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CORPORATE GOVERNANCE, GENDER AND PERFORMANCE: AN EMPIRICAL ANALYSIS OF ITALIAN BANKS

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ABSTRACT

Banks differ from non-financial institutions, given the nature of their business they can create huge problematics on the financial system and on the overall economy in case of failure or distress. Thus, this thesis deepens the theme of governance and its possible effects on the performance of Italian banks. An effective governance, whose concept has evolved throughout the years, allows to supervise and monitor the management, solving for agency problems between shareholders and decision makers. After the financial crisis, European supervisory authorities outlined norms and recommendations to safeguard stakeholders' interests and promote a more efficient control of banks. This role is ascribed to the board of directors, which is the key mechanism of governance and whose attributes have been largely studied in empirical literature. Despite the inconclusive results, authors continue to search for qualities of the boards that can improve banks' economic outcomes. This dissertation follows the research trend and focuses in particular on the effect of gender diversity on the performance of Italian banks, employing an empirical analysis to retrieve similarities and differences with the relevant literature.

Keywords: Banks, Governance, Performance, Gender

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INTRODUCTION

In the last decades the development of the credit system together with an implementation of the supervision legislation have determined new equilibria and operativity conditions inside banks. Financial crises and in particular the one that took place in 2007-2008, showed clearly that banks represent a relevant factor of amplification of the systemic risk and they have signaled a problem of corporate governance. Supervision authorities started to pay higher attention on the role and on the organizational procedures of the intermediaries, requiring more independent and authoritative boards, in order to pursue an efficient and prudential management of financial institutions. "Italian banks have recently made progress in improving their corporate governance, as a result of the implementation of European Directives, specific provisions introduced by the Bank of Italy, and industry codes of conduct. However, further reforms are needed to strengthen the oversight and management of banks" (Jassaud N., 2014, p. 5).

The aim of this thesis is to analyze the interaction and the effects of some corporate governance variables on the performance of Italian banks. Given a copious literature on different corporate governance aspects, this study concentrates on gender variables. But, others board characteristics, such as the average age and the numerosity of the board are taken into consideration. Performance variables are represented by ROA, ROE and employees' productivity; assets, leverage and judicial form are used as control variables. The thesis examines the relationship between financial structure, governance and value creation; building a research strategy that accounts for data availability and the controversial results in the literature on this theme. The work is organized in three chapters. The first chapter gives a general overview on the meaning and the evolution of the concept of governance, why it is so important for the banking sector, the problems arising from the agency theory and the changes in the regulatory framework, both Italian and European. The second chapter focuses on the main internal mechanism of corporate governance, the board of directors, and collects the academic literature that investigates the effects of governance variables on the performance of financial institutions, focusing on some governance aspects of interest. The presence of women inside boards is analyzed in depth, providing the lector a general overview and insights of the improvements on gender diversity that applied in the last years. Finally, the third chapter reports the empirical analysis: the data selection, the data modelling, some descriptive statistics, the construction of the econometric models based on available data of Italian banks from Aida database and the results of the econometric analysis.

The main objectives of this analysis are two, one was to observe if there are any resemblances with the results of other studies on the effects of governance variables on the performance of Italian banks. The Italian banking system is fragile: after the 2007 crisis many banks defaulted and one of the reasons could be the poor and inappropriate governing of them. Finding governance variables that improve the economic performance, would help national and European authorities to better control and implement policies that guarantee a more stable and safe system. The second objective of this dissertation was to check and comprehend if there is a relevant underrepresentation of female directors in banks, the causes and possible solutions to this issue.

CHAPTER 1:

CORPORATE GOVERNANCE

Banks are increasingly complex firms; markets' globalization and the development of interconnections between financial institutions emphasize the difficulties in the communication and exchange of information among the board of directors, the management, the shareholders and the other stakeholders. Given this complexity, coherent structures of corporate governance represent an important instrument to handle these organizations, in which multiple interests are met. Corporate governance is a wide concept and not easy to define: in the present chapter the concept of governance is treated in depth, from its meaning to the changes it was subject to in the last decades. Then the relevance of this concept is transposed to the banking sector, in which good or bad corporate practices can have a huge impact on the economic system. The third section describes the agency theory, since the conflict of interests inside firms represents a relevant issue that can be controlled for by adequate corporate governance mechanisms. Finally, a general review on the regulatory system, giving particular attention to Italy, is presented. Norms and laws, indeed, act as the frame for corporate governance discipline.

1.1 Definition and evolution of the concept

Corporate governance defines the procedures that allow to formulate the decision-making process, connected to the performance and the control of the firm, in order to satisfy the expectations of all the subjects that have a direct interest in the company. More intuitively, it can be described as the set of mechanisms that address agency problems, avoiding and controlling for risks within a company. Governance concept has been largely discussed in the academic literature for its impact on companies, especially on performance, with the aim to define the optimal governance structures. The focus on this theme is relatively new, although its roots go back to 1930 when corporate governance was mainly used to describe the concept of separation between property and control of a firm. More recently, authors Garvey and Swan (1994) defined a corporation as: "A nexus of explicit and implicit contracts and governance determines how the firm's top decision makers (executives) administer such contracts". Shleifer and Vishny (1997) stated: "Corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment". A common

element to these definitions is the existence of a conflict of interests between insiders and outsiders, which is emphasized by the separation of property and control. In case of financial distress, shareholders have a high probability to lose their investment, whereas other stakeholders do not face huge issues, mainly because their interests are protected or are limited. Denis et al. (2003) gave a similar definition: "Corporate governance is the set of mechanisms both institutional and market-based that induce the self-interested controllers of a company (those that make decisions regarding how the company will be operated) to make decisions that maximize the value of the company to its owners (the suppliers of capital)". The managers of a company are motivated and encouraged by shareholders to create wealth for them. The traditional approach of corporate governance has always been towards the protection of shareholders, but the actions of the management hit many other subjects (e.g. employees, depositors and regulators). This oversimplified view ignores the sunk investments beared by some stakeholders; for example the specialization of a person's human capital purposely for a company, reduces the marketability of her capital for other firms, thus making it less valuable. Accordingly to a wider frame, the analysis of corporate governance should adopt the "stakeholders value" protection, instead of the narrow approach of "shareholders value" protection. To summarize, corporate governance includes the concepts of power and economic efficiency. The first one influences the second one, since the subjects that are in charge of pursuing the decisional process can create or destroy value, even if their objective is to protect the different interests of those that invested resources in the firm. The governance mechanisms can be divided into internal and external to the firm and the board of directors represents the main internal mechanism, which will be examined in depth in the second chapter.

1.2 Importance of the governance for the banking sector

Corporate governance in banks is normally treated differently with respect to other non-financial firms. They create particular challenges on corporate governance, having special characteristics that increase problems and reduce effectiveness of the typical governance mechanisms. For Becht et al. (2011): "The nature of the banking business weakens the traditional corporate governance institutions of board and shareholder oversight. Banks have the ability to take on risk very quickly, in a way that is not immediately visible to directors or outside investors". The social costs deriving from the failure of these institutions due to a poor governance are severe, because of their huge impact on the stability of the financial and, subsequently, of the economic system. Banks, indeed, are the object of interest of this study.

Financial intermediaries are prone to a higher regulation and surveillance, since the private interests go along with the public ones: savings protection and systemic stability. In fact, they are exposed to numerous risks like the market risk, the liquidity risk, the operational risk, the credit risk and the business risk. They deal with both a higher opaqueness of the business and a large number of stakeholders as debtholders (depositors), insurance policy holders and other creditors. The quality of bank loans and other assets (e.g. derivatives) is complex to assess, making difficult to evaluate the amount of risk they bear and making easier to alter balance sheets. One obvious example that led to the 2007 crisis was the underestimation and bad management of new financial instruments as the securitized mortgages by the supervisory authorities and credit agencies. In addition to that, high leverage increases the probability of default and banks tend to become highly leveraged by the nature of their activities.

Vulnerability requires that financial institutions are heavily supervised and regulated, in order to stem the creation of negative externalities for the society in case of failure. To sum up, banks are generally opaquer that other firms and have more complex businesses. This creates difficulties for the authorities to assess the quality of the balance sheets and the riskiness of the financial instruments they trade. Everything put together, adding the unregulated and unknown securitized instruments and biased valuations given by the rating agencies, created devastating effects on the global financial system. In fact, this situation amplifies some asymmetries and reduces the effectiveness of the managers' monitoring. Hence, the role of the board of directors is weakened, even experts of the sector find demanding to exert an effective control. On the other side, managers have access to resources and information and, they can take actions that are remunerative for them in the short run. However, they create risks and instability for the bank in the long run.

Banks differ from non-financial firms also because of leverage, they have a higher indebtedness due to their business, which in turn creates a higher probability of failure. Bank runs are the most explicative example of how an apparently sound bank could default in a relatively short period. Their assets have different maturities with respect to their liabilities, precisely the majority of their investments have long maturities, in order to obtain a substantial remuneration, whether liabilities are composed by deposits (i.e. bank accounts) that have a short maturity. In case of panic, people want to obtain their money back, destabilizing a bank that cannot compensate the loss, selling its assets. This leads to an insolvency problem first and to the default of the bank then. The fragile nature of these institutions requires an important degree of regulation from the governments, to avoid serious repercussions on the financial system in case of bank failures.

1.3 Agency theory

The agency theory was defined by Michael Jensen e William H. Meckling in 1976 as a conflict of interests between the principal (the ownership of the firm) and the agent (the management), i.e. the principal-agent problem. This theory assumes that managers implement opportunistic behaviours, since their goals can differ from the shareholders ones. The paradigm principal-agent is a solid component of many economic theories and had a huge impact on the rules that discipline the relationship between the principal and the agent. It associates the principal role to the shareholders of a company, whether the managers tend to assume opportunistic behaviours, thus they are the agent. The board of director represent the corporate body responsible for the protection of the ownership interests, in order to avoid the so-called agency costs. In fact, shareholders cannot easily and effectively monitor the work done by the management. The agency theory is a theoretical pillar that impacts heavily on the corporate governance, seen as a totality of rules that discipline the relations among shareholders, managers and directors. The necessity of a separation between property and control emerges due to a fractionate shareholder structure, especially inside banks, in which there are many minority shareholders that do not have neither interest nor resources to manage the firm, so this role is assigned to the management. In this context, the topic of corporate governance enters to establish a mechanism of monitoring and controlling to protect shareholders from the conflict of interests of the management. The model is based on two main assumptions:

1. The two players (principal and agent) have different utility functions and they want to maximize their own.
2. The agent has an advantaged position with respect to the principal, he has a larger information and knowledge availability, creating an information asymmetry.

Regarding the first point, investors want to maximize their return inside a certain timeframe, through the distribution of the dividends and the increase of the stock price. On the other side, managers have short term interests, then in order to increase quickly profits and the value of the company they can undertake risky positions that could damage the firm and require higher capitals afterwards. Many solutions have been proposed linked to rewards, as for example stock options, which should incentivize the executives to pursue the general objectives of the company since their remuneration depends on its performance. This divergence of interests leads to the second point, creating an information misalignment situation to the detriment of the shareholders. In this situation, managers have a decent degree of freedom, which allows them

to control financial resources and to have access to conspicuous information flows. The problem that arises is the inability of the principal to monitor the actions of the agent, who owns privileged information. The agency problem identifies the possibility of the agent to undertake opportunistic behaviours, damaging the interests of the principal, that is forced to bear additional costs (i.e. agency costs) to supervise the agents' activity. This creates information asymmetries, which highlight three types of opportunistic behaviours: adverse selection is a pre-contractual asymmetry and consists of a situation in which the agent hides or modifies information to the counterparty before the contract takes place. Moral hazard is the risk more affine to this analysis and it a post-contractual behaviour, in which the agent takes actions in her interest with the advantage of not being controlled by the managers. Finally, risk aversion is a subjective propension towards risk, that guides the top management into riskier or less risky activities. To avoid opportunistic behaviours, shareholders resort to incentive systems and agency costs: precautionary measures that should stem the misalignment. These costs can be grouped into three categories: monitoring costs to limit abnormal activities of the agent; bonding costs that guarantee the principal that the agent will not undertake certain actions; finally, "residual loss" costs. These, refer to the difference between the monetary welfare that shareholders would experience by maximizing their utilities and the welfare obtained by the actions of the managers. The board of director is the governance body that connects the principal side to the agent side and operates to avoid the agency costs, by monitoring and advising the management.

1.4 Regulatory framework

Banks are prone to many regulations and a strict supervision mainly for two reasons: they have a fundamental role in the credit system and they are the key drivers for the development and the stability of the economic and financial systems. They are also fragile institutions that can suffer bank runs and can spread the fear among other financial institutions, thus governments apply a particular attention to their regulation. The regulating bodies can restrict or impose some banking rules like the limitation of investments that banks can make and the imposition of minimum capital requirements. In addition, they can require mandatory standards for the characteristics and the quality of the banks' governance (e.g. limits on the ownership concentration or on the composition of the BoD). Hence, bank legislation could change the traditional governance mechanisms and legislative authorities become stakeholders of the banks themselves. In the past, it was taken for granted that the regulatory actions of the markets

were sufficient to ensure the correct and efficient operativity of banks. The idea was that remuneration policies based on stock options were enough to align the interests inside financial institutions, reducing the monitoring duty by the board of directors. Crises and bankruptcies throughout the years demonstrated that market autoregulation was inadequate and there was the necessity for an increasing public intervention. The poor and delayed intervention of the supervisory authorities showed the limits in self-discipline for banks. In particular, the biggest issues regarded the boards' work: the limitation of risk exposure was scarce and unsatisfactory. These problems created the necessity for a governance model able to solve them, through the creation of rapid and complete information flows that connected all the parties involved. Laws update is a dynamic process and driven mainly by two key concepts:

1. Financial innovation, markets' globalization and the connection between the intermediaries, as for example inside the European Union;
2. Interests' conformity and alignment of all the parties: shareholders value maximization, management incentivization and the protection of stakeholders' interests.

Most of the European countries have issued corporate governance codes: non-binding principles, best practices and standards that provide directions on companies' governance. In Italy, Borsa Italiana published in July 2018 an updated version of the "Codice di autodisciplina" in which are established objectives as the increment of independent directors inside the BoD, the creation of internal committees, separation of the Chief Executive Officer role from the president of the board and the periodic valuation of the performance of directors. Despite the importance, the adhesion to the code is voluntary, so it can represent a marginal help.

1.4.1 The G20/OECD Principles of Corporate Governance

In 1999 the Organisation for Economic Co-operation and Development (OECD) published the "Principles of Corporate Governance", reviewed in 2015 with the second edition. These principles are not binding, but represent a benchmark for policy makers internationally, as well as for investors and corporations. The definition of corporate governance given by the OECD is the following: "Corporate governance involves a set of relationships between a company's management, its board, its shareholders and other stakeholders. It also provides the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined". One of the main objectives of this publication is

to provide policy makers the instruments to improve financial soundness and efficiency, through the implementation of laws and regulations for corporate governance. The six principal areas of interests for the corporate governance framework are[1]:

1. Ensure the basis for an effective corporate governance framework in order to promote transparent and fair markets, plus an efficient resources' allocation;
2. Rights protection and equitable treatment of all shareholders, including minority and foreign ones;
3. Institutional investors, stock markets and other intermediaries should operate aligned, pursuing a good functioning of the system;
4. The role of stakeholders is wide and should be recognized because of the potential wealth that can be created;
5. Disclosure and transparency are fundamental and should be supported by the publication of regular reports;
6. The responsibilities of the board include the monitoring of the management and the guidance of the company.

The principles create a base for a cooperation program among all countries, the World Bank and the International Monetary Fund. It underlines the need for a development in the regulatory framework to sustain an effective governance, which allows for an equilibrium between the top management and the board of directors, avoiding abuse of power. Despite their relevance, the principles should be reviewed and adapted to each country depending on the benefits and the costs of each legal system.

1.4.2 Directive (EU) 2019/878

The Directive (EU) 2019/878 (CRD V)[2] published the 20th May 2019, which contains adjustments of the Directive 2013/36/EU (CRD IV), represents one of the most important innovations in the field of governance. Unlike Regulations, that are directly applicable as law in all the member states, Directives are more flexible because can be adapted to national laws, unlike Regulations. It is applicable to credit and investment institutions, and addresses the issues raised with the previous CRD IV, that revealed to be insufficiently clear, thus subject to

[1] G20/OECD Principles of Corporate Governance, 2015.
[2] Capital Requirements Directive V

divergent interpretations. The contribution of these legal measures is to "strengthen the financial system in the Union and render institutions more resilient to possible future shocks"[3]. For what concerns the governance, Article 74 states: "Institutions shall have robust governance arrangements, which include a clear organizational structure with well-defined, transparent and consistent lines of responsibility, effective processes to identify, manage, monitor and report the risks they are or might be exposed to, adequate internal control mechanisms, including sound administration and accounting procedures, and remuneration policies and practices that are consistent with and promote sound and effective risk management"[4]. The members of the governing bodies shall be professional and aware of their power and responsibilities, they should have diversified competences, provide enough time and resources proportional to their roles and assure gender equilibrium.

1.4.3 Basel III

Basel III is an internationally agreed regulatory framework developed by the Basel Committee on Banking Supervision in response to the financial crisis of 2007-2008. The measures aim at strengthening the regulation, supervision and risk management of banks[5]. Governance efficiency in banks is not limited to the attributes of the board, but it should also be able to protect shareholders' interests in order to promote capital raising and reduce its costs. The Basel Committee defined new prudential capital regulations, placing harsher requirements for liquidity and financial leverage, and increasing capital requirements, adding a further conservative buffer. Basel III requires intermediaries more capital that should be of higher quality, including ordinary shares and reserves, reducing the emission of hybrid capital instruments. The objectives of Basel III are: to strengthen banks' microprudential regulation and to reduce systemic risk, through macroprudential control mechanisms. Basel Committee published in 2015 the updated guidelines on "Corporate governance principles for banks", that contain provisions addressed to financial intermediaries regarding corporate governance, which has been developing throughout the years and showed many issues in the literature. The document is divided into 13 principles regarding: board's overall responsibilities, board qualifications and composition, board's own structure and practices, senior management, governance of group structures, risk management function, risk identification, monitoring and

[3] Directive (EU) 2019/878
[4] Article 74, Directive (EU) 2019/878
[5] https://www.bis.org/bcbs/basel3.htm

controlling, risk communication, compliance, internal audit, compensation, disclosure and transparency, the role of supervisors.

A review of the regulatory framework was fundamental, in fact, to pursue efficiency objectives in governance, the regulatory instruments are necessary to assure the safeguard of the interests of both shareholders and stakeholders without disturbing banks' competitivity. The utility of the norms depends on the sector and on the institutional context in which those are applied. In Italy for example, the legal system can vary quite substantially from the one of the other European countries, so the principles should be applied ad hoc, keeping in mind essential elements as the transparency and convergency in the legislation.

CHAPTER 2:

BOARD OF DIRECTORS

The board of directors (BoD or simply board) and its characteristics have been largely examined in depth, due to the relevance of its role. It is identified as the most important center of control, since it has the power to hire, fire, remunerate the management and solve conflicts of interests among shareholders and decision makers. It is the element through which analyze if the corporate governance mechanism is effective. The governance mechanisms can be divided into either internal or external to the firm (Figure 1), the board of directors and the equity ownership structure are the main internal mechanisms, whereas the external market for corporate control (the takeover market) and the legal system are the main external ones. The board of directors represents the most important internal mechanism of governance inside corporations.

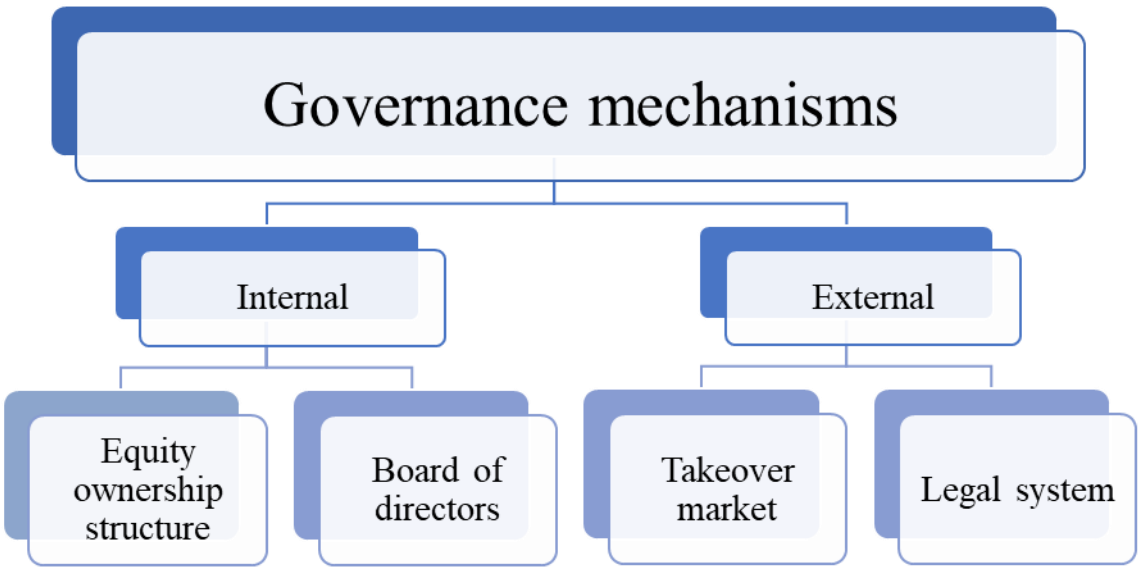


Figure 1. Governance structure. Our elaboration on Denis et. al (2003)

Its composition in terms of gender, age, nationality and skills of the members is considered a crucial determinant for the results of a firm, in terms of profitability. In fact, last decade saw an increasing number of studies and publications that tried to retrieve causal effects of different BoD variables on the economic performance of several types of institutions: those listed in the stock

exchanges, grouped by businesses or geographical areas, non-financial firms and banks. The focus of this thesis is on the last category as mentioned in the first chapter. Banks have unique features and a huge impact on the economy in case of distress or failure, many authors were interested in finding the effective governance mechanisms that could somehow determine and influence corporate performance. Diversity in the composition of the board is considered a way to obtain resources, benefits, necessary competences as well as a good economic trend. The board of directors is meant to perform the critical functions of monitoring and advising top management and it fulfills the following roles:

1. Supervisory role, monitoring and management evaluation;
2. Managerial role, taking managerial decisions (undertaking projects, hiring employees, etc.);
3. Advisory role, providing compelling advices.

These roles are vital for the bank's governance structure and they ensure its soundness. Directors have fiduciary duties towards shareholders but also depositors, other creditors, transaction counterparties and taxpayers. Directors bring to the board knowledge and know-how to formulate and implement the bank's business strategy, moreover they assume a monitoring role towards the top management. They advise managers and they can pretend explanations for certain actions, requiring to motivate them. In the literature, authors associated to some board features (e.g. composition and size) the ability of members to exert their supervisory and advising roles.

Francis et al. (2012) affirm: "Although weak corporate boards may not be the direct trigger of the current crisis, corporate board practices could affect the extent to which firms are vulnerable to the financial crisis". This point is crucial, since it becomes vital to understand banks' governance and their board. Any contribution from the literature could help the supervisory authorities in their hard work and could cover any regulatory lacks, reducing possible devastating repercussions on the financial system as became apparent during the 2007 crisis.

2.1 The determinants of performance

Relevant literature in the past years has tried to retrieve the causal effect of different governance mechanisms, both internal and external, on the performance of the banking sector. The existing

literature on the effects of board's characteristics on performance presents mixed results. The motivation given most commonly for this issue is endogeneity. The majority of the variables taken into account are endogenous, "For instance, firm performance is both a result of the actions of previous directors and itself a factor that potentially influences the choice of subsequent directors" (Hermalin et al., 2003, p. 8). Thus, results are hardly interpretable and inconclusive because parameter estimates are inconsistent. Empirical methods employed to study the relationship between board structure and profitability should be analyzed with caution.

In more recent years, the inclusion of financial institutions in these studies revealed the importance of a better knowledge of how banks' governance impacts on banks' results and relevant policy implications at bank level (for managers and shareholders) as well as at country level (for regulators). For the most part, the literature is generated in the United States scenario, while for the European scenario it is quite scarce.

Fernandes et al. (2018) collected all the available literature on the determinants of performance, they brought together a disperse body of knowledge into a coherent whole, in order to give a general understanding of the existing empirical researches. They summarized the approaches of the studies and the most relevant results, highlighting the ideas and theories shared by researchers on certain outcomes. The main variables used as proxies for performance are: stock returns, Tobin's Q, ROA and ROE. A few authors used more sophisticated variables to proxy measures of performance (i.e. bank losses, non-performing assets ratio and likelihood to participate in a bailout program). In banks there is a trade-off between the advantages and the disadvantages arising from the monitoring and the advising roles, thus on how board attributes affect the performance. The board of directors has been for a few years at the center of the public debate regarding corporate governance reforms, in particular, a large number of board attributes was object of researches and studies to retrieve a significant effect on bank performance.

In the following sections many studies are reported and each corporate governance variable is analyzed separately from the others, to better comprehend its nature and the impacts that could have on the economic results. Higher attention is given to papers that analyze the effects of gender diversity inside boards on performance, but also board size and average age are examined. Anyway, these results should not be considered singularly as their effect is strictly correlated with all the other governance factors. A large number of board attributes have been studied throughout the years to detect their possible effects on the economic performance of the

banks. One of these attributes is board independence, which relies on the assumption that boards are composed by insiders and outsiders with different incentives, that affect the performance as soon as the ratio of the two changes. Inside directors are employees of the firm and have generally a connection with the management, since their career improvement is tied to the one of the CEO. Outside directors instead, are considered independent because they do not have any social and business relationship with the management, except their role of director. They represent the most effective supervisors inside the board because their objective is to build a reputation as experts and not to collude with the managers.

Another variable that is largely studied is CEO duality. CEO duality occurs when the Chairman in the board is held by the CEO. The function of the chairman is to run board meetings and oversee the process of hiring, firing, evaluating, and compensating the CEO. Clearly, the CEO cannot perform this function apart from his or her personal interest. Without the direction of an independent leader, it is much more difficult for the board to pursue the development of activities that create value. Therefore, for the board to be effective and avoid conflicts of interest, it is important to separate the CEO and Chairman positions (Jensen, 1993, p. 866). On this topic, two major mindsets are reported. On one hand, advocates of the separation of the two roles state that when CEO and Chairman coincide there are higher agency costs and the effectiveness of monitoring the CEO is reduced (the entrenchment theory). The CEO could pursue its own interests, which can diverge consistently from the ones of the shareholders, leading to a worsening of the firm performance. On the other hand, who supports the efficiency theory affirms that given certain business or environment conditions the duality may be the most suited option for a firm. A single leader takes faster decisions in the case of unexpected events, leading to higher financial results.

In recent years the idea that the experience of directors affects their monitoring/advisory role, which on turn affects performance started to catch on. These studies are really important in a risk management perspective because they rely on the assumption that board members with a financial background and competences can easily identify risks and take actions consequently. If some risks threaten the stability of the bank, directors would report them to the top managers in order to avoid them; alternatively, they could advice the managers to take on some risks that could be beneficial to shareholders in sound periods. The focus on experience of directors was triggered by the financial crisis when people, especially regulators, realized their inability to face risky situations. If directors had a sufficient banking and financial expertise, they would have had a better board oversight and capability to advice managers, thus protecting shareholders' interests. Some enquires conducted in the eight largest US financial institutions

found out that more than two-thirds of the directors had no recent experience in banking business and more than half of them had no experience in the financial services business. In fact, the default of Lehman Brothers and Merrill Lynch demonstrated the inappropriate and lacking financial expertise of their boards. In Europe there have been similar critical issues too. As an example, the English bank Northern Rock was nationalized after it suffered a bank run; only two members of its board had experience in the banking field.

Not only directors' experience started to assume a relevant role in the governance studies but also directors' qualifications, even if academic papers put higher emphasis on the first one rather than on the latter ones: a higher level of education should lead to better skills for the evaluation of investment strategies to pursue, hence, to make virtuous decisions. Specific education and knowledge for the banking sector is necessary given the complex nature of the financial institutions, as suggested by global organizations like OECD.

This thesis focuses in particular on the effect that gender could have on performance, but there are many other diversity aspects that have been studied throughout the years (e.g. nationality, cultural background, age diversity, etc.).

Some authors suggested also that there could be a relationship between the number of directorships (multiple positions of control in different companies) held by a BoD member and the performance of the bank. A branch of research suggests that this relation is positive, busy directors have more abilities and competences, thus they affect in a positive way the performance. The other branch of research argues that being in many boards, reduces the effort and the monitor capability of directors for each single firm, hence, the relationship presumed is negative.

Another variable that has been taken into account by researches is the number of board meetings, used as proxy for the intensity of the board activity. In the context of agency theory, meetings are a sign of active monitoring, that is beneficial to shareholders and should increase performance too.

The last strand of research, that is worth to cite, even if scarce, it is related to the connection between governance characteristics and banks' failures. This link is hardly identifiable, mainly because governments tend to intervene when banks are in distress and save them. These rescues darken the real extent of banks' issues, thus measures are biased.

2.1.1 Gender and performance

European policies posed an increasing interest on the diversity issue, mostly centered on gender diversity with some references to nationality and competences. Numerous studies analyzed the

correlation between female board presence and performance, showing an improving situation in European countries in terms of female presence. In the publication "Board monitor Europe 2019", Heidrick and Struggles show how the proportion of board seats that went to women was 38% in 2019, compared with 17% in 2013. "In 2018, a new directive, 2014/95/EU, geared to ratchet up diversity on boards, took effect. The directive does not mandate diversity but highlights its growing importance by setting guidelines on the disclosure of diversity information by large companies, providing a window into companies' practices in this area of growing interest to investors. This EU directive represents a major step forward in promoting diversity on European boards […], however, implementation and results vary widely from one country to another"[6]. The "2018 Report on equality between women and men in the EU" published by the European Commission reported that "France was the only Member State in which there was at least 40% of each gender at board level (exactly 43.4%), a figure that has been achieved by introducing a legislative quota in 2011 requiring companies to meet a 40% target by January 2017. A further nine countries had at least 25% women on boards (SE, IT, FI, DE, BE, DK, NL, LV and the UK). Progress was made in just a few Member States, principally as a result of legislative or other forms of positive measures to promote gender balance. Much more still needs to be done to achieve further and sustainable progress. In half of the Member States (14), men still outnumber women in the boards of large companies by at least 4 to 1 (i.e. less than 20% women), while in Malta and Estonia women account for less than 10% of board members"[7].

After the financial crisis, the need for having different perspectives and point of views increased, especially in the banking sector, exposed to the risk of contagion. Despite the increasing presence of women, their representation in top managerial positions is still scarce. This phenomenon is called "glass ceiling", namely a barrier of procedures, structures, power, beliefs and habits that prevent women to reach prominent positions. In 2017 the document "Gender equality in financial decision-making" published by the EIGE[8] stated: "Women are barely visible in the top jobs in central banks. Over the past decade there has been a clear lack of progress for women in reaching key decision-making positions. At the national level nearly all EU Member States' central banks are led by men. Only Cyprus has a female governor. A more positive outlook can be found at the vice-governor level of national central banks, where nearly one in five is a woman (10 women, 41 men). The share of women on the boards of

[6] Heidrick & Struggles, 2019.
https://www.heidrick.com/Knowledge-Center/Publication/Board_Monitor_Europe_2019
[7] European Commission, 2019, ISSN 2443-5228.
https://ec.europa.eu/newsroom/just/document.cfm?doc_id=50074
[8] European Institute for Gender Equality

national central banks is also marginally higher, with 21% of board members being women"[9]. Also, huge institutions as the European Investment Bank, the European Investment Fund, the Bank of Italy are headed by men in 2019. The European Central Bank (ECB) also lacks gender equality and never had a woman president, until the election of Christine Lagarde in November 2019.

Many explanations to this phenomenon have been given throughout the decades. Some dismiss the problem as a lack of formation, experience as well as interest in certain positions by women, which could be right in some cases but wrong in many others. Some people attribute this issue to a general mindset of the society, instead. A patriarchal society impedes and limits women in achieving certain goals, creating common beliefs that certain jobs or charges are not suitable for them. This remains an actual problem, that current and future generations need to fight against, primarily removing deep concepts of what should be precluded to women, only because of their gender. An ethic and fair society will be reached when people would be able to realize their dreams, irrespectively of their gender, ethnicity, religion, physic condition and all the different characteristics of each human being. Diversity should be seen as an enrichment and not a defect, in fact it brings new insights and perspectives, it creates competitive advantages in a wide range of fields: problem-solving, innovation, creativity, flexibility and not less important economic performance. The idea behind this concept is that heterogeneous boards can avoid dominance of a single or a small group of persons, through monitoring activities.

Literature on gender variety is one of the most abundant, because of the recent increasing interest and attention on this theme. One of the oldest researches of board diversity's effects on economic performance is associated to R. M. Kanter, that proposed the "Theory of Tokenism" in 1977. This theory affirms that if inside a group of people is recognizable a sub-group, which is composed by the underrepresented gender and it is less than 15% of the total participants, there is a negative effect on the entire group. For the author, the negative effects caused by a low percentage of women inside a company are:

1. The visibility, the sub-group is subject to a higher attention, thus to a higher pressure to perform well;
2. The contrast, which refers to the amplification of differences between the two groups (the sub-group and the dominant group) that can lead to an isolation of the underrepresented group;

[9] EIGE, 2017. https://eige.europa.eu/publications/gender-equality-financial-decision-making

3. The role encapsulation, some central roles in the firm are never assigned to women, for stereotypical reasons.

In conclusion, results obtained by women, that represent the minority of the group, are erased since they are underrepresented. Kanter introduced the concept of critical mass (around 30% of the total participants) necessary for women to exert a real power and not a theoretical one.
Focusing on literature mainly related to banks, the financial crisis raised the idea that male domination in banks could have been one of the causes of poor and failing performance.
Muller-Kahle et al. (2011) found that financial institutions with a higher gender diversity are less prone to be involved in subprime lending (dependent variable), for a sample of 74 US based publicly traded firms in the financial industry from 1997 to 2005. Using panel data, they show that board gender diversity negatively impacts the decision to specialize in subprime lending; therefore, gender diversity adds value to a board.
Pathan et al. (2013) assumed that more female directors have a positive impact on bank performance (as female directors are considered to be value relevant and are underrepresented inside boards). Using 2640 bank-year observations, based on a sample of 212 large US Bank Holding Companies (national and state commercial banks) over the period 1997-2011, they constructed a dynamic model in which they included a lag of performance as an explanatory variable. Then, they used the GMM (generalized method of moments) estimation technique that allows to solve the issue of endogeneity of explanatory variables, using their past values as instruments. Gender diversity in the boardroom improved bank performance in the pre-SOX[10] period (1997-2002), the positive effect of gender weakens in the post-SOX (2003-2006) and the crisis periods (2007-2011). This result is particularly important because it indicates that the inclusion of more female directors does not necessarily improve bank performance.
Garcìa-Meca et al. (2015) tested the hypothesis that board gender diversity does not influence the performance of banks. Their sample consisted of 877 observations for 159 listed banks in 9 countries (Canada, France, Germany, Italy, the Netherlands, Spain, Sweden, the UK, and the US). The period of analysis went from 2004 to 2010, although at times there was no available information for some banks, meaning that the sample had an unbalanced structure. They used panel data models, which are empirically estimated by applying the GMM estimator proposed by Arellano and Bond (1991) that controls for the endogeneity problems that may appear in the

[10] Sarbanes-Oxley Act of 2002 or shortly SOX is a federal law enacted by USA in 2002 to bridge the gap in the legislation. It was issued to improve corporate governance and transparency of accounting records after many scandals occurred, that caused a distrust from investors.
https://www.govinfo.gov/content/pkg/PLAW-107publ204/pdf/PLAW-107publ204.pdf

models. Findings overturned their initial proposition: female directors had a positive effect on bank performance.

Nguyen et al. (2015), instead, demonstrated that the gender of the appointee does not affect stock market returns of US banks after the appointment of a new executive, thus gender does not matter. They collected data on 252 announcements on new members' election from 1999 to 2011 and used an event study methodology, to assess the behaviour of a time series around a certain event that is considered significative (the election of a new member).

Finally, Berger et al. (2005) found that in the three years following the increase in female board representation, portfolio risk increases although the change is statistically and economically marginal, suggesting that this outcome is due to a lesser experience with respect to the male counterparty. They combined a dataset with executives' biographies and bank data for the period 1994-2010 and then applied a difference-in-difference estimator, which compares a control group and a treatment group both before and after the treatment. The outstanding evidence on the value relevance of women on boards is inconclusive, however, the differences in empirical findings could be due to divergent samples, time periods and industry coverage, reverse causality, as well as endogeneity problems.

2.1.1.1 Italian legislation supporting gender equality in the BoD

Many countries in the last few years adopted some legislative initiatives and auto-regulation measures to favor an increasing participation of women in listed companies due to their underrepresentation. According to the European Gender Equality Index (GEI), Italy ranks as one of the European countries with the lowest gender equality. Only 44% of Italian listed companies had a woman inside their boardroom in 2008, while women held less than 6% of the board positions. The starting point is that a higher female boardroom presence could have positive effects on economic outcomes. In 2011 Italian authorities promulgated the Law 120/2011 (Golfo-Mosca), which requires gender quotas, a minimal threshold for gender balance in quoted companies. It imposes that the distribution of seats among directors is done through a criterion that assures gender equilibrium: the less represented gender obtains one third of the elected administrators. This law has a temporal validity of ten year, so up to 2022 and after this period it is no more effective. During this period the law should allow to reach the objective of removing obstacles that limited the access of women to command positions, promoting a process of cultural renovation, a greater meritocracy and growth opportunities. If firms will not comply in time, Consob will apply fines from one hundred to one million Euros and after a

second warning, Consob will invalidate appointment of every elected director. In 2010 the percentage of female directors inside the boards was below 7% and only in one company out of two a woman was present (Table 1). After 2012 the percentage of women continued to increase, reaching a value of 33.6% at the end of 2017. Moreover, nowadays almost all firms (98.7%) have at least one woman in their boardroom. The introduction of quotas has been largely criticized and described as a passive instrument to increase female participation in the boards, whereas boards should be composed by people that deserve a seat, irrespectively of their gender or other characteristics not tied to the director role. These critiques are valid, but the legislation had as main objective to include women in a typically masculine environment and create more opportunities for the underrepresented gender. Results are visible, since the percentage of women inside boards in the banking sector increased of almost five times from 2010 to 2017. The increment of female participation inside BoD followed an already existing trend of positive growth before Law 120/2011 entered into force, which only accelerated this process. The real effects of the legislation introduced in 2011 will be clear after 2022, date in which the law will not be in force anymore. In the best hypothesis boards will continue to form in a diversified way, not excluding any categories or group of people.

boards of directors				
	female directorship[1]		diverse-board companies[3]	
	number	*weight[2]*	number	*weight[4]*
2010	182	*6.8*	133	*49.6*
2011	193	*7.4*	135	*51.7*
2012	288	*11.6*	169	*66.8*
2013	421	*17.8*	202	*83.5*
2014	521	*22.7*	217	*91.9*
2015	622	*27.6*	230	*98.3*
2016	701	*31.6*	226	*99.1*
2017	760	*33.6*	226	*98.7*

Table 1. Female representation on corporate boards of Italian listed companies - Consob (2017) and Report on Corporate Governance of Italian listed companies 2017. Data on corporate boards of Italian companies with ordinary shares listed on Borsa Italiana S.p.A. - Mta Stock Exchange. [1] Figures refer to the board seats held by women. [2] Weight on total number of directorships. [3] Diverse-board companies are firms where at least one female director sits on the board. [4] Weight on total number of companies.

2.1.2 Board size and performance

Board size of banks is represented as the total number of directors and has been extensively studied especially in comparison with board size of non-financial institutions. Several papers (Kroszner and Strahan in 2001, Booth et al. in 2002, Adams and Mehran in 2003 and Adams in 2011, to cite some) found that banks' boards have a higher number of components with respect to other firms. This outcome could be explained by the fact that banks have a different and more complex governance structure. However, for non-financial firms the average relationship between board numerosity and performance is negative because of communication and coordination costs that slow down the decision-making process. Larger boards are also associated with a free-riding problem among the members, making it more difficult for them to convince each other to monitor. Although a larger board could help to perform key functions, after reaching a certain threshold point, the dimension causes several problems that impact on the efficiency of the board and consequently on the bank performance.

There are mixed results of the effects of board size on banks performance. Adams et al. (2012), García-Meca et al. (2015) and Aebi et al. (2012) found that board size is positively associated with bank performance, following the assumption that more organizationally complex firms need more expertise and resources.

Minton et al. (2014) found that the average board size decreased slightly from about 13.3 board members in 2003 to about 12.4 members in 2008. However, during the 2007-2008 financial crisis period and the 2003-2006 pre-crisis period there was no significant effect between board size and performance.

Pathan et al. (2013) employed a panel of 212 large US Bank Holding Companies over the period 1997-2011 and they applied the two-steps system GMM approach, which allows authors to treat all the explanatory variables as endogenous and orthogonally uses their past values as their respective instruments (Arellano and Bover, 1995, in Journal of Econometrics 68, 29-51). The endogeneity problem in the regressors arises from simultaneity, reverse causality and unobserved heterogeneity. After some robustness checks, findings demonstrated that board size decreases bank performance, i.e. other things equal banks with smaller boards perform better. If banks exploit regulatory ambiguities for entering into risky activities, as emerged during the 2007 financial crisis, larger boards can amplify the deficiencies of a bank.

Grove et al. (2011) selected a sample of data on 236 US public commercial banks that went from 2005 to 2008, capturing the effect of the financial crisis. Corporate governance variables analyzed were 32; dependent variables consisted of ROA, excess return and non-performing assets ratio. They used a multiple regression model and to examine the non-linear relationships,

they included linear and quadratic terms in the equation of interest. Authors' hypothesis of a concave connection between board size and bank ROA was confirmed for 2008 and the average of the 2006-2008 period.

2.1.3 Age and performance

The variable "age" measures the average of board components' age and has been largely employed in the empirical analyses, since it is considered a fundamental driver for the strategic decision-making process. As for the other variables analyzed, "There are mixed views on how average director age impacts agency conflicts and, subsequently, firm performance" (Grove et al., 2011, p. 421). Indeed, older directors are associated to a higher experience and knowledge, which could in turn assure an effective monitoring and reduce agency costs. By contrast, an increasing seniority implies rigidity, diminished flexibility and resistance to changes, as well as a lack of energy and incentives to actively monitor top management, thus increasing agency costs. By contrast, younger members have at their disposition higher physical and mental abilities than older members, to promote changes and growth in a company, allowing for a stable continuity into the future. Younger directors could be associated with a higher risk-loving behaviour at the expenses of the shareholders, but also with a more adequate education and formation, which should entail a superior technical knowledge. Contrary to this idea, Holmstrom (1999) developed a model asserting that younger administrators are more risk-averse, because of their little experience. The market exerts a higher control on young members, thereby in case of wrong decisions their career possibilities would fall, hence, they will not pursue aggressive investment strategies.

Grove et al. (2011) found a concave (inverted U-shape) relationship between average directors age and financial performance, identified by ROA, for a sample of US commercial banks. This result complies with the idea that having older members is beneficial to a certain point, after which the performance is impaired. Additionally, they discovered a negative linear association between the average of directors' age and excess stock market returns as a proxy for financial performance.

Nguyen et al. (2015) on the contrary, showed that age has a positive and significant impact on stock returns, arguing that "younger appointees have more incentive to increase their job security by engaging in risky and value-destroying activities. Thus, market investors react less favorably to the appointment of a young appointee because they envisage that this appointment will impose an additional agency cost to the bank".

Conclusively for what concerns this governance variable, Berger et al. (2014) hypothesized that risk-taking decreases with the age of the board. In fact, a board change which causes a decrease in the average age of board directors raises significantly banks' portfolio risk.

CHAPTER 3:

EMPIRICAL ANALYSIS

Given the literature presented in the previous chapter, in this section we discuss the results of an analysis on the relationship between governance attributes and performance of Italian banks. The choice of Italian banks arises mainly by a shortage of studies on national financial institutions; in fact, the majority of the literature focuses on European banks. In the last decades governance characteristics have taken on a substantial importance that, especially after the 2007-2008 financial crisis, reflects the need to discover in which way and to which extent the composition of the board is able to affect the performance of fragile firms, like banks.

3.1 Data selection

We collected the data from the database Aida, published by Bureau van Dijk (BvD). This database allows to analyze and to search for economic, financial and commercial information of every joint-stock company (S.p.A.) which operates in Italy. Aida has information on all Italian companies required to file their accounts, including banks. In compliance with the Fourth Council Directive 78/660/EEC[11], the database provides the balance sheet of each company, up to a period of ten years. Some available data are: the business sector, the number of employees, generic information on shareholders, representatives, managers, probability of default and rating.

Banks selected comply with the following research strategy:

- Ateco 2007 code: 641910 – Monetary intermediation of banking institutions different from Central Banks
- SAE code: 245 – Banking system
- Legal status: Active

[11] Council of the European Union, 1978.
https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31978L0660&from=en

Ateco 2007 code is a classification of economic activities adopted by the Italian National Institute of Statistics (ISTAT)[12], which corresponds to the European nomenclature NACE Revision 2 (Regulation EC No 1893/2006). SAE code is used as a second confirmation of the banking activity. Finally, the selection includes active banks excluding ceased, failed or liquidated companies. The list obtained consists of 389 Italian banks that comply with the research strategy.

3.2 Data modelling

The data modelling phase was complex. It was necessary to split records extracted from Aida into two main groups: economic data (for each bank there is a unique value) and board data (for each bank there are information related to all members part of the BoD). After the selection of the banks of interest, the fiscal code that identifies them numerically is extracted and then combined to each institution. This step facilitates the usage of the data and identifies banks easily.

First, we created a dataset concerning board data that contains variables related to board attributes. Variables obtained are: name of each member of the BoD, age, gender, position (president, vice-president, director), election date and resignation date. Information is primarily exported into an Excel sheet to set and work with the data. Then, I created a second dataset that includes yearly economic variables, such as ROA and ROE, the bank's dimension and other information extracted from balance sheets: total assets, leverage, number of employees and operating revenues. Years considered are 2017 and 2018, but economic information can be collected up to 2013.

The first assumption made is that board's members affect economic variables of the subsequent year. The logic behind this assumption is that directors elected during 2018 cannot affect economic results of the same year, because policies and interconnections among the group take a while to have an effect on economic and financial results.

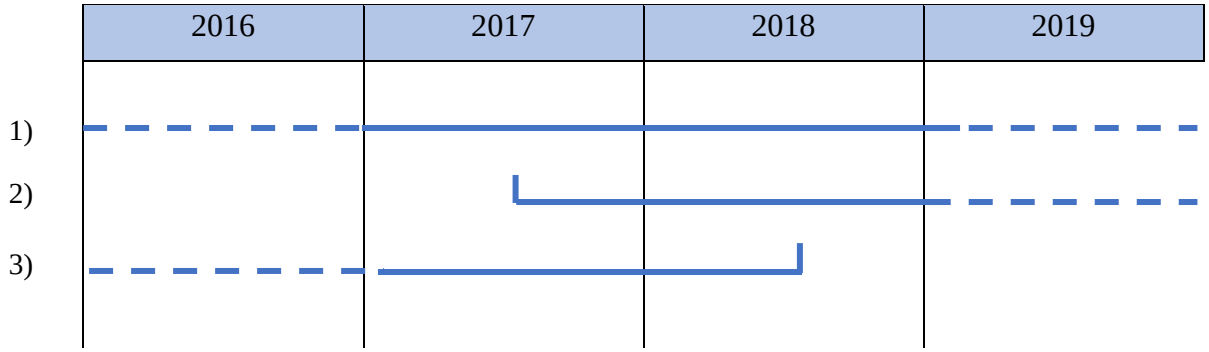
The economic dataset includes variables expressed in thousands of Euros as assets value and operating revenues, then ROA, ROE, the leverage and the number of employees. For each bank there are unique economic values for different years. The vast majority of the researchers employ return on assets and return on equity as bank profitability proxies. We calculated also

[12] Istituto Nazionale di Statistica, 2008.
https://www.istat.it/it/archivio/17888

employees' productivity as additional measure of performance, dividing operating revenues of 2018 by the number of employees in 2018. Ali et al. (2013) suggested the importance of using multiple performance measures when investigating the impact of a variable on the organizational effectiveness. The three measures should provide insights on how board diversity influences an institution's use of its human resources (employees' productivity) and its financial resources (ROA and ROE).

In the board dataset, instead, to each bank correspond many directors and their characteristics, this is the main reason why the two datasets are treated separately in the first instance. Board dataset includes many descriptive variables, needed to create new ones as the number of the members in the BoD, their average age in 2017, the number of women in each board and how many of those perform the role of the president. Date of election and resignation are used to construct a series of dummies to describe the period in which a member was part of the board. The main problem that occurred with these temporal variables is the following: Aida gathers information on only two boards, the actual and the previous one, thus it was not possible to set up a panel data. In many cases the actual board was elected during 2018 or 2019, giving no contribution in explaining 2018 economic results, which are the most recent available at the date the thesis was elaborated. The time dummies strategy is constructed as follows:

1) Election $\leq$ 01/01/2017
   Resignation $\geq$ 31/12/2018
2) Election $>$ 01/01/2017 and $\leq$ 01/01/2018
   Resignation $\geq$ 31/12/2018
3) Election $\leq$ 01/01/2017
   Resignation $>$ 01/01/2018 and $<$ 31/12/2018



In the first time selection directors are part of the board for the entire 2017 and 2018, they were elected before 01/01/2017 and resigned after 31/12/2018. In the second selection directors are elected during 2017, from 01/01/2017 and 01/01/2018 and resigned after 31/12/2018. In the third selection, instead, directors are elected before 01/01/2017 and cease their office in 2018, between 01/01/2018 and 31/12/2018. Members that resigned during 2017 are not taken into consideration, as well as those that were elected during 2017 and resigned during 2018, because we assumed the period in charge was too short. After obtaining the three time dummies, we settled a new time variable, which is a summary variable of the three previous ones: if it is equal to one it selects directors that comply with the time strategy, if it is equal to zero variables are dropped because they do not comply with the time strategy used, reducing the sample size. Then, board dataset is a photography of board members and their characteristics when they were in charge in the selected period. The overall time selection allows to include in our analysis the members that should have had an impact on ROA, ROE and employees' productivity in 2018.

After an initial arrangement in Excel, the two datasets were imported, still separately, into Stata. Board dataset variables describe each member's attributes, then they are summarized (through sums and averages) using the "collapse" Stata command, for each bank to ease the merging with economic data. New variables depict board information, since they synthetize for each bank the number of directors, the number of women, average age and if the president is female. From these, additional variables are computed: the percentage of women in the board, the percentage of women in the board squared and average age of 2017 squared. Finally, the two datasets are merged into a conclusive one, that will be used for all the subsequent analysis. The merge is normally done by matching on one or more key variables, in this case the variable used is the fiscal code. The dataset is ordered using "sort" Stata command by the fiscal code. The final sample is composed by 315 banks, from the initial one of 389 banks.

3.3 Hypothesis and analysis variables

The aim of the thesis is to recall the studies previously cited, finding points in common with the relevant literature. Variables and methodology used differ mainly because of data availability, thus pros and cons will be discussed later. The focus is on three board characteristics: presence of women (directors and president), board size and average age, for which the studies show mixed results. The following hypothesis are tested:

HP 1: There will be a statistically significant relationship between board diversity (gender) and economic performance.

HP 2: There will be a statistically significant relationship between board size (number of directors) and economic performance.

HP 3: There will be a statistically significant relationship between average age inside the board and organizational performance.

In the following list all variables are summarized with their respective Stata names, last part of the list refers to the dependent variables:

- FC: Fiscal code that identifies each bank univocally, it was crucial for merging the economic dataset and the board dataset.
- MEMBERS: Total number of members/directors part of the board in the selected period.
- SQRD_MEMBERS: MEMBERS squared.
- WOM: Dummy equal to 1 if the director is a female.
- WOM_PER: Percentage of women in the board, calculated for each bank as the number of women divided by the number of total members of the board.
- WOM_PRES: Dummy equal to 1 if the president of the board is female.
- SQRD_WOM: WOM_PER squared.
- DUMMY1: Dummy equal to 1 if the percentage of women in the board is < 33%
- DUMMY2: Dummy equal to 1 if the percentage of women in the board is ≥ 33% and <50%.
- DUMMY3: Dummy equal to 1 if the percentage of women in the board is ≥ 50%.
- WOM_PRES_PER: WOM_PRES multiplied by WOM_PER, interaction term.
- AGE_2017: Average age of the directors in 2017.
- SQRD_AGE_2017: AGE_2017 squared.
- LNA_2017: Total assets in thousands of Euros in 2017, proxy for bank size, transformed using the natural logarithm to reduce the scale.
- COOP: Dummy equal to 1 if the bank has a legal form of a cooperative bank (including also popular banks), equal to 0 if it is a S.p.A.
- LEV_2017: Leverage in 2017, total assets over equity, it is an indicator of the bank's leverage (debt) used to finance the firm.

- ROA_2018: Return on assets in 2018, in percentage.
- ROE_2018: Return on equity in 2018, in percentage.
- Operating_revenues_2018: revenues generated in 2018 from the banks' primary business activities, in thousands of Euros. They consist of income on interest bearing assets, fee income related to lending operations, dividend income on shares and participations.
- Employees_2018: Total number of employees in 2018.
- EMP_PROD_2018: Employees' productivity in thousands of Euros, obtained dividing operating revenues in 2018 by the number of employees in 2018.
- EP_2018_DES: Employees' productivity rescaled, it is obtained dividing EMP_PROD_2018 for 100.

3.3.1 Dependent variables

Dependent variables represent proxies for the bank's performance and they are employed for testing the influence of corporate governance variables. They are two profitability ratios, which measure the ability of the bank to generate income: the return on equity (ROE) and the return on assets (ROA). In addition, employees' productivity has been used to provide insights on how board variables impact on an organization's use of its human capital. The year of interest is 2018.

A compelling variable would have been Tobin's Q (market capitalization divided by the value of total assets) since it is a "forward-looking measure of organizational performance" (Ali et al., 2013, p. 499). In Italy just a dozen banks are listed on a stock exchange, thus data was insufficient for the analysis.

ROA

It is calculated as net income/losses over average total assets and reflects the efficiency degree with which the bank employs its own assets to generate profits. The main deficiency of this indicator is that leverage and tax rate influence its measurement. It represents the variable most widely used in literature to depict performance. Return on assets assesses how efficiently an institution is managing its revenues and expenses, thus it reflects the ability of the management to generate profits by using the available financial and non-financial assets. This measure is already available in Aida, expressed in percentage.

ROE

It is calculated as net income/losses over equity and embodies a widespread profitability-accounting measure. It is really easy to compute since it needs simple quantities obtainable from balance sheets on one hand and it is not a risk-sensitive indicator on the other. It is used to verify the remuneration rate of the risk capital, therefore how much remunerative is the capital conferred by shareholders. This ratio can be considered as a synthesis of the overall firm profitability, evaluating managers ability to handle capital to generate profits with the money invested by the shareholders. As for the ROA, the indicator is already available in Aida, in percentage.

EMPLOYEES' PRODUCTIVITY

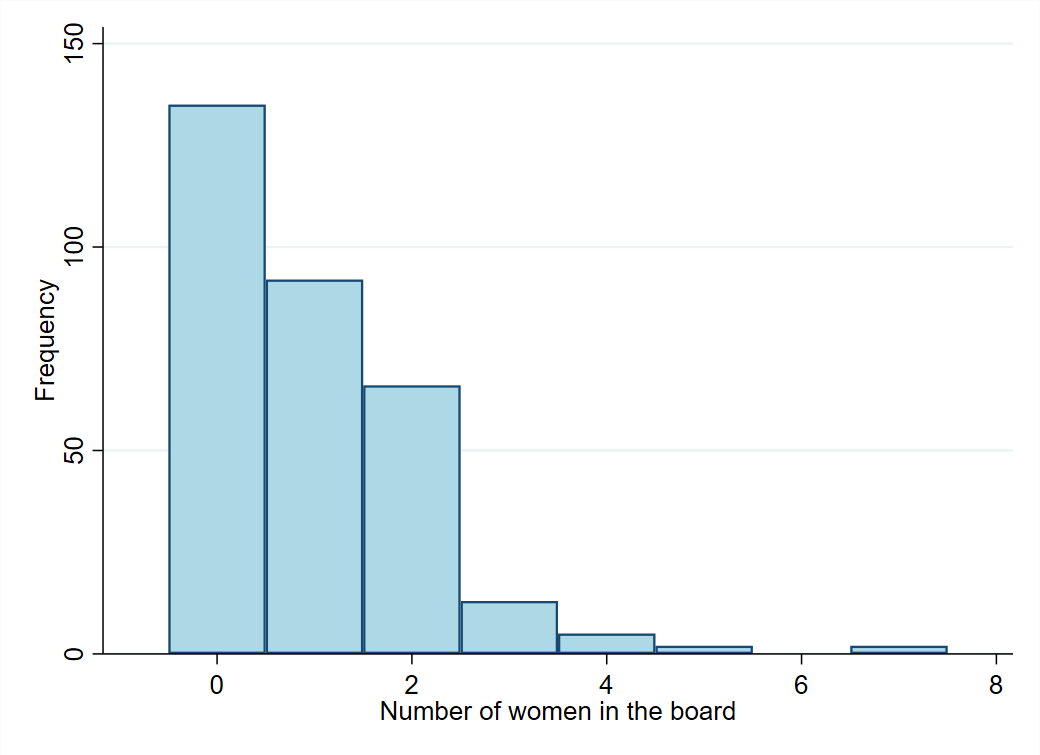
It is calculated as the ratio between operating revenues and the number of employees per year. Since banks are more capital intensive than human intensive businesses, this variable is not often used in studying banks' performance. In fact, we found no relevant papers in the banking literature that employed this specific profitability measure. Given this lack of studies, we gathered the opportunity to use this variable as a proxy for performance in our dissertation. Although banks' revenues are not associated to human capital normally, we thought that employees' performance and motivation could be drivers for increasing revenues.

3.3.2 Explicative variables

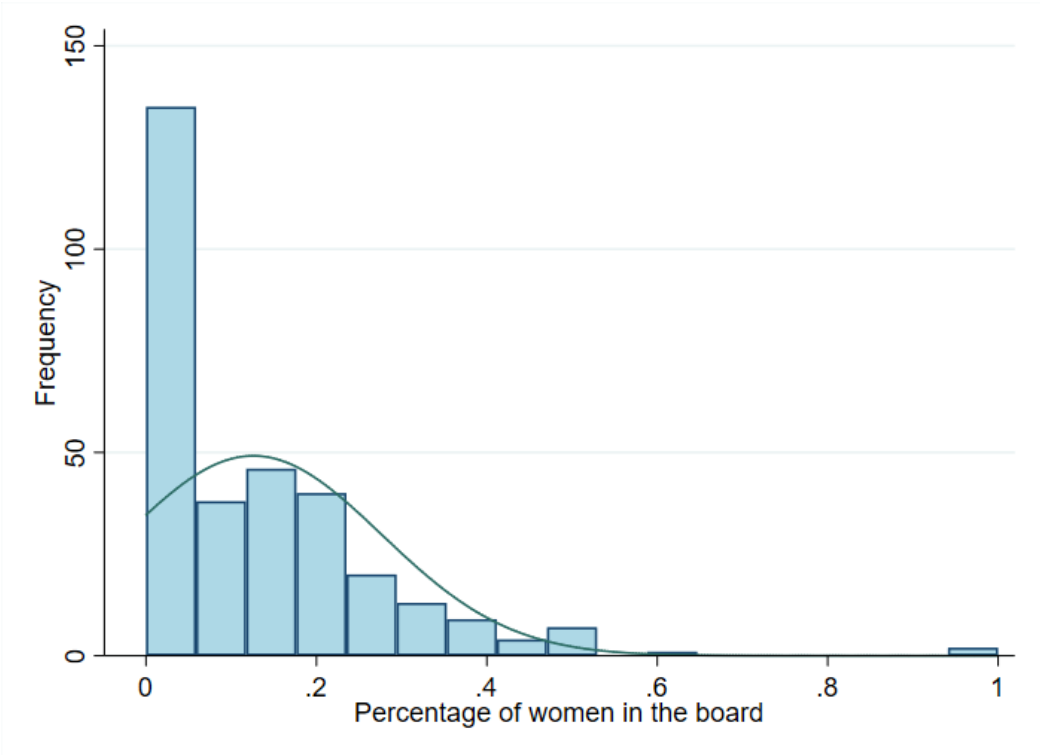
The regressors are in part economic variables: total assets, leverage, legal form and in part governance variables: board size, percentage of women, average age, female president, squared percentage of women and squared average age. The explicative variables of higher interest for the research are listed below together with an exhaustive explanation. For the most relevant ones we plotted the histograms, in order to give a first graphical representation of the sample distribution.

The gender variables: "WOM" and "WOM_PER"

Gender diversity is the focal point of the entire analysis. Graph 1 shows the total number of women for each boardroom in the sample. The range goes from 0 to a maximum of 7, having an evident peak on the 0 column. Most of the boards in our sample lack completely of female presence.



Graph 1. Number of women in the board

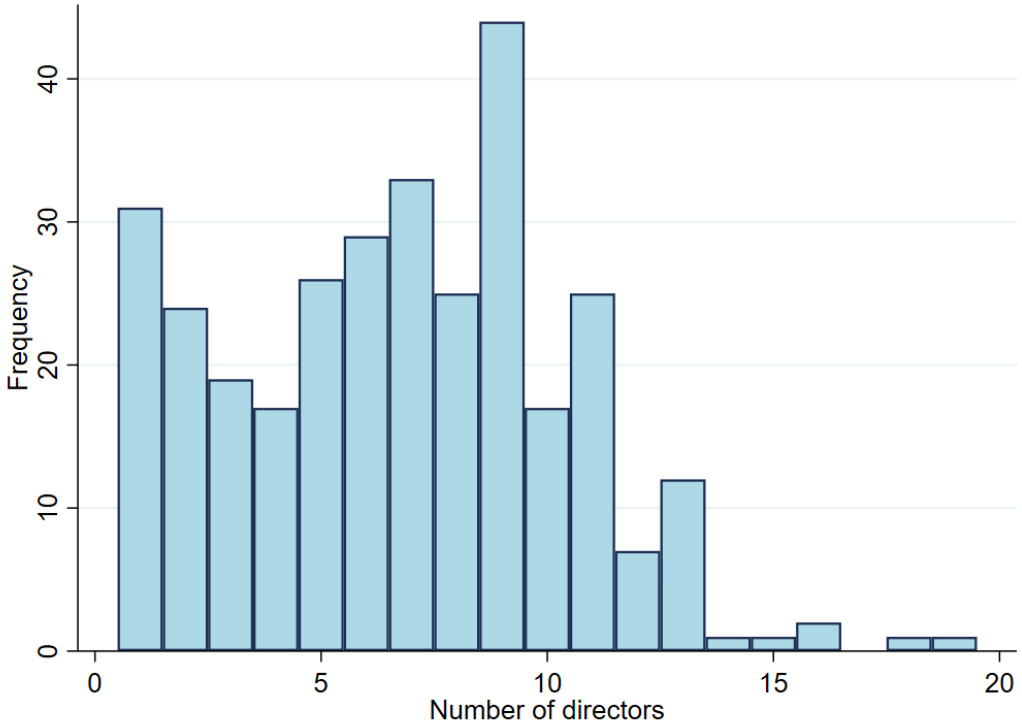


Graph 2. Percentage of women in the board

Graph 2 shows the percentage of women inside boards in the sample. Almost the totality of the observations relies below a percentage of 50%, giving a first idea on the level of underrepresentation of women. Boards are definitely not balanced in terms of gender diversity. The percentage of women is concentrated under 20% with the mean located around 10 – 12%.

The variable for board size: "MEMBERS"

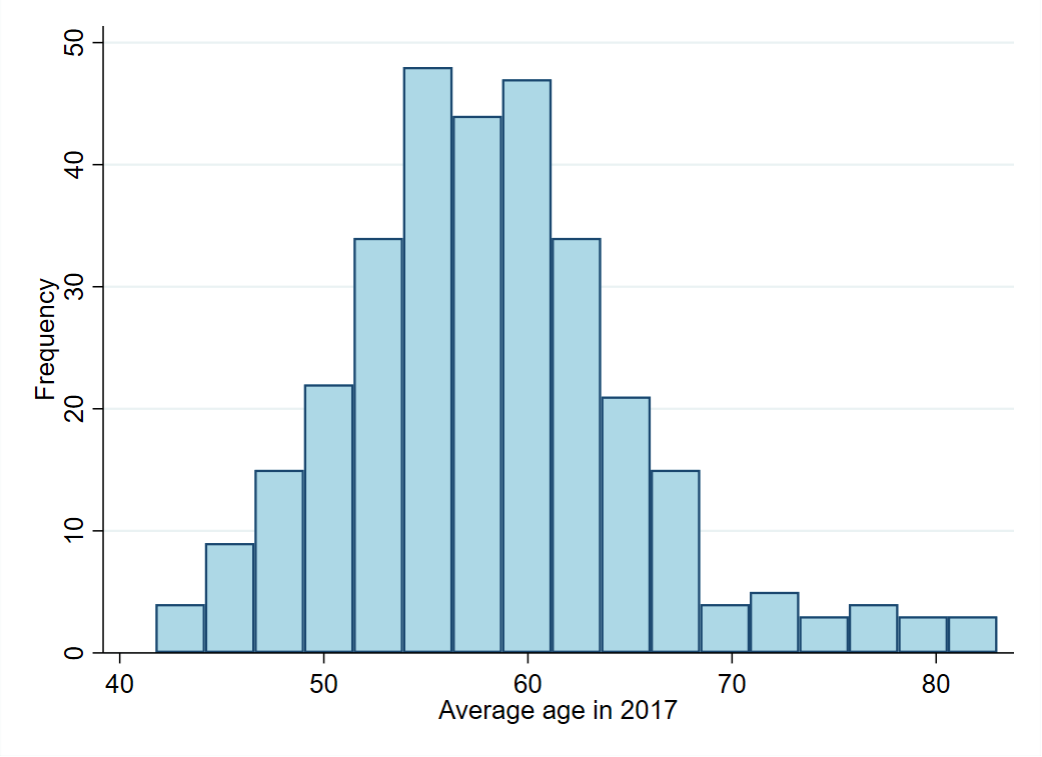
This variable represents the dimension of the board, the number of the directors in the selected period. Graph 3 shows a higher concentration of directors inside the interval 1 – 10, with fewer exceptions of banks that have boards composed by 14 – 19 members.



Graph 3. Number of directors

The variable for seniority: "AGE_2017"

This variable is an average of the age of all components of every bank's board in 2017 and its distribution assumes a bell-form. The majority of the boards have an average age that ranges from 50 to 65 years, with some outliers with an average age of 70 – 80 years. Younger boards have an average age slightly above 40 years.



Graph 4. Average age in 2017

The variable for banks' legal form: "COOP"

Article 28, section 1 of the Italian "Testo Unico Bancario" states that the exercise of the banking activity from cooperative companies is reserved to popular banks and cooperative credit banks[13]. These two typologies of banks differ from the S.p.A. banks for some peculiarities: mutuality, the majority of the shares (or at least 50% +1) are held by the clients of the bank; development of the territory; strong relationships with families and SMEs[14] (relationship banking); social and economic commitment.

These financial institutions are normally associated to a scarce risk diversification and an incapacity to access quickly to capital markets in case of external shocks, so distressed situations can easily result into a crisis[15]. In the later analysis it will be checked if the legal form of the sample of Italian banks has some repercussions on the performance.

[13] Art.28, section 1. Testo Unico Bancario, 2019.
https://www.bancaditalia.it/compiti/vigilanza/intermediari/Testo-Unico-Bancario.pdf
[14] Small and medium-sized enterprises
[15] Banca d'Italia, 2014, Considerazioni finali, Roma.
https://www.bancaditalia.it/pubblicazioni/interventi-governatore/integov2015/cf_2014.pdf

3.4 Econometric models and methodology

We applied quantitative methods for testing the above hypothesis and studying the effects of governance on banks' performance through the respective variables, that include the study of the board structure and composition, on the financial institutions' economic results. This analysis, in conformity with the literature, is conducted through descriptive statistics, the Pearson's correlation matrix and a multivariate multiple regression model (OLS), in which the outcome variables are, alternatively, represented by accounting performance measures. The analysis was carried out using the software Stata. Results will be displayed in tables and commented afterwards.

The choice of the multivariate multiple regression model is due to the fact that there is more than one predictor that explains the variance of the dependent variables. To each governance predictor is associated a coefficient and the response variable is predicted through a combination of all the variables multiplied by their respective coefficients, plus a residual term. The first set of models is the following one:

$$Y_i = \alpha + \beta_1\, MEMBERS + \beta_2\, WOM\_PER + \beta_3\, AGE\_2017 + \beta_4\, WOM\_PRES +$$

$$+ \beta_5\, LNA\_2017 + \beta_6\, COOP + \beta_7\, LEV\_2017 + \varepsilon_i \qquad (1)$$

$$Where\ Y_1 = ROA\_2018$$

$$Y_2 = ROE\_2018$$

$$Y_3 = EMP\_PROD\_2018$$

The explicative variables are lagged with respect to the dependent ones. This strategy was pursued with the idea that the effect on ROA, ROE and employees' productivity cannot be contemporaneous; governance variables but also economic variables (e.g. total assets and leverage) influence the dependent variables in the subsequent period. The predictors used are: the number of directors inside the board (MEMBERS), the percentage of women inside the board (WOM_PER), average age of the board in 2017 (AGE_2017), the dummy for a female president (WOM_PRES), the logarithm of total assets in 2017 (LNA_2017), the dummy for a cooperative legal form (COOP) and the leverage in 2017 (LEV_2017). The second set of models modifies the previous one in the following manner:

$$Y_i = \alpha + \beta_1 MEMBERS + \beta_2 DUMMY2 + \beta_3 DUMMY3 + \beta_4 AGE\_2017 +$$

$$+ \beta_5 WOM\_PRES + \beta_6 LNA\_2017 + \beta_7 COOP + \beta_8 LEV\_2017 + \varepsilon_i \quad (2)$$

$$Where\ Y_4 = ROA\_2018$$
$$Y_5 = ROE\_2018$$
$$Y_6 = EMP\_PROD\_2018$$

The variable WOM_PER has been substituted by three dummies that identify three thresholds of board participation: the dummy assumes a value equal to 1 if the percentage of women in the boardroom is less than 33% (DUMMY1), the dummy assumes a value equal to 1 if the percentage of women is grater or equal to 33% but less than 50% (DUMMY2), the dummy assumes a value equal to 1 if the percentage of women is greater or equal to 50% (DUMMY3). The first threshold value of 33% has been chosen because of the actual norm in force for listed companies: Law 120/2011, whose details have been addressed in the second chapter. If the DUMMY1 is equal to 1 it means that the percentage of women is strictly below the lower limit defined by the law. Anyway, the dataset includes directors that comply with the initial time selection that could differ from the existing board in charge during a given year and since the majority of the banks are not quoted, they are not obliged to respect the legislation, even if it is a clear sign of underrepresentation. The third threshold has been chosen to observe if in boards with at least 50% female presence, there is a positive effect on the performance, as supported by various studies. However, in the sample only ten banks comply with this requirement. Splitting the percentage of women into three dummies helps to retrieve the non-linear effects of the proportion of females. DUMMY1 has been removed by the regression equation to avoid multicollinearity. This is the so called dummy variable trap (perfect multicollinearity): one variable is redundant since it can be written as a linear combination of the others. The solution to the problem is to drop one of the categorical variables and the effect of the missing dummy is picked up by the constant term.

The two sets of models are the basic models from which the regression analysis starts. In addition to them, we modelled many other regression equations to uncover statistically significant effects of governance variables on performance, always keeping the literature results in mind and drawing inspiration from them. Among the numerous models, we will report a few of them, but they will not be displayed in the regression analysis part, in order to avoid

confusion and inconsistent estimates. We applied the changes to the models hierarchically to all dependent variables: ROA, ROE and employees' productivity. In one first trial, we changed the dummies variables into two categories instead of three, seeking for differences before and after only one threshold (presence of women in the board under and above 33%). In a second trial, we added the squared variables of the percentage of women in the board, average age in 2017 and number of directors to test if there is an inverted U-shaped curvilinear relationship between gender diversity, seniority, numerosity of the board and return on assets.

In a few studies, authors suggested that the relationship between governance variables and performance could be non-linear, which makes sense: really big boards, composed only by women and too young directors could create the speculative problem of having small boards, with no women and old directors. Ali et al. (2013) stated: "the effect of board diversity on organizational performance is largely dependent on the level of diversity: from low-to-moderate levels of diversity, diversity will be beneficial, but from moderate to high levels of diversity, diversity will be detrimental. No prior research investigated a curvilinear relationship between board diversity and performance". In this optic, we included squared variables in the regression equations. In a third trial, we substituted the response variable ROA by the delta of ROA in 2018, to check if predictors generally dated in 2017 influence the change of the return on assets from 2017 to 2018. In a fourth trial, we included the interaction terms to expand the understanding of the connections among the variables in the models, to test more hypotheses, hoping to find relevant effects. The presence of a significant interaction indicates that the effect of one predictor on the response variable is different at different values of the other regressor. It is tested by adding a term to the equation in which the two explicative variables are multiplied. A first interaction term was between average age in 2017 and female president, to test if younger or older directors could increase performance, having a woman as president of the boardroom. Another interaction term was between the percentage of women in the board and female president, to test if a board with higher gender diversity goes along with the fact that the president is a woman or not. The interaction means that the effect of percentage of women on performance is different for different values of woman president (0 or 1).

The third set of models brings some significance and it is constructed as follows:

$$Y_i = \alpha + \beta_1 MEMBERS + \beta_2 SQRD\_MEMBERS + \beta_3 AGE\_2017 +$$

$$+ \beta_4 SQRD\_AGE\_2017 + \beta_5 WOM\_PRES + \beta_6 (WOM\_PRES * WOM\_PER) +$$

$$+ \beta_7 LNA\_2017 + \beta_8 COOP + \beta_9 LEV\_2017 + \varepsilon_i \quad (3)$$

$Where\ Y_7 = ROA\_2018$

$Y_8 = ROE\_2018$

$Y_9 = EMP\_PROD\_2018$

Normally the interaction term X*Y is included together with the two variables X and Y in a model. The choice of constructing this equation with no WOM_PER variable (included in the interaction term) will be discussed in detail when estimation results are reported (section 3.4.3).

3.4.1 Descriptive statistics

Tables below provide descriptive statistics for the respective variables. Panel 1 collects the economic variables, both dependent and explicative. On average, banks display good results in terms of ROA with an average return on assets of 3%, from a minimum of .08% to a maximum of 57.01%. The lesser value is showed only by one institution, so it can be identified as an outlier. Likewise, ROE is around 3% but displays a wider range that goes from -36% to 50%. Employees' productivity is positive with an average of 201 thousand Euros per employee. Banks are the most leveraged companies; in fact, they are subject to stringent capital requirements and reserves. The upper bound of the confidence interval is 55.95 meaning that at least one bank has total assets equal to 56 times equity, therefore it is largely in debt.

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA_2018	277	2.876173	3.521542	.08	57.01
ROE_2018	276	2.837862	6.782476	-35.91	50.08
EMP_PROD_2018	274	201.3131	127.7884	5.27	1901.43
LNA_2017	295	13.61598	1.533096	10.2492	20.0487
LEV_2017	294	11.57932	5.732576	1.03	55.95
COOP	315	.7396825	.439506	0	1

Panel 1. Descriptive statistics for bank characteristics

Panel 2 displays an average dimension of the board of about 7 members, normally bank boards are quite large, with an average of 14.7 members compared to non-financial firms with an

average of 9.4 members[16]. The confidence interval goes from 1 to 19 directors and a standard deviation of 3.65 indicates that this factor is dispersed among the institutions selected. These results are due to the selection strategy adopted and the presence of small banks with small boardrooms. A negative result is given by the presence of women in the board, with an average of 1 woman per board, with a confidence interval from 0 to 7. This evidence is easily observable in Graph 1 where the highest frequency is on the value zero. Average age of the board is 58, really close to the general average age of 60[17] in the Italian banking sector.

Variable	Obs	Mean	Std. Dev.	Min	Max
MEMBERS	315	6.72381	3.649872	1	19
WOM	315	.9746032	1.131197	0	7
WOM_PER	315	.126013	.1503902	0	1
DUMMY1	315	.8888889	.3147697	0	1
DUMMY2	315	.0793651	.2707378	0	1
DUMMY3	315	.031746	.1756021	0	1
AGE_2017	315	58.16687	7.23949	41.75	83
WOM_PRES	315	.0444444	.2064083	0	1

Panel 2. Descriptive statistics for board characteristics

Panel 3 gives an overview on the discrete variables' magnitudes and allows to obtain a general idea of what the composition of Italian banks' boardrooms looks like. For the 315 banks in the sample, there is a total number of 2118 directors and the amount of female directors consists only of 307, meaning that just 15% of the members are female. Regardless of laws and ability, there is a clear underrepresentation of one gender, which is hardly attributable to a lack of formation and experience. The resulting percentage is much lower than the lower limit of quotas established by the Law 120/2011, signaling a problem intrinsic to the society. In a society in which gender parity can be reached only through norms and not on the basis of equality and fairness, the issue is deeply rooted in mentalities. An even more negative element is that for

[16] Assonime, 2018, Corporate Governance in Italy. http://www.assonime.it/_layouts/15/Assonime.CustomAction/GetPdfToUrl.aspx?PathPdf=http%3A//www.assonime.it/attivita-editoriale/studi/Documents/ABSTRACT%20NS%202018%20DEF.pdf

[17] Assonime, 2018, Corporate Governance in Italy. http://www.assonime.it/_layouts/15/Assonime.CustomAction/GetPdfToUrl.aspx?PathPdf=http%3A//www.assonime.it/attivita-editoriale/studi/Documents/ABSTRACT%20NS%202018%20DEF.pdf

315 boards in only 14 of them the president is a woman, only in the 4.5% ca. of the cases the relevant position inside the board is assigned to a female, demonstrating even more the difficulties to have a gender parity in Italian financial institutions. An additional fact of interest is the quantity of cooperative banks with respect to S.p.A. banks. In the sample, three banks out of four are cooperatives. Cooperative banks portray the national banking structure and their effect on economic results could give hints on the efficiency of this particular legal form.

	Total
MEMBERS	2118
WOM	307
WOM_PRES	14
COOP	233

Panel 3. Estimates totals for discrete variables

3.4.2 Correlation matrix

Pearson's correlation matrix (Table 2) is used for evaluating the linear association among explicative variables, to verify if there is multicollinearity. The purpose of this matrix is to analyze the existence of a bivariate relationship between two variables. Large correlation coefficients in the correlation matrix of predictor variables indicate multicollinearity. It differs from the regression since the correlation matrix is a symmetric methodology in which the two variables X and Y are on the same causal level, whereas the latter belongs to the category of asymmetric methods, where the relation between the variables studied is of cause and effect. The correlation coefficient varies from -1 to +1, where the positive sign indicates that the two variables increase or decrease together, while the negative sign indicates that if one variable increases, the other decreases. A value of 0 indicates that there is no association between the two variables. The relation is stronger when the values are closer to the extremes of the interval. It is calculated as the covariance between X and Y divided by the multiplied standard deviations of X and Y. The correlation coefficient is significant if the p-value is <0.05 and the significance is indicated by a star in the matrix.

The number of members is positively associated to the presence of a woman as president inside a board and the fact that the bank has a cooperative form. It is negatively associated with age; numerous boards are younger on average. The percentage of women is negatively associated

with age and positively with the presence of a female president; boards with a higher gender diversity are younger on average and are led by a woman. If the president is female there is a larger percentage of women in the board and where the percentage of women is higher, lower the average age is, perhaps because of more inclusive and open-minded boards. Age is negatively associated with the bank's legal form and positively with the total amount of assets. We can find younger directors, on average, in cooperative banks and in smaller banks. Pearson's correlation matrix shows that there are no issues of collinearity between regressors.

	MEMBERS	WOM_PER	AGE_2017	WOM_PRES	LNA_2017	COOP	LEV_2017
MEMBERS	1.0000						
WOM_PER	0.2327*	1.0000					
	0.0000						
AGE_2017	-0.3094*	-0.2853*	1.0000				
	0.0000	0.0000					
WOM_PRES	0.0163	0.2935*	-0.0928	1.0000			
	0.7726	0.0000	0.1002				
LNA_2017	0.1371*	0.0937	0.1172*	0.1183*	1.0000		
	0.0185	0.1082	0.0442	0.0423			
COOP	0.1436*	0.0087	-0.2151*	-0.0476	-0.3568*	1.0000	
	0.0107	0.8772	0.0001	0.3999	0.0000		
LEV_2017	-0.0090	0.0437	0.0041	0.0185	0.4384*	-0.2300*	1.0000
	0.8779	0.4558	0.9442	0.7521	0.0000	0.0001	

*Coefficients are significant at the 5% level

Table 2. Pearson's correlation matrix - Pairwise correlation coefficients between the variables used in the first set of models. The first line displays correlation coefficients; the second line displays the significance level for each entry.

3.4.3 Regression analysis

We estimate equations 1, 2 and 3, focusing the analysis hierarchically on each dependent variable (ROA, ROE and employees' productivity). The following panels synthetize the results of the different econometric models obtained employing Stata and comments on the estimates are reported as well. The coefficient of determination (R-squared) indicates the proportion of the total variability explained by the model and it measures the model's adaptability to the data, the overall fit of the model ranging from 0 to 1. The F-value is the Mean Square Model (Sum of Squares for the Model divided by its degrees of freedoms) divided by the Mean Square Residual (Sum of Squares for the Residual divided by its degrees of freedom). The Prob(F) is the p-value associated with the F-value and it is compared to the general alpha level of 0.05. If the p-value is smaller than 5%, the explicative variables consistently predict the response variable with a significance of 95%. Similar conclusions can be drawn using 1% or 10% alpha levels, with a significance of 99% or 90% respectively. This is an overall significance test assessing whether the group of explicative variables, when used together, reliably predict the response variable and does not address the ability of any particular explicative variable to predict the dependent variable. The ability of each individual regressor to predict the dependent variable is addressed in the table of parameter estimates, where all the individual variables are listed. The column of the coefficients (Coef.) reports the "beta" estimates, or the slope coefficients in the regression line. Taking into account the scale of each variable, they express the magnitude, the size of the effect of the predictor on the dependent variable. The standard errors (Robust Std. Err.), associated with the coefficients, are used to test whether the parameter is significantly different from 0 by dividing the parameter estimate by the standard error to obtain a t-value (column t). The standard errors are also used to form a confidence interval for the parameter, as shown in the last two columns of the table. The t-test is a statistical hypothesis test and measures the statistical significance of each estimated coefficient. It tests the null hypothesis (H0) that the coefficient (parameter) is 0. To easily check significance, instead of the level, the p-value (column P>|t|) can be looked at; coefficients having p-values less than alpha (normally 0.05) are statistically significant. The p-values are two-sided, so it is sufficient to compare each p-value to the preselected value of alpha. In general, if an econometrician hypothesizes that the parameter will go only in a specific direction, he will be using a one-sided test (i.e. then the p-value must be divided by 2 before comparing it to the preselected alpha level). The last two columns report the 95% confidence interval for each coefficient, helpful to understand how high and how low the actual population value of the parameter might be[18]. In

[18] Regression analysis. UCLA: Statistical Consulting Group.

order to account for heteroskedasticity, each model was estimated using robust standard errors (White standard errors).

The following paragraphs collect all the estimation results for models 1, 2 and 3 described above for the three response variables: ROA, ROE and employees' productivity. Each section starts with the easiest model (first set of models), described in equation 1. Then follows the second set of models, described in equation 2, in which the variable WOM_PER is substituted by the three dummies that separate the participation of women in the boardrooms into three thresholds. Since we found no significance for the variable WOM_PER in neither of the three models above, there is no expectation of having significant dummies' results. After the partial results are obtained, an additional model is calculated, which includes the variables that seem to better explain the banks' performance. A combination of the previously listed regressor is studied and then applied to describe each dependent variable. The last section "Results summary" conveys the outcomes in a compact and fluid manner, to ease the reading and the interpretation of the results, together with an exhaustive discussion.

ROA models

Equation 1 is regressed on the seven predictors, with ROA_2018 as response variable. None of the coefficients is statistically significant except for the constant: p-values are way higher than 0.05 and the t-tests lower than 1.96 (two-sided test). The R-squared is really low, in fact the model can explain only 9% of the performance variability of the banks, probably because the return on assets is influenced by a variety of factors, especially financial ones. The p-value associated with the F-value is very large, suggesting that the group of regressors does not show a statistically significant relationship with the dependent variable, the model can be discarded entirely.

```
Linear regression Model 1                       Number of obs     =        268
                                                F(7, 260)         =       0.69
                                                Prob > F          =     0.6811
                                                R-squared         =     0.0906
                                                Root MSE          =     3.4565
```

https://stats.idre.ucla.edu/stata/output/regression-analysis/

ROA_2018	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
MEMBERS	.0152012	.0271783	0.56	0.576	-.0383165	.0687188
WOM_PER	.4747952	.7509821	0.63	0.528	-1.003986	1.953577
AGE_2017	-.0236973	.026561	-0.89	0.373	-.0759994	.0286048
WOM_PRES	-.1362298	.3069576	-0.44	0.658	-.7406693	.4682096
LNA_2017	-.4201204	.2703099	-1.55	0.121	-.9523957	.1121549
COOP	-2.009294	1.462132	-1.37	0.171	-4.888421	.869833
LEV_2017	-.1120921	.0702579	-1.60	0.112	-.250439	.0262548
_cons	12.64095	6.983779	1.81	0.071	-1.11102	26.39292

In equation 2 there are no significant coefficients except for the constant, as before. It seems that even dividing the percentage of women in different thresholds does not affect the return on assets, this applies to all the other predictors as well. The low R-squared and the high value of Prob(F) confirm that the regression is not valid in fitting the data.

Linear regression Model 4

Number of obs	=	268
F(8, 259)	=	0.64
Prob > F	=	0.7400
R-squared	=	0.0907
Root MSE	=	3.4632

ROA_2018	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
MEMBERS	.0156673	.0309608	0.51	0.613	-.0452996	.0766342
DUMMY2	-.1580758	.3507115	-0.45	0.653	-.8486849	.5325332
DUMMY3	-.3551235	.4901641	-0.72	0.469	-1.320338	.6100908
AGE_2017	-.0270536	.0291124	-0.93	0.354	-.0843806	.0302735
WOM_PRES	.0346173	.226974	0.15	0.879	-.4123321	.4815667
LNA_2017	-.4126447	.2637456	-1.56	0.119	-.9320035	.1067141
COOP	-2.009633	1.469396	-1.37	0.173	-4.903116	.8838496
LEV_2017	-.1122194	.0708604	-1.58	0.114	-.2517551	.0273164
_cons	12.80547	7.124194	1.80	0.073	-1.223242	26.83419

In equation 3, we added two squared variables (SQRD_MEMBERS and SQRD_AGE_2017) and an interaction term (WOM_PRES_PRE), eliminating the percentage of women variable. Results indicate that the coefficient of the interaction term is statistically significant at the 10% level. However, the sign of the coefficient is unexpected, mainly because it is the opposite compared to the models with the other two response variables. Having a woman as president and increasing the number of women in the board seems to reduce the ROA by 1.48%, whereas the sign of WOM_PRES (even if it is not significant) is positive, indicating that having a woman to lead the board increases the return on assets. The measures of overall fit improved but the model is still inappropriate to explain ROA. It seems that the three models proposed for the return on assets are non-significant. Perhaps we miss some unavailable economic variables or governance attributes that are able to affect the ROA. Moreover, it would be interesting to run again these regressions, having panel data. Panel data would allow to control for unobserved bank effects that vary among the units but are constant over time. In the papers reviewed in the second chapter, almost the entirety of the authors chose the return on assets as proxy for bank performance. Nevertheless, some studies did not find any positive or negative effects of governance on performance as in this case. Francis et al. (2012), Adams et al. (2009) and Rose (2007) failed to find a significant relationship between gender diversity and performance.

Linear regression Model 7

Number of obs	= 268
F(9, 258)	= 0.93
Prob > F	= 0.4995
R-squared	= 0.0920
Root MSE	= 3.4673

ROA_2018	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
MEMBERS	-.0106455	.1212733	-0.09	0.930	-.249457	.228166
SQRD_MEMBERS	.0012346	.0069344	0.18	0.859	-.0124207	.0148898
AGE_2017	.1785319	.1358881	1.31	0.190	-.0890591	.446123
SQRD_AGE_2017	-.0016967	.001184	-1.43	0.153	-.0040283	.0006349
WOM_PRES	.5082675	.3215744	1.58	0.115	-.1249774	1.141512
WOM_PRES_PER	-1.475539	.8137961	-1.81	0.071	-3.078068	.1269893
LNA_2017	-.4238062	.2672706	-1.59	0.114	-.9501159	.1025035
COOP	-2.01143	1.467482	-1.37	0.172	-4.901199	.8783383
LEV_2017	-.1111544	.0702	-1.58	0.115	-.2493923	.0270835
_cons	6.898611	6.908696	1.00	0.319	-6.706002	20.50322

ROE models

ROE_2018 is regressed on the seven predictors, in equation 1. The coefficients of gender variables are not statistically relevant. The coefficient of the total assets (in logarithms) is statistically significant at the 1% level; increasing assets by one percent, ROE increases by 1.02%. The coefficient of COOP is statistically significant at the 10% level; if a bank has a cooperative form, the ROE is 2% higher with respect to the group that serves as reference (S.p.A. banks). Compared to the first ROA model, this model seems to be more explicative on performance. The lower Prob(F) value indicates that the joint effect of the variables is better than the model with ROA. There is a 15% probability that all of the regression parameters are jointly equal zero.

Linear regression Model 2

Number of obs	=	268				
F(7, 260)	=	1.54				
Prob > F	=	0.1542				
R-squared	=	0.0599				
Root MSE	=	6.7103				

ROE_2018	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
MEMBERS	.0429343	.0935798	0.46	0.647	-.1413365	.2272052
WOM_PER	1.567733	2.422922	0.65	0.518	-3.203315	6.338782
AGE_2017	-.0184771	.0618367	-0.30	0.765	-.1402417	.1032875
WOM_PRES	-1.447861	1.365372	-1.06	0.290	-4.136455	1.240734
LNA_2017	1.023686	.3856316	2.65	0.008	.2643274	1.783045
COOP	2.339157	1.398556	1.67	0.096	-.4147811	5.093095
LEV_2017	.0612169	.2074761	0.30	0.768	-.3473304	.4697642
_cons	-12.89295	6.769694	-1.90	0.058	-26.22336	.4374549

Equation 2 is run, with DUMMY2 and DUMMY3 that substitute WOM_PER. The partition of the percentage of women in the board does not have effects neither in this case. The coefficient of the variable LNA_2017 is positive and statistically significant, at the 1% level. An increase of 1% in total assets is reflected into a 1.02% increase of the ROE in 2018. The coefficient of being a cooperative bank is significant at the 10% level and reports the opposite sign found in ROA models. In this case being a cooperative bank increases the return on equity by 2.33%.

Linear regression Model 5

Number of obs	= 268
F(8, 259)	= 1.33
Prob > F	= 0.2282
R-squared	= 0.0595
Root MSE	= 6.7249

ROE_2018	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
MEMBERS	.0628691	.1060286	0.59	0.554	-.1459186	.2716569
DUMMY2	.1641728	1.731797	0.09	0.925	-3.246021	3.574367
DUMMY3	.9621158	1.592913	0.60	0.546	-2.174594	4.098826
AGE_2017	-.0218729	.0619924	-0.35	0.725	-.1439461	.1002004
WOM_PRES	-1.305614	1.323959	-0.99	0.325	-3.912709	1.301481
LNA_2017	1.020409	.3864749	2.64	0.009	.2593758	1.781442
COOP	2.3303	1.403085	1.66	0.098	-.4326066	5.093206
LEV_2017	.0610285	.2085952	0.29	0.770	-.34973	.4717869
_cons	-12.62449	6.836129	-1.85	0.066	-26.08596	.8369774

There is an evident improvement in the results employing equation 3. The coefficient of WOM_PRES is negative and statistically significant at the 10% level. It seems that having a woman as president of the boardroom, the return on equity decreases by 2.94%. Interestingly, the interaction term (WOM_PRES_PER) is positive and statistically significant at the 5% level; the effect of one predictor depends on the value of the other one. Within a board of directors, increasing the number of women executives having a woman as president, increases the ROE. The two gender variables appear to reinforce each other positively. In the sample of Italian banks, it looks like the leadership of a woman has a negative effect on the economic results and it could be explained by many factors: due to lack of experience in similar roles, low capability to lead the board or no support from the other members of the board for social/cultural reasons, creating a bad environment that leads to a decrease in banks' performance. On the contrary, having a female president together with a larger number of woman directors has a positive effect on performance and this could be justified by the fact that diversified boards are the outcome of an equal and fair assignation of the seats, which is reflected on higher competences and abilities of the board totality. The coefficient of COOP is positive and significant at the 10% level, whether the coefficient of LNA_2017 is positive and significant at the 5% level. R-squared is still low but the Prob(F) is preferable to the one of ROA models. The low Prob (F)

value (8%) implies that at least some of the regression parameters are nonzero and that the regression equation does have some validity in fitting the data.

It is important to note that including the interaction term WOM_PRES_PER, we removed one of the variables that form it (WOM_PER) from the equation 3. Usual approaches would keep both the presence of women in the board and the presence of a female president in the model. A model built in this way, proves to be non-significant, thus we eliminated WOM_PER in order to obtain some relevant results. It seems that the percentage of women in the board does not influence directly performance, as the other models' results anticipated. Equation 3 is structured to provide the best employment of the available data.

Linear regression Model 8

Number of obs	= 268
F(9, 258)	= 1.75
Prob > F	= 0.0787
R-squared	= 0.0611
Root MSE	= 6.7322

ROE_2018	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
MEMBERS	.2945	.4012275	0.73	0.464	-.4955977	1.084598
SQRD_MEMBERS	-.0162298	.0252235	-0.64	0.521	-.0658999	.0334403
AGE_2017	-.1841786	.5238278	-0.35	0.725	-1.215701	.8473438
SQRD_AGE_2017	.0013855	.0042236	0.33	0.743	-.0069317	.0097027
WOM_PRES	-2.935121	1.625117	-1.81	0.072	-6.135303	.2650617
WOM_PRES_PER	4.757505	2.240446	2.12	0.035	.3456151	9.169394
LNA_2017	1.095809	.4247844	2.58	0.010	.2593233	1.932295
COOP	2.353217	1.41079	1.67	0.097	-.4249129	5.131347
LEV_2017	.0571393	.2084958	0.27	0.784	-.3534309	.4677094
_cons	-9.509172	17.01386	-0.56	0.577	-43.01289	23.99455

Employees' productivity models

In equation 1, employees' productivity is regressed on the usual seven predictors. Gender variables appear to be non-significant, in line with previous results running equation 1. The coefficient of MEMBERS is statistically significant at the 10% level, increasing the size of the board by one director, productivity per employee is reduced by 3 thousand Euros. In all the models run above the variable for board size was always non-significant. The coefficient of

total assets (in logarithms) is positive and significant at the 10% level, whereas the coefficient of COOP is negative and statistically significant at the 5% level. It is the first model in which the Prob(F) value is below the standard alpha level of 0.05, explicative variables reliably and jointly predict the response function and the R-squared explains 12% of the variation in the response variable around its mean.

Linear regression Model 3

Number of obs	= 265
F(7, 257)	= 2.07
Prob > F	= 0.0470
R-squared	= 0.1289
Root MSE	= 122.41

EMP_PROD_2018	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
MEMBERS	-3.715266	2.163114	-1.72	0.087	-7.974951	.5444187
WOM_PER	-20.86283	31.8679	-0.65	0.513	-83.61828	41.89263
AGE_2017	-.6170108	1.28469	-0.48	0.631	-3.146871	1.91285
WOM_PRES	-18.66585	30.35529	-0.61	0.539	-78.44263	41.11093
LNA_2017	20.52348	10.4751	1.96	0.051	-.1044758	41.15143
COOP	-36.46445	18.2163	-2.00	0.046	-72.33668	-.5922244
LEV_2017	2.112688	3.477202	0.61	0.544	-4.734748	8.960124
_cons	-10.01685	218.3316	-0.05	0.963	-439.9636	419.9299

Follows equation 2, in which the coefficients of the dummies are irrelevant. There is no evident effect of different thresholds for women presence in the boards for the three response variables. The coefficient of LNA_2017 is positive and statistically significant at the 10% level, whether the coefficient of COOP is negative and statistically significant at the 5% level. Also in this case there is a good Prob(F) value and high R-squared compared to the previous response variables.

Linear regression Model 6

Number of obs	= 265
F(8, 256)	= 2.50
Prob > F	= 0.0124
R-squared	= 0.1286
Root MSE	= 122.67

EMP_PROD_2018	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
MEMBERS	-3.888382	2.407831	-1.61	0.108	-8.630061	.8532976
DUMMY2	-6.328604	19.40645	-0.33	0.745	-44.54521	31.88801
DUMMY3	-3.674962	26.04809	-0.14	0.888	-54.97079	47.62087
AGE_2017	-.5718026	1.283545	-0.45	0.656	-3.099455	1.95585
WOM_PRES	-21.78164	29.67511	-0.73	0.464	-80.22007	36.65678
LNA_2017	20.61654	10.68711	1.93	0.055	-.4293011	41.66237
COOP	-36.53954	18.29654	-2.00	0.047	-72.57044	-.5086528
LEV_2017	2.094354	3.478994	0.60	0.548	-4.756739	8.945446
_cons	-14.37566	219.9864	-0.07	0.948	-447.589	418.8377

The final model of equation 3 is run, the interaction term is positive and statistically significant at the 5% level. Boards with a woman for leader and a higher percentage of women in general, generate 127 thousand of Euros of productivity per employee. Also, the coefficients of total assets and cooperative form are respectively significant at the 10% and 5% level as in the previous model. Both Prob(F) value and R-squared improved.

Linear regression Model 9

Number of obs	=	265
F(9, 255)	=	2.58
Prob > F	=	0.0073
R-squared	=	0.1316
Root MSE	=	122.7

EMP_PROD_2018	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
MEMBERS	1.202304	6.794445	0.18	0.860	-12.17807	14.58268
SQRD_MEMBERS	-.3490735	.4950662	-0.71	0.481	-1.324013	.6258656
AGE_2017	-1.196426	12.07814	-0.10	0.921	-24.98203	22.58918
SQRD_AGE_2017	.0069876	.1078225	0.06	0.948	-.2053483	.2193236
WOM_PRES	-70.07384	47.85119	-1.46	0.144	-164.3077	24.16002
WOM_PRES_PER	127.1884	63.06643	2.02	0.045	2.990999	251.3858
LNA_2017	21.95176	11.65831	1.88	0.061	-1.007068	44.9106
COOP	-36.12352	18.35284	-1.97	0.050	-72.26596	.0189148
LEV_2017	2.003686	3.412499	0.59	0.558	-4.716583	8.723956
_cons	-33.58303	262.5209	-0.13	0.898	-550.5682	483.4021

The large magnitude of the variable EMP_PROD_2018 in thousands of Euros suggested to rescale it, creating the new variable EP_2018_DES. It was obtained dividing by 100 all the data of employees' productivity in 2018, to check if significance tests were inflated. No changes happened as showed in the panel right below.

Linear regression Model 10

Number of obs	=	265	
F(9, 255)	=	2.58	
Prob > F	=	0.0073	
R-squared	=	0.1316	
Root MSE	=	1.227	

EP_2018_DES	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
MEMBERS	.012023	.0679444	0.18	0.860	-.1217807	.1458268
SQRD_MEMBERS	-.0034907	.0049507	-0.71	0.481	-.0132401	.0062587
AGE_2017	-.0119643	.1207814	-0.10	0.921	-.2498204	.2258918
SQRD_AGE_2017	.0000699	.0010782	0.06	0.948	-.0020535	.0021932
WOM_PRES	-.7007384	.4785119	-1.46	0.144	-1.643077	.2416002
WOM_PRES_PER	1.271884	.6306643	2.02	0.045	.0299099	2.513858
LNA_2017	.2195176	.1165831	1.88	0.061	-.0100707	.449106
COOP	-.3612352	.1835284	-1.97	0.050	-.7226596	.0001891
LEV_2017	.0200369	.034125	0.59	0.558	-.0471658	.0872396
_cons	-.3358301	2.625209	-0.13	0.898	-5.505682	4.834021

3.4.3 Results summary

We summarize and discuss the results of the previous analysis in this paragraph. The coefficients, their significance and the standard errors are reported for each model, grouped for the dependent variable of interest. In Stata the "estout" command helps to create a single summary table to check and compare all coefficients side by side. Panel 4 collects the models for which the dependent variable was the return on assets in 2018.

	Model 1 b/se	Model 4 b/se	Model 7 b/se
MEMBERS	0.015	0.016	-0.011
	(0.03)	(0.03)	(0.12)
WOM_PER	0.475		
	(0.75)		
AGE_2017	-0.024	-0.027	0.179
	(0.03)	(0.03)	(0.14)
WOM_PRES	-0.136	0.035	0.508
	(0.31)	(0.23)	(0.32)
LNA_2017	-0.420	-0.413	-0.424
	(0.27)	(0.26)	(0.27)
COOP	-2.009	-2.010	-2.011
	(1.46)	(1.47)	(1.47)
LEV_2017	-0.112	-0.112	-0.111
	(0.07)	(0.07)	(0.07)
DUMMY2		-0.158	
		(0.35)	
DUMMY3		-0.355	
		(0.49)	
SQRD_MEMBERS			0.001
			(0.01)
SQRD_AGE_2017			-0.002
			(0.00)
WOM_PRES_PER			-1.476*
			(0.81)
_cons	12.641*	12.805*	6.899
	(6.98)	(7.12)	(6.91)

* p<0.1, ** p<0.05, *** p<0.01

Panel 4. Coef. and standard errors for equation 1, 2 and 3. Dependent variable: ROA_2018

The construction of the models appears to be biased, in fact, none of the variables seems to affect the performance of the banks (easily verifiable by the low R-squared values and high probabilities of F-values). These outcomes are in line with part of the literature reviewed, indeed, Nguyen et al. (2015), Francis et al. (2012), Adams et al. (2009) and Rose (2007) failed to find a significant relationship between gender diversity and performance. ROA is the typical accounting-based measure and the most widely used indicator of earnings and profitability. The results of ROA models indicate that probably the variables employed are not sufficiently explanatory.

In equation 3 (Model 7) only the interaction term has an impact on banks' outcome, but the sign is unexpected, since it is the opposite with respect to what is found in next equations, when return on equity and employees' productivity are the response variables. If the president of the board is a woman and the number of women in the board increases, it seems that ROA would decrease by 1.48%. We can disregard the three models, since the measures of overall fit are inadequate. R-squared is low, thus the proportion of the variance that is explained by the regressors is undermost. Prob(F) value is instead really high, implying that we reject the null hypothesis (all the predictors' coefficients are jointly equal to zero) with extremely low confidence.

Panel 5 summarizes the results of the models for which the dependent variable is the return on equity in 2018. The situation improves and the findings have interesting implications. The majority of the governance variables are irrelevant, except for WOM_PRES and WOM_PRES_PER. Having a woman as president of the board decreases the return on equity by 2.94% on one hand, but on the other the interaction term is positive and statistically significant at the 5% level; the effect of one predictor depends on the value of the other one. Within a board of directors, the presence of a female director is not sufficient to improve the performance, whereas increasing the number of women inside a board and having a woman as president, the ROE increases. In all the three models the coefficients for the lagged assets are statistically significant and positive, as we might expect. Also the legal form has an impact on performance, cooperative banks have a higher ROE on average, probably because they have in general lower dimensions and lower capitals than S.p.A. banks, so it is easier to increase that ratio. R-squared and in particular Prob(F) values improved significantly. The regression equations have some validity in fitting the data.

	Model 2	Model 5	Model 8
	b/se	b/se	b/se
MEMBERS	0.043	0.063	0.294
	(0.09)	(0.11)	(0.40)
WOM_PER	1.568		
	(2.42)		
AGE_2017	-0.018	-0.022	-0.184
	(0.06)	(0.06)	(0.52)
WOM_PRES	-1.448	-1.306	-2.935*
	(1.37)	(1.32)	(1.63)
LNA_2017	1.024***	1.020***	1.096**
	(0.39)	(0.39)	(0.42)
COOP	2.339*	2.330*	2.353*
	(1.40)	(1.40)	(1.41)
LEV_2017	0.061	0.061	0.057
	(0.21)	(0.21)	(0.21)
DUMMY2		0.164	
		(1.73)	
DUMMY3		0.962	
		(1.59)	
SQRD_MEMBERS			-0.016
			(0.03)
SQRD_AGE_2017			0.001
			(0.00)
WOM_PRES_PER			4.758**
			(2.24)
_cons	-12.893*	-12.624*	-9.509
	(6.77)	(6.84)	(17.01)

* p<0.1, ** p<0.05, *** p<0.01

Panel 5. Coeff. and standard errors for equation 1, 2 and 3. Dependent variable: ROE_2018

Panel 6 contains the results for the models in which the dependent variable is the productivity per employee in 2018. Results are pretty similar to the ones obtained in ROE models. Boards led by a woman and with a higher percentage of women, generate 127 thousand of Euros of productivity per employee. We can assert that diversified boards promote productivity and motivation inside a bank. The coefficients of the variables LNA_2018 and COOP are

significant, but the sign of COOP coefficient is negative instead of positive, meaning that having a cooperative form reduces the efficiency of the human capital employed. Finally, in Model 3 the coefficient of board size (MEMBERS) is negative and statistically significant, implying that larger boards result in a lower return on equity. R-squared and Prob(F) improved too.

	Model 3 b/se	Model 6 b/se	Model 9 b/se
MEMBERS	-3.715*	-3.888	1.202
	(2.16)	(2.41)	(6.79)
WOM_PER	-20.863		
	(31.87)		
AGE_2017	-0.617	-0.572	-1.196
	(1.28)	(1.28)	(12.08)
WOM_PRES	-18.666	-21.782	-70.074
	(30.36)	(29.68)	(47.85)
LNA_2017	20.523*	20.617*	21.952*
	(10.48)	(10.69)	(11.66)
COOP	-36.464**	-36.540**	-36.124**
	(18.22)	(18.30)	(18.35)
LEV_2017	2.113	2.094	2.004
	(3.48)	(3.48)	(3.41)
DUMMY2		-6.329	
		(19.41)	
DUMMY3		-3.675	
		(26.05)	
SQRD_MEMBERS			-0.349
			(0.50)
SQRD_AGE_2017			0.007
			(0.11)
WOM_PRES_PER			127.188**
			(63.07)
_cons	-10.017	-14.376	-33.583
	(218.33)	(219.99)	(262.52)

* p<0.1, ** p<0.05, *** p<0.01

Panel 6. Coeff. and standard errors for equation (3). Dependent variable: EMP_PROD_2018

The results obtained by the nine models are in line with the existing literature on the relationship between governance and performance, which shows mixed results. It seems that there is no significance in governance attributes affecting banks' performance in general, besides a few exceptions. Surprisingly, ROA models performed poorly, despite it represents the most employed variable in the boards' studies for proxying banks' performance. However, given the singularity of the thesis, in the literature there are no specific papers to compare this analysis with and the mixed results are a proof that a direct relationship is hardly found between governance and performance. Our analysis employs a multivariate multiple regression, focusing on a single period of time. There is a high probability that governance characteristics affect dynamically performance and they affect also non-observable factors, that on turn affect performance, creating misleading results in the published studies. Nevertheless, a few interesting outcomes are obtained: linked to governance variables as the presence of a female president and the interaction term between this variable and the total number of women in the board; linked to economic variables as the total amount of assets and the juridical form of the banks. In the models with the return on equity as response variable, having a female president leads to a decrease in the performance, but at the same time having a female president with a higher number of female directors in the board increases the performance of the banks. As mentioned before, the explanation of this outcome could be that a woman put to lead a board just for ephemeral reasons (e.g. reach a higher number of women inside the board, low experience, etc.) is counterproductive for the institution itself. When the president is accompanied to a gender varying board, the effect becomes positive, probably due to the fact that there is a more inclusive environment, in which directors are selected for their technical abilities and not for their gender or other attributes non-related to their capability.

3.5 Shortcomings of the models

The first difficulty encountered in writing the thesis was definitely data availability. Not many databases include governance information and if they do, the amount of data is considerably scarce, as well as the time span in which the data has been collected. Aida database is disposable to students of the University of Padua and has some limitations. It contains a wide range of economic information, especially of recent years, whereas the governance information could be improved. Most of the board of directors' variables encountered in the literature are contained in Aida database, even if they need to be modelled. In fact, through the names of the members it was possible to count the numerosity of the boards. The age, gender, position held

and the election/resignation dates were available. These data were collected and then modelled to obtain the variables of interest as: the average age of the board, dummies to check if the president is a woman and for which period the members were in charge. The problem tied to this last variable was the possibility to control only for directors that were inside the board during the time period in which the thesis was written and the members in charge right before them. This resulted in a lack of information to create a longitudinal study; indeed, many directors have been elected during 2018 or even 2019. The most recent performance variables refer to 2018, so it is necessary to collect governance variables prior to or contemporaneous to 2018, because we hypothesize that performance is affected by lagged factors. This brought the necessity of a time selection in order to obtain a picture of the boards inside a specific time frame, which could be argued, since we selected arbitrarily the time periods. Panel data would have facilitated a more reliable image than that arising from a purely cross-sectional study, but this impediment was intrinsic to the data availability. Actually, panel data methodology would have been more powerful in controlling for unobservable and constant heterogeneity present in the sample of banks, that is, the specific characteristics of each bank (e.g. management style and quality, market perception and business strategy).

Another source of threat which affects corporate governance studies, is the endogeneity problem. Some papers question the causal link between governance and performance, since they are determined by a common set of features.

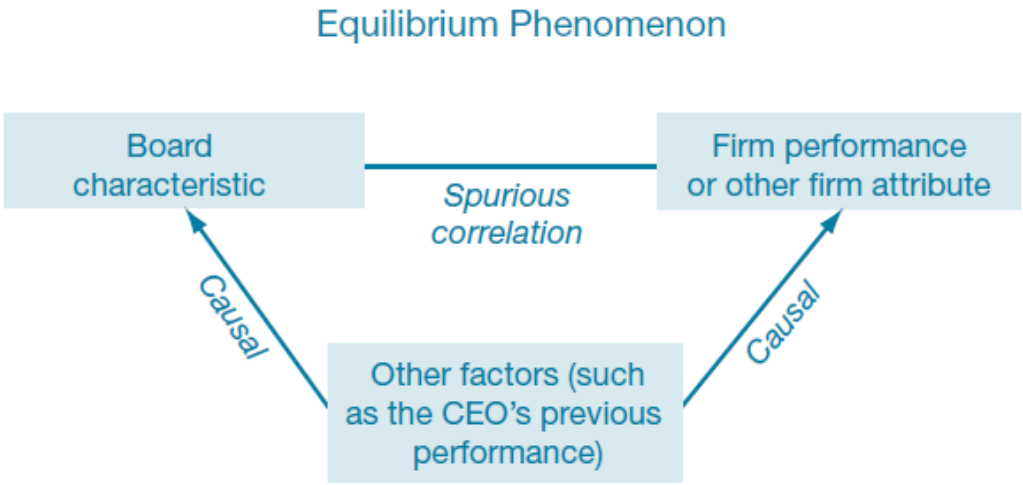


Figure 2. Equilibrium interpretation from Hermalin et al. (2003)

First of all, some of the regressors such as board size or composition might be determined simultaneously with the response variables. Secondly, the bank characteristics could be correlated with other variables that are not observed and the literature is not helpful in this case, given the fact that there are no valid instruments to econometrically account for this potential endogeneity. However, the thesis' empirical setup mitigated endogeneity concerns due to reverse causality, since the dependent variables are regressed on (lagged) pre-2018 bank characteristics and economic variables. In general, in chapter 2 it has been shown how authors in plenty of studies have obtained mixed results, thus no certain verdicts can be drawn. It seems that governance variables do not affect directly performance or there are some relevant aspects which are not observed, i.e. it could be important to observe the quality of the directors, their experience and education rather than their number, age or gender. These factors are normally not available in databases and cannot be employed. Despite that, one undeniable fact should be clear to the lector: the banking sector, especially in Italy, needs to evolve and create a more inclusive environment. The percentage of women inside BoD is extremely low and sometimes nonexistent, no proofs are found in favor of this lack due to technical reasons, it is presumably just a cultural one. More inclusive boards should represent the normality and not the objective to reach, because even if this does not lead to a higher economic performance, it would be a sign of a fairer and more equal society, in which everyone, despite his/her diversity could lead and manage powerful institutions as banks.

CONCLUSIONS

This dissertation analyzed the existence of a relationship between corporate governance and banks' economic performance, measured by indicators as ROA, ROE and employees' productivity. The data was provided by Aida database and the final sample considered was composed of 315 Italian banks. In the last decades, financial scandals, bankruptcies and crises increased the relevance of the governance theme in the banking sector, accompanied by a copious legislation and interest from governments and supervisory authorities. The contributions of the thesis can be summarized into three focal points.

First of all, we provided an overview on the theme of governance, in particular the acceptation of the concept and the evolution of the processes that identify corporate governance internationally. Governance in the banking sector should contribute to increase and strengthen the performance of these fragile and extremely complex institutions. In recent years, the need for a better comprehension and management of this aspect started to become vital for the health of the financial system. The main objective for the governance mechanisms is to avoid and handle conflicts of interest among governing bodies and shareholders, which are well defined by the agency theory. Successively a series of norms, codes, advices, both European and Italian, are reported to have an overall picture of the actions undertaken by the supervisory authorities to increase transparency and to model banking governance. The first chapter provided the lector a basic but adequate review on governance principles and procedures.

Secondly, the study reports the principal internal mechanism of governance, the board of directors and a summary of the academic literature on some boardroom variables of interest. Banks have unique features and a huge impact on the economy in case of distress or failure, therefore, many authors were interested in finding the effective governance mechanisms that could somehow determine and influence corporate performance. The board of directors is meant to perform the critical functions of monitoring and advising the management. The presence of women has been largely studied, since the increasing researches on the importance of diversity and the effects it produces inside boards. A general overview on the European and Italian situation is reported, to comprehend how the boards evolved throughout the years. Then follows the major findings in the literature, concentrating on gender variables, reporting briefly also board size and average age of directors.

Finally, we conducted the empirical analysis on Italian banks, employing Aida database, Excel and Stata software, that allowed us to collect all the necessary information, model them and

construct the regression analysis based on the variables of interest. Results are mixed, as in the academic literature and it seems that governance variables do not have a direct effect on performance.

The way in which governance attributes affect economic results is complex and dynamic, the existing literature focused on simple variables and confirmed the need of employing other factors in the analyses. For future researches we would suggest to obtain, if possible, more complete data which would allow to create a panel and follow boards over a period of time. The use of simple variables as gender, average age, board size and so on, does not explain banks' economic results, meaning that other unobserved factors are probably the ones needed to find a causal interpretation. Some factors we could think of are: the education and experience associated to each member, to exploit the real effect of gender diversity among people comparable between them; the remunerative system and the presence of some surveillance committees.

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