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Are female leaders more efficient in family firms than in non-family firms?

Per-Olof Bjuggren, Louise Nordström and Johanna Palmberg

Abstract

Purpose – *The aim of this study is to investigate whether female leaders are more efficient in family firms than in non-family firms.*

Design/methodology/approach – *This paper uses a unique database of ownership and leadership in private Swedish firms that makes it possible to analyze differences in firm performance due to female leadership in family and non-family firms. The analysis is based on survey data merged with micro-level data on Swedish firms. Only firms with five or more employees are included in the analysis. The sample contains more than 1,000 firms.*

Findings – *The descriptive statistics show that there are many more male than female corporate leaders. However, the regression analysis indicates that female leadership has a much more positive impact on the performance of family firms than on that for non-family firms, where the effect is ambiguous.*

Originality/value – *Comparative studies examining the impact of female leadership on firm-level performance in family and non-family firms are rare, and those that exist are most often either qualitative or focused on large, listed firms. By investigating the role of female directors in family and non-family firms, the study adds to the literature on management, corporate governance and family firms.*

Keywords *Gender, Family firms, Corporate governance, Company performance, Financial performance*

Paper type *Research paper*

1. Introduction

Traditionally, women in family firms have roles that are closely linked to the family, i.e. spouse, mother or in-law, instead of a prominent and formal business-related position, such as CEO or CFO. These roles have traditionally been more closely associated with male family members (Arjis, 2013). However, the literature on family firms indicates that the role of women in these firms is changing. Women have become more visible and more incorporated into family businesses. A more positive vibe surrounds women's opportunities and the possibilities offered to them by a family firm in terms of career opportunities, management positions and leadership (Gupta and Levenburg, 2013; Jimenez, 2009).

Empirical studies on female corporate leadership exist, but the results are unclear and need more investigation. For example, Adams and Ferreira (2009) find an ambiguous effect of female directors on firm performance, and Dezsö and Ross (2012) report that female leadership is beneficial in some contexts. Most previous studies investigate large listed firms, with very few examining smaller non-listed firms. Systematic empirical research on women in family firms is even scarcer and requires further analysis^[1]. One area that has been examined is how female leaders function in family firms and what their obstacles are (Danes and Olson, 2003; Gnan and Songini, 2013; Jimenez, 2009). However, studies that link female ownership with leadership positions are missing.

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To fill this gap and to extend our knowledge on women in family firms, this paper investigates the effects of women in managerial positions, as members of the board of directors and as owners of the firm on firm-level profitability. A special focus is on family-owned enterprises. The following research question addresses the issue of female governance on firm performance:

RQ1. Is the effect of female governance different in family firms compared with that in non-family firms?

This study relates to recent research on female leadership in family firms. A study by [Amore et al. \(2014\)](#) appears to resemble our study the most. They have adopted a similar approach to ours, but it differs in important aspects: they study only family firms, they do not compare family with non-family firms and they do not consider female ownership. Their hypotheses are grounded in a theoretical framework that posits that female directors and leaders function better in cooperation with the same sex. By contrast, we also stress discrimination as an important explanation.

The paper makes empirical and practical contributions to the literature on family firms and to the corporate governance literature in general. Our main empirical contribution is our investigation of the effect of female corporate leaders on firm performance and our comparison of this effect between family and non-family firms. The empirical analysis is based on survey data with firms in all size classes and at least five employees, i.e. listed and non-listed firms are included. Firm owners were asked for the names of the five largest owners and for their respective cash flows and voting rights; they were also asked whether they considered themselves to be a family firm or a non-family firm. In total, 1,041 firms completed the survey, which corresponds to a response rate of 42 per cent. The survey data are matched with firm-level data from Bureau van Dijk's Amadeus database and with information on female leaders from official sources.

The regression analysis shows that female executives generate higher profitability in family firms than they do in non-family firms. Our results indicate that promoting women to leading positions is good for firms. That is, the results suggest that family firms can improve their profitability by supporting and mentoring female family members to take leading positions. The creation of regional and national networks is one policy suggestion that not only aims to further support female leaders but also could enhance firm performance.

The remainder of the paper is organized as follows. The next section presents the theoretical framework, an overview of the previous literature and the tested hypotheses. The third section discusses the methodology and the data and variables. Section 4 presents the relevant descriptive statistics and the regression analysis. The final section summarizes and concludes the paper.

2. Female leadership – literature review and research questions

Research on gender issues is relatively new within the corporate governance/finance literature ([Huang and Kisgen, 2013](#)). No coherent theoretical framework captures all aspects of gender and the ways in which it can affect firm performance. Instead, one must rely on a mixture of theories about behavioral differences related to gender, discrimination and the principal-agent relationship as well as to the proposed advantages of gender diversity on the board. After reviewing this literature, we claim that the difference between family firms and non-family firms must be acknowledged when considering the effects of gender on firm performance.

2.1 Gender differences in top management

[Jensen and Meckling \(1976\)](#) provide a corporate governance framework based on a principal-agent view. The central message in their article is that corporate leaders (those

who control the use of firm assets) are human beings with a taste for both pecuniary and nonpecuniary wealth in the form of consumption on the job (consumption at the expense of firm value). The principals are the firm financiers, and the agents are those who control the management of firm resources. Here, we will concentrate on corporate shareholders as principals and owners. In some firms, especially larger firms, there are different layers of agents. The board, for example, is an agent of the shareholders and their task is to control the CEO and other executives responsible for the firm's day-to-day management[2]. Many private firms are characterized by highly concentrated ownership, and the board is thus not as important as an agent. Often, only a few persons own the entire stock of shares. If the owner, the board membership and the CEO position are concentrated in one person or a small group of closely connected persons (i.e. a family), we argue that the control capabilities of that person/group is very strong. If the person or group of individuals in question is also the only owner, there is no division of ownership and control (Berle and Means, 1932). In that case, it is not possible to engage in on-the-job consumption at the expense of other owners. We add to this perspective of the board and owner control with an investigation into whether gender matters as well.

2.1.1 Gender and diversity – the principal-agent framework. In the corporate governance literature, much has recently been written about gender balance on boards (Bøhren and Staubo, 2014; Terjesen *et al.*, 2009; 2016). Within the agency framework, board diversity (in this case, gender diversity) is best understood in terms of independent directors (Carter *et al.*, 2003). Many board tasks involve monitoring management, and because independent directors are incentivized to develop their reputations as expert monitors, these tasks are theoretically best fulfilled by directors who are not dependent on management. According to Terjesen *et al.* (2016), the independence of the board of directors can be enhanced by gender diversity (i.e. more female directors on the board). In their study of 3,876 listed firms in 47 countries, they found that gender diversity increases firm efficiency.

However, at least four objections arise from this argument. First, the role of gender diversity may differ between large and small firms. In small firms, female directors might not represent outsiders; instead, they might be part of the controlling family and, in turn, be dependent both on management and on the largest owner. Second, if the board outsider (in this case, a woman) is marginalized, perhaps appointed as a token rather than as a full member of the board[3], she might be unable to influence the board's work. Third, an overly high share of outsiders might lower the quality of the board's work because outsiders have less firm-specific knowledge. However, this argument might not be valid for female executives in family firms because as family members, they cannot be considered outsiders. Fourth, the effect of gender diversity might differ between firms due to other differences in corporate governance quality. For example, Adams and Ferreira (2009) find that female directors might be tougher when monitoring management. In firms that already have high-quality governance, this toughness might lead to over-monitoring, thereby reducing the quality of the board's work and firm performance. In a multi-country study, Terjesen *et al.* (2016) find that gender diversity in the board of directors generate higher market (Tobin's q) and accounting (return on assets [ROA]) performance. One reason is that female directors enhance the effectiveness of the board.

There are tradeoffs between the value of independent (outside) versus dependent (inside) directors and between the values of diversity versus homogeneity on boards; these tradeoffs should be considered in discussions of board gender composition. Bøhren and Staubo (2014) use the tradeoff relationship between outsiders and insiders in their analysis of why the value of some Norwegian firms decreased after the 40 per cent gender quota was passed by the Norwegian Parliament in 2003 (it become mandatory in 2008). As a framework for their tradeoff discussion, they refer to Adams and Ferreira (2009), Linck *et al.* (2008) and Duchin *et al.* (2010). Bøhren and Staubo (2014) find that demand for an independent board is lowest in small, young, profitable and non-listed firms with few female

directors and powerful stockholders. Sweden does not have a gender quota for boards of directors. However, in 2002, the Swedish minister of gender quality threatened to introduce a quota because of the low levels of gender diversity in listed Swedish companies (in the 1990s, the share was steady at below 5 per cent). The threat appeared to have been credible and caused a substantial increase in female board representation in listed firms. In subsequent years, there was a 5-10 percentage point (or an approximately 100-200 per cent increase) in female representation (Tyrefors Hinnerich and Jansson, 2017).

The tradeoff between diversity and gender homogeneity is also the main theme in Amore *et al.* (2014), who conduct an empirical study of the impact of female executives and directors on firm profitability in Italian family firms. Their explanation for why female leadership boosts profitability is based on the argument that female interactions on boards and between boards and CEOs are beneficial. They refer to earlier studies by, among others, Greig and Bohnet (2009) and Matsa and Miller (2012), who find that cooperation is more productive between women than between men and women. Terjesen *et al.* (2016) refer to numerous studies that, taken together, indicate that because female board members engage in a higher level of oversight, they improve the performance of the firm.

2.1.2 Behavioral differences. A large number of studies have examined how men and women differ in terms of confidence, ethical behavior and attitudes toward competition and risk. Such behavioral differences can have an impact on investment and profitability. Many of these studies are experimental. For example, the study of Niederle and Vesterlund (2007) examine the differences between men and women in their preferred type of compensation scheme for work. The experimental design allows them to distinguish the extent to which compensation scheme choices stem from risk aversion, discrimination, confidence or preferences. They find that confidence and preferences regarding competition differ; men are inherently more competitive and more overconfident than women. Huang and Kisgen (2013) examine how confidence influences financial decisions. Using real market data, they find that male executives undertake more acquisitions and issue more debt than female executives and that the announcement returns for these financial decisions are lower for male executives. They refer to male overconfidence as an explanation for this result.

Charness and Gneezy (2012) conduct another experimental study. They study investment behavior and find that men are more prone to risk-taking than women. However, in another experiment, Schubert *et al.* (2000) find that ambiguity influences risk-taking. They found no differences in risk aversion between men and women if investment decisions are made in a secure environment with known probabilities for risky payoffs. Furthermore, in their empirical study, Hibbert *et al.* (2013) find that financial education mitigates gender differences in financial risk aversion.

Some studies also examine differences between the sexes in terms of ethics. In a survey of 213 business school students, Betz *et al.* (1989) find that men are twice as likely as women to engage in unethical actions. They conclude that men are even prepared to break the law to receive personal benefits, whereas almost no female in their study would go that far. Ford and Richardson (1994) find a similar gender pattern in a review of the empirical literature addressing ethical decision making: out of 14 articles examining gender differences in ethical behavior, seven find that women are more ethical than men and the remaining seven find no significant difference between them.

What effects do lower confidence, risk aversion, a lower competitive drive and ethical constraints have on firm performance? Further empirical research is needed to test these proposed behavioral differences between men and women and their effects. In our study, we primarily investigate private firms. Consequently, we are interested in earlier studies that focus on the effects of gender on performance in private firms. In an overview of studies on small firms and startups, Robb and Watson (2012)[4] indicate that most empirical studies find that female-owned firms underperform relative to male-owned firms. A Swedish study by Du Rietz and Henrekson (2000) collects survey data from a random sample of 4,200

small firms between 1 and 20 employees taken from all Swedish firms in that size class from 1995. The response rate reaches 79 per cent. The performance variables are sales, profitability, growth and orders. The sample includes 450 female-owned firms, and female underperformance is only found in sales.

In another Scandinavian study, [Smith et al. \(2006\)](#) conduct a panel study of 2,500 Danish firms from 1993 to 2001. Register data are used, which cover most firms in Denmark. Most of the firms are fairly small and private, there are only 300 listed firms in their database. Profit margins and ROA are used as performance measures. [Smith et al.](#) study the proportion of women in top executive jobs and on boards of directors and find that the proportion of women tends to have positive effects on firm performance.

2.1.3 Discrimination. A number of studies report that there is increasing demand for female leaders in the corporate world. [Farrell and Hersch \(2005\)](#) offer the following arguments for hiring more women as directors and executives:

1. gender diversity with respect to boards of directors has a positive impact on firms' financial performance;
2. external pressure on firms to increase the share of female directors and executives; and
3. internal preferences for gender diversification. Here, we will examine the performance argument.

The performance argument rests on the assumption that low levels of diversity imply forgoing talent and thereby generating lower performance, i.e. the discrimination argument developed by [Becker \(1957\)](#). By sidestepping a segment of society's talent by appointing directors and executives based on gender instead of their qualifications, the quality of internal corporate governance will systematically decrease ([Burke, 1997](#); [Cassell, 2000](#)).

With respect to corporate governance, discrimination can be studied within the principal-agent framework in the form of on-the-job consumption^[5] ([Jensen and Meckling, 1976](#)). As defined by [Becker \(1957\)](#), gender and other forms of discrimination represent a type of consumption of corporate resources at the expense of firm value. Gender or race discrimination implies that marginal productivity is no longer the norm for the use of labor. For example, an employer chooses to hire a person with a lower marginal productivity due to preferences for a certain race or gender; the cost of this discrimination is then born by the employer in terms of lower profit.

In a private firm with essentially non-tradable shares, gender preferences might be shared by both shareholders and management; these preferences, along with other types of discrimination, are less likely to be shared by shareholders and management in listed (public) firms. With most shareholders holding an outside position (not working in the firm or in any other way spending time at the firm), discrimination that results in a lower share value is likely not to be appreciated. Therefore, one can hypothesize that outsiders, such as the shareholders in a listed firm with dispersed ownership, do not support discrimination (this type of shareholder is only interested in maximizing the value of their shares). From that perspective, [Wolfers \(2006\)](#) unsurprisingly finds no difference in share value between female-headed and male-headed listed firms. Moreover, neither [Rose \(2007\)](#) nor [Robb and Watson \(2012\)](#) find statistically significant effects in cross-sectional studies of Danish and American firms, respectively. However, these results are not conclusive. [Adams and Ferreira \(2009\)](#), for example, find an ambiguous effect of female directors on firm performance; [Dezsö and Ross \(2012\)](#) report that female leadership is beneficial in some contexts. In a study of listed firms in the USA, [Erhardt et al. \(2003\)](#) use accounting measures to show that higher gender diversity on boards of directors has a positive effect on firm performance. In addition, in cross-country studies, [Terjesen et al. \(2015, 2016\)](#) find positive effects of female boards of directors on firm performance. Female directors are also

drivers of the positive effects of independent directors. Others (Ahern and Dittmar, 2012) have found negative effects of female representation on boards of directors.

2.2 Family firm management

In this study, we are interested in female leaders in family firms; thus, we must include the specific attributes that characterize family firms in our discussion. Previous research has clearly shown that family firms differ from non-family firms in terms of management and governance structure and that these differences affect, for example, strategic attitudes, corporate governance characteristics, financing and recruitment policies (Bornhäll *et al.*, 2016; Ellul *et al.*, 2010; Pérez-González, 2006). Thus, the general corporate governance theoretical framework outlined above must be reformulated with regard to family firms.

2.2.1 Resources in family firms. In considering family firm management, resource dependence theory will likely be important. Resource dependence theory rests on the assumption that a firm's competitive advantage lies in applying and capitalizing on internal resources. The firm is characterized as being composed of "bundles" of resources, and it gains competitive advantages by creating unique or hard-to-copy bundles. Human capital is the key factor here (Huybrechts *et al.*, 2011). Graves and Shan (2014) perform an empirical comparison of profitability in Australian private family and non-family firms. They find higher profitability in family firms and refer to human capital resources as an explanatory factor but do not test it empirically. Their purpose instead is to test for the effects of internationalization on profitability. They found no significant impact of internationalization on profitability in family firms. Barney (1997) argues that employees and management structures are the most valuable and most difficult to duplicate firm resource. Directors are considered providers of essential resources or the channels through which the firm can secure such resources from the external world. In other words, directors bring important resources to the firm such as expertise, capital and knowledge of customers, suppliers and other cooperative partners (Hillman *et al.*, 2000)[6]. In this respect, Terjesen *et al.* (2016) emphasize that female directors have network advantages and a better understanding of certain markets and consumers. Being raised in a family business has an impact on the knowledge and capabilities of family members who may later be appointed as directors and CEOs. Bjuggren and Sund (2001, 2002) emphasize the knowledge idiosyncrasies obtained through an upbringing in a family firm. The topic is also discussed in Habbershon *et al.* (2003) and Zahra and Sharma (2004). Wilson *et al.* (2013) further show that the unique human and social resources of family firms guide them in building boards of directors that generate a higher chance of survival. In other words, interconnecting intangible resources provide family firms with comparative advantages (Huybrechts *et al.*, 2011). Additionally, Jabeen *et al.* (2015) find that different aspects of family contribution are important for business success.

Another distinguishing feature of the family firm is the concentration of ownership and control. The alignment of incentives and capabilities for profitable operations is revealed in efficient investment performance (Bjuggren and Palmberg, 2010). In other words, a family firm can reap certain principal-agent advantages. However, others (Schulze *et al.*, 2003) have identified a potential dark side in that family firms sometimes "are plagued by conflicts that can cause them to flounder, if not fail, and that they are vulnerable to a form of inertia that can paralyze decision making and threaten firm survival" (Schulze *et al.*, 2003 p. 180). In an empirical study, Schulze *et al.* (2001) also find that family firms are more difficult to manage because of dilemmas created by altruism and nepotism.

More recently, Bennedsen *et al.* (2007) presented an extensive study of the impact of succession decisions on performance that indicates gender discrimination in family firms[7]. They study 5,334 successions in mostly private Danish corporations and find that family successions have a negative impact on firm performance. Of special interest to our

study are their gender-related results. They find that a family successor is much more likely if more than 50 per cent of the outgoing CEO's children are male than if the share of male children is lower. Even more interesting is that "outgoing executives whose firstborn children are male are 9.6 percentage points more likely to be succeeded by a family member than their counterparts whose firstborn is female" (p. 662). Judging from their findings, there is apparently gender discrimination in the appointment of successors in family firms. Danish culture is very similar to Swedish culture.

2.2.2 Women in family firms. In an excellent review of "Research on Women in Family Firms: Current Status and Future Directions", [Jimenez \(2009\)](#) presents the development of researchers' views on the role of women as presented in the literature since 1985[8]. The literature can be divided into two segments: obstacles and positive aspects. The first segment highlights the issue of "the invisible woman", emotional leadership and succession and primogeniture. The second segment of the literature is more recent and highlights women's professional careers within the family firm and the management of the family firm. Our study falls within the primogeniture discussion, and our paper's theme also highlights women's professional careers, as these subjects relate to discrimination and resource-based theory.

Among the recent empirical research, we want to highlight the study of [Amore et al. \(2014\)](#), who specifically examine the impact of gender on performance in family firms. [Wilson et al. \(2013\)](#) also study the differences between family and non-family firms, with a focus on gender issues. They include control variables for the share of female directors and the presence of female directors in their analysis. The other studies that we have found on gender performance in private firms do not explicitly consider the distinction between family and non-family firms. [Amore et al. \(2014\)](#) use a panel of 2,400 medium-sized and large family-controlled firms, with data from the 2000-2010 period. The data cover both listed and non-listed firms, each firm in the data set had sales exceeding EUR50m in 2009, and overall, there are 10,154 observations for the entire period. The ROA is used as a performance measure. The following explanatory gender variables are used: female CEO, proportion of female directors on the board and the interaction between a female CEO and female directors. A positive significant impact on profitability is found for the interaction term for female CEOs and female directors. Otherwise, a negative sign is found for the female gender variables. This result is interpreted to show that female cooperation in family firms has a positive impact on profitability. [Wilson et al. \(2013\)](#) use a database covering more than 700,000 medium and large UK family and non-family firms. Special consideration is devoted to differences in the board structures between the two groups of firms. They find that the ratio of female directors has a positive impact on survival and that this ratio is much higher in family firms.

2.2.3 Hypotheses. Based on discussions of the relevance of principal-agent theory, resource-based theory and discrimination theory for family firms' management, we present the following hypotheses:

H1. A female CEO is likely to have a more positive impact on performance in family firms than in non-family firms.

The discrimination against the appointment of women as CEOs, as found by [Bennedsen et al. \(2007\)](#) and [Jimenez \(2009\)](#), motivates this hypothesis. Because women have more difficulty making their careers in family firms, those who actually become leaders are thus better leaders and generate higher profitability:

H2. Combining female ownership with a female CEO is likely to have a more positive impact on performance in family firms than in non-family firms.

The alignment of ownership and leadership makes it easier for a female CEO to make a difference. The idiosyncratic knowledge ([Bjuggren, 2001](#) and [Sund, 2002](#); [Jabeen](#)

et al., 2015) that is acquired by growing up in a family business can also be important here. Women's higher marginal productivity is likely to translate into higher profitability:

H3. Combining female ownership with a female CEO and female board membership is likely to have a more positive impact on performance in family firms than in non-family firms.

This hypothesis is motivated by discrimination, the principal-agent relationship and resource-based considerations. Female leadership will potentially increase the ability to control, marginal productivity and idiosyncratic knowledge. The motivation behind this hypothesis is essentially the same as that for *H2*. A woman holding all three positions combined further strengthens the female leadership position:

H4. The share of female directors is likely to have a positive effect on performance in family and non-family firms.

The last hypothesis is essentially based on discrimination theory (Becker, 1957), but the positive effects of female cooperation (see Amore *et al.*, 2014; Terjesen *et al.*, 2016) also contribute.

3. Data, survey and variables

The data set contains information on ownership, the board of directors and the CEO along with accounting data for private Swedish firms for the year 2008. The ownership database is created by the Center for Family Ownership at Jönköping International Business School through a survey of Swedish firms. The sample firms were randomly selected from the total population of Swedish limited liability firms (270,057 firms in total). The sampling was based on firm size, which was measured in terms of the number of employees. No firm with fewer than five employees was included, and firms were categorized based on the number of employees (Table I). A survey was thereafter conducted and distributed to delineate ownership structures and the appearance of family firms. In total, the survey was sent out to 2,522 firms.

In the survey, we asked for the names of the five largest owners, along with their respective ownership shares and voting power. A total of 1,041 firms answered the survey, producing a response rate of approximately 42 per cent. By obtaining the owners' names, we were later able to map the occurrence of female owners and their respective ownership shares. Additionally, we identified each firm's board members through a public website (allabolag.se). Ultimately, we had 1,001 firms with all the necessary information covering, for example, female ownership, board participation and family involvement. We excluded 40 companies for which we lacked the necessary information. All of the firms' financial and accounting data were extracted from Bureau von Dijk's Amadeus database.

Table I Sample sizes and respective groups	
Groups	No. of firms in the sample
5-9	622
10-19	359
20-49	242
50-99	391
100-199	205
200-499	250
500-999	216
>1,000	237
Sum:	2,522

In this study, we have only included firms as family firms if they consider themselves family firms. Our presumption is that firms that declare themselves to be family firms also are firms in which there is an intention for the firm is to stay within the ownership and control of the family. Accordingly, we argue that our selection of firms meets the definition outlined by [Chua et al. \(1999, p. 25\)](#):

The family business is a business governed and/or managed with the intention to shape and pursue the vision of the business held by a dominant coalition controlled by members of the same family or a small number of families in a manner that is potentially sustainable across generations of the family or families.

Dependent variable: Profit margin, calculated as earnings before interest and taxes divided by sales, was used as the dependent variable. Due to the nature of our sample (both listed and non-listed firms), stock data for all companies could not be obtained . . . and hence no market-based measures of performance were used in the analysis[9]:

1. *Independent variables*: Various measures of female leadership were used in the analysis. For example, we used female leadership in terms of ownership, corporate directorship and a dummy controlling for a female CEO. In the regression analysis, these variables are tested both separately and as an interaction term.
2. *Control variables*: As control variables, we use firm age, firm size in terms of employees and solvency measures. We also classify industry using four industry groups:
 - manufacturing;
 - construction;
 - wholesale and retail trade and transportation and storage; and
 - services (see [Table II](#) for details).

Table II Definition of variables

<i>Variables</i>	<i>Definition</i>
<i>Panel A: Governance variables</i>	
Female CEO	Dummy variable, equal to one if CEO is female, zero otherwise
Share of female directors	Share of female directors
Board size	Number of board members
Total female ownership	The proportion of shares owned by female shareholders
Female owner-CEO	Dummy variable, equal to one if the CEO is female and the largest owner of the firm is female
Female owner-board	Number of females that are board members and owners
Female director-owner-CEO	Interaction term between the number of female directors, number of female owners and the female CEO dummy
<i>Panel B: Firm variables</i>	
Firm age	2008 minus the year that the firm was incorporated
Profit margin	Measure of firm profitability. Defined as net income divided by sales
Solvency	Shareholders' Funds/Total Assets*100 (%). Note: In a few cases, there are negative values due to how it is defined in Amadeus (Bureau van Dijk)
Firm size	Net sales (thousand EUR)
Industry sector	Dummies for (1) manufacturing; (2) construction; (3) wholesale and retail trade and transportation and storage; and (4) accommodation and food service activities, financial and insurance activities, real estate, professional, scientific activities and other service activities (The sector division is based on NACE, Rev. 2 classification, in Amadeus)

4. Results

4.1 Descriptive statistics

Tables III and IV present descriptive statistics for all firms and for non-family and family firms with regard to female ownership and to female representation on boards of directors. There are 817 observations after the elimination of outliers on each end of the profit margin distribution (5 per cent for each tail). Table III presents descriptive statistics for all firms. Female participation is quite modest. Only 16 per cent of the board of directors, 9 per cent of the CEOs and 8 per cent of the owners are female. Only 5 per cent of the firms have female ownership and a female CEO, and only 5 per cent have female ownership, a female CEO and female board members.

Firm ages range considerably, with an average age of 27 years. The oldest firm is 111 years old, and the youngest firm is 1 year old. The average firm has net sales of EUR11.3m. This net sales average is much lower than the minimum level applied by Amore *et al.* (2014). Thus, our sample represents a wider range of firms. On average, the sample firms have a positive profit margin and a solvency rate of 35 per cent.

Table IV presents a comparison of family firms and non-family firms and shows that no major differences exist between them in terms of female leadership. Female ownership is much greater in family firms (12 per cent compared with 9 per cent). The difference is statistically significant.

Table III Descriptive statistics for all firms				
Variables	Mean	SD	Minimum	Maximum
Board size	4	2.62	1	16
Female CEO	0.09	0.29	0	1
Female owner-CEO	0.05	0.21	0	1
Female owner-board	0.14	0.44	0	4
Female director-owner-CEO	0.05	0.21	0	1
Share of female directors	0.16	0.24	0	1
Total female ownership	0.08	0.22	0	1
Firm age	26.57	23.43	1	111
Sales firm size	11,254	44,015	114	8,185,552
Profit margin (%)	4.84	5.98	-8.14	22.15
Solvency (%)	34.97	21.99	-77.62	96.67

Note: The total number of observations is 817

Table IV Descriptive statistics with a t-test of differences for family and non-family firms					
Variables	Family firms		Non-family firms		t-test
	Mean	SD	Mean	SD	
Board size	3.00	2.02	5.00	2.78	10.45
Female CEO	0.09	0.28	0.10	0.30	0.37
Female owner-CEO	0.06	0.23	0.04	0.19	-1.42
Female owner-board	0.19	0.47	0.09	0.42	-3.35
Female director-owner-CEO	0.06	0.23	0.04	0.19	-1.42
Share of female directors	0.15	0.25	0.16	0.24	0.69
Total female ownership	0.12	0.25	0.04	0.18	-5.28
Firm age	26	19.82	27	26.07	0.74
Firms size	60,050	350,030	156,413	499,425	3.12
Profit margin (%)	4.81	5.91	4.86	6.04	0.17
Solvency (%)	38.19	21.56	32.29	22.00	-3.89
Number of observation/share (%)	372	45.50	445	54.50	

Note: Significant differences are presented in italic

The descriptive statistics show that the average board size is larger in non-family firms than in family firms. On average, non-family firms have five board members, whereas family firms have three. No statistically significant difference exists between family and non-family firms with regard to age or profitability. However, family firms have a statistically significant higher solvency ratio.

In summary, even though total female ownership is considerably higher in family firms, there are apparently no major differences with regard to leadership between family firms and non-family firms, judging from the share of firms with female CEOs, the share of firms with female CEOs who are among the five largest owners and the share of firms with female CEOs who are among the five largest owners and who sit on the board.

4.2 Correlations

In this section, we discuss correlations between female leadership and ownership variables. As seen later in the paper, the correlation between these variables will determine the selection of the models to be used in the regressions (see [Tables AI](#) and [All](#) for the correlations between all variables). [Table V](#) presents the correlations for non-family firms, and [Table VI](#) presents the correlations for family firms. [Table V](#) shows that female ownership is significantly correlated with all other governance variables. That is, there is a positive correlation between female ownership and female leadership in non-family firms. A possible interpretation of this result is that if female ownership increases, female representation, both in the management of the firm and on the board of directors, will also increase. A correspondingly high correlation between female ownership and female leadership is not found in family firms ([Table VI](#)).

Table V Correlation matrix: Non-family firms

<i>Variables</i>	<i>Board size</i>	<i>Owner-CEO</i>	<i>CEO female</i>	<i>Female director-owner-CEO</i>	<i>Total female ownership</i>	<i>Share of female directors</i>
Board size	1					
Female owner-CEO	-0.145**	1				
Female CEO	0.005	0.591**	1			
Female director-owner-CEO	-0.145**	1.00**	0.591**	1		
Total female ownership	-0.178**	0.854**	0.490**	0.854**	1	
Share of female directors	0.158**	0.511**	0.510**	0.511**	0.591**	1

Notes: The table displays Pearson correlation coefficients; **indicates significance at the 0.01 level

Table VI Correlation matrix: Family firms

<i>Variables</i>	<i>Board size</i>	<i>Owner-CEO</i>	<i>CEO female</i>	<i>Female director-owner-CEO</i>	<i>Total female ownership</i>	<i>Share of female directors</i>
Board size	1					
Female owner-CEO	0.033	1				
Female CEO	0.076	0.743**	1			
Female director-owner-CEO	0.027	0.950**	0.743**	1		
Total female ownership	-0.048	0.423**	0.337**	0.490**	1	
Share of female directors	0.07	0.416**	0.414**	0.438**	0.415**	1

Notes: The table displays Pearson correlation coefficients; **indicates significance at the 0.01 level (2-tailed)

A comparison between [Tables V](#) and [VI](#) further shows that for non-family firms, a significant negative relationship exists between board size and strong female leadership and that a significant positive relationship exists between board size and the share of women on the board. In family firms, there is no significant relationship between these variables.

4.3 Model

We use an ordinary least squares regression model to obtain the coefficient estimate of the model. The general model is as follows:

$$\text{Profit margin} = f(\text{Female ownership, Female CEO, Female CEO – owner, Female director – owner – CEO, Share of female directors, Control variables}) \quad (1)$$

H1-H4 predict that female leadership (female CEO, female CEO-owner, female director-owner-CEO, share of female directors) will have a positive effect on profit margins in *family firms* due to the combination of corporate governance, discrimination effects and resource-based considerations (see Section 4 for a detailed discussion). Female ownership is thus a variable that does not automatically connect to an influential inside position (e.g. CEO or board member) in family firms. From this perspective, predicting these variables' influence on profits might be difficult. Due to the high correlations between female CEO, female CEO-owner, female director-owner-CEO and the share of female directors ([Tables V](#) and [VI](#)), we will separately estimate the coefficients in four different models for family firms and non-family firms. Consequently, eight different models will be estimated.

The control variables used in each of these models are the size of the board of directors, solvency, firm age, firm sales and industry sector. These variables have been commonly used in earlier studies to account for the firm's financial situation, its maturity, size effects and the industrial environment. Board size is commonly considered to have a negative effect if the board is very large. The estimated model can thus be formulated as follows:

$$\begin{aligned} \text{Profit margin} = & a + \beta_1 \text{Female ownership} + \beta_2 \text{Board size} + \beta_3 \text{Solvency} + \beta_4 \ln \text{age} \\ & + \beta_5 \ln \text{Sales} + \beta_6 \text{Industry sector 1} + \beta_7 \text{Industry sector 3} + \beta_8 \text{Industry sector 4} \\ & + \beta_9 (\text{one of the following variables : Female CEO, Female CEO} \\ & \text{– owner, Female director – owner – CEO and Share of female directors}) + \varepsilon_1 \end{aligned} \quad (2)$$

4.4 Regression analysis

Due to the high correlation between the different female leadership variables, separate regressions will be used for each ([Tables VII](#) and [VIII](#)). The regression results indicate that the strong leadership represented by female CEO-owner and female director-owner-CEO have opposite signs in family firms and non-family firms. In addition, all of the female leadership variables (female CEO, female CEO-owner, female director-owner-CEO and the share of female directors) have a positive sign in family firms. Strong female leadership, as indicated by a female director-owner-CEO, has a significantly positive impact on performance at the 5 per cent level. (In [Table AII](#) in the [appendix](#), the female CEO-owner variable is also significant at the 10 per cent level, although only when industry dummies are excluded see [Table AV](#)).

Thus, the results support *H3*. The high marginal productivity due to discrimination, idiosyncratic knowledge and principal-agent advantages may explain this result for family firms. However, the results do not support the other hypotheses (*H1*, *H2* and *H4*). The negative signs for female CEO-owners and female director-owner-CEOs in non-family firms

Table VII Regression analysis: Family firms

Variables	Model 1	Model 2	Model 3	Model 4
Constant	3.723** (1.879)	3.703** (1.871)	3.767** (1.865)	3.612* (1.876)
Female ownership	-1.253 (1.269)	-1.738 (1.318)	-2.301 (1.352)	-1.079 (1.314)
Board size	0.113 (0.175)	0.105 (0.174)	0.103 (0.174)	0.116 (0.175)
Solvency	0.102*** (0.014)	0.101*** (0.014)	0.102*** (0.014)	0.104*** (0.014)
In age	-0.502 (0.363)	-0.508 (0.362)	-0.515 (0.361)	-0.515 (0.365)
In sales	-0.219 (0.191)	-0.204 (0.191)	-0.208 (0.190)	-0.211 (0.192)
Industry 1	0.188 (1.129)	0.194 (1.127)	0.191 (1.123)	0.172 (1.130)
Industry 3	-0.098 (1.016)	-0.092 (1.013)	-0.095 (1.01)	-0.109 (1.021)
Industry 4	0.902 (1.048)	0.884 (1.043)	0.856 (1.039)	0.958 (1.048)
Female CEO	0.907 (1.095)			
Female CEO-owner		2.106 (1.403)		
Female director-owner-CEO			3.123** (1.427)	
Share of female directors				0.388 (1.259)
R ²	0.146	0.150	0.156	0.145
N	372	372	372	372

Notes: Standard deviation is presented in parentheses; **p*-value 0.1; ***p*-value 0.05; ****p*-value 0.01; dependent variable: net profit margin

Table VIII Regression analysis: Non-family firms

Variables	Model 5	Model 6	Model 7	Model 8
Constant	-2.409 (1.882)	-2.335 (1.852)	-2.335 (1.852)	-2.522 (1.888)
Female ownership	-2.879 (1.853)			-3.503* (2.098)
Board size	0.037 (0.119)	0.043 (0.118)	0.043 (0.118)	0.019 (0.123)
Solvency	0.089*** (0.013)	0.089*** (0.013)	0.089*** (0.013)	0.089*** (0.013)
In age	0.033 (0.280)	0.047 (0.279)	0.047 (0.279)	0.013 (0.281)
In sales	0.017 (0.166)	0.013 (0.164)	0.013 (0.164)	0.013 (0.166)
Industry 1	-0.930 (1.321)	-0.862 (1.317)	-0.862 (1.317)	-0.940 (1.319)
Industry 3	-1.166 (1.321)	-1.109 (1.319)	-1.109 (1.319)	-1.212 (1.322)
Industry 4	-0.623 (1.241)	-0.545 (1.235)	-0.545 (1.235)	-0.702 (1.246)
Female CEO	0.244 (1.074)			
Female CEO-owner		-2.781* (1.559)		
Female director-owner-CEO			-2.781* (1.559)	
Share of female directors				1.023 (0.676)
R ²	0.122	0.123	0.123	0.122
N	445	445	445	445

Notes: Standard deviation is presented in parentheses; **p*-value 0.1; ***p*-value 0.05; ****p*-value 0.01; dependent variable: net profit margin

imply that female leadership does not result in increased performance, while the opposite is found for family firms. The result for female ownership, negative for family firms and significant and negative for non-family firms, is in line with most earlier empirical studies on the impact of female leadership [see [Robb and Watson \(2012\)](#) for an overview]. The earlier Swedish study of small firms (no more than 20 employees) by [Du Rietz and Henrekson \(2000\)](#) find that female-owned firms do not underperform in profitability. We find, considering all firm sizes, significant higher profitability when the female roles of director and CEO are combined with ownership. When all firms are included, both family and non-family firms, none of our four leadership variables are significant ([Table AV](#)). In light of earlier research, the behavioral differences between men and women with respect to confidence, ethical behavior and attitudes regarding competition and risk potentially have a negative impact on performance and can be one explanation for this result. An increase in the riskiness of larger non-family firms may play a role.

In addition, perhaps the idiosyncratic knowledge obtained by female leaders in family firms is lacking for female leaders in non-family firms. [Jabeen et al. \(2015\)](#) find that family is important for business success. Although their study is about female entrepreneurs in the United Arab Emirates, one can expect that family also matters in other countries. The main conclusion that can be drawn is that female ownership is significantly positive in family firms. If family and non-family firms are combined ([Table AV](#)), the gender of the top management does not matter; this illustrates the need to study family and non-family firms separately when analyzing female leadership efficiency. The positive impact of female ownership in family firms is also found in [Amore et al. \(2014\)](#). This area requires further research. Finally, despite our expectations in Hypotheses 1 and 4, we find no significant effect of female CEOs or the share of female directors on performance. This is quite different from the positive effect of gender diversity that [Terjesen et al. \(2016\)](#) find. However, they study only listed firms, whereas we study primarily private (non-listed) firms. Another difference is that they do not consider the impact of director ownership.

5. Concluding discussion

In this study, a randomly drawn sample that represents all Swedish corporations is used as a database. Hence, the overwhelming majority of firms are non-listed. The study is unique in making a distinction between family and non-family firms in analyzing the efficiency of female leadership. This distinction is motivated by the presumption that the conditions for female leadership differ between these two types of firms. In leadership, we include both ownership and control. Stronger leadership potential is obtained if there is no separation between ownership and control. By efficiency, we mean performance in the form of profitability. Ideally, we would have liked a performance measure that discounted expected future profitability. Such measures include Tobin's Q, as used by [Terjesen et al. \(2016\)](#), and marginal Q, as presented by [Bjuggren \(2016\)](#). However, because of the nature of our sample, i.e. the inclusion of private non-listed firms, no company stock data could be obtained; hence, no market-based performance measures like these two could be used. Instead, an accounting-based measure of firm performance (the net profit margin) was used in the econometric analysis.

Our study shows that female leadership that combines ownership and control is more common in family firms than in non-family firms. This female leadership also has a strong positive impact on performance in family firms, while its impact on performance is surprisingly quite negative in non-family firms. Our result is unique in its focus on differences in profitability and views on leadership. Earlier research comparing family and non-family firms differs by considering only the role of females in boards, studying only public firms, using performance measures other than profitability or concentrating on female ownership. We find that control possibilities offered through board and CEO positions are not sufficient to explain why females can make a difference. Ownership must also be considered. Our results differ from [Terjesen et al. \(2016\)](#) and [Wilson et al. \(2013\)](#), in finding significance for a positive relation between female leadership and performance, first when ownership among board members and CEOs are considered. Furthermore, [Jabeen et al. \(2015\)](#) concentrate on female as owners. Their finding is also related to our discussion of idiosyncratic knowledge.

We were pleased that the working version of this paper was reviewed in *Forbes* ([Worstell, 2015](#)). The review included interesting comments that also fit our discussion of idiosyncratic knowledge within the family. The author argues that one reason for why female leaders in family firms are more efficient is that "[...] it could be simply that those that are hiring the female members are those making the most of the talent available". Regarding our discrimination hypothesis, he writes, "Those who default to the son taking over are thus

ignoring the fact that skill and drive are not things that move solely with the Y chromosome". The article ends by suggesting "[...] simply a cohort effect. It really is only in the last 20 to 30 years that women have been getting the same sort of college educations, right across everyone, that men have more traditionally had". This is the resource dependency effect to which we refer in Section 2.2.1. Hence, idiosyncratic knowledge and female education are likely to play an even larger role for female leadership in family firms. One practical implication of our study could be that family elders should pay more attention to the talents of their daughters.

In addition to this discussion of the effects of education and family idiosyncratic knowledge, we want to add the importance of paying attention to the importance of ownership in leadership. With ownership comes self-interest to make the firm profitable, as noted by Adam Smith in *The Wealth of Nations*. We argue that ownership must be included when evaluating the efficiency of female directors and CEOs. Thus far, we have not discussed the limitations of our study. One obvious limitation is that it is a cross-sectional study. With panel data, it is possible to study effects over longer periods and perhaps discover trends. Furthermore, we have not considered ownership concentration in family firms, which might have implications on efficiency, as noted by [Schulze et al. \(2003\)](#). Future research could enhance the study in these directions.

Notes

1. [Jabeen et al. \(2015\)](#) is one exception. They study the influence of family factors on female Emirati entrepreneurs. Family factors, in the form of, for example, psychological support and family as employees, are important. However, the analysis shows that personal goals are the most important motivational factor.
2. However, a board can have purposes other than preventing consumption on the job at the expense of shareholders. It can also provide useful business knowledge.
3. [Adams and Ferreira \(2009\)](#) refer to the appointment of marginalized directors as tokenism.
4. The difference is however insignificant.
5. That is, the use of firm resources for the benefit of the leader (manager) at the expense of firm value.
6. [Hillman et al \(2000\)](#) distinguish among four categories: insiders, business experts, support specialists and influential community members ([Table I](#)). Interestingly, they do not refer to the classical categories of diversity such as gender, ethnicity and age, instead viewing diversity in terms of the resources that each director brings to the group.
7. In this paper, we will use the discrimination theory developed originally by [Becker \(1957\)](#) in our analysis of female leaders' roles in family firms. According to this discrimination theory, females who are discriminated against can be expected to have higher marginal productivity if they obtain leading positions in family firms.
8. The review is based on 48 articles, 23 books and 3 doctoral dissertations.
9. An alternative measure of performance often used is ROA. We chose profit margin, which was easily available in Amadeus, for various reasons. One reason was that sales reflects market values, whereas while the book values used in calculation of assets in ROA tend to be based on historical data that sometimes deviate from market values (see e.g. [Bjuggren, 2016](#)). Another reason was that [Graves and Shan's \(2014\)](#) comparison of the performance of unlisted family and non-family firms demonstrates how ROA and profit margin are related and found that the reason that family firms had a higher ROA than non-family firms was that they had a higher profit margin.

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Table A1 Correlation family firms – all variables

Variables	Profit marg	Tot. fem.own.	Own. CEO	Fem board. owner CEO	Share fem.dir	Board size	Ceowomen	Ln_ age	Ln_ sales	Solv	Ind 1	Ind 2	Ind 3	Ind 4
Profit margin	1.00													
Female ownership	0.02	1.00												
Female CEO-owner	0.12	0.44	1.00											
Female CEO-owner-board	0.13	0.49	0.95	1.00										
Share F-directors	0.02	0.41	0.41	0.44	1.00									
Board size	0.01	-0.05	0.03	0.03	0.07	1.00								
Female CEO	0.09	0.34	0.74	0.74	0.41	0.08	1.00							
Ln age	-0.02	-0.16	-0.05	-0.06	0.03	0.18	-0.04	1.00						
Ln sales	-0.08	-0.21	-0.09	-0.08	-0.08	0.55	0.01	0.20	1.00					
Solvency	0.36	0.07	0.14	0.09	0.04	0.04	0.11	0.19	-0.09	1.00				
Industry 1	0.04	-0.02	-0.03	-0.03	-0.04	0.16	-0.06	0.12	0.03	0.15	1.00			
Industry 2	-0.02	-0.03	-0.05	-0.05	-0.10	-0.19	-0.08	0.02	-0.19	-0.00	-0.17	1.00		
Industry 3	-0.05	-0.04	-0.05	-0.05	0.04	-0.07	-0.07	0.10	-0.07	0.03	-0.35	-0.25	1.00	
Industry 4	0.03	0.08	0.11	0.11	0.05	0.06	0.16	-0.21	0.17	-0.15	-0.36	-0.26	-0.54	1.00

Table All Correlation non-family firms – all variables

Variables	Profitmarg	Tot.fem.own.	Fem.own.CEO	Fem.board.ownrCEO	Share.fem.dir.	Board.size	CEOWom	In.age	In.sales	Solv	Ind 1	Ind 2	Ind 3	Ind 4
Profit margin	1.00													
Female ownership	-0.13	1.00												
Female CEO-Owner	-0.14	0.85	1.00											
Female CEO- owner-board	-0.14	0.85	1.00	1.00										
Share F-directors	-0.05	0.59	0.51	0.51	1.00									
Board size	0.04	-0.18	-0.15	-0.15	0.16	1.00								
Female CEO	-0.05	0.49	0.59	0.59	0.50	0.01	1.00							
In age	0.07	-0.19	-0.15	-0.15	-0.02	0.19	-0.11	1.00						
In sales	0.02	-0.34	-0.30	-0.30	-0.04	0.55	-0.16	0.30	1.00					
Solvency	0.34	-0.14	-0.14	-0.14	-0.09	0.02	-0.07	0.18	-0.07	1.00				
Industry 1	0.05	-0.13	-0.11	-0.11	-0.14	0.10	-0.09	0.26	0.09	0.14	1.00			
Industry 2	0.02	-0.02	-0.05	-0.05	-0.11	-0.05	-0.08	-0.07	-0.07	-0.02	-0.13	1.00		
Industry 3	-0.05	-0.01	-0.01	-0.01	-0.07	-0.13	-0.09	0.07	-0.05	-0.03	-0.28	-0.12	1.00	
Industry 4	-0.01	0.13	0.12	0.12	0.23	0.04	0.19	-0.24	-0.01	-0.08	-0.56	-0.24	-0.52	1.00

Table AIII Regressions family firms without industry dummies

Variables	Prfmarg	Prfmarg	Prfmarg	Prfmarg
Constant	3.950** (1.760)	3.916** (1.754)	3.972** (1.748)	3.827** (1.762)
Female ownership	-1.164 (1.265)	-1.649 (1.314)	-2.216 (1.348)	-0.922 (1.309)
Board size	0.114 (0.172)	0.107 (0.171)	0.105 (0.171)	0.117 (0.173)
Solvency	0.101*** (0.0139)	0.0994*** (0.0138)	0.100*** (0.0137)	0.102*** (0.0138)
In age	-0.610* (0.354)	-0.614* (0.354)	-0.619* (0.352)	-0.634* (0.356)
In sales	-0.168 (0.187)	-0.152 (0.186)	-0.158 (0.185)	-0.154 (0.187)
Female CEO	1.118 (1.081)			
Female CEO-owner		2.300* (1.393)		
Female CEO-board-owner			3.292** (1.419)	
Share Female directors				0.447 (1.250)
R ²	0.141	0.145	0.151	0.139
Observations	372	372	372	372

Notes: Standard deviation is presented in parentheses: **p*-value 0.1; ***p*-value 0.05; ****p*-value 0.01; dependent variable: net profit margin

Table AIV Regression non-family firms without industry dummies

Variables	Prfmarg	Prfmarg	Prfmarg	Prfmarg
Constant	1.770 (1.589)	1.771 (1.553)	1.771 (1.553)	1.828 (1.585)
Female ownership	-2.882 (1.846)			-3.518* (2.091)
Board size	0.0447 (0.118)	0.0522 (0.117)	0.0522 (0.117)	0.0271 (0.122)
In age	-0.0218 (0.269)	-0.00968 (0.268)	-0.00968 (0.268)	-0.0363 (0.269)
In sales	0.0148 (0.165)	0.0101 (0.164)	0.0101 (0.164)	0.0101 (0.165)
Solvency	0.0893*** (0.0128)	0.0887*** (0.0128)	0.0887*** (0.0128)	0.0893*** (0.0128)
Female CEO	0.289 (1.060)			
Female CEO-owner		-2.763* (1.545)		
Female board-owner-CEO			-2.763* (1.545)	
Share of female directors				1.013 (1.518)
Observations	445	445	445	445
R-squared	0.120	0.121	0.121	0.120

Notes: Standard deviation is presented in parentheses: **p*-value 0.1; ***p*-value 0.05; ****p*-value 0.01; dependent variable: net profit margin

Table AV Regressions all firms

Variables	Prfmarg	Prfmarg	Prfmarg	Prfmarg
Constant	2.221* (1.276)	2.215* (1.276)	2.220* (1.275)	2.222* (1.276)
Female ownership	-1.663 (1.034)	-1.905 (1.176)	-2.339* (1.208)	-1.686 (1.096)
Board size	0.0812 (0.0950)	0.0830 (0.0947)	0.0812 (0.0946)	0.0777 (0.0967)
In age	-0.174 (0.218)	-0.176 (0.218)	-0.178 (0.217)	-0.183 (0.219)
In sales	-0.0399 (0.123)	-0.0380 (0.123)	-0.0362 (0.123)	-0.0393 (0.123)
Solvency	0.0954*** (0.00933)	0.0955*** (0.00932)	0.0958*** (0.00932)	0.0957*** (0.00933)
Industry 1	-0.142 (0.841)	-0.141 (0.841)	-0.152 (0.840)	-0.137 (0.841)
Industry 3	-0.507 (0.804)	-0.509 (0.804)	-0.519 (0.803)	-0.520 (0.806)
Industry 4	0.226 (0.786)	0.235 (0.783)	0.209 (0.782)	0.231 (0.787)
Female CEO	0.370 (0.751)			
Female CEO-owner		0.762 (1.198)		
Female CEO-board-owner			1.449 (1.229)	
Share of female directors				0.385 (0.956)
Observations	817	817	817	817
R-squared	0.125	0.125	0.126	0.125

Notes: Standard deviation is presented in parentheses: **p*-value 0.1; ***p*-value 0.05; ****p*-value 0.01; dependent variable: net profit margin