

# **FEMINIZED BOARDS OF DIRECTORS IN SMEs**

**EFFECTS ON EMPLOYEES'  
PERCEPTIONS AND FIRM PERFORMANCE**

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**Curs 2019 – 2020**

*Working Paper Series No. 1*

## FEMINIZED BOARDS OF DIRECTORS IN SMEs: EFFECTS ON EMPLOYEES' PERCEPTIONS AND FIRM PERFORMANCE

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### **Abstract**

This study aims to identify the association between board composition with a focus on gender and firm performance in Catalan small and medium enterprises, as well as to investigate employees' opinion about their possibilities to climb the corporate ladder in corporations with feminized and masculinized boards of directors.

To test the hypotheses and thoroughly answer the research questions, two studies have been carried out. Study one was carried out to answer the first research question, aimed at finding a possible association between firm performance measures and feminized boards of directors in SME's. The research approach required a sample of data from which patterns could be identified. The objective of study two was to look into one qualitative factor in a small set of companies and to analyze the distance of opinions. A categorical analysis was created to answer the second research question. To get the necessary information, primary data was collected using a survey.

The results indicate that Catalan SMEs with feminized boards show less potential of financial risk and more satisfied employees than firms with masculinized boards.

**Keywords:** Women on boards, Gender, Glass ceiling, SMEs, Board composition, Board of directors, Firm performance, Feminized boards.

**JEL codes:** J16, M10, M12

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## 1. Introduction

The under-representation of women in boards of directors is a pressing issue which affects enterprises across the whole world. It is widely known that corporate leadership is led by men. We can find proof of this (Van der Walt & Ingley, 2003; Bart & McQueen's; 2013). They claim that around 20 to 25% of women are represented in executive positions and far less (9%) are part of boards of directors in enterprises. But this situation is changing very fast in recent years.

The topic of women in boards of directors and its relation to performance is relevant due to several reasons. First and foremost, both firm performance and diversity are present in many current debates. Therefore, having the chance to study their relationship and impact on employees is thought-provoking. Secondly, while more research has been done on the topic in recent years, most empirical results are based on US data. Few researchers have taken into consideration the situation in Southern Europe in regions like Catalonia, and even less in small and medium enterprises. Considering the high amount of small and medium enterprises (SME) in the region, there is compelling need for research in the subject. As defined by the European Commission, SME stands for small and medium enterprise. A small enterprise has a staff headcount of less than 50 employees and a turnover of less than €10 million. A medium enterprise has a staff headcount of less than 250 employees and a turnover of less than €50 million (European Commission, 2003).

Therefore, the goal of this research is to add to the steadily increasing amount of research on the situation of gender equality in Catalan small and medium enterprises. In particular, we study the association between women in boards of directors and firm performance, as well as the impact that a feminized board has on employees regarding their opinion on the possibilities to climb the corporate ladder.

In the paper, the reader will first find a conceptual framework where we discuss previous studies done in the field. It sets the context of the situation; it aids in defining the research questions and it prompts speculation. Then, we move on to describe the empirical studies we have undergone to answer the research questions. This part provides the methodology, the details of the data collected, and analyses performed. It is followed by a section on the explanation of results. Finally, the paper comes to an end with the discussion and conclusion sections.

## 2. Conceptual model

A systematic review of existing literature has been done to design how the research will be conducted. Secondary research has been carried out to avoid repetitions on previously done research, to have insight on the theoretical and methodological approaches to study the topic at hand, to know the scope of what has already been studied and to contribute to our understanding of the topic.

### Overview:

According to the Organization for Economic Co-operation and Development (OECD) women represent more than 50% of the graduates awarded in business, administration, and law in most universities worldwide. In 2016 in Spain, women accounted for approximately 56% of the business degrees holders. The European average was at more than 60% (OECD, 2018). So, we can assume that there is no shortage of well-prepared young women who can start climbing the corporate ladder. However, what happens to them? Why don't they become managers or directors? According to Polonskaia et al. (2020) women represent 34% of corporate boards, on average. This means a big gap, which was much bigger some years ago. For example, as we have pointed out before, in 2003, this percentage was 9% (Van der Walt & Ingley, 2003; Bart & McQueen's; 2013)

### Association between board composition and firm performance:

There is a growing body of literature on the demographics and composition of boards. Johnson et al. (2013) demonstrated that board composition has direct impact on firm outcomes. Sonnenfeld (2002) ascertains that board composition is a relevant aspect in the making of above-average performance boards. Other ingredients that this author points out are that boards must be subject to consistent performance evaluations and be well composed of liable individuals who appreciate the work and respect each other.

The focus on diversity and gender equality studies have also intensified. Gender equality (or equality of sexes): state of equal rights, responsibilities, interests, needs and opportunities between women and men. Related to gender balance is relevant the equal participation of women and men in all areas of work (GMI, 2009; EIGE, 2020). The results on studies concerning equality in corporate settings argue that women should not have to work harder than men to gain senior leadership positions and also pose strong arguments in favor of increasing the representation of women in boards of directors. Other studies also suggest that ethnic diversity has positive implications in firm performance (Marimuthu, 2008).

### **Association between feminized boards of directors and higher organizational performance:**

In this study we consider a feminized company an enterprise in which the board of directors is composed of 50% or more women. In contrast, a masculinized company is an enterprise in which the board of directors is composed of 50% or more men.

The presence of women in boards of directors has been linked to higher organizational performance. For instance, Joy et al. (2007) state that boards with high female representation experience 53% higher return on equity, 66% higher return on invested capital and 42% higher return on sales (Joy et al., 2007). They also found that North American firms that had just one female director reduced the risk of bankruptcy by 20% (Joy et al., 2007). Additional research showed that when women directors are appointed, boards tend to adopt new governance practices earlier, such as board evaluations or directors training (Singh & Vinnicombe, 2003), and they are more likely to ask a higher amount of questions before taking decisions (Konrad, et al. 2008).

In the same vein, Campbell & Mínguez-Vera (2008) also posit that the gender composition of the board of directors may affect the quality of their monitoring role and thus the financial performance of the firm. Their findings include that gender diversity (as measured by the female percentage on board) has a beneficial effect on firm value. As pointed by the authors, this positive impact occurs if the women bring an additional perspective to board decision making. Conversely, in the case that they are in the board due to the societal pressure for greater equality of sexes, the impact on firm performance may be negative. This is backed up by other researchers such as Van Der Walt & Ingley (2003) who mention that organizational performance is positively related to the abilities of individual directors and their professional background regardless of gender.

Having women directors also influences the amount of strategic change. According to Triana et al. (2014) the relationship between board gender diversity and the amount of strategic change is positive when firm performance is high, and women directors have greater power.

Bart & McQueen (2013) agree that there is a positive correlation between the presence of female directors on boards and corporate performance. These results suggest that women appear to make better directors than men. They researched the possible reason behind this and established that women made significantly better complex moral reasoning (CMR) decisions than men. Thus, since managers are compelled to make decisions in the best interest of their corporation while taking the viewpoints of multiple stakeholders into account, having a significant portion of female directors (provided they have highly developed CMR skills) on board appears to be an important resource for effective decision-making.

### **Situation apropos of the glass ceiling:**

Glass ceiling, as defined by the *Merriam Webster* dictionary: “*is an intangible barrier within a hierarchy that prevents women or minorities from obtaining upper-level positions*”.

The gender gap in the corporate world suggests negative implications in society and unequal rights and opportunities in the labor market, as it implies that women have obstacles to achieve high responsibility positions in firms. The reason behind the existence of such barriers has been closely examined and it essentially revolves around corporate culture and on the fact that, traditionally, managerial statuses are masculinized positions (Barberá et al., 2002).

The term “homosocial reproduction” refers to the tendency of humans to prefer to select others who are socially similar to themselves and who have similar characteristics in terms of age, gender, background and experience. Arfken, Bellar & Helms (2004) argue that selection on social similarity plays a crucial role in shaping the demographic composition of organizations, as well as the structure of opportunity within them. Along these lines, when corporations have more men than women (or vice versa) in influential positions, the culture tends to adopt attributes that favor the dominant gender (Jackson, 2001). Others consider that evaluation bias against women is the reason behind the glass ceiling phenomenon. Studies suggest that the attitudes held by organizational members (i.e. women not viewed as leaders) contribute to the hindrance of women’s career advancement (Weyer, 2007; Johns, 2013).

To the author’s knowledge, the employees’ opinion on climbing the corporate ladder has been scarcely studied. Very few publications can be found regarding how the opinion of men and women differs concerning their potential to become managers. Also, very few studies delve into how board composition (feminized or masculinized) influences employees’ judgement. One example is the research done by Baumgartner & Schneider (2010). The sample of women in this study shared the impression that they did possess the knowledge and experience to evolve vertically in the organization, but at the same time, considered that they were in a disadvantageous position when compared to their male fellows.

Policies in favor of gender equality in firms are being put in place in some countries. Norway and Canada, for example, have imposed quotas to increase the proportion of women on boards. Other countries, such as many European countries, have established a so-called “comply or explain” code which requires that diversity ought to be considered when appointing members of the board (Bart & McQueen, 2013).

## **Gender inequality Spain and Catalonia:**

In Catalonia, men are much more present in the managerial positions of the Catalan companies with higher turnover. According to the SABI database, in 2015, out of 5000 Catalan companies with higher turnover, 4020 (80,4%) enterprises were led by men (Bureau van Dijk, 2019).

Gender inequality in the region can be seen in the lack of women in managerial positions in Catalan enterprises. Based on the indicator of gender inequality of Catalonia, developed by the Barcelona Chamber of Commerce, gender imbalance in the region had a decreasing tendency in the last two decades (Cambra de Comerç de Barcelona, 2019). Another study by Llorà Bach (2019) on Catalan enterprises also found the same tendency.

A concurrent topic is the repercussion that gender inequality has on salary differences. According to Torns (2004), based on data from 2004, women in managerial positions earned a difference of -20% euros per hour compared to men. Torn's report also concludes that even when the woman's capabilities and experience are superior in relation to that of a man, it does not translate into a significant reduction in the inequalities in the labour market.

Vivas et al. (2018) argue that in Catalonia, the aforementioned glass ceiling is rather a "cement roof". Female talent in power positions is not predominant in large Catalan enterprises. A substantial difference is found between the 81,8% of masculinized boards of directors versus a mere 8,01% of feminized boards.

In terms of the situation across industries in the region, in absolute numbers, the sectors where there are more female managers are (following this order): wholesale trade of food and beverages, other wholesale trade and (against stereotypical thinking) the repair and sale of engine operated vehicles. In percentages, education, health and social services sectors are predominantly led by women, as well as retail trade of clothing, pharmaceutical products, cork and wood. Mixed boards of directors are found in majority in real estate, in extractive industries and in non-metallic mineral products. Masculinized boards of directors are found in manufacturing industries, communication and the wholesale trade of technology and information (Vivas et al., 2018).

In Spain, since 2007, all companies exceeding 50 workers are obliged to include a so-called equality plan which guarantees the same professional opportunities between men and women. However, in 2019, there was still a high amount of firms in Spain which did not comply with the plan (EFE, 2019). It is important to stress on the fact that the equality plan does not oblige companies to split their workforce between an equal amount of men and women, which is a common misunderstanding. The law aims to

ensure equal opportunities between the two genders. It is frequently argued that those plans are not effective because firms do not wish to fight against inequality but rather solely care for their individual profitability. It is not uncommon for Spanish companies to prefer to pay the fine from not following such plans rather than actually take action to solve this issue.

Because gender inequality in Catalan firms is a concern, the Catalan Government developed a law for equality in Catalonia, approved in 2015. Its purpose is to promote the effective equality of women and men in companies and institutions (Portal Jurídic de Catalunya, 2019).

### **Research question and hypothesis:**

To reduce the research gap and gain insight on the current situation in SMEs enterprises, empirical studies will be carried to answer the two research questions. Hereby stated:

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Research Question I: Is there is any association between firm performance and feminized boards of directors in Catalan SME's?

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Research Question II: How does the opinion of employees in Catalan SMEs regarding their possibilities to move upwards in the enterprise change depending if the company is feminized or masculinized? Is there a difference in opinions between genders?"

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The hypothesis for the first research question, prior to the empirical study, is that there exists a positive (but not strong) relationship between a feminized board of directors and firm performance in Catalan SMEs. Our intuition tells us that it is not strong because there are many factors affecting a firm's performance, such as the type of industry or the number of employees. For the second research question, the hypothesis is that men and women feel differently regarding their vertical direction in the company depending on whether the company is feminized or masculinized. We believe that female employees may feel better about their possibilities in feminized companies.

### **3. Empirical study**

To test the hypotheses and thoroughly answer the research questions, two studies have been carried out. Different datasets and methods were used to answer the two questions



### 3.1. Methodology

#### 3.1.1. Study one

Study one was carried out in order to answer the first research question, aimed at finding a possible association between firm performance measures and feminized boards of directors in Catalan SME's. The research approach required a sample of data from which patterns could be identified. The directory of firms was obtained from the *SABI-Amadeus* database (Bureau van Dijk, 2019).

The sample consisted of 200 Catalan enterprises across several industries and from all of the four provinces of Catalonia (Barcelona, Girona, Tarragona and Lleida). They all had between one and fifty employees and operating revenues of less than €1.600.000 euros. From the 200 total enterprises, 100 had feminized boards of directors and 100 had masculinized board of directors. From all the Catalan SMEs in which individuals own at least 50% of a company's shares, a strictly random selection was done. Enterprises are defined as feminized (or woman-owned) if more than 50% of the owners are women. In the same way, when men own more than 50% of the shares, we talk of masculinized enterprises (or men-owned). For the sake of this study, mixed-owned board of directors (the cases where the shares of men and women are the same) were not included.

The data collected included: name of the company, tax code, city, name of director, number of current directors and managers, number of full time employees, operating revenue (in thousands of Euros), profit after tax, indebtedness and return on assets (ROA). All the information was reported in 2018 and had no missing values. The random sample was ordered alphabetically for the company name. The first few rows of the dataset look as follows:

Type	Company Name	NIF Code	City	Director	Nº directors & managers	Nº employees	Operating revenue (th EUR)	Profit after tax	Indebtedness	ROA
0	A G P GESTION INTEGRAL INSTALACIONES Y MANTENIMIENTO SL	B62479555	BARCELONA	Mr Angel Gimenez Gimenez	3	6	829.855 €	425 €	59.71%	0.08%
0	ACRIBIS HYGIA SL	B66062431	SANT CUGAT DEL VALLES	Mr Ricard Escorihuela Nebra	6	16	1.514.613 €	4.994 €	89.97%	0.62%
0	AGTIC CONSULTING SL	B66766528	BARCELONA	Mr Raul Rabionet Janssen	1	7	671.862 €	30.487 €	57.07%	7.75%
0	AIR TENA 2004 SL	B63562037	BARCELONA	Mr Eugenio Tena Fernandez	1	8	440.586 €	775 €	91.10%	0.34%
0	AISLATER REVESTMENTS SA	A17078577	CELRA	Mr Felix Sandonis Martin	1	19	1.313.813 €	69.462 €	26.60%	8.74%
0	ALUGOM BARCELONA SA	A08865206	CERDANYOLA DEL VALLES	Mr Alejandro Lucas Feijoo	1	6	1.337.184 €	- 60.845 €	108.31%	(-3.86%)

**Figure 1.** Data visualization RQ1

Highlighted are the chosen dependent variables analyzed. They are the two continuous variables “Indebtedness”, calculated as total shareholder’s funds and liabilities minus shareholder’s equity divided by total shareholder’s funds and liabilities, multiplied by 100; and “return on total assets” (ROA), calculated as profit and loss before tax divided by total assets, multiplied by 100. ROA was chosen to analyze economic profitability and indebtedness to analyse the level of debt. The independent variable is a categorical variable named “Type”, which has the differentiation of whether the company is masculinized (M, given the value of “0”) or feminized (F, given the value of “1”).

To test the association between the company’s performance and the type of company it is, an independent samples t-test and a one-way ANOVA were run. All the statistical analysis to answer the first research question were completed using the SPSS software.

### 3.1.2. Study two

The objective of study two was to look into one qualitative factor in a small set of companies and to analyze the distance of opinions. A categorical analysis was created to answer the second research question, whose aim is twofold: first, it aims to answer how different male and female employees feel about the possibilities to move upwards in the companies they currently work; secondly, it aims to see if the answers differ depending on whether the companies are feminized or masculinized.

To get the necessary information, primary data was collected using a survey. It was sent to all employees in a selected sample of 20 Catalan SMEs. After selecting their gender and indicating the name of the company, employees solely had to answer one question: “*How happy are you with your opportunities and personal possibilities to move upwards in the company [where you are currently employed]?*”. The survey was handled using *Google Forms*.

The explanatory variables were the two nominal variables “gender of the employee” (2 categories) and “ID code” (20 categories), which were set in the rows. Please note that due to the sensitivity of the topic, the name of the companies is subject to a privacy policy and the names of the respondents remain anonymous. Because of that, a code is used instead of the company name. The response variable was set in the columns and could take up to 5 values: very happy (VH), happy (H), fairly happy (FH), unhappy (UH) and very unhappy (VUH). When interactively coded, the amount of categories analyzed was 200. All the analysis was performed using *R studio*.

The total amount of responses was 247. In order to account for the different number of respondents in each company, all the analyses were done post data standardization. After manipulation, the data was in a form of a matrix with no missing values. With the standardization, all the data is relative and stated in percentages with row profiles. The first few rows of the dataset look as follows:

IDcode	VH	H	F	UH	VUH
<b>C1fM</b>	31.6	34.1	29.1	3.1	2.1
<b>C2fM</b>	32.4	40.0	22.2	4.4	1.0
<b>C3fM</b>	23.6	54.6	17.2	3.8	0.8
<b>C4mM</b>	18.3	43.4	28.5	7.1	2.7
<b>C5fM</b>	38.3	48.5	10.3	2.5	0.4
<b>C6mM</b>	37.2	37.4	20.8	3.8	0.8
<b>C7fM</b>	26.6	41.8	23.7	7.5	0.4
<b>C8mM</b>	18.0	44.6	27.4	8.3	1.7

**Figure 2** Data visualization RQ2

\* ID code: C + company number (1-20) + m/f (masculinized or feminized) + M/W (respondent is male or female)

The study was carried in two steps. First, the analysis of the twenty companies without differentiating between the respondent's genders. Secondly, the analysis with the gender differentiation. For each step, several means of visualizing the level of similarity of all the cases in the dataset were used. Namely, multidimensional scaling, principal component analysis and correspondence analysis. Closer examination is done with gender differentiation performing clustering analytics and the pertinent profiling of clusters.

## 3.2. Results

### 3.2.1. Study one

To test the association of the two groups, two hypotheses are detailed for an independent samples t-test. The null hypothesis is that the means for the two groups are equal ( $H_0: \mu_{\text{masc.}} - \mu_{\text{fem.}} = 0$ ). The alternative hypothesis is that the means for the two groups are not equal ( $H_1: \mu_{\text{masc.}} - \mu_{\text{fem.}} \neq 0$ ). Accepting the latter would mean that “indebtedness” and “ROA” would be significantly different for masculinized and feminized Catalan SMEs in the sample and, by extension, we could infer that this difference would also exist for all Catalan SMEs. The significance level chosen is  $\alpha = 0.05$ .

Before running the tests, let's consider the following table with the descriptive statistics:

		N	Mean	Std. Deviation	Std. Error	95% Confidence		Mini mum	Maxi mum
						Interval for Mean			
						Lower Bound	Upper Bound		
Indebtedness	M	100	59,0319	28,46841	2,84684	53,3831	64,6807	5,60	108,31
	F	100	38,3923	26,31345	2,63134	33,1711	43,6135	,25	122,67
	Total	200	48,7121	29,23494	2,06722	44,6356	52,7886	,25	122,67
ROA	M	100	4,9156	7,47992	,74799	3,4314	6,3998	-11,01	48,04
	F	100	6,3775	6,76071	,67607	5,0360	7,7190	-7,13	30,31
	Total	200	5,6465	7,14911	,50552	4,6497	6,6434	-11,01	48,04

**Figure 3.** Descriptive statistics study one

The mean and standard deviation for “indebtedness” is higher for masculinized companies ( $\bar{x}(M)=59,03$ ;  $SD(M)=28,46$ ) in comparison to the feminized counterparts ( $\bar{x}(F) =38,39$ ;  $SD(F) =26,31$ ). It is the opposite for “ROA”, for which the mean is higher for the feminized companies in the sample ( $\bar{x}(F) =6,37$ ;  $SD(F)=6,76$ ) compared to a lower value for the masculinized companies ( $\bar{x}(M)=4,91$ ;  $SD(M) =7,47$ ). The values can be easily seen in figures 4-7.

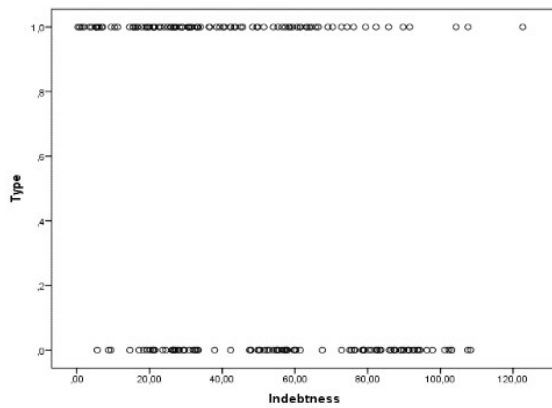


Figure 4. Scatterplot Indebtedness

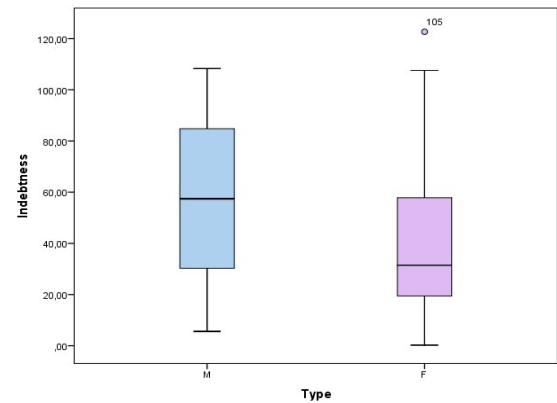


Figure 5. Boxplot Indebtedness

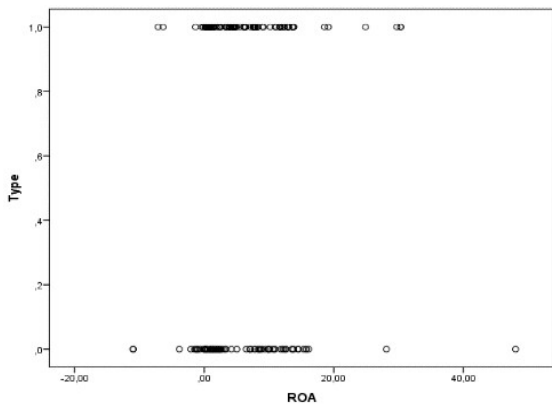


Figure 6. Scatterplot ROA

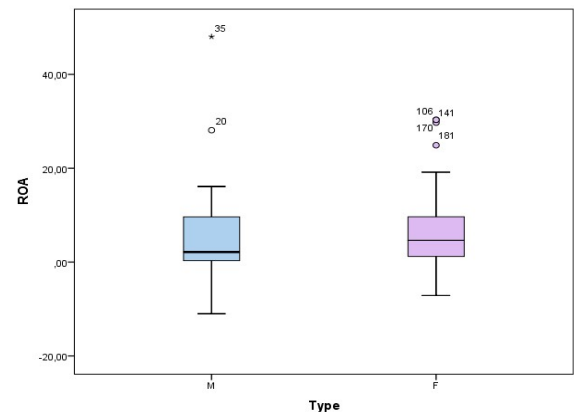


Figure 7. Boxplot ROA

To test the association of the two groups, an independent samples t-test was performed (see figure 8). First, under “Levene’s Test for equality of variances” we see whether the variances of the two groups are equal. The null hypothesis is that the variances of both groups are equal, while the alternative hypothesis is that the variances are not equal. The significance of the test statistics of the Levene’s Test show that equal variances can be assumed at a 95% confidence level ( $F(\text{Indebtedness})=2,671, p<0.104$ ;  $F(\text{ROA})=0,607, p<0,437$ ).

Secondly, to test the statistical difference between the means of the two groups, the remaining columns under “t-test for equality of means” are considered. We can reject the null hypothesis for the first variable ( $t(\text{Indebtedness})=5,324, p<0.000 [2,7388e-7]$ ), as the p-value is less than chosen significance level. We conclude that the mean for the indebtedness of masculinized and feminized Catalan SMEs is significantly different at a 95% confidence level.

On the other hand, the null hypothesis cannot be rejected for return on assets ( $t(\text{ROA})=-1,450, p<0.149$ ) so we conclude that the mean for the return on assets of masculinized and feminized Catalan SMEs is not significantly different at a 95% confidence level.

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Indebtedness	Equal variances assumed	2,671	,104	5,324	198	,000	20,63960	3,87	12,99476	28,28444
	Equal variances not assumed			5,324	196,786	,000	20,63960	3,87	12,99447	28,28473
ROA	Equal variances assumed	,607	,437	-1,450	198	,149	-1,46190	1,00	-3,45018	,52638
	Equal variances not assumed			-1,450	196,010	,149	-1,46190	1,00	-3,45031	,52651

**Figure 8.** Independent samples t-test for “indebtedness” and “ROA”

The results show consistency when compared to a one-way ANOVA. We get a significant value of indebtedness ( $p < 0.000$  [ $2,7388e-7$ ]) and a non-significant value for return on assets ( $p < 0.149$ ).

		Sum of Squares	df	Mean Square	F	Sig.
Indebtedness	Between Groups	21299,654	1	21299,654	28,346	,000
	Within Groups	148781,962	198	751,424		
	Total	170081,617	199			
ROA	Between Groups	106,858	1	106,858	2,102	,149
	Within Groups	10063,982	198	50,828		
	Total	10170,839	199			

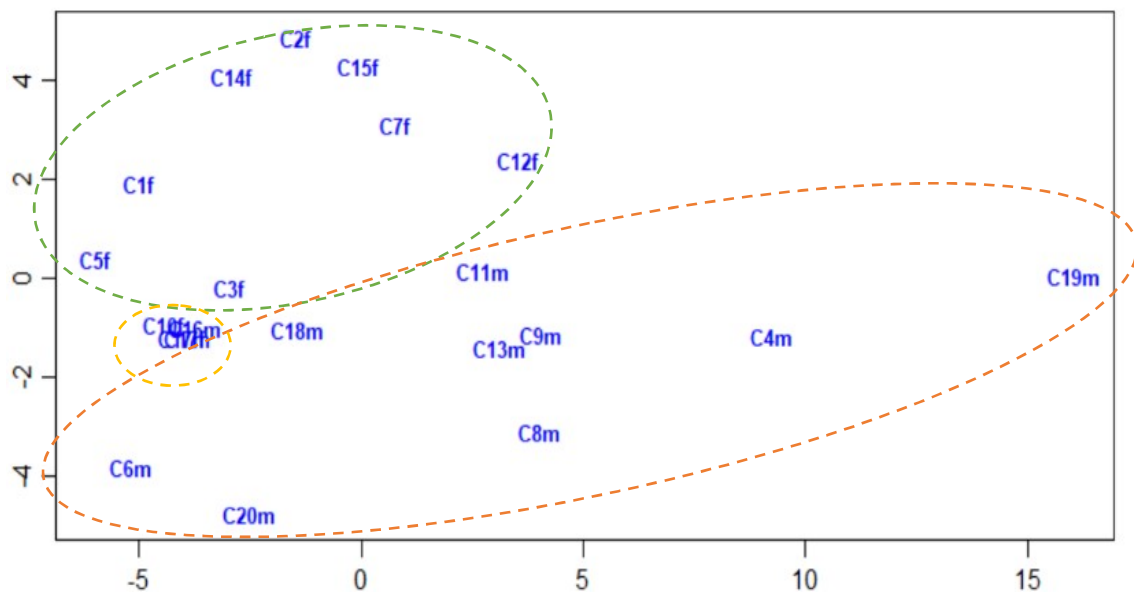
**Figure 9.** ANOVA test for “indebtedness” and “ROA”

In conclusion, in the sample there is positive and significant association between “indebtedness” and the type of company, as feminized companies show lower level of debt. On the other hand, even though return on assets is higher in the feminized companies in the sample, the difference is not significant. These results give us an idea of the situation, but they cannot be generalized for the whole of Catalan SMEs because the sample is small and because there are aspects which influence profitability which are not accounted for.

### 3.2.2. Study two

#### 3.2.2.1. Distance between firms

To get a first idea on the distances between the companies in the sample, a multidimensional scaling (MDS) to visualize the results was created, see figure 10. Note that the code is composed of the letter “C” indicating company, a number ranging from 1 to 20 to refer to each individual case, and the letter “f” or “m” to identify if the company is feminized or masculinized.



Three groupings can be seen in Figure 10. On the top left, the group circled in green is composed of eight companies, which are all feminized. The group in orange in the bottom is formed of nine companies which are masculinized. The three remaining companies, grouped in the yellow circle, fall in between the two. It is formed by two feminized and one masculinized company. The MDS suggests that there is indeed a difference in the opinions of employees working in feminized and masculinized companies.

To gain better insight, I run a principal component analysis (PCA) and a correspondence analysis (CA). See Figures 11 and 12, respectively.

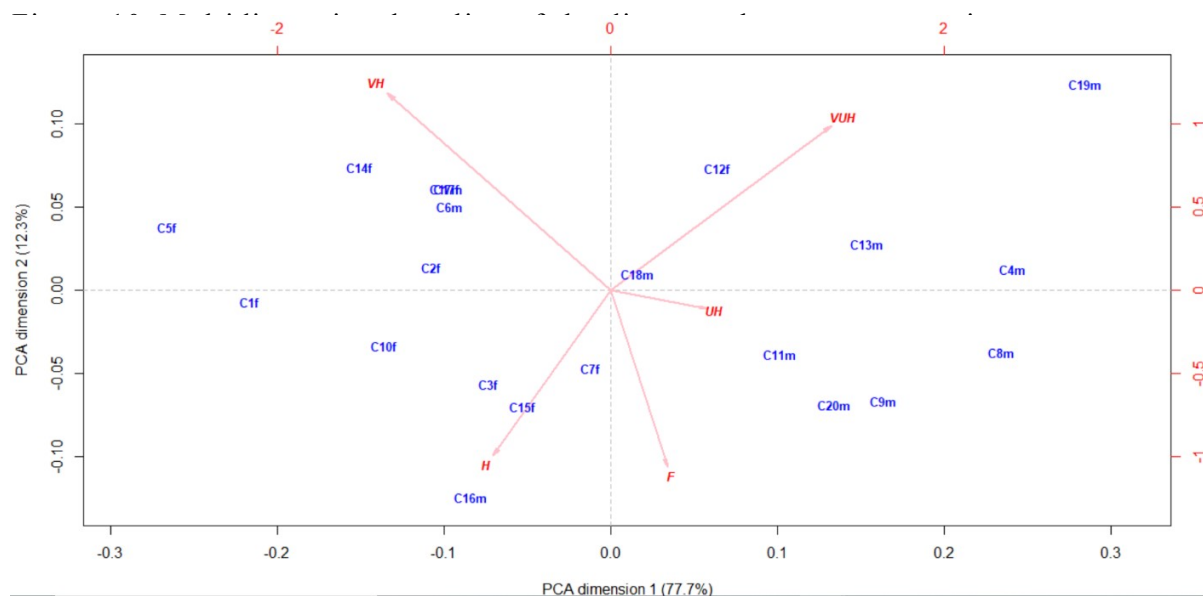


Figure 11. Principal Component Analysis of the distances between companies

The PCA shows where each company falls in depending on the opinion of their employees. The blue data points are the cases and the red arrows show the five opinions employees could choose from. When a data point (i.e. C11m) is closer to a category (i.e. “UH”) it means that employees in that company share the same opinion, on average. In that case, the employees of company #11, which is masculinized, feel unhappy about their possibilities to move upwards in the company. The PCA explains 77,7% of the variation in the first dimension and 12,3% in the second dimension. With a total of 90% of variation explained, it is an accurate representation of the data collected.



In the correspondence analysis (Figure 12) we see that all the companies on the left side of the matrix are masculinized enterprises, except for company 12. Employees in those companies share the opinion that they are “very unhappy”, “unhappy” and “fairly happy” about their possibilities to move upwards in the enterprise. The right side of the matrix refers to the answers “Happy” and “Very happy”. All of the feminized companies are in the right side, together with masculinized companies 16 and 17.

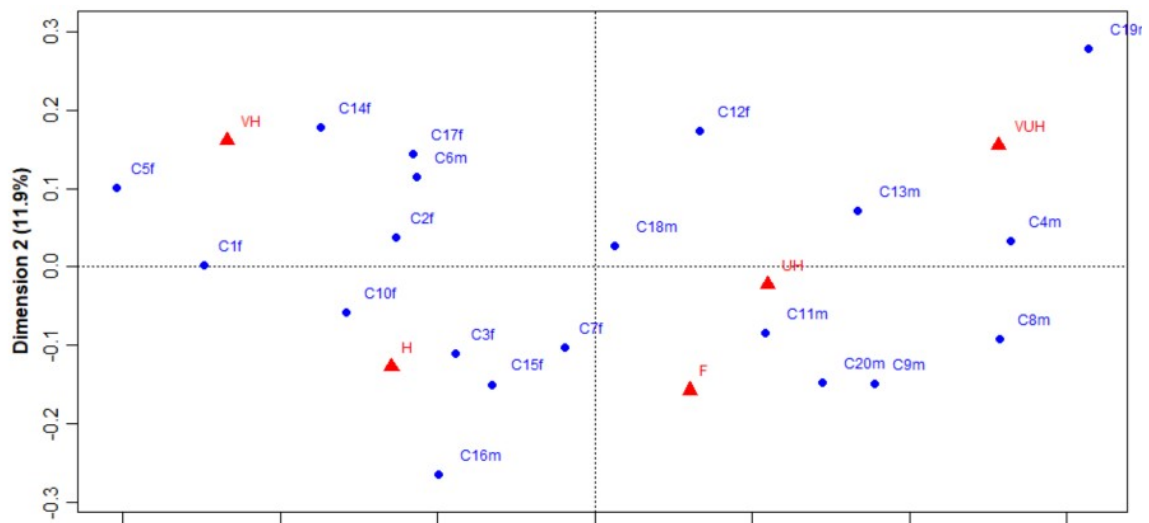


Figure 12. Correspondence analysis of the distances between companies

This correspondence analysis explains 89.7% of the variance, so it is an accurate representation of the data. That also means that there is very few variance that comes from randomness in the data, implying that the percentage of men or women in the board of directors is meaningfully related to how employees feel about their vertical possibilities in the company.

#### 3.2.2.2. Distance between male and female respondents

Afterwards, we considered how men and women in Catalan SMEs felt about their possibilities to move upwards in the company, regardless of whether the company was feminized or not. We first analyzed the differences in means between the answers of both. The bar plot in figure 13 below shows the distribution of how each gender responded to the question and the boxplots in figure 14 show the variance in each of the five values, in more detail. Male respondents are represented in light blue and female respondents in pink.

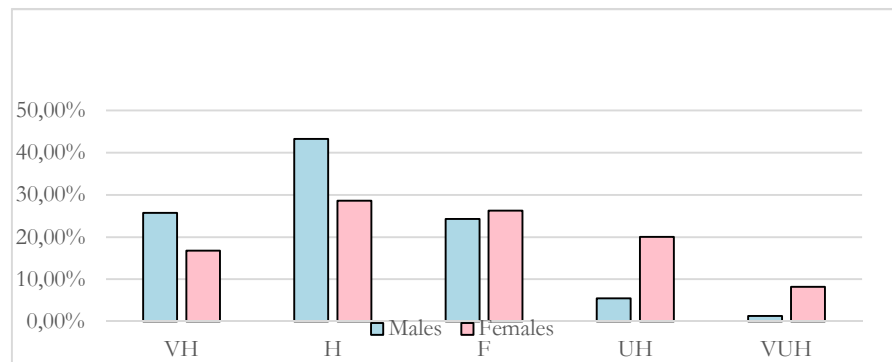


Figure 13. Bar plot mean distribution study two

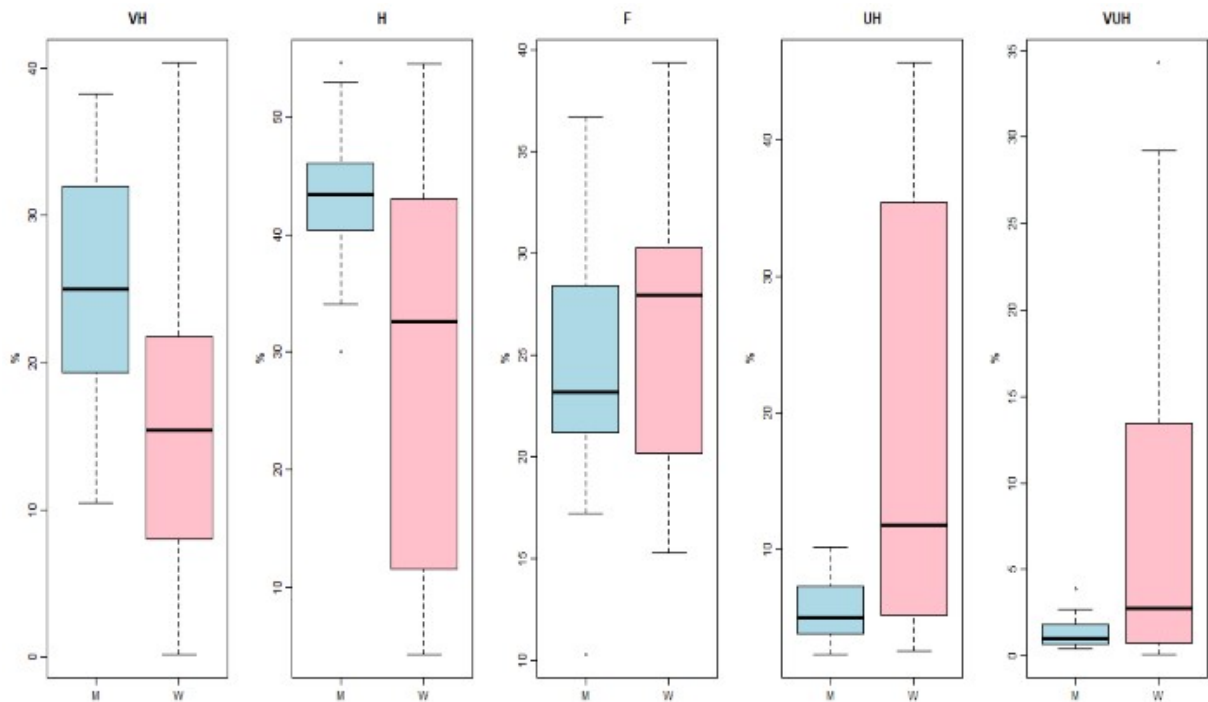


Figure 14. Boxplots mean distribution study two

The majority of respondents (35.93%) reported being happy with their possibilities to move upwards in their company regardless of gender. Approximately 43% of the men were happy versus 28.63% of the women. The second most popular answer was “fairly happy”. The results of which are similar for both genders and the mean values have low variance. In the third place, “very happy” was the choice of 21.25% of the respondents, specifically, 25.69% of males and 16.81% of females. “Unhappy” was chosen by 12.73% of the employees. The difference between genders in this category is rather large. There were 5.44% of unhappy males versus a 20.03% of unhappy females. “Very unhappy” was the least recurrent response. It was chosen by 4.78% of employees, 5.44% of the males and 8.23% of the females.

Generally, there is more variance in the responses for women compared to the answers of males. Figure 15 displays a summary of the standardized results.

Category	Mean	Variance
Very happy Total	21.25%	.01066
VH male	25.69%	.00561
VH female	16.81%	.01212
Happy Total	35.93%	.02054
H male	43.23%	.00320
H female	28.63%	.02774
Fairly happy Total	25.29%	.00408
F male	24.29%	.00365
F female	26.29%	.00452
Unhappy Total	12.73%	.01852
UH male	5.44%	.00046
UH female	20.03%	.02637
Very unhappy Total	4.78%	.00639
VUH male	1.34%	.00008
VUH female	8.23%	.01054

**Figure 15.** Standardized results study two

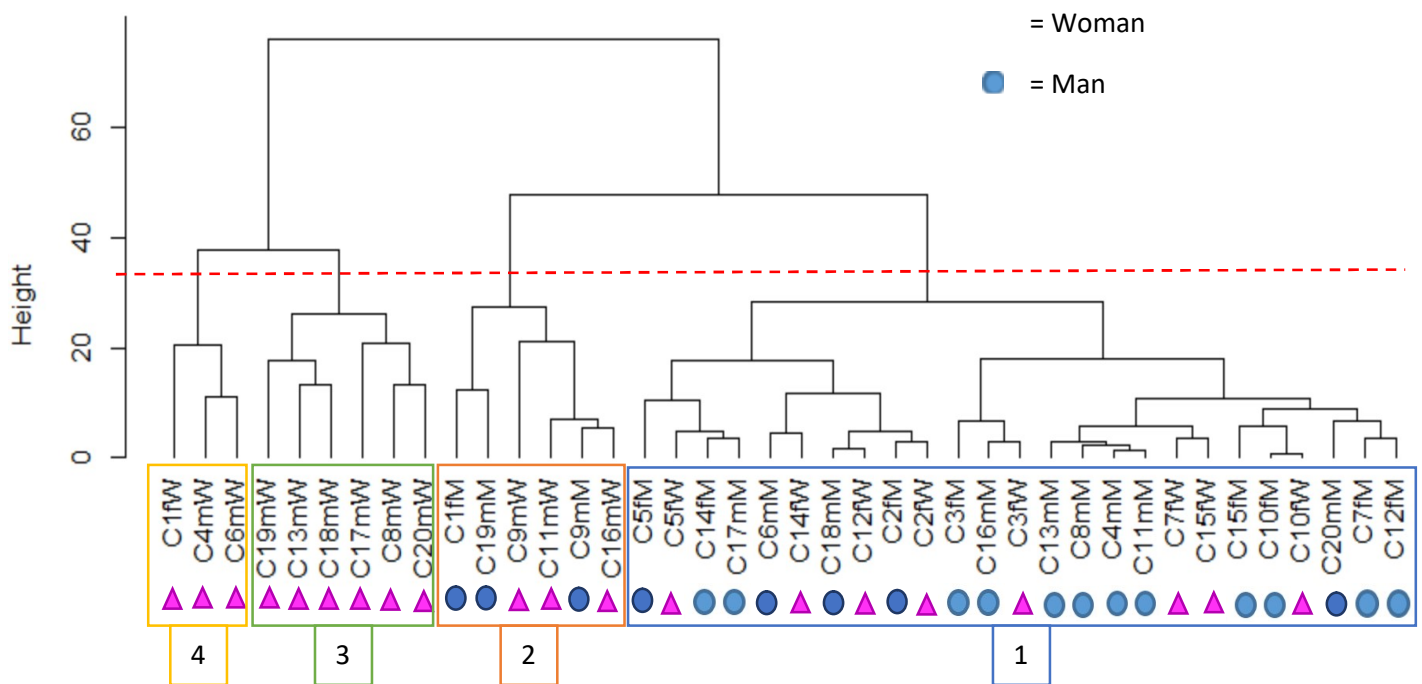
### 3.2.2.3. Distance between feminized and masculinized firms and gender

To finish, we interactively coded all the values and differentiated between genders and between feminized and masculinized companies. To visualize the results, we first performed hierarchical cluster analysis. It was run on the five variables for the whole set of data using average linkage and squared Euclidean distance as a metric.

The cluster dendrogram in Figure 16 summarizes the distances between the opinions of men and women, accounting for whether the company has a higher percentage of women or men in the board of directors. Female respondents are indicated with a pink triangle and male respondents are indicated with a blue circle. Moreover, it is possible to see the division of the tree and the numbered clusters.

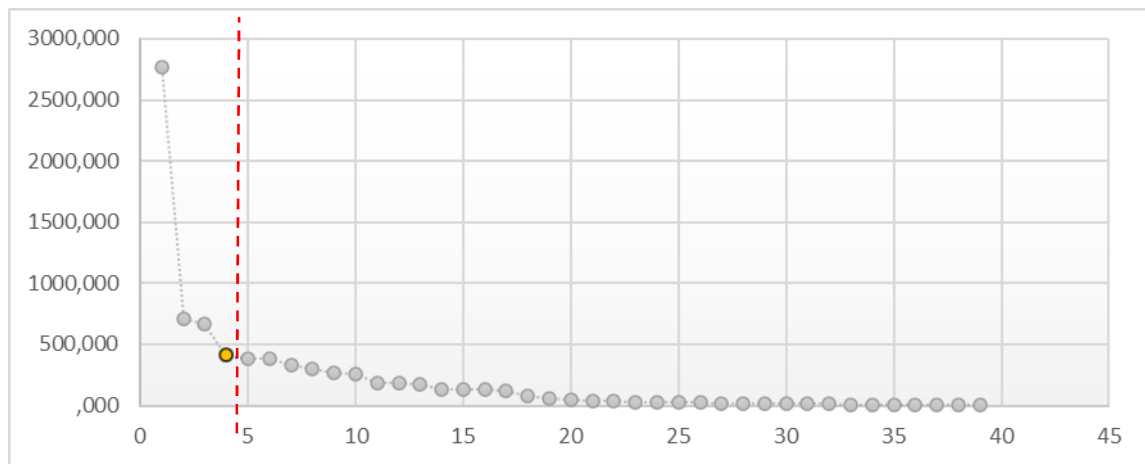
Regarding the significance of these results, a chi-square test was performed which brought up a p-value of  $p < 2.2e-16$  with 156 degrees of freedom and an X-squared of 1569.5. Due to the small p-value we can confirm that the results are statistically significant.

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**Figure 16.** Hierarchical cluster analysis

The dendrogram is divided by a dotted red line which indicates the groupings. A total of four clusters has been chosen based on the agglomeration schedule. The coefficients of the numerical summary are plotted in the Figure 17 which shows how heterogeneity decreases as the amount of clusters increases. Our objective is to maximize heterogeneity between clusters and maximise homogeneity within clusters. If we decide to divide the customers in four groups, a considerable reduction in heterogeneity can be seen but after, the reduction becomes minimal. Therefore, by dividing the responses in four clusters the ideal segmentation is obtained.



**Figure 17.** Heterogeneity coefficients

Next, the means of each group were checked in order to profile the respondents within the clusters, specified in the table below.

Average Linkage (Between Groups)	N	VH	H	F	UH	VUH
1	25	25,47 %	43,86 %	24,16 %	5,37 %	1,13 %
2	6	16,90 %	28,60 %	36,00 %	11,25 %	7,25 %
3	3	4,40 %	9,10 %	23,40 %	34,76 %	28,33 %
4	6	10,73 %	13,46 %	28,13 %	37,81 %	9,85 %

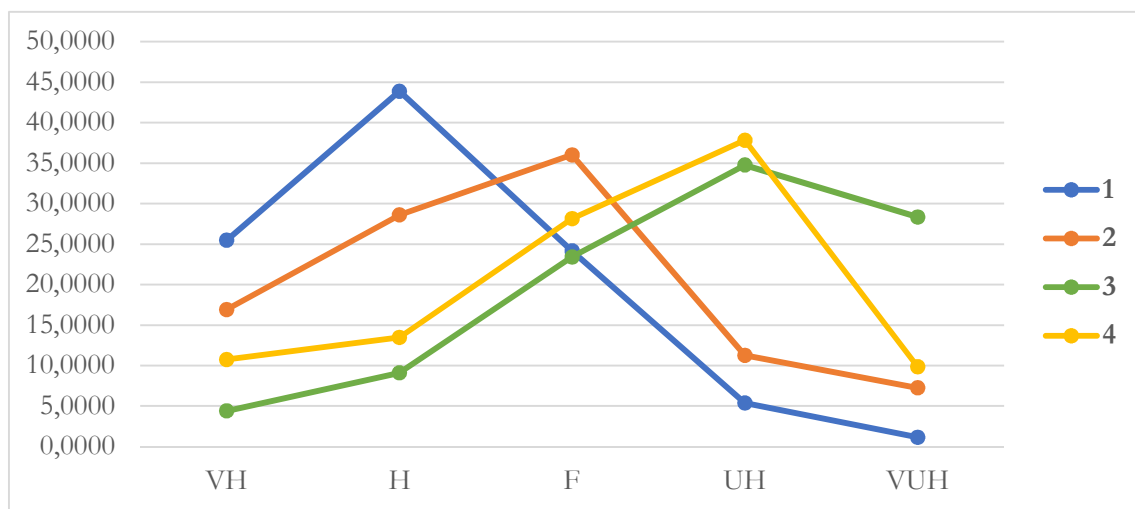
**Figure 18.** Mean report for profiling of clusters

The table contains conditional formatting represented in colours. The darkest green depicts the largest values and moves towards the darkest red which depicts the lowest.

Cluster one is the largest (N=25) and also contains the largest amount of respondents who report being happy with their opportunities within the company. Moreover, over 25% of the respondents report being “Very happy”. This group also contains the lowest amount of “very unhappy” employees.

The second cluster (N=6) is formed of 36% of “fairly happy” employees, fewer “happy” employees (28,60%) and slightly less “very happy” employees (16,90%). The negative responses account for 17,50%.

Clusters three and four have a larger amount of unhappy employees. Group three has a small range (N=3) and it is the cluster with the most “very unhappy” employees (28,33%); “unhappy” employees are also substantial (34,76%). The positive responses account for a mere 4,40% who report being very happy and 9,10% for the “happy” option. Cluster four is slightly less extreme. It also contains a large amount of employees who feel unhappy (37,81%) but only 9,85% report being very unhappy. The positive responses for this group total 24,19%. The snake plot below shows the differences explained for each variable.



**Figure 19.** Snake plot of the differences between means of clusters

The differences between means are significant ( $p < .000$ ) except for “Fairly Happy” ( $F = 3.083$ ;  $p < .039$ ), as it can be seen in the ANOVA test output below.

		Sum of Squares	df	Mean Square	F	Sig.
<b>VH</b>	Between Groups	2070,248	3	690,083	11,903	,000
	Within Groups	2087,171	36	57,977		
	Total	4157,420	39			
<b>H</b>	Between Groups	7119,226	3	2373,075	95,942	,000
	Within Groups	890,442	36	24,734		
	Total	8009,668	39			
<b>F</b>	Between Groups	325,526	3	108,509	3,083	,039
	Within Groups	1267,122	36	35,198		
	Total	1592,648	39			
<b>UH</b>	Between Groups	6807,156	3	2269,052	195,712	,000
	Within Groups	417,378	36	11,594		
	Total	7224,534	39			
<b>VUH</b>	Between Groups	2216,842	3	738,947	96,669	,000
	Within Groups	275,189	36	7,644		
	Total	2492,031	39			

Figure 20. ANOVA test for “Happiness” variables

A summary of what was explained in this final part can be seen in the following correspondence analysis, where the gender of the respondent is added (ID code: C + company number (1-20) + m/f (masculinized or feminized) + M/W (respondent is male or female)).



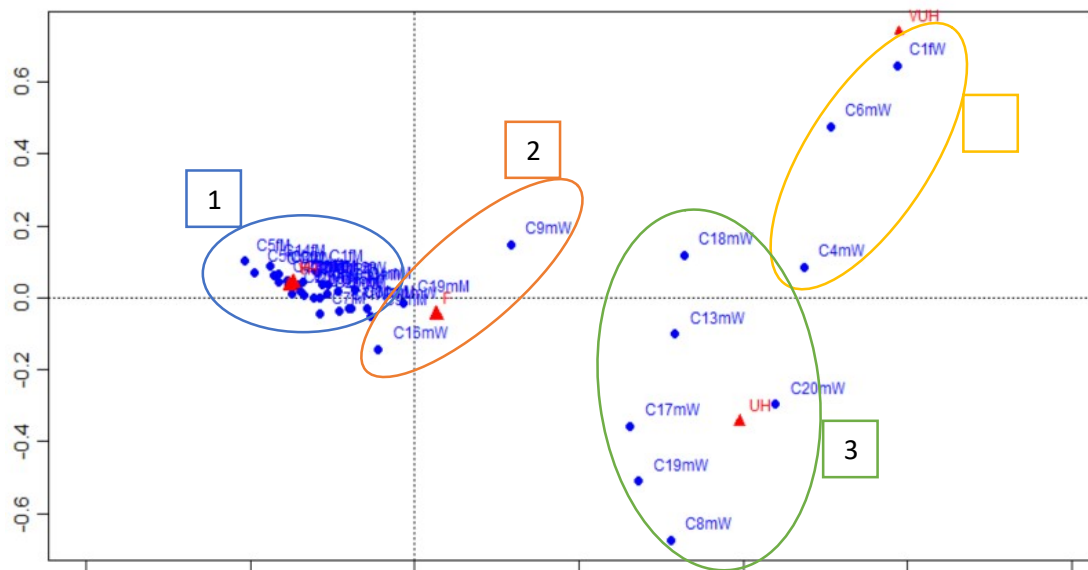


Figure 21. Correspondence Analysis with clusters

Here we can see how a large and dense cluster 1, which gathers the opinion of employees who are happy, very happy and, to a lesser extent, fairly happy about their possibility to move upwards in the company. Referring back to the dendrogram (figure 16), we can see that it is formed by a majority of male respondents. Cluster two has the largest amount of Fair answers. As pointed by the ANOVA test, conclusions cannot be taken for the “Fairly happy” variable because it is not significant. The data points which can be easily seen on the right side of the matrix are clusters three and four. They are all referring to women working in masculinized companies, who report being very unhappy and unhappy about their possibilities to move upwards in the company.

To conclude, based on these results, women feel unhappier in general about their possibilities to move forward in the enterprise where they currently work. Men are generally happier, both in companies with masculinized and feminized boards. Feminized companies have a larger amount of satisfied employees. Lastly, the employees who are the most unhappy are women working in masculinized companies.

## 4. Discussion

The purpose of this research was to study the association between feminized boards of directors and firm performance, as well as to focus attention on the opinions of employees in regards to their possibilities to move upwards in the enterprise depending on whether the company is feminized or masculinized. Two studies were carried out to answer the research questions. The first study aimed to answer the first research question: *“Is there any association between firm performance and feminized boards of directors in Catalan SME’s?”* The second study was designed to answer the second research question: *“How does the opinion of employees in Catalan SMEs regarding to their possibilities to move upwards in the enterprise change depending if the company is feminized or masculinized? Is there a difference in opinions between genders?”*.

The first study consisted in researching secondary data. A strict random sample of 200 Catalan SMEs was drawn, from which one half had feminized boards of directors and the other half had masculinized boards of directors. Multiple data were collected for the companies in the sample using the SABI database, but the focus of the analysis was on two variables. Namely, “indebtedness” to analyze financial risk and “return on assets” to analyze efficiency. In order to study the association these two continuous variables had to a discrete variable (whether the board is feminized or not), an independent samples t-test was run.

The test led to the conclusion that, in Catalan SMEs, corporations with feminized boards of directors show significant lower levels of indebtedness than corporations with masculinized boards. Part of the results obtained on the first study is consistent with the trends discussed by Joy et al. (2007), as lower

level of debt as a measure of firm risk is found in Catalan companies which have female directors. The association with other measures of efficiency such as return on assets is found statistically insignificant in Catalan SMEs. Even if the mean of “return on assets” is higher on the sample of feminized boards, the results do not pinpoint that the difference is meaningful. This is not accordant with studies that suggest that the greater the gender diversity in a board of directors, the larger economic gains the company can generate (Campbell & Mínguez-Vera, 2008). The reason behind this inconsistency may originate from the methodology chosen for the research. It may be that the results obtained would be accordant with past studies if the sample would be larger than 200 enterprises, as it would be more representative of the whole of Catalan SMEs.

Arguments of why corporations led by women have smaller indebtedness are abundant (Bart & McQueen, 2013). One idea involves the notion that women are naturally more risk averse, which could explain the risk of bankruptcy reduction. Also, that women naturally make better complex decisions than men. Another is that women come to a board with different ideas, skills and experiences than their male counterparts and that this leads to better judgement when making decisions (Singh & Vinnicombe, 2003).

By any means, in the cases where women become directors, it is good to take into consideration the viewpoint of researchers such as Van Der Walt & Ingley (2003), and Campbell & Mínguez-Vera (2008) who maintain that the link between board composition and firm performance arises from the abilities of individual directors and their professional background, regardless of gender.

Turning the attention to the second study, even though it is an initial exploratory investigation, intriguing findings have emerged, which open an area of inquiry in the arena of gender inequality in small and medium firms. This study consisted in collecting and analyzing primary data on a sample of 20 enterprises with the aid of an online questionnaire. The data collected was categorical and analyzed using multidimensional scaling, principal component analysis, correspondence analysis and hierarchical clustering.

The outcome of the study points towards the idea that women in Catalan SMEs are unhappier than men regarding their opinion on the possibilities they have of climbing the corporate ladder. The analysis also demonstrate that employees of both genders in Catalan SMEs with feminized boards of directors, are generally happier about their possibilities to advance upwards. These results match with Vivas et al.’s (2018) article, who found that 81,8% of the firms they studied had masculinized boards and 8,01% had feminized boards. From the research we can derive that there is a glass ceiling in Catalan firms, mostly in companies with masculinized boards of directors.

The results are coherent with Baumgartner & Schneider's (2010) study, who indicate that the women in their sample felt like they were in a disadvantageous position in comparison to their male fellows, even when they possessed the knowledge and experience to evolve vertically in the organization. This may imply that women were unhappier than men. We find it logical that the opinion of employees is contingent on their gender and on the masculinization of the board of directors. The results cannot be generalized for the whole body of Catalan SMEs, as they englobe the opinions of several employees in only 20 companies. A larger sample of men and women working in Catalan SMEs is needed for additional examination.

The findings have several limitations as there is much room for growth in the research of this field of management. As already mentioned, one of the key constraints of this study is the small-scale of the sample.

Further research for both studies could include a differentiation between industries and a comparison of small and medium enterprises with large enterprises (both in Catalonia and at an international level). Another consideration could be to perform a case study to analyze a highly feminized Catalan SME and a highly masculinized one. This way, it would be possible to gain a lot more insight on how employees feel about their possibilities to move upwards in the company and to make sense of the expected judgement disagreement between genders. Moreover, a higher amount of ratios could certainly be analyzed, apart from profitability and indebtedness, to evaluate the differences between firms' asset management, solvency, liquidity, costs, among others.

Other topics to take for further study include the impact of homosocial reproduction in boards. It could be explored whether, historically, the boards of directors of the masculinized firms studied had always been masculinized and vice versa. Also, the implications that demographic aspects other than gender (i.e. age and ethnicity) have on firm financial performance could be investigated. Moreover, as it is apparent that women face barriers to climb the corporate ladder, more research should be done on the existing policies for gender equality in Catalonia and on how to effectively apply them to reduce imbalances, achieve greater organizational performance and more satisfied employees.

Finally, on a wider level, it would be interesting to see how the results vary from country to country, as cultural differences between regions may have an impact on the results.

## 5. Conclusions

This study aimed to identify the association between board composition with a focus on gender and firm performance in Catalan small and medium enterprises, as well as to investigate employees' opinion about their possibilities to climb the corporate ladder in corporations with feminized and masculinized boards of directors.

Based on primary and secondary research, it can be concluded that Catalan small and medium enterprises with feminized boards of directors showcase lower levels of potential financial risk due to lower indebtedness in comparison to companies with masculinized boards. Corporations whose boards have more women than men also exhibit happier employees who feel better about their possibilities to move upwards in the organization. In addition, the results illustrate that, in regard to moving upwards in the corporation, the most unsatisfied employees are women in masculinized settings.

Overall, the results match the expectations we had before starting the investigations. Nevertheless, for the first study we anticipated a significant relationship between return on assets as an efficiency measure and a feminized board, which was not the case. For the second study, we did not expect such a high number of female employees to be as unhappy as they are about their possibilities to advance vertically in organizations.

All things considered, to better understand the implications of a feminized board of directors in Catalan SMEs, the same studies could be carried out with larger samples. The research exposes the results explained but also raises the question of which other factors are related to firm performance and to the satisfaction of male and female employees on career advancement. These could be the topics of future studies carried out in Catalan enterprises.

Referring back to the problem statement, enterprises can benefit from female talent in their boards of directors. Research points that committees which fail to ignore the possibility of nominating female employees may conceivably be decreasing their investors' potential for future returns. Appointing well prepared individuals (regardless of gender) seems to be a straightforward way to increase a board's effectiveness and an organization's probability for success. In short, small and medium enterprises can benefit from having feminized boards of directors, not only to reduce financial risk but also to achieve more satisfied employees.

## Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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