002)	(0.002)	(0.002)			(0.002)
Dependents		-0.000		-0.000	0.000	0.000			-0.000
		(0.000)		(0.000)	(0.000)	(0.000)			(0.000)
Married		-0.002		-0.001	-0.002	-0.001			-0.001
		(0.002)		(0.001)	(0.002)	(0.001)			(0.001)
Wealth		0.019***		0.016***	0.018***	0.015***			0.018***
		(0.004)		(0.004)	(0.004)	(0.004)			(0.005)
Credit score		0.084***		0.069***	0.076***	0.064***			0.074***
		(0.020)		(0.019)	(0.020)	(0.019)			(0.020)
Firm size		0.012***		0.009***	0.011***	0.009***			0.010***
		(0.003)		(0.002)	(0.003)	(0.002)			(0.003)
Firm ROA		0.119***		0.086***	0.110***	0.082***			0.094***
		(0.028)		(0.027)	(0.028)	(0.026)			(0.030)
Firm leverage		3.343***		2.761***	3.033***	2.555***			2.857***
		(1.074)		(1.063)	(1.168)	(0.859)			(1.113)
Firm tangibility		0.114***		0.096***	0.103***	0.089***			0.091***
		(0.025)		(0.025)	(0.026)	(0.018)			(0.027)
Lambda									-0.157
									(0.222)
Observations	234,420	234,420	234,420	234,420	234,420	234,420	234,420	234,420	234,420
Adj. R-squared	0.028	0.294	0.58	0.695	0.701	0.699			
P-value							0.233	0.233	
Year effects	Y	Y	Y	Y	N	N	Y	Y	Y
Firm effects	N	N	Y	Y	Y	Y	Y	Y	Y
Year × industry effects	N	N	N	N	Y	N	N	N	N
Year × region effects	N	N	N	N	N	Y	N	N	N

Table 4. Triple difference regressions in the SMEs sample: Selling to male owners after observing a first dependent

The table reports coefficients and standard errors (in parentheses) from the estimation of equation 2. The dependent variable is *Wage disparity* and all variables are defined in Table 1. The estimation method is OLS with standard errors clustered by firm. Each specification includes the control variables in Table 2 and fixed effects given in the lower part of the table. The *, **, and *** marks denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Gender	0.025***	0.024***	0.024***	0.023***
	(0.005)	(0.005)	(0.005)	(0.005)
First dependent	0.009	0.007	0.007	0.006
	(0.010)	(0.010)	(0.009)	(0.009)
Gender × First dependent	0.010***	0.010***	0.009***	0.010***
	(0.003)	(0.003)	(0.003)	(0.003)
Observations	234,420	234,420	234,420	234,420
Adj. R-squared	0.582	0.700	0.710	0.705
Control variables	N	Y	Y	Y
Year effects	Y	Y	N	N
Firm effects	Y	Y	Y	Y
Year × industry effects	N	N	Y	N
Year × region effects	N	N	N	Y

Table 5. Components of pay disparity using the SMEs sample

The table reports coefficients and standard errors (in parentheses) from the estimation of equation 1 (first two specifications) or equation 2 (last two specifications). The dependent variable is *Wedge disparity* and all variables are defined in Table 1. The estimation method is OLS with standard errors clustered by firm. Each specification includes the fixed effects and the control variables given in the lower part of the table. The *, **, and *** marks denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1) Owners' income	(2) Average employee income	(3) Owners' income	(4) Average employee income
Gender	0.040***	-0.012**	0.036***	-0.004
	(0.017)	(0.006)	(0.014)	(0.003)
First dependent			0.006*	-0.001
			(0.004)	(0.003)
Gender × First dependent			0.009**	-0.005
			(0.004)	(0.003)
Observations	234,420	234,420	234,420	234,420
Adj. R-squared	0.628	0.744	0.630	0.744
Control variables	Y	Y	Y	Y
Year effects	Y	Y	Y	Y
Firm effects	Y	Y	Y	Y

Table 6. The role of higher education, R&D, and ethics-related variables

The table reports coefficients and standard errors (in parentheses). The dependent variable is *Wage disparity* and all variables are defined in Table 1. The estimation method is OLS with standard errors clustered by firm. Each specification includes the fixed effects and the control variables given in the lower part of the table. The *, **, and *** marks denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)
Gender	0.022**	0.032***	0.028***	0.030***	0.030***
	(0.009)	(0.010)	(0.010)	(0.010)	(0.010)
Higher education	0.014***	0.024***	0.016***		
	(0.003)	(0.005)	(0.004)		
Discretionary accruals				-0.007	
				(0.006)	
Accounting revisions					-0.009*
					(0.005)
Gender × Higher education	0.012***		0.010**		
	(0.004)		(0.005)		
Gender × Firm R&D		-0.019***	-0.016***		
		(0.005)	(0.005)		
Gender × Higher education × Firm R&D			-0.007***		
			(0.002)		
Gender × High firm accruals				-0.012**	
				(0.005)	
Gender × Accounting revisions					-0.016***
					(0.006)
Observations	234,420	234,420	234,420	234,420	234,420
Adj. R-squared	0.697	0.698	0.699	0.698	0.696
Control variables	Y	Y	Y	Y	Y
Year effects	Y	Y	Y	Y	Y
Firm effects	Y	Y	Y	Y	Y

Table 7. Variable definitions and sources using large public firms

Variable	Description	Source
A. Dependent variables in main specifications		
Wage disparity	The ratio of the average total compensation of the directors in the board (Salary + Bonus) to the average salary of the firm employees. The average salary of the firm employees is the sum of the employees' salaries (excluding the directors' compensation) divided by the number of employees (excluding the number of directors in the board). The variable is in natural logarithmic form.	Execucomp; Compustat
Wage disparity (salary)	The ratio of the average total salary compensation of the directors in the board (Salary excluding Bonus) to the average salary of firm employees. The average salary of the firm employees is defined in the definition of *Wage disparity*. The variable is in natural logarithmic form.	Execucomp; Compustat
Wage disparity (direct)	The ratio of the average total direct compensation of the directors in the board (Salary + Bonus + Restricted Stock Grants + LTI + Other Annual Compensation) to the average salary of firm employees. The average salary of the firm employees is defined in the definition of *Wage disparity*. The variable is in natural logarithmic form.	Execucomp; Compustat
Wage disparity (SEC)	The ratio of the average total compensation of the directors in the board as reported in SEC filings (Salary + Bonus + Stock Awards + Option Awards + Non-equity Incentive Plan Compensation + Change in Pension Value and Non-qualified Deferred Compensation Earnings + Other Annual Compensation) to the average salary of firm employees. The average salary of the firm employees is defined in the definition of *Wage disparity*. The variable is in natural logarithmic form.	Execucomp; Compustat
Average board compensation	The average total compensation of the directors in the board. The average total compensation of the directors in the board is the sum of the directors' salaries and the directors' bonuses divided by the number of directors. The variable is in natural logarithmic form.	Execucomp
Average staff expense	The average salary of the firm employees. The average salary of the firm employees is the sum the employees' salaries (excluding the directors' compensation) divided by the number of employees (excluding the number of directors in the board). The variable is in natural logarithmic form.	Compustat
Total staff expense (initial)	The total salary (in USD million) of the firm employees (excluding the directors' compensation). The variable is in natural logarithmic form.	Compustat
Total staff expense	The fitted values from the regression of *Total staff expense (initial)* on *Operating expenses*.	Compustat
Operating expenses	The total firm operating expenses (in USD million). The variable is in natural logarithmic form.	Compustat
Number of employees	The number of the firm employees (excluding the number of directors in the board). The variable is in natural logarithmic form.	Compustat
B. Main explanatory variables: Gender diversity measures		
Gender diversity in the board	The standard deviation of the number of female directors in the board.	Execucomp
Blau index	The Blau index of diversity. The index is equal to one minus the sum of the squared percentage of directors in each gender category. There are in total two gender categories: male and female. The index assumes values between 0 (only male or only female directors) and 0.5 (equal number of male and female directors); see Blau (1977).	Execucomp
Shannon index	The Shannon index of diversity. The index is equal to the negative sum of the product of the percentage of directors in each gender category with the natural logarithm of this percentage. There are in total two gender categories: male and female. The index assumes values between 0 (only male or only female directors) and 0.69 (equal number of male and female directors); see Shannon (1948).	Execucomp
Female director ratio	The ratio of the number of female directors to the total number of directors in the board.	Execucomp
Female-male director ratio	The ratio of the number of male directors to female directors in the board.	Execucomp
Number of female directors	The number of female directors in the board.	Execucomp
Male directors with board connections	The fraction of male directors in the board who sit in other boards which there are female directors.	Execucomp; own estimations

Gender diversity in the board (fitted values)	The fitted values of *Gender diversity in the board* and each of the alternative board gender diversity measures (i.e., *Blau index*, *Shannon index*, *Female director ratio*, *Female-male director ratio* and *Number of female directors*) from their sequential 1st-stage regressions on *Male directors with board connections*.	Execucomp own estimations

C. *Explanatory variables: Board characteristics*

Male CEO	A binary variable equal to one if the CEO is male, and zero otherwise.	Execucomp
Male CEO and chair	A binary variable equal to one if the CEO and board chair is male, and zero otherwise.	Execucomp
Female CEO	A binary variable equal to one if the CEO is female, and zero otherwise.	Execucomp
Female chair	A binary variable equal to one if the board chair is female, and zero otherwise.	Execucomp
Female CEO and chair	A binary variable equal to one if the CEO and board chair is female, and zero otherwise.	Execucomp
Independent director ratio	The ratio of the number of independent directors in the board to the total number of directors in the board.	BoardEx
Interlocked director ratio	The fraction of directors in the board who sit in other boards.	Execucomp
Number of directors	The number of directors in the board.	Execucomp
Time in role	The average time in the current position of the directors in the board (in years). The variable is in natural logarithmic form.	Execucomp
Time in any board	The average time in any board of the directors (in years). The variable is in natural logarithmic form.	Execucomp
Director age	The average age of the directors in the board (in years).	Execucomp
Director ownership	The total ownership share (percentage of total company shares owned) of the directors in the board.	Execucomp
Deviation in board compensation	The standard deviation of the total compensation of the directors in the board. The variables *Deviation in male director compensation* and *Deviation in female director compensation* are the equivalent standard deviations of the total compensation of the male directors and female directors in the board respectively.	Execucomp
Deviation in director age	The standard deviation of the number of female directors in the board.	Execucomp
Board compensation ratio	The ratio of the total compensation of directors in the board to the total firm assets.	Execucomp; Compustat
Compensation committee tenure	The average number of years that directors participate in the compensation committee.	BoardEx
CEO misconduct	A binary variable equal to one if the firm's CEO is dismissed in the previous year due to misconduct, and zero otherwise.	Peters and Wagner (2014)

D. *Explanatory variables: Firm characteristics*

Firm size	The log of total firm assets.	Compustat
Firm ROA	The return on total firm assets.	Compustat
Firm debt	The firm debt to total assets ratio.	Compustat
Firm tangibility	The ratio of firm tangible assets to total assets.	Compustat
Firm Tobin's Q	The ratio of firm market value to book value.	Compustat
Firm ROE	The return on firm equity (common/ordinary).	Compustat
Firm CapEx	The ratio of firm capital expenditures to total assets.	Compustat
Firm income	The log of firm income.	Compustat
Firm sales	The firm sales growth.	Compustat
Firm cash	The log of firm cash.	Compustat
High firm accruals	A binary variable equal to one if the firm's discretionary accruals (in absolute value) are above the sample mean, and zero otherwise. The methodology for calculating discretionary accruals includes the regression of accruals over total assets (measured as the difference between income before extraordinary items and cash flows from operating activities) on sales over assets and on property, plant and equipment over assets. The regression is estimated annually for each two-digit SIC industry with at least eight observations. The regression coefficients are then employed to estimate the residuals (in absolute value). High values indicate poor accruals quality and vice versa.	Compustat; own estimations
Firm fraud	A binary variable equal to one if the firm committed a fraud (misstatement of financial statement information) in the previous year.	Bao, Ke, Li, Yu and Zhang (2020)
High firm R&D	A binary variable equal to one if the firm's expenses for research and development is above the sample mean, and zero otherwise.	Compustat

Female-friendly sector	A binary variable equal to one if the company operates in a sector with strong presence of women employees, and zero otherwise.	ILOSTAT

Table 8. Summary statistics for the sample of large public companies

The table reports summary statistics (number of observations, mean, standard deviation, minimum and maximum values) for all variables used in the estimations of the main text. All variables are defined in Table 7.

	Obs.	Mean	Std. dev	Min.	Max.
Wage disparity	15,620	2.00	0.73	0.36	3.56
Wage disparity (salary)	15,620	1.70	0.70	-1.39	3.55
Wage disparity (direct)	15,328	2.87	0.99	-2.63	7.66
Wage disparity (unadjusted)	15,620	2.00	0.73	0.35	3.56
Average board compensation	15,620	6.15	0.50	4.05	8.95
Average staff expense	15,620	4.15	0.67	1.63	7.39
Total staff expense	15,620	5.65	1.45	0.56	11.87
Number of employees	15,620	1.50	1.48	-3.91	7.74
Gender diversity in the board	15,620	0.12	0.20	0.00	0.58
Blau index	15,620	0.09	0.15	0.00	0.50
Shannon index	15,620	0.14	0.23	0.00	0.69
Female director ratio	15,620	0.06	0.11	0.00	0.83
Female-male director ratio	15,620	0.09	0.20	0.00	5.00
Number of female directors	15,620	0.37	0.68	0.00	5.00
Male directors with board connections	15,620	0.06	0.11	0.00	1.00
Male CEO	15,620	0.96	0.20	0.00	1.00
CEO and chair	15,620	0.58	0.49	0.00	1.00
Male CEO and chair	15,620	0.58	0.49	0.00	1.00
Number of directors	15,620	6.09	1.38	2.00	15.00
Number of executive directors	15,183	1.84	0.92	1.00	7.00
Independent directors ratio	15,620	0.53	0.22	0.08	0.93
Interlocked director ratio	15,620	0.02	0.07	0.00	1.00
Time in role	15,620	1.41	0.61	0.00	3.14
Director age	14,097	3.98	0.10	3.53	4.48
Director ownership	15,620	0.37	1.21	0.00	21.52
Total board compensation	15,620	0.98	0.57	-2.26	5.29
Deviation in board compensation	15,620	2.73	4.90	0.00	426.99
Deviation in male director compensation	15,613	275.34	506.80	0.00	44,693.81
Deviation in female director compensation	1,067	138.93	191.07	0.00	2,537.33
Compensation committee tenure	8,965	4.19	2.60	1.00	18.33
Firm size	15,620	6.85	1.57	-2.85	13.09
Firm ROA	15,620	0.10	0.13	-3.08	0.96
Firm debt	15,620	0.21	0.22	0.00	4.91
Firm tangibility	15,620	0.28	0.22	0.00	0.97
Firm Tobin’s Q	15,620	0.93	1.09	0.01	16.15
Firm ROE	15,581	0.10	0.54	-9.74	9.42
Firm CapEx	15,510	0.06	0.06	0.00	0.80
Firm retained earnings	15,569	0.10	1.39	-45.47	2.34
Firm sales	15,591	0.14	0.39	-1.00	9.05
Firm cash	15,523	4.20	1.86	-6.21	11.80
CEO misconduct	15,620	0.00	0.04	0.00	1.00
Firm fraud	11,041	0.14	0.12	0.00	1.00

Table 9. The effect of gender diversity in the board on wage disparity: Baseline results from the sample of large public companies

The table reports coefficients and t-statistics [in brackets] from baseline OLS and IV regressions. The dependent variable is *Wage disparity* and all variables are defined in Table 7. Each specification includes a different set of fixed effects, as given in the lower part of the table. Columns (1)-(3) report results from the OLS regressions (with standard errors clustered by firm) of *Wage disparity* on *Gender diversity in the board* according to equation (5). Columns (4)-(6) report results from the 2nd-stage IV regressions (with standard errors clustered by firm) of *Wage disparity* on the instrumental variable, i.e., the fitted values of *Gender diversity in the board* from its 1st-stage regressions on *Male directors with board connections* (i.e., the fraction of male directors in the board who sit on other boards which there are female directors) according to equations (4) and (5). The lower part of columns (4)-(6) reports results from the 1st-stage regression for *Male directors with board connections* (the full list of coefficients is reported in Appendix Table A2). The *, **, and *** marks denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	OLS regressions			2nd-stage IV regressions		
Gender diversity in the board	-0.128***	-0.128***	-0.128***	-0.111***	-0.111***	-0.111***
	[-3.774]	[-3.771]	[-3.765]	[-3.034]	[-3.032]	[-3.027]
Male CEO	-0.006	-0.006	-0.006	-0.005	-0.005	-0.005
	[-0.255]	[-0.255]	[-0.254]	[-0.219]	[-0.219]	[-0.219]
CEO and chair	0.006	0.006	0.006	0.006	0.006	0.006
	[0.515]	[0.515]	[0.514]	[0.504]	[0.504]	[0.503]
Time in role	0.089***	0.089***	0.089***	0.090***	0.090***	0.090***
	[5.599]	[5.595]	[5.587]	[5.640]	[5.635]	[5.627]
Independent director ratio	0.181***	0.181***	0.181***	0.181***	0.181***	0.181***
	[5.802]	[5.798]	[5.789]	[5.804]	[5.800]	[5.791]
Firm size	0.080***	0.080***	0.080***	0.080***	0.080***	0.080***
	[7.230]	[7.225]	[7.214]	[7.230]	[7.224]	[7.213]
Firm ROA	0.092*	0.092*	0.092*	0.091*	0.091*	0.091*
	[1.795]	[1.793]	[1.791]	[1.776]	[1.775]	[1.772]
Firm debt	-0.020	-0.020	-0.020	-0.020	-0.020	-0.020
	[-0.409]	[-0.409]	[-0.409]	[-0.406]	[-0.406]	[-0.406]
Firm tangibility	0.195**	0.195**	0.195**	0.194**	0.194**	0.194**
	[2.430]	[2.429]	[2.425]	[2.422]	[2.420]	[2.416]
Firm Tobin's Q	0.014	0.014	0.014	0.014	0.014	0.014
	[1.597]	[1.596]	[1.594]	[1.617]	[1.615]	[1.613]
Constant	1.179***	1.179***	1.179***			
	[13.701]	[13.691]	[13.670]			
Observations	15,620	15,620	15,620	15,620	15,620	15,620
Adj. R-squared	0.827	0.827	0.827			
				1st-stage IV regressions		
Male directors with board connections				1.778***	1.778***	1.778***
				[38.990]	[38.960]	[38.900]
Observations				15,620	15,620	15,620
Year effects	Y	Y	Y	Y	Y	Y
Firm effects	Y	Y	Y	Y	Y	Y
Industry effects	N	Y	Y	N	Y	Y
State effects	N	N	Y	N	N	Y

Table 10. Alternative measures of gender diversity in the board

The table reports coefficients and t-statistics [in brackets] from the 2nd-stage IV regressions by employing alternative measures of gender diversity in the board. The dependent variable is *Wage disparity* and all variables are defined in Table 7. The estimation method is 2SLS with standard errors clustered by firm. In each specification, *Wage disparity* is regressed on the relevant instrumental variable, i.e., the fitted values of each of the alternative board gender diversity measures from its sequential 1st-stage regression on *Male directors with board connections* (i.e., the fraction of male directors in the board who sit on other boards which there are female directors) according to equations (4) and (5). In specification (1), the measure of gender diversity in the board is *Blau index*, i.e., the Blau index of diversity. In specification (2), the measure of gender diversity in the board is *Shannon index*, i.e., the Shannon index of diversity. In specification (3), the measure of gender diversity in the board is *Female director ratio*, i.e., the ratio of the number of female directors to the total number of directors in the board. In specification (4), the measure of gender diversity in the board is *Female-male director ratio*, i.e., the ratio of the number of male directors to female directors in the board. In specification (5), the measure of gender diversity in the board is *Number of female directors*, i.e., the number of female directors in the board. All specifications include year and firm fixed effects. The *, **, and *** marks denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)
Blau index	-0.152***				
	[-3.031]				
Shannon index		-0.098***			
		[-3.033]			
Female director ratio			-0.216***		
			[-3.017]		
Female-male director ratio				-0.134***	
				[-2.918]	
Number of female directors					-0.039***
					[-3.025]
Male CEO	-0.006	-0.006	-0.009	-0.013	-0.009
	[-0.267]	[-0.240]	[-0.374]	[-0.519]	[-0.361]
CEO and chair	0.006	0.006	0.006	0.006	0.007
	[0.505]	[0.508]	[0.497]	[0.481]	[0.580]
Time in role	0.090***	0.090***	0.090***	0.090***	0.088***
	[5.636]	[5.632]	[5.627]	[5.602]	[5.471]
Independent director ratio	0.182***	0.181***	0.183***	0.185***	0.178***
	[5.827]	[5.810]	[5.865]	[5.914]	[5.726]
Firm size	0.080***	0.080***	0.081***	0.081***	0.081***
	[7.218]	[7.228]	[7.218]	[7.225]	[7.293]
Firm ROA	0.091*	0.091*	0.090*	0.088*	0.091*
	[1.774]	[1.776]	[1.745]	[1.691]	[1.756]
Firm debt	-0.020	-0.020	-0.021	-0.021	-0.022
	[-0.414]	[-0.411]	[-0.428]	[-0.438]	[-0.445]
Firm tangibility	0.195**	0.195**	0.195**	0.194**	0.196**
	[2.431]	[2.427]	[2.428]	[2.410]	[2.436]
Firm Tobin's Q	0.014	0.014	0.014	0.014*	0.014
	[1.611]	[1.613]	[1.620]	[1.659]	[1.586]
Observations	15,620	15,620	15,620	15,620	15,620
Fixed effects	Y	Y	Y	Y	Y

Table 11. Heckman sample-selection model in the sample of large public companies

The table reports coefficients and t-statistics (in brackets) from Heckman's (1979) sample-selection model for the instrumental variable. The dependent variable is in the second line of each panel and all variables are defined in Table 7. The estimation method in Panel A is maximum likelihood and in Panel B it is 2SLS with standard errors clustered by firm. In the first stage (results are omitted), a probit model is estimated via maximum likelihood to examine the determinants of the firm's decision to include at least one female director in the board. In the second stage, IV regressions are estimated to examine the effect of gender diversity in the board on within-firm wage disparity. Panel A reports the estimates from the probit model. All specifications in Panel A include year and firm dummies. Panel B reports the estimates from the IV regressions (only the estimates from the 2nd-stage of the IV model are presented) of *Wage disparity* on the instrumental variable, i.e., the fitted values of *Gender diversity in the board* from its 1st-stage regressions on *Male directors with board connections* (i.e., the fraction of male directors in the board who sit on other boards which there are female directors) according to equations (4) and (5). Each of the specifications in Panel B includes the inverse Mills ratio (Lambda) from the corresponding specification in Panel A. All specifications in Panel B include year and firm fixed effects. The *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Panel A: The firm's decision to add a female director

	(1) Female addition	(2) Female addition	(3) Female addition	(4) Female addition
Male CEO	-0.823***	-2.048***	-0.839***	-2.034***
	[-14.667]	[-12.785]	[-14.633]	[-12.732]
CEO and chair	0.030	4.167	0.031	4.178
	[1.239]	[0.029]	[1.296]	[0.028]
Time in role	-0.068***	0.033	-0.060**	0.017
	[-2.756]	[0.583]	[-2.442]	[0.290]
Independent director ratio	0.058	0.087	0.039	0.085
	[1.102]	[1.558]	[0.732]	[1.499]
Firm size	0.012	-0.017*	-0.009	-0.031**
	[1.507]	[-1.853]	[-0.814]	[-2.476]
Firm ROA	0.350***	0.451***	0.248**	0.325***
	[3.947]	[4.738]	[2.480]	[3.034]
Firm debt	-0.024	-0.008	0.028	0.023
	[-0.435]	[-0.143]	[0.470]	[0.363]
Firm tangibility	-0.180***	-0.096	-0.087	0.053
	[-3.266]	[-1.626]	[-1.153]	[0.657]
Firm Tobin's Q	-0.061***	-0.036***	-0.057***	-0.031**
	[-4.921]	[-2.815]	[-4.561]	[-2.411]
Number of directors		0.173***		0.172***
		[18.205]		[17.847]
Time in any board		-0.015		-0.013
		[-1.366]		[-1.202]
Male CEO and chair		-4.170		-4.177
		[-0.029]		[-0.028]
Interlocked director ratio		0.132		0.151
		[0.651]		[0.725]
Director age		-0.853***		-0.857***
		[-6.802]		[-6.705]
Number of executive directors		-0.041***		-0.039***
		[-2.865]		[-2.698]
Director ownership		-0.000		-0.000
		[-0.065]		[-0.019]
Firm ROE			0.011	0.025
			[0.506]	[1.076]
Firm CapEx			-0.146	-0.640**
			[-0.566]	[-2.243]
Firm retained earnings			0.012	0.017*
			[1.284]	[1.712]
Firm sales			-0.068**	-0.037
			[-2.123]	[-1.024]

Firm cash			0.021**	0.011
			[2.465]	[1.157]
Constant	-93.937***	-94.393***	-90.553***	-92.386***
	[-20.806]	[-18.388]	[-19.824]	[-17.679]
Observations	15,620	14,079	15,405	13,829

Panel B: The effect of gender diversity in the board on within-firm wage disparity

	(1) Wage disparity	(2) Wage disparity	(3) Wage disparity	(4) Wage disparity
Gender diversity in the board	-0.110***	-0.094**	-0.108***	-0.090**
	[-3.020]	[-2.534]	[-2.937]	[-2.399]
Male CEO	0.044	-0.142***	0.066	-0.123**
	[0.192]	[-2.656]	[0.637]	[-2.268]
CEO and chair	0.004	0.002	0.005	0.006
	[0.293]	[0.167]	[0.397]	[0.427]
Time in role	0.094***	0.079***	0.095***	0.081***
	[3.704]	[4.261]	[5.423]	[4.325]
Independent director ratio	0.177***	0.166***	0.182***	0.174***
	[5.200]	[4.736]	[5.782]	[4.994]
Firm size	0.080***	0.076***	0.079***	0.078***
	[6.862]	[6.081]	[6.448]	[6.144]
Firm ROA	0.068	0.092	0.047	0.062
	[0.600]	[1.630]	[0.747]	[1.132]
Firm debt	-0.018	-0.004	-0.029	-0.012
	[-0.377]	[-0.069]	[-0.604]	[-0.234]
Firm tangibility	0.206**	0.168**	0.215**	0.173**
	[2.017]	[1.972]	[2.450]	[2.002]
Firm Tobin's Q	0.018	0.007	0.020*	0.008
	[0.975]	[0.866]	[1.776]	[0.962]
Lambda	-0.086	0.143***	-0.131	0.131***
	[-0.217]	[4.095]	[-0.751]	[3.745]
Observations	15,620	13,967	15,302	13,713
Fixed effects	Y	Y	Y	Y

Table 12. Components of within-firm wage disparity in the sample of large public companies

The table reports coefficients and t-statistics [in brackets] from the 2nd-stage IV regressions for the components of *Wage disparity*. The dependent variable is denoted in the second line of the table and all variables are defined in Table 7. The estimation method is 2SLS with standard errors clustered by firm. In each specification, *Wage disparity* is regressed on the relevant instrumental variable, i.e., the fitted values of *Wage disparity* from its 1st-stage regression of each of the alternative board gender diversity measures on *Male directors with board connections* (i.e., the fraction of male directors in the board who sit on other boards which there are female directors) according to equations (4) and (5). In specification (1), *Wage disparity* is replaced as dependent variable by *Average board compensation*, i.e., the average total compensation of the directors in the board. In specification (2), *Wage disparity* is replaced as dependent variable by *Average staff expense*, i.e., the average salary of the firm employees. In specification (3), *Wage disparity* is replaced as dependent variable by *Total staff expense*, i.e., the total salary of the firm employees. In specification (4), *Wage disparity* is replaced as dependent variable by *Number of employees*, i.e., the number of the firm employees (excluding the number of directors in the board). Specifications (5) and (6) replicate the estimations of specifications (3) and (4) respectively for the sample of firms, where the ratio of the number of female directors to the number of male directors is above 0 and below or equal to 0.25. All specifications include year and firm fixed effects. The *, **, and *** marks denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1) Average board compensation	(2) Average staff expense	(3) Total staff expense	(4) Number of employees
Gender diversity in the board	-0.081***	0.029	-0.105***	-0.134***
	[-2.790]	[1.068]	[-3.253]	[-3.406]
Male CEO	-0.016	-0.011	-0.036	-0.025
	[-0.882]	[-0.638]	[-1.444]	[-0.922]
CEO and chair	0.010	0.004	-0.003	-0.007
	[1.063]	[0.522]	[-0.256]	[-0.606]
Time in role	0.061***	-0.029**	0.066***	0.095***
	[4.796]	[-2.532]	[4.299]	[5.403]
Independent director ratio	0.172***	-0.009	0.049*	0.059*
	[6.937]	[-0.427]	[1.741]	[1.747]
Firm size	0.100***	0.020**	0.528***	0.508***
	[12.473]	[2.228]	[30.516]	[26.351]
Firm ROA	0.118***	0.027	0.313***	0.287***
	[2.982]	[0.672]	[4.352]	[3.392]
Firm debt	-0.012	0.007	-0.058	-0.065
	[-0.384]	[0.214]	[-0.903]	[-0.754]
Firm tangibility	0.009	-0.185***	0.259***	0.444***
	[0.173]	[-2.639]	[2.701]	[3.785]
Firm Tobin's Q	0.014***	-0.000	0.073***	0.074***
	[2.593]	[-0.005]	[8.098]	[7.409]
Observations	15,620	15,620	15,620	15,620
Fixed effects	Y	Y	Y	Y

Table 13. The role of business ethics

The table reports coefficients and t-statistics [in brackets] from the 2nd-stage IV regressions by employing different characteristics relating to firm's R&D and female employees' representation. The dependent variable is denoted in the second line of the table and all variables are defined in Table 7. The estimation method is 2SLS with standard errors clustered by firm. In specifications (1)-(3), *Gender diversity in the board* is interacted with *High firm accruals*, i.e., a binary variable equal to one if the firm's discretionary accruals (in absolute value) are above the sample mean, and zero otherwise. In specification (4), *Gender diversity in the board* is interacted with *CEO misconduct*, i.e., a binary variable equal to one if the firm's CEO is dismissed in the previous year due to misconduct, and zero otherwise. In specification (5), *Gender diversity in the board* is interacted with *Firm fraud*, i.e., a binary variable equal to one if the firm committed a fraud (misstatement of financial statement information) in the previous year, and zero otherwise. All specifications include year and firm fixed effects. The *, **, and *** marks denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1) Wage disparity	(2) Average board compensation	(3) Average staff expense	(4) Wage disparity	(5) Wage disparity
Gender diversity in the board	-0.162**	-0.097*	0.065	-0.111***	-0.082*
	[-2.572]	[-1.913]	[1.220]	[-3.031]	[-1.915]
Gender diversity in the board × High firm accruals	0.139**	0.041	-0.097*		
	[2.150]	[0.842]	[-1.960]		
Gender diversity in the board × CEO misconduct				0.039	
				[0.129]	
Gender diversity in the board × Firm fraud					0.107
					[0.435]
Observations	5,260	5,260	5,260	15,620	11,401
Controls	Y	Y	Y	Y	Y
Fixed effects	Y	Y	Y	Y	Y

Table 14. Company sectors in the sample of large public companies

The table reports coefficients and t-statistics [in brackets] from the 2nd-stage IV regressions by employing different characteristics relating to firm's R&D and female employees' representation. The dependent variable is *Wage disparity* and all variables are defined in Table 7. The estimation method is 2SLS with standard errors clustered by firm. In each specification, *Wage disparity* is regressed on the instrumental variable, i.e., the fitted values of *Wage disparity* from its 1st-stage regression on *Male directors with board connections* (i.e., the fraction of male directors in the board who sit on other boards which there are female directors) according to equations (4) and (5). In specifications (1)-(3), *Gender diversity in the board* is interacted with *High Firm R&D*, i.e., a binary variable equal to one if the firm's expenses for research and development is above the sample mean, and zero otherwise. In specifications (4)-(6), *Gender diversity in the board* is interacted with *Female-friendly sector*, i.e., a binary variable equal to one if the company operates in a sector with strong presence of women employees, and zero otherwise. All specifications include year and firm fixed effects. The *, **, and *** marks denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1) Wage disparity	(2) Average board compensation	(3) Average staff expense	(4) Wage disparity	(5) Average board compensation	(6) Average staff expense
Gender diversity in the board	-0.203***	-0.125***	0.079**	-0.183***	-0.117***	0.066*
	[-3.738]	[-2.745]	[2.407]	[-3.917]	[-3.008]	[1.914]
Gender diversity in the board × High Firm R&D	0.196***	0.105*	-0.091*			
	[2.687]	[1.909]	[-1.954]			
Gender diversity in the board × Female-friendly sector				0.195***	0.096*	-0.099*
				[2.609]	[1.787]	[-1.730]
Observations	10,033	10,033	10,033	15,620	15,620	15,620
Controls	Y	Y	Y	Y	Y	Y
Fixed effects	Y	Y	Y	Y	Y	Y

Internet Appendix

Gender of firm decision-makers and within-firm wage disparity

Abstract

This Appendix is intended for internet use only. The first section includes information on the definition of the variables. The second section reports (i) estimates from alternative specifications, (ii) results from SUR estimations, (iii) results from the 1st-stage IV regressions.

Table A1. OLS of Total staff expense on Operating expenses in the sample of large public companies

The table reports coefficients and t-statistics (in brackets) from the regression of *Total staff expense* on *Operating expenses* at the firm-year level. The estimation method is OLS with standard errors clustered by firm *and* year. Each specification includes a different set of fixed effects, as given in the lower part of the table. The *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)
Operating expenses	0.986***	0.986***	0.987***
	[44.200]	[44.200]	[43.816]
Constant	-1.053***	-1.053***	-1.054***
	[-6.344]	[-6.344]	[-6.303]
Observations	3,720	3,720	3,678
Adj. R-squared	0.991	0.991	0.991
Year effects	Y	Y	Y
Firm effects	Y	Y	Y
State effects	N	Y	Y
Industry effects	N	N	Y

Table A2. IV regressions in the sample of large public companies: 1st stage

The table reports coefficients and t-statistics (in brackets) from the regression of *Gender diversity in the board* and on the instrumental variable *Male directors with board connections* at the firm-year level. The estimation method is OLS with standard errors clustered by firm. Each specification includes a different set of fixed effects, as given in the lower part of the table. The *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)
Male directors with board connections	1.778***	1.778***	1.778***
	[38.990]	[38.960]	[38.900]
Male CEO	0.014***	0.014***	0.014***
	[2.990]	[2.980]	[2.980]
CEO and chair	0.007***	0.007***	0.007***
	[3.880]	[3.880]	[3.870]
Time in role	-0.012***	-0.012***	-0.012***
	[-4.360]	[-4.360]	[-4.350]
Independent director ratio	-0.033***	-0.033***	-0.033***
	[-6.910]	[-6.900]	[-6.890]
Firm size	0.002	0.002	0.002
	[0.860]	[0.860]	[0.850]
Firm ROA	0.014**	0.014**	0.014**
	[2.050]	[2.050]	[2.050]
Firm debt	-0.004	-0.004	-0.004
	[-0.590]	[-0.590]	[-0.590]
Firm tangibility	-0.001	-0.001	-0.001
	[1.240]	[1.240]	[1.240]
Firm Tobin's Q	-0.002***	-0.002***	-0.002***
	[-2.350]	[-2.350]	[-2.350]
Observations	15,620	15,620	15,620
Year effects	Y	Y	Y
Firm effects	Y	Y	Y
Industry effects	N	Y	Y
State effects	N	N	Y

Table A3. IV regressions in the sample of large public companies: alternative specifications

The table reports coefficients and t-statistics [in brackets] from IV regressions. The dependent variable is *Wage disparity* and all variables are defined in Table 7. Column (1) reports results from the 2nd-stage IV regressions (with standard errors clustered by firm) of *Wage disparity* on the instrumental variable, i.e., the fitted values of *Gender diversity in the board* from its 1st-stage regressions on *Number of male directors with board connections* (i.e., the total number of male directors in the board who sit on other boards which there are female directors) according to equations (4) and (5). Specification (2) replicates specification (1) by employing two instrumental variables, i.e., *Male directors with board connections* and *Number of male directors with board connections*. Specifications (3) and (4) replicate specifications (1) and (2) respectively by including industry × year fixed effects. The lower part of columns (1)-(4) reports results from the 1st-stage regression for *Male directors with board connections* and *Number of male directors with board connections*. All specifications include year and firm fixed effects. Specifications (3) and (4) additionally includes industry × year effects. The *, **, and *** marks denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
	2nd-stage IV regressions			
Gender diversity in the board	-0.112***	-0.111***	-0.120***	-0.115***
	[-3.214]	[-3.198]	[-3.415]	[-3.317]
Male CEO	-0.005	-0.005	-0.012	-0.012
	[-0.222]	[-0.220]	[-0.506]	[-0.498]
CEO and chair	0.006	0.006	0.010	0.010
	[0.505]	[0.505]	[0.832]	[0.829]
Time in role	0.090***	0.090***	0.080***	0.080***
	[5.628]	[5.638]	[5.118]	[5.125]
Independent director ratio	0.181***	0.181***	0.151***	0.151***
	[5.800]	[5.804]	[5.034]	[5.035]
Firm size	0.080***	0.080***	0.076***	0.076***
	[7.226]	[7.230]	[6.614]	[6.613]
Firm ROA	0.091*	0.091*	0.099*	0.099*
	[1.777]	[1.777]	[1.940]	[1.934]
Firm debt	-0.020	-0.020	-0.027	-0.027
	[-0.406]	[-0.407]	[-0.501]	[-0.501]
Firm tangibility	0.195**	0.194**	0.138*	0.138*
	[2.420]	[2.422]	[1.782]	[1.781]
Firm Tobin's Q	0.014	0.014	0.009	0.009
	[1.615]	[1.617]	[1.208]	[1.212]
Observations	15,620	15,620	15,595	15,595
	1st-stage IV regressions			
Number of male directors with board connections	0.355***	0.155***	0.355***	0.154***
	[80.750]	[9.200]	[80.700]	[9.730]
Male directors with board connections		1.178***		1.181***
		[12.460]		[13.300]
Observations	15,620	15,620	15,595	15,595
Fixed effects	Y	Y	Y	Y

Table A4. Different controls in the sample of large public companies

The table reports coefficients and t-statistics [in brackets]. The dependent variable is *Wage disparity* and all variables are defined in Table 7. The estimation method is OLS with standard errors clustered by firm. Different specifications include a set of different controls at the firm- and board-level. All specifications include year and firm fixed effects. The *, **, and *** marks denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)
Gender diversity in the board	-0.097***	-0.091**	-0.104***	-0.107***	-0.073**
	[-2.641]	[-2.480]	[-2.808]	[-2.906]	[-1.974]
Male CEO	0.003	0.004	-0.010	-0.010	-0.016
	[0.134]	[0.086]	[-0.394]	[-0.404]	[-0.315]
CEO and chair	-0.031	-0.006	0.001	0.008	-0.067
	[-0.513]	[-0.464]	[0.096]	[0.675]	[-0.897]
Time in role	0.001	0.089***	0.079***	0.088***	-0.008
	[0.054]	[4.916]	[4.745]	[5.483]	[-0.251]
Independent director ratio	0.160***	0.193***	0.196***	0.184***	0.183***
	[4.742]	[5.809]	[6.196]	[5.922]	[5.060]
Firm size	0.085***	0.070***	0.082***	0.084***	0.079***
	[7.517]	[5.618]	[7.346]	[6.114]	[5.160]
Firm ROA	0.091*	0.063	0.064	0.098*	0.023
	[1.759]	[1.233]	[1.183]	[1.846]	[0.425]
Firm debt	-0.023	0.015	-0.029	-0.062	-0.043
	[-0.468]	[0.283]	[-0.655]	[-1.413]	[-0.851]
Firm tangibility	0.193**	0.147*	0.194**	0.255***	0.199**
	[2.401]	[1.744]	[2.459]	[2.882]	[2.152]
Firm Tobin's Q	0.013	0.010	0.015*	0.014	0.013
	[1.528]	[1.232]	[1.719]	[1.558]	[1.474]
Number of directors	-0.010**				-0.015***
	[-2.204]				[-3.101]
Time in any board	0.022***				0.017***
	[3.925]				[2.683]
Male CEO and chair	0.045				0.066
	[0.739]				[0.875]
Interlocked director ratio		-0.124			-0.102
		[-1.112]			[-0.914]
Director age		0.243***			0.176**
		[3.291]			[2.407]
Number of executive directors			0.019***		0.017**
			[2.646]		[2.202]
Director ownership			0.005***		0.004***
			[4.594]		[3.953]
Firm ROE				0.007	0.009
				[1.130]	[1.457]
Firm CapEx				-0.268**	-0.221*
				[-2.504]	[-1.920]
Firm income				-0.015	-0.008
				[-1.405]	[-0.776]
Firm sales				-0.013	-0.027**
				[-1.198]	[-2.178]
Firm cash				0.001	-0.001
				[0.122]	[-0.235]
Observations	15,620	14,054	15,170	15,302	13,713
Fixed effects	Y	Y	Y	Y	Y

Table A5. Different clustering of standard errors in the sample of large public companies

The table reports coefficients and t-statistics [in brackets]. The dependent variable is *Wage disparity* and all variables are defined in Table 7. The estimation method is OLS. The lower part of the table denotes the type of standard error clustering (F&Y refers to Firm *and* Year, F&I refers to Firm *and* Industry, F&I&Y refers to Firm *and* Industry *and* Year,). All specifications include year and firm fixed effects. The *, **, and *** marks denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)
Gender diversity in the board	-0.111***	-0.111***	-0.111***	-0.111***	-0.111***
	[-5.264]	[-3.869]	[-3.111]	[-3.869]	[-3.873]
Male CEO	-0.005	-0.005	-0.005	-0.005	-0.005
	[-0.210]	[-0.184]	[-0.179]	[-0.184]	[-0.184]
CEO and chair	0.006	0.006	0.006	0.006	0.006
	[0.621]	[0.463]	[0.466]	[0.463]	[0.463]
Time in role	0.090***	0.090***	0.090***	0.090***	0.090***
	[7.208]	[6.709]	[5.079]	[6.709]	[6.714]
Independent director ratio	0.181***	0.181***	0.181***	0.181***	0.181***
	[7.509]	[4.973]	[5.226]	[4.973]	[4.977]
Firm size	0.080***	0.080***	0.080***	0.080***	0.080***
	[6.260]	[7.981]	[5.196]	[7.981]	[7.988]
Firm ROA	0.091**	0.091	0.091	0.091	0.091
	[2.182]	[1.564]	[1.653]	[1.564]	[1.565]
Firm debt	-0.020	-0.020	-0.020	-0.020	-0.020
	[-0.624]	[-0.345]	[-0.401]	[-0.345]	[-0.345]
Firm tangibility	0.194***	0.194***	0.194**	0.194***	0.194***
	[3.803]	[2.811]	[2.319]	[2.811]	[2.813]
Firm Tobin's Q	0.014***	0.014	0.014	0.014	0.014
	[3.169]	[1.207]	[1.641]	[1.207]	[1.208]
Observations	15,620	15,620	15,620	15,620	15,620
Fixed effects	Y	Y	Y	Y	Y
Clustering	Year	Industry	F&Y	F&I	F&I&Y

Table A6. Alternative measures of within-firm wage disparity

The table reports coefficients and t-statistics [in brackets]. The dependent variable is denoted in the second line of the table and all variables are defined in Table 7. The estimation method is OLS with standard errors clustered by firm. In specification (1), *Wage disparity* is replaced as dependent variable by *Wage disparity (salary)*, i.e., the ratio of the average total salary compensation of the directors in the board to the average salary of the firm employees. In specification (2), *Wage disparity* is replaced as dependent variable by *Wage disparity (direct)*, i.e., the ratio of the average total direct compensation of the directors in the board to the average salary of the firm employees. In specification (3), *Wage disparity* is replaced as dependent variable by *Wage disparity (SEC)*, i.e., the ratio of the average total compensation of the directors in the board as reported in SEC filings to the average salary of the firm employees. All specifications include year and firm fixed effects. The *, **, and *** marks denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1) Wage disparity (salary)	(2) Wage disparity (direct)
Gender diversity in the board	-0.081**	-0.112**
	[-2.488]	[-2.223]
Male CEO	0.010	0.081*
	[0.466]	[1.723]
CEO and chair	0.009	0.036**
	[0.907]	[2.169]
Time in role	0.068***	0.108***
	[5.125]	[4.669]
Independent director ratio	0.106***	0.223***
	[4.056]	[5.202]
Firm size	0.095***	0.215***
	[9.454]	[12.247]
Firm ROA	0.011	0.433***
	[0.258]	[4.131]
Firm debt	-0.034	-0.233**
	[-0.932]	[-2.501]
Firm tangibility	0.241***	0.024
	[3.100]	[0.204]
Firm Tobin's Q	0.009	0.019*
	[1.224]	[1.831]
Observations	15,620	15,319
Fixed effects	Y	Y

Table A7. Heckman sample-selection model (second-stage) in the sample of large public companies

The table reports coefficients and t-statistics (in brackets) from the second stage of the Heckman's (1979) sample-selection model. The dependent variable is *Wage disparity* and all variables are defined in Table 7. In the first stage (results are omitted), a probit model is estimated via maximum likelihood to examine the determinants of the firm's decision to include at least one female director in the board. In the second stage, OLS regressions are estimated to examine the effect of gender diversity in the board on within-firm wage disparity. Each of the 2nd-stage OLS specifications include the inverse Mills ratio (Lambda) from the corresponding first-stage probit specification. All 2nd-stage specifications include year and firm fixed effects. The *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)
Gender diversity in the board	-0.127***	-0.097***	-0.123***	-0.092***
	[-3.760]	[-2.794]	[-3.588]	[-2.608]
Male CEO	0.036	-0.142***	0.066	-0.123**
	[0.158]	[-2.653]	[0.635]	[-2.265]
CEO and chair	0.004	0.002	0.005	0.006
	[0.320]	[0.167]	[0.404]	[0.427]
Time in role	0.093***	0.079***	0.094***	0.081***
	[3.655]	[4.251]	[5.393]	[4.316]
Independent director ratio	0.178***	0.166***	0.182***	0.174***
	[5.208]	[4.730]	[5.779]	[4.987]
Firm size	0.080***	0.076***	0.079***	0.078***
	[6.860]	[6.073]	[6.448]	[6.137]
Firm ROA	0.072	0.092	0.047	0.063
	[0.637]	[1.628]	[0.757]	[1.131]
Firm debt	-0.018	-0.004	-0.030	-0.012
	[-0.384]	[-0.069]	[-0.607]	[-0.233]
Firm tangibility	0.205**	0.168**	0.216**	0.174**
	[2.007]	[1.971]	[2.458]	[2.000]
Firm Tobin's Q	0.017	0.007	0.019*	0.008
	[0.938]	[0.863]	[1.768]	[0.959]
Lambda	-0.074	0.143***	-0.132	0.130***
	[-0.187]	[4.084]	[-0.757]	[3.742]
Constant	1.226***	1.180***	1.265***	1.156***
	[4.658]	[11.287]	[7.965]	[10.858]
Observations	15,620	13,967	15,302	13,713
Adj. R-squared	0.807	0.814	0.808	0.815
Fixed effects	Y	Y	Y	Y