

## DIVERSITY AND COMPETENCE IN BANKS' BOARDS. THE ITALIAN CASE

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## **DIVERSITY AND COMPETENCE IN BANKS' BOARDS. THE ITALIAN CASE.**

### **ABSTRACT**

This study is focused on skills' levels and diversity of the individual components of the board and the board as a whole in banks. In particular, we investigate what the key profiles to assess the level of board diversity are, as well as the relationship between such elements and performance indicators.

To our best knowledge, this study is among the first to study jointly directors' qualitative characteristics and board composition in banks. In particular it's devoted to appreciate both quality and skills and board heterogeneity.

Results show a positive relationship between different measures of diversity and competence. Diversity seems to increase as the size of the banks increases; boards of directors of mutual banks appear the least diversified and also the ones with the lowest quality score. Diversity and specific skills, such as financial knowledge or experience, appear to have an impact on performance.

The study provides original and new results, useful not only for further discussion about the relationship between the functioning of the board and bank's economic performance. Our results may call for a review of the composition of banks' boards of directors in the light of the forthcoming regulatory provisions. Moreover, the study should suggest main profiles to be relevant also for financial regulators in order to appreciate board diversity and directors' skills.

**Keywords:** Corporate Governance, Board Composition, Diversity, Bank Regulation.

## 1. INTRODUCTION

This study aims to evaluate competence and diversity in boards of directors in a sample of Italian banks. As known banking regulation is becoming more prescriptive than in the past with regards to requirements that directors and boards have to meet, also in response to the number of cases of bank crises that, although classifiable in the general context of the financial and economic crisis, have been mainly attributed to shortcomings in governance.

The major contributions of this paper is threefold.

Firstly, the study analyzes in depth the level of quality of the board members of a large sample of banks. It proposes an original measure of quality, based on a variety of factors, both related to the competence profile of directors and boards, using demographic data as well as other information, such as experience and time dedication. Additionally, different diversity measures are tested. According to our best knowledge, this is among the first studies to analyze together competence characteristics and board diversity.

Secondly, while the literature on board composition and boards' effectiveness is rich and extensive, studies on banks are very few in number. We examined a highly representative sample made of 54 Italian banks representing over 86% of the system in terms of total assets at end 2014. As a result, our study is focused not only on the quality and effectiveness of boards, but it also tests the level of compliance of a banking system to regulation.

Finally, our analysis contributes to further discussion on the existence of a relationship between board effectiveness and bank performance. There is no doubt that board quality and its effectiveness have to be interacted with the constraints of economic efficiency. But, on the other side, the impact on performance could not be evaluated in a very short term horizon.

The paper is organized as follows: the next paragraph presents the regulatory framework; the third discussed previous empirical and theoretical literature; the fourth and the fifth present the analysis and the results; the last one concludes.

## **2. THE ITALIAN REGULATION ON BANKING CORPORATE GOVERNANCE**

The Italian legislation on banking boards' structure, according to the European one, has undergone important changes, in particular regarding the composition and functioning of the board. This process mostly moves from studies aimed at investigating the causes of recent banking crises (FSF, 2008; Group of Thirty, 2009).

Banking Authorities identified the quality of banking governance as a key factor in effective sound and prudent management. A “rule based” approach is going to overcome a “principle-based legislation”, that seemed suitable to inconsistent or even opportunistic behavior of banks. Consequently, regulation pursued essentially two objectives, namely fit and proper conditions for directors and board diversity, providing a set of quantitative and qualitative requirements to identify the most appropriate characteristics to the role and responsibilities assigned to the board and to its effective functioning. In particular, regulation aims to increase the board accountability for the purpose of a strategic planning closely linked to risk management, ensuring balancing of powers between the board and the management (the CEO in particular). With regard to quantitative requirements, the provisions of the Bank of Italy have set a maximum number of boards members equal to 15 (or 19 in case of one-tier and 22 in the case of dual model). Authority concludes that a too large board may reduce its effectiveness, as well as the incentive – per each director – to take any action to carry out its tasks. On the other side, it may hinder the functionality and decision making of the board.

With regard to quality requirements, regulation requires that board members are aware of their role and responsibilities, have adequate skills, expertise and sufficient time to operate in the overall bank's interests. Moreover, regulation emphasizes that not only executive but also non-executive members must have an adequate knowledge of banking business, of the dynamics of the economic and financial system, of banking and financial regulation and, above all, of the methodologies of risk management and risk control.

In addition to the criteria and requirements related to the individual components, the supervisory rules provide that the board as a whole should reflect an appropriate degree of diversification in terms of skills, experience, age, gender and internationalization.

Current regulation will be fully operational in Italy from July 2017 and it is expected to further adjustments, according to “fit and proper criteria” released by EU regulation and international guidelines (Basel Committee, 2015; OECD, 2015; the EBA document on banking governance is expected in a few months).

### 3. LITERATURE REVIEW

Board composition, expertise and diversity are widely investigated by a vast literature on corporate governance. Assumptions and empirical results are often independent of the firms' industrial sector and, as a consequence, are at least partially suitable for banking industry. However, as known, banks remain still "special" due to their specific regulation on governance (Armour et al., 2016; Hopt, 2013).

The economic literature on governance, is "homogeneous" and quite consolidated in the methodology employed to test board diversity. First of all, it focuses on board composition. Diversity is generally referred to two main aspects, gender and racial diversity (Burke, 1997; Carter, Simkins, Simpson, 2003; Erhardt, Werbel, Shrader, 2003; Ferreira, 2010 Miller and Del Carmen Triana, 2009). In some studies, however, diversity is also considered as the presence of specific types of directors, such as political or politically appointed members, rather than academics or independent directors.

Nevertheless, the evidence on the relationship between board composition and firm performance is ambiguous and not definitively clear. As reported by Brickley et al. (1994), Coles et al. (2008) and Weisbach (1988) find a positive relationship between the weight of independent directors and the firm value. Conversely, other empirical studies see no relationship between the proportion of independent directors and the Tobin's Q (Baysinger and Butler, 1985; Hermalin and Weisbach, 1991), or even a negative relationship (Agrawal and Knoeber, 1996 and Yermack, 1996).

The majority of these studies suggests a "partial" view of diversity in the meaning of the presence of particular types of directors. The benefits usually highlighted in relation to this consist in positive connections that directors bring to the company and the "positive" value linked to their behavior. This is expected to have a social impact on company's employees and its customers.

Literature based on surveys on US firms analyzes the presence of representatives of ethnic minorities or gender, as a broad social "signal", also linked to corporate social responsibility indicators (Bear, Rahman, Post, 2010), but also in a key managerial and commercial meaning, also related to the role of the board as "advisor" to management. Directors, therefore, lead relations and a long term vision to be useful in implementing business strategies. In this sense, Weisbach (1988), focuses on the monitoring role of the management carried out by outside directors. On the role of the board advice see Coles et al. (2008) and Dalton et al. (1999) and especially Klein (1998), who emphasize that critical issues related to board advisory grow with

increasing business complexity (e.g., degree of business diversification, firm size and weight of external funding in the firm capital structure).

Other studies introduce diversity as the presence of executive and non-executive or independent directors. In a number of cases the latter two profiles are used as a synonyms, especially to set against the CEO role (Adams, Almeida and Ferreira, 2005; Donaldson and Davis, 1991; Pathan, 2009; Smith and Stulz, 1985).

These studies mainly derive from principal-agent theory: directors protect the interests of shareholders from possible selfish behavior of management, mainly the CEO. This literature, suggests that independent directors balance CEO power. As reported in Pathan and Faff (2013), empirical findings on the relationship between independent directors and firm performance are different and inconclusive (Bhagat and Black, 2002; Yermack, 1996). Moreover, a higher percentage of independent directors could help reduce the cost of debt (Anderson et al., 2004), improving the firm's merit of credit (Ashbaugh-Skaife et al., 2006) or reducing its systematic risk. In the banking sector, however, Cornett et al. (2009) and Mishra and Nielsen (2000) point out that independent directors contribute to improve earnings quality. A strengthening of the monitoring carried out by them is associated with a lower use of accounting and fiscal policies aimed at improving the financial results, as well as the definition, of sustainable incentives for managers.

On the other hand, however, Fama and Jensen (1983) show that the benefits resulting from the presence of inside directors, with more widespread internal knowledge, grow with increasing information asymmetries to which the bank is exposed, for example with reference to the uncertainty of the operating environment. Adams and Ferreira (2007) report that, in such cases, banks should not rely solely on monitoring of outside directors.

Pathan (2009) analyzes a sample of more than 200 US bank holding companies in the period 1997-2004 and notes that the board structure is determinant in bank risk-taking. In addition, he finds a negative relationship between the presence of independent directors and the level of risk, pointing out that these directors can be especially crucial when there is the need to balance the interests between shareholders and other stakeholders (e.g. depositors and regulator).

The majority of the studies focused on diversity as the presence of certain types of administrators correlates diversity to a set of economic performance or market performance indicators. Results are, however, not conclusive. evidence on banks is relatively scant. Some recent analysis (Beltratti and Stulz, 2012 ; Pathan, 2009) focus on the relationship between board composition and risk. Pathan and Faff (2013) show both a negative relationship between board independence and performance and a positive effect of gender diversity on bank

performance. The relationship has weakened during the last financial crisis. However, the empirical findings about the direct effects of the presence of female directors on performance are differentiated and not definitive (Adams and Ferreira, 2009; Carter et al. 2003; Farrell and Hersch, 2005) and even less “consolidated” in the banking sector.

Bohren and Strøm (2010) highlight the lack of relationship between board diversity (in terms of presence of particular types of administrators) and economic performance. They conclude that no “convincing economic reason” appears to justify the imposition by law of a minimum level of representativeness of certain “profiles” of directors.

Some interesting suggestions come from organizational studies, focused on the board as a “group of people” within which diversity can become a resource for the effectiveness of managerial decisions or, on the contrary, an obstacle and a source of conflict. Heterogeneity is a richness in the group’s dynamics, to enhance creativity and the capacity for innovation and, more generally, to increase the operating efficiency of the board (Shergill, 2001; Van der Walt, Ingley, Shergill, Townsend, 2006). In particular, Richard (2000) shows how diversity in decision-making groups allows to achieve non-obvious solutions in the decision process on complex issues. Organizational studies are interesting both for the interpretation of the meaning of diversity, and for the research of the determinants for heterogeneity in groups. In this way, the group performance, i.e., its ability to play a strategic and problem-solving functions, is more important than firm’s economic performance (Avigdor et al., 2007).

Once again, also in the stream of literature, studies on banks are quite rare, and mainly dedicated to the study of managerial groups, rather than boards functioning (among these, Siciliano, 1996).

Bantel and Jackson (1989), analyzing a sample of banks boards of directors, show that diversity in experience have a positive effect on the groups’ ability to find “unconventional” solutions to complex and unusual problems.

Ferreira (2010) remarks that economic performance cannot be the primary goal in choosing the composition of the board, as other objectives are more significant, such as the efficiency of the decision-making process within the board and social performance, i.e., attention to all stakeholders.

Van der Walt and Ingley (2003), citing Smith (2001a), highlight some doubts about the actual importance of diversity as a key to analyze board functioning. As a consequence, they highlight that skills and the qualitative profile of directors and their behavior are much more important in influencing the effectiveness of the board functioning. Avigdor et al. (2007) also stress the impact of the interaction between the level of integration and board diversity on board

performance. Outcomes are different according to the competitive and market environment in which firms operate. More precisely, heterogeneity adds value to the board functioning especially in complex and changing environments. On the other hand, in simpler and more stable contexts the negative effects of diversity are prevailing (separation and blocks in the decision-making process). Payne, Benson and Finegold (2009) reach similar conclusions, while also observe how board are a sort of “black box”. It is difficult to measure board functioning from the outside and, therefore, it is difficult to search for indicators to appreciate of efficiency and the effectiveness of board functioning.

Van der Walt and Ingley (2003) also observed that the heterogeneity of a board is not a value in itself. The board’s “value added” is a sort of “social capital” available for the firm. Board efficiency is strictly related to the qualification of its members. As a consequence, the best criteria aimed to board composition are based on credit and worthiness.

The analysis of the skills required for board members is much more recent and very few works are dedicated to the measurement of the competence of single members and board as a whole. This issue is quite well explored in managerial and organizational literature, while there are few studies on banking industry. Some studies have verified the impact of certain skills, especially financial ones, on risk-taking and overall bank performance. Minton et al. (2014) showed that banks where board members have a higher level of financial expertise have been riskier during last financial crisis. Authors explain this as a result of a conscious exploitation of the “residual claim” mechanism, rather than as a larger ability to understand the effective level of risk within some complex financial contracts.

Few studies, finally, verify the overall level of board quality by basing it on an evaluation of the directors’ curriculum. Hau and Thum (2009), in particular, study the impact of the low qualification of the German banks directors on weak economic performance during the recent financial crisis. Similarly, Cuñat and Garicano (2009) show that the limited qualification of the presidents of board of directors appointed by politics and with political experience is associated with worse quality of the loan portfolio of the Spanish *Cajas* in 2007-2009.

## **4. THE ANALYSIS OF THE SKILLS AND DIVERSITY**

### **4.1 The methodology and the sample**

This study focuses both on the level of quality of banking boards and their degree of heterogeneity. While the first one is calculated as the sum of the level of competence of board members, the latter is defined and measured in different ways.

The analysis is based on a proprietary hand collected database on the composition of 58 boards of 54 Italian banks. 50 banks have a Italian traditional governance model (i.e., with the presence of a board of directors and a separate audit committee called “collegio sindacale”), while 4 banks adopt the dual model (management board and supervisory board).

According to Bankscope database, the sample is highly representative of the Italian banking system, with a total assets as at December 2014 covering about 86% of the whole system. Moreover, the sample shows a quite good overall representation by bank size. According to dimensional criterion stated by Bank of Italy for regulatory purposes, in our sample are we have 5 major banks (i.e., total assets exceeding € 100 billion), 9 large (total assets between € 30 and 100 billion), 31 medium (total assets between € 3.5 and 30 billion) and 9 small banks (total assets between € 1 and 3.5 billion).

The information collected for the 700 curriculum of board directors has been verified and integrated with that derived from the reports on corporate governance and other documents publicly available on the web.

#### **4.2 Quality and expertise of directors**

The effectiveness of board functioning is strictly linked to the overall level of competence of its members. Following Minton, Taillard, Williamson (2014) and Payne, Benson, Finegold (2009), we believe that “demographic” profiles (gender, age, race, nationality) are not the only driver to explain board quality. Other profiles are much more relevant, i.e., directors’ skills, but also their human, moral and behavioral characteristics (Sonnenfeld, 2002). Unable to identify these latter aspects, starting from collected curriculum, we focused on the level of expertise and experience of board members.

In order to evaluate the level of competence, we focused both on “theoretical” competence (education) and on “practical” skills, related to the level, the heterogeneity and the kind of experience.

With regard to “theoretical” competence, for each director we record level (BA, Master and Ph.D.) and type of degree and (economic/business, law, engineering/quantitative, political science, other). A detailed score (see Appendix 1, tab. A1) is employed to summarize the level of education, as a proxy of quality and theoretical competence of each director.

With reference to the “practical” competence (i.e., the experience) two profiles have been counted separately. First of all, the board experience was measured as “high”, “medium” or “low” (with a corresponding score, tab. A1), depending on the number of board positions currently or previously held. Secondly, the managerial experience was traced (e.g., to be

appointed as managing director, CEO, CFO, and so on). Also in this case, depending on the number of current and past duties, we identified a “high”, “medium” or “low” degree of experience. Moreover, as detailed in tab. A1, we also introduced some “*premia*” (with an additional score) if board and/or managerial experience have been acquired in banks and financial intermediaries and companies (“financial” premium), at an international level or within a multinational enterprise (“international” premium), and, finally, achieved over the last five years (“recent” premium). In our opinion, these premia should reflect the idea that the more qualified and skilled is a board member, the more he may contribute to board functioning. Moreover, the focus on financial skills both in “theoretical” competence and “practical” one is also justified by the results of some important studies realized after the financial crisis that broke out between 2007 and 2008. These studies have mainly investigated the existence of a relationship between the spread of financial skills among board directors and banks’ risk profiles and performance. Actually, recent guidelines and regulation state that this profile is qualifying and almost “mandatory”. Empirical findings show that a widespread financial experience has a positive effect on the overall soundness of banks (Fernandes and Fich, 2009), and it also influences the willingness to take risks or, rather, the ability to appreciate risk exposure (Minton et al., 2014).

In this study, the level of expertise of each boardroom is the “sum” of individual skills levels. For each board of directors we build an overall score and we measure separately the level of “theoretical” competence (education), the level of experience (both in board, and managerial) and the level of specific financial expertise.

The underlying assumption is that the level of theoretical competence and the qualification of individual experience may positively influence the board’s contribution and, therefore, result in a more effective board functioning. The higher the skills in a board, the greater is the expected influence over management (i.e., especially CEO), in terms of advisory role, control and planning.

In order to appreciate the overall efficiency of board functioning, we also record time dedication, i.e., the “theoretical” amount of time that a director may allocate to his/her duties as board member. Regulation states that time dedication has to be “adequate” and some banks have already established specific internal policies. Also in this case three levels of score are identified (“high”, “medium”, “low”), according to the number of positions in other boards currently held by each director. The impact of time dedication on board functioning is well explored in literature. On the one hand, the busier board members are, the lower is the time dedication. As a consequence, inefficiencies and board malfunctioning can arise (Lipton and

Lorsch, 1992; Shalley, 1991). On the other hand, if directors are busy, it probably means that they have greater experience and/or expertise (Harris and Shimizu, 2004).

Tab. 1 provides descriptive statistics on the full sample, referred to demographic profiles, education, experience, and time dedication.

Banks boards in the sample seem quite different, with reference to board composition and the quantitative and qualitative profiles. With regard to board size, actually, some banks have a number of directors exceeding the regulatory limit. The average value (12.07) is however in line with regulatory provisions that will enter into force by 2017.

Foreign and female directors are very few in number. Moreover, for a number of banks, these are completely absent. About 71% of board members has a degree, while the percentage of directors with financial competence or experience in the financial sector is around 39%. The percentage of directors with international experience is lower (about 28%).

The average score for quality is 11.26 (on a scale from 1 to 30 points), with a minimum value of 4.15 and a maximum level equal to 18.94. Average score referred to managerial experience has the lowest result (1.9, on a scale from 1 to 10 points) and a significant variability (minimum value equal to 0, maximum value equal to 4.63). The largest contribution to total score is referred to board experience (4.14 points, on a scale 1-10).

With reference to time dedication, results show a significant time availability (average score equal to 8.21, on a scale 1-10), thanks to a number of directors with no other duty in other boards.

Despite the high heterogeneity, these results seem to suggest the need for a further qualification of Italian banks board, also in terms of regulatory compliance, which is expected to be more restrictive in the next future.

**TABLE 1. Descriptive statistics – Full sample**

Sample of banks	Measure	Number of obs	Mean	Median	Std. Dev.	Min	Max
<b>Banks</b>							
- Traditional governance system	<i>number</i>	54					
- Dual governance system	<i>number</i>	4					
Total assets	<i>€ mn., 2014</i>		63,967	13,992	158,276	2,505	844,217
<b>Board members</b>							
- Banks with traditional gov. system	<i>number</i>	602					
- Banks with dual governance system	<i>number</i>	98					
<b>Boardrooms</b>							
- Board size	<i>number</i>	58	12.07	11.50	3.93	5	24
- Board size, banks with traditional governance system	<i>number</i>	50	12.04	12.00	3.41	6	24
- Board size, banks with dual governance system	<i>number</i>	8	12.25	8.50	6.24	5	23
<b>Demographic profiles</b>							
Age	<i>years</i>		61.1	61.0	10.1	27	86
Foreign directors	<i>%</i>		6.0%	0.0%	12.4%	0.0%	50.0%
Female directors	<i>%</i>		15.1%	16.0%	10.8%	0.0%	50.0%
<b>Directors' education and experience</b>							
Graduate directors	<i>%</i>		71.4%	78.5%	23.7%	0.0%	100%
Directors with financial experience	<i>%</i>		39.1%	38.5%	22.8%	0.0%	88.9%
Directors with international experience	<i>%</i>		28.8%	22.6%	25.8%	0.0%	90.0%
<b>Boards' quality and skills</b>							
Education	<i>score, scale 1 to 10</i>		2.99	3.06	1.13	0.00	5.71
Board Experience	<i>score, scale 1 to 10</i>		4.14	4.19	1.00	1.62	5.93
Managerial Experience	<i>score, scale 1 to 10</i>		1.90	1.84	1.07	0.00	4.63
<b>Overall quality and skills</b>	<b><i>score, scale 1 to 30</i></b>		<b>11.26</b>	<b>11.51</b>	<b>3.46</b>	<b>4.15</b>	<b>18.94</b>
Time Dedication	<i>score, scale 1 to 10</i>		8.21	8.27	0.89	5.94	10.00

This need is further confirmed by the analysis aimed to explore the spread of financial expertise (tab. 2). The percentage of board members with financial expertise is, on average, lower for mutual banks (24%), while it is equal to 71% for limited company banks. Moreover, the percentage is positively related to bank size: significant differences arise among dimensional clusters. Listed banks show a higher percentage compared to unlisted ones.

Therefore, there seems to be a need for an increase in the level of financial expertise in Italian banks' boardrooms, even for compliance purposes.

**TABLE 2. The breakdown of the presence of board members with financial expertise**

<b>Banks' categories</b>	<b>% of board members with financial expertise</b>
Limited company banks	71%
Cooperative banks	62%
Mutual banks	24%
Listed	76%
Unlisted	52%
Small	15%
Medium	64%
Large	71%
Major	80%
I size quartile	38%
II size quartile	61%
III size quartile	71%
IV size quartile	76%

Due to the high level of heterogeneity showed by descriptive analysis, we applied principal component analysis (PCA) in order to detect, on the one hand, which profiles most contribute to the overall score (quality) of each board, and, on the other, which the main characteristics that contribute significantly to differentiate boards among them are.

Variables and individual scores used in PCA are referred to education (“theoretical competence”), board experience and managerial experience (“practical competence”). They represent the three components of our analysis. Results are summarized in tab. 3 and in fig. 1. Results confirm that all identified profiles contribute, almost equally, to the overall score and to the understanding of differences among boards (tab. 2). So, we may conclude that all these profiles are important and have to coexist in order to appreciate qualities and skills of board members, as required by regulation.

Comp1 and comp2 – as linear combination of the original variables – help to explain more than 89% of sample variability (tab. 3). Therefore, they are highly significant in the analysis of the phenomenon. In other words, boards are mainly different on the basis of two out of three components. The sign of each coefficient suggests, in comparative terms, the impact of each component in boards differentiation.

**TABLE 3. The results of principal component analysis (PCA)  
on directors' level of education and skills**

<b>Principal components/correlation</b>	<i>Number of obs</i>	58
	<i>Number of components</i>	3

<b>Component</b>	<b>Eigenvalue</b>	<b>Difference</b>	<b>Proportion</b>	<b>Cumulative</b>
Comp1	2.0723	1.4521	0.6908	0.6908
Comp2	0.6202	0.3128	0.2067	<b>0.8975</b>
Comp3	0.3075	0.0000	0.1025	1.0000

<b>Variable</b>	<b>Comp1</b>	<b>Comp2</b>
Education	0.6187	-0.2329
Board experience	0.5172	0.8397
Managerial experience	0.5914	-0.4906

Fig. 1 summarizes differences among boards, clustered by legal form, bank size class and listing. Each pair represented in the graph is a board, located in the area according to comp1 and comp2 .

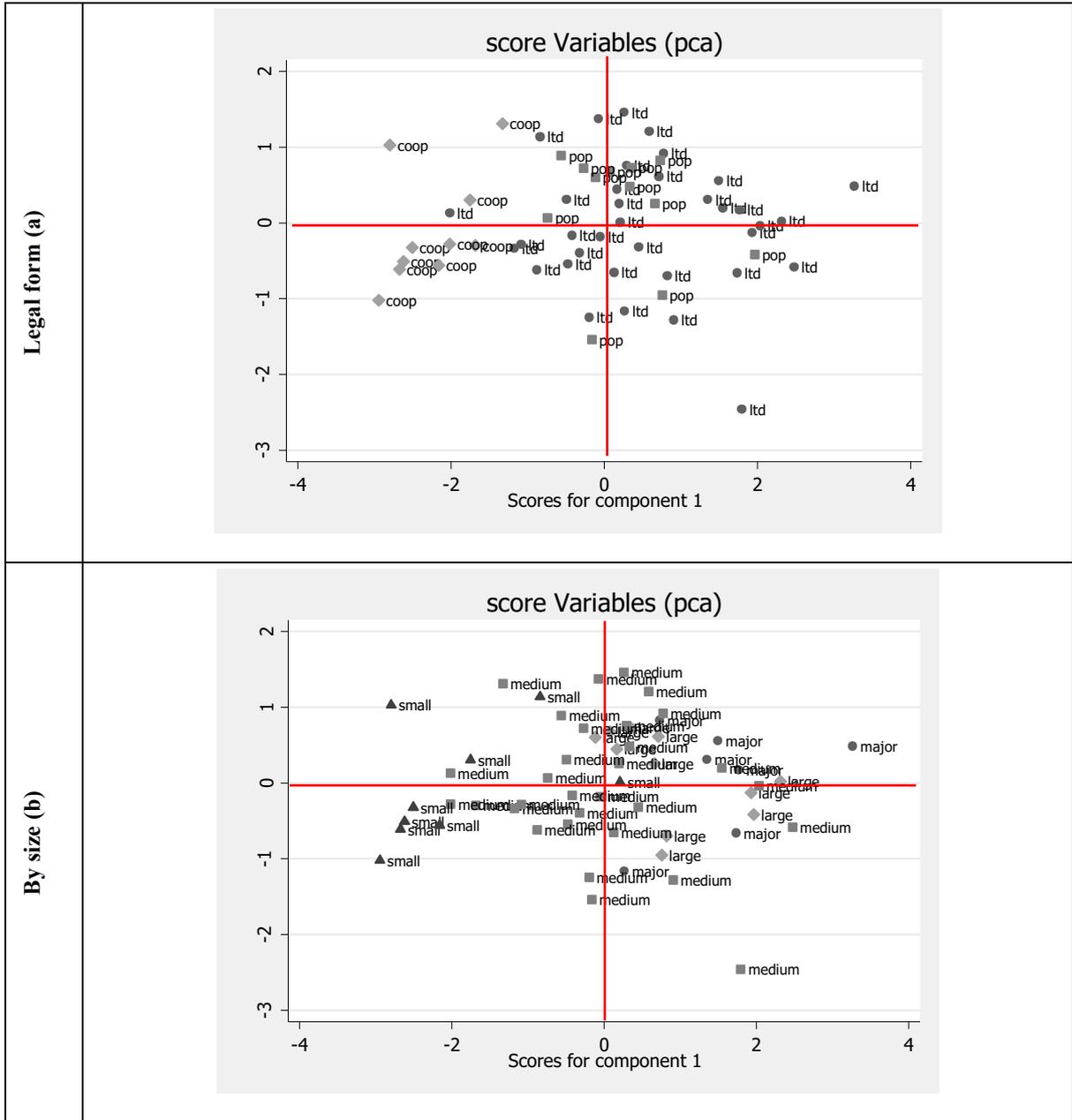
Boards placed to the right of zero by comp1 (X-axis) have, on average, directors with a higher education score, as well as greater board and managerial experience. Vice versa, with reference to comp2 (Y-axis), the boards placed on the top (i.e., above 0) are characterized on average by directors with a higher level of board experience, but a lower education score and a lower score for managerial experience. The weights of these variables have a negative sign.

Moreover, the comparison between two boards with the same score of comp1 (X-axis) is mainly determined by directors' board experience, i.e., the variable with the highest coefficient – in absolute value – for comp2).

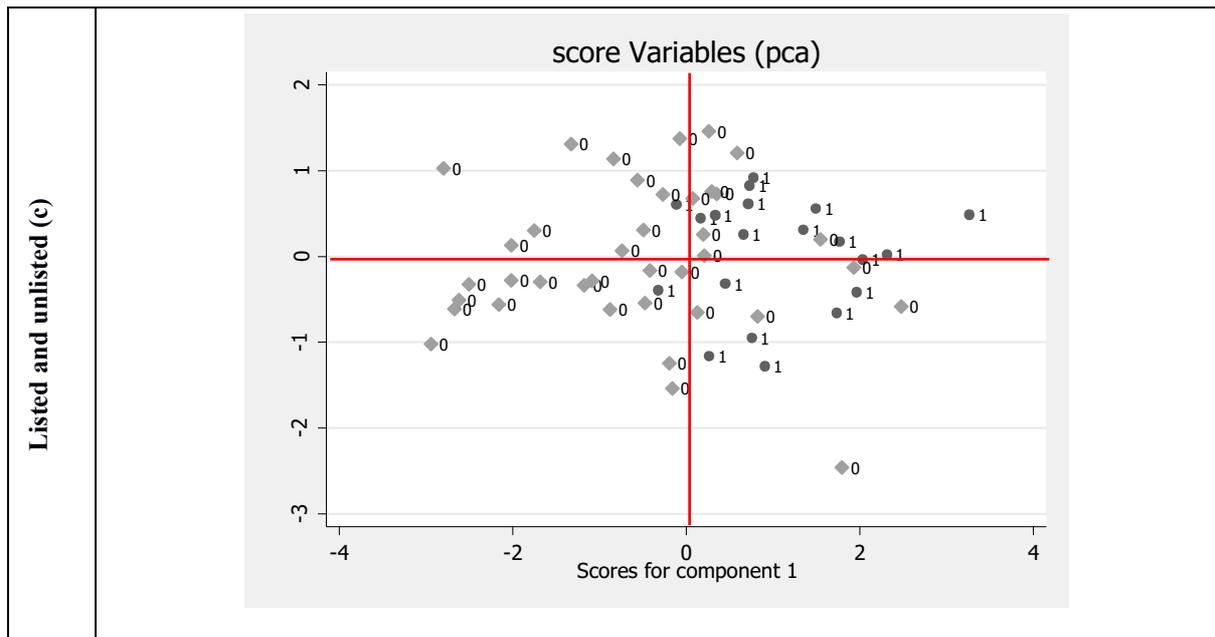
With regard to comp1, all mutual banks are placed at the left of zero. Within their boardrooms, only in a few cases directors have significant board experience in other boards (III quadrant, positive coefficient for comp2) and have a lower level of education and also of managerial experience (IV quadrant , negative coefficient for comp2). Vice versa, the majority of limited company banks and a relevant share of cooperative banks have positive coefficients for comp1. Their boardrooms are not significantly different in terms of boards' qualification.

With reference to bank size , all small banks (except one) are on the left by comp1, while major banks are placed to the right. The distribution of other banks is quite widespread. This seems to suggest that board qualification is higher for larger and more complex banks. A possible explanation can be related to the greater attractiveness of such banks with regard to best and highest skilled directors. Moreover, smallest banks have to invest into a further qualification of their board members, in order to be fully compliant to regulation.

**FIGURE 1. The representation of PCA by banks' clusters**



*(continue on next page)*



The boards of listed banks are almost all (but two exceptions) on the right side by comp1: board members have a higher level (and corresponding score) in education, as well as in board and managerial experience. We may probably conclude that listed banks have a greater attractiveness for more qualified profiles. Moreover, it's worth mentioning that Italian companies listed on Italian Stock Exchange apply a self-regulation Code and regulation specifically aimed at listed companies, which resulted in a board qualification process board that anticipated banking regulation. Finally, it has to be mentioned that there are also some non-listed banks whose board members are highly qualified and skilled.

The framework depicted with PCA does not show any strong aggregation of clusters of banks in a precise point or areas. As a consequence, we may conclude that bank size and its legal form don't uniquely define the board qualification. Nevertheless, the majority of boards of biggest banks and listed ones are, on average, more skilled and qualified: board members have a higher level of education and experience, both for attractiveness and regulatory constraints.

### 4.3 Measures of diversity

Previous literature shows that diversified boards are more effective in their activity as the interaction among different subjects enables to take better complex decisions. Although the benefits of diversity are well recognized and encouraged also by regulators, the definition of diversity is less established.

As already underlined, most of the literature defines and addresses diversity as the presence and weight in a board of given features one at a time, such as gender, nationality, race, independence.

This approach does not seem sufficiently suitable to address diversity in its broad definition. Taking the perspective by Harrison and Klein (2007), this study analyzes other notions of diversity.

Diversity can be interpreted as disparity when a member of a group has skills or competences that the others do not have and this makes him/her dominant in the group. This measure is particularly suitable when analyzing the role of the CEO or of the chairman of a board.

There is diversity interpreted as separation when board members differ with reference to given features, such as independence or executive members.

Finally, there is diversity as variety when there are heterogeneous individuals, according multiple perspectives, and they are mixed together. This might be the most appropriate interpretation to measure diversity in boards of directors, also from a regulatory perspective.

Solanas, Selvam, Navarro and Leiva (2012) suggest that the different interpretation of diversity and the relative measures have different power in explaining diversity in a group. While some measures might be more appropriate to investigate gender or demographic aspects one at a time, as already said, it might be more difficult to integrate all the aspects to give a synthetic measure of diversity. It might be that two boards are diverse because of the different percentage of women, foreign or independent members, but this does not say anything on the interaction between independent and executive, foreign and domestic, women or men.

Moreover, diversity in a board cannot be computed as the sum of the different diversity measures relative to each aspect (Biemann and Kearney, 2010; Solanas, Selvam, Navarro and Leiva, 2012).

In line with this part of the literature, in the study different measures of diversity are employed to evaluate the presence of specific diversity features among members (demographic, education background, board and managerial experience, financial skills) to provide a comprehensive picture of heterogeneity in boards and to test the consistency of these measures among groups of similar banks. More in detail, three approaches are taken, which are not evenly used neither in the literature on corporate governance, nor in group analysis of organizations.

#### **4.3.1 The standardized Blau Index**

The first measure employed is the Blau Index (Blau, 1977; Campbell and Mínguez-Vera, 2008; Solanas et al., 2012), that allows to evaluate the presence of a species or category in a group.

It is a widely used indicator – not only in the economic literature – to measure diversity as variety and much of the literature on board diversity employs this measure.

The Blau Index is a concentration index measured as  $B = 1 - \sum_{i=1}^k p_i^2$ , where  $p$  is the proportion of members of a group in a given category, and  $k$  the total number of categories. It varies between 0 and  $(k-1)/k$ ; when  $B$  is equal to 0, this implies maximum concentration and when  $B$  is equal to its max value, it means there is maximum variety (or diversity). To compare the index across variables, we employ a standardized version that varies from 1 to 0, obtained dividing  $B$  by its maximum.

For each of the features analyzed with reference to education, time dedication and experience, categories are individuated and each board member is assigned to a single category in each feature. Table 4 presents some descriptive statistics of the sample.

Table 5 presents the Blau indexes for the different groups of banks. For limited company banks and cooperative banks the Blau indexes are very high for each feature, especially with reference to education and managerial experience. This highlights a variety of profiles in this fields. Listed and unlisted banks do not show any particular difference, but for managerial experience, where unlisted banks have a lower index, i.e., lower variety or diversity.

When distinguishing between size category and size quartiles, results do not show strong differences with reference to board experience. Smaller banks have a lower heterogeneity for education and managerial experience. Also largest banks have a small number of the Blau index for education, although they have the highest for managerial experience.

The diversity for financial skills and competences and time dedication has also been taken into account, as for the regulatory prescriptions. With reference to time dedication, profiles of board members are quite diversified (average equal to 0.77) with small differences among groups of banks.

Diversity for financial skills appears more varied. Mutual banks, smaller banks and unlisted banks show lower levels of diversity according to this profile. These figures, numbers, together with the presence of members with financial skills (table 2), highlight some criticalities.

**TABLE 4. Blau index descriptive statistics**

Diversity feature	Category	Standardized Blau Index
Education (Blau-f)	Postgraduate degree Degree in economics/business Degree in law Degree in political science Degree in engineering/quants Degree in other areas No degree	Mean: 0.76 Median: 0.81 Min: 0 Max: 0.94
Board experience (Blau-b)	High (more than 5 positions) Mean (between 3 and 5 positions) Low (2 positions or less)	Mean: 0.88 Median: 0.89 Min: 0.54 Max: 0.99
Managerial experience (Blau-m)	High (more than 5 positions) Mean (between 3 and 5 positions) Low (2 positions or less)	Mean: 0.67 Median: 0.70 Min: 0 Max: 1
Financial experience (Blau-cf)	No financial experience Financial experience in boards Managerial financial experience Both	Mean: 0.74 Median: 0.81 Min: 0 Max: 0.99
Time dedication (Blau-td)	Low (more than 5 positions) Mean (between 3 and 5 positions) High (2 positions or less)	Mean: 0.77 Median: 0.86 Min: 0 Max: 1

**TABLE 5. Standardized Blau Index among banks**

Banks categories	Education (Blau-f)	Board experience (Blau-b)	Managerial experience (Blau-m)	Financial experience (Blau-cf)	Time dedication (Blau-td)
Limited company banks	0.809	0.878	0.730	0.817	0.790
Cooperative banks	0.820	0.893	0.717	0.836	0.888
Mutual banks	0.518	0.849	0.374	0.354	0.557
Listed	0.762	0.875	0.819	0.874	0.821
Unlisted	0.761	0.877	0.585	0.671	0.743
Small	0.540	0.838	0.360	0.343	0.619
Medium	0.813	0.887	0.637	0.777	0.775
Large	0.816	0.903	0.819	0.882	0.890
Major	0.694	0.826	0.907	0.872	0.748
I size quartile	0.676	0.867	0.498	0.545	0.691
II size quartile	0.830	0.897	0.598	0.748	0.782
III size quartile	0.805	0.883	0.703	0.818	0.810
IV size quartile	0.740	0.859	0.888	0.881	0.808

Note: quartiles are computed on *total assets* as at end-2014 (Source: Bankscope).

The Blau index allows to evaluate only one profile or characteristic one at a time. The index is useful especially to evaluate diversity as distance among board members, rather than diversity as variety. Given that regulatory provisions and the regulatory framework is more oriented to prescribe a plurality of elements of diversity, the present study also tries to give a snapshot of diversity from other points of view, using other indicators of diversity.

#### 4.3.2 The Jaccard Index

The second measure of diversity employed in the study is the Jaccard index (Jaccard, 1901), that is a distance measure able to synthesize diversity for various characteristics. The index was born in the natural sciences to study the diversity of eco-systems (see Chao et al, 2005), while it is less used in social sciences (among others, see Nobi et al., 2014 and Tsai and Chiu, 2004). Differently than the Blau index, the Jaccard index expresses the idea of diversity as stated by Harrison and Klein (2007) that appears coherent with regulatory provisions.

To build the Jaccard index, the database has been translated into a binary database where each characteristic or attribute (age range, gender, nationality) is present (1) or not present (0) for each board member. The index is then calculated for each couple of board members within a board as:

$J(i, j) = \frac{a}{a+b+c}$ , where:

$a$  = total number of attributes where both board members  $i$  and  $j$  have 1

$b$  = total number of attributes where board member  $i$  has 1 and board member  $j$  has 0

$c$  = total number of attributes where board member  $i$  has 0 and board member  $j$  has 1

The Jaccard index expresses hence the ratio between the number of occurrence of attributes 1-1 for each couple for a given qualitative element and the number of observation, without taking into account the occurrences with 0-0 for each couple. It varies from 1 (maximum similarity) to 0 (maximum diversity).

When applying the index to each board, a  $[n, n]$  symmetric matrix is obtained, where  $n$  is the number of board members. On the main diagonal there are only 1 as each board member is equal to him/herself. To synthesize the matrix, we take the average of the elements in the lower triangle ( $J(i, j)$ ) but the 1 in the main diagonal. The standard deviation is also computed to evaluate the variability of the index (Table 6).

**TABLE 6. Diversity measured with the Jaccard index: averages and standard deviation for groups of banks**

Groups of banks	Jaccard Index		Group of banks	Jaccard Index	
	Average	Std. Dev.		Average	Std. Dev.
Limited company banks	0.377	0.059	Listed	0.388	0.053
Cooperative banks	0.381	0.056	Unlisted	0.390	0.073
Mutual banks	0.445	0.077			
Small	0.452	0.086	I size quartile	0.412	0.078
Medium	0.381	0.059	II size quartile	0.372	0.059
Large	0.362	0.043	III size quartile	0.382	0.065
Major	0.401	0.059	IV size quartile	0.389	0.054

Note: quartiles are computed on total assets as at end-2014 (Source: Bankscope).

The average value of the index is 0.389, suggesting a quite strong diversity in the boards. Nevertheless there are some differences among the groups of banks, with a lower degree of diversity in mutual banks and in major and small banks, as already found for the Blau index. For major banks this might be read together with the values of quality, and it might suggest that major banks choose the directors with the best profiles in each feature, hence limiting diversity but enhancing quality.

### 4.3.3 The Total Heterogeneity Score

The third measure of diversity employed in this study is the total heterogeneity score (THS) built upon Anderson et al. (2011), who apply the score to a sample of non-financial companies, dividing each quality profile of the board members into quartiles and giving a score to each board according to the quartile it belongs to (1 point if in the I quartile, minimum heterogeneity, to 4 points if in the IV quartile, maximum heterogeneity). The sum of the scores gives the THS. Nine different heterogeneity profiles<sup>1</sup> are considered, yielding to a THS ranging from 9 to 36 (Table 7).

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<sup>1</sup> Age (coefficient of variation), financial skills as “theoretical” competences (% of administrators with degree or post-graduate degree in economics/business on total board directors), Blau degree, gender (% of women out of total board directors), board experience (coefficient of variation), managerial experience (coefficient of variation), internationalization\_1 (% of total foreign administrators out of total board directors), internationalization\_2 (% of directors with international experience out of total board directors), financial skills as “practical” competences (% of administrators holding experience on international markets or in foreign countries out of total board directors). The “theoretical” maximum diversity score is 36, that no board reaches. The scores of the 58 boards analyzed fluctuated from a minimum of 16 to a maximum of 28, with the mean value (median) amounted to 21.7 (21).

**TABLE 7. Diversity measured with Total Heterogeneity Score:  
averages and standard deviation for groups of banks**

Groups of banks	THS		Group of banks	THS	
	Average	Std. Dev.		Average	Std. Dev.
Limited company banks	22.2	2.8	Listed	22.4	2.9
Cooperative banks	21.8	2.9	Unlisted	21.3	2.9
Mutual banks	19.8	2.6			
Small	19.1	2.5	I size quartile	20.1	2.7
Medium	22.0	2.7	II size quartile	23.2	2.3
Large	22.7	2.9	III size quartile	22.2	3.2
Major	21.9	2.6	IV size quartile	21.5	2.4

Note: quartiles are computed on total assets as at end-2014 (Source: Bankscope).

Although differences among groups are more remarkable than what obtained with Blau and Jaccard indexes, THS substantially confirms previous results. The average value is quite high (21.7), but diversity appears lower for mutual and smaller banks. The relationship between size and diversity provides the same results as in the previous paragraphs. Unlisted banks show lower diversity than listed ones. The evidence provided by Anderson et al. (2011) seems therefore confirmed, as companies operating in more complex environments (such as banking and finance) demand higher quality profiles with different skills, visions and problem solving capacity, finally contributing to heterogeneity in boards.

#### **4.4 Competence and diversity in boards**

So far, quality and diversity have been analyzed in this study separately. Now these two aspects are taken together to evaluate how diversity and competence are assorted within the boards with both a descriptive and a regression analysis. As already discussed, when board are built looking for the highest quality, diversity is also affected, as profiles become more similar. Table 8 summarizes and compares results so far obtained for the various groups of banks.

Descriptive statistics show a coherence among the three measures of diversity employed, as already noted above. Summarizing, mutual banks and smaller banks show a lower diversity compared to other groups.

**TABLE 8. Quality and diversity: averages for groups of banks**

Groups of banks	Quality score	Diversity				
		blau-f	blau-b	blau-m	Jaccard	THS
Limited company banks	12.458	0.809	0.878	0.730	0.377	22.222
Cooperative banks	11.793	0.820	0.893	0.717	0.381	21.750
Mutual banks	5.942	0.518	0.849	0.374	0.445	19.800
Listed	13.651	0.762	0.875	0.819	0.388	22.400
Unlisted	9.905	0.761	0.877	0.585	0.390	21.342
Small	6.161	0.540	0.838	0.360	0.452	19.125
Medium	10.956	0.813	0.887	0.637	0.381	21.969
Large	13.320	0.816	0.903	0.819	0.362	22.727
Major	14.719	0.694	0.826	0.907	0.401	21.857
I size quartile	8.476	0.676	0.867	0.498	0.412	20.125
II size quartile	10.115	0.830	0.897	0.598	0.372	23.214
III size quartile	12.086	0.805	0.883	0.703	0.381	22.214
IV size quartile	14.499	0.740	0.859	0.888	0.389	21.500

Note: quartiles are computed on total assets as at end-2014 (Source: Bankscope).

A first analysis of the averages of quality and diversity shows some kind of relationship between the two. When size increases (according to both regulatory and quartile categories), diversity and quality increase as well, but for major banks that present slight lower diversity scores, together with the highest quality score. This confirms what supposed earlier with reference to better and more qualified profiles among directors of major banks, which might lower diversity, probably thanks to their attractiveness for better educated and more experienced directors, compared to other banks.

Correlations between the measures and some demographic characteristics are reported in Table 9. The sign between quality and most of the diversity measures also suggest that when the one increases, the other increases as well (more diversity), and the correlation coefficients appear significant especially for Blau-m, THS and Jaccard measures. For the latter, the sign is negative coherently with the fact that a Jaccard index equal to 1 means less diversity.

As a remark, diversity also appears negatively correlated with board size, although weakly (-0.14). This might suggest that diversity is not achieved by increasing the number of directors and confirms the appropriateness of regulatory provisions that prescribe a proper maximum number of directors.

**TABLE 9. Correlation matrix**

	Quality	Diversity							
		Demographic profiles			Blau			Jaccard	THS
	score	vcage	gender	internat.	Blau-f	Blau-b	Blau-m		
quality (score)	<b>1.0000</b>								
vcage	0.1120	<b>1.0000</b>							
Gender	<b>0.3112</b>	<b>0.2724</b>	<b>1.0000</b>						
internat.	<b>0.4140</b>	0.0060	0.0352	<b>1.0000</b>					
Blau-f	<b>0.3069</b>	0.0502	0.1390	0.1112	<b>1.0000</b>				
Blau-b	-0.0526	0.2085	0.1364	0.0433	<b>0.2906</b>	<b>1.0000</b>			
Blau-m	<b>0.7532</b>	0.0947	<b>0.3124</b>	<b>0.4113</b>	0.2533	0.1339	<b>1.0000</b>		
Jaccard	<b>-0.2971</b>	<b>-0.3155</b>	<b>-0.3631</b>	<b>-0.4311</b>	<b>-0.6962</b>	<b>-0.4549</b>	<b>-0.3979</b>	<b>1.0000</b>	
THS	0.2029	<b>0.4230</b>	<b>0.4660</b>	0.2335	<b>0.5092</b>	<b>0.3275</b>	0.2566	<b>-0.6261</b>	<b>1.0000</b>

Note: significant coefficients at 5% are reported in bold.

Results yields us to elaborate the following research hypothesis:

*Hypothesis 1: diversity has a positive impact on quality*

Regression results are reported in Table 10. The quality score is set as the dependent variables and it is explained by the diversity measures (both demographic and for the education and experience) and control variables. For the sake of synthesis, only the most relevant specifications of the model are reported.

**TABLE 10. Regression analysis: quality and diversity**

	reg1	reg2	reg3	reg4
<b>Dependent variable:</b>				
quality score				
<b>Independent variables:</b>				
vcage	6.664	1.090		-
Gender	2.438	0.223		-
internat.	<b>4.847<sup>†</sup></b>	2.471		-
blau-f	<b>6.472*</b>	<b>3.607*</b>		-
blau-b	-1.948	-3.265		-
blau-m	<b>6.654***</b>	<b>6.114***</b>		-
Jaccard	13.290	-	<b>-11.487*</b>	-
THS	-	-		0.073
<b>Control variables</b>				
ln(total assets)	<b>0.980**</b>	<b>1.153***</b>	<b>1.953***</b>	<b>1.977**</b>
board size	<b>- 0.203**</b>	<b>-0.980*</b>	<b>-0.228*</b>	<b>-0.213*</b>
Constant	<b>-17.170*</b>	<b>-9.973<sup>†</sup></b>	<b>-14.182**</b>	<b>-20.807**</b>
N	58	58	58	58
Adjusted R <sup>2</sup>	0.711	0.701	0.567	0.521
F	16.550	17.731	26.06	21.69

Note: (<sup>†</sup>) significant at 10%; (\*)significant at 5%; (\*\*) significant at 1%; (\*\*\*) significant at 0.1%.

The first regression shows that the percentage of foreign directors contributes positively to quality score, supporting the need to have some directors with specific knowledge of international markets, despite the significance is relatively weak. Among the diversity measures, blau-f and blau-m show strong statistical significance and positive sign, suggesting that the higher is the degree of diversity in these two profiles, the higher is the quality.

Control variables (size and board size) are both significant. The first is positive, suggesting that larger banks might have more attractive power towards more qualified directors. The second (board size) is negative, and highlights again that increasing board size is not a suitable strategy to increase quality.

Given that the Jaccard score is not significant, as it might be highly correlated with the demographic and experience measures, we drop the variable for reg2. Results remain similar, but international coefficient becomes not statistically significant.

Jaccard and THS have also been tested alone, as they already incorporate the various different profiles of diversity. The coefficient for the Jaccard index in reg3 is negative and significant, suggesting that the higher is the diversity (i.e. the lower the Jaccard index), the higher is the quality score for the board. THS instead, in reg4 appears not statistically significant. In both regressions, the control variables keep their sign and significance.

## **5. QUALITY AND DIVERSITY AND THE IMPACT ON PERFORMANCE**

Previous literature focuses on the analysis of diversity and competence as determinants of performance, but usually taken one at a time. Cuñat and Garicano (2009) and Hau and Thum (2009) find a positive relationship between competence (quality) and performance. Other studies find contrasting results when investigating the link between diversity and performance. The first is not always associated with increased performance (Arnaboldi et al., 2015; Avigdor et al., 2007; Milliken et al., 1996 ). To the best of knowledge, the only study which takes both diversity and quality as determinants of performance is Anderson et al. (2011), who nevertheless study non-financial companies. The authors find that higher diversity does not necessarily translate into higher performance. On the issue, some authors argue that financial or economic performance might not be the natural result of a good and efficient board (among others, Avigdor et al, 2007; Richard, 2000), although often taken as a proxy for the good functioning of the board (see Payne, Benson, Finegold, 2009).

In this paragraph the relationship between performance, on one side, and quality and diversity, on the other, is tested. As performance measure, the measures traditionally employed by previous studies are taken: Return on Average Assets, (ROA) and Return on Average Equity

(ROE) for performance, and cost-income ratio, to proxy for efficiency in line with previous literature (Arnaboldi et al., 2015; Bøhren and Strøm, 2010; Hutchinson et al., 2015; Minton et al., 2014).

For ROA and ROE the averages of the last three years are taken. According to the above discussion, we test the following hypotheses:

*Hypothesis 2a: quality has a positive impact on performance*

*Hypothesis 2b: diversity has a positive impact on performance*

Table 11 presents the results. The quality score in these regressions is split into its components (education, board experience, managerial experience and financial skills). The level of diversity is measured through the three Blau indexes (Blau-f, Blau-b, Blau-m), and for the synthetic diversity measures (Jaccard and THS), according to various specifications which are here omitted. In Table 12 only the most significant results are reported. The overall explanatory power and significance of the model seems quite high (in terms of  $R^2$  and F statistic), although few variables appear significant.

Preliminary results on the relationship among the variables show that the presence of financial skills and knowledge contributes positively to ROA, ROE and to efficiency.

**TABLE 11. Regression results: the impact on performance**

<b>Dependent variable:</b>	<b>ROA</b>	<b>ROE</b>	<b>Cost/income</b>
<b>Independent variables:</b>			
<b>Quality:</b>			
score - education	-0.075	-0.079	4.48
score - board exp.	0.039	0.747	-0.772
score - manag. exp.	0.018	0.473	0.787
financial skills	<b>3.728**</b>	<b>53.116**</b>	<b>-38.041*</b>
<b>Diversity:</b>			
blau-f	0.462	-0.26	6.807
blau-b	-0.157	5.936	4.452
blau-m	<b>-2.160*</b>	<b>-29.272*</b>	18.798
<b>Control variables</b>			
ln (total assets)	<b>-0.349*</b>	<b>-6.053**</b>	2.11
board size	0.026	0.322	-0.468
capital ratio	-0.015	0.303	-0.067
Constant	<b>5.469*</b>	<b>81.330*</b>	12.772
N	55	55	55
Adjusted $R^2$	0.302	0.297	0.216
F	3.341	3.28	2.485

Note: (\*)significant at 5%; (\*\*) significant at 1%.

Additionally, results highlight a significant impact of diversity for the managerial experience with negative sign on economic performance (ROA and ROE). Despite the Blau index does not give an idea of which category is more represented, but just how individuals are distributed among categories, these results might suggest that boards in which the directors have a more diversified managerial experience are not able to improve performance, and hence a more specific and stronger experience in management roles have to be preferred.

The effect of size of the bank on ROA and ROE is negative, and this might be affected by the time period analyzed for the performance, which is characterized by a heavy economic recession, a following increase in NPLs and a decrease in profitability, together with low interest rates. Additionally, when considering ROE, it has to be noted that in the last years, many Italian banks have put in place recapitalization programs and this has affected their profitability. The other control variables do not show statistical significance.

## **6. CONCLUSIONS**

This paper fits in the wide literature on the functioning of board of directors in banks and provides an original contribution by analyzing the relationship between quality and different measures of diversity. The focus is on a series of measures of diversity which might fit the regulatory provisions on the topic.

The analysis is performed on a wide representative sample of Italian banks of different nature (limited company, cooperative and mutual banks; listed and unlisted; banks of different size) that represent more than 86% of total assets of the Italian banking system as at end 2014.

Results show in general a positive relationship between three measures of diversity (Blau index, Jaccard index and THS) and quality (measured as education level and degree of experience of directors). Evidence and discussion of results highlight that comprehensive measures (such as Jaccard and THS) would be more suitable to explain diversity according to the general notion of the regulators, but more traditional measures (Blau index) are able to provide a more detailed insight on the elements that contribute to diversity.

Diversity seems to increase as the size of the banks increases (both as regulatory categories and as total assets quantiles), but for very large banks. These might have a more attractive power towards the better educated and more experienced directors. On the one hand, this power contributes to quality, but, on the other, it may somehow uniform the type of directors included in the board. Boards of directors of mutual banks appear the least diversified and also the ones with the lowest quality score, calling for a review of the composition of these boards of directors in the light of the upcoming regulatory provisions.

Besides, the paper investigates the relationship among quality, diversity and performance. In this case, not only diversity, but also the presence of specific skills, such as financial knowledge or experience appear to have an impact on performance. This result is in line with what prescribed by the regulatory provisions that stresses how the directors of a bank should be able to understand financial markets and financial issues and should also have an experience in the industry. Again, the smallest banks and the mutual banks (which often coincide with the smallest banks) present major weaknesses on these profiles.

A variety in the degree of managerial experience appears to have a negative impact on performance. This, read together with quality and the above mentioned issue on financial competences, might call for a more qualified board under this perspective and highest concentration of directors on the strongest categories of managerial experience.

This study provides interesting hints for further research. One path to deepen the analysis might be to trace over time the evolution of the composition of boards of directors as regulation evolves and comes into force. Additionally, it would be interesting to make an international comparison with other countries that might (or not) have similar industry structure as Italy.

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## Appendix 1

**TABLE A1. Details of scores for “theoretical” and “practical” competences of board members**

<b>EDUCATION</b>		<b>Score</b>
No degree		0
Degree		3
- economics/business		1
- law		1
Master		2
- economics/business		1
- law		1
Doctorate/Ph.D.		2
- economics/business		1
- law		1
<b>Maximum score</b>		<b>10</b>
<hr/>		
<b>BOARD EXPERIENCE</b>		
1 or 2 positions	low	3
3 to 5 positions	medium	5
over 5 positions	high	7
financial experience premium		1
recent (last 5 years) experience premium		1
international experience premium		1
<b>Maximum score</b>		<b>10</b>
<hr/>		
<b>MANAGERIAL EXPERIENCE</b>		
1 or 2 positions	low	3
3 to 5 positions	medium	5
over 5 positions	high	7
financial experience premium		1
recent (last 5 years) experience premium		1
international experience premium		1
<b>Maximum score</b>		<b>10</b>