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Women Leaders and Social Performance: Evidence from Financial Cooperatives in Senegal

Anaïs Périlleux and Ariane Szafarz

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JEL Classifications: G20, J54, O16, G34, O55, L31.

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Université Libre de Bruxelles - Solvay Brussels School of Economics and Management
Centre Emile Bernheim
ULB CP114/03 50, avenue F.D. Roosevelt 1050 Brussels BELGIUM
e-mail: ceb@admin.ulb.ac.be Tel. : +32 (0)2/650.48.64 Fax: +32 (0)2/650.41.88

ULB

Women Leaders and Social Performance: Evidence from Financial Cooperatives in Senegal*

Anaïs Périlleux**
Université Catholique de Louvain (UCL)
AXA Fellowship, CIRTES, IRES, and CERMi
3, Place Montesquieu
1348 Louvain-la-Neuve
Belgium
anais.perilleux@uclouvain.be

Ariane Szafarz
Université Libre de Bruxelles (ULB), SBS-EM, CEB, and CERMi
50, av. F.D. Roosevelt, CP114/03
1050 Brussels
Belgium
aszafarz@ulb.ac.be

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** Corresponding author

Abstract

How do women leaders such as board members and top managers influence the social performance of organizations? This paper addresses the issue by exploiting a unique database released by a Senegalese network of 36 financial cooperatives sharing identical governance characteristics and placed under the authority of a central union. We scrutinize the loan-granting decisions, made jointly by the locally elected board and the delegated top manager, whose career is supervised by the central union. Our findings are threefold. First, female-dominated boards favor social orientation in loan-granting. Second, female top managers are not necessarily more socially oriented than their male colleagues. Instead, they tend to align their loan-granting strategy with the preferences of the democratically elected board members. Third, the central union tends to assign male managers to cooperatives with female-dominated boards, probably to curb the social orientation of these boards. Overall, gender is a key factor in considering social performance, but gender interactions appear far more complex than previously thought.

1. Introduction

Worldwide, both the percentage of women sitting on corporate boards and the proportion of female top managers are still well below the share of women in the workforce. This is the case even within the female-oriented not-for-profit sector.[1] Although female participation in leadership roles is often advocated as a significant driver of performance in for-profit firms (Krishnan *et al*., 2005; Smith et *al*., 2006), the way women leaders influence social performance in not-for-profit and hybrid organizations is poorly elucidated. We address this issue by exploiting a detailed database compiled from financial cooperatives in Senegal.

Typically, financial cooperatives are organized into networks of local cooperatives (LCs) placed under the umbrella of a central union (CU). While the level of centralization varies across networks, the common structure involves boards democratically elected at the local level. For corporate governance scholars, financial cooperatives are attractive targets of study since they are made of several entities sharing the same business activity and governance features. In addition, financial cooperatives are hybrid organizations combining banking activities with democratic governance.[2] This unusual combination creates potential trade-offs between financial and social objectives and makes financial cooperatives fertile ground for examining—including from the gender perspective—the behavior of economic agents in leadership positions.[3]

Women leaders are known to differ from men in their management style. They tend to adopt a

[1] Gender imbalances in top management also exist in not-for-profit organizations but are less pronounced than in private companies (Teasdale *et al*., 2011; Lyon and Humbert, 2012).
[2] See Jones and Kalmi (2009) for a worldwide survey of the cooperative sector.
[3]While the mainstream financial sector seems plagued by gender stereotypes (Ogden *et al*., 1985; Petit, 2007), and women access hardly any leadership positions in banks (Özbilgin and Woodward, 2004), financial cooperatives are more open-minded toward female leaders.

more participative, less directive style than their male counterparts (Eagley and Johnson, 1990).[4] Although financial cooperatives are particularly appropriate for addressing the attitude of women leaders, few papers take that stance, probably because exhaustive micro-data is hard to obtain.[5] Exceptions include McKillop *et al.* (2003), who analyze the impact of female participation in Irish financial cooperatives. The authors provide evidence of male predominance in governance bodies. Women are more present in member-interface positions than in strategic and top-management ones. These results are in line with the gender imbalance observed in democratic institutions by Miller *et al*. (1982) and Heenan and McLaughlin (2002). Closer to our topic, Mayoux (2001) studies a Cameroonian network of 22 local LCs. She finds the majority of savers are female whereas women are underrepresented in the governance bodies. Concurrently, female savings are recycled into low-interest loans made to men. The author also points out that women leaders sometimes contribute to gender inequalities. However, the evidence rests upon two female-governed LCs only. By working with a larger network and using time variations of both the composition of the LCs' governing bodies and the characteristics of the loans granted, we deliver a more nuanced—and likely more robust—picture.

The network studied in this paper, *Union des Mutuelles du Partenariat pour la Mobilisation de l'Epargne et du Crédit au Sénégal* (UM-PAMECAS), is one of the largest microfinance institutions in West Africa. It consists of 36 LCs grouped under the authority of a CU. In each LC, loan-granting decisions are made jointly by the locally elected board members and the top manager, whose career is supervised by the CU. Our exceptionally rich panel database allows us to separately evaluate the social performance of board members and top managers.

[4] This analysis was later supplemented by Eagly and Johannesen-Schmidt (2001). Druskat (1994) and Meinhard and Foster (2003) observe similar characteristics in not-for-profit institutions.
[5] Nevertheless, Strøm *et al.* (2014) show that female leadership has a positive impact on the performance of microfinance institutions.

In line with the microfinance literature, we measure social performance by means of average loan size and percentage of female borrowers. Our findings are threefold. First, female-dominated boards favor social orientation in loan-granting. This result is in line with previous evidence on female participation in democratic governance in India (Beaman *et al*., 2011). Second, female top managers are not necessarily more socially oriented than their male colleagues. Instead, they tend to align their objectives on those of the local board, even though their superiors are based at the CU. By prioritizing consensus with board members over social performance, female managers adopt a more democratic behavioral pattern than their male counterparts. Third, the CU tends to send male managers to LCs with female-dominated boards. We interpret this as evidence that the CU management aims to curb social biases that might hinder the consolidated financial situation of the network. Overall, gender is a key factor in considering social performance, but gender interactions appear far more complex than previously thought.

The rest of the paper is organized as follows. Section 2 depicts the situation of financial cooperatives in Senegal from a gender perspective. Section 3 presents our dataset. Section 4 provides regression analysis. Robustness checks are proposed in Section 5. Section 6 concludes.

2. Context

Throughout the developing world, financial cooperatives contribute to female access to financial services.[6] According to Fletschner (2009), of the three major sources of credit in rural Eastern Paraguay (State banks, wholesalers and financial cooperatives), only financial cooperatives serve women. Likewise, Boucher *et al*. (1993) find that Guatemalan credit unions do not suffer from major gender biases, in contrast to other financial institutions, both in Guatemala and worldwide.

Gender inequalities in West Africa are lower than in the rest of the developing world (Deaton, 1997). Senegalese women increasingly engage in economic activities (Guérin, 2001) and control their own incomes (Howson, 2013) while remaining subordinate to men.[7] They are mainly involved in small businesses, and they run about one-third of informal-sector activities. Senegalese women are financially active (Lyons and Snoxell, 2005). They routinely participate in traditional rotating savings and credit associations (ROSCAs), which enable them to borrow and save small amounts of cash.[8] ROSCAs reinforce social capital among members. They also act as an insurance mechanism against financial distress since the members help each other in case of emergency. However, this trend towards economic empowerment is associated with an increase in intra-household tensions (Sow, 2003; Perry,

[6] Although financial cooperatives serve a fairly high share of women, they are surpassed by other types of microcredit providers. In a sweeping analysis of the microfinance sector, Mersland (2009) shows that financial cooperative membership is gender-balanced, with an average of 51.9% women. Nevertheless, microfinance institutions with a for-profit and an NGO status manage to obtain higher rates by serving 55% and 82.1% of female clients, respectively. D'Espallier *et al*. (2011) also stress that NGOs are more likely than financial cooperatives and for-profit microfinance institutions to adopt women-friendly policies.

[7] The situation varies across ethnic groups. Women from originally nomadic groups, such as Peulh and Hall Peular, tend to have fewer responsibilities than those from Wolof and Serere groups (Creevey, 1991).

[8] The ROSCA members meet on a regular basis. In each meeting, the members contribute a fixed amount to a common pot. This pot goes to a member designated in a strict alternation pattern. As a result, the member who gets the pot is a borrower, and the others are savers.

2005). In addition, customary patriarchal norms exclude women from access to both property and formal financial services (Guérin, 2006; Noponen, 1991).

In 1983 the Senegalese government introduced a specific legal status for cooperatives to democratize their structure and empower female members. But the impact of this status is mixed. On the one hand, traditional cooperatives active in agriculture are mostly male-led. As put by Creevey (1991, p.353), "By law, women may join the cooperatives but, in practice, they seldom do." On the other hand, a new generation of financial cooperatives[9] emerged in the wake of the microfinance movement. These organizations pay special attention to women, providing them with specific credit services such as micro-loans and micro-savings opportunities. One of the leading members of this movement is UM-PAMECAS.

The history of UM-PAMECAS helps in understanding its current structure. In 1996 the Canadian institution Développement International Desjardins (DID) undertook a microfinance project to supply financial services to the poor in the suburbs of the Senegalese capital Dakar. This initiative was supported by the Canadian International Development Agency. First, DID set up three LCs and grouped them under a CU to make economies of scale and enhance financial sustainability. In 1998, after a two-year experimental phase, UM-PAMECAS became an official institution. The network grew quickly and extended its activities beyond Dakar, notably into rural areas. The current objective of UM-PAMECAS is to cover the whole country, and it shows strong concern for female participation (Tall Ba and Cissé, 2009).

The governance structure of UM-PAMECAS rests upon a subtle mix of centralization and

[9] To avoid confusing them with traditional cooperatives, the financial cooperatives have a specific name (in French: "Mutuelles d'épargne et de crédit").

decentralization.[10] At central level, the CU takes care of the financial sustainability of the network. At local level, each LC democratically elects its own board. Both the CU and the LCs are legal entities with financial cooperative status. In principle, LCs are free to leave the network; in practice, though, they have limited autonomy. So far, no LC has ever asserted its right to stand alone. Each LC has four governance bodies.[11] First, the LC general meeting brings together all the members annually and elects its representatives to the three other bodies.[12] Second, the LC board has nine elected directors and establishes local policies within the limits drafted by the CU. For instance, it is entitled to set priorities regarding credit recovery, sensitization to cooperative spirit, and gender empowerment. Third, the LC credit committee is composed of five elected members and makes loan-granting decisions on the basis of applications previously analyzed by credit officers. Last, the LC supervisory committee, with five elected members, controls operations and collects opinions and recommendations from LC members.

Human resources are managed at CU level for the whole network. In particular, the CU sends a top manager to each LC.[13] The CU is supervised by two main bodies: the CU board, composed of the local board chairpersons, and the CU supervisory committee, made up of seven representatives elected by the LCs. The CU board determines the strategic orientations for the network. In particular, it decides upon product design, expansion strategy, and network configuration. The CU board appoints an executive committee.

[10] In developed countries, too, decentralization is a key feature of social banks (Cornée and Szafarz, 2014).
[11] As defined by the law, this is the typical internal structure of financial cooperatives in West Africa (Périlleux, 2013)
[12] 100 members need to be present to conduct elections. The sizes of the local governing body are standardized throughout the network. In practice however, these sizes may slightly deviate from their target values due to unexpected circumstances.
[13] Before 2003, the local staff was partly recruited by local boards. Centralization is supposed to ensure that wage policy is consistent and that staff are independent from the local authorities (Tutunji and Serres, 2005).

The loan-granting methodology adopted by UM-PAMECAS is in line with that used by the bulk of the microfinance industry, which typically supplies standardized short-to-medium-term loans with fixed interest rates and rigid repayment schedules (Armendáriz and Morduch, 2010). Since the interest rate is fixed, larger loans are more cost-effective for the lender, given fixed transaction costs (Armendáriz and Szafarz, 2011). Hence, profitability dictates the need to grant larger loans, while social concern points in the opposite direction.

The decisions are made jointly by the LC board and the top manager. The local board logically prioritizes the satisfaction of its membership. According to the CU's vice-president, "the employees are more concerned with the profitability of the network, whereas elected members are more preoccupied by the social performances of their local financial cooperative".[14] Since the staff is managed by the CU executive team, any tensions between financial and social objectives translate into a central-versus-local dynamic.[15] In this context, the next sections analyze the interplay of female/male-dominated boards with female/male managers.

[14] Interview conducted on January 21, 2010.
[15] Desrochers and Fischer (2005) and Nair and Kloeppinger-Todd (2007) confirm that financial cooperatives that are more closely integrated are more financially sustainable.

3. Data and Descriptive Statistics

We use monthly data on all the loans granted by the LCs in the UM-PAMECAS network over the period stretching from January 2007 to May 2010. Altogether, these 36 LCs granted 204,609 loans over the period under study. For each loan we observe the gender of the borrower and the loan size.[16] Our dataset is thus made up of an unbalanced panel of 1,158 monthly observations (36 LCs over 41 months).

Appendix A features detailed information on the LCs, collected in May 2010. Table A1 reveals that 61% of the LCs operate in urban areas whereas the remaining 39% are located in peri-urban and rural areas. The average LC is ten years old and holds total assets of EUR 1.6M. Table A2 provides social characteristics. On average, by May 2010, the LCs were serving 11,200 members, of whom 52% were female. The mean percentage of women in the LC board[17] reaches 32%, whereas 31% of top managers are female.[18]

Around the world, women are poorer than men on average. And Senegal is no exception. To address this reality, UM-PAMECAS has designed a special credit product targeting poor women. So-called AFSSEF[19] loans are offered to women who find it difficult to provide collateral. In addition, UM-PAMECAS proposes various credit arrangements grouped into

[16] We have omitted the few group loans and those for which the sex of the borrower is unclear, leaving us with a total of 193,050 loans.
[17] In our database, a board member is any elected member of a governing body (board, credit committee, or LC supervisory committee).
[18] The typical staff of an LC includes one manager, one chief cashier, four cashiers and three credit officers. The top manager supervises operations, the chief cashier is in charge of accounting, the cashiers take care of financial transactions with members, and the credit officers analyze credit applications and subsequently enforce repayment. Overall, LC staffs are gender balanced. In May 2010, 50% of the LC employees were female. However, women are under-represented in top managerial position.
[19] AFSSEF means "Access to financial services for Senegalese women" (in French: Accès des Femmes Sénégalaises aux Services Financiers).

four categories: small-business loans, personal loans, medium-business loans,[20] and so-called "*in fine* loans" subject to bullet repayment.[21] The credit officers are in charge of directing applicants toward the loan type that fits their needs. Table B1 in Appendix B provides the characteristics and market shares of each type of loan. Once the category is determined, loan size is the sole credit condition tailored to the applicant's profile.

Since it was formed, UM-PAMECAS has shown strong concern for female participation. On average over the study period, women account for 53% of total membership and 65% of borrowers. However, they receive significantly smaller loans.[22] On average, loans to female borrowers are nearly half the size of those granted to their male counterparts. The gender-blind average loan size is EUR 692,[23] while the gender-sensitive averages are EUR 515 for women and EUR 1,025 for men.

Loan allocation depends on the composition of the board. Panel A in Table 1 shows that LCs with female-dominated boards, i.e. with at least 50% female members, serve more women. The average loan size is also affected by the board make-up, but only slightly. These figures are in line with the literature showing that firms with a higher share of women on the board exhibit greater social and ethical orientations (Smith et al., 2001; Bernardi et al., 2009, Krüger, 2010). Logically, female-dominated boards are more likely to be found in LCs with a greater number of female members. The likelihood of having a female manager is much

[20] These typically larger loans require an additional approval by the CU (1.1% of the sample).
[21] *In fine* loans are meant to finance agriculture, stockbreeding, and other activities that generate irregular cash flows.
[22] Agier and Szafarz (2013a) analyze the multiple causes of gendered differences in loan size. Fafchamps *et al.* (2014) exhibit gendered differences in the use of cash versus in-kind grants.
[23] The average loan size represents 50% of the PPP Senegalese GNI per capita in 2010 (WBI, 2011). This is in line with the general average size of financial cooperatives' loans in microfinance, which reaches 51% of the GNI per capita (Périlleux *et al.*, 2012). For readability, we express all monetary figures in euros (EUR). The local currency is the CFA franc (CFAF), the common currency of all member states of the West African Economic and Monetary Union. CFAF has a fixed exchange rate against the euro (EUR 1 = CFAF 655.957).

higher in male-dominated boards than in female-dominate ones (39% versus 20%). This striking fact is further investigated in Table 2.

Table 1: Descriptive Statistics

	Panel A: Gender dominance on the board		Panel B: Manager's gender	
	Female (N = 241)	Male (N = 917)	Female (N = 406)	Male (N = 752)
Share of female borrowers (%)	68.3	64.1***	64.5	65.2
Average loan size	671	697*	765	653***
Share of female managers (%)	19.9	39.0***		
Share of female members (%)	56.4	51.5***	49.5	54.2***
Total assets (in EUR '000)	1,898	1,462***	1,513	1,574

The stars indicate the results of t-tests for equal means between female- and male-dominated boards (Panel A) and between female and male managers (Panel B). *** Significant at the 1 percent level, ** significant at the 5 percent level, * significant at the 10 percent level.

The descriptive statistics disaggregated by manager gender (Table 1, Panel B) contrast with the literature consensus that female managers are more socially oriented than their male counterparts. Compared with males, female managers are associated with fewer loans to women and higher loan sizes. Unexpectedly, female top managers are more frequent in LCs with a higher share of male members. Importantly, Table 1 reveals that the relationship between managers' gender and the gendered composition of LCs and their boards is not random. In Table 2, a Pearson independence test confirms that female managers are significantly more frequently associated with male-dominated boards, and vice versa ($p < 0.01$). This result suggests that the CU makes strategic staff allocations and preferably sends male managers to LCs with female-dominated boards. While the CU hardly influences the board composition, it fully controls the allocation of top managers. Hence, we interpret the outcome of the independence test as evidence that the CU management aims to curb social

biases that might hinder the consolidated financial situation of the network. Further econometric analysis is needed to disentangle the actions of the manager and the LC board.

Table 2: Manager's Gender and Board Composition: Contingency Table

	Male-dominated board	Female-dominated board	Total
Male Manager	559 (595.5)	193 (156.5)	752
Female Manager	358 (321.5)	48 (84.5)	406
Total	917	241	1,158

Expected frequencies in parentheses. Pearson independence test: $\chi^2(1) = 30.65$ ($p < 0.01$)

4. Gender and Social Performance

We ran multivariate analyses to understand how gender dominance in the board and the gender of the top manager impact social performance. Following the tradition of the microfinance literature, we use two typical indicators of social performance (Tchakoute-Tchuigoua, 2010; D'Espallier *et al*., 2013). First, we consider the share of loans allocated to women, which may capture some kind of "gender affinity" rather than pure social orientation. Second, we concentrate on average loan size, which is the typical proxy for depth of outreach and is directly linked to poverty alleviation. The two types of performance are intertwined since women are poorer than men on average.

The regression results are reported in Table 3. For each explained variable, we estimate two specifications. In the first, the explanatory variables include two gender dummies: one for the manager, the other for board dominance. In the second specification, we add the interaction

between the two dummies to account for the dependence identified in Section 3. In all equations, the control variables include the percentage of female members and the LC size proxied by total assets.[24]

We run robust fixed-effect (FE) panel estimation. Controlling for stable LC characteristics, whether observable or not, reduces the risk of biases due to omitted variables. Since our data cover four years only, we perform FE estimation based on mean-differenced data—also referred to as within-estimation (Hausman and Taylor, 1981)—to avoid losing one month of observations, as would be the case had we chosen an FE model in differences. In addition, within-estimation removes panel-level averages from each side of the model, thus eliminating the LC-specific effect. We use the robust option to correct for potential cross-sectional heteroskedasticity and serial correlation.

Let us first examine the estimations of specifications (1) and (2), where the interaction term is absent. Using the share of female borrowers as an indicator of social performance, regression (1) in Table 3 confirms that female-dominated boards exhibit higher social orientation in loan-granting than male-dominated ones. Regression (1) also shows that the share of loans granted to women is not significantly affected by the manager's gender. In line with Agier and Szafarz (2013), we rule out the "gender affinity" hypothesis for the manager. The attitude of female managers contrasts with the behavior of same-gender elected board members, who have a significantly positive influence on the share of loans granted to women. Regression (2) shows that the average size of loans to female borrowers is hardly affected by gender-specific

[24] In the literature, two variables are typically used to proxy financial cooperative size: total assets and number of members. To avoid multicollinearity, only one of these variables may be included in regressions. Here, we have favored total assets, for which we have accurate monthly observations. In contrast, in our database the number of members is updated only a few times a year.

variables. The results from regression (2) suggest that the differences found in Table 1 are mainly attributable to external shocks captured through year dummies.

Table 3. Impact of Women Leaders on Social Performance: Fixed-effect Panel Estimation

	(1) Share of female borrowers	(2) Average loan size	(3) Share of female borrowers	(4) Average loan size
Female-dominated board	0.0196***	-22.32	0.0168**	-16.84
	(0.00718)	(25.48)	(0.00661)	(23.30)
Female manager	-0.00837	-17.16	-0.0384***	42.29**
	(0.0158)	(26.37)	(0.00880)	(17.43)
Female manager * female-dominated board			0.0628***	-124.5***
			(0.0133)	(18.62)
Share of female members	-0.00613	53.78	-0.0336	108.2
	(0.0847)	(180.7)	(0.0794)	(177.7)
Total assets	3.02e-06	0.0568	-1.54e-06	0.0658
	(1.39e-05)	(0.0528)	(1.52e-05)	(0.0513)
Year	YES	YES	YES	YES
Constant	0.678***	569.3***	0.709***	506.5***
	(0.0511)	(134.4)	(0.0488)	(133.9)
Statistics				
N	1,158	1,158	1,158	1,158
F-Stat	19.26***	3.98***	20.57***	21.68***
R^2-Within	0.107	0.0181	0.115	0.0220
R^2-Between	0.126	0.0281	0.0363	0.0872

Robust standard errors reported in parentheses. *** Significant at the 1 percent level, ** significant at the 5 percent level, * significant at the 10 percent level.

Next, specifications (3) and (4) include an interaction term to account for the dependency between the manager's gender and gender dominance in the board. The results resolve the apparent puzzle detected from the descriptive statistics. In both equations, the loading of the interaction term is highly significant and far surpasses that of the female-manager dummy. As a consequence, the empirical results should be interpreted by examining gendered combinations rather than gender-domination in the board and manager's gender separately.

To ease comparisons, Table 4 summarizes the regression results.[25] The benchmark is the

[25] Table C1 in Appendix C features the estimates.

situation of male managers associated with male-dominated boards. In this configuration, changing the manager's gender has a large and negative impact on the share of female borrowers, and a small and positive impact on the average loan size. Apparently, female managers favor loans to men as well as larger loans, but only when these managers are associated with male-dominated boards. In contrast, when the board is female-dominated, the effects are reversed: female managers associated with female-dominated boards serve women preferably, and grant significantly smaller loans than do their male colleagues under the same circumstances. Table 4 also shows that male managers mitigate the social orientation of female-dominated boards. The average loan size granted by male managers is insensitive to gender dominance in the board. Still, the impact of female-dominated boards is visible through the moderately positive impact on the share of female borrowers.

Table 4. Summary of the Results

Board dominance	Manager's gender	Share of female borrowers (SFB)	Average loan size (ALS)
Female	Female	++	--
Female	Male	+	=
Male	Female	--	+
Male	Male	Benchmark	

+ Significantly positive estimate (at the 5 percent level) with moderate size (SFB below 3%, ALS below EUR 50), ++ significantly positive estimate (at the 5 percent level) with high size (SFB above 3%, ALS above EUR 50), -- significantly negative estimate (at the 5 percent level) with high size, = insignificant estimate.

The contributions of female participation to democratic governance in emerging economies are increasingly emphasized in the literature. The most relevant pieces of evidence on this issue come from India, where the 1993 constitutional amendment imposed that at least one-third of the seats in village governments and in the presidential offices should be reserved for women. Chattopadhyay and Duflo (2004) and Duflo and Tupalova (2004) show that in villages reserved for women leaders, public goods are more extensively developed, and bribery is less frequent. The papers suggest that female leaders' action is aligned with the

preferences of women and delivers pro-social outcomes.[26] As stated by Beaman *et al*. (2011, p. 163) "Women who are elected leaders differ from men in significant ways and (…) make different policy decisions." Our results generalize this conclusion to democratic organizations in Africa, but in a quite different context. We observe that female-dominated boards in financial cooperatives in Senegal adopt loan-granting policies that are socially oriented and favorable to female borrowers.

At the same time, our results show that the social performance of women leaders is closely linked to their role in the organization they serve. In financial cooperatives, the behavior of female top managers contrasts with the attitude of women on the board. Our results suggest that female managers align their preferences on those of the majority of board members they work with. They neither prioritize social outcomes nor systematically pursue the financial objective of the CU that appoints them. Rather, they tend to follow the policy rules set by their democratically elected local boards. In contrast, the average loan size corresponding to male managers is insensitive to LC board composition.

An alternative explanation could be that female managers are powerless when associated with a male-dominated board. But this scenario is inconsistent with the facts. Indeed, female managers associated with male-dominated boards grant significantly larger loans than do male managers associated with male-dominated boards. Female managers are thus efficient in their work. Aligning their objectives on those of their local boards is not necessarily a sign of weakness.

[26] According to Ban and Rao (2008), however, this optimistic conclusion is contingent on institutional features. Some adverse environments—such as village ownership by upper castes— might compromise the political performance of female leaders.

The literature provides at least two rationales for the behavioral evidence detected in our analysis. First, Sturges (1999) observes that female managers are less inclined than men to define career success in terms of promotion. Possibly, UM-PAMECAS's female top managers recognize that local authorities are democratically elected. As such, local boards might appear more legitimate than central authorities. Legitimacy is known to be a major driver of female managerial action (Silverman *et al*., 2012). Second, female managers typically adopt a participative style and use their relational skills (Buttner, 2001). When they depart from this gender role model and opt for a more confrontational leadership style, they are judged more harshly than their male colleagues (Korabik *et al*., 1993; Eagly and Karau, 2002), and they may suffer social reprisals (Rudman, 1998). All these arguments could explain why female managers refrain from hurting the feelings of local board members even though the latter have almost no impact on their careers.

5. Robustness Checks

We check the robustness of our results along three dimensions. First, we question the estimation method and run random-effect (RE) estimation instead of FE panel regressions. Second, we check whether gender dominance is really necessary for female board members to bring their social agenda to the fore. To do so, we replace the majority threshold (50%) by 33%. Third, we concentrate on the transitions from male/female managers to female/male managers.

5.1. Random-Effect Estimation

Our baseline regressions in Section 4 use FE panel estimation. This choice was guided by prudence. Unlike RE estimation, FE estimation does not require the assumption that individual effects are orthogonal to regressors. In any case, FE estimates are unbiased and consistent.[27] Still, under the orthogonality assumption, the RE specification is preferable because it provides estimators that are unbiased, consistent, and efficient, whereas the FE estimators are not efficient (Hausman, 1978).

Table 5: Impact of Gender on Social Performance: Random-Effect Panel Estimation

	(1) Share of female borrowers	(2) Average loan size	(3) Share of female borrowers	(4) Average loan size
Female-dominated board	0.0214***	-23.88	0.0181***	-13.37
	(0.00602)	(25.10)	(0.00589)	(22.39)
Female manager	-0.00630	2.240	-0.0270**	58.71**
	(0.0135)	(23.27)	(0.0109)	(23.98)
Female manager * female-dominated board			0.0492***	-140.4***
			(0.0129)	(27.11)
Share of female members	0.0636	-285.9*	0.0418	-214.6
	(0.0969)	(162.2)	(0.0917)	(167.8)
Total assets	4.92e-06	0.0590	2.14e-06	0.0664*
	(1.03e-05)	(0.0408)	(1.11e-05)	(0.0371)
Year	YES	YES	YES	YES
Constant	0.633***	736.9***	0.656***	669.3***
	(0.0543)	(109.7)	(0.0520)	(112.9)
Statistics				
N	1,158	1,158	1,158	1,158
Wald χ^2	162.18***	34.32***	197.42***	134.37***
R^2-Within	0.106	0.0154	0.114	0.0198
R^2-Between	0.202	0.274	0.105	0.277
Hausman Test				
χ^2	4.02	11.39	7.19	13.78
P-value	0.674	0.077	0.409	0.055

Robust standard errors reported in parentheses. *** Significant at the 1 percent level, ** significant at the 5 percent level, * significant at the 10 percent level.

[27] In addition, FE estimation moderates the number of parameters to be estimated and makes it possible to identify time invariant variables (Baltagi, 1995; Hartarska, 2005).

The robust RE estimation results (Table 5) align perfectly with those obtained from the baseline model (Table 3). As testified by p-values in Table 5, Hausman tests fail to reject the RE specifications for regressions (1) and (3), which explain the share of female borrowers. In contrast, the test rejects the RE specification at the 10% level for regressions (2) and (4), which concern average loan size. The exercise suggests that our findings are robust to the estimation method.

5.2. Using the 33% Threshold

To check whether the majority threshold of 50% is necessary for female board-members to bring their social agenda to the fore, we use the threshold of 33% instead of the 50% used in Table 3. Table 6 shows that 33% of female board members is an insufficient proportion to produce any significant impact. This confirms that majorities matter for corporate control (Chapelle and Szafarz, 2005).

Table 6: Impact of Gender on Social Performance: Using the 33% Threshold

	(1) Share of female borrowers	(2) Average loan size	(3) Share of female borrowers	(4) Average loan size
Female-33% board	0.00195	-6.570	0.00237	7.885
	(0.0128)	(24.14)	(0.0137)	(37.96)
Female manager	-0.00636	-20.19	-0.00593	-5.290
	(0.0163)	(27.97)	(0.0183)	(34.17)
Female manager * female-33% board			-0.000775	-26.75
			(0.0208)	(40.94)
Share of female members	-0.00354	51.30	-0.00328	60.28
	(0.0880)	(182.5)	(0.0893)	(182.1)
Total assets	-2.49e-06	0.0629	-2.41e-06	0.0658
	(1.32e-05)	(0.0512)	(1.34e-05)	(0.0513)
Year	YES	YES	YES	YES
Constant	0.686***	561.7***	0.686***	542.4***
	(0.0522)	(132.3)	(0.0549)	(139.3)
Statistics				
N	1,158	1,158	1,158	1,158
F-Stat	16.62***	3.350***	14.86***	3.830***

R^2-Within	0.104	0.0177	0.104	0.0180
R^2-Between	0.0958	0.0289	0.0996	0.0284

Robust standard errors reported in parentheses. *** Significant at the 1 percent level, ** significant at the 5 percent level, * significant at the 10 percent level.

5.3. Transitions from male/female manager to female/male manager

This subsection addresses two concerns. First, we have no other information on the managers besides their gender. One could thus object to our results on the grounds that the differences we capture might be due to other characteristics such as age, education, and place of origin.[28] While our data exclude these characteristics, the problem is mitigated by the fact that all the managers are hired, supervised, and promoted by the same body, the CU executive committee. The managers themselves have little say in their workplace.[29] In this way, we can at least exclude the presence of a self-selection bias.

The second concern relates to the possibility of reverse causality. It could be that LC members react to the manager's gender by voting for opposite-sex board members, rather than the CU sending male managers to female-dominated boards and vice versa. To some extent, the governance features of UM-PAMECAS make this scenario implausible. For the CU, there is a clear strategic motivation to send female managers to male-dominated boards, and the strategy is easy to implement. In contrast, coordinating votes in a board election is difficult. Moreover, the interests of the voting members differ according to whether they are men or women, and whether they need small or large loans. Making the case for reverse causality is difficult since coordination issues are combined with multiple objectives.

[28] Johnson (2014) argues that control variables that make the gender dummy insignificant can merely hide an underlying reality involving gender discrimination.
[29] However, those who are sent far away from their homes are compensated with a premium.

To assess the importance of the manager's gender we examine transitions, i.e. the points in time when a manager is replaced by a colleague of the opposite sex. The problem is that we have few time variations because boards are elected yearly, managers are reshuffled every five years or so, and our observation period is limited to four years. In total, our data include only seven transitions involving a change in manager's gender. Hence, the check is confined to stylized facts.

First and most importantly, we observe that in all board elections taking place in the year following a transition, the board's gender dominance remained unchanged. This suggests that reverse causality is excluded. Second, we scrutinize the two types of social performance (average loan size and share of female borrowers) before and after the transitions. Table 7 summarizes the results in the four possible situations. For each transition we compare the average loan sizes and the shares of females in the six-month periods before and after the change in manager's gender.

Table 7: Transitions from Male/Female Manager to Female/Male Manager

Transitions	Male-dominated board	Female-dominated board	Global mean
M → F Manager	1 case Δ ALS = + 32 Δ SFB = ─ 3%	2 cases* Δ ALS = ─ 77 Δ SFB = + 3.5%	3 cases Δ ALS = ─ 39 Δ SFB = + 1.3%
F →M Manager	3 cases Δ ALS = + 22 Δ SFB = + 0.5%	1 case Δ ALS = + 120 Δ SFB = ─ 0.5%	4 cases Δ ALS = + 46 Δ SFB = + 0.27%

Δ ALS is the difference between the average loan size computed over the six-month period following the transition and that computed over the previous six-month period. Δ SFB is the difference between the share of female borrowers computed over the six-month period following the transition and that computed over the previous six-month period.

* In one of the two cases, we use three-month averages because the transition happened at the very end of the sample period.

The results are given in Table 7. When there is more than one case, we report mean values. The transitions from a male to a female manager are associated with higher social performance. Specifically, the average loan size decreases (-EUR 39), and the share of female borrowers increases slightly (+1.3%). However, LCs exhibit contrasted impacts depending on whether their board is male- or female-dominated. As predicted by our baseline model, in the case where the board is male-dominated, replacing a male manager by a female one was detrimental to social performance (higher loan size, smaller share of female borrowers).

The transitions from female to male manager deliver mixed social performance. We observe an increase in average loan size (+EUR 46) and a positive—but below-one-percent—variation in the share of female borrowers (+0.27%). The increase in average loan size is spectacular in the LC with a female-dominated board (+EUR 120), where the growth rate surpasses 15%. The cases of male-dominated boards are less clear-cut. Although the change observed in the share of female borrowers is in line with the prediction of our baseline model, the small increase in average loan size (+EUR 22) goes in the opposite direction. Overall, most figures are in line with the baseline results summarized in Table 4 (precisely, seven out of eight transition effects). This is a reasonably good performance given that we are dealing with very small numbers.

6. Conclusion

Taking advantage of the double bottom line of financial cooperatives makes it possible to identify separately the policies followed by female-dominated boards and female top managers. First, our results suggest that female-dominated boards favor social orientation in loan-granting. Second, although careers are supervised by the CU, we find that female managers behave in accordance with local authorities' policies. This, in turn, could explain why the central authority is tempted to assign female managers to LCs with male-dominated boards, which are more rigid on financial discipline. Hence, sending female managers to places where men are in the majority on the board is a way of pushing these women to serve the CU's best interests. As a result, our findings partly contradict the common wisdom according to which women are systematically more socially oriented than men under similar circumstances. While female-dominated boards enhance social loan allocation policies, female managers associated with male-dominated boards do not mitigate the financial discipline imposed by the board. In fact, they reinforce it.

Admittedly, our database is limited to a single network of financial cooperatives operating in Senegal. This restricts the external validity of our conclusions. Moreover, cultural characteristics and social norms vary across countries. Further research could investigate how female top managers influence the social performance of hybrid institutions in both developed and developing countries.[30] In addition, the governance of cooperatives is more complex than that of for-profit firms (Cornforth, 2004). In particular, aside from securing the financial sustainability of the whole network, the objectives of the CU are not clear-cut. Therefore it is difficult, if not impossible, to assess whether top managers' behavior is aligned with their

[30] The book "Women in Management Worldwide" edited by Davidson and Burke (2011) offers interesting international comparisons. However, the only African country present in the survey is South Africa.

employer's objectives. The best we could do is compare the on-field interactions of male and female managers with their local board members. Admittedly, this leaves room for further investigation into tensions between social and financial performance from a gender perspective.

Worldwide, not-for-profit and hybrid organizations are typically less reluctant than for-profits to hire female top managers. The sector is also known for producing higher job satisfaction than for-profit firms do (Benz, 2005). So far, these two features have been observed independently. They may possibly be linked. Female managers' tendency to behave consensually can indeed contribute to enhancing overall satisfaction, not only among co-workers but also among members of governing bodies.

Last but not least, our study might have policy implications. Despite a women-friendly orientation associated with democratic principles, the governing and executive bodies of financial cooperatives seem to be predominantly male-dominated, albeit with a significant minority of women involved. In this respect, the figures in our study[31] can be seen as an encouragement to impose quotas, like in Norway (Pande and Ford, 2011), in order to raise the shares of women in leadership positions. However, gender quotas and reservations for women can have drawbacks. One main concern relates to the availability of female leaders, at least in the short run (Adams and Ferreira, 2009). Arguably, this concern is even more acute in developing economies, notably in Africa, than in developed ones.

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[31] Overall, the financial cooperatives under study have 52% of female members, but only 32% of female board members and 31% of female top managers (figures from May 2010).

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Appendix A: LC Characteristics

Table A1: LC General Characteristics (May 2010)

LC	Region	Location	Creation date	Total asset (in EURk)
MEC YD	Rufisque	Rural	1998	901
MEC Bargny	Rufisque	Periurban	1996	1,503
MEC REST	Rufisque	Periurban	1996	989
MEC Plateau	Rufisque	Periurban	1996	1,408
MEC ZOR	Rufisque	Periurban	1996	1,257
MEC MBAO	Pikine	Periurban	1999	975
MEC TG	Pikine	Urban	1999	1,178
MEC DIAM	Pikine	Urban	1996	1,545
MEC ZOMA	Pikine	Periurban	1996	2,011
MEC ZONY	Pikine	Urban	1996	1,714
MEC IB	Pikine	Urban	1997	2,570
MEC GR	Pikine	Urban	1996	1,128
MEC NI	Pikine	Urban	1996	1,629
MEC MAC	Pikine	Urban	2000	1,280
MEC KAW	Guédiawaye	Urban	1996	1,255
MEC ZON	Guédiawaye	Urban	1996	1,503
MEC ZOG	Guédiawaye	Urban	1996	1,444
MEC REL	Guédiawaye	Urban	1997	942
MEC PAG	Guédiawaye	Urban	1996	2,135
MEC OUAKAM	Dakar	Urban	1997	2,593
MEC NGOR	Dakar	Urban	1999	737
MEC SOM	Dakar	Urban	1998	963
MEC BT	Dakar	Urban	1998	2,500
MEC CDGY	Dakar	Urban	1999	2,281
MEC PA	Dakar	Urban	1999	1,661
MEC Y	Dakar	Urban	2006	2,055
MEC MBOUR	Thies	Periurban	2003	3,410
MEC THIES	Thies	Urban	2004	4,758
MEC TIVAOUANE	Thies	Periurban	2004	1,599
MEC Touba	Touba	Urban	2007	1,630
MEC Louga	Louga	Periurban	2006	1,454
MEC Dahra	Louga	Rural	2006	860
MEC Kebemer	Louga	Periurban	2006	945
MEC Saint-Louis	Saint-Louis	Urban	2006	1,212
MECRT Richard-Tall	Saint-Louis	Rural	2006	705
MEC NDIOUM	Saint-Louis	Rural	2006	651
Mean value				1,594

Table A2: LC Social Characteristics (May 2010)

LC	Members		Governance		Loans	
	Total	Share of female members	Share of female board members	Female top manager	Share of female borrowers	Average loan size (EUR)
MEC YD	4,626	0.47	0.32	1	0.49	776
MEC Bargny	12,644	0.52	0.16	0	0.68	433
MEC REST	10,531	0.53	0.32	1	0.53	756
MEC Plateau	9,942	0.57	0.58	0	0.63	721
MEC ZOR	10,037	0.48	0.21	1	0.67	591
MEC MBAO	7,240	0.46	0.36	0	0.70	941
MEC TG	6,519	0.49	0.32	0	0.29	568
MEC DIAM	13,973	0.55	0.71	1	0.55	679
MEC ZOMA	17,184	0.46	0.19	0	0.60	796
MEC ZONY	15,907	0.51	0.53	0	0.68	658
MEC IB	20,212	0.58	0.37	0	0.64	917
MEC GR	9,875	0.51	0.36	0	0.45	825
MEC NI	14,589	0.49	0.17	0	0.75	558
MEC MAC	7,387	0.55	0.18	1	0.58	1,055
MEC KAW	10,737	0.46	0.36	0	0.58	858
MEC ZON	11,758	0.53	0.26	1	0.58	673
MEC ZOG	11,673	0.49	0.21	1	0.64	808
MEC REL	7,121	0.53	0.37	0	0.72	719
MEC PAG	14,560	0.56	0.45	0	0.64	1,369
MEC OUAKAM	13,785	0.47	0.00	1	0.63	970
MEC NGOR	4,147	0.38	0.37[a]	0	0.55	1,072
MEC SOM	8,345	0.47	0.29	1	0.66	784
MEC BT	19,228	0.51	0.17	1	0.57	993
MEC CDGY	18,336	0.50	0.00	0	0.70	908
MEC PA	15,210	0.54	0.33	0	0.74	1,035
MEC Y	5,819	0.38	0.00	0	0.49	1,119
MEC MBOUR	24,055	0.48	0.47	0	0.60	918
MEC THIES	29,825	0.57	0.58	1	0.55	610
MEC Tivaouane	10,772	0.59	0.32	0	0.52	494
MEC Touba	10,857	0.83	0.36	0	0.46	501
MEC Louga	5,569	0.49	0.36	0	0.47	1,002
MEC Dahra	4,141	0.62	0.45	0	0.68	552
MEC Kebemer	4,000	0.51	0.27	0	0.47	576
MEC Saint-Louis	5,634	0.66	0.55	0	0.55	714
MEC Richard-Tall	3,585	0.53	0.10	0	0.58	590
MEC NDIOUM	3,371	0.55	0.45	0	0.60	520
Mean value	11,200	0.52	0.32	0.31	0.59	780

[a]Data from December 2009

Appendix B: Additional Descriptive Statistics

Table B1: Loan Typology

Loan type	Purpose	Share of loan portfolio	Average loan size (EUR)	Average duration (months)	Interest rate
AFSSEF	Specific loans with lower guarantee to facilitate female members access to loans	52.6%	308	12	20%[a]
Small-business	Regular loans for commercial activities	33.1%	813	13	20%
Personal	Loans for personal purpose	10.4%	824	19	20%
Medium-business	Larger loans for small enterprises	1.1%	9,486	22	20%
In Fine	Loans with bullet repayment to finance stockbreeding and agriculture	2.0%	499	8	14%[b]

[a] decreasing balance installments
[b] flat balance installments

Table B2: Correlation Matrix

	1	2	3	4	5	6
Share of female borrowers	1					
Average loan size	-0.20***	1				
Share of female managers	-0.04	0.20***	1			
Female-dominated board	0.18***	-0.04	-0.16***	1		
Share of female members	0.23***	-0.26***	-0.31***	0.28***	1	
Total assets	0.07**	0.15***	-0.04	0.24***	0.12***	1

Pearson correlation coefficients: *** Significant at the 1 percent level, ** significant at the 5 percent level, * significant at the 10 percent level.

Appendix C: Regressions with Gender Combinations

Table C1: Social Performance: Fixed-effect Panel Estimation

	(1) Share of female borrowers	(2) Average loan size
Female-dominated board * female manager	0.0413***	-99.06***
	(0.0119)	(17.59)
Female-dominated board * male manager	0.0168**	-16.84
	(0.00661)	(23.30)
Male-dominated board * female manager	-0.0384***	42.29**
	(0.00880)	(17.43)
Share of female members	-0.0336	108.2
	(0.0794)	(177.7)
Total assets	-1.54e-06	0.0658
	(1.52e-05)	(0.0513)
Year	Yes	Yes
Constant	0.709***	506.5***
	(0.0488)	(133.9)
Statistics		
N	1,158	1,158
F-Stat	20.57***	21.68***
R^2-Within	0.115	0.0220
R^2-Between	0.0363	0.0872

Robust standard errors reported in parentheses. *** Significant at the 1 percent level, ** significant at the 5 percent level, * significant at the 10 percent level.