CEBRIG Working Paper

Women in the Boardroom: A Bottom-up Approach to the Trickle-down Effect

Anaïs Périlleux, Ariane Szafarz

This paper argues that role modeling can explain the impact of boardroom gender diversity on corporate performance. It theorizes that female workers are boosted by female leadership, gain increased motivation, and achieve greater productivity, thereby making their female directors more effective. We test this bottom-up approach to the trickle-down hypothesis on data hand-collected among local cooperatives providing microcredit in Senegal. All the organizations surveyed are similar and small, which allows us to use a homogenous performance metric. All of them outsource their human resource management to the same third party, which mitigates the risk of endogeneity. The data cover over 100,000 triads composed of: gender dominance on the board, gender of CEO, and gender of credit officer. A better financial performance is achieved when the triad is gender-uniform—be it male or female—confirming the importance of role modeling and suggesting that the performance of female board members depends on the gender composition of the workforce.

CEBRIG Working Paper N°21-005
March 2021

Women in the Boardroom:

A Bottom-up Approach to the Trickle-down Effect

Anaïs Périlleux*
Université Catholique de Louvain (UCLouvain)
CIRTES, IRES, LIDAM & CERMi
Louvain-la-Neuve
Belgium
anais.perilleux@uclouvain.be

Ariane Szafarz
Université Libre de Bruxelles (ULB) and New York University (NYU)
CEB & CERMi
Brussels
Belgium
aszafarz@ulb.ac.be

February 2021

Forthcoming in Small Business Economics

* Corresponding author: *anais.perilleux@uclouvain.be*

Abstract

This paper argues that role modeling can explain the impact of boardroom gender diversity on corporate performance. It theorizes that female workers are boosted by female leadership, gain increased motivation, and achieve greater productivity, thereby making their female directors more effective. We test this bottom-up approach to the trickle-down hypothesis on data hand-collected among local cooperatives providing microcredit in Senegal. All the organizations surveyed are similar and small, which allows us to use a homogenous performance metric. All of them outsource their human resource management to the same third party, which mitigates the risk of endogeneity. The data cover over 100,000 triads composed of: gender dominance on the board, gender of CEO, and gender of credit officer. A better financial performance is achieved when the triad is gender-uniform—be it male or female—confirming the importance of role modeling and suggesting that the performance of female board members depends on the gender composition of the workforce.

I. Introduction

According to standard trickle-down effect theory (Mayer et al., 2009), female directors affect employee productivity by promoting the hiring of female employees at various levels of the firm. However, the literature has not only raised doubts about the very existence of this effect (Bertrand et al., 2019),[1] but has also pointed to heterogeneity as regards the impact of female directors on financial performance, which is hard to reconcile with the trickle-down mechanism (Kim and Starks, 2016; Flabbi et al., 2019). By contrast, a rich stream of leadership literature addresses the gender-related features of leadership styles (Eagly and Johannesen-Schmidt, 2001; Eagly and Carli, 2003; Adams, 2016). It concludes that women's leadership styles differ from men's (Eagly and Johannesen-Schmidt, 2007). But it does not clarify whether the specific styles adopted by male and female directors make any difference in terms of financial performance. Using insights from leadership theory, this paper develops a new approach to the trickle-down effect that is compatible with the observed impact of women in the boardroom on the financial performance of their corporations.

The corporate finance literature has thoroughly investigated how gender diversity in the boardroom might affect financial performance. Rose (2007) did not find any link between gender diversity and firm value. Adams and Ferreira (2009) showed that gender diversity had a negative causal impact on operating performance, while Carter et al. (2003) and Campbell and Mınguez-Vera (2008) uncovered a positive relationship. Joecks et al. (2013) presented a U-shaped performance curve, whereby a board containing 30% of women directors was needed to achieve a higher firm performance than with a male-only board. For Harjoto et al. (2015), gender diversity is associated with better performance in the field of corporate social responsibility (CSR). Bufarwa et al. (2020) and Orazalin (2019) found positive links between

---

[1] Bertrand et al. (2019) used evidence provided by a Norwegian reform that increased the representation of women in boardrooms.

board gender diversity and financial indicators, including risk disclosure and limited earnings management. Despite existing evidence on the importance of the gender composition of the board, little is known about its causal impacts on firm performance, let alone the mechanisms underlying these impacts (Antonakis et al, 2010; Reddy and Jadhav, 2019).

This paper tests a trickle-down hypothesis theorized as bottom-up: Female board members inspire subordinates of both genders, but the effectiveness of their transformational leadership depends on the subordinate's gender. According to Vinkenburg and van Engen (2005), female employees view their female directors as role models, thus gaining increased motivation and achieving greater productivity. We speculate that this impact applies to all staff members including those appointed before the directors took office.

We used data hand-collected among small, local financial cooperatives providing microcredit in Senegal. The cooperative nature of these organizations enabled us to scrutinize the impact of boards including over 50% of women, which is an unusual configuration across the world, especially among small firms (Kim and Starks, 2016). This setting constitutes a unique opportunity to assess the influence of female directors when their presence is strong enough.[2] All the organizations we observed follow the same business model, which allowed us to use a homogenous unit to measure performance: the recovery rate associated with loan repayment. Moreover, these cooperatives outsource their human resource management (HRM) to the same third party, which means that board members exercise hardly any influence on staff composition, let alone staff gender. This specificity of our sample mitigates the risk of endogeneity.

---

[2] Konrad et al. (2008) suggested a critical mass of around 30% of female directors. By contrast, Lafuente and Vaillant (2019) considered that the gender configuration was balanced when the board included at least 40% of members of each gender. Here, we will simply use the majority criterion (Chapelle and Szafarz, 2005), and thus compare women-dominated boards with men-dominated boards.

We tested our hypothesis by making use of data on over 100,000 loans. For each loan, we measured financial performance (with the recovery rate as a metric)[3] while observing the genders of all the agents in charge (directors, CEO, and credit officer). Our empirical results suggest that same-gender triads have a significantly positive effect on financial performance. They lend credence to the hypothesis of a trickle-down effect associated with gender affinity and role modeling. Women directors influence the financial performance of their firms through a favorable impact on the productivity of their female employees.

II.   Relevant Literature

Microfinance institutions are hybrid organizations that pursue several social missions (Pascal et al., 2017; Defourny and Nyssens, 2017; Varendh-Mansson et al., 2019), including financial services for disadvantaged populations, the empowerment of women, and rural development (Battilana and Dorado, 2010; Périlleux et al., 2016; Hudon et al., 2020). The financial cooperatives that we studied are microfinance institutions governed by democratic rules. This makes them more open-minded toward female leaders, which brings a relatively high prevalence of women in leadership positions among them; this was helpful for our investigation of the characteristics of female leadership. By contrast, the leadership of conventional banks, which are largely male-dominated (Petit, 2007), leaves little or no room for gender-balanced boards, let alone women-dominated ones (Özbilgin and Woodward, 2004).

Studies in the corporate finance literature have found that female presence in the boardroom was associated with better financial performance (Kyereboah-Coleman, 2006; Strøm et al., 2014; Adeabah et al., 2019). Yet Adams (2016) stressed that endogeneity prevented researchers from assessing whether the link might be causal. The introduction of

---

[3] Recovery rates are factual indicators, freeing us from collecting either supervisors' subjective perceptions of subordinate performance or market-based indicators, which are typically more volatile than actual productivity (Flabbi et al., 2019).

gender quotas in several countries has provided scholars with opportunities to revisit the consequences of gender diversity in the boardroom. As regards Norway, for example, Matsa and Miller (2013) showed that the implementation of quotas led to fewer layoffs and lower operating profits. In the case of Spain, Reguera-Alvarado et al. (2017) discovered that an increase in female representation in the boardroom had a positive but modest effect on the firm's economic results. Positive impacts were also recorded by Hinnerich and Jansson (2017) in Sweden and by Ferrari et al. (2016) in Italy. However, a multi-country study by Comi et al. (2020) showed that quotas had either a negative or an insignificant effect on firm performance—except for Italy. Empirical studies based on quota-free identification have delivered mixed results as well (Adams, 2016; Kim and Starks, 2016).

While the corporate governance literature is inconclusive as regards the impact of boardroom gender diversity on performance (Krisch, 2018; Manello et al., 2020), role-model theory of leadership can help unpack the connections between leader characteristics and gendered performance. The leadership literature has a long tradition of paying attention to the motivation and performance of subordinates in the workplace. Female leaders can have a decisive impact on the motivation of female workers (Eagly and Carli, 2003; Adams, 2016). This argument relies on the "falling dominoes effect" of leadership proposed by Bass et al. (1987) and fruitfully developed by Mayer et al. (2009) to conceptualize trickle-down in ethical leadership. According to this model, female leaders will influence same-gender employees down the corporate ladder; the latter will tend to wish to please their leaders and imitate their behavior even though there is hardly any reward for doing so. Evidence has shown that female employees were treated better in female-led firms (Cardoso and Winter-Ebmer, 2010; Tate and Yang, 2015) and enjoyed better chances of being promoted (Cook and Glass, 2014). Recent work by Flabbi et al. (2019) has confirmed that female leaders achieve a better performance

when the share of female workers is higher, suggesting that female leaders are better than male leaders at interpreting signals of productivity coming from female workers.

The leadership literature demonstrates the potential of gendered interactions between leaders and subordinates. Evidence shows that female leaders inspire female employees through two complementary channels: role modeling (Sealy and Singh, 2006) and gender affinity (Tsui and O'Reilly, 1989). Role modeling is a multifaceted concept that includes situations where individuals either behave according to the style and values associated with an individual acting as their role model (Ibarra, 1999), or extract various elements from different individuals (Gibson, 2003). Role modeling stems from the desire to magnify the perceived similarity to selected others. In organizations, role modeling stimulates junior female employees to take female leaders as examples (Vinkenburg and van Engen, 2005), which can significantly affect their career progression (Cross et al., 2016). Likewise, female workers in pro-social organizations perform better when they are inspired by the values of same-gender directors acting as role models in the workplace.

Gender affinity is a special case of homophily; it suggests that same-gender superior-subordinate relationships are more effective (Gagliarducci and Paserman, 2015). In this context, leader effectiveness is typically measured by subjective assessments reported by the employees or their colleagues acting as proxies for unobservable worker performance (Chiniara and Bentein, 2016).

Transformational (or charismatic) leaders use values and provide an idealized vision of the organization they serve to energize their subordinates and motivate them (Bass et al., 1987; Waldman et al., 2006). According to Eagly et al. (2003, p. 570), "transformational leadership involves establishing oneself as a role model by gaining the trust and confidence of followers. (…) By mentoring and empowering their followers, transformational leaders encourage them

to develop their full potential and thereby to contribute more capably to their organization."
Evidence shows that transformational leadership fosters trust in teams and has a positive impact
on subordinate performance (Flynn and Staw, 2004; De Luque et al., 2008). Female leaders use
transformational leadership more frequently than their male counterparts (Eagly and
Johannesen-Schmidt, 2007; Eagly et al., 2003). They tend to be less autocratic than their male
counterparts, hence male leadership tends to be viewed as agentic (Rudman and Glick, 2001).
Leadership roles are closely linked to leadership styles and addressing the issue from a gender
perspective makes sense, if only because female stereotypes depart from the managerial
competences expected from corporate leaders (Eagly and Karau, 2002).

In addition, Cuadrado et al. (2012) showed that gender differences in leadership style
involved the genders of both the leader *and* the subordinate. Following gender affinity theory
(Cohen et al., 1998), female employees tend to feel more comfortable with same-gender leaders
(McPherson et al., 2001) and to communicate with them more easily (Ellison and Mullin, 2014).
Evidence concerning French firms led Nekhili et al. (2018) to conclude that the effectiveness
of female leadership depended on the local corporate culture. In organizations aiming to
empower women, the connection between female leaders and female subordinates may even be
reinforced by what Greenbard and Mollick (2017) coined "activist choice homophily," namely
a shared social identity driving a common perception of structural barriers. We therefore
hypothesized that female-dominated boards would lead to an increased performance of all
female employees, both at the top (CEO) and any lower level (credit officers, in our case).

III. Context and Methods

This paper addresses the impact of female directors on financial performance, with observations
carried out within financial cooperatives where the conjunction of a female-dominated board,
a female CEO, and female credit officers was sufficiently prevalent to allow for a statistically

meaningful analysis. Our data set comes from Senegal, a country in West Africa where gender inequalities are relatively weaker than in other developing regions (Deaton, 1997). Yet even in Senegal women have little access to formal financial services (Guérin, 2008), as is generally the case in developing countries (Bruhn and Love, 2011; Chaudhuri et al., 2020). In 1983, however, the Senegalese government introduced a legal form for financial cooperatives in order to empower female borrowers. Even though the new legal structure did not impose any quota, it provided a strong incentive to promote female participation in these cooperatives, including in management teams. It probably explains why our data set includes a number of boards with more than 50% of female directors. This allowed us to conduct a statistical analysis of the impact of gender dominance in the boardroom. In this respect, our study explored unchartered territory.

The organizations that we studied were 36 self-standing financial cooperatives operating in Senegal under the umbrella of the countrywide UM-PAMECAS network, created in 1996 by a Canadian NGO (*Développement International Desjardins*) to supply financial services to the poor—with a strong concern for female participation. These cooperatives are small enterprises (with about ten employees). They organize an annual general meeting that brings members together and elects representatives to three governing bodies: the board, the credit committee, and the supervisory committee. The board is mostly composed of volunteers, its main task being to define the social values of the cooperative and instill them in the CEO and their subordinates, the credit officers. By contrast, HRM is delegated to a third party, namely, the central union overarching the entire network, which provides it with a consistent wage policy.

Over the three-year period under study (January 2007-December 2009), ten of the cooperatives had a female-dominated board—meaning at least 50% of female members—at some point. The cooperatives generally featured a significant number of female employees: 15

out of 36 were led by a female CEO at some point, while 61% of loans were granted and monitored by female credit officers.
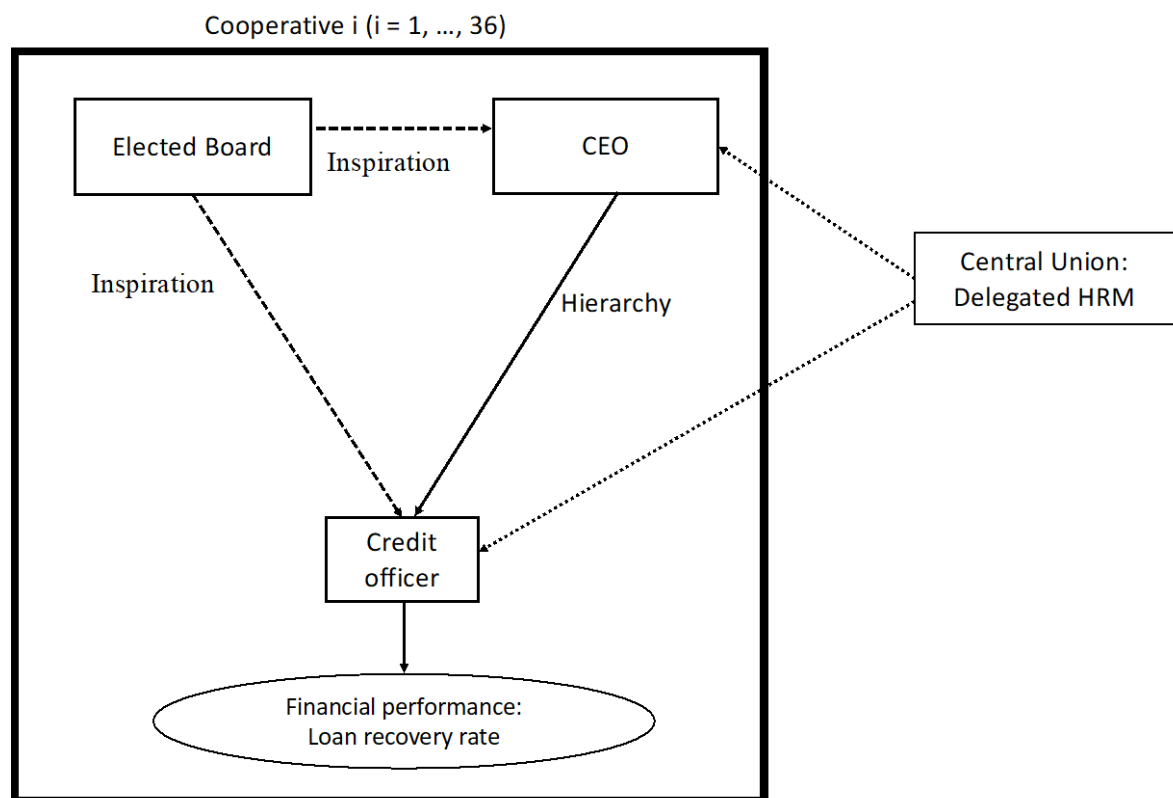
As Figure 1 shows, each cooperative is made up of three groups or individuals: the board, the CEO, and the subordinates. The board is democratically elected by members of the cooperative. Since HRM is delegated to a third party (the central union), the board has no hierarchical power over the CEO and credit officers. Indeed, the central union takes care of hiring, supervising, and promoting the employees of the whole network. Likewise, the central union allocates staff, including CEOs, to the local cooperatives. Thus, the CEO is not appointed by the local board and her career development does not ultimately depend on it, ruling out any hierarchical power of the board over the CEO.

In contrast, the CEO is a professional manager who exercises formal authority over all subordinates (i.e., credit officers), and monitors operational tasks. The hierarchical relationship between CEO and credit officers is strong. Gender aside, CEOs are more likely than board members to adopt a transactional leadership role, since their task involves operational responsibilities, setting objectives, and correcting the actions of subordinates in case of need (Eagly et al., 2003). The cooperative structure also suggests that the main, if not the only, channel of influence of board members is inspirational. Since transformational leaders build on their vision of purpose (Antonakis et al., 2003; Druskat, 1994), their impact is likely to be magnified within democratic organizations such as cooperatives.

We observe only the gender of each employee. One could object to our results on the grounds that the differences we capture might be due to other characteristics, such as the place of origin. This concern is, however, mitigated by the fact that self-selection biases are excluded, since delegated HRM implies that the central union organizes staff allocation, so that employees do not chose their workplaces.

Our financial cooperatives setup helped us overcome three challenges identified by Adams (2016, p. 371) concerning the empirical detection of the benefits of board diversity, namely "data limitations, selection and causal inference." First, data limitations stem from the fact that there are few women on the boards of existing corporations. This concern does not apply to our sample, since we observed an unusual situation where about one-third of board configurations included a majority of female directors. Second, the fact that HRM was outsourced helped us uncover causal linkages, if any, between gender dominance on the board and gender differences in performance.

Figure 1. The Governance Structure of the Financial Cooperatives under Study

Third, regarding the selection issue, the specific governance features of the organizations under study (see Figure 1) enabled us to use an original identification strategy. In our setting, all the cooperatives have an identical corporate structure and identical working arrangements, which is a major asset (Jones and Kalmi, 2015). Hence, we were able to observe variability in triadic gender combinations (board, CEO, and credit officer) while relevant characteristics—

such as the business model, social mission, and HRM—were kept fixed. In addition, we could access disaggregated loan-based data, from which we computed a measurable financial performance (the recovery rate) and thus gained statistical robustness by running regressions at the loan level rather than at the firm level. This approach extends the dyadic analysis developed by Yammarino and Dubinsky (1994), who investigated transformational leadership at the individual level, to triads.

Like the bulk of the microfinance industry, financial cooperatives supply standardized short-to-medium-term loans with a fixed interest rate and rigid repayment schedule (Armendáriz and Morduch, 2010; Périlleux et al., 2016). Within a loan category, loan size is the sole credit condition tailored to the applicant's profile. Each loan is entrusted to a designated credit officer who oversees the follow-up. A notable advantage of relying on data related to lending activity is that one can easily assess financial performance through a standard unit of measure: the recovery rate associated with a loan (La Porta et al., 2003; Dermine and Neto de Carvalho, 2006). The recovery rate takes values between zero and one as follows:

$$Recovery\ rate = \frac{Loan\ size - Loss\ given\ default}{Loan\ size}$$

where the "loss given default" corresponds to debt write-off. To estimate the recovery rate for all the loans in our data set, we considered only loans that had been either reimbursed in full or written off[4]. The recovery rate was used to measure performance; it is explained by gender-related variables and controls.

However, using the recovery rate as dependent variable entails a distributional issue. Since most loans were duly repaid, the recovery rate is truncated at one. We addressed this issue by opting for the same procedure as in Bempong Nyantakyi (2016). Similarly to this setting, in

---

[4] We excluded the 1.1% of observations concerning either group loans or loans managed by more than one credit officer.

which a majority of managers do not receive any bonuses, so that the bonus characteristics of these managers is unobservable, in our sample the default characteristics of borrowers who repay in due time are unknown (see also Sharma and Zeller, 1997; La Porta et al., 2003). Accordingly, the Tobit model is our preferred estimation strategy while running an OLS estimation for the sake of the robustness check (see Appendix B). Tobit is a non-parametric alternative to ordinary least squares, typically used when the dependent variable is continuous but censored or truncated at either end of the distribution (Wry and Lounsbury, 2013). In our case, the recovery rate is right-truncated at one and the Tobit model corresponds to a structural model where the latent variable y^*_{ijkt} is given by:

$$y^*_{ijkt} = \alpha_1 FB_{kt} + \alpha_2 FCEO_{kt} + \alpha_3 FSub_{jkt} + \alpha_4(FB * FCEO)_{kt} + \alpha_5(FB * FSub)_{jkt} +$$

$$\alpha_4 \boldsymbol{X}_{ijkt} + \alpha_5 \boldsymbol{X}_{jt} + T_t + \varepsilon_{ijkt}, \tag{1}$$

where $\varepsilon_{ijkt} \sim N(0, \sigma^2)$ and the recovery rate is y^* if $y^* < 1$ and 1 otherwise. Following Bempong Nyantakyi (2016), our dependent variable is $Y_{ijkt} = log(1 + Recovery\ rate_{ijkt})$ (or the probability of default used for a robustness check in Appendix B), corresponding to the financial performance for loan i granted by credit officer j in cooperative k during month t. FB_{kt} is a dummy variable for a female-dominated board, it equals 1 when the loan is granted by a cooperative whose board is at least 50% female, and 0 otherwise[5]. $FCEO_{kt}$ is the *Female CEO* dummy that equals 1 if the CEO is a woman and 0 otherwise. $FSub_{jkt}$ is the female subordinate dummy that equals 1 if the credit officer is a woman, and 0 otherwise. We also used interaction terms, $(FB * FCEO)_{kt}$ and $(FB * FSub)_{jkt}$, to capture the joint effects of a female-dominated board and a female CEO/subordinate. Gender dominance in the boardroom,

---

[5] In our database, a board member is any elected member of a governing body (board, credit committee, or supervisory committee). We observed the female percentage of elected members in each cooperative, updated four times a year.

the gender of the CEO, and the gender of the subordinate, and combinations of these, are our explanatory variables of interest.

Vectors X_{jt} and X_{ijkt} constitute a set of control variables relating to the cooperative (total assets, and urban or rural), and to the borrower (gender, length of membership, marital status, and business activity) and the loan (type, size, and issuing year), respectively. These variables, routinely used in the microfinance literature, are meant to reduce the omitted-variable bias as much as possible (Beck et al., 2018; Agier and Szafarz, 2013a and b)[6]. ε_{ijkt} is the idiosyncratic error term.

IV.   Data, Results and Discussion

Data

Our hand-collected database includes observations on 107,542 short-to-medium-term loans granted by 36 financial cooperatives from January 2007 to December 2009 and fully repaid, or written off, before July 2010. In all, only 5,848 of these loans were written off, amounting to a fairly high full-repayment rate of 95%. In addition, defaulted loans often led to partial reimbursement, so that the average recovery rate (98%) surpasses the repayment rate. These figures are in line with typical performance levels recorded in the microfinance industry (D'Espallier et al., 2011).

Each loan was managed by a credit officer; they granted the loan and monitored it throughout the reimbursement period[7]. We associated a triad of gender variables with each loan: the gender of the credit officer, the gender of the supervising CEO, and gender dominance on the board. The corresponding gendered picture is summarized in Table 1, while Table 2

---

[6] For example, Adams (2016) mentioned that women were more likely to sit on the boards of larger firms.
[7] Our data set records the name of the credit officer only at the beginning of the process. Informal contacts suggest that it is rare for the officer in charge to be changed.

presents the descriptive statistics for all the variables in the analysis (Table 5 in Appendix A presents the correlation matrix).

Table 1 shows that 32% of loans in our sample are granted by cooperatives with female-dominated boards while 61% of loans are managed by female credit officers—with a slight overrepresentation in cooperatives with male-dominated boards (63% vs. 57%). Female CEOs supervise 27% of loans but oversee significantly more loans in cooperatives with male-dominated boards (35%) than in cooperatives with female-dominated boards (10%). This could be due to the fact that the central unit, which is in charge of HRM, has tended to adopt a "gender diversification" strategy for the top layer of cooperatives, by sending preferably male CEOs to cooperatives with female-dominated boards and vice-versa. The motivation for this strategy has not been fully elucidated, but it could be linked to the perception that female boards are weaker on financial discipline and therefore need a male CEO to enforce it. Although evidence shows that female-dominated boards are indeed more prone to implement a social orientation in lending (Périlleux and Szafarz, 2015), there is no proof so far that they need male CEOs to instill financial discipline. Yet the prevailing stereotype is that female managers have weaker financial skills and authority (Hoyt and Murphy, 2016).

Table 1. Gender Combinations in our Sample

The table shows the number of loans associated with each gendered combination (board-CEO-subordinate) over the full sample (N = 107,542).

Number of loans	Female-dominated board		
	Female subordinate	Male subordinate	Total
Female CEO	2,529	859	3,388
Male CEO	17,311	14,178	31,489
Total	19,840	15,037	**34,877**
	Male-dominated board		
	Female subordinate	Male subordinate	Total
Female CEO	18,027	7,526	25,553
Male CEO	27,575	19,537	47,112
Total	45,602	27,063	**72,665**

Table 2 shows that the borrower's average length of membership of the cooperative is two and a half years. The women-friendly policy of the UM-Pamecas network is attested by a share of 68% of women among borrowers, and 76% of the borrowers are married. The borrower's gender is an important variable in the context of microfinance since the industry claims that female empowerment is a leading motivation (Chaudhuri et al., 2020). Yet the facts are less clear-cut, since gender discrimination has been uncovered for larger loans (Garikipati et al., 2017; Cozarenco and Szafarz, 2018).

Table 2. Descriptive Statistics

Variable	Full sample N = 107,542				Female-dominated board N = 34,877	Male-dominated board[a] N = 72,665
	Mean	SD	Min	Max	Mean	Mean
Dependent variables						
Recovery rate	0.983	0.085	0	1	0.983	0.983
Repayment probability	0.946	0.227	0	1	0.946	0.946
Variables of interest						
Female-dominated board (*FBoard*)	0.324	0.468	0	1	1	0
Female CEO (*FCEO*)	0.269	0.444	0	1	0.097	0.352***
Female subordinate (*FSub*)	0.609	0.488	0	1	0.569	0.628***
Control variables						
Length of borrower membership (in months)	30.43	32.39	0.03	173	27.028	32.072***
Female borrower	0.683	0.465	0	1	0.693	0.677***
Married borrower	0.759	0.427	0	1	0.787	0.746***
Trader	0.496	0.500	0	1	0.479	0.505***
Homeworker	0.127	0.333	0	1	0.177	0.102***
Employee	0.065	0.247	0	1	0.048	0.073***
Self-employed in non-trade sector	0.182	0.386	0	1	0.167	0.190***
Other professional activity	0.130	0.336	0	1	0.129	0.130
Loan size (in EUR)	499	610	23	4,558	468.642	513.84***
Rural or semi-rural cooperative	0.243	0.429	0	1	0.190	0.269***
Total assets (in ten thousand EUR)	186	93.4	25.7	477.9	248.20	157.01***

[a] with t-tests for equal means between female- and male-dominated cooperatives: *** p<0.01, ** p<0.05, * p<0.1

The business activity reported by half of the borrowers is trade, while homeworking is claimed by 13%. Other professional occupations include paid jobs as employees (6%) and self-employed in non-trade sectors (drivers, craftspersons, and farmers). The average loan size is

EUR 499. A typical loan is of a commercial nature and repaid in one year through monthly installments. Cooperatives are either urban (76%) or (semi-)rural (24%); their average total assets amount to EUR 1,860,000.

All cooperatives exhibit similar recovery rates and repayment probabilities, regardless of whether they have a female or male-dominated board. However, they differ in other respects, probably for two reasons. First, our large sample (over 100,000 observations) was able to detect statistically significant differences that can correspond to insignificant economic differences. Second, boards are elected by members of the cooperative, who are likely to prefer voting for same-gender candidates, as observed in political life (Sanbonmatsu, 2002; Dolan, 2014). If so, gender differences in board composition could originate from the gender composition of the cooperative itself. From this perspective, borrowers in cooperatives with female-dominated boards are more likely to be female and to be more fragile in economic terms. The length of their membership is shorter and they are more often willing to benefit from their spouse's credit reputation and guarantee; ultimately, they request smaller loans. Cooperatives with male-dominated boards are more frequently rural and, predictably, have smaller total assets.

Results

Our explained variable is the loan recovery rate. In Appendix B, we report a robustness check for which we used the probability of full repayment as an alternative measurement of financial performance. Table 3 presents the estimation results for the Tobit regressions in Equation (1). Our variables of interest are the components of the triadic gender characteristics. We introduced them progressively. First, we assessed the impact of a female-dominated board on performance, leaving aside the CEO's and credit officer's genders (specification A). In line with our descriptive statistics in Table 2, the coefficient is not significantly different from zero. This

absence of any notable effect resonates with the mixed message from the literature about the impact of female directors on the financial performance of their companies.

Next, in specifications (B) to (D), we included the dummies for a female CEO and a female subordinate. The results suggest that female CEOs have a negative effect on the recovery rate compared to male CEOs. This result is in line with previous studies showing that male leaders were more efficient in positions of formal authority than female ones (Eagly and Karau, 2002). By contrast, female credit officers tended to have a positive impact, which is consistent with the findings of Hartarska et al. (2014) showing that female microcredit officers had better reimbursement records than their male colleagues. Even though these gendered differences are statistically significant, their change in value is limited by the fact that the average recovery rate in our sample is 98.3% (see Table 2). In the microfinance sector, recovery rates are particularly high since the prospect of securing further loans encourages full repayment by borrowers. A small deviation from the high repayment rate can, however, entail significant consequences for the lender's business expectations, and so have real economic implications. Indeed, authors have shown that an increase in the lender's default rate may rapidly induce borrowers to engage in strategic defaulting (Bond and Rai, 2009), which can ultimately lead to a repayment crisis (Goedecke, 2018).

In specification (E), we added the two interaction terms to check how the genders of staff members, be they CEO or subordinate, might moderate gender dominance on the board. According to gender affinity theory, the genders of the CEO and subordinates should modify the impact of female-dominated boards on financial performance. The results support gender affinity, since both interaction terms linking female staff members with a female-led board drove a higher financial performance.

Table 3. Tobit Regressions for Financial Performance: Full Sample Estimates

VARIABLES	(A)	(B)	(C)	(D)	(E)
Female-dominated board (*FBoard*)	-0.00575	-0.0138**	-0.00485	-0.0129**	-0.0416***
	(0.00537)	(0.00544)	(0.00537)	(0.00544)	(0.00859)
Female CEO (*FCEO*)		-0.0347***		-0.0350***	-0.0425***
		(0.00538)		(0.00537)	(0.00573)
Female subordinate (*FSub*)			0.00973**	0.0104**	-0.00179
			(0.00469)	(0.00470)	(0.00587)
*FBoard * FCEO*					0.0520***
					(0.0151)
*FBoard * FSub*					0.0306***
					(0.00981)
Length of membership (in months, in log)	0.0159***	0.0163***	0.0159***	0.0163***	0.0162***
	(0.00141)	(0.00140)	(0.00141)	(0.00140)	(0.00140)
Female borrower	0.0615***	0.0615***	0.0611***	0.0611***	0.0609***
	(0.00529)	(0.00528)	(0.00529)	(0.00529)	(0.00529)
Married borrower	0.0150***	0.0147***	0.0152***	0.0150***	0.0147***
	(0.00507)	(0.00506)	(0.00507)	(0.00506)	(0.00506)
Trader	0.00595	0.00574	0.00548	0.00525	0.00519
	(0.00538)	(0.00538)	(0.00537)	(0.00537)	(0.00537)
Homeworker	0.00386	0.00318	0.00362	0.00293	0.00260
	(0.00809)	(0.00809)	(0.00810)	(0.00809)	(0.00809)
Employee	0.0532***	0.0553***	0.0529***	0.0549***	0.0540***
	(0.00992)	(0.00992)	(0.00992)	(0.00992)	(0.00992)
Loan size (in log)	-0.00869***	-0.00810***	-0.00856***	-0.00795***	-0.00789***
	(0.00284)	(0.00283)	(0.00283)	(0.00283)	(0.00283)
Year fixed effects	YES	YES	YES	YES	YES
Cooperative characteristics	YES	YES	YES	YES	YES
Constant	1.377***	1.391***	1.371***	1.384***	1.386***
	(0.0210)	(0.0211)	(0.0212)	(0.0214)	(0.0214)
Observations	107,542	107,542	107,542	107,542	107,542
Log-likelihood	-17440	-17419	-17438	-17417	-17404
Pseudo R2	0.0792	0.0803	0.0793	0.0804	0.0811

The dependent variable is $Y = log(1 + Recovery\ rate)$. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. The marginal effects evaluated at the sample mean of the explanatory variables are: β_{FBoard} = -0.0003 for specification (A), β_{FBoard} = -0.0007 and β_{FCEO} = -0.0016 for specification (B), β_{FBoard} = -0.0002 and β_{FSub} = 0.0005 for specification (C), β_{FBoard} = -0.0006, β_{FCEO} = -0.0017, and β_{FSub} = 0.0005 for specification (D), β_{FBoard} = -0.0020, β_{FCEO} = -0.0020, β_{FSub} = -0.00008, $\beta_{FBoard*FCEO}$ = 0.0025 and $\beta_{FBoard*FSub}$ = 0.0014 for specification (E).

Comparing the coefficients of *FSub* across regressions reveals that the impact of a female subordinate in the triad on the recovery rate moves from being significantly positive (in specifications C and D) to being insignificant (in E, which includes the interaction term *FBoard * FSub*) This change suggests that the superior performance of female subordinates is fully

attributable to the financial performance associated with the 30% of loans granted and monitored by female credit officers working under the (inspirational) leadership of a female-dominated board. This result is in line with previous findings by Collins et al. (2014), who concluded that communally oriented relationships between subordinates and supervisors had a positive influence on the embeddedness of female subordinates, while agentic relationships had a similar impact on subordinates of both genders.

It has been acknowledged that the screening methodology used by cooperatives exploits qualitative and subjective information more intensively than mainstream banks (Cornée et al., 2020). Therefore, male and female credit officers may well have used distinct (implicit) models of credit risk to screen loan applicants. If so, the congruence of a female-dominated board might be related to the screening methodology rather than to the genders of the credit officer in charge and of the CEO. Moreover, Beck et al. (2018) mentioned that female credit officers tended to grant loans more conservatively than their male colleagues.

Table 4. Tobit Regressions for Financial Performance: Gendered Subsample Estimates

VARIABLES	Subsample A: *female CEO and female subordinate*	Subsample B: *female CEO and male subordinate*	Subsample C: *male CEO and female subordinate*	Subsample D: *male CEO and male subordinate*
Female-dominated board (*FBoard*)	0.0417**	0.00713	-0.00692	-0.0619***
	(0.0169)	(0.0278)	(0.00717)	(0.0124)
Controls	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
Constant	1.343***	1.212***	1.360***	1.459***
	(0.0487)	(0.0517)	(0.0315)	(0.0445)
Observations	20,556	8,385	44,886	33,715
Log-likelihood	-4033	-1575	-6770	-4898
Pseudo R2	0.0777	0.0757	0.0688	0.100

The dependent variable is $Y = log(1 + Recovery\ rate)$. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. The marginal effects evaluated at the sample mean of the explanatory variables are: β_{FBoard} = 0.0025 for specification (A), β_{FBoard} = 0.0005 for specification (B), β_{FBoard} = -0.0003 for specification (C) is, and β_{FBoard} = -0.0023 for specification (D).

To protect our results against endogeneity related to the lending methodology, we recognize the possibility that male and female staff members use different screening methods to assess the creditworthiness of loan applicants. To this end, we ran four separate Tobit regressions with subsamples in which the genders of the CEO and subordinates were fixed. In each regression, the gendered variable of interest boiled down to be the dummy for a female-dominated board. In line with previous results, Table 4 shows that the sign of the coefficient associated with this dummy differs across the four regressions: It is significantly positive when the sample concerns only female staff members (subsample A), significantly negative when the sample is restricted to male staff (subsample D), and insignificant in the two mixed cases (subsamples B and C).

Thus, when both the CEO and credit officer have the same gender, financial performance is affected positively by the presence of an elected board dominated by directors of this gender, and negatively by the opposite gender dominance in the boardroom. When the genders of the CEO and credit officer are different, then gender dominance in the boardroom has no significant impact, regardless of the precise gender combination involved.

Discussion

Our findings suggest that the mixed results concerning the financial performance of women directors presented so far in the governance literature might be due not only to what women do as board members, but also to the pre-existing gender composition of the firm's workforce. The results on gendered subsamples reinforce the hypothesis that female board members exert inspirational leadership on their staff, based on role modeling and gender affinity. Interestingly, they also show that a similar effect is observed in relation to male directors whose work environment is made up of male employees, including the CEO. It is thanks to our unique data set—which includes numerous observations for each possible gendered triad—that it was

possible to uncover the symmetrical impacts of male and female board dominance for the first time.

We theorized gendered interactions between board members and employees by referring to the theory of transformational leadership (Eagly et al., 2003) based on gender affinity (Tsui and O'Reilly, 1989) and role modeling (Sealy and Singh, 2006). But, in contrast to this stream of the literature, we used an objective, rather than subjective, assessment of subordinate performance: We computed the recovery rate associated with the triadic team in charge of granting and monitoring loans. The triad is determined by three gender-related parameters involving the board (gender dominance), the CEO (gender), and the credit officer (gender). This method, inspired by the work of Yammarino and Dubinsky (1994), could be extended to other types of organization where both individual and team performance are trackable. In this way, our contribution opens up new avenues for exploring the impact of director characteristics on financial and non-financial outcomes. This approach is fully in line with the current interest in diversity management and its application to corporate governance.

Remarkably, our findings take place in a context where the board is not involved with HRM, suggesting that the gender impact starts from the employees. This is why we frame our research as a bottom-up approach to the trickle-down effect, and so unpack the still poorly understood mechanism driving the influence of board members on the staff of their firms. While in leadership theory a similar mechanism has been identified for managers, this paper successfully translates it across to boards and corporate governance. We argue that the driving force behind our results is inspirational leadership based on role modeling.

Further work is still needed to assess the generalizability and robustness of our bottom-up interpretation across different types of organization, geographical region, and culture (Wry and York, 2017). Questioning the external validity of our results makes sense since the

microfinance institutions that we studied have a specific governance structure that makes it possible to isolate the effect of inspirational leadership. In organizations with more standard corporate chains of command, such as for-profit firms, the bottom-up effect will inevitably be harder to capture, since it will be difficult to disentangle authority from inspiration. Yet we argue that other identification methods can provide new insights into the generalizability of the bottom-up effect uncovered in this paper; for instance, one could exploit a sudden increase in female leadership associated with an external shock, such as the enforcement of gender quotas, and scrutinize the immediate response of female employees.

V.   Conclusion

The financial consequences, for a firm, of appointing women directors are still unclear. Some authors suggest that the effect is hard to capture because it is non-linear—in the sense that a small minority of women cannot do much about changing the mindset within their firm (Krisch, 2018). The tokenism theory developed by Kanter (1977) and applied to board membership by Konrad et al. (2008) suggests that a critical mass of women is needed to achieve visibly positive outcomes. However, this mass is rarely reached, in particular among small and medium enterprises. Taking this message seriously, we addressed the gendered impact of directors on financial performance from the innovative perspective of gender dominance in the boardroom combined with the gender composition of the workforce. Our results confirm that female-dominated boards achieve a better financial performance when they work with female CEOs and female subordinates.

By bridging corporate governance and leadership theory, we also complement previous work on microfinance institutions by Mersland and Strøm (2009), who showed that female leaders reached superior performance levels. Our theoretical framework relies on conceptual tools borrowed from the literature on leadership and role modeling. While scrutinizing the

performance of female triads, we incidentally captured the fact that all-male triads were also more productive than mixed teams. This result raises the issue of the cost of gender diversity. As Bassett-Jones (2005) showed, diversity in the workplace has its merits but also suffers from drawbacks, such as conflict, misunderstanding, and suspicion, which can entail a loss of competitiveness. In addition, affirmative action and quotas can increase diversity resistance (Dass and Parker, 1999; Thomas, 2008). Even though the financial cooperatives studied in this paper had been pursuing a deliberate pro-women agenda—including at the client level—for more than ten years before the data collection took place, staff/board diversity still tended to reduce profitability, suggesting that diversity resistance is a long-lasting phenomenon.

References

Adams, R.B. (2016). Women on boards: The superheroes of tomorrow? *Leadership Quarterly* 27(3): 371-386, https://doi.org/10.1016/j.leaqua.2015.11.001.

Adams, R.B. and D. Ferreira (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics* 94(2): 291-309, https://doi.org/10.1016/j.jfineco.2008.10.007.

Adeabah, D., A. Gyeke-Dako, and C. Andoh (2019). Board gender diversity, corporate governance and bank efficiency in Ghana: a two-stage data envelope analysis (DEA) approach. *Corporate Governance: The International Journal of Business in Society*, http://dx.doi.org/10.1108/CG-08-2017-0171.

Agier, I. and A. Szafarz (2013a). Subjectivity in credit allocation to micro-entrepreneurs: Evidence from Brazil. *Small Business Economics* 41(1): 263-275, https://doi.org/10.1007/s11187-012-9429-9.

Agier, I. and A. Szafarz (2013b). Microfinance and Gender: Is there a glass ceiling on loan size? *World Development* 42: 165-181, https://doi.org/10.1016/j.worlddev.2012.06.016.

Antonakis, J., B.J. Avolio, and N. Sivasubramaniam (2003). Context and leadership: an examination of the nine-factor full-range leadership theory using the Multifactor Leadership Questionnaire. *Leadership Quarterly* 14: 261–295, https://doi.org/10.1016/S1048-9843(03)00030-4.

Antonakis, J., S. Bendahan, P. Jacquart, and R. Lalive (2010). On making causal claims: A review and recommendations. *Leadership Quarterly* 21: 1086–1120, https://doi.org/10.1016/j.leaqua.2010.10.010.

Armendáriz, B. and J. Morduch (2010). *The Economics of Microfinance*, Cambridge, MA: MIT Press.

Bass, B.M., D.A. Waldman, B.J. Avolio, and M. Webb (1987). Transformational leadership

and the falling dominoes effect. *Group and Organization Studies* 12: 73–87, https://doi.org/10.1177%2F105960118701200106.

Bassett-Jones, N. (2005). The paradox of diversity management, creativity and innovation. *Creativity and Innovation Management* 14(2): 169-175, https://doi.org/10.1111/j.1467-8691.00337.x.

Battilana, J., and S. Dorado (2010) Building sustainable hybrid organizations: The case of commercial microfinance organizations. *Academy of Management Journal* 53(6): 1419-1440, https://doi.org/10.5465/amj.2010.57318391.

Beck, T., P. Behr, and A. Madestam (2018). Sex and credit: Do gender interactions matter for credit market outcomes? *Journal of Banking and Finance* 87: 380–396, https://doi.org/10.1016/j.jbankfin.2017.10.018.

Bempong Nyantakyi, E. (2016). Family ties, firm performance and managerial compensations in African SMEs. *Small Business Economics*, 46: 493–501, https://doi.org/10.1007/s11187-015-9692-7.

Bertrand, M., S.E. Black, S. Jensen, and A. Lleras-Muney (2019). Breaking the glass ceiling? The effect of board quotas on female labour market outcomes in Norway. *Review of Economic Studies* 86(1): 191-239, https://doi.org/10.1093/restud/rdy032.

Bond, P. and A.S. Rai (2009). Borrower runs. *Journal of Development Economics* 88(2), 185-191, https://doi.org/10.1016/j.jdeveco.2008.06.005.

Bruhn, M. and I. Love (2011). Gender differences in the impact of banking services: Evidence from Mexico. *Small Business Economics* 37: 493–512, https://doi.org/10.1007/s11187-011-9377-9.

Bufarwa, I., A.A. Elamer, and C.G. Ntim (2020). Gender diversity, corporate governance and financial risk disclosure in the UK. *Corporate Governance and Financial Risk Disclosure in the UK*, https://dx.doi.org/10.2139/ssrn.3580213.

Campbell, K. and A. Mínguez-Vera (2008). Gender diversity in the boardroom and firm financial performance. *Journal of Business Ethics* 83(3): 435-451, https://doi.org/10.1007/s10551-007-9630-y.

Cardoso, A.R. and R. Winter-Ebmer (2010). Female-led firms and gender wage policies, *ILR Review* 64(1): 143-163, https://doi.org/10.1177%2F001979391006400107.

Carter, D.A., B.J. Simkins, and W.G. Simpson (2003). Corporate governance, board diversity, and firm value. *Financial Review* 38(1): 33–53, https://doi.org/10.1111/1540-6288.00034.

Chapelle, A. and A. Szafarz (2005). Controlling firms through the majority voting rule. *Physica A* 355: 509-529, https://doi.org/10.1016/j.physa.2005.03.026.

Chaudhuri K., S. Sasidharan, R. Seethamma, and N. Raj (2020). Gender, small firm ownership, and credit access: some insights from India. *Small Business Economics* 54(4): 1165-1181, https://doi.org/10.1007/s11187-018-0124-3.

Chiniara M. and K. Bentein (2016). Linking servant leadership to individual performance: Differentiating the mediating role of autonomy, competence and relatedness need satisfaction. *Leadership Quarterly* 27(1): 124-141, https://doi.org/10.1016/j.leaqua.2015.08.004.

Cohen, L.E., J.P. Broschak, and H.A. Haveman (1998). And then there were more? The effect of organizational sex composition on the hiring and promotion of managers. *American Sociological Review* 63: 711-727, DOI: 10.2307/2657335.

Collins, B.J., C.J. Burrus, and R.D. Meyer (2014). Gender differences in the impact of leadership styles on subordinate embeddedness and job satisfaction. *Leadership Quarterly* 25(4): 660-671, https://doi.org/10.1016/j.leaqua.2014.02.003.

Comi S., M. Grasseni, F. Origo, and L. Pagani (2020). Where women make a difference: Gender quotas and firms' performance in three European countries. *ILR Review* 73(3):768-793, https://doi.org/10.1177/0019793919846450.

Cook A. and C Glass (2014) Above the glass ceiling: When are women and racial/ethnic minorities promoted to CEO? *Strategic Management Journal* 35(7): 1080-1089, https://doi.org/10.1002/smj.2161.

Cornée, S., P. Kalmi, and A. Szafarz (2020). The business model of social banks. *Kyklos* 73(2): 196-226, https://doi.org/10.1111/kykl.12221.

Cozarenco, A., and A. Szafarz (2018). Gender biases in bank lending: Lessons from microcredit in France. *Journal of Business Ethics* 147(3):631–650, https://doi.org/10.1007/s10551-015-2948-y.

Cross, C., M. Linehan, and C. Murphy (2017). The unintended consequences of role-modelling behaviour in female career progression. *Personnel Review*, 46(1): 86-99. https://doi.org/10.1108/PR-06-2015-0177.

Cuadrado, I., M. Navas, F. Molero, E. Ferrer, and J.F. Morales (2012). Gender differences in leadership styles as a function of subordinates' sex and type of organization. *Journal of Applied Social Psychology* 42(12): 3083-3113, https://doi.org/10.1111/j.1559-1816.2012.00974.x.

D'Espallier, B., I. Guérin and R. Mersland (2011). Women and repayment in microfinance: A global analysis. *World Development* 39(5): 758–772, https://doi.org/10.1016/j.worlddev.2010.10.008.

Dass, P. and B. Parker (1999). Strategies for managing human resource diversity: From resistance to learning. *Academy of Management Perspectives* 13(2): 68-80, https://doi.org/10.5465/ame.1999.1899550.

Deaton, A.S. (1997). *The Analysis of Household Surveys: A Microeconomic Approach to Development Policy*. Baltimore and London: World Bank Publication, Johns Hopkins University Press.

Defourny, J. and M. Nyssens (2017). Fundamentals for an international typology of social

enterprise models. *Voluntas* 28(6): 2469-2497, https://doi.org/10.1007/s11266-017-9884-7.

Dermine, J. and C. Neto de Carvalho (2006). Bank loan losses-given-default: A case study. *Journal of Banking & Finance* 30(4): 1219-1243, https://doi.org/10.1016/j.jbankfin.2005.05.005.

Dolan, K. (2014). Gender stereotypes, candidate evaluations, and voting for women candidates: What really matters? *Political Research Quarterly* 67(1): 96–107, https://doi.org/10.1177/1065912913487949.

Druskat, V.U. (1994). Gender and leadership style: Transformational and transactional leadership in the Roman Catholic Church. *Leadership Quarterly* 5(2): 99-119, https://doi.org/10.1016/1048-9843(94)90023-X.

Eagly, A.H. and L.L. Carli (2003). The female leadership: An evaluation of the evidence. *Leadership Quarterly* 14(6): 807-834, https://doi.org/10.1016/j.leaqua.2003.09.004.

Eagly A.H., M.C. Johannesen-Schmidt and M.L. van Engen (2003). Transformational, transactional, and laissez-faire leadership styles: A meta-analysis comparing women and men. *Psychological Bulletin* 129(4): 569–591.

Eagly, A.H and M.C. Johannesen-Schmidt (2001). The leadership styles of women and men. *Journal of Social Issues* 57(4): 1540-1560, https://doi.org/10.1111/0022-4537.00241.

Eagly, A.H and M.C. Johannesen-Schmidt (2007). Leadership style matters: The small, but important, style differences between male and female leaders, in D. Bilmoria and S.K. Piderit (Eds), *Handbook on Women in Business and Management.* Cheltenham, UK and Northampton, MA, USA: Edward Elgar, pp. 279-303.

Eagly, A.H. and S.J. Karau (2002). Role congruity theory of prejudice toward female leaders. *Psychological Review* 109(3): 573-598, DOI: 10.1037//0033-295X.109.3.573.

Ellison, S.F. and W.P. Mullin (2014) Diversity, social goods provision, and performance in the firm. *Journal of Economics & Management Strategy* 23(2): 465–481,

https://doi.org/10.1111/jems.12051.

Ferrari, G., V. Ferraro, and P. Profeta (2016), Gender quotas: Challenging the boards, performance, and the stock market. IZA Discussion Paper 10239.

Flabbi, L., M. Macis, A. Moro, and F. Schivardi (2019). Do female executives make a difference? The impact of female leadership on gender gaps and firm performance. *Economic Journal* 129(622): 2390-2423, https://doi.org/10.1093/ej/uez012.

Flynn F.J. and B.M. Staw (2004). Lend me your wallets: The effect of charismatic leadership on external support for an organization. *Strategic Management Journal* 25: 309-330, https://doi.org/10.1002/smj.377.

Gagliarducci, S. and M.D. Paserman (2015) The effect of female leadership on establishment and employee outcomes: Evidence from linked employer-employee data, in Polachek, S.W., K. Tatsiramos, and K.F. Zimmermann (Eds), *Gender Convergence in The Labor Market* (Research in Labor Economics, Volume 41), Bingley, U.K.: Emerald, pp. 343–375.

Garikipati S., I. Guérin, S. Johnson, and A. Szafarz (2017). Microfinance and gender: Issues, challenges and the road ahead. *Journal of Development Studies* 53(5): 641-648, https://doi.org/10.1080/00220388.2016.1205736.

Gibson, D.E. (2003). Developing the professional self-concept: role model construals in early, middle, and late career stages. *Organization Science* 14(5): 591-610. https://doi.org/10.1287/orsc.14.5.591.16767.

Goedecke, J. (2018). Contagious loan default. *Economics Letters*, 170, 14-18. https://doi.org/10.1016/j.econlet.2018.05.028.

Greenberg, J. and E. Mollick (2017). Activist choice homophily and the crowdfunding of female founders. *Administrative Science Quarterly* 62(2): 341-374, https://doi.org/10.1177%2F0001839216678847.

Guérin, I. (2008). Women and money: Lessons from Senegal. *Development and Change* 37(3):

549–570, https://doi.org/10.1111/j.0012-155X.2006.00490.x.

Harjoto, M., I. Laksmana, and R. Lee (2015). Board diversity and corporate social responsibility. *Journal of Business Ethics* 132: 641–660, https://doi.org/10.1007/s10551-014-2343-0.

Hartarska, V., D. Nadolnyak, and R. Mersland (2014). Are women better bankers to the poor? Evidence from rural microfinance institutions. *American Journal of Agricultural Economics* 96(5): 1291-1306, https://doi.org/10.1093/ajae/aau061.

Hinnerich B.T. and J. Jansson (2017). Gender quotas in the board room and firm performance: Evidence from a credible threat in Sweden. IFN Working Paper 1165.

Hoyt, C.L. and S.E. Murphy (2016). Managing to clear the air: Stereotype threat, women, and leadership. *Leadership Quarterly* 27(3): 349-353, https://doi.org/10.1016/j.leaqua.2015.11.002.

Hudon, M., M. Labie, and P. Reichert (2020). What is a fair level of profit for social enterprise? Insights from microfinance. *Journal of Business Ethics* 162: 627-644, https://doi.org/10.1007/s10551-018-3986-z.

Ibarra, H. (1999). Provisional selves: Experimenting with image and identity in professional adaptation. *Administrative Science Quarterly* 44: 764-791, https://doi.org/10.2307/2667055.

Joecks, J., K. Pull, and K. Vetter (2013). Gender diversity in the boardroom and firm performance: What exactly constitutes a "critical mass"? *Journal of Business Ethics* 118(1): 61-72, https://doi.org/10.1007/s10551-012-1553-6.

Jones, D. and P. Kalmi (2015). Membership and performance in Finnish financial cooperatives: A new view of cooperatives? *Review of Social Economy* 73(3): 283-309, DOI: 10.1080/00346764.2015.1067753.

Kanter R.M. (1977). *Men and Women of the Corporation*. New York: Basic Books.

Kim, D. and L.T. Starks (2016). Gender diversity on corporate boards: Do women contribute

unique skills? *American Economic Review* 106(5): 267-271, DOI: 10.1257/aer.p20161032.

Kirsch A. (2018) The gender composition of corporate boards: A review and research agenda. *Leadership Quarterly* 29(2): 346-364, https://doi.org/10.1016/j.leaqua.2017.06.001.

Konrad A.M., V. Kramer, and S. Erkut (2008). Critical mass: The impact of three or more women on corporate boards. *Organizational Dynamics* 37(2): 145–164.

Kyereboah-Coleman, A. (2006). Corporate board diversity and performance of microfinance institutions: The effect of gender. *Studies in Economics and Econometrics* 30(3): 19-33, https://hdl.handle.net/10520/EJC21435.

La Porta, R., F. Lopez-de-Silanes, and G. Zamarripa (2003). Related lending. *Quarterly Journal of Economics* 118(1): 231-268, https://doi.org/10.1162/00335530360535199.

Lafuente, E. and Y. Vaillant (2019). Balance rather than critical mass or tokenism: Gender diversity, leadership and performance in financial firms. *International Journal of Manpower* 40(5): 894-916, http://dx.doi.org/10.1108/IJM-10-2017-0268.

Manello, A., M. Cisi, F. Devicienti, and D. Vannoni (2020). Networking: A business for women. *Small Business Economics* 55(2): 329–348, https://doi.org/10.1007/s11187-019-00300-3.

Mayer, D.M., M. Kuenzi, R. Greenbaum, M. Bardes, and R. Salvador (2009). How low does ethical leadership flow? Test of a trickle-down model. *Organizational Behavior and Human Decision Processes* 108: 1–13.

Matsa, D. A., and Miller, A.R. (2013). A female style in corporate leadership? Evidence from quotas. *American Economic Journal: Applied Economics* 5(3): 136–169, DOI: 10.1257/app.5.3.136.

McPherson, M., L. Smith-Lovin, L., and J.M. Cook (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology* 27(1): 415-444, https://doi.org/10.1146/annurev.soc.27.1.415.

Mersland, R. and R.Ø. Strøm (2009). Performance and governance in microfinance institutions. *Journal of Banking and Finance* 33(4): 662-669, https://doi.org/10.1016/j.jbankfin.2008.11.009.

Nekhili, M., H. Chakroun, and T. Chtioui (2018). Women's leadership and firm performance: Family versus nonfamily firms. *Journal of Business Ethics* 153: 291–316, https://doi.org/10.1007/s10551-016-3340-2.

Orazalin, N. (2019). Board gender diversity, corporate governance, and earnings management: Evidence from an emerging market. *Gender in Management* 35(1): 37-60, https://doi.org/10.1108/GM-03-2018-0027.

Özbilgin M.F. and D. Woodward (2004). 'Belonging' and 'otherness': Sex equality in banking in Turkey and Britain. *Gender, Work & Organization* 11(6): 668–688, https://doi.org/10.1111/j.1468-0432.2004.00254.x.

Pascal, D., R. Mersland, and N. Mori (2017). The influence of the CEO's business education on the performance of hybrid organizations: The case of the global microfinance industry. *Small Business Economics* 49(2): 339-354, https://doi.org/10.1007/s11187-016-9824-8.

Périlleux, A., and Szafarz, A. (2015). Women leaders and social performance: Evidence from financial cooperatives in Senegal. *World Development* 74: 437–452, https://doi.org/10.1016/j.worlddev.2015.05.011.

Périlleux, A., A. Vanroose, A., and B. D'Espallier (2016). Are financial cooperatives crowded out by commercial banks in the process of financial sector development? *Kyklos* 69(1): 108–134, https://doi.org/10.1111/kykl.12105.

Petit, P. (2007). The effects of age and family constraints on gender hiring discrimination: A field experiment in the French financial sector. *Labour Economics*, 14(3), 371–391, https://doi.org/10.1016/j.labeco.2006.01.006.

Reddy, S., and A.M. Jadhav (2019). Gender diversity in boardrooms: A literature review.

Cogent Economics & Finance 7(1): 1644703, https://doi.org/10.1080/23322039.2019.1644703.

Reguera-Alvarado N., P. de Fuentes, and J. Laffarga (2017). Does board gender diversity influence financial performance? Evidence from Spain. *Journal of Business Ethics* 141: 337–350, https://doi.org/10.1007/s10551-015-2735-9.

Rose, C. (2007). Does female board representation influence firm performance? The Danish evidence. *Corporate Governance: An International Review* 15(2): 404–413, https://doi.org/10.1111/j.1467-8683.2007.00570.x.

Rudman, L.A. and P. Glick (2001). Prescriptive gender stereotypes and backlash toward agentic women. *Journal of Social Issues* 57(4): 743–762, https://doi.org/10.1111/0022-4537.00239.

Sharma, M. and M. Zeller (1997). Repayment Performance in Group-Based Credit Programs in Bangladesh: An Empirical Analysis. *World Development*, 25(10), 1731-1742.

Sanbonmatsu, K. (2002). Gender stereotypes and vote choice. *American Journal of Political Science* 46(1): 20-34, DOI: 10.2307/3088412.

Sealy, R. and V. Singh (2006) Role models, work identity, and senior women's career progression. Why are role models important? *Academy of Management Proceedings* 1: E1-E6, https://doi.org/10.5465/ambpp.2006.22898277.

Strøm, R.Ø., B. D'Espallier, and R. Mersland (2014). Female leadership, performance, and governance in microfinance institutions. *Journal of Banking & Finance* 42: 60-75, https://doi.org/10.1016/j.jbankfin.2014.01.014.

Sully de Luque, M., N.T. Washburn, D.A. Waldman, and R.J. House (2008). Unrequited profit: How stakeholder and economic values relate to subordinates' perceptions of leadership and firm performance. *Administrative Science Quarterly* 53(4): 626-654, https://doi.org/10.2189%2Fasqu.53.4.626.

Tate, G. and L. Yang (2015). Female leadership and gender equity: Evidence from plant

closure, *Journal of Financial Economics* 117(1): 77–97, https://doi.org/10.1016/j.jfineco.2014.01.004.

Thomas, K.M. (Ed.) (2008). *Diversity Resistance in Organizations*. Taylor & Francis, New York.

Tsui, A.S., and C.A. O'Reilly (1989). Beyond simple demographic effects: The importance of relational demography in superior–subordinate dyads. *Academy of Management Journal* 32: 402–423, DOI: 10.2307/256368.

Varendh-Mansson, C., T. Wry, and A. Szafarz (2020), Anchors aweigh? Then time to go upstream. Why we need to theorize 'mission' before 'drift.' *Academy of Management Review* 45(1): 230–234, https://doi.org/10.5465/amr.2019.0081.

Waldman, D.A., D.S. Siegel, and M. Javidan (2006). Components of CEO transformational leadership and corporate social responsibility. *Journal of Management Studies* 43(8), 1703–1725, https://doi.org/10.1111/j.1467-6486.2006.00642.x.

Vinkenburg, C.J., and M.L. van Engen, (2005). Perceptions of gender, leadership and career development, in R.J. Burke and M.C. Mattis (Eds), *Supporting Women's Career Advancement: Challenges and Opportunities*. Cheltenham, UK: Edward Elgar, pp. 85-105.

Wry, T. and M. Lounsbury (2013). Contextualizing the categorical imperative: Category linkages, technology focus, and resource acquisition in nanotechnology entrepreneurship. *Journal of Business Venturing* 28(1): 117-133, https://doi.org/10.1016/j.jbusvent.2012.03.001.

Wry, T., and J.G. York (2017). An identity-based approach to social enterprise. *Academy of Management Review* 42(3): 437-460, https://doi.org/10.5465/amr.2013.0506.

Yammarino, F.J. and A.J. Dubinsky (1994). Transformational leadership theory: Using levels of analysis to determine boundary conditions. *Personnel Psychology* 47(4): 787-811, https://doi.org/10.1111/j.1744-6570.1994.tb01576.x.

Table 5. Correlation Matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	Recovery rate	1.00												
2	Repayment probab.	0.83	1.00											
3	*FBoard*	0.00	0.00	1.00										
4	*FCEO*	-0.04	-0.04	-0.27	1.00									
5	*FSub*	-0.01	-0.01	-0.06	0.13	1.00								
6	Borrower's length of membership	0.03	0.03	-0.07	0.14	0.06	1.00							
7	Female borrower	0.05	0.03	0.02	-0.01	0.06	0.02	1.00						
8	Married borrower	0.02	0.02	0.04	-0.06	-0.04	-0.06	0.10	1.00					
9	Trade	0.01	0.00	-0.02	-0.02	0.04	-0.22	0.23	0.09	1.00				
10	Homeworker	0.02	0.01	0.11	-0.02	0.03	0.20	0.25	0.09	-0.38	1.00			
11	Employee	0.01	0.01	-0.05	0.06	0.01	0.02	-0.09	0.00	-0.26	-0.10	1.00		
12	Loan size	-0.02	-0.01	-0.03	0.08	-0.01	0.14	-0.25	0.00	-0.05	-0.09	0.08	1.00	
13	(Semi-)rural coop	0.00	0.01	-0.09	-0.28	-0.23	-0.12	-0.01	0.07	-0.02	-0.05	-0.01	-0.06	1.00
14	Total assets	0.04	0.03	0.46	-0.21	-0.02	-0.06	0.00	0.03	0.02	0.11	-0.03	-0.02	-0.22

Appendix B: Robustness Checks

To assess the robustness of our results, we propose three extensions of the model. First, for comparison purposes, we run OLS regressions where the dependent variable is $Y = log(1 + Recovery\ Rate)$ with robust standard errors to account for heteroscedasticity. The results in Table 6 confirm the baseline results. The only changes concern the loss of significance of coefficients associated to the dummy for a female subordinate in specifications (C) and (D) in Table 6. However, these changes do not affect our conclusions about the importance of gender combination and the fact that the financial performance of female-dominated boards is sensitive to the presence of female staff members along the production chain.

Second, we conduct the Tobit analysis in Table 3 with clustered standard errors. One may wonder why we introduce clustered standard errors in a robustness check rather than in the baseline regressions. The reason is that, in our setting, clustering itself might seem ad hoc because it can be performed at several levels. For instance, clustering standard errors at the credit officer level would be questionable since we wish to test whether a gendered environment affects the lending and monitoring behavior of female officers. If this hypothesis is true, an officer-based clustering might well misleadingly hide behavioral differences in the granting and monitoring of loans. The same holds for female CEOs. Overall, we decided to cluster standard errors at the triad level but keep this refinement for the sake of robustness.

Since each triad (board, CEO, and credit officer) monitors more than one loan, we check the robustness of our results by clustering the standard errors for loans granted during the same month by the same triad—to account for unobserved variance. Tables 7 shows the results, which are close to those obtained in our baseline regressions. The only changes concern the loss of significance of four coefficients in Table 7: the dummy for a female-dominated board in specifications (B) and (D), and the dummy for a female subordinate in specifications (C) and (D). These changes do not affect our conclusions. The main insight of this robustness check is

that the gendered impact of credit officers on financial performance uncovered in previous work (Mersland and Strøm, 2009) might be context-dependent rather than systematic. By contrast, in our setting the negative impact of female CEOs is strong, confirming the role congruity hypothesis (Eagly and Karau, 2002), according to which formal authority is viewed as masculine and is therefore less effective when exercised by female CEOs.

In the third robustness check, we use a specification where the dependent variable is the probability of full repayment.[8] Both the recovery rate used in our baseline estimate and the probability of full repayment are popular performance indicators in banking. However, we preferred to use the recovery rate in our baseline estimates (see Tables 3 & 4) because of its higher granularity, which takes into account the existence and level of partial reimbursements. The recovery rate provides a more accurate picture of the actual cash flow of the lender. Here we use probit models where repayment takes the value of 1 when the loan is repaid in full, and zero otherwise. The results presented in Tables 8 are similar to those obtained with Tobit models explaining $Y = log(1 + Recovery\ rate)$ in the baseline specifications, demonstrating the robustness of our results with respect to how repayment performance is measured. Overall, the robustness checks confirm our previous findings.

---

[8] To circumvent rounding issues, we consider that full reimbursement is completed when 95% of the initial capital has been repaid. To be on the safe side, we checked that the 99% threshold would lead to identical results.

Table 6: OLS Model with Robust Standard Errors

VARIABLES	(A)	(B)	(C)	(D)	(E)
Female-dominated board (*FBoard*)	-0.000671*	-0.00144***	-0.000643	-0.00141***	-0.00330***
	(0.000405)	(0.000407)	(0.000404)	(0.000406)	(0.000679)
Female CEO (*FCEO*)		-0.00365***		-0.00366***	-0.00421***
		(0.000413)		(0.000412)	(0.000448)
Female subordinate (*FSub*)			0.000410	0.000474	-0.000269
			(0.000318)	(0.000318)	(0.000400)
*FBoard * FCEO*					0.00366***
					(0.00109)
*FBoard * FSub*					0.00201***
					(0.000686)
Controls	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES
Constant	0.684***	0.686***	0.684***	0.685***	0.686***
	(0.00138)	(0.00138)	(0.00140)	(0.00141)	(0.00142)
Observations	107,542	107,542	107,542	107,542	107,542
Log-likelihood	169487	169531	169488	169532	169544
R2	0.016	0.017	0.016	0.017	0.017

The dependent variable is $Y = log(1 + Recovery\ rate)$. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 7: Tobit Model with Clustered Standard Errors

VARIABLES	(A)	(B)	(C)	(D)	(E)
Female-dominated board (*FBoard*)	-0.00575	-0.0138	-0.00485	-0.0129	-0.0418***
	(0.00909)	(0.00913)	(0.00907)	(0.00912)	(0.0140)
Female CEO (*FCEO*)		-0.0347***		-0.0350***	-0.0429***
		(0.00887)		(0.00881)	(0.00959)
Female subordinate (*FSub*)			0.00973	0.0104	-0.00193
			(0.00780)	(0.00782)	(0.00968)
*FBoard * FCEO*					0.0524**
					(0.0217)
*FBoard * FSub*					0.0309*
					(0.0169)
Controls	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES
Constant	1.377***	1.391***	1.371***	1.384***	1.390***
	(0.0248)	(0.0259)	(0.0259)	(0.0270)	(0.0273)
Observations	107,542	107,542	107,542	107,542	107,542
Log-likelihood	-17440	-17419	-17438	-17417	-17462
Pseudo R2	0.0792	0.0803	0.0793	0.0804	0.0809
Number of clusters	2803	2803	2803	2803	2803

The dependent variable is $Y = log(1 + Recovery\ rate)$. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 8: Probit Model with Robust Standard Errors

VARIABLES	(A) Repayment probability	(B) Repayment probability	(C) Repayment probability	(D) Repayment probability	(E) Repayment probability
Female-dominated board (*FBoard*)	0.00238 (0.0160)	-0.0168 (0.0162)	0.00533 (0.0160)	-0.0139 (0.0162)	-0.0879*** (0.0253)
Female CEO (*FCEO*)		-0.0836*** (0.0160)		-0.0844*** (0.0160)	-0.106*** (0.0171)
Female subordinate (*FSub*)			0.0312** (0.0142)	0.0327** (0.0142)	0.00230 (0.0177)
*FBoard * FCEO*					0.154*** (0.0450)
*FBoard * FSub*					0.0733** (0.0294)
Controls	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES
Constant	1.924*** (0.0611)	1.959*** (0.0615)	1.902*** (0.0618)	1.936*** (0.0622)	1.943*** (0.0625)
Observations	107,542	107,542	107,542	107,542	107,542
Log-likelihood	-21181	-21168	-21179	-21165	-21154
Pseudo R2	0.0675	0.0681	0.0676	0.0682	0.0687

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