GENDER DIVERSITY ON EUROPEAN BANKS' BOARD OF DIRECTORS: TRACES OF DISCRIMINATION

Ruth Mateos de Cabo (University CEU San Pablo, CUNEF)
Ricardo Gimeno Nogués (Banco de España)
María J. Nieto (Banco de España)
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Abstract:
In today's corporate world, board diversity has become a relevant topic and gender diversity is an important aspect of board diversity. Our paper aims at bridging the gap between the scarce of studies about women's presence on the boards of directors of banks and the growing importance of the gender diversity as an important topic of board diversity, at a time when a number of European market regulators are considering women quotas on the publicly traded companies´ board as a requirement on their Codes of Conduct, and when global crisis in the banking sector is opening up corporate boards to more female candidates in order to gain better corporate governance.

The objectives of this paper are twofold: First, to study women's presence on boards of European Union (EU25) banks and identity those determinants that can explain their presence on their boards of directors, and second, try to identify the types of discrimination that are behind this determinants in order to show the economics and policy implications that can be derived of our analysis. In this sense, we have found evidence of different types of discrimination. There are banks that prefer a friendly board and try to avoid hire women directors. We have found also sings of statistical discrimination according to which women would be excluded from the boards of banks with higher risk. Finally, there is also some evidence of the Becker's discrimination, in the sense that banks in more dynamics and competitive markets have a greater presence of women on their boards.

JEL classification: G34 (Corporate Governance), G21 (Banks); J16 (Economics of gender); J71 (Discrimination); C35 (Discrete regression and qualitative choice models)
Keywords: Corporate Governance, Board of Directors, Banks, gender diversity, discrimination

1. Introduction

According to the most recent description offered by the Organization for Economic Cooperation and Development (OECD), corporate governance ‘‘involves a set of relationships between a company’s management, its Board, its shareholders and other stakeholders [and] also provides the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined.’’[1]

Consistently with the OECD definition, the Basel Committee on Banking Supervision (BCBS) set out a definition from the perspective of banking industry, according to which ‘‘corporate governance involves the manner in which the business and affairs of individual institutions are governed by their Boards of Directors and senior management, which affects how banks: set corporate objectives (including generating returns to owners); run day-to-day operations of the business; meet the obligation of accountability to their shareholders and take into account the interests of other recognized stakeholders.’’[2] The BCBS has called attention to the need to study, understand, and improve the corporate governance of financial entities, since good corporate governance increases monitoring efficiency and is necessary to guarantee a sound financial system and, consequently, a country’s economic development.

Over recent years, corporate governance has attracted international attention as a means to address the ‘‘separation of ownership and control’’ (or ‘‘agency’’) problem in public companies, thus promoting corporate efficiency. Several important initiatives have been taken in the European Union (EU), the United States (US) and at the international level aiming at the establishment of sound corporate governance practices. In relation to the banking industry, in particular, the Basel Committee on Banking Supervision has promulgated a set of accepted corporate governance principles under its 1999 Paper on ‘‘Enhancing Corporate Governance for Banking Organisations’’[3], that was revised

[1] Organisation for Economic Cooperation and Development (2004).
[2] Basel Committee on Banking Supervision (2005).
[3] Basel Committee on Banking Supervision (1999).

following the 2005 Consultative Document[4]. It must be also mentioned the 1998 Basel Paper under the title ‘‘Framework for Internal Control Systems in Banking Organisations’’ laying out thirteen core principles that should guide the organisation and operation of banks’ internal control systems[5].

Nevertheless, only a few papers focus on banks’ corporate governance (e.g., Adams and Mehran, 2005; Caprio *et al*., 2007; Levine, 2004; Macey and O’Hara, 2003), even though the key aspects of corporate governance can be applied to banks. With respect the diversity of the bank’s boards, there is a dearth of studies about women´s presence on the boards of directors and performance of financial corporations. Moreover, the existing literature focuses on US corporations and, to the best of our knowledge, none of them study the presence of women on the boards of European banks.

Our paper aims at bridging this gap at a time when a number of European market regulators are considering women quotas on the publicly traded companies´ board as a requirement on their Codes of Conduct. Besides, the current global crisis in the banking sector with its impact on the collapse of share prices and recession worldwide may yet compel companies to invite women onto their corporate boards to gain better governance. In this sense, Iceland has appointed women executives on key positions on the intervened banks to help rebuild its shattered financial sector.

The objectives of this paper are twofold: First, to study women’s presence on boards of European Union (EU25) banks and identity those determinants that can explain their presence on their boards of directors, and second, try to identify the types of discrimination that are behind this determinants in order to show the economics and policy implications that are derived of our analysis.

The paper is organized in five parts in addition to this introduction. In the second section, we review the relevant literature relating to corporate governance in banks and justify the important of gender diversity as a relevant topic of the bank’s corporate government. In section three we offer some evidence on the low representation of women on boards of directors of European Companies and its possible causes. Section

[4] Basel Committee on Banking Supervision (2005).
[5] Basel Committee on Banking Supervision (1998).

four describes our sample of EU banks and presents the variables proposed for the later analysis. Section five presents the model and the results of the empirical analysis. Last section concludes the paper.

2. Corporate Governance in banks: Gender diversity as a relevant topic

Considering the importance of financial intermediation, it comes as no surprise that ensuring safety and soundness of financial institutions has been a pivotal public policy concern of regulators worldwide. The conventional view on regulatory involvement in financial markets asserts that regulatory intervention can principally be justified on two bases, that is, enhancement of financial stability and protection of consumers (i.e. depositors, investors and holders of insurance policies) (Staikouras, *et al*. 2007).

The European Central Bank has acknowledged the importance of sound corporate governance systems, making the valuable notice that corporate governance is even more important for banks considering their role as financial intermediaries and the comparatively higher risk of contagion in the banking sector[6]. Therefore, a robust system of corporate governance complements and facilitates the work of bank supervisors, which also explains the supervisory interest in the setting up and enforcement of reliable corporate governance mechanisms[7].

Banks have two related characteristics that inspire a separate analysis of their corporate governance, and that interfere with the way in which the usual corporate governance mechanisms are applied to financial institutions (Andrés and Vallelado, 2008). First, banks are generally more opaque than non financial firms. Although information asymmetries plague all sectors, evidence suggests that these informational asymmetries are larger within banks, in part due to rapid developments in technology and increased financial sophistication (Furfine, 2001). In banking, loan quality is not readily observable and can be hidden for long periods. Moreover, banks can alter the risk composition of their assets more quickly than most non-financial industries, and banks can readily hide problems by extending loans to clients that cannot service previous debt obligations. The comparatively severe difficulties in acquiring information about

[6] European Central Bank (2005).
[7] Basel Committee on Banking Supervision (1999).

bank behaviour and monitoring ongoing bank activities hinder traditional corporate governance mechanisms (Levine, 2004). Second, banks are frequently very heavily regulated. Because of the importance of banks in the economy, the opacity of bank assets and activities, and their role as a ready source of fiscal revenue, governments impose an elaborate array of regulations on banks. However, many government regulations may adversely distort the behaviour of bankers and inhibit standard corporate governance processes.

In fact, the existence of an implicit or explicit public safety net against banks' failure generates perverse incentives (''moral hazard'') in the sense that banks, taking as granted the employment of safety net policies in case of trouble, are induced to take on more risks[8], thus increasing agency problems and raising new corporate governance concerns for banks. The problem of moral hazard is exacerbated in situations where a bank is at or near insolvency. In such a situation, the shareholders have a strong incentive to increase risk because they can allocate their losses to third parties while still receiving any gains that might result from the risky behaviour (Macey and O'Hara, 2003). In this context the Board of Directors in banks assumes a particularly pivotal and sensitive role in achieving a delicate balance among the (conflicting) interests of the various groups of stakeholders: depositors and creditors, bank's managers, shareholders as well as regulatory authorities[9].

Bearing these considerations in mind, gender diversity can be considered an important dimension in order to gain better corporate governance of banks. In fact, a higher diversity of perspectives and points of views when perceiving environmental threats and opportunities can be especially important in a sector highly exposed to a risk of contagion and where crisis can have disastrous consequences in terms of crippled economies, destabilized governments, and intensified poverty. Recent financial crisis and its dramatic consequences of recession in most nations dramatically advertise the enormous consequences of poor governance of banks and raises serious questions about the tradition of having largely homogeneous corporate boards throughout the financial sector.

[8] Dale (1996), Santos (2001), Demirgüç-Kunt and Kane (2002), Sbracia and Zaghini (2003), Kahn and Santos (2005).
[9] Adams and Mehran (2003).

In this sense there are numerous studies that highlight the benefits of diversity for corporate governance and maintain that women add to the diversity of corporate leadership. Brown *et al*. (2002) found that diversity boards tend to be more active and demonstrate better results in terms of client satisfaction, and risk or audit management. Robinson and Dechant (1997) built a case for the importance of corporate diversity. They postulated that: (a) corporate diversity promotes a better understanding of the marketplace; (b) diversity increases creativity and innovation; (c) diversity produces more effective problem solving; (d) diversity enhances the effectiveness of corporate leadership; and (e) diversity promotes effective global relationships. Rosener (1990) argued that board diversity influences the decision making and leadership styles of the organization.

Fondas and Sassalos (2000) argued that diversity in board composition via greater female representation would lead to improved board governance and top management control. Investor Relations Business (1999) examined the impact of board diversity on shareholders' value, they argued that even though no direct link between increased board diversity and an increase in shareholder value had yet been documented, diversity was always a part of exemplary corporate governance and improved the professionalism of the board, which "hopefully" translated into a boosted bottom-line.

Besides, given the global financial crisis, it is especially important to appoint for the Boards of Directors the most talented individuals independently of their gender in order to improve corporate governance as well as to facilitate and accelerate the changes that will be required to recover economic prosperity. In fact, failure to appoint women to the board may be a signal of conscious or unconscious discrimination attitudes in the bank, that distort the decision making process of the financial institution. In this sense, more open and transparent directorship appointment process would be a key aspect for proper corporate governance, and this would facilitate the access of women to the bank's board, as is the case in Iceland where consideration has been given to female candidates for new board positions in recapitalised banks in order to try to restore the normality and the confidence in their damaged bank system.

Nevertheless, regarding issues of corporate governance for banks the composition and duties of the Board of Directors have been at the core of it and board diversity is not an issue that have received much attention. In fact, much of the related literature about women and banks has focused on studying the differences in operating performance of women and other minority owned US commercial banks.

Colby (1993) finds that minority owned banks have tended to be smaller, somewhat less profitable, and more expenditure prone than comparable groups of non-minority banks. In addition, earlier studies reported that minority-owned banks tended to operate with lower equity capital to assets ratios, to have more conservative assets portfolio management policies, and to record higher loan losses than their non-minority peers (Brimmer, 1971; Boorman and Kwast, 1974; Bates and Bradford, 1980, and Kwast, 1981).

In contrast to these negative findings, the study of Meinster and Elyasiani (1988) found that minority-owned banks had significantly improved their capital ratios and decreased their holdings of liquid assets, while expanding their use of purchased funds. Hasan and Hunter (1996) examined differences in the operating performance of minority and women-owned commercial banks from the viewpoint of production efficiency. In order to do this, they compared the operating performance of their entire sample banks (minority and nonminority-owned banks) relative to a set of *best-practice* banks. Their results showed that, although, the average minority or women-owned bank was significantly more inefficient[10] than the average non-minority bank, the women-owned banks were the most efficient among the sampled minority and women-owned banks.

Since there is a dearth of studies about women's presence on the boards of directors of financial corporations and to the best of our knowledge, none of them study the presence of women on the boards of European banks and given the raising importance of gender diversity as a relevant topic of corporate governance at a moment when gaining better governance is a key issue for banks to survive in a global crisis, it seems necessary to fill this gap in order to have a better comprehension of the determinants that can explain their presence on their boards of directors. This knowledge can help us

[10] Bank efficiency is measured for each bank using a standard bank cost function that includes the total cost of inputs used to produce the bank's various outputs

to identify different kinds of exclusion than can be causing the low representation of women on bank's boards as well as to ponder the policy implications that can help to achieve gender diversity on European bank's top corporate boards.

3. Women representation on the Board's of European Banks: causes of under representation

In order to justify the low representation of women in the highest executive positions and on the Boards of the European Banks, it is important to get evidence of the phenomenon known as *the glass ceiling*. This is usually defined as a set of obstacles that mean an impassable wall or barrier made up of procedures, structures, power relations, beliefs or habits, which complicate a woman's access to high directive positions (Morrison *et al.*, 1987; Powell and Butterfield, 1991).

There are several studies that show that presence of women on boards of directors is limited worldwide. According to data from the *Ethical Investment Research Service* (2004), women board directors were less than 10 percent of the total number of directors of companies headquartered in Australia, the United Kingdom, Germany, France, Singapore, Hong Kong, Spain, Italy, and Japan. Only Norway (greater than 25 percent), where federal legislation requires all boards to have at least two women by 2006 and to have 40 percent women by 2008, and Sweden (almost 20 percent) had percentages of women directors greater than those in the United States (Catalyst, 2005). The 2004 *European Professional Women's Network Monitor* in its report of more than 250 European companies found a percentage of 8% of female representation on corporate boards in Europe, far away from USA and Canada, with 13.6 % and 10.6 % of women on boards respectively. The biennial *Heidrick & Struggles* corporate-governance studies provide a unique and comprehensive overview of boards of some 300 of Europe's top companies. The 2005 report studies a sample of 294 companies from ten countries (Belgium, France, Germany, Italy, the Netherlands, Portugal, Spain, Sweden, Switzerland and the United Kingdom) selected by market capitalization and finding a percentage of 7.3% of women in the boardroom. Accordingly, the study considers the lack of diversity as a major concern for European companies.

More recently, Vivinconbe *et al*. (2008) in their "Annual Female FTSE Report" found a percentage of 12% of female representation onto the boards of the FTSE 100 companies. This study highlights the slow progress made in the number of women on British boardrooms, where the proportion of female directors of top companies has increased from 6.9% in 1999 to 11.7% to 12% in 2008, an incremental rise of only five percentage points. According to the "2007 Catalyst Census of the Fortune 500 Companies", women in the United States held 14.8% of all Fortune 500 boardroom seats in 2007, compared to 14.6% in 2006.

Regarding women presence on boards of banks, the results from a research project on the position of women on the decision-making of commercial banks in the European Union (Quack and Hancké, 1996) showed that the proportion of women among managers decreases as manager level increases. Besides, the project showed the fact that, there is a considerable gap between the proportion of women among bank employees and their representation among bank managers. So, whereas in 1995 women accounted for half of the employees of the banks in the sample, they represented only 16 per cent of their managerial workforce.

Distinct groups of explanations could be behind this low representation. In the first place, there are differences between men and women that lead to different professional profiles between them and that causes that women in few cases fit with the profile searched[11] on the candidates to hold a position on the Board of Directors. So, in accordance with companies' standard criteria, most women would be *excluded from the pool of potential candidates* to hold these positions. The second explanation is related to the well-known *Taste-Based discrimination*. In this sense, if the company considers the admission of women to its board to be harmful to its performance (they may consider that there are non-pecuniary or psychic costs by working with them), the individuals that decide the composition of the board would prefer either pay or forfeit income than hiring women (Becker, 1957). The third explanation is called *Statistical discrimination* by Phelps (1972) and it occurs if women are judged according to the average perceived

[11] Generally, candidates to become part of the Board of Directors are demanded to have, among other prerequisites, an elevated previous experience on positions of responsibility in departments such as production and finance, whereas the heads of other areas like human resources or marketing, where there are a greater presence of women, are not considered to the same degree as possible candidates to occupy a director position.

characteristics of their group and not on the basis of their own personal characteristics as an individual. And finally, it is possible that women's ability to hold these positions is systematically under-estimated, or in other words, there could be a *Mistake-Based Discrimination* in respect to women skills (Wolfers, 2006).

With respect to the first group, among the factors that explain that there are fewer "potential" women than men to hold a seat on the board, there are some explanations such as the existence of some segregation factor, which tends to place men in top executive positions causing that women usually lack the experience and necessary capacities to hold managerial posts. There are also unobservable differences (at least to the econometrician) such as a relative lack of long-term career commitment among women (Bertrand and Hallock, 2001), and other not directly observable factors such as a greater taste for fringe benefits or good working conditions, familiar responsibilities or the anticipation by many women of the glass ceiling which drives women to sacrifice their professional development in favour of their family life. In this cases, the limited presence of women on Boards of Directors would not be due so much to gender discrimination in the selection process of the board members, as to the existence of socio-cultural obstacles in the stages leading up to the professional promotion of women. This is why we call this set of explanations *reduced pool of women candidates***.**

Nevertheless, once a woman has reached the group of top executives, it is reasonable to assume that such differences are minimized and that men and women are likely to be similar, and both share a high level of job motivation and high career ambitions, so additional causes must be explored to explain this acute under-representation. In fact, there is evidence that women are ambitious for board directorships and that of these women directors in the pipeline only few have been approached by search consultants about potential non executive directors' appointments (Vinnicombe, *et al*., 2008).

In the case of *Taste-based discrimination*, animus by co-workers or customers may be such that the firm's marginal revenue product form promoting women is lower or alternativately a company may be willing to accept lower profits in order to avoid promoting women. Since the company is including spurious hiring criteria it will be renouncing to select those candidates best prepared for the position, independently of their gender. In fact, Becker's theory predicts that on a perfectly competitive market,

time and competition among companies would finish for solving the problem of the discrimination, since the companies that discriminate would not survive in the long term as they have to support higher costs and loss of efficiency due to their preference for avoiding women. In spite of the numerous critiques to this theory and that after 50 years since the publication of his book the time does not seem to solve the problem of discrimination, Heckman (1998) argues that this prediction may not be false. In fact, according this author discrimination will only disappear in the presence of competence[12] and even then it may take decades to fade out of the labor market.

Another type of behavior that is occasionally found on Boards of Directors (Pearce and Zahra, 1992) and that could be generating this type of discrimination is the existence of a bias towards the homogeneity of the group, considering heterogeneity in the heart of boards as a potential source of conflict and of difficulties in decision making processes. In this last case, there could be agency costs derived from the CEO dominance over the main decision-making organs in companies (Hermalin and Weisbach, 1998).

According to the *Statistic discrimination* (Phelps, 1972), the company who seeks to maximize expected profit will discriminate against women if it believes them to be less qualified on the average than men and if the cost of gaining information about the individual applicants is excessive. In this case, the a priori belief in the probable preferability of a male over a female candidate might stem from employer's previous statistical experience with the two groups, or it might stem from prevailing sociological beliefs about the abilities of women and from prejudices toward them in the society. In the last case the discrimination is clearly inefficient. For instance, the perception that women are more risk-averse than men (Jianakoplos and Berlnasek, 1998, Sundén and Surette, 1998) is seen for some authors as a stereotype that does not reflect women actual economic behaviour and as a major cause of "glass ceilings" in corporate promotion ladders (Johnson and. Powell,1994). In this sense, Schubert *et al*. (1999) found that on contextual financial decisions the preconceptions concerning the risk attitudes of female investors and managers may be more prejudice than fact and they would be a source of o statistical discrimination against women in financial and labour markets. This discrimination would mean that when a company/bank is confronting a

[12]Specifically Heckman states that only if the supply of entrepreneurship is perfectly elastic in the long run at a zero price, so entrepreneurs have no income to spend to indulgence their tastes, or if there are enough nonprejuiced companies to hire all women, will discrimination disappear form Becker's model.

significant level of risk, they would be less likely to hire women for the board, since stereotypes would mean that they are wrongly seen as less skilled to make the risky decisions that may be necessary for a firm's success.

Finally, *Mistake-based discrimination* is based on the persistence of biased beliefs about the ability of women to hold these positions. This kind of discrimination has a clear cost for companies since they would be inefficient in their resource allocation. We can also find here other focuses like *Implicit discrimination* (Bertrand *et al*., 2005) according to which the attitudes or implicit or unconscious feelings of the evaluators of different candidates can include a discriminatory bias against women although their explicit feelings or attitudes could be just the opposite of discrimination.

Disentangling the causes of the low presence of women on the European banks' board of directors it a key issue because distinct types of discrimination could have different economic and policy implications.

4. Data collection and methodology

4.1. *Data and descriptive analysis*

This paper uses annual data of banks from the BankScope[13] database for the EU25 from 1998 through 2004. The characteristics of the sample banks are as follows: Commercial banks; Mortgage and Real Estate banks, Medium and Long Term Credit banks, Bank Holding companies, which all of them report on local GAAP. Banks with major shareholders from outside of the EU have been eliminated.

The database includes 1350 EU25 private banks of which, 75% are independent institutions and the rest are subsidiaries of financial or non financial institutions as of last reporting year[14]. Only 221 banks are quoted in the stock market. Out of this data base our sample includes only 612 EU-25 banks on which *BankScope* provides

[13] BankScope is a financial database covering 10,500 World Banks. It offers subscribers data up to 8 years of detailed spreadsheet information, compiled by FITCHIBCA mostly from the balance sheet, income statement and applicable notes found in audited annual reports. It also includes data details on ownership, produced by Bureau Van Dijk, such as lists of shareholders and lists of banking subsidiaries.

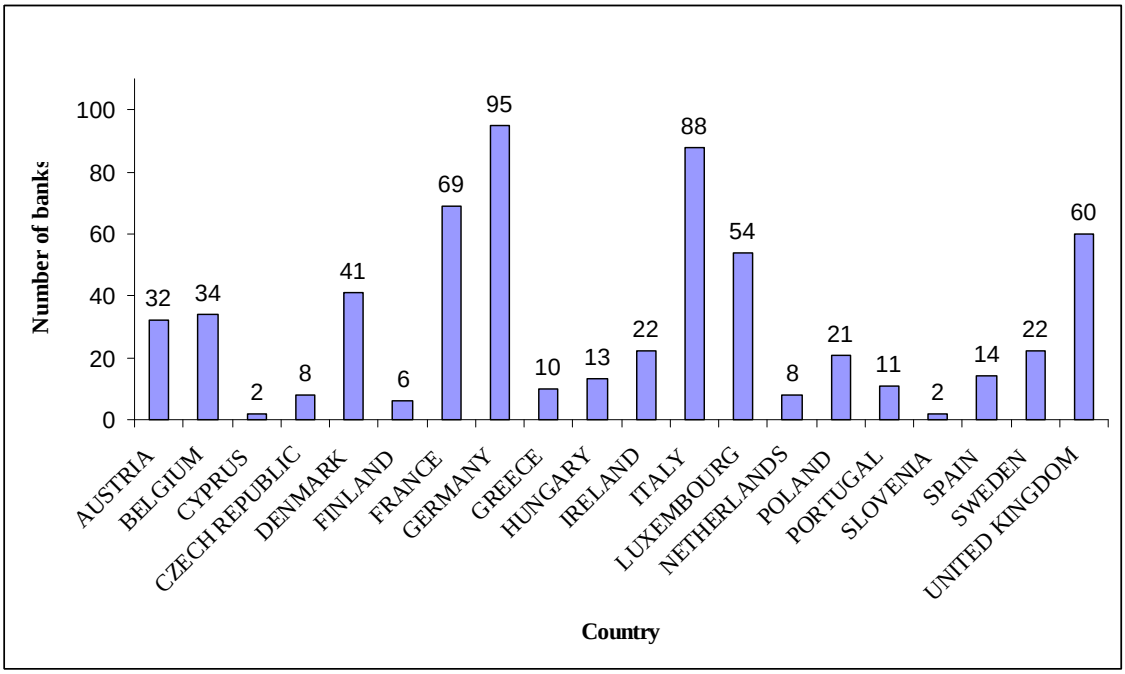
[14] 21 are public or government controlled banks of which 9 are part of the Nordea Group.

information on their board of directors composition and, therefore, gender differentiation is possible (7,868 board members).

The information on board members of banks was also obtained from BankScope database, updated in December 2006. In order to determine the gender composition of the board, the first names of the board members' were examined.

The breakdown of EU25 banks by country is shown in Figure 1, while Table 1 presents descriptive statistics on the woman´s presence on EU25 banks´ board of directors (December, 2006).

Figure 1: Number of banks by country (EU25)



With regard to the characteristics of the Board of Directors (table 2), we conclude that only 7% of the board seats, this is 555, are held by women. The average number of board seats by firm is 12.86, of which only 0.91 are held by women. The maximum number of women present in any of the European banks' board of directors in our sample is 10. This is the case of EBS Building Society in Ireland. In turn, the maximum number of men in our sample of banks' board of directors is 65, this is the case of IKB Deutsche Industriebank AG in Germany.

Table 1: Descriptive Statistics: Woman´s presence on EU25 banks´ board of directors (December, 2006)

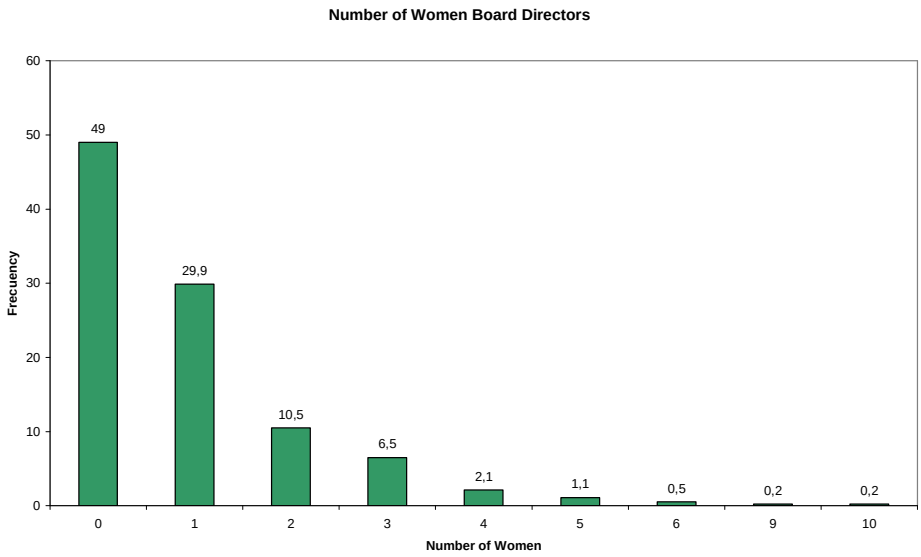
	N (sample)	Minimum	Maximum	Sum	Average	Stand. dev.
Total number of board seats	612	1	69	7,868	12.86	8.422
Number of Men Board Directors	612	1	65	7,313	11.95	8.019
Number of Women Board Directors	612	0	10	555	0.91	1.258

Only 312 banks have included at least one woman in their boards of directors. This figure represents 51% of the sample. Although the percentage of banks that included more than 2 women is considerably smaller (10.6%) (Table 2 and Figure 2).

Table 2: Number of Women Board Directors

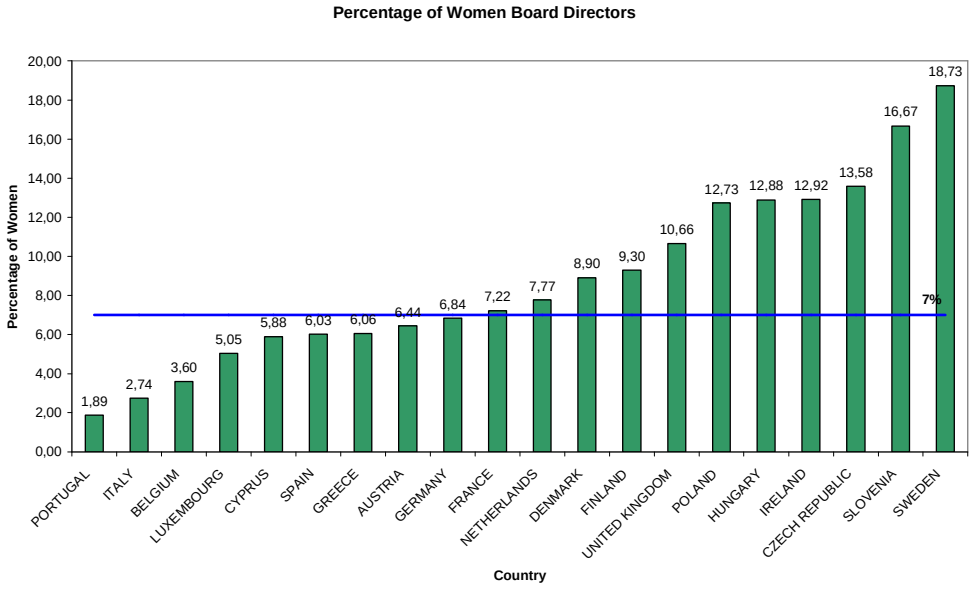
Number of women		Frecuency	Percentage	Accumulated Percent.
Valids	0	300	49.0	49.0
	1	183	29.9	78.9
	2	64	10.5	89.4
	3	40	6.5	95.9
	4	13	2.1	98.0
	5	7	1.1	99.2
	6	3	0.5	99.7
	9	1	0.2	99.8
	10	1	0.2	100.0
	Total	612	100.0	

´Figure 2: Percentage of Women Board Directors



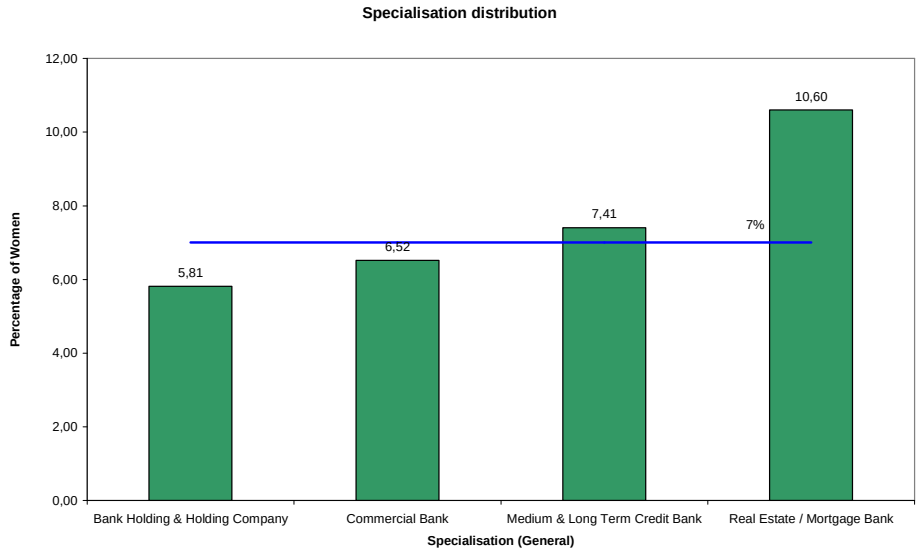
Sweden and Slovenia are the two EU25 countries where women have the largest presence on the boards of banks, while Portugal, Italy and Belgium have the lowest presence. Additionally, four of the new accession countries to the EU do have an average percentage of women on the board of directors that is above the EU25 average (Figure 3).

Figure 3: Distribution by country



The presence of women on banks' board of directors also varies according to the banks' business activity. Real Estate and Mortgage banks have, on average, a larger presence of women on their boards (Figure 4).

Figure 4: Distribution by banks´ type of activity



4.2. *Explanatory variables*

In the model we present in the following section we also include some financial variables. These explanatory variables control for bank *size* (Total Assets), *performance* (ROA), *efficiency* (Cost to Income), and *leverage* (Equity on Total Assets). To take into account possible abnormal observations over the study period, we have considered averages of those financial variables from 1998 to 2004.

When considering the variable to be introduced in the model as a measure of the bank size there are three important alternatives considered in the literature: Number of Employees, Net Income and Total Assets. We have chosen Total Assets in log as representative of the bank size since is the most homogeneous measure among different types of banks.

We have chosen ROA as a measure of bank's performance as this is perhaps the most important single ratio in comparing the operational performance of banks as it looks at the returns generated from the assets financed by the bank. Another alternative is the ROE but this is more a measure of the return on shareholder funds. Besides, one should be careful in putting too much weight on this ratio since a high ratio may be achieved at the expense of an over leveraged balance sheet.

Cost to Income Ratio is introduced in the model as a measure of efficiency. This is one of the ratios that analyst are more focused on and measures the overheads or costs of running the bank, the major element of which is normally salaries, as percentage of income generated before provisions.

It has been also included, Equity on Total Assets in log as a leverage measure since it captures the amount of protection afforded to the bank by the equity they invested in it. So the higher this figure the more protection there is.

Additionally, to consider the risk that each bank assumes as well as its dynamism, we have included the log of Standard deviation of ROA over the study period in order to

control for bank´s risk, and the mean of the Growth Rate of Total Assets over the same period as a proxy for bank's growth.

We have also considered dummy explanatory variables that control for country of origin of the bank with Germany as the reference one, bank's type of activity being Commercial Bank the reference category[15], and whether banks are or not listed in the stock market.

We also control by the banks´ board size since it can be considered as a proxy for the preference for homogeneity in the sense that banks that have a bias towards the discrimination for preference see diversity not as an advantage and they tend to prefer small and homogeneous boards, since the diversity in small groups can have a big cost in terms of decision taking. In turn, a bigger board can be an indication that the bank has a lesser preference for homogeneity, which is reinforced by the fact that the power of each member is diluted. In this case, it is more likely to find gender diversity.

Table 3 shows descriptive statistics of several financial variables as well as the statistical significance of the mean differences between *banks with at least one woman on the board* and *banks with only men on the board*. The descriptive analysis is based on the set of financial variables described above[16].

Table 3: Summary statistics of banks with at least one woman on the board and banks with only men on the board.

	N	Min.	Max.	Mean	Median	St. Dv.	Mean banks with women	Mean banks without women	t-statistic
Total number of board seats (Board size)	612	1	69	12.86	11	8.42	15.15	10.47	51.113***
Mean Total Assets th USD 1998-2004 (Log)	601	7.72	20.60	14.70	14.51	2.14	14.9805	14.4116	10.783***
Mean Return on Assets (ROAA) % 1998-2004	599	-14.45	25.40	0.81	0.55	1.92	0.7670	0.8526	0.295
Mean Cost to Income Ratio % 1998-2004	591	2.13	533.33	65.95	64.33	34.45	65.5016	66.4137	0.103
Mean Equity on Total Assets % 1998-2004 (Log)	597	-2.09	4.55	1.95	1.86	0.80	1.9369	1.9583	0.107
Mean Growth Rate Total Assets th USD 1998-2004	562	-0.67	630.61	1.36	0.14	26.60	0.2871	2.4358	0.917
St. Dev. Return on Assets (ROA) % 1998-2004 (Log)	558	-4.95	3.19	-1.30	-1.31	1.28	-1.4375	-1.1701	6.115**

[15] References categories have been selected to be the ones with the highest proportion in the sample.
[16] In the annex 2 we show the same descriptive analysis but cross-tabulated by bank's type and bank's listed character.

5. Model and empirical results

In this section we are going to discuss the relationships between the presence of women on the Boards of Directors of European banks and the explanatory variables presented in the previous section. In order to do this, we define the endogenous variable: *number of women on the board* (Y_i). This variable can take discrete values ranging from zero to infinity, so it seems adequate to consider it as a *Poisson* variable. In a *Poisson* regression, each observation *i* (each bank board) is the outcome of a random variable with a *Poisson* distribution of parameter λ_i. So, the probability that the number of women on a Board of Directors is equal to a given number will follow equation 1:

$$\Pr[Y_i = y_i] = \frac{(\lambda_i)^{y_i}}{y_i!} e^{-\lambda_i} \qquad y_i = 0,1,2,\ldots \qquad (1)$$

Parameter λ_i will also represent the *expected number of women on the board*. This parameter can be modeled to variate in accordance to a non-negative function,

$$\lambda_i = n_i \cdot e^{\mathbf{x}_i\boldsymbol{\beta}} \qquad (2)$$

Where $\mathbf{x}_i$ is the vector of independent variables, and n_i, the board size, is the exposure variable. In fact, $\lambda_i / n_i = \cdot e^{\mathbf{x}_i\boldsymbol{\beta}}$ will be the expected proportion of women on the board.

Table 4 presents the results on the estimation of this Poisson regression. Model I includes all the variables considered, while, in order to reduce multicolinearity concerns, only significant variables remains in model II.

Table 4: Poisson regression on the number of women on the board

	Poisson models					
	Model I (All Variables)			Model II (Sign. Variables)		
Independent Variable	Coefficient	Z		Coefficient	z	
Board size	0.0353	2.37	**	0.0340	2.44	**
Board size (squared)	-0.0006	-2.25	**	-0.0005	2.26	**
Real estate/ mortgage bank	0.2061	1.42				
Bank holding	-0.0925	-0.39				
Medium & long term credit bank	0.1058	0.42				
Listed	0.0686	0.51				
Growth rate total assets	0.3636	2.72	***	0.3023	2.55	**
Standard deviation ROA (log)	-0.1350	-2.56	**	-0.1420	3.00	***
ROA	0.0264	0.80				
Cost to Income	0.0047	2.28	**	0.0043	2.30	**
Total assets th usd (log)	0.0063	0.20				
Equity on total assets % (log)	0.1997	2.17	**	0.1996	2.52	**
Austria	-0.2282	-0.88				
Belgium	-0.6905	-2.11	**	-0.6543	2.20	**
Cyprus	0.2726	0.27				
Czech Republic	0.6977	2.09	**	0.7209	2.31	**
Denmark	0.2940	1.20		0.3714	1.82	*
Finland	0.5258	1.00				
France	0.0313	0.17				
Sweden	0.7768	3.72	***	0.8543	4.81	***
Greece	-0.2033	-0.49				
Hungary	0.6071	2.15	**	0.6724	2.62	***
Ireland	0.7647	3.19	***	0.8819	4.15	***
Italy	-1.3401	-5.34	***	-1.2974	5.84	***
Luxemburg	-0.2117	-0.94				
Netherlands	-0.2169	-0.49				
Poland	0.5268	2.23	**	0.5866	2.87	***
Portugal	-1.2884	-2.15	**	-1.2352	2.11	**
Slovenia	0.4635	0.86				
Spain	-0.2007	-0.62				
United kingdom	0.2104	1.17		0.3408	2.36	**
Cons	-4.1171			-3.9776		
Number of obs.	543			543		
Log pseudolikelihood	-595.687			-599.921		
Pseudo R2	0.1233			0.117		
LR test	167.53	***		159.07	***	
Wald chi2	171.17	***		152.75	***	

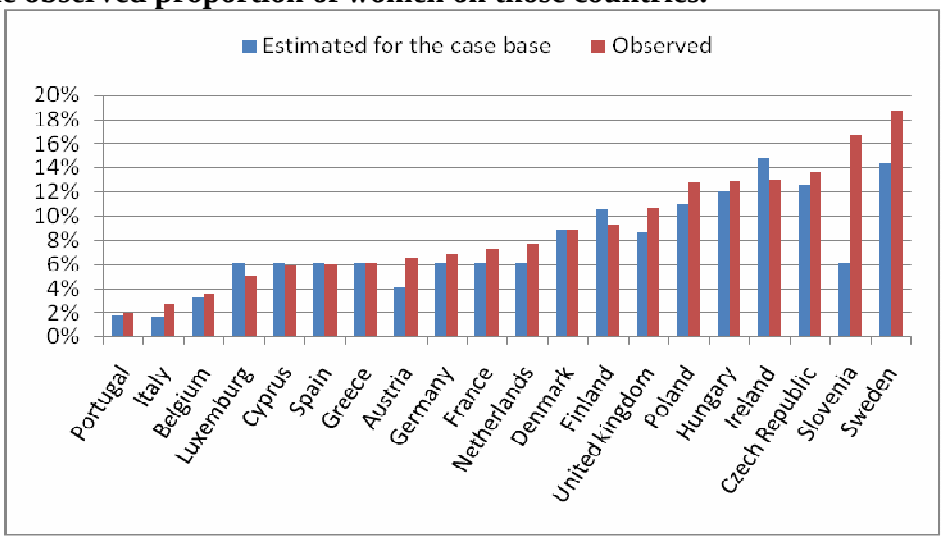
Estimation results[17] show that both models are significant (both when considering the likelihood ratio test and the Wald test) into explaining differences among the number of women on the boards. Specifically, on model II the Board size, the Growth rate of total assets, the Standard deviation of ROA, the Cost to income, and the Equity on total

[17] One of the major drawbacks of Poisson modeling is that this statistical distribution implies that the mean and the variance of the dependent variable must be equal. In our case, the sample has a mean number of women on the boards of 0.9 while the variance is 1.6. Nevertheless, possible over-dispersion in the sample has been discarded since alternative modeling via zero-inflated Poisson, negative binomial regression and zero-inflated negative binomial models rejects over-dispersion.

assets ratio are variables that help to explain differences in the proportion of women on the board. This is also true for the country of origin. By contrast, we have found no significant effect of the type of bank, the listed character of the bank, or the size of the bank measured by total assets. As well, performance is not significant when ROA is considered.

Nevertheless, given the nonlinear expression of the Poisson model implies that in order to describe the influence of each variable we could not rely on the value of the estimated coefficients. Rather than this, we have to perform a sensibility analysis, where a base case is considered[18] and the expected number of female directors is computed changing the values of one of the variables and fixing the other ones (*caeteris paribus*). The results of this sensibility analysis are presented in figure 5, figure 6 and table 5.

Figure 5: Expected proportion of female directors when considered the case base scenario for changing country of origin, estimated for the Model II and compared with the observed proportion of women on those countries.

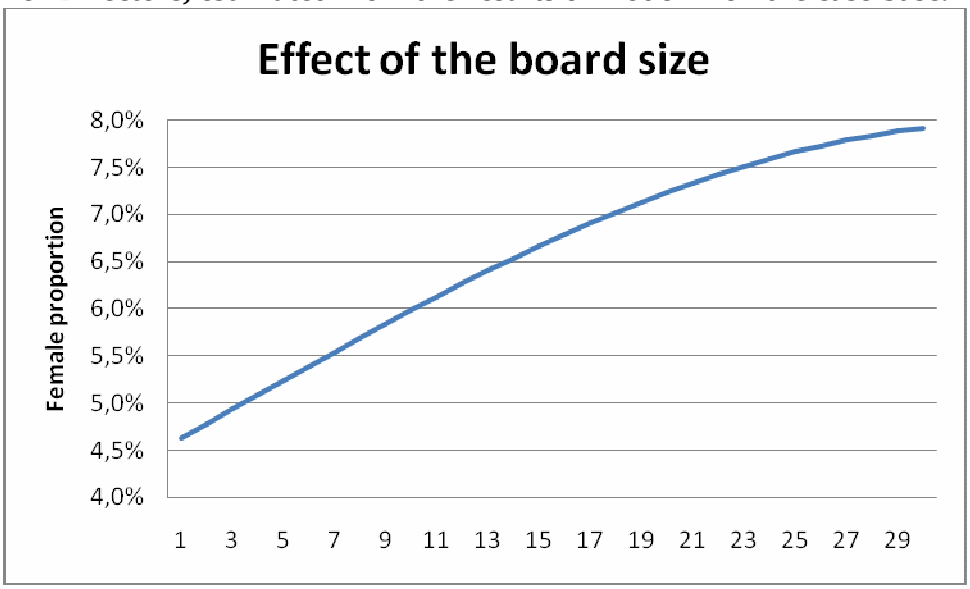


As can be seen in figure 5, there are differences in the proportion of female directors on the boards of European banks. These differences persist even when the other variables that may influence in the gender composition of the board are taken into account. The countries with a lower female representation are generally those from the South of Europe, while North and East European countries are the ones where women can be found more frequently.

[18] We have considered as a typical bank, a German Commercial Bank that is not listed, with twelve board directors where the financial variables are equivalent to the median values of the whole sample.

In the case of the *board size*, higher board sizes are linked to a higher proportion of women (Figure 6). This evidence is contrary to the possible presence of tokenism behavior, since this would imply that once a woman holds a position on the board, incentives to hire additional women would disappear. Therefore, under tokenism behavior, the expected proportion of female directors on the board would tend to decrease with the board size. Alternatively, the positive correlation between board size and women directors could be explained by the existence of some kind of *preference for homogeneity* on the board. If a CEO doesn't want a board of directors that monitor him/her too closely, he/she would try to appoint "friendly" directors (Adams and Ferreira, 2007), and this, in the context of Boards of Directors that are usually male-dominated, would imply that women can be seen as an annoying element by them. In this sense, smaller boards may be interpreted as a signal of preference for homogeneity on the board, while larger ones are a signal that the CEO is not so worried on friendly board, as it is on getting a wider range of diverse advises. This inverted U-shape effect was also found by Andrés and Vallelado (2007) in the case of board size and performance.

Figure 6: Effect of the Board Size on the expected female proportion of the Board of Directors, estimated from the results of model II on the case base.



The effect of the financial variables is reported in table 5. The *Growth rate of total assets* increase the proportion of women on the board, implying that more dynamic companies are the ones more inclined to hiring women for the Board of Directors. This

result seems to be consistent with *Becker's theory* according to which the more competitive and dynamics the market is the less discrimination is found. Therefore if a bank discriminates, it means that it is putting these attitudes before other goals as growing/expansion policies. In these sense, those banks that are involved in growing/expansion plans have more income's needs and are usually faced with highly competitive markets and they can not afford themselves forfeit income or pay additional cost for not hiring or working women, and thus they have a higher presence of women on their boards.

Although there is not significant differences in the proportion of women on the board related to the ROA, these differences exist for the *Standard deviation of ROA* and that proportion. In fact, the more uncertainty on the ROA, the more likely is to find women on the bank's board[19]. This is also the case, when the *Equity to total asset ratio* is considered, where a lower leverage is associated with a higher proportion of women. These results can be considered as a sign of the statistical discrimination in the sense proposed by Schubert *et al*. (1999). In this sense, the perception that female managers are less risk-prone than men would cause that they are less trusted to make the risky decisions that may be necessary for a bank's success. If women are expected to be more conservative investors than men they are consequently excluded from those positions that are more related with risks.

In the case of *Cost to income*, it seems that banks with a higher proportion of women are the ones with a higher cost to income ratio. This result is in line with the ones of Hasan and Hunter (1996), who found that minority and women-owned bank owned US banks were less efficient. Nevertheless, there is no clear theory for why this could happen. An alternative explanation could be derived from the fact that cost to income ratio not only reflects efficiency but it can be also influenced by the lending margins of the bank. This way if the level of competition the banks confronts is very high, more aggressive should be the lending margins policy and as a consequence the higher would be the cost to income ratio. In this sense, Becker's theory would be relevant when explaining the sign of this variable, since his hypothesis would imply that those banks that discriminate are less likely to survive in a competitive environment. Therefore,

[19] In fact, we could consider that a performance measure like a risk adjusted ROA (ROA/Std. Dev. of ROA) would be positively related with a higher number of women on the board.

remaining banks in these markets would be the ones less likely to discriminate and therefore with a higher presence of women on their boards being such banks.

Table 5: Sensitivity analysis of model II for the case base scenario changing the value of the financial variables.

	Proportion	P(X=0)	P(X=1)	P(X=2)	P(X=>3)	Expected number of women
Growth rate total assets						
1,4%	5,9%	52,2%	33,9%	11,0%	2,8%	0,65
8,3%	6,0%	51,5%	34,2%	11,3%	3,0%	0,66
13,7%	6,1%	51,0%	34,4%	11,6%	3,1%	0,67
23,6%	6,3%	49,9%	34,7%	12,0%	3,3%	0,69
43,1%	6,7%	47,9%	35,3%	13,0%	3,9%	0,74
Standard deviation ROA (log)						
5,8%	7,6%	43,3%	36,2%	15,2%	5,3%	0,84
11,5%	6,9%	46,8%	35,5%	13,5%	4,2%	0,76
26,9%	6,1%	51,0%	34,4%	11,6%	3,1%	0,67
55,3%	5,5%	54,4%	33,1%	10,1%	2,4%	0,61
128,7%	4,9%	58,3%	31,5%	8,5%	1,8%	0,54
Cost to Income						
35,40%	5,4%	55,1%	32,8%	9,8%	2,3%	0,60
51,87%	5,8%	52,8%	33,7%	10,8%	2,7%	0,64
64,26%	6,1%	51,0%	34,4%	11,6%	3,1%	0,67
75,17%	6,4%	49,3%	34,9%	12,3%	3,5%	0,71
89,46%	6,8%	47,2%	35,4%	13,3%	4,1%	0,75
Equity on total assets % (log)						
3,0%	5,3%	56,0%	32,5%	9,4%	2,1%	0,58
4,4%	5,3%	55,6%	32,6%	9,6%	2,2%	0,59
6,3%	6,3%	50,2%	34,6%	11,9%	3,3%	0,69
10,6%	7,3%	44,6%	36,0%	14,5%	4,9%	0,81
17,3%	8,6%	38,8%	36,7%	17,4%	7,1%	0,95

The expected number of women, as well as the proportion of women and the probability of finding 0, 1, 2, or 3 or more women on a board.

6. Conclusions

Diversity on the boards of Directors is a key issue of corporate governance on the banking sector, where a correct monitoring of the CEO and executive directors has a major relevance in order to getting a sound and stable financial system, and to avoid turbulence that can be passed to the real economy. In this sense, there are evidences that highlight the benefits of diversity for corporate governance both in terms of efficiency

and better monitoring. As women directors add to the diversity of the boards their inclusion can improve their corporate governance.

In fact, we have found on this paper that women are less likely to appear on those boards of directors where there is some evidence that monitoring plays a minor role, that is, those with a small board, where preference for homogeneity is stronger. In this sense, those homogeneous boards that are male-dominated will continue holding back the access of women to top positions on banks.

Additionally, those banks with lower risk (measured by the Standard deviation of ROA or the Equity on total assets ratio), are the ones where the proportion of women is higher. This implies evidence of statistical discrimination according to which women are female managers are considered more conservative and, therefore, they are consequently they are excluded from those positions that are more related with higher levels of risk.

There is also some evidence of the Becker's discrimination, given that those banks that have more women, and therefore are less likely to present discrimination bias, are precisely those who have greater growth rates of the total assets. This implies, according with Becker's prediction that dynamics and competitive markets help to lessen the problem of discrimination. Therefore those banks that are involved in expansion plans have more incentives to not discriminate since it has a higher cost for them and left less margin for growing. Another possible evidence of this Becker discrimination is the positive sign found for the Cost to income ratio, since this is positively correlated with the level of competence a bank suffers. Nevertheless, this interpretation is less clear than previous ones and other authors tend to attribute similar findings to less efficient corporations.

Finally, we have also found that there are cultural differences that explain part of the heterogeneity in the presence of women on the boards, since we find significant differences among European countries.

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Annex 1: Explanatory Variable's Definition[20]

EQUITY / TOT ASSETS:
As equity is a cushion against asset malfunction, this ratio measures the amount of protection afforded to the bank by the equity they invested in it. The higher this figure the more protection there is.

RETURN ON AVG ASSETS (ROAA):
This is perhaps the most important single ratio in comparing the efficiency and operational performance of banks as it looks at the returns generated from the assets financed by the bank.
The mention "AVG" means that the item is averaged using the arithmetic mean of the value at the end of year t and t-1. In order not to lose information, when figures are available for one year only, ratios implying average figures are nevertheless calculated using the values of the only available year.

RETURN ON AVG EQUITY (ROAE):
The return on equity is a measure of the return on shareholder funds. Obviously here the higher the figure the better but one should be careful in putting too much weight on this ratio as it may be at the expense of an over leveraged balance sheet. The mention "AVG" means that the item is averaged using the arithmetic mean of the value at the end of year t and t-1. In order not to lose information, when figures are available for one year only, ratios implying average figures are nevertheless calculated using the values of the only available year.

COST TO INCOME RATIO:
This is one of the most focused on ratios currently and measures the overheads or costs of running the bank, the major element of which is normally salaries, as percentage of income generated before provisions. It is a measure of efficiency although if the lending margins in a particular country are very high then the ratio will improve as a result. It can be distorted by high net income from associates or volatile trading income.

NET INTEREST MARGIN:
This ratio is the net interest income expressed as a percentage of earning assets. The higher this figure, the cheaper the funding or the higher the margin the bank is commanding. Higher margins and profitability are desirable as long as the asset quality is being maintained.

NET INT INC / AVG ASSETS:
This ratio indicated the same but expressed as a percentage of the total balance sheet.

[20] Source BankScope.

Annex 2: Summary Statistics cross-tabulated by bank's type and bank's listed character

Specialization (General)	Commercial Bank					Real Estate / Mortgage Bank					Bank Holding & Holding Company					Medium & Long Term Credit Bank				
	Min.	Max.	Mean	Median	St. Dv.	Min.	Max.	Mean	Median	St. Dv.	Min.	Max.	Mean	Median	St. Dv.	Min.	Max.	Mean	Median	St. Dv.
Total number of board seats	1	57	12.696	11	8.369	3	46	12.212	11	6.942	3	35	14.676	14.500	8.160	3	69	15.955	15	13.454
Mean Total Assets th USD 1998-2004 (Log)	7.725	20.599	14.526	14.295	2.129	9.146	19.377	15.064	15.240	1.977	10.864	20.406	16.167	16.162	2.330	11.466	17.964	14.704	14.820	1.767
Mean Return on Average Assets (ROAA) % 1998-2004	-14.447	25.397	0.835	0.627	2.067	-0.079	4.883	0.506	0.420	0.619	-3.710	9.770	1.427	0.760	2.429	-1.191	2.545	0.510	0.404	0.721
Mean Cost to Income Ratio % 1998-2004	5.963	533.330	67.611	64.533	36.284	2.130	129.243	56.909	59.460	23.850	5.325	186.927	67.815	64.671	30.972	16.190	123.104	62.964	65.834	29.459
Mean Equity / Total Assets % 1998-2004 (Log)	-0.111	4.487	1.992	1.889	0.747	-2.093	4.430	1.564	1.685	0.823	0.766	4.553	2.293	1.871	1.066	0.495	4.230	1.987	1.940	0.888
Mean Growth Rate Total Assets th USD 1998-2004	-0.670	630.613	1.728	0.146	30.443	-0.348	1.433	0.187	0.119	0.275	-0.006	0.965	0.196	0.132	0.174	-0.033	0.283	0.128	0.134	0.076
St. Dev. Return on Assets (ROA) % 1998-2004 (Log)	-4.952	3.190	-1.140	-1.123	1.204	-4.885	2.094	-2.199	-2.277	1.166	-4.259	2.655	-0.951	-1.298	1.528	-4.952	1.167	-1.711	-1.177	1.425

Listed Institution	No listed					Listed				
	Min.	Max.	Mean	Median	St. Dv.	Min.	Max.	Mean	Median	St. Dv.
Total number of board seats	1	57	12.178	10	7.672	2	69	15.726	13	10.6144
Mean Total Assets th USD 1998-2004 (Log)	9.146	20.194	14.499	14.375	1.942	7.725	20.599	15.570	15.671	2.69219
Mean Return on Average Assets (ROAA) % 1998-2004	-14.447	25.397	0.741	0.480	1.853	-9.298	18.367	1.106	0.906	2.19583
Mean Cost to Income Ratio % 1998-2004	2.130	533.330	66.487	65.011	36.905	5.325	204.446	63.673	63.289	20.8859
Mean Equity / Total Assets % 1998-2004 (Log)	-2.093	4.482	1.917	1.817	0.810	0.072	4.553	2.080	1.982	0.73958
Mean Growth Rate Total Assets th USD 1998-2004	-0.670	630.613	1.650	0.133	29.626	-0.003	0.613	0.163	0.144	0.10069
St. Dev. Return on Assets (ROA) % 1998-2004 (Log)	-4.952	3.190	-1.357	-1.387	1.305	-3.936	2.655	-1.085	-1.154	1.16883