

Track: Corporate Finance

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In this study we show that director talent and not gender alone drives firms' performance. Using a unique hand-collected sample of 523 closely held Colombian family firms and constructing a professionalism index after a detailed analysis of 815 curriculum vitae of executives, we show that female directors have a negative effect on firm performance. However, when we separate female directors into two groups, family female directors and outside female directors, the latter has a positive and significant effect on firm performance. Moreover, we show that outside female directors are significantly better trained than family female directors in terms of education and experience. We also show that family female directors are significantly less trained than family male directors, who are also better trained than outside male directors. This suggests that family firms favor the selection of men to take control of family businesses. Furthermore, the presence of family female directors is more likely to be associated with nepotism or family quotas than with talent.

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Introduction

The empirical evidence that relates gender diversity to corporate financial performance is complex, and results are not consistent across different studies. A body of evidence supports a positive relationship between greater gender diversity on the board of directors and better financial performance (Carter et al., 2003; Erhardt et al., 2003; Campbell and Mínguez-Vera, 2008; Dezsö and Ross, 2012). Other studies find no statistical relationship between a higher proportion of female directors and performance (Shrader et al., 1997; Rose, 2007; Chapple and Humphrey, 2014). Finally, some find a negative relationship between female involvement on boards and financial performance (e.g., Adams and Ferreira, 2009).

This inconclusive evidence in the literature calls for further empirical enquiry. Wagana and Nzulwa (2016) argue that many of the results reported so far come from samples of listed firms in developed countries and that we know little about the effects of gender diversity in less developed countries. The main contribution of this paper is to improve our understanding of the impact of board diversity on firm financial performance, especially regarding the role of women in the context of closely held family firms in emerging countries.

We show that director talent and not gender by itself drives firm performance in our sample of mostly closely held Colombian firms. Before controlling for talent or family ties, our evidence is consistent with studies that find a negative relationship between gender diversity and financial performance (e.g., Adams and Ferreira, 2009). However, to better understand the professional characteristics of female directors, we divide those in our sample into two groups, family female directors and outside female directors. Our results show that having a greater proportion of female directors without ties to the family business enhances financial performance significantly.

Consistent with U.S. reports showing that few women reach the top of the organizational ladder, one can expect those who do succeed to have above-average personal competence. A higher level of professional preparation should have a positive impact on the corporate board's decision-making process, with the ultimate effect of improving financial performance. We assume that the few outside female directors in our sample are very strongly prepared in terms of education and experience relative to other directors on the board. In a second contribution to the current literature, we construct a professionalism index to control for talent and show that outside female directors are significantly better trained than family female directors in terms of education and experience. Additionally, we show that family female directors are significantly less trained than family male directors and that

family male directors are better trained than outside male directors. This last result suggests that family firms choose men over women to take control of family businesses. The fact that family male members on the board are significantly better prepared than their female counterparts suggests a potential gender bias regarding education in the succession process of family firms. This result is consistent with patriarchal practices in family businesses (Mulholland, 1996).

The rest of the paper is organized as follows: We first review some of the relevant literature that serves to develop our hypotheses; we then describe our data and explain the methodology we employ; we subsequently present and discuss our results before concluding.

Literature Review and Hypothesis Development

There is a global urgency to redesign the structure of corporate boards of directors to create more diversity and a more heterogeneous group of decision makers (Kumar and Zattoni, 2016). According to Farrell and Hersch (2005) the number of women serving on corporate boards as directors increased substantially during the 1990s. They also show that women tend to serve on boards of firms with better performance. Moreover, Cook and Glass (2014) show that diversity in the decision process (and not necessarily performance) explains the likelihood of finding women in firms' top leadership. However, some early puzzling evidence regarding gender diversity and financial performance shows that abnormal returns associated with announcements of the selection of a woman as a new board member are insignificantly different from zero (Farrell and Hersch, 2005).

The literature identifies many hypotheses to explain a positive relationship between gender diversity on boards and financial performance. According to Adams and Ferreira (2009), female directors – in the context of agency theory – are more independent from the influence of managers relative to their male counterparts. Additionally, there is evidence that female directors, relative to male directors, are more likely to (1) participate in monitoring committees such as those concerned with auditing, nominating, or corporate governance, (2) recommend ousting the CEO after a poor stock price performance, and (3) routinely attend the board meetings. Note that in a previous study the same authors recognize that independence from managerial influence creates potential costs as well as benefits and show skepticism over a potential positive relationship between boards' gender diversity and financial performance (Adams and Ferreira, 2007).

Different authors argue that greater gender diversity should improve directors' monitoring and advising roles as well as the quality of boards' decisions because of important inherent differences between genders, which are considered more valuable in firms with complex operations (e.g., Hillman, 2015; Anderson et al., 2011). If greater gender diversity implies less correlation among the information sets of board members, the different views among members will enhance a board's decision-making process and have a positive effect on the firm's expected financial performance (e.g., Arfken et al., 2004; Van der Walt et al., 2006).

Other intrinsic differences between genders may affect the financial performance of the firm. Dawson (1997) argues that women are inherently different from men in their ethical behavior. However, it is not clear from an empirical point of view if a higher level of ethical behavior attributable to a higher proportion of women on the board translates into better financial performance. If profitability proxies for financial performance, some unethical decisions might increase the firm's short-term profitability at the expense of sustainable profitability long-term.

The empirical evidence that relates gender diversity to corporate financial performance is mixed. Carter et al. (2003) show a positive and significant relationship between a higher proportion of female directors on the corporate board and firm value, proxied by Tobin's Q, after controlling for size, industry, and other corporate governance variables. They analyze firms that

comprise the Fortune 1000 index. Shrader et al. (1997) use different accounting ratios, such as return on sales, return on assets, return on investment, and return on equity, to measure financial performance and find that a greater proportion of women as middle managers impacts financial performance positively. However, when they consider the proportion of top female managers and the number of female board members, they do not find a statistically significant relationship between gender diversity and financial performance.

Some researchers, like Carter et al. (2010), who analyze a sample of firms in the S&P 500 index during the period 1998–2002, find no statistical relationship between gender diversity and financial performance. Consistent with these results, Rose (2007) finds no relationship between gender diversity and performance after analyzing a sample of Danish firms. Triana et al. (2014) show results associated with a complex interaction, as follows. When a board faces no threat of low firm performance, gender diversity contributes positively to strategic change. However, when there is a threat of low performance, a more gender-diverse board negatively affects strategic change.

Finally, Dale-Olsen et al. (2013) study the effect that the 2003 quota reform for Norwegian boards has had on the financial performance of non-financial public limited companies and ordinary limited companies. They find no effect attributable to the regulatory imposition of a minimum proportion of female directors in Norwegian boards.

Some international cross-country evidence supports a positive relationship between a higher proportion of women serving on corporate boards and financial performance. Terjesen et al. (2016) analyze a comprehensive sample of 3,876 public firms in 47 countries and find that firms with more female directors have a higher return on assets (ROA) and Tobin's Q. They also find that firms facing complex environments have more gender-balanced corporate boards. Analyzing a sample of 159 banks based in nine different countries, García-Meca et al. (2015) find that gender diversity increases bank performance. However, when the regulatory environment is weak and investors face low protection, the influence of board diversity on financial performance decreases. Post and Byron (2015) combine the results of more than 140 research papers and perform a meta-analysis to find that women on boards are associated with positive accounting returns but have no effect on market valuation.

Finally, some country studies support a positive relationship between gender diversity and performance. Vafaei et al. (2015) find that a higher proportion of female directors is associated with better financial performance in the top 500 listed firms in Australia during the period 2005–2010. After controlling for firm-specific variables, ownership and governance structure, and possible endogeneity, Gordini and Rancati (2017) analyze a sample of 918 public firms in Italy and find that gender diversity, measured by the proportion of female directors on the board and by the Blau and Shannon indexes, significantly increases Tobin's Q. The analysis of the results depends on the context of Law 120/2011, which prescribes gender quotas (at least one-third of board seats must be held by directors of the less-represented gender). For a sample of Spanish firms, Campbell and Mínguez-Vera (2008) find a positive relationship between gender diversity, as measured by the percentage of women on the board and by the Blau and Shannon indices, and financial performance.

Most of the evidence in the literature is associated with studying the relationship between corporate board gender diversity and financial performance in the context of large public firms based in developed economies (Wagana and Nzulwa, 2016). In one of the few studies using a sample of firms from an emerging country, Kılıç and Kuzey (2016) analyze the relationship between board gender diversity and firm performance in Turkey. As expected, they show that Turkey corporate boards are male-dominated, consistent with patriarchal practices (Mulholland, 1996). However, they find that a greater level of gender diversity relates positively to financial performance. Liu et al. (2014) also find a significant positive relationship between gender diversity on the corporate board and firm performance in a sample of publicly listed companies in China.

In the context of Italian family firms, Bianco et al. (2015) distinguish between family-affiliated and non-family-affiliated female directors. They show that family-affiliated women are more common in smaller firms with concentrated ownership; conversely, non-affiliated women are more likely to serve in listed and bigger firms that have a greater fraction of independent directors. This approach is important because, in the context of family firms' boards, family-affiliated women could be present for reasons other than the monitoring or advising role of a professional director (e.g., family quotas, nepotism, within-family agency conflicts). Pollak (1985) argues that poor performance of boards in family firms may be tolerated, given the difficulty of supervising and disciplining family members. One can also argue that sometimes family members are not suitable as directors because their talents may not match with family business activities.

The literature recognizes gender bias regarding succession in family firms. Bennedson et al. (2007) find that these firms are more likely to pass control to a firstborn male than to a firstborn female. Specifically, using a dataset of 5,334 successions between 1994 and 2002 in limited liability firms in Denmark (publicly and privately held), these authors find that the frequency of family succession is 29.4 percent when the firstborn child is female, which increases to 39 percent when the firstborn is male (a 32.7 percent increase). This difference is statistically significant at the 1 percent level. Moreover, Mulholland (1996) argues that patriarchal practices propel male kin to a position of power, overshadowing female kin. Mehrotra et al. (2013) discuss two unique practices of Japanese business families; namely, marriages arranged to inject talent into business families and adoption of promising male adults as principal heirs. Daughters' love interests are secondary or irrelevant.

Finally, a report by Lean.org and McKinsey & Co (2016) asserts that only 18 percent of board seats in corporate America are occupied by women. This percentage has increased from around 10 percent of board seats held by women at the beginning of this century (Carter et al., 2003; Catalyst, 2004; Joshi et al., 2007), and one expects that women who reach the top of the organizational ladder have above-average personal competence and should have a positive impact on firm decision-making at the board level.

For a sample of banks in the United States, Nguyen, et al. (2015) show that although age, education, and prior work experience as executive directors with daily management responsibilities are associated with positive market performance, gender by itself has no effect on shareholder wealth.

Studying a sample of closely held family firms based in an emerging country, we expect an aggregate negative impact of female directors on firm financial performance, explained on the one hand by cultural nepotism and on the other by a potential gender bias regarding education and preparation for the succession process, consistent with patriarchal practices in family businesses (Mulholland, 1996).

Hypothesis 1: Female presence on the corporate board will be negatively correlated with firm financial performance.

However, it is clear that talent, and not gender by itself, should be the source for any observable effect that director presence has on a firm's performance. We expect family female directors to be associated with poor financial performance (e.g. nepotism and male preference for family succession plan), while outside female directors should have a positive impact on performance. Joshi et al. (2007) show that although pay still lags, women's education and experience in the corporate world has increased substantially.

Hypothesis 2: The presence of family female directors will be negatively correlated with firm financial performance; the presence of outside female directors will be positively correlated with firm financial performance.

We conjecture that differences in female performance as directors come down to talent, which is related to training and experience. For reasons explained above, family female directors could be present for many reasons other than talent, unlike outside female directors. Following Tavora (2012), who argues that situational factors like cultural legacy and family dynamics, explain the presence of women in family businesses. Therefore, we conjecture that outside female directors are better trained and have more experience than family female directors.

***Hypothesis 3:** Outside female directors show higher levels of professionalism than family female directors.*

Finally, we expect family male directors to assume a leadership role early in their career (Bennedsen et al., 2007), so their level of professionalism should be higher than that of family female directors and equal to or greater than the level of professionalism of outside male directors. Some authors suggest an “old boys” network or homosociability (male preference for the company of other men in social settings) is prevalent in the context of family firms and favors a male firm leader (Gregory, 2009; Holgersson, 2013).

***Hypothesis 4:** Family male directors show higher levels of professionalism than family female directors, and professionalism equal to or greater than that of outside male directors.*

Next, we empirically test these hypotheses using a sample composed mostly of closely held Colombian family firms.

Data and Methodology

We hand-collected a unique dataset of closely held Colombian firms affiliated with business groups, a feature not commonly found in the empirical literature. We also gathered financial-related data as well as information on ownership composition and board design from two governmental agencies. The Financial Superintendence (SFIN) regulates and monitors public firms and the trading of their financial securities, while the Superintendence for Commercial Societies (SSOC) regulates non-financial institutions, monitoring events associated with corporate restructuring and bankruptcy procedures. SSOC maintains financial records for medium-sized and large privately owned firms. In some cases, notes to the financial statements include information about major shareholders, appointments to the board, and CEO-related information. We found additional information related to directorships and CEOs from the Chambers of Commerce, for those companies that are registered.

With 8,640 records of firms in the SSOC and SFIN databases for the period 1996–2006, we then apply four filters. First, we eliminate 31 firms subject to special regulation; i.e., commercial banks, utilities, and former state-owned enterprises registered with the SFIN. Second, we exclude from the analysis 7,325 firms that lack ownership details and sufficient information to identify either majority shareholders or pyramidal ownership structures. Our aim is to identify the ultimate owner of the firms under analysis.

Finally, we impose two additional requirements for the remaining 1,284 companies in the sample. First, companies must report complete ownership and board composition information for at least three consecutive years. Second, we include companies that are part of a business group only if they represent at least 50 percent of the total number of companies that form that business group. For example, if the total number of companies in the business group is 11, we need to gather information for at least six of the companies that form the business group. This filter allows us to build more accurate information regarding pyramidal control within the group and to identify the ownership structure with more precision and determine whether there is family control through pyramidal ownership. The first of these two requirements excludes 600 firms, while the second removes 161 firms.

The total number of firms in our refined database is 523, while the number of business groups under analysis is 28. The final sample of firms represents approximately 40 percent of the population of entities that report financial information to the SSOC. The time-series analysis over the period 1996–2006 of this cross-section of Colombian firms generates a final unbalanced dataset of 5,094 firm-year observations. Given that ownership-related variables are closed to public access by law for a period of time, it is not possible to get more up-to-date information. However, despite potential changes in the business environment in Colombia, the analysis of gender diversity on the boards of directors for this set of firms helps us to understand the dynamics, motivations, and consequences regarding gender composition on boards of family firms based in emerging countries.

During the period under analysis and for the total number of observations in our final sample, we have 4,907 corporate board members, out of which 833 are female. If we measure gender diversity by the proportion of women in the board, in our sample of Colombian firms, 17 percent of board members are women. This proportion is higher than the 8.95 percent calculated by Terjesen et al. (2016) analyzing a sample of 47 countries in 2010.¹ Campbell and Mínguez-Vera (2008) find the proportion of women on boards to be 3.38 percent in a sample of Spanish firms. For the United States, Carter et al. (2003) and Catalyst (2004) report a proportion of 9.5 percent and 10.2 percent, respectively. In Colombia, there are no gender quotas imposed by regulation that might explain the higher level of gender diversity in our sample relative to the current evidence for other countries. However, regarding gender diversity among Colombian CEOs, in a total population of 908 in our sample firms, only 67, or 7.4 percent, are female. Gender diversity is clearly lower in at this corporate level.

We use adjusted return on assets (ROA) to measure financial performance for our sample of 523 closely held Colombian firms. We define adjusted ROA as the ratio of net firm income to total assets in excess of the average ROA for the same industry and year. We use different variables to proxy for gender diversity. First, we construct the variable percentage of female directors as the proportion of female directors on the corporate board. Additionally, we use dummies to measure the interaction between gender and other properties of the members of the board. That is, we create new gender-related variables to differentiate board members with family ties (family female director, family male director) from those who are not part of the family (outside female director, outside male director).

We include control variables belonging to two different categories. The first set of variables control for corporate governance structures and effectiveness in a family firm. In this category, we create three variables to control for the involvement of the founding family. *Family CEO* is a dummy variable equal to 1 if the CEO has the founding family last name, and zero otherwise. The variable *family ownership* is a dummy that takes the value of 1 if the family is the largest shareholder of the firm, and zero otherwise. Similarly, the variable *indirect family control* takes the value of 1 if the family holds control indirectly via pyramidal ownership structures, and zero otherwise. Second, we construct the variables *CEO* and *board turnover* to control for the effectiveness of the CEO and the board members in enhancing value through better financial performance. We also create a dummy to identify the affiliation of the company under analysis with a business group. The variable *auditing firm* takes the value of 1 if one of the main auditing firms in Colombia audits the firm's financial reports, and zero otherwise. Finally, we use a *contestability* variable that seeks to capture the power balance of different shareholders (Maury and Pajuste, 2005).

We design the second set of variables to control for firm-specific properties that affect the firm's financial performance. We measure firm age and size by the number of years since the company's incorporation and by total assets, respectively. Dividend ratio is the amount of cash dividend paid divided by total assets. Finally, we estimate the level of growth opportunities by calculating the percentage growth of fixed assets.

¹ There is only one Colombian firm in this database.

To test the level of professionalism in our sample, we construct a professionalism index after examining the curriculum vitae (CVs) of the 5,815 executives in the sample (4,907 corporate board members and 908 CEOs). We successfully collected 815 CVs of CEOs or directors, 698 from men (85.6%) and 117 from women (14.4%). This male-female ratio is similar to that for the whole sample. The professionalism index subsequently created is composed of four components: higher education level, languages, prizes and recognitions, and professional experience.

Regarding our higher education index, we rank the level according to the quality of the institutions attended. To quantify the value of undergraduate studies, we assign 3 points for degrees granted by foreign educational institutions, 3 points for generally recognized top Colombian universities,² 2 points for second-tier Colombian universities with good reputation, and 1 point for other Colombian universities. We assign additional points for education at the master's level: 3 points if the degree is from a foreign university, 2 points if from a top graduate Colombian program and 1 point otherwise. Additionally, we give 1 point for executives with graduate studies in Colombia different from a master's degree, 2 points if these other graduate studies are granted by universities abroad, and 3 points if the executive's additional graduate studies are both local and international. Finally we give 1 point for doctoral studies and 1 additional point for other executive educational programs (non-degree).

To rank languages, we assign 1 point for each language claimed in the CV. We rank prizes and recognitions, assigning 2 points if the executive is among the most successful according to *Revista Dinero*, an economics magazine in Colombia that publishes a top executive ranking every year, and 1 point for any other type of recognitions. Finally, we quantify the level of experience, allocating 1 point if the executive has worked in the private sector, 1 point if the manager has public sector experience and 3 points if the executive has experience in both public and private sectors. In addition, we assign an extra point for experience as an entrepreneur, university lecturer, or federal/local government official. The appendix summarizes the definition and methodology of each variable included in our analysis.

Results and Discussion

Table 1 shows the distribution of the CEOs and directors in the database over time by gender. Panel A shows the gender distribution for CEOs while Panel B provides the gender distribution for the total sample of directors and for family-related and outside directors. Panel C shows the distribution for male and female directors classified according to their family ties, outsider or family-related, for each gender category. The last column in Table 1 displays the proportions of male and female observations for each category in each of the panels. According to Panel A, with a total of 5,094 firm-year observations, our sample includes an average of 463 CEOs per year. However, with an unbalanced panel some years have a higher or lower number of firms, and hence CEO positions. According to our analysis for the estimation of the professionalism index, the CEO positions have been occupied by 908 managers. The participation of women as CEOs is low, which is evident in the proportion of total female CEOs over total CEO firm-year observation, equivalent to 7.4 percent.

Panel B shows that the total number of director positions in our sample for the period under analysis is 36,439. This implies an average board size of approximately 7 members (36,439 director positions over 5,094 firm-year observations). Once again, according to our analysis for the estimation of the professionalism index, the director positions have been filled by 4,907 board members, including 833 female board members. The last column of Table 1 shows that women's average participation on these boards is 17.5 percent, a relatively high proportion in comparison to findings in previous studies (Campbell and Mínguez-Vera (2007) for Spain and Carter et al. (2003) and Catalyst (2004) for the United States). As stated before, CEO positions are less gender diverse than director positions, 7.4 percent compared to 17.5 percent. This implies a higher probability for women to participate in firms' decision-making process through board membership rather than through CEO positions.

² We follow the 2015 Colombian University Ranking Model of Indicators regarding education performance (MIDE by its Spanish acronym) as calculated by the Colombian Ministry of Education.

[Insert Table 1 here]

In addition, Panels B and C of Table 1 suggest that the relatively higher rate of women's participation on boards is driven by a higher participation of family female directors. Panel B shows that female directors comprise 26 percent of total family directors, while outside female directors represent only 14 percent of total outside directors. According to descriptive statistics in Panel C of Table 1, family male directors represent 26.1 percent of total male directors, while family female directors represent 43.2 percent of total female directors. This suggests that family status facilitates the appointment of women to boards.

Table 2 displays the descriptive statistics associated with women's membership on boards of directors. For each variable, the table depicts the mean and standard deviation for the whole sample, for firms with low board participation by women, and for firms with high board participation by women. To build the two subsamples according to the level of women's participation, we split the observations into two using as a criterion the mean proportion of female directors, 18.5 percent for the whole sample. Observations below 18.5 percent constitute the low participation sample, while the high participation sample comprises those observations where female membership is higher than the mean value of 18.5 percent.³ The last two columns report whether the differences in means and medians are statistically significant.⁴

Table 2 reveals that 64.3 percent of the sample observations belong to firms with low board participation by women. In this group of firms, the average female director participation is equivalent to 6.1 percent, while in firms with high participation by women the average female director participation is equivalent to 40.8 percent. In firms with women's low participation, participation by outside female directors is almost three times the participation of family female directors. Conversely, in firms with high participation of women on boards, participation by family female directors (21%) is higher than participation by outside female directors (19.8 %). In addition, in firms with women's low board participation (low participation firms hereafter), participation by outside male directors is more than three times the participation rate of family male directors, but in firms with high board participation by women (high participation firms hereafter), outside male directors' participation (35.1 %) is only 1.4 times family males' participation (24.1 percent). Furthermore, in low participation firms, family directors held 22.2 percent of the board seats, but in the high participation firms this percentage rises to 45.1 percent. Hence, firms with more women on boards have more family male and female directors.

The family involvement variables reveal that the CEO is a family member in 24 percent of the sample; families are the largest shareholder as a group in 19 percent of the firms, and they exert indirect control through pyramidal ownership in 40.1 percent of the cases. Within high participation firms, 35 percent are run by family members, and families are the largest blockholders in 33 percent of this subsample. Family involvement is higher in high participation firms than in low participation firms. Only indirect family control is higher in low participation firms (41.2%) in comparison to high participation firms (38.1%). Hence, women's participation on boards tends to be higher when family involvement through management and direct ownership is higher.

Finally, firms with more women on the boards are younger, smaller, less leveraged, more likely to belong to a business group, have more stable boards, offer greater stability to their managers, have a lower probability of being audited by a specialized firm, and show a higher contestability index, perhaps exerted by other family owners.

[Insert Table 2 here]

³ In the discussion of Table 1, we state that the 17.5% rate of women's participation on the boards is calculated by dividing the total number of female directors' observations over the total number of directors' observations in our sample. The mean value of the female directors in the discussion of Table 2 is slightly different because it represents the average for the different percentage of board seats occupied by women in each of the 5,094 firm-year observations.

⁴ The Wilcoxon rank test is used as an alternative to the Student's t-test when the population cannot be assumed to be normally distributed.

Table 3 analyzes how different types of directors affect firms' performance. Regressions follows a general two-way error component model with a matrix dimension of $i \times t$:

$$Y_{it} = \beta_0 + \beta'_k \mathbf{GR}_{it} + \gamma'_k \mathbf{FI}_{it} + \delta'_k \mathbf{CG}_{it} + \varphi'_k \mathbf{X}_{it} + (\mu_i + \varepsilon_{it}), \quad (1)$$

where Y_{it} is the industry-adjusted ROA, \mathbf{GR} is the vector with directors' gender-related variables, \mathbf{FI} is the vector with family involvement dummies, \mathbf{CG} is the vector with the corporate governance controls, which includes ownership and control contestability variables, and \mathbf{X} is the vector with the standard financial and idiosyncratic controls.

Column 1 shows that the control variables behave as expected. The variables dividend ratio, firm age, firm size, growth opportunities, and contestability index have a positive and significant effect on the industry-adjusted return on assets (**AROA**). Long-term leverage, CEO turnover, board turnover, the presence of an auditing firm and our group affiliation dummy have a negative and significant effect on AROA. All these variables are consistent in magnitude and statistical significance in all the models, which leaves us confident that the model is well-specified.

[Insert Table 3 here]

Column 2 includes the regression for female presence on the board of directors and shows a significant negative coefficient (-0.0083). This implies that one standard deviation in the percentage of women on the board translates into a 0.83 percent decrease in a firm's AROA. When we include in Column 3 other family involvement variables (family CEO, family ownership, and indirect family control), the size and the statistical significance of the coefficient for female presence decreases but is still significant at a 5 percent level. This is economically important, given that one standard deviation in female presence reduces AROA by 0.59 percent.

Results in Column 3 are consistent with some international evidence (Triana, Miller and Trzebiatowski, 2014; Adams and Ferreira, 2009) that finds a negative relationship between gender diversity and financial performance, but is inconsistent with the majority of recent country studies discussed above (Vafaei et al., 2015; Gordini and Rancati, 2017; Campbell and Mínguez-Vera, 2008). These differences could be due to the closely held nature of our sample, which is one of the reasons some authors call for a more detailed analysis of non-listed firms (Wagana and Nzulwa 2016).

It is important to mention that Hypothesis 1 considers the aggregate number of family directors without examining the potential family association of these professionals. As we argued before, family female directors can serve on boards for reasons other than the monitoring and advising role expected of every member in theory. In contrast, given the small fraction of outside female directors available in the directors' market, these professionals should bring knowledge and talent to the board, and therefore one would expect their presence to exert a positive impact on a firm's performance (Hypothesis 2).

Table 3, Column 4, separates the analysis of outside and family female directors. Consistent with Hypothesis 2, the former has a significant positive impact (0.0089, $p < 0.05$) while the latter has a significant negative one (-0.0117, $p < 0.01$). Interestingly, the size of the coefficient for outside female directors is similar to but smaller than the one associated with the family male directors variable (0.0112, $p < 0.1$). Consistent with our previous explanation, male heirs are more likely to be trained to lead the family business (Mulholland, 1996).

The regression specification tests consistently reject the null hypothesis of no individual effects, according to the Lagrange multiplier test. For this case, the error component model is assumed to be the true specification, where individual effects are fixed

or random. We assume the random effects model is the true model because some variables relevant in our analysis, such as the family involvement variables, are time-invariant dummies.⁵

Table 4 presents the descriptive statistics of our professionalism index for the subsample of 815 CVs of CEOs and directors. For the whole subsample, *education* has a minimum of 0 and a maximum of 12, with an average of 4.67; the sub-index *languages* has a minimum of 1, a maximum of 7, and an average of 1.9; the sub-index *prizes and recognitions* has a minimum of 0, a maximum of 2, and an average of 0.23. Finally, the sub-index for *experience* shows a minimum of 1, a maximum of 6, and an average of 2.05. We also show and aggregate the professionalism index with a minimum of 3, a maximum of 19, and an average of 8.05.

[Insert Table 4 here]

In Table 4, we show that men score higher on the professionalism index compared to women (8.96 versus 8.14). This gender difference is statistically significant at 1 percent. The mean values of the sub-indexes that comprise the professionalism index also exhibit statistically significant gender differences in education (4.74 versus 4.22) at the 1 percent level and experience (2.08 versus 1.86) at the 5 percent level. Languages and recognitions show no statistical differences between male and female CEOs or directors.

Retrospectively, these results are consistent with the fact that executives who were CEOs or directors between 1996 and 2006 got their undergraduate degrees between the 1950s and 1970s, when the majority of professionals were men. Hence, it is rational to find a lower level of professionalism for women in our analysis.

The first professional woman in Colombia, Gabriela Peláez, started her undergraduate studies in law in 1936 at the Universidad Nacional after a bill to create gender equality in regard to access to higher education was approved by Congress. A continuous increase in university registration by women is evident since the 1960s, and nowadays, women comprise about 50 percent of the total university student body in Colombia. While professional experience is highly correlated with education, the gender difference could be larger given one additional fact: gender discrimination implies that recruiters are more likely to choose men when confronted with two identical CVs, gender being the only difference (Steinpreis et al., 1999; Moss-Racusin et al., 2012, 2014; Holgersson, 2013). That is, men have more access to job opportunities than women with an equal level of education. This leads to fewer opportunities for women and hence, less professional experience in good positions.

In Table 5, we study gender differences in the professionalism of board members only. Table 5, Panel A, shows that male directors have a higher professionalism index on average than women have (9.03 versus 8.20, with $p < 1\%$). The results are similar in all cases; that is, male directors are better educated, speak more languages, hold more prizes and recognitions, and have more experience, although only mean values in education and experience are statistically significant, at a 5 percent and 1 percent level, respectively.

[Insert Table 5 here]

Classifying directors by gender (male/female) and family status (family/outsider), we find that directors with the highest professionalism index (10.37) are male and family-related.. Those with the lowest ranking (6.80) are female and family-related.

⁵ The null hypothesis in the Hausman test assumes that the random effects model is the true model and the variance-covariance matrix (VCE) is efficient. Therefore, one cannot reject the null hypothesis that the difference in regression coefficient is systematic between the fixed versus random effects specifications. The full specification displayed in regression equations 1 to 4 failed to pass the Hausman specification test. However in the presence of heteroscedastic residuals, which is the case, the scope of this test is limited. Instead, Cameron and Trivedi (2010) recommend related tests based on bootstrapping methods. We run reduced empirical models (not shown) that passed the Hausman test, but with high costs in terms of explanatory power. Hence, the random effects model is chosen.

These are the highest and lowest values in our subsample. The average scores for outside male and female directors are between the two extreme values cited.

When comparing family-related females and outsider female samples, we find significant differences between their scores on the professionalism index (6.80 versus 9.00), which gives empirical support to our Hypothesis 3, which states that outsider females should be better prepared professionally to assume top managerial positions. Table 5, Panel B, shows that the score for outsider females is even higher than that for outsider males (9.00 versus 8.86). This is consistent with our initial argument that the very few women chosen as directors of a firm without any family ties are likely to exhibit above-average talent manifested in greater education and experience.

Another interesting result from Table 5, Panel B, consistent with our Hypothesis 4, is that families seem to prepare male heirs better than female heirs. We conclude that families are predisposed to select male heirs to run the firm and be in charge of the family business (Mulholland, 1996; Holgersson, 2013). If this is the case, we are likely to find higher professionalism scores for family male directors than for either family female directors or outside male directors. As shown in Table 5, Panel B, the professionalism score for family male directors, at 10.37, is the highest of all, much higher than that for family female directors (6.80) and also higher than the value associated with outside male directors (8.86).

Finally, we recognize in our econometric setup the possibility of double causality; that is, better directors choosing better performing firms. However, due to the limitation of our data, not only in terms of accessibility (current ownership information is not available in Colombia) but also in terms of the nature of information (CVs are written by the directors themselves and not all of them are publicly available), we are not able to find useful instruments to deal with endogeneity. The reader should interpret the results, as stated in the hypotheses, just as correlations.

With this caveat in mind, overall the CVs' characterization supports the results of our econometric regressions, indicating that gender diversity by itself is not what drives performance; rather it is the talent of the directors, regardless of their family status.

Conclusion

In this paper we contribute to the discussion about how gender diversity on the board of directors affects firm financial performance. Looking at a sample of mostly closely held firms in Colombia during the period 1996-2006, we find that talent and not gender diversity is the driver of financial performance.

We empirically show that the lack of control for the difference between outsider and family-related female directors' talent explains the negative effect that a higher percentage of women on the corporate board appears to have over financial performance. Female directors with family ties are likely to have a seat in the board for reasons other than talent, while independent female directors without ties to the business-controlling family should exhibit exceptional talent in order to achieve board membership. Consistent with this idea, we show that a higher proportion of outside female directors positively affects financial performance while female directors with family ties reduce it.

We also provide partial empirical evidence that while male heirs are more likely to be better professionally prepared to run the firm than female heirs, which is expected in a male-oriented business environment, they also exceed outside directors (male and female) in professionalism. This result shows that male heirs are somehow trained in advance to run the firm and the family business in general.

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Table 1
CEOs' and directors' gender

<i>Panel A</i>	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total	Part%
CEOs gender													
Male	439	452	458	455	447	445	430	417	406	389	377	4,715	92.6%
Female	26	28	29	35	38	33	37	40	37	41	35	379	7.4%
Total	465	480	487	490	485	478	467	457	443	430	412	5,094	100.0%
<hr/>													
<i>Panel B</i>													
Directors gender													
Male	2,825	2,938	2,963	2,951	2,878	2,823	2,728	2,613	2,532	2,435	2,367	30,053	82.5%
Female	528	539	581	593	592	592	584	622	596	582	577	6,386	17.5%
Total	3,353	3,477	3,544	3,544	3,470	3,415	3,312	3,235	3,128	3,017	2,944	36,439	100.0%
Family directors gender													
Male (FMD)	721	734	764	744	734	721	696	690	685	697	653	7,839	74.0%
Female (FFD)	259	257	265	272	269	253	244	253	243	225	220	2,760	26.0%
Total	980	991	1,029	1,016	1,003	974	940	943	928	922	873	10,599	100.0%
Outside directors gender													
Male (OMD)	2,104	2,204	2,199	2,207	2,144	2,102	2,032	1,923	1,847	1,738	1,714	22,214	86.0%
Female (OFD)	269	282	316	321	323	339	340	369	353	357	357	3,626	14.0%
Total	2,373	2,486	2,515	2,528	2,467	2,441	2,372	2,292	2,200	2,095	2,071	25,840	100.0%
<hr/>													
<i>Panel C</i>													
Male Directors													
Family-male directors (FMD)	721	734	764	744	734	721	696	690	685	697	653	7,839	26.1%
Outside-male directors (OMD)	2,104	2,204	2,199	2,207	2,144	2,102	2,032	1,923	1,847	1,738	1,714	22,214	73.9%
Total	2,825	2,938	2,963	2,951	2,878	2,823	2,728	2,613	2,532	2,435	2,367	30,053	100.0%
Female Directors													
Family-female directors (FFD)	259	257	265	272	269	253	244	253	243	225	220	2,760	43.2%
Outside-female directors (OFD)	269	282	316	321	323	339	340	369	353	357	357	3,626	56.8%
Total	528	539	581	593	592	592	584	622	596	582	577	6,386	100.0%

Notes: The table shows the distribution of CEOs and directors in the database by gender. Panel A shows the gender distribution for CEOs; Panel B shows the gender distribution for the total sample of directors and for family and outside directors; Panel C shows the distribution for male and female directors between family and outside directors. The last column in Table 1 shows the proportions for these gender and family categories.

Table 2

Descriptive statistics –Total sample and by women’s participation on boards

Variable	All sample	Women board participation		T-statistic diff = mean(0) - mean(1)	W. Rank Sum Test diff = median(0) - median(1)
		Low participation (0)	High participation (1)		
Observations	5,094	3,276	1,818		
Participation	100.0%	64.3%	35.7%		
Performance					
Return on assets	0.012 (0.102)	0.012 (0.107)	0.011 (0.093)	0.5	21.2***
Industry-Adjusted Return on Assets	-0.008 (0.101)	-0.008 (0.106)	-0.009 (0.093)	0.20	1.7
Gender-related					
Female directors [%]	0.185 (0.207)	0.061 (0.072)	0.408 (0.183)	-95.9***	5100***
Male directors [%]	0.815 (0.207)	0.939 (0.072)	0.592 (0.183)	96.0***	2700***
Family-Female directors [%]	0.085 (0.176)	0.016 (0.045)	0.210 (0.243)	-44.3***	1300***
Outside-Female directors [%]	0.100 (0.144)	0.046 (0.068)	0.198 (0.187)	-42.0***	558.2***
Family-Male directors [%]	0.219 (0.232)	0.207 (0.234)	0.241 (0.227)	-5.1***	86.5***
Outside-Male directors [%]	0.596 (0.312)	0.732 (0.242)	0.351 (0.273)	51.5***	1200***
Family involvement					
Family CEO	0.237 (0.425)	0.173 (0.379)	0.350 (0.477)	-14.5***	202.8***
Family ownership	0.190 (0.392)	0.112 (0.315)	0.330 (0.470)	-19.7***	361.3***
Family control	0.591 (0.492)	0.524 (0.500)	0.711 (0.453)	-13.2***	.
Indirect family control	0.401 (0.490)	0.412 (0.492)	0.381 (0.486)	2.1**	4.6***
Financial and Firm Characteristics					
Adjusted Long term leverage	0.031 (0.208)	0.044 (0.211)	0.008 (0.202)	5.8***	155.6***
Dividend ratio	0.013 (0.042)	0.013 (0.045)	0.013 (0.034)	0.3	0.8
Firm Age	29.8 (23.167)	32.0 (23.779)	25.7 (21.447)	9.3***	94.9***
Firm Size	17.575 (1.836)	17.765 (1.864)	17.233 (1.732)	10.0***	98.1***
Growth opportunities	0.009 (0.846)	0.020 (0.670)	-0.010 (1.089)	1.1	1.7
Group Affiliation dummy	0.887 (0.316)	0.880 (0.325)	0.901 (0.299)	-2.3**	.

Table 2 - continued

Variable	All sample	Women board participation		T-statistic diff = mean(0) - mean(1)	W. Rank Sum Test diff = median(0) - median(1)
		Low participation (0)	High participation (1)		
Observations	5,094	3,276	1,818		
Participation	100.0%	64.3%	35.7%		
Corporate Governance					
Board turnover ratio	0.165 (0.241)	0.181 (0.244)	0.137 (0.232)	5.9***	67.9***
CEO Turnover	0.155 (0.362)	0.166 (0.373)	0.136 (0.343)	2.7***	7.5***
Auditing firm	0.503 (0.500)	0.526 (0.499)	0.462 (0.499)	4.4***	.
Contestability Index	1.019 (0.589)	0.959 (0.564)	1.127 (0.618)	-9.9***	27.7***

Notes: Standard deviations are in parentheses;*** p<0.01, ** p<0.05, * p<0.1; The table reports the average and standard deviation for the pooled sample (1996-2006). Variables cover five categories: performance, gender-related, family involvement, financial and firm characteristics, and corporate governance. In addition, this table divides the sample between firms with low board participation by women (below the mean of female directors [%] - 18.5%) and with their high participation (equal or above the mean of female directors [%] -18.5%). The last two columns present for each variable the test for differences in means (Student's t-test) and medians (Wilcoxon rank-sum test).

Table 3

Firm performance regressions (random effects)

VARIABLES	(1) Adjusted ROA	(2) Adjusted ROA	(3) Adjusted ROA	(4) Adjusted ROA
Female Directors [%]		-0.0083*** (0.002)	-0.0059** (0.002)	
Family-Female Directors [%]				-0.0117*** (0.003)
Family-Male Directors [%]				0.0112*** (0.003)
Outside-Female Directors [%]				0.0089** (0.004)
Family CEO			-0.0021* (0.001)	-0.0032** (0.001)
Family ownership			-0.0036** (0.002)	-0.0047*** (0.002)
Indirect family control			-0.0004 (0.001)	-0.0022* (0.001)
IA Long term leverage	-0.0565*** (0.004)	-0.0571*** (0.004)	-0.0570*** (0.004)	-0.0553*** (0.004)
Dividend ratio	0.4555*** (0.023)	0.4531*** (0.023)	0.4579*** (0.024)	0.4641*** (0.024)
Firm Age	0.0001*** (0.000)	0.0001*** (0.000)	0.0001*** (0.000)	0.0001*** (0.000)
Firm Size	0.0022*** (0.000)	0.0020*** (0.000)	0.0021*** (0.000)	0.0023*** (0.000)
Growth opportunities	0.0090*** (0.001)	0.0090*** (0.001)	0.0090*** (0.001)	0.0090*** (0.001)
CEO turnover	-0.0041*** (0.001)	-0.0040*** (0.001)	-0.0040*** (0.001)	-0.0042*** (0.001)
Board turnover [%]	-0.0075*** (0.002)	-0.0086*** (0.002)	-0.0096*** (0.002)	-0.0112*** (0.002)
Auditing firm	-0.0064*** (0.001)	-0.0058*** (0.001)	-0.0065*** (0.001)	-0.0071*** (0.001)
Contestability Index	0.0048*** (0.001)	0.0056*** (0.001)	0.0068*** (0.001)	0.0076*** (0.001)
Group Affiliation dummy	-0.0094*** (0.002)	-0.0095*** (0.002)	-0.0110*** (0.002)	-0.0109*** (0.002)
Constant	-0.0405*** (0.006)	-0.0372*** (0.006)	-0.0365*** (0.006)	-0.0427*** (0.006)

Table 3 - continued

	(1)	(2)	(3)	(4)
VARIABLES	Adjusted ROA	Adjusted ROA	Adjusted ROA	Adjusted ROA
Regression specification	RE - FGLS	RE - FGLS	RE - FGLS	RE - FGLS
1999 Year dummy	Yes	Yes	Yes	Yes
Dummy for residual outliers	Yes	Yes	Yes	Yes
<i>Regression Statistics</i>				
Observations	4568	4568	4568	4568
Number of firms	523	523	523	523
R ² - overall	0.13	0.13	0.13	0.13
Wald Test	471 [0.000]	474 [0.000]	474 [0.000]	476 [0.000]
<i>Specification tests for random effects</i>				
Lagrange Multiplier test for RE	. [0.000]	. [0.000]	. [0.000]	. [0.000]
Hausman Specification Test	97 [0.000]	102 [0.000]	106 [0.000]	111 [0.000]

Notes: Robust White-Hubbert standard errors are in parentheses; p values are in brackets;*** p<0.01, ** p<0.05, * p<0.1. These random effect regressions use the industry-adjusted ROA as the dependent variable. Col.1 presents the results of the model without including family involvement and directors' gender-related variables. Cols. 2 and 3 incorporate the female directors [%] variable, and also includes the family involvement variables. Col. 4 takes the model in Col. 3 and replaces the female directors [%] variable for family female directors [%], family male directors [%] and outside female directors [%]. All regressions have a year dummy for 1999, to control for a Colombian economic recession.

Table 4
Professionalism index for directors and CEOs

		Professionalization Index (PI)	Education	Languages	Recognitions	Experience
Sample	Mean	8.84	4.67	1.90	0.23	2.05
	SD	-3.11	-2.18	-0.83	-0.47	-0.99
	Min	3	0	1	0	1
	Max	19	12	7	2	6
	Obs	815	815	815	815	815
Male	Mean	8.96	4.74	1.91	0.23	2.08
	SD	-3.10	-2.16	-0.83	-0.47	-0.99
	Min	3	0	1	0	1
	Max	19	12	7	2	6
	Obs	698	698	698	698	698
Female	Mean	8.14	4.22	1.85	0.21	1.86
	SD	-3.07	-2.20	-0.82	-0.43	-0.96
	Min	3	0	1	0	1
	Max	16	11	5	2	5
	Obs	117	117	117	117	117
Differences		0.82 ***	0.52 ***	0.06	0.03	0.22 **

Notes: The table presents the descriptive statistics of the professionalism index (PI) for the subsample of 815 CVs of CEO and directors. Col. 1 shows the professionalism index, while Cols. 2 to 5 show the descriptive statistics for higher education, languages, prizes and recognitions, and professional experience indexes. The table also shows the statistics for these indexes by male and female executives. The last row shows the value of the differences for these indexes between male and female executives as well as the statistical significance for the differences in means.

Table 5
Professionalism index for directors by gender

Panel A. Directors' Gender

		Professionalization Index (PI)	Education	Languages	Recognitions	Experience
Sample	Mean	8.90	4.68	1.90	0.24	2.08
	SD	-3.12	-2.18	-0.85	-0.47	-0.99
	Min	3	0	1	0	1
	Max	19	12	7	2	6
	Obs	726	726	726	726	726
Male Director	Mean	9.03	4.76	1.91	0.24	2.12
	SD	-3.11	-2.16	-0.85	-0.48	-0.99
	Min	3	0	1	0	1
	Max	19	12	7	2	6
	Obs	616	616	616	616	616
Female Director	Mean	8.20	4.25	1.86	0.21	1.87
	SD	-3.06	-2.21	-0.82	-0.43	-0.97
	Min	3	0	1	0	1
	Max	16	11	5	2	5
	Obs	110	110	110	110	110
Differences		0.83 ***	0.51 **	0.05	0.03	0.25 ***

Panel B. Directors' Gender and Family Status

		Professionalization Index (PI)	Education	Languages	Recognitions	Experience
Male Director	Mean	9.03	4.76	1.91	0.24	2.12
	SD	-3.11	-2.16	-0.85	-0.48	-0.99
	Min	3	0	1	0	1
	Max	19	12	7	2	6
	Obs	616	616	616	616	616
Outside- Male Director	Mean	8.86	4.64	1.86	0.23	2.12
	SD	-3.02	-2.10	-0.80	-0.47	-1.01
	Min	3	0	1	0	1
	Max	19	11	7	2	6
	Obs	546	546	546	546	546
Family-Male Director	Mean	10.37	5.67	2.30	0.31	2.09
	SD	-3.48	-2.44	-1.11	-0.50	-0.85
	Min	4	1	1	0	1
	Max	18	12	7	2	4
	Obs	70	70	70	70	70

Table 5 - continued

Panel B. Directors' Gender and Family Status

		Professionalization Index (PI)	Education	Languages	Recognitions	Experience
Female Director	Mean	8.20	4.25	1.86	0.21	1.87
	SD	-3.06	-2.21	-0.82	-0.43	-0.97
	Min	3	0	1	0	1
	Max	16	11	5	2	5
	Obs	110	110	110	110	110
Outside- Female Director	Mean	9.00	4.66	2.03	0.29	2.03
	SD	-2.82	-2.13	-0.88	-0.49	-1.01
	Min	4	1	1	0	1
	Max	16	11	5	2	5
	Obs	70	70	70	70	70
Family- Female Director	Mean	6.80	3.55	1.58	0.08	1.60
	SD	-2.99	-2.21	-0.59	-0.27	-0.84
	Min	3	0	1	0	1
	Max	15	9	3	1	4
	Obs	40	40	40	40	40

Notes: The table presents the descriptive statistics of the professionalism index for the subsample of 726 CVs of directors. Col. 1 shows the professionalism index, while Cols. 2 to 5 show the descriptive statistics for higher education, languages, prizes and recognitions, and professional experience indexes. Panel A also shows the statistics for these indexes by male and female directors. The last row shows the value of the differences for these indexes between male and females as well as the statistical significance for the differences in means. Panel B also shows the statistics for these indexes but splits male and female directors according to their family status.