HUMAN AND SOCIAL CAPITAL OF WOMEN DIRECTORS IN FRANCE

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Abstract

Our research aims at exploring individual's characteristics of women on Boards in the French context. In the first part of our paper, we discuss the different theoretical frameworks which supported the business case of gender diversity on Boards of Directors and expose our hypothesis regarding differences in women and men characteristics. The second part presents our methods, measurements and data. Then, we focus on our empirical study. Our sample consists of the French Index SBF 120 companies. We studied the profile of 1,250 directors collecting information from the firms' annual reports of year 2010, using various scales defined by previous research on that field in the Anglo-Saxon literature. Our findings confirm that integrating women on boards has an impact on the Human and Social Capital of Boards but not as much as might be expected. Men and women board members seem to build their human and social capital through the same educational process in France. Nonetheless, our work shows significant differences between men and women regarding professional experience and board member status.

Keywords: corporate boards; corporate governance; diversity; gender.

Introduction

Women's presence in corporate boards has been slowly increasing in France over the last ten years from about 6% of all seats in 1998 to 10% in 2009 (IFA-ORSE 2009). Following Norway, Québec and Spain, French legislators had been working since 2006 on a law establishing quotas for women on boards, which was passed in January 2011. It promulgated that by 2016, 40 % of board members of the largest listed or non-listed companies (with more than 500 employees and a turnover exceeding 50 million Euros) should be women. As a consequence, female board membership reached 15% in 2010 (Boutant and Garriaud-Maylam, 2010). The increasing presence of women in corporate boards is likely to bring changes to boards' functioning as well as changes regarding women's access to top positions, hence the importance to study the characteristics of present WOCBs[1]: what are their profiles? Do they bring competences, skills and networks which differ from than their masculine counterparts'? Convergent results have been found – on WOCB's age and tenure characteristics for instance – but also contrasted findings regarding their education and business experience. On the latter, although research generally agrees on the fact that they are less often than men CEO's, some studies show that they hold less management experience whereas others show similar business experience. The contrasted findings are partly attributable to differences in the variables measured but also to the various national contexts of studies.

Research on women on boards in France is still scarce (Martin and Pignatel, 2004, Belghiti-Mahut and Lafont; 2010; Moulin and Point, 2012, Nekhili and Gatfaoui, 2012). Our contribution addresses this gap by testing, in the French context, several hypotheses on WOCB's human and social capital derived from existing research through univariate and multivariate regression analysis. Our study focuses on the characteristics of female directors in French large and mid-capitalized companies belonging to the SBF120 stock market index.

This communication is organized as follows. Section 1 provides a review of the literature, in which we firstly discuss the theoretical framework and secondly develop our research hypotheses. Section 2 describes the sample, the measures, and the methods of analysis. Section 3 describes the study's findings. Finally, in section 4, we discuss our results and present the limitation of the study, as well as the suggestions for further research**.**

[1] Women on Corporate Boards

1. Literature review

1.1. Theoretical framework

Although research has mostly been descriptive, two main theoretical perspectives have been used to account for their potential input to firm's performance: agency (Jensen and Meckling 1976) and resource dependency theories (Pfeffer and Salancick, 1978) coupled with human and social capital theories.

1.1.1. Agency theory

Agency Theory provides rationale for increasing the presence of women in boards. It describes the relationship between a principal (*e.g.*, shareholder) and the agent of the principal (*e.g.*, directors and managers) in charge of aligning interests across groups. It stipulates that outside directors will act as good monitors for shareholders' interest. According to Nekhili and Gatfaoui (2013), the gender composition of boardrooms may have an impact on corporate governance to the extent that female directors would be tougher monitors. According to Carter, Simkins, and Simpson (2003), female directors are more likely to raise more questions than traditional directors and gender-diverse boards are more likely to make effort in monitoring. They find a significant positive relationship between the proportion of WOCB and the firm value. Agency theory gives a theoretical basis for analysing WOCB and more specifically the characteristics that differentiate female and male directors as in the insider/outsider status.

1.1.2. Resource dependency theory

According to Resource Dependency Theory (Pfeffer 1972), board linkages provide important resources such as advice/counsel, legitimacy and communication channels. Within this framework, we can examine the effects of WOCB. First, legitimacy can be enhanced by the appointment of WOCB, as it sends a positive message to current women within the organization and to potential recruits. Secondly, in terms of advice and counsel, studies show that compared to homogeneous groups, diverse groups are more likely to provide more alternative solutions to problems and to have different environmental perception. In the resource dependency theory, directors link the firm to its external environment. Hillman et al. (2007) argue that female directors can link organizations to different constituencies other than men. For instance, as women are active consumers, WOCB can bring another point of view in terms of marketing. According to Hillman et al. (2007), WOCB can also link to different customers, current and future employees, as well as important suppliers (such as institutional investors). Therefore, consistent with previous studies on WOCB, we use the resource dependency framework to analyse the characteristics of board members to the extent that female directors probably provide resources that are different than their male counterparts.

1.1.3. Human capital

As Singh et al. (2008) point out, human capital theory (Becker, 1964) provides an interesting basis for analyzing gender's differences among directors. Specifically, human capital deals with individual's education, knowledge, skills and experience, which in turn enhance cognitive and productive capabilities for the individual and the firm. Women who have attain a certain social status such as directorships are likely to have high level of education and relevant experience. To our best knowledge, few studies have analyzed gender board characteristics. Only two studies made a thorough analysis: Hillman et al. (2002) and Singh et al. (2008). Hillman et al. (2002) study, among other things, the human capital of *Fortune* 1000 female and male directors, based on taxonomy of director roles.[2] They find differences in occupational background and education.

[2] Insiders, business experts, support specialists, and influential community members.

Specifically, female directors are more likely to come from non-business backgrounds, and more likely to hold advanced degrees. In the same vein, Singh et al. (2008) investigate the human capital of new board members among FTSE 100 companies. They find that female directors are more likely to possess an advanced diploma (MBA) and to be more international.

1.1.4. Social capital

Coleman (1990) defines social capital as any aspect of social capital that creates value and facilitates the actions of the individuals within a social structure. Applied to directors, social capital concerns three matters: directors' ties to other organizations, personal relationship with firm managers, and social standing. Such social relationships are supposed to affect director's behavior and the board as a whole. French business elite presents two specific patterns. Firstly, most business leaders in France are educated in one of the France's elite schools, the "Grandes Écoles". Their Alumni form and maintain strong networks. Secondly, many of business elite and political leaders have spent their first years on the labor market as civil-servant. The best students of *ENA* or *Polytechnique* systematically join the so-called *Grand corps de l'État*. As a rule and not only in France, attendance to prestigious educational establishments gives legitimacy and reputational advantage.

Apart from education, business networks built through professional experience also potentially provide strong social capital for board members. It is therefore important to examine the educational and professional background of board members, men and women..

1.2. Hypotheses

1.2.1. Director demographics

In this study, key demographics encompass age and education. In general, the literature assumes that these demographics affect director's cognition, behaviors, and more generally the decision-making process. This has *in fine* the effect to influence significantly firm-level outcomes.

Age. Generally, a director's age reflects his (or her) business experience, maturity and background. As highlighted by Terjesen et al. (2009), many studies point out that female directors are younger than their male counterparts. Simpson et al. (2010) in the U.S., and Singh et al. (2008), in the U.K., show that women's average age is respectively 57 and 53 years old, compared to 62 and 57 for male directors. Thus, we propose the following:

Hypothesis 1: female directors will be younger than male directors.

Education. The education level is perceived as affecting director's cognition and decision-making. It is sometimes argued that women lack adequate knowledge for board position. As regards education, research results are mixed. A European study (ORSE-IFA 2009) reveals that male board members would be more numerous to hold business related degrees than their female counterparts. However, US studies reveal that WOCBs hold more advanced diplomas than men. In the UK, Singh et al. (2008), in their study of new directors of the *FTSE* 100 firms, find that women are more likely to have MBA degrees than men.

As emphasized by Hillman et al. (2002), education represents for women a key resource for securing recognition of her achievement and her expertise. Having a college degree indicates a basic level of expertise; a graduate degree denotes more credibility and a certain degree of expertise; finally, a doctorate degree represents the highest level of knowledge.

Hypothesis 2: Female directors will be more likely to have higher educational qualifications than will men directors.

1.2.2. Professional background

Characteristics related to human capital include generally the skills and the experience that an individual director brings to the decision-making process to the board of directors. These can range from knowledge of an industry, experience as a CEO, etc. In this study, professional background characteristics encompass: (a) expertise profiles; (b) functional background; (c) insider/outsider status of director, and (d) board tenure.

Expertise profiles. As Hillman et al. (2002) point out, each director brings a unique set of resources to the organization and to the board of directors. According to the Resource Dependency theory, a variety of director's expertise profiles enhances the expertise of the board of directors, as well as the linkages to other organizations. Based on this, the literature differentiates "Business experts" – CEOs or senior managers in large firms who provide knowledge in business environment and management-, from "Support specialists" – who bring specialized knowledge in law, banking, marketing, etc. – and "Community influentials" – who have non-business perspectives on issues and relationships with groups in the community. This category of directors includes politicians, university representatives and other community leaders.

Hillman et al. (2002) found that female directors are more likely to come from non-business backgrounds. This is confirmed, also in the US context, by Simpson et al. (2010). In Singh et al. (2008) UK study, females directors were significantly less likely to be Executive Directors but were no less likely than males to be business experts. Women were, however, more likely to be support specialists. Finally, a Canadian study (Dunn, 2012) highlighted that women who are appointed to all male boards are more likely to be support specialists with a specific financial or legal expertise.

Hypothesis 3: Female directors will be more likely to hold Support specialist and Community influential profiles than will be men directors.

Functional background. Functional expertise of directors also pertains to their human capital in a slightly different manner than the previous variable however since it directly influences their skills and competences: CEO and COB experiences are particularly appreciated among board members along with line management functions. Experts and staff functions provide specialised knowledge. Previous studies show that women are less likely to be CEO or COB of the company for which they serve as a director than men. They also seem to be coming more frequently than men from staff functions (ORSE 2009).

Hypothesis 4: Female directors will be more likely to hold non-management background than will be men directors.

Insider versus outsider experience. Corporate boards' members can have different function in the board. Whereas insiders are usually employed by the firm and offer specific knowledge, independent or outside directors provide independent monitoring and control. In the European context, it is worthwhile to distinguish, among insiders, the family shareholders' representatives and the employees' representatives in case of employees' stock ownership plans. In the US literature on women in boards, women are more likely to be independent directors. This is also the case in Switzerland (Ruigrock et al, 2007).

Hypothesis 5a: Female directors will be more likely to independent directors than will be man directors.

Regarding Family-owned firms, studies show that women are more numerous in the boards of family-controlled firms, which would mean that female directors are more frequently than men recruited within families (Moulin and Point 2012).

Hypothesis 5b: Female directors are more likely to be Family owners' representatives than will be men directors.

Last, a European study states that women are particularly numerous in German boards due to their pre-eminence among employees' representatives (Orse 2009).

Hypothesis 5c: Female directors will be more likely to be Employees' representatives than will be men directors.

Board tenure: According to the last figures presented in the AMF[3] report issued in October 2012, 21% of directors have a minimum of 3 board tenures and 9% a minimum of 5. Women being quite newcomers in boards and experience being one of the recruitment criteria, they might have less board tenure than their male counterpart.

Hypothesis 6: Female directors will have less tenure in boards than men directors.

1.2.3. Status/prestige of education

According to Terjesen et al. (2009), women must provide more evidence than would her male counterparts to be perceived as high-achievers. The question can thus be raised whether female directors attended more frequently than men an elite school. Singh et al. (2008) showed that newly appointed women were more likely to hold degrees from elite educational institutions than men. We may expect similar results in the French context, which grants particular importance to the educational background and is characterized by the "Grandes Écoles" elitist system.

Hypothesis 7: Female directors will be more likely to come from elite schools than will men directors.

Grands corps

This French specificity accounts for traditionally strong links between large firms' boards and the French Government. Due to the predominance of science and engineering schools in these "Grands Corps", we expect women to be less likely than men to belong to them.

Hypothesis 8: Female directors will be less likely to belong to the "Grands Corps" than will be men directors.

2. Methodology

2.1. Sample design

The initial sample of this study consists of the 120 French companies that make up the SBF 120 index at the end of the fiscal year 2010 (at December).[4] Consistent with Jeanjean and Stolowy (2009), this study includes both boards of directors (*conseils d'administration*) and supervisory boards (*conseils de surveillances*). Indeed, the French legal system allows firms to have a one-tier or a two-tier board structure (which includes the supervisory board and a management board called the "Directoire").

We collect board of director information from the firms' annual report (*document de reference*) and website. In the same was as Ahern and Dittmar (2012), we hand-collected the director's name, gender, age, nationality, education, occupation, functional background, executive ranking, and year first appointed to the board. Consistent with Hillman et al. (2007) and Ahern and Dittmar (2012), we identify the director's gender through four steps: first, we use the annual report which often provides this information (in the biography section). Second, we use the gender-specific pronouns such as "she" or "he". Similarly, we resort to the form of address: "Mr." and

[3] AMF stands for *Autorité des Marchés Financiers*, which means Financial Market Authority. It is the stock market regulators in France.

[4] SBF stands for "Société des Bourses Françaises", which means Society of French stock exchanges.

"Mrs." Third, we use the first name of director to determiner her of his gender (*e.g.*, Jacques = man and Sophie = woman). Forth, we "Google" any ambiguous director.
Our final sample consists of **120** firms; **1,250** directors; and **11,474** observations for the fiscal year 2010.

2.2. Measures

Female board representation. Following Bilimoria and Piderit (1994a) or Zelechowski and Bilimoria (2004), among others, we measure the director's gender through a dummy variable, with 0 representing women and 1 representing men.

Age. Director age is operationalized as a continuous measure.

Education. Consistent with Wiersema and Bantel (1992) and Westphal and Zajac (1995), education background is divided into four categories: (a) less than a bachelor's degree; (b) less than a master's degree (*e.g.*, Bachelor's degree or below); (c) less than a doctoral degree (*e.g.*, Master's degree or other postgraduate degrees); and (d) a doctoral degree (*e.g.*, PhD or other comparable degree such as lawyer or Certified Public Accountant/ chartered accountant).

Director expertise profile. Director's occupation is coded on the resource-dependence categories suggested by Hillman et al. (2000) and Hillman et al. (2002). We take up their classification: (a) *business experts* are current and former senior officers of for-profit firms; (b) *Support specialists* include members of the financial community, insurance, public relations and marketing professions; and (c) *Community influentials* include academics, politicians, clergy, heads of non-profit foundations and other community or social celebrities, p. 754).

Functional background. Consistent with Hambrick, Cho, and Chen (1996) and Zelechowski and Bilimoria (2004), among others, we define six functional background categories: (a) CEO, COO, and Chairman of the board; (b) Officer/Manager; (c) Expert; (d) Staff (non-operational, support or service functions, such as legal, human resources, communication, or public relations); (e) line (core operations of the firm, such as manufacturing, marketing, and finance); and (f) miscellaneous (*e.g.*, professor, politician, etc.).

Director type. Following Hermalin and Weisbach (1988) or Byrd and Hickman (1992), among others, each director is classified as either outsider (non-executive director – NED) or insider (executive director – ED). Independent outsider directors include those directors who have no affiliation with the firm other than their role as director. Inside directors are typically senior managers of the firm (*e.g.*, CEO or others officers of the firm). Also included in this category are affiliated outside directors, such as investment bankers, major customers or suppliers, particularly directors representing major shareholders. Indeed, on the one hand, Code of Governance (*Bouton* Report in France, *Higgs* in the UK or the *Sarbanes-Oxley* in the US) recommend considering those directors as non-independent. On the other hand, against a backdrop of high ownership concentration, especially in Europe , the conflict of interest does not lie between the manager and the shareholders, but rather between minority and majority shareholders.

However, binary classification, in the French context, may be imperfect to classify a director's type (as insider or outsider). Indeed, as Sraer and Thesmar (2007) point out, 60% of French listed companies are still held by family. Also, a "family" director is an individual who has links with the founding family or the current officer (spouse, niece, etc.). Another special feature of French board of directors is the presence of employee-elected board members. In France, the law mandates their presence when employees hold 3% of the capital. Some employee-elected director may be a woman. We therefore distinguish this specific category of director, in order not to over-

estimate the number of insiders. Director type is measured as a dichotomous variable (for the four categories listed).

Board tenure. It is measured in years.

Elite education. Inspired by the work of Bond et al. (2010) we use a dichotomous variable that takes the value 1 if the director attended a French or and international institution and 0 otherwise. To define these elite institutions, we refer, on the one hand, to the work of . On the other hand, we use the *Academic Ranking of World Universities* (ARWU) in 2010 compiled by the *Shanghai Jiaotong University*. The list of selected elite institutions is provided in the Appendix.

"**Grands corps de l'État"**. In line with Nguyen, 2011, the *Grands corps* exclusively refer to: (a) the *Conseil d'État* (the Council of State); (b) the *Cour des comptes* (Court of Auditors); (c) the *Inspection générale des finances* (General Inspection of Finances); (d) the *Corps des Mines* (State Engineers of the Mines); (e) the *Ingénieur des ponts, des eaux et des forêts* (State Engineer of bridges, water, and forests); (f) the administrateurs of l'Insee (French National Institute for Statistics and Economic Studies); and (g) the*corps des ingénieurs de l'armement* (military engineer of weapons). We use a binary variable with 1 if the director held a position in a *Grands corps* and 0 otherwise.

2.3. Data analysis

In order to analyze how female and male directors on French corporate boards differ in terms of demographics, human capital, and social capital, we use, like Ruigrok et al. (2007), two methods of analysis. On the one hand, consistent with Hillman et al. (2002) and Singh et al. (2008), we use Chi-square analysis for the purpose of testing of our hypotheses. We use a logistic regression to the extent that this type of regression analysis is particularly appropriate when the dependent variable is a binary variable, and when the independent variables are a mixture of dichotomous (education, expertise, profile, functional background, insider/outsider status, elite school/institution, and *Grands corps*) and continuous (age and board tenure) variables . Like Hillman et al. (2007), in order to facilitate the understanding of study results, we use odds ratio rather coefficients. Odds ratio represents the change in the likelihood of a dependent variable arising from a one-unit change in the independent variable.

3. Results

3.1. Univariate analysis

Hypothesis 1 predicts that female directors are more likely to be younger than their male counterparts. Row 1 of Table 1 presents the descriptive statistics and the results of the Chi-square test. The average (mean) age of female directors is 53.57 (53.00) years, while the average age for men is 59.48 (61.00) years. Ages range from 30 to 88 form women compared to 31 to 86 for men. In our sample, female directors are significantly younger than their male colleagues. Indeed, the difference in age is significant at $p < 0.001$. Thus, hypothesis 1 is supported.

Row 2 of Table 1 also presents the results of hypothesis 2, that female directors will be more likely to have higher educational background than will men directors. This Table yields conflicting results: firstly, the difference in education across groups is significant at $p < 0.005$; secondly, approximately two-thirds of female directors have a master's degree (65.43%), compared with less than 60 percent for male directors (59.75%). The difference is not significantly at conventional levels; thirdly, 21.60% of female directors have a Ph.D. or its equivalent compared with 32.94% for their male colleagues. The chi-square test is 8.48 with *p* value of 0.004. Thus, male directors are more likely to have a doctoral degree than their female counterparts; fourthly, the

proportion of directors having at least a master's degree is significantly higher among male directors than female directors, respectively 92.69% and 87.04% ($\chi^2 = 6.20$ with *p* value 0.013). Taken together, hypothesis 2 is not supported.

Table 1 – Director demographics

	Characteristic	Male	Female	*p*	Value
1	Age (n = 1,268 et n = 178)	59.48 (61.00)	53.57 (53.00)	0.000	32.06
2	Education (n = 1,190 et n = 162)				
	Less than a bachelor's degree	3.70% (44)	5.56% (9)	0.253	1.31
	Less than a master's degree	3.61% (43)	7.41% (12)	0.022	5.26
	Less than a doctoral degree	59.75% (711)	65.43% (106)	0.165	1.92
	Doctoral degree	32.94% (392)	21.60% (35)	0.005	8.48
	Statistic	*p*	value		
	Chi-square	0.005	12.87		

Hypothesis 3 predicts that female directors are more likely to be support specialists and community influentials than male directors. Row 1 of Table 2 presents the results related to this hypothesis. As predicted, female directors are more likely to be community influentials and support specialists than their male directors, respectively 14.61% and 44.94%, compared with 7.5% and 37.51%. The difference is significantly at $p < 0.002$ (*p* value = 11.39 and 5.10). The male directors are far more likely to come from business background (54.78%) than their female colleagues (40.45%). The chi-square test is 11.04 with *p* value of 0.001. Therefore, hypothesis 3 is supported.

Hypothesis 4 predicts that female directors are more likely to hold non-management background. To test this hypothesis, we consider that management functions encompass the following positions: CEO, COO (Chief Operating Officer), and Chairman of the board, officer/manager, and line functions; while non-management backgrounds include expert, staff, and miscellaneous functions. The row 2 of Table 2 reveals that approximately 30% of female directors have a non-management function, compared with nearly 21% for male directors. The difference across functional background is significant at $p < 0.007$.Therefore, hypothesis 4 is supported.

Hypothesis 5 assumes that female directors are more likely to be: (a) independent; (b) family owners' representatives; and (c) employee-elected board member, than their male counterparts. Row 3 of Table 2 presents the results. Firstly, a Chi-square of differences regarding the insider/outsider status reveals it statistically significant across categories. Secondly, female directors have significantly an outsider (or NED) status than their male colleagues (61.80% for women compared with 43.14% for men). The difference is significant at $p < 0.000$ (*p* value = 42.02). Consequently, hypothesis 5a is supported. Thirdly, approximately 10 percent of female directors have families ties, compared with less than 5 percent for male directors. The Chi-square test is 62.77 with *p* value of 0.000. This therefore means that female directors are more likely to have family affiliation than their male colleagues. Consequently, we validate hypothesis 5b. Fourthly and finally, row 3 of Table 2 shows that there are merely three times more directors employees' representatives among female (9.55%) than among male (3.39%). The difference is significant at the 1% level (p value = 14.98). Thus, hypothesis 5c is supported.

Row 4 of Table 2 shows that the average (median) board tenure is 3.73 (2.00) years for female directors, compared with 5.63 (4.00) years for male directors. The years of female service is significant less than the years of male services ($\chi^2 = 26.65$). Hypothesis 6 is supported.

Table 2 – Director's human capital

	Characteristic	Male	Female	*p*	Value
1	Expertise profile (n = 1,265 and 178)				
	Business experts	54.78% (693)	40.45% (72)	0.001	11.04
	Support specialist	37.51% (477)	44.94% (80)	0.024	5.10
	Community influential	7.51% (95)	14.61% (26)	0.001	11.39
	Statistic	*p*	value		
	Chi-square	0.000	12.87		
2	Functional background (n = 1,265 and n = 177)				
	CEO, COO, and Chairman of the board	44.19% (559)	27.68% (49)	0.000	17.35
	Officer/Manager	33.68% (426)	38.42% (68)	0.213	1.55
	Expert	13.75% (174)	10.73% (19)	0.269	1.22
	Staff	1.42% (18)	8.48% (15)	0.000	34.53
	Line	1.19% (15)	3.96% (7)	0.005	7.92
	Miscellaneous	5.47% (73)	10.73% (19)	0.011	6.41
	Statistic	*p*	value		
	Chi-square	0.000	59.65		
3	Insider/outsider status (n = 1,268 and n = 178)				
	Outsider (or NED)	43.14% (547)	61.80% (110)	0.000	42.01
	Insider (or ED)	49.37% (626)	18.41% (33)	0.000	62.77
	Family affiliation	4.10% (52)	10.11% (18)	0.002	12.35
	Employee-elected board member	3.39% (43)	9.55% (17)	0.001	14.98
	Statistic	*p*	value		
	Chi-square	0.000	70.44		
4	Board tenure (n = 1,266 and n = 179)	5.63 (4.00)	3.73 (2.00)	0.000	26.65

Hypotheses 7 and 8 assume, on the one hand, that female directors are more likely to graduate from elite schools (*Grandes Écoles*) in the French case or from elite institutions for foreign women. On the other hand, the female directors are less likely to be civil servants (*Grands corps de l'État*) than male counterparts. Table 3 presents the statistics and the results of a Chi-square test. Although the proportion of female and male directors graduate from elite schools/institutions is relative close (respectively 54.75% and 58.62%), the difference is significant at $p < 0.022$. There are significantly more graduated from elite schools/institutions among male directors than female directors. Therefore, we reject the hypothesis 7. On the other hand, we validate the hypothesis 8 to the extent that the difference regarding the civil service is statistically significant at $p < 0.005$ (*p* value = 26.65).

Table 3 – Social capital characteristics

	Characteristic	Male	Female	*p*	Value
1	Elite institution (n = 1,271 and 179)	58.62%	54.75%	0.022	5.26
2	Grand corps de l'État (n = 1,271 and n = 179)	12.20%	5.03	0.005	8.03

3.2. Multivariate analysis

Table 4 provides standard deviations and correlations for directors' characteristics for the fiscal year 2010. Women hold approximately 11.91% of the SBF 120 board seats.
We control possible multicollinearity by running OLS (Ordinary Least Squares) regression to generate variance inflation factors (VIF). We notice that none of our variables has a value that exceeds 10. Moreover, the average values of the VIFs are significantly different from one. This allows us to be confident regarding the absence of multicollinearity.

Table 4 – Matrix of correlation

Variables	*1*	2	3	4	5	6	7	8	9	10	11	12	13
1. Gender													
2. Age	-0.203*												
3. Master	0.040	-0.079*											
4. Ph.D.	-0.079*	0.036	-0.843*										
5. Support	0.041	-0.201*	-0.001	0.011									
6. Community	0.093*	0.129*	-0.127*	0.088	-0.242*								
7. Non-management	0.074*	0.101*	-0.086*	0.026	0.094*	0.405*							
8. Outsider	0.143*	0.203*	0.010	0.016	-0.042	0.092*	0.111*						
9. Family	0.081*	-0.077*	0.007	-0.091*	-0.059*	0.008	0.008	-0.208*					
10. Employee	0.075*	-0.106*	0.030	-0.088*	0.132*	-0.032	0.123*	-0.149*	-0.035				
11. Board tenure	-0.127*	0.273*	-0.007	-0.030	-0.073*	-0.032	-0.011	-0.139*	0.230*	-0.024			
12. Prestige	-0.010	0.029	-0.038	0.205*	0.007	-0.043	-0.081*	0.116*	-0.154*	-0.154*	-0.032		
13. Grands corps	-0.074*	0.007	-0.114*	0.182*	-0.021	-0.057*	-0.106*	-0.002	-0.083*	-0.060*	-0.046*	0.247*	

$p < .05$

According to Sharma (1996), when we analyze the relationship between a dependent binary variable and a set of independent variables, one can use a logistic regression. Consistent with Bilimoria and Piderit (1994a), we use a logistic regression to analyze the differences between female and male directors' characteristic. Our specification can be described as follows.

$$\text{logit (p)} = \ln\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 \textit{Age} + \beta_2 \textit{Master} + \beta_3 \textit{Ph.D.} + \beta_4 \textit{Support} + \beta_5 \textit{Community} + \beta_6 \textit{Miscellaneous} + \beta_7 \textit{Outsider} + \beta_8 \textit{Family} + \beta_9 \textit{BoardTenure} + \beta_{10} \textit{Prestige} + \beta_{11} \textit{GrandCorps} + \varepsilon \quad (1)$$

Where ln is the natural logarithm; p = Pr (Women =1) is the probability of female director; $p/(1-p)$ is the "odds ratio – the probability of the event divided by the probability of the non-event" ; *Master* and *Ph.D.* stand for less than a doctoral degree (*e.g.*, Master's degree or other postgraduate degrees); and (d) a doctoral degree (*e.g.*, PhD or other comparable degree); *Support*, *Community*, and *Miscellaneous* refer to the director expertise profile (cf. p. 12); *Outsider* and *Family* represent the type of director (as defined p. 12); *BoardTenure* measures the board tenure; *Prestige* and *GrandCorps* refer to French specificities; and β_j's (j = 0, 1, …, 11) are the regression coefficients of the independent variables. The results of logistic regression analysis for differences in directors' characteristics are summarized in Table 5. In this present study, our level of significance is 5% or below.

The overall logistic regression (reporting odds ratio) is assessed in three ways. First, the likelihood ratio (LR) test, which is similar to the *F*-test in linear regressions, examine the global explanation power of our model (and *in fine* our independent variables). We find that LR=184.321; the corresponding *p*-value < 0.001. This result implies a significant relationship between the de-

pendent variable and our independent variables considered in the model in order to assess differences in directors' characteristics. Second, the *Hosmer-Lemeshow* test was also used here to evaluate the model's goodness-of-fit. Specifically, this test divides subjects into deciles on predicted probabilities. It computes a chi-square from observed and expected frequencies. The value of the *Hosmer-Lemeshow* statistic is equal to 1,320.73 (*p*-value of 0.011). Therefore, our model fits to analyze the differences in directors' characteristics. However, the test does mean that our model explains much of the variance in the dependent variables. Thus, we used an additional test. Third, two pseudo-R^2 measure the proportion of data variation explained by the independent variables in the logistic model: Nagelkerke's-R^2 and McFadden-R^2. The values of the Nagelkerke's-R^2 and McFadden-R^2 are 0.258 and 0.188. As a result, we have an average pseudo-R^2 of 0.223, which means that 22.3% is explained by the logistic model. Consequently, the three tests indicate that our model best suits to assess the differences in directors' characteristics.

As can be seen from Table 5, there is a strong negative relationship between female directors and age ($p < 0.000$). Female directors are therefore more likely to be younger than their male counterparts. Thus, hypothesis 1 is supported. Table 5 also reveals a negative and significant relationship at the 5% between women on corporate boards and their educational level. Our results have the opposite sign. As a result, and consistent with previous section, hypothesis 2 is not supported. Table 5 shows that female directors are significantly more likely to be community influentials (odds ratio = 3.00, $p = 0.001$), however female board members are not more or less likely to be support specialists as the odds ratio is not significant (= 1.24). Thus, we find marginal support for hypothesis 3.

Hypothesis 4 predicts that female directors are more likely to hold non-management function. The odds ratio for non-management functions is not significant at the 5% level. We therefore reject hypothesis 4. Hypotheses 5a to 5c suggest that female directors will differ in terms of status (outsider, family and employee affiliation). The results from Table 5 support hypotheses 5a to 5c as the variable are all significant: outsider (odds ratio = 5.58, $p < 0.000$); family (odds ratio = 8.67, $p < 0.000$); and employee (odds ratio = 4.86, $p < 0.000$). Our results also suggest significant differences in terms of board tenure (odds ratio = 0.91, $p < 0.000$) in accordance with hypothesis 6. Finally, regarding social capital characteristics, Table 5 shows that the odds ratio related to the prestige of the school or the institution attended is not significant at the 5% level (odds ratio = 1.32), nor the variable related to *Grandes Écoles* (odds ratio = 0.486). Therefore, we reject hypotheses 7 and 8. Female directors are not more likely to come from elite schools than will men directors and belong to the "Grands Corps" just like their male counterparts.

Table 5 –Results of regression analysis

Variables	Predicted Signs	Odds ratio	SE	*z*–stat	*p*–value
Demographics variables:					
Age	–	**0.924**	0.010	-7.30	**0.000**
Master	+	**0.504**	0.161	-2.14	**0.033**
Ph.D.	+	**0.325**	0.117	-3.13	**0.002**
Human capital variables:					
Support	+	1.244	0.262	1.04	0.298
Community	+	**3.009**	1.010	3.28	**0.001**
Miscellaneous	+	1.067	0.258	0.27	0.789
Outsider	+	**5.581**	1.337	7.19	**0.000**
Family	+	**8.667**	3.682	5.08	**0.000**
Employee	+	**4.858**	2.340	3.28	**0.001**
BoardTenure	–	**0.911**	0.024	-3.54	**0.000**
Social capital variables					
Prestige	+	1.325	0.275	1.34	0.176
GrandsCorps	+	**0.486**	0.185	-1.91	**0.056**
Constant		7.942	5.4412	3.02	0.002

Table 6 summarizes our main results.

Table 6 – Summary table

Hypothesis			Univariate Analysis	Multivariate Analysis
Demographics				
1	Age	*Female directors will be younger than male directors*	**supported** difference in age <p0.001 53 for women vs 61 for men	**supported** (table 5, p 16.) p<0.000
2	Education	*female Directors will be more likely to have higher education qualifications*	globally **not supported** contradictory results regarding the level of education	**not supported** (table 5, p 16.) results opposite sign
Professional background				
3	Expertise Profiles	*female directors will be more likely to hold support specialist and community influencials profiles than men directors*	**supported** (Row 1; table 2, p.11) p<0.002 community influencial : 14.61% for women vs 7.5% for men support specialist : women : 45% vs 37.51%	**marginal support** odds ration = 3.00 p=0.001
4	Functional Background	*female directors will be more likely to hold non management background than men directors*	**supported** p<0.007 30%of women have non management function vs 21% male directors	odd ration non significant **not supported** (table 5, p 16.)
Insider/Outsider				
5a	Independent position	*female directors will be more likely to be independent directors than men directors*	**supported** p=0.000 outsider status at 62 % for women vs 43% for men	**supported** (table 5, p 16.) odd ratio significant = 5.58 p<0.000
5b	Family Ties	*female directors will be more likely to be family owners'representative than men directors*	**supported** p<0.000	**supported** (table 5, p 16.) odd ratio significant = 8.67 p<0.000
5c	Employees Rep	*female directors will be more likely to be Employees representatives than men directors*	**supported** p value = 14.98	**supported** (table 5, p 16.) odd ratio significant = 4.86 p<0.000
Board tenure				
6	Number of years	*female directors will have less tenure in boards than men directors*	**supported** (row 4; table 2) significant differences	**supported** (table 5, p 16.) odd ratio significant = 0.91 p<0.000
Education status prestige				
7	Elite Schools	*female directors will be more likely to come from Elite Schools than men directors*	**not supported** p<0.022 male directors are more likely to graduate from Elite Schools	**not supported** odd ratio =1.32
Grands corps				
8	Corps d'état	*female directors will be less likely to belong to the Grands Corps than men directors*	**supported** (table 3) statistically significant differences	**not supported** odd ratio =0.486

4. Discussion

Hypothesis regarding demographic characteristics of WOCBs are supported: the women are significantly younger than the men and, partly consequently but also partly due to their status of newcomers to boards, they hold less board tenure. Similar results are indeed well established in many countries and France is no exception.

As regards education, no differences between men and women appear: women members do not hold more diplomas than men. They do not stem more or less often from prestigious schools, nor do they belong to the *Grands Corps* more or less frequently. Actually, the educational background from men and women board members is of similar level and prestige, contrarily to what has been found in Switzerland (Ruigrok, Peck, Tacheva, 2007). According to Beaufort and Khaya (2012), the pool of recruitment for Directors is mainly constituted by the *Grandes Écoles*. Women on French Boards tend to be from these recruitment pools and belong to the same networks. Our results highlight some homogeneity in the ways both groups reach such positions in France, through education at least. These results are all the more interesting knowing that 10% of women are on board thanks to family link. We could infer that if we take them out of the sample, the result will reinforce the similarity of profiles between women and men.

It is as far as professional experience is concerned that significant differences appear between men and women board members' trajectories. Female directors are significantly more likely to be Community influentials than male directors. The latter are also more likely to be business experts than the women. These results are consistent with previous research in Anglo-Saxon contexts and reflect the predominance of men in top business positions. Also, women are not more or less likely than men to be Support specialists contrary to the UK study (Singh et al., 2008) which concentrated on new women's appointees whereas we study all WOCBs. As found in the US, the human capital of women is slightly different than their male counterparts' in so far as they hold less business expertise, being less often CEO. They do not however have less knowledge in law, finance, marketing, etc. From both Resource-Dependency and Agency theories perspectives, it could be said that they provide new information and monitoring to the board to the extent that they come more often than men from Civil Society.

Another interesting result comes from the alleged difference of background between men and women regarding management experience. Even if, in our study, more women than men appear to hold non-management functions in the univariate analysis, the difference does not resist the multivariate analysis which invalidates such hypothesis. Men are not more likely than women to have management experience. This contrasts with the results of Singh et al. (2008) but may be explained by the fact that we measured all kinds of management at any level (including through line function) and not the sole "top management experience" measured by these authors. Women have as much management experience as men, although probably less frequently obtained at top corporate positions.

Last, our study confirms differences in board members status between men and women previously found. Women are much more likely to be independent directors, a result which has also been found in US and UK studies (Hilman et al., 2002). They are also more likely than men to be representatives of the Family shareholders and from Employees (IFA et al., 2009; Moulin & Point, 2012). These two ways of becoming board members –depending more on choices from shareholders and less on business networks - are probably more open to women than top executive positions.

According to Resource Dependency Theory, organizations need some diversity within boards to cope with changes in business environments. Whereas Sealy et al. (2009) argue that such di-

versity can come from gender diversity, Heidrick and Struggles (2011, p 40) state: "Most women on boards have come up through the same route as the men, so in that sense they aren't so different from their male counterparts". In our study, women board members hold management experience in similar proportion than men and their educational background does not significantly differ. It can thus be said that they hold the "required" human capital for their function. On the other hand, women may bring slightly different skills and point of views than men through their different professional experiences by being more likely to come from Civil Society Responsibility positions. An increase in the number of women would thus be likely to increase the proportion of Community Influentials in boards, which would enlarge the board's social networks. That is if a real will to open the recruitment pool is to be noticed. The fact that women are more likely than men to act as independent directors provides support for Agency Theory views that their presence in boards, as "outsiders", is used to bring more independent monitoring on companies' strategic choices and functioning.

Concluding remarks

The purpose of this study is to investigate the demographics, the human capital, and the Social capital of men and female directors, exploring for gender differences in terms of age, education, professional background, board tenure, education, and civil servant. Our theoretical framework is based on the work of Johnson et al. (2013) and inspired by the work of Ruigrok et al. (2007) and Singh et al. (2008). Based on a sample of 120 French publicly listed firms on Paris Bourse, we analyse the characteristics of all 1,250 directors in the year 2010. To our best knowledge, our study is the first in France to statistically confront men and women board members human and social capital characteristics. Our results suggests that male and female directors are different in terms of age and education. Furthermore, female directors are more likely to come to be "community influential" (non-business experiences). In addition, the status of women on corporate boards is not the same. Female directors are likely to be outsider, a family member or an employee-elected board members than male directors. Finally, they have a less board tenure.

This research has several managerial implications. First, consistent with Singh et al. (2008), our evidence contradicts the common view reported by some CEO or chairmen that women lack adequate human and social capital for their appointment in the boardroom. Second, unlike Moulin and Point (2013), we do not find that social capital is significantly different among men and female directors. Indeed, the results of the logistic regression showed non-significant result at the level of 5% or below.[5] Therefore, it seems that the prestige and the civil servant path (Bourdieu, 1996) are no more a criterion for the appointment of female directors. These findings represent areas of opportunity, both for women seeking to enter the boardroom and firms seeking to improve the diversity of boards.

The contribution of this study is threefold. First, consistent with Ruigrok et al. (2007), in order to manage diversity on corporate boards it is imperative to understand the demographics, the social capital, and the human capital that these directors bring to the boardroom as suggested by resources dependence theory. Second, we provide empirical evidence that human capital and theories have credence in explaining why this particular cohort of women has been appointed (Singh et al., 2008). Finally, our study provides a new French perspective on this issue consistent with Moulin and Point (2012, 2013).

As usual, our study also has several limitations which are subject to future developments future. First, with a study period of one year, our analysis is based on a short time period. Further

[5] This threshold is often used for the significance of the results.

studies may want to concentrate on longitudinal panel data covering a longer time span as Hillman et al. (2007). Second, Singh et al. (2008) argue that the nationality of female directors may a factor of integration as companies in our sample are international. In our analysis, we have not taken into account the nationality of the directors to the extent that we rely on the theoretical framework suggested by Johnson et al. (2013). Consistent with Singh et al. (2008), future studies could examine this characteristics. Third, we study the link between board diversity and performance within one special national context (the French system with a two-tier board structure and codetermined supervisory boards). As Grosvold et al. (2007) point out, this institutional and cultural context might be specific to France. Our results are likely to be transferred to another countries, such as Scandinavian countries that are more equal.

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Appendix: elite institutions

French institution: *Grandes Écoles*	
Engineering schools:	École Polytechnique, MINES ParisTech, École nationale supérieure de l'aéronautique et de l'espace (SUPAERO), and École Centrale Paris.
Business schools	HEC, ESSEC, and ESCP Europe.
Other:	ENA (École nationale d'administration), Sciences Po (Paris) and École normale supérieure (rue d'Ulm).
Top American Universities	
Rank 1-5	Harvard University, University of California, Berkeley, Stanford University, Massachusetts Institute of Technology (MIT), and California Institute of Technology.
Rank 5-10	Princeton University, Columbia University, University of Chicago, Yale University, and Cornell University.
Rank 10-15	University of California, Los Angeles, University of California, San Diego, University of Pennsylvania, University of Washington, and University of Wisconsin – Madison.
Rank 15-20	The Johns Hopkins University, University of California San Francisco, University of Michigan – Ann Arbor, University of Illinois at Urbana-Champaign, and University of Minnesota Twin Cities.
Top European Universities	
Rank 1-5	University of Cambridge, University of Oxford, University College London, Swiss Federal Institute of Technology Zurich, and The Imperial College of Science, Technology and Medicine.
Rank 5-10	Pierre and Marie Curie University – Paris 6, University of Copenhagen, Karolinska Institute, The University of Manchester, and University of Paris Sud (Paris 11).
Rank 10-15	Utrecht University, University of Zurich, University of Munich, The University of Edinburgh, and King's College London.
Rank 15-20	University of Heidelberg, University of Bristol, Uppsala University, Leiden University, and University of Helsinki.