

# “DOES A BALANCED GENDER RATIO IMPROVE PERFORMANCE? THE CASE OF SPANISH BANKS (1999-2010)”

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## **Abstract**

**Purpose.** This paper attempts to identify the dynamics of the gender diversity-to-performance relationship in the Spanish Banking sector in the period 1999-2010. Specifically we try to study how different proportions of men and women in banking institutions lead to different levels of Return on Assets and sales productivity.

**Design/methodology/approach.** We use conventional panel data methods to find an optimal mix of males and females which leads to higher levels of financial results. With the aim of controlling unobserved heterogeneity, equations are estimated using the random effects model.

**Findings.** Our findings show that the proportion of women in the workforce does not affect productivity but significantly explains ROA. In addition low-moderated levels (27%) of women in technical positions optimize ROA.

**Practical implications.** Managers and public bodies are increasingly asking for evidences that support the diversity-performance relationship. In our research we show that the performance effects of a balanced-gender organization can be altered by the knowledge base of the different gender groups.

## **Originality/value**

This research empirically explores the business case for gender diversity going beyond the upper echelons of organizations. We also study how the technical qualification of employees can determine the optimal proportion of gender groups.

## **Keywords**

Value in diversity perspectives, gender, gender-balanced organizations, Resource-based View of the firm, knowledge.

## **Article classification**

Research paper

“DOES A BALANCED GENDER RATIO IMPROVE PERFORMANCE?: FEMALE  
PROPORTIONS AND KNOWLEDGE IN SPANISH BANKING INSTITUTIONS  
(1999-2010)”

## 1.- INTRODUCTION

In last years there has been a renewed interest in the study of the composition of the organizations. Research in organizational demography has noted that different types of diversity have different effects within firms. Workforce demographic diversity has become an essential business concern in the 21st century (Herring, 2009). However, the relationship between diversity and the bottom line is more complex than is implied by the popular rhetoric (Kochan et al. 2003). This paper suggests that different proportions of men and women in banking institutions lead to different levels of organizational performance. This is a relevant research question as the link between gender composition and organizational results has acquired a great importance to practitioners (Frink et al. 2003; Kundu, 2003). Organizations need to become more diverse to match the increased diversity represented in their markets (Milliken and Martins, 1996). There are legal and social pressures to improve employment and career opportunities for women (Ramos, 2005). A great deal of effort and resources are being devoted to the management of diversity. Increases in the share of females in higher education have revealed that women’s approach to business differently than men do. In 2010 *Science* published an article (Woolley et al. 2010) that found evidence of a general collective intelligence factor that explains group performance. This “c factor” is correlated with the presence of females in the group. In these circumstances, it is essential to understand how gender diversity aids in organizational success. Our paper attempts to cover a gap in the literature considering that limited empirical research exists pertaining to the impact of gender on organization’s economic performance (Mc Millan-Capehart and Simerly, 2008; Herring, 2009; Ali et al. 2011). Findings have been conflicting and few consistent conclusions have been reached about the outcomes of diversity (Díaz-Fernández, González-Rodríguez and Pawlak, 2014). Research has lagged behind as Human Resources professionals are adapting to dramatic workforce changes (Howard and Brakefield, 2001). With a set of Spanish commercial banks between 1999 and 2010, we use conventional panel data methods (random-effects regression) to test the hypothesis that firms with an equal gender distribution and higher percentages of qualified women have better corporate outputs. Many studies have been exclusively focused on the influence of the gender composition of top management on corporate results. For this reason, we include in our sample all the employees of the firms in order to reflect the impact of the whole pool of human capital (Østergaard et al. 2011). We also try to move beyond the Value in Diversity Perspective incorporating functional background variables such as knowledge that have not been considered in conventional studies. Furthermore, panel data analysis prevents us from the limitations of cross sectional research. Our results show that gender diversity is curvilinearly related to organizational performance. This is in line with different works that point out that the relation between demographic variables and corporate success is more complex than a simple positive or negative linear relationship (Frink et al. 2003; Kochan et al. 2003; Mc Millan-Capehart and Simerly, 2008).

The article is structured as follows. After this introduction, we start by reviewing the literature conducted to examine the nature of the relation between gender diversity and organizational outputs. Next, several hypotheses are formulated to test if banks with a

balanced gender ratio and with greater proportions women in technical positions benefit from higher levels of organizational performance. In the fourth section we explain our methodology and analytical approach. The main results of the study are discussed in section five. Finally, we outline some conclusions of our work.

## 2.- THEORETICAL FRAMEWORK: VALUE IN DIVERSITY AND SOCIAL COMPETITION PERSPECTIVES

### 2.1.- The nature of gender diversity

Gender is a salient type of demographic diversity. It is one of the traits that scholars more often study. It has been labelled as a non-job related diversity, a non-cognition based diversity (Page, 2007), a readily detectable diversity (Jackson et al. 2003; Milliken and Martins, 1996) or “ascribed characteristic” (Ruef et al. 2003). Conventional wisdom holds that, as a non job-related dimension of diversity, it is the domain of negative performance effects (Van Dijk et al. 2012). In some cases, gender has been considered to be only indirectly relevant to work. However, some views understand it as a relations-oriented attribute that may influence attitudes, behaviours and social processes (Jackson et al. 2003). According to these perspectives, women and men have different ways of socialization that may influence performance. In general terms, it is possible to say that diversity in gender is about achieving a balance between the two genders (Østergaard et al. 2011). As the representation of men and women in an organization becomes more equal, gender diversity increases. The idea that high proportions of both genders are better than unbalanced distributions is the basis for the Value in diversity perspectives. In this context, gender parity has been deemed a driver of economic performance. For instance, Thévenon et al. (2012) have estimated that achieving gender parity in labor-force participation rates would increase GDP by 12% in developed countries over the next 20 years. It is also well accepted that women in male dominated firms report less satisfaction (Ely, 1995). A balanced representation can eliminate gender prejudices and sex role stereotyping that portray men as more oriented toward profit or more likely to work long hours.

### 2.2.- Recent studies about the gender-performance relationship

Research has shown that demographic variables with respect to members have an effect on the organization’s tasks. Specifically, different studies have tried to examine the extent to which the gender composition of the workforce relates to different measures of organizational results. Most of these works explore the firm-level relationship of women in management with financial performance outcomes (E.g. Shrader et al. 1997). Other articles use the group as a level of analysis. For instance, Pelled (1996) noted that gender diversity impairs cognitive task performance in groups. A third set of papers looks at the organizational consequences of the gender composition of the entire workforce. Among them, Kochan et al. (2003) published the findings of the research consortium Diversity Research Network reporting few positive or negative direct effects of diversity on performance. Some works suggest a linear positive relationship between gender diversity and firm results. Authors such as Herring (2009) argue that a diverse workforce, relative to a homogeneous one, is generally beneficial for business. Thus, as gender diversity increases, various dimensions of business performance such as number of customers, sales revenues and profitability improve. Different papers show that the

relation between gender diversity and firm value is complex. For instance, some authors detect a curvilinear relationship between the share of women in groups and organizations and business outcomes. Frink et al. (2003) demonstrated support for an inverted U-shaped relationship between gender composition and organizational performance. Thus very high and very low levels of female representation are associated with low firm performance whereas moderate levels of female representation would relate to high performance. Laursen et al. (2005) and Mcmillan-Capehart and Simerly (2008) maintain the idea that the curvilinear relation between gender diversity and performance has a U shape. In an integrative study, Ali et al. (2011) present three competing predictions of the organizational gender diversity-performance relationship: a positive linear prediction, a negative linear prediction and an inverted U-shaped curvilinear prediction. Their results find support for a positive linear and inverted U-shaped curvilinear relationship between gender diversity and employee productivity. However, the benefits of diversity do not affect return on equity.

### 2.3.- Main theoretical frameworks

A considerable number of theories have been used to study the relationship between the gender composition of organizations and the performance of firms. In this section we try to summarize the main approaches in three groups: the *value in diversity perspectives*, the *social competition perspectives* and the *critical threshold views*.

#### a) *The Value in Diversity Perspectives: More diversity is good*

This approach is concerned with the essential characteristics of human differentiation. Its main assumption revolves around the idea that a diverse workforce produces better business results than a homogenous one. The “value-in-diversity” hypothesis suggests that diversity benefits decision making (Richard, 2000). Thus it has long been assumed to have positive effects on organizational performance. Diversity has also been related to outputs such as openness, creativity, out-of-the-box thinking and knowledge. Richard et al. (2002) consider that visible diversity may contribute to increased problem solving, flexibility and marketability. For instance, many organizations increase their number of women to better match the demographic characteristics of their significant customers. According to Knouse and Dansby (1999), a diverse workforce supplies a rich array of different ideas and is better able to deal with varied demands of a diversified customer base. *Social Contact theory* (Pettigrew, 1998) indicates that a greater percentage of diversity allows more contact and exploration of commonalities between groups leading to superior effectiveness. Readily detectable attributes are associated with underlying characteristics which drive performance. Page (2007) notes that a diverse set of employees ensures different perspectives to see the problems and different heuristics to look for solutions. Following this view, demographic diversity can be conceptualized as an informational resource associated with differences in task relevant knowledge and experiences (Van Dijk et al. 2012). The notion that a diverse workforce creates a broader knowledge base allows establishing a link between value in diversity approaches and the Knowledge-Based View of the firm. This paradigm can be understood as a “ramification” of the Resource Based View (Barney, 1991). It is well accepted that human resources are the main differentiating factors between firms. Consequently, a diverse human capital is a knowledge asset that firms can exploit for competitive advantage. The firm’s knowledge base is essential in explaining its

performance. In this sense, gender diversity provides different perspectives that can lead to a wider range of ideas for decision making. This knowledge cannot be replicated by homogeneous organizations (Frink et al. 2003). A great number of researchers have used the argument of cognitive resource diversity to propose a positive relationship between all diversity attributes and performance (Wiersema and Bantel, 1992). Ali et al. (2011) point out that gender diversity, as a source of intangible and socially complex resources, can provide a firm with sustained competitive advantage. The underutilization of feminine knowledge resources could lead to low effectiveness. According to Apesteguia et al. (2012) the combination of female and male attributes in balanced groups allows productive discussions that improve performance.

b) *Social competition perspectives: Less diversity is better*

Some sociological and psychological approaches support the idea that there is a negative linear relationship between diversity and performance (Ali et al. 2011). In this line, heterogeneity has been associated with in-group/out-group effects, affective conflict, absenteeism and turnover (Richard et al. 2002). Social integration, communication and conflict are the most mentioned processes that intervene in the relation between diversity and performance (Williams and O'Reilly, 1998 and Jackson et al. 2003). According to the *Social Identity theory* (Tajfel, 1978) individuals will try to maintain a positive self perception by being surrounded by similar peers. Social identity processes produce conformity within one's group and discrimination against out-groups. *Similarity-attraction theory* (Byrne, 1971) proposes that individuals are positively disposed toward others whom they perceive to be more similar. Thus increasing employee diversity might lead to dysfunctional results as homogeneous groups enjoy an advantage over groups that are more heterogeneous. Social competition theories also study the risk of social categorization. People categorize themselves into various identity groups. These groups use stereotypes that contribute to competitive behaviour affecting performance negatively. For this reason, variables such as gender, which has a high visibility and low job-relatedness, can be associated to affective conflict (Pelled, 1996). Affective conflict weakens decision making effectiveness and limits the ability of employees to process new information lowering performance. Gender diversity can produce frictions between male and female groups decreasing communication. Some research shows that the more diverse a group is in terms of gender the higher its turnover rate and absenteeism (Miliken and Martins, 1996).

b) *Critical threshold approaches*

These views try to detect an optimal level of diversity where performance is maximized. As the relation between diversity and organizational effectiveness is not direct and uniform, this optimum differs between sectors. Therefore, there are different curvilinear relations between gender and corporate outputs. Richard et al. (2002) note that an increase in visible diversity is beneficial for effectiveness but not beyond a certain level in which lack of cohesion and bad communication appears. The relation between gender and performance can be strong and positive or weak and negative depending on the degree of heterogeneity. Østergaard et al. (2012) also find that a moderate degree of gender diversity, where the critical group has a critical mass in the distribution, contribute to the innovation process. The existence of a critical threshold in the extent of gender diversity has its basis on the critical mass phenomenon identified by Kanter (1977).

### 3.- HYPOTHESES

The different theoretical approaches above mentioned show that gender's impact on the bottom line appears paradoxical increasing both the opportunity for creativity and the likelihood of conflict (Herring, 2009). In this section we formulate a set of hypotheses with the aim to study the complexities of the gender-results link.

The Value in diversity perspectives support the idea that organizational gender diversity is positively related to organizational performance. Firms with a greater gender balance have superior performance over firms that are single-gender. A diverse workforce can have a varied knowledge that impacts on measures of corporate results. Richard et al. (2002) point out that visible diversity is associated with task conflict which improves decision making and performance. Frink et al. (2003) conclude that increases in female representation will be associated with increased performance of firms up to the point at which jobs are held in equal proportion. Beyond this point, further increases are associated to lower performance. Hoogendoorn et al. (2013) also find that teams with an equal gender mix perform better than male-dominated and female-dominated teams in terms of sales, profits and earnings per share. This research proposes an inverted U-shaped relation between gender and organizational results. Accordingly, we formulate the following hypotheses:

*Hypothesis 1: A balanced gender ratio in banking institutions is positively associated to organizational performance*

*Hypothesis 1a: A balanced gender ratio in banking institutions is positively associated to ROA*

*Hypothesis 1b: A balanced gender ratio in banking institutions is positively associated to commercial productivity*

It is crucial to take into account that demographic variables such as gender can be related to deep-level characteristics such as skills or knowledge. This involves that worker qualification can influence the relation between gender and firm performance. In this vein it is possible to say that diversity is more important in technical jobs. The theory of human capital, developed extensively by Becker (1964), endorses the idea that education and training raises the productivity of workers by imparting knowledge and skills. Men and women accumulate human capital differently (Caparros et al. 2004). Following this reasoning, we can assume that the knowledge acquired by a diverse human capital offsets the high costs of coordination of diverse groups. Thus we suggest that the ratio of women with qualified knowledge positively affects organizational results in banks. Employees bring several types of diversity with them into an organization simultaneously (Howard and Brakefield, 2001). The performance effect of gender can be enhanced by increasing the proportion of women with knowledge and experience. As Van Knippenberg et al. (2004) point out, diversity is more positively related to performance the more it depends of in-depth processing of information. Its benefits are greater when the task requires creativity and innovation. Human capital resources have a demographic dimension such as gender which affects the ability of

application of knowledge (Østergaard et al. 2011). This happens in the service industry where diversity and ability may act as complementary factors of value creation. On the basis of this argument we formulate the following hypotheses:

*Hypothesis 2: A higher ratio of qualified woman in banks is positively associated to organizational performance*

*Hypothesis 2a: A higher ratio of qualified woman in banks is positively associated to ROA*

*Hypothesis 2b: A higher ratio of qualified woman in banks is positively associated to productivity*

## **4.- METHODOLOGY**

### **4.1.- Sample**

The data consist of pooled time series and cross-sectional observations for Spanish banks for the period 1999-2010. The sample represents the whole population of banks operating in Spain in those years (59 firms in that period). We only pay attention to commercial banks, excluding saving banks and other kinds of financial entities. All the employees of the banking institutions are included in the sample because examining only groups or management teams does not capture the larger human capital pool that determines an organization's success (Richard, 2000).

We focus in a single industry to avoid the heterogeneity that exists when the analysis is concerned with the effects of human resources on firms' performance. This heterogeneity is particularly intense when the firms are operating in several industries (Black and Lynch, 2001). Despite the shortcomings in terms of external validity, this is a valid option because it contributes to the homogeneity of the possible omitted variables (Becker and Gerhart, 1996). This approach has been followed by several previous works concerned with the outputs of human resource management (Delery and Doty, 1996; Ichniowski et al., 1997 and Danvila et al., 2007). In any case, it is widely accepted that within-industry studies are a starting point that allows identifying key relationships.

Our research studies the banking industry for two reasons. First of all, service industries are shown to be more receptive to gender diversity (Svyantek and Bott, 2004). Second, there is a closer connection between production and consumption. The interaction with customers is greater requiring different human capital attributes. The perception of the service is strongly influenced by the characteristics of the person who is delivering it. Then satisfaction is highly dependent of the personal and professional characteristics of the employees. The data source for the gender composition of the workforce and for the financial variables described below is the Statistical Yearbook of the Spanish Banks.

## 4.2.- Measures and analytical approach

### *Dependent measures*

The dependent variable in all equations is firm performance. In order to avoid the common variance bias, we measured firm performance using objective financial measures. This bias exists when the human resource policies and the firm performance are reported by the same respondent (Becker and Gerhart, 1996). In this vein, works like Boselie et al. (2005) posits that subjective measures of managerial perception are contaminated by the so-called *social desirability bias*.

Gender-organizational results literature has employed several bottom line measures to capture different aspects of firm results (Jackson et al. 2003). In studies of top management teams financial performance is primarily measured as Return on Investment (ROI), Return on Equity (ROE) or average return on assets (ROA). ROI is a measure of the efficiency of the investments of the bank and it is calculated by dividing the net incomes by the capital invested. ROE measures bank's profitability by showing how much profit is generated with the money shareholders have invested. It has been considered one of the central indicators of the strength of a financial institution (Earle and Medelson, 1991). Both ROI and ROE are related to the capital structure of the financial institution. ROA is a basic measure of bank performance that correct for the size of the organization. It divides the net income of the bank by the amount of its assets reflecting how well these assets are being used to generate profits. We choose ROA as the outcome variable because it is a more conservative measure than the other ratios. ROI and ROE are less adequate for longitudinal studies as equity and investment may differ over time across banks with similar performance. Similarly we reject Tobin's Q as dependent variable. This measure reflects the market perception of current and potential profitability of the firm and its relation with operating efficiency is ambiguous. For these reasons, following Frink et al. (2003) and Richard et al. (2007), we use two financial measures: one representing the profitability, ROA, and the other one representing *productivity* as an intermediate output measure (gross margin divided by the average total number of employees for each year). Productivity is especially important in the banking sector because labour costs are high. Both ROA and productivity are considered adequate measures to study the received wisdom about diversity and performance (Svyantek and Bott, 2004).

### *Independent variables*

A key factor in examining the effects of diversity is how much diversity is present in the group. The *percentage of women in the workforce* is the first independent variable. We do not use the Blau's (1977) index to measure heterogeneity because the variable gender has only two categories. Factors such as education have also to be examined to identify the relationship between gender and firm performance. In this paper we focus on the relationship between outcomes and the gender composition of the workforce, paying attention to the role of qualified women. The Statistical Yearbook of Spanish Banks reports the gender of employees across three hierarchical categories: technical staff, administrative staff and general services. We assume that women that develop knowledge work are those that occupy technical jobs. For this reason, the second

independent variable is the *ratio of qualified women* measured as the percentage of females with technical skills over the total number of women.

### *Other measures*

With the aim to control the macroeconomic changes, we included 10-year dummy variables. *Firm size* was specified in the model as a control variable because it has been found to have a direct effect on financial performance due to economies of scale and market power (Richard et al., 2007). Moreover, organizational dimension is positively related to sophisticated HRM that may contribute to diversity. Firm size was operationalized as the logarithmic transformation of average total assets in millions of euros for each year. In the same way we add two variables that can influence the relationship between gender composition and performance. Following Richard (2000), one dummy variable indicates whether *a bank is a subsidiary of a holding company*. Banks that are part of a holding are more likely to follow gender policies of the headquarters. The *composition of the bank liabilities* (measured as the logarithm of the equity) might be expected to relate with the culture of the company. For instance, banks that mainly use shareholders' equity to finance the company's assets are more conservative and less sensitive to gender concerns.

### *Analytical approach*

Since the data span a diverse set of banks with very different internal (culture, strategy, etc.) and external (size, market power, etc.) characteristics, we need to control for certain heterogeneity among the firms to avoid bias in the estimates. One possible solution to this problem is to incorporate a broad set of control variables in the regression model. However some internal characteristics of the firms can be difficult to measure. According to theoretical approaches like the Resource-based view (Barney, 1991; Barney and Wright, 1998), variables such as corporate strategy or organizational culture can be unobservable in many cases. The human resource system represents a capacity of firms which strongly influences the policies concerned with the composition of the workforce. Therefore, we have to consider that unobserved characteristics such as culture are associated with gender policies.

For this reason, a better option is to test our hypotheses using conventional panel data methods (fixed- or random-effects regression). In both these specifications, a separate intercept is allowed to be specified for each firm capturing the firm-specific effects that are unobserved. In the fixed-effects model (where the subscript  $i$  refers to the firm and  $t$  refers to the time period), the intercept  $\alpha$  is different for each firm and is subscripted by  $i$ :

$$Y_{it} = \alpha_i + \beta X_{it} + \varepsilon_{it} \quad (1)$$

In the random-effects model the intercept  $\alpha$  is assumed to consist of a deterministic component ( $\underline{\alpha}$ ) and a random component  $u_i$ , which is assumed to be distributed according to a normal distribution (i.e.,  $\alpha = \underline{\alpha} + u_i$ ). Therefore the model is given by:

$$Y_{it} = \underline{\alpha} + \beta X_{it} + u_i + \varepsilon_{it} \quad (2)$$

Both models are estimated using a generalized least squares (GLS) estimation technique. To check if the assumption of independence between the random effects and the explanatory variables is justified, the Hausman test (Hausman, 1978) can be used. If the test is not rejected, the random-effects model is the correct specification. However, in general terms, a random-effects model is preferable for controlling for unobserved heterogeneity as it uses fewer degrees of freedom relative to a fixed-effects specification. In addition, authors such as Mundlak (1978) and Greene (1990) suggest that it is always preferable to treat the individual effects as random, because the results of the fixed-effects model are conditional on the effects in the observed sample. The random-effects model does not have this limitation.

In line with previous works concerned with the link between diversity and performance (Richard et al., 2007; Andrevski et al., 2014), we estimate the equations using the random effects model as Hausman’s specification test showed that the fixed effects model was less consistent and efficient. This approach suffers from the strong assumption of zero correlation between individual-specific heterogeneity and the independent variables. For these reasons, we considered to use as well the Hausman Taylor estimator IV<sup>1</sup>. With this test we can estimate effects of time invariant variables, unlike fixed effects, and independent variables can be specified as either correlating or not correlating with individual specific effects. We performed the test using the “xhtaylor” procedure of Stata©. Our assumption was that the time-varying variables *percentage of women in the workforce* and its square and the *ratio of qualified women* and its square might be correlated with unobserved individual-level random effect. Thus we used *Firm size* and *Equity* as exogenous, time-varying variables. The *percentage of women in the workforce* and its square and the *ratio of qualified women* and its square were endogenous, time varying variables in each model. Finally *subsidiary* and *foreign subsidiary* were exogenous, time-invariant variables. We checked that these variables exhibit enough within-panel variation to serve as their own instruments. The results of the Hausman-Taylor estimation did not differ substantially from the results of the Random Effect models. The potential correlation between the assumed endogenous variables and the (unobserved) individual-level random effect was not relevant. The Random Effects model was still adequate as the sign of the coefficients in the models were the same and their significance did not change substantially.

We also included a set of dummy variables for each year. Including time dummy variables in panel data models with a (relatively) large N (number of firms) and a small T (time periods), as it is our case, also reduces the influence of contemporaneous correlation (Certo and Semadeni, 2006). Finally, Wooldridge’s (2006) test for autocorrelation in panel data showed the presence of serial correlation, so we used a random-effects model with time fixed effects and autoregressive error term—AR(1). The random effects model can be formulated as

$$Y_{it} = \alpha + \beta X_{it} + u_i + \varepsilon_{it} \quad (3)$$

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<sup>1</sup> The authors thank Reviewer 1 for his intellectual input in suggesting the use of the Hausman-Taylor IV estimator.

where  $u_i$  is a random heterogeneity specific to the  $i$ th observation and is constant over time. Random effects  $u_i$  were assumed independent of  $\varepsilon_{it}$  and  $X_{it}$ —a set of our independent variables—which were also independent of each other for all  $i$  and  $t$ . The autoregressive AR(1) parameter  $\rho$  was assumed to be with a zero mean, homoscedastic, and serially uncorrelated:  $\varepsilon_{it} = \varepsilon_{it-1} + z_{i,t}$  and  $-1 < \rho < 1$ .

## 5.- RESULTS AND DISCUSSION

The results of our estimations are reported in Tables 1 and 2. Table 1 shows the descriptive statistics of our variables. The average percentage of women in the total workforce is 36.2 % with a range [9.5, 70.3], and the percentage of women with technical skills in the female workers segment is 18.2% with a range [0, 48.9]. A 36% of the banks of the sample are subsidiaries, and a 24% are foreign subsidiaries. Correlations between the independent variables and the rest of the continuous control variables are not significant except in the case of the firm size and the proportion of women with technical skills. We do not detect serious problems in the interpretation of those variables due to multicollinearity.

INSERT TABLE 1 HERE

In Table 2, we report the random-effects model for ROA and productivity. In addition, we controlled for the variability of the intercept over time by using year-specific dummy variables (not reported). We consistently obtained statistically significant but negligible effects for the variation over time, which suggests that the dominant source of unobserved heterogeneity is due to cross-sectional variations. Thus the discussion focuses only on the variation across firms.

INSERT TABLE 2 HERE

Hypothesis 1a proposed that gender-balanced banking institutions were positively related to ROA. Our results show that increases in the number of women improve efficiency in the use of company assets up to a tipping point (43% of women in the workforce). Beyond this point, the cooperation problems of gender heterogeneity overcome the improvements of ROA. We then find an inverted U-shaped relation between gender and financial performance. Banks with a certain degree of balance in their sex composition have better results than financial institutions with high concentrations of males or females. This positive effect of the rate of women on ROA has also been detected in studies centred on boards of directors (Erhardt et al. 2003). Hypotheses 1b indicated that a 50 percent women representation in banks had a positive impact on productivity. Our data do not support this assumption. The proportion of women does not affect performance in commercial tasks. Although diversity provides insights into the needs of male and female customers, it is not enough to improve productivity in a sector dominated by technical sale. These findings are not similar to the conclusions of other studies. For instance, Ali et al. 2009 point out that gender diversity accounts for variance only in employee productivity and not in return on equity. Perhaps these different results can be attributed to the cultural differences between the countries where the sample has been obtained.

Hypotheses 2a tried to test if ROA increases with a higher ratio of qualified women in banks. The results show an inverted U-shaped relation between women in technical positions and financial performance which is strongly positive at low to moderate levels of qualified females. Specifically, ROA reaches its optimum when there is a gender composition that represents a 27% of women in technical jobs in the bank. This is a curious discovery that shows that an increase of female knowledge workers beyond that “critical mass” is not beneficial. It seems a clear example of the “two-much-of-a-good-thing effect in management” (Pierce and Aguinis, 2013). Gender diversity, as a variable leading to desirable consequences, may cause negative outcomes after a context-specific inflection point. Several explanations could shed light on this result. First of all, we could speculate that despite equal levels of qualification, women are more likely to be segregated in lower status jobs that have a weaker impact on performance (Truss et al. 2012). Second, it is possible to argue that gender balance has a less clear influence on outputs if we control other characteristics such as knowledge. In this line, Luring and Selmer (2012) show that gender diversity has negative or no significant relationships with knowledge sharing. Ahern and Dittmar (2010) have also noticed that gender parity quotas in board of directors could lead to declines in value. Similarly, our result could imply that, within the segment of workers with technical skills, performance is not necessarily driven by gender diversity improvements.

The proportion of women in technical positions does not affect productivity (Hypotheses 2b). Formal cognitive resources do not affect an intermediate measure of performance such as sales per employee. This finding suggests that it is the cultural knowledge of the market what makes the difference of productivity in the banking sector. The relation of qualified women and effectiveness is less straightforward than we originally hypothesize. According to social cognitive approaches, gender diversity may increase the heterogeneity of values, beliefs and attitudes of knowledge workers. Yet skills and market-specific experience are the main drivers of performance. This result is in harmony with Garnero’ et al. (2014) research which reveals that productivity effects of gender diversity differ across environments with varying technological/knowledge intensity.

In sum we can say that demographic diversity has a direct relationship with performance in the banking sector. Gender-integrated firms perform better than homogeneous firms. An almost balanced gender composition is beneficial for ROA. Low and high rates of women do not contribute to improve capital intensity. Nevertheless gender heterogeneity per se does not affect commercial productivity. At the same time, if we take into account the rate of qualified workers in the total proportion of women, our results are different. In this case, ROA can be optimized with a one quarter female quota. These findings are interesting as banks are service firms that have traditionally relied more on human capital than on equipment. To some extent, we can consider that gender diversity is an intangible asset that contributes to the efficient use of the physical assets of the company in a sector historically dominated by men.

As we have mentioned above, results on the direction of gender and outcomes are ambiguous (Williams and O’Reilly, 1998 and Van Dijk et al. 2012). Some approaches view diversity as non consequential to business success or detrimental (Herring, 2009; Ilmakunas and Ilmakunas, 2011). Drawing from the Value in diversity perspectives, we have proved that banks with a certain degree of gender parity have a better ability to

generate revenues with their assets. Nevertheless, increases in the rate of “knowledge female workers” beyond the optimal level may have dysfunctional outcomes. The idea that the benefits of gender diversity are maximized when there is a 50 per cent of women’s representation is altered if we consider the type of job that women undertake. Following the Knowledge-based view, we have hypothesized that financial institutions utilizing higher percentages of qualified women perform better in terms of ROA and productivity. According to our results a low moderate presence of qualified women optimizes ROA. There is support for the idea that demographic diversity interacts with other variables in ways which influence performance and, in this case, diversity does not substitute ability. At the same time, the presence of qualified women does not have a direct impact on commercial productivity. Formal qualification does not seem to be crucial for female employee-customer interaction in the banking sector.

## **6.- CONCLUSION**

The demographic composition of organizations can exert a powerful influence on how organizations operate. In this paper we have tried to contribute to a better understanding of the complex relationship of diversity with overall performance analysing how a visible characteristic (gender) and an invisible characteristic (knowledge) make the difference. We have extended our work beyond the upper levels organizational groups. The research shows that the proportion of women has a statistically significant direct effect on some forms of organizational performance such as ROA in the banking sector. Andro-centric or male centred visions of the banking business are poor and the idea that finance is completely male dominated can be rejected. One of the main results of the paper reveals that there is curvilinear relationship between gender and efficiency in the use of assets. This leads to an integration of the frameworks of Value in identity perspectives, social categorization theories (Ali et al. 2011) and critical mass views. No single theory is enough to explain the effects of diversity.

The curvilinear relation between the proportion of women in the workforce and firm effectiveness has not an U shape but an inverted U shape. Performance does not decrease until an inflection point in which diversity produces positive effects. Gender homogeneous banks do not meet social expectations and face a risk of competition between groups. As a consequence they have worst results. We find some support to the principle that as demographic heterogeneity increases so does the ability to engage in problem solving promoted by the cognitive resources view. In this sense, gender diversity can be conceptualized as a strategic capability that drives performance. However, diversity has different impacts on performance if we take into account the nature of the jobs that workers occupy. Certain sets of work tasks are more likely to reap the benefits of diversity than other sets of work tasks. A low-moderate proportion of qualified women does optimize ROA in banking institutions. In this case, the gender-balanced organization can be an archetype. Knowledge can modify the effects of parity and equal distribution. A critical threshold of women in technical positions determines the efficiency in the use of assets to generate earnings. Therefore, we can conclude that the effect of surface-level diversity on corporate results is influenced by the type of employees and its knowledge base.

In recent times, managers and public bodies ask for evidences that support the diversity-performance relationship. Due to the fact that demographic dissimilarity in human resources can result in positive and negative outcomes, it is essential to show

organizations the point in which they can fully exploit the benefits of diversity. In this task, approaches focused on increasing heterogeneity for its own sake are insufficient strategies for managing the human capital base.

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Table 1. Descriptive statistics and correlations between continuous variables

Variable name	Range	Mean (S.D.)	Correlations <sup>a</sup>				
			1	2	3	4	5
1. ROA (%)	[-39.6, 10.9]	0.2951 (3.0835)					
2. Productivity (million € per employee)	[-26.09,8569.8]	255.4056 (471.6029)	0.084**				
3. Female proportion (over total workers) (%)	[0.095,0.703]	0.3616 (0.1112)	0.209**	0.034			
4. Technical female proportion (over female workers) (%)	[0,0.489]	0.182 (0.099)	0.223**	-0.031	0.579**		
5. Firm size (total assets) (millions of €)	[18930.5, 4.26E05]	23079 (53269)	0.058*	0.028	-0.041	0.133**	
6. Equity (millions of €)	[4.5, 41189]	2180 (9597)	-0.049*	0.016	0.016	-0.035	0.627***

<sup>a</sup> Pearson's coefficients

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

Table 2. Random effects estimations for ROA and Productivity

Variable	Dependent variable: ROA				Dependent variable: Productivity			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Intercept	-0.110827 (0.082541)	-0.119230 (0.089555)	-0.141827* (0.073017)	-0.124954* (0.066582)	-153.7712 (290.5918)	-129.4316 (291.8274)	-6.412427 (312.9089)	-18.76757 (311.1844)
(1) proportion of women	-0.021466* (0.011883)	0.194157*** (0.050729)			-2279.892 (5562.897)	-3497.313 (8533.383)		
(2) proportion of women (squared)		-0.223146*** (0.081089)				6023.031 (6364.655)		
(3) proportion of women with technical skills			-0.415315* (0.218287)	0.351039** (0.159216)			-1173.205 (808.3435)	-171.4729 (1661.292)
(4) proportion of women with technical skills (squared)				-0.641204** (0.271348)				-4636.767 (6761.411)
(5) Firm Size (log)	0.021555** (0.010462)	0.022225** (0.010725)	0.009997** (0.004206)	0.009823** (0.004086)	57.37641 (35.03912)	57.71798 (35.05251)	47.08507 (37.12987)	46.63806 (37.03050)
(6) Equity (log)	-0.016362** (0.006446)	-0.016418*** (0.006251)	-0.001510** (6.79E-04)	-0.001175** (4.73E-04)	-36.23700 (42.73923)	-37.42468 (42.77170)	-46.12720 (45.93758)	-46.12923 (45.80635)
(7) Subsidiary	-0.000186 (0.003460)	-0.000279 (0.003823)	-0.000308 (0.006425)	-0.001644 (0.005399)	221.8543*** (81.89062)	221.5745*** (81.91971)	216.9159** (87.49236)	216.4331** (86.92216)
(8) Foreign subsidiary	0.002906 (0.004801)	0.003001 (0.005168)	0.000308 (0.006425)	0.000919 (0.005587)	75.06888 (94.28708)	75.63227 (94.32179)	42.08400 (102.6841)	40.34768 (102.0288)
Adjusted R <sup>2</sup>	0.317459	0.319375	0.375630	0.480422	0.045062	0.044878	0.075237	0.074376
Number of cross-sections	59	59	59	59	59	59	59	59
Total observations	587	587	542	542	587	587	542	542

\* p < 0.1; \*\* p < 0.05; \*\*\* p < 0.01

Cross sections without valid observations dropped

Year dummy variables have been included in all the models, but not reported