DOES BANK INSTITUTIONAL SETTING AFFECT BOARD EFFECTIVENESS? EVIDENCE FROM COOPERATIVE VS. JOINT STOCK BANKS.

ABSTRACT

Manuscript Type: Empirical
Research Question/Issue: The recent financial crisis revealed major critical issues at joint stock banks' boards and governance while co-operative banks showed higher resilience. Do co-operative banks suffer from board deficiencies less than joint stock banks?. To answer this question, we analyse banks operating in Italy during the time span 2006-2012 to verify whether the governing bodies of co-operative banks are less effective in carrying out their duties than those of joint stock banks. Deficiencies of governing body are measured by sanctions imposed by the Supervisory Authority.
Research Findings/Insights: Findings revealed that the board of directors (BoDs) of co-operative banks were sanctioned more compared to BoDs of joint stock banks. Furthermore it emerged that board turnover mediate the relationship between cooperative model and board deficiencies.
Theoretical/Academic Implications: This study provides empirical evidence in support of theories that emphasize the weakness of corporate governance in co-operative banks. Methodologically, the novelty of our approach is the adoption of a measure of board effectiveness/deficiency based on a third-party independent perspective (regulatory body), which is not biased by the different objective function as well the different incentive structure of the two types of banks.
Practitioner/Policy Implications: The findings have several policy and managerial implications. We contribute to the on-going debate on the proposal for flexible regulation on corporate governance for cooperative banks and underline that policy-makers and regulators have to rethink the corporate governance structures of co-operative banks. In addition, the study focuses on specific intervention that can be undertaken at bank level to reduce board deficiencies.

Keywords: Corporate Governance, Institutional setting, Banking Industry.

INTRODUCTION

Sound corporate governance is critical for a well-functioning banking system and for the integrity of financial markets. Standards on corporate governance are part of the wide stricter regulation that characterizes the banking business in order to favour transparency and disclosure towards stakeholders and to reduce the risk of systemic crises. Regulatory and supervisory authorities establish the standards, principles, and processes of corporate governance by which banks are governed and thus influence banks' behavior towards their employees, clients, and shareholders. The recent financial crisis has emphasized the critical role of good corporate governance in banking as well as revealed how the existing regulations' failures could severely harm the financial system stability. Both in US and Europe, the boards of several key financial institutions were found to have been unable either to monitor risk management systems and executive salaries effectively (United States and United Kingdom), or guard against conflicts of interest (Spain, Germany). In response to the crisis, since 2009 the Organization for Economic Co-operation and Development (OECD),

the Financial Stability Board (FSB), and the Basel Committee on Banking Supervision (BCBS) have revised their standards for corporate governance in areas such as risk management, board structures, compensation, and the role of the supervisors. At European level, the EU Commission and the European Banking Authority have developed new laws and sub-laws to implement these new standards for the European Union (CRR and CRD IV). The most recent initiative is by the BCBS with the publication on October 2014 of a consultation paper aimed to revise the principles on corporate governance at banks of Committee's 2010 document Principles for enhancing corporate governance. The response of the banking system to these initiatives has been different. Joint stock companies and their governance were at the centre of the financial crisis and thus more willing to deal with new standards to restore the confidence of the market, while cooperative banks questioned the new principles to be sufficiently flexible to recognize the diversity of their business (lower risks, lower volatility and more stable returns) as well as their higher resilience during the crisis. Cooperative banks seemed, to a large extend, less involved in the type of critical issues that affected the corporate governance of joint stock banks, so that they have not been subject to any bank failures or were dependent on state funds during the crisis.

In particular, in January 2015 the European Association of Cooperative banks (EACB) has published notes on the recent BCBS consultation paper and argued that cooperative banks performed better during the crisis than joint-stock banks, noticeably thanks to their specific corporate governance. They refer to the dispersion of risks between many more or less independent entities; the checks and balances between professional bankers and elected directors and chairmen; members who are customers and owner with direct interest in the sound management of the bank; one man one vote principle; simple and local business based on proximity and intimate knowledge of the filed; long term strategy aimed at the financing of the economy and the development of the territories, rather than short-term profit. This argument challenges the traditional view supported by the theoretical literature based on Agency Theory that has shown that cooperative banks might structurally suffer more from weak corporate governance than joint stock banks, causing substantial board ineffectiveness (Llewllyn, 2005 and 2006; Cuevas and Fischer, 2006; Shaw, 2007; Alexopoulos, Catturani and Goglio, 2013). In particular, in cooperatives the vaguely defined property rights and the not tradability of cooperative shares is expected to reduce the incentive to effectively monitor both managers and directors (Hart and Moore, 1998; Chaddad and Cook, 2004).

In order to contribute the on-going debate outlined above, this study focuses on the board of directors, which in the current regulation plays a key role, at the top of the internal governance system of the banks (EBA, 2011). In particular this work aims to empirically investigate if and how the institutional setting of banks (namely cooperative vs. joint stock banks) impact on the effectiveness of their boards. Indeed, the institutional setting of a bank impacts on different aspects of ownership structure and governance characteristics, among them the owner incentives to monitor top-managers and on board effectiveness in performing its duties (Saunders, Strock, and Travlos, 1990; Demsetz, Saidenberg and Strahan, 1997; Levene 2004).

However, in order to investigate this issue, we need to take into account that cooperative banks and joint stock ones are different in their objectives, in their ownership structure and as regards the rights that are granted to their owners. Specifically it is known that profitability is not the main objective of cooperative banks (Fontayne, 2007). Therefore, in order to compare the board effectiveness of cooperative and joint stock banks and to avoid biased results we deviate from the literature on corporate governance that focuses prevalently on financial performance as a proxy of governance mechanisms effectiveness. Indeed since profitability is not a common objective between cooperative and joint stock banks it implies both that shareholders are devoting their effort towards different objectives and directors are subject to

different system of incentive. Thus in our setting, we argue that this comparison should focus on bank internal governance system, a limited but crucial component of bank governance which abstracts from bank objectives and/or key bank stakeholders. As a consequence, we evaluate the board effectiveness of cooperative vs. joint stock banks taking an independent third party perspective that of the regulatory authority which has the power to inflict sanctions over the boards of directors because of their misconduct and we use these sanctions as proxy of board deficiency. Banking regulations themselves is a corporate governance mechanism (Dewatripont and Tirole, 1994; Tirole, 1994; Devriese, Dewatripont, Heremans, and Nguyen, 2004) and regulatory authorities are part of the banks stakeholders. While cooperative members have different objectives from joint bank shareholders (non-profit maximizer vs. profit maximizer) and thus pose different incentives on the board, the regulatory authority has the same objective when supervising the two types of banks and their directors, that is to say to detect their misconducts at bank level and to ensure the financial stability of the banking system. Moreover, our analyses based on this proxy of board deficiency is less likely to be affected by endogeneity issues since the sanctions are the result of regular controls of the supervisory authority, which do not depend on the bank behaviours. Based on a unique dataset of the supervisory sanctions inflicted on the board of directors of Italian banks over the period 2006-2012 and methodologies developed in the studies on corporate frauds, our results show that cooperative boards are more deficient than boards of joint stock banks. In particular, regression results show that cooperative boards have on average a higher probability to be sanctioned, to incur in a higher number of violations and, especially for small banks, to incur in more severe penalties. Notably, we also find that compared to joint stock banks, cooperative board is more likely to be deficient in the credit management. These results are in line with the agency theory and less supportive of the current debate on the strength of cooperative banks boards, but they confirm the specialness of cooperative banks' corporate governance mechanisms and thus the need for tailor-made standards as well as for more flexibility in terms of business diversity in current regulatory framework. Practically, our results suggest that particular attention should be paid on the board turnover, as we find that turnover mediates the relationship between the board deficiency and the cooperative status confirming the higher risk that cooperative board members become powerful and entrenched.

Overall, we contribute to the literature on corporate governance and on the role of institutional settings on board functioning. Our contribution is twofold. First of all, we adopt a third-party perspective, which allows constructing (a) new measure(s) of board deficiency. Secondly, we develop our empirical analyses based on the methodologies from corporate fraud literature and applied them to a bank corporate governance context. To the best of our knowledge, both contributions are novel in the literature. As to the Italian case, one of the largest cooperative banking system, it is worth noting that 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 (BoI), and industry codes of conduct. Our results may help understanding the major weaknesses of the existing board regulation. Finally, we believe that our results can have relevant policy implications by making a clear and concrete contribution on the on-going debate on the revision of the Principles for enhancing corporate governance and, though only partially, supporting the view of the cooperative banks.

The paper is structured as follows. In the next section, we present the theoretical background of our study. Then we review the literature in order to develop our research hypotheses. In the following section we present the sample and the methodology used to test the hypotheses. Then, we present and discuss the results. Finally we draw the implications and our conclusion.

THEORETICAL BACKGROUND AND HYPHOTESES DEVELOPMENT

Theoretical approach

The role of the board is particularly critical in the banking sector. Banking business is complex and therefore ambiguous in terms of processes to a wide audience of stakeholders (shareholders, creditors, debtors, regulators etc.). Llewellyn (2007) shows that firms operating in the financial sector:

- are characterized by complex and non-transparent management primarily due to financial products characteristics (Levine, 2004);
- are relationship rather than transaction based businesses involving long-term contracts. This makes it more difficult for the customer to control the relationship dynamics and the decision to get out;
- have a fiduciary responsibility because they manage the wealth of their customers;
- may affect the convenience of contracts with customers by adopting post-contractual opportunistic behaviour.

In this perspective, in addition to the traditional agency problems affecting the relationship between managers and owners, banking business suffer from a significant risk of opportunistic behaviour at the expense of customers both depositors and borrowers. The complexity of both banking processes and products induce managers to engage in hazardous behaviour or excessively risky choices (Morgan, 2002). From this point of view, it is recognized that corporate governance mechanisms exert a critical role in bank dynamics (Grove, Patelli, Victoravich and Xu, 2011; de Andres and Vallelado, 2008). In particular, the BoDs has a key role in bank governance as it has not only the task of monitoring management, but also of providing guidance and advice to managers (de Andres and Vallelado, 2008). After the financial crisis this role has been revised by banking authorities that now stress the key role of the board of directors for a sound and prudent management of credit institutions. In particular, both European Banking Authority as well as Basel Committee have recently placed the board of directors at the top of the internal governance system of banks. It is responsible for setting objectives for the bank and the levels of risk appetite, for how the bank is organized and directed and how responsibilities and authority are allocated. It is also responsible for the organization of the internal control system (including risk control, compliance and internal audit) (EBA, 2011).

In the agency perspective it is well known that the board of directors is the main mechanism to manage the conflict between shareholders and managers. Indeed, the board has the key role to monitor the managers in order to avoid that they can pursue their own interests instead those of the owners.

From a general point of view, the literature has analysed the factors that could increase board effectiveness. According to the Agency Theory, the effectiveness of the board in monitoring managers is affected mainly by the number of outside or independent directors who sit in (Fama and Jensen, 1983; Baysinger and Butler, 1985; Shleifer and Vishny, 1997). The presence of independent directors namely not involved in management and not connected to the other directors, or managers or the majority owner, improves the effectiveness of the board monitoring because of their independence and objectivity of judgment. Besides the presence of independent directors literature stressed some board characteristics (board size, CEO duality, board meetings frequency, executive compensation system, etc.) that may impact on its effectiveness in carrying out its tasks. However, in addition to these factors that relate particularly to the structure and functioning of the board the literature has highlighted the role of the market for corporate control and ownership in

order to reduce agency problems between owners and managers, and to increase the incentives for directors to efficiently discharge their tasks (Denis and McConnel, 2003).

The concept of market for corporate control (Manne, 1965) identifies in the equity market a mechanism to encourage managers and directors to effectively carry out their work. Listed companies are vulnerable, so if a company achieves poor performance, it becomes the target of hostile takeover by those who think that they are able to manage the company better (Scharfstein, 1988). Therefore, in companies subject to equity market pressures managers and directors should be exposed to greater incentives to perform their jobs well in order to avoid to be fired as a consequence of ownership changes (Köke, 2002).

The exercise of property rights by shareholders is another way to solve agency problems. In joint stock companies shareholders in addition to enjoying a residual claim on firm cash flow, can exert a bundle of rights that allow them to influence the company decisions (Alchian and Demsetz, 1972). Through their voting right, generally proportional to the shares of capital held (i.e. one share, one vote), shareholders can appoint or dismiss board members, or decide on changing business strategies or mergers, etc. In addition, they participate in the general meeting by presenting their motions or by exerting their voice for example asking for the resignation of inefficient directors. When there are no limitations on the saleability of company shares, shareholders not satisfied with the company's performance may decide to sell their stakes. However, the literature shows that the exercise of property rights is not without costs. Given the high cost of the shareholder activism this can lead to free-riding problems, because especially small shareholders do not have sufficient incentives to effectively monitor their agents (Grossman and Hart, 1980; Maug, 1998; Clifford, 2007). In this respect, the literature emphasizes that the concentration of ownership may have a beneficial effect, because the benefits of the exercise of property rights are greater than their costs (Shleifer and Vishny, 1986).

In the banking sector the above mentioned mechanisms are to some extent modified by regulator (Levine, 2004; de Andres and Vallelado, 2008). As suggested above, we believe that a key driver that affects the effectiveness of governance mechanisms is the legal status of the banks (Limited by shares, co-operative, etc.), namely the institutional settings. The institutional setting of a company impacts on different aspects of ownership structure and governance characteristics among them the owner incentives to monitor top-managers and on board effectiveness in performing its duties (Saunders, Strock, and Travlos, 1990; Demsetz, Saidenberg and Strahan, 1997; Levene 2004). In this perspective, considering the predictions of the agency theory and cooperative model characteristics we can argue that the legal status of co-operative weaken the board role with respect to what happens in the joint-stock banks.

In the next section we develop our research hypotheses relating mainly to the BoDs of cooperative banks.

Related literature and Research hypotheses

As is well known cooperative banks differ from joint stock ones (Llewllyn, 2005 and 2006; Anguren Martin Sevillano and Marques, 2011). The latter are established as joint stock companies. They pursue the goal of maximizing shareholder value and can be listed on the stock exchange. Shareholders are the owners of the bank and represent the residual claimant. On the other hand, in cooperative banks depositors, borrowers and owners usually overlap. Generally cooperative banks can only operate in a limited area and prevailingly with their members. Thus cooperatives satisfy the needs of their members at the same time owners, customers, etc. In this perspective profitability is not the main objective of such banks. Cooperative objective is less clearly defined as cooperative business model is motivated not by profit maximization but by a combination of economic and social goals.

As concerns owner rights, cooperative model have vaguely defined ownership rights (Chaddad and Cook, 2004). Indeed, members retain one vote per capita, irrespective of subscribed capital. New members are equivalent to existing shareholders in terms of the votes they can express at the general annual meeting. There are limits as regards the amount of shares that owners may possess and the profit distribution: profits are set aside as a reserve. As a consequence, these limitations to the ownership rights make difficult to list a cooperative in a stock market (Hart and Moore, 1998). Finally, under a governance profile, it should be noted that cooperatives are generally self-administered as to say that cooperative members usually elect the Board of Directors from amongst the membership (Shaw, 2006).

In the agency perspective, we can assume that cooperative bank characteristics can weaken the board in its monitoring function (Llewllyn, 2007).

On one hand, it should be noted that as owners cooperative directors have strong incentives to monitor managers. They are inside directors with a long-term interest in the bank and their investment is relatively illiquid. Therefore, they have strong incentive to perform well in their work (Ferri, Masciandaro, Messori, 2001). At the same time, whereas cooperatives operate in restricted geographical areas and mainly in favor of its members, this promotes peer monitoring that increases the effectiveness of social sanction mechanism. (Hansmann, 1996). Consequently, these factors can mitigate conflicts of interest among members-directors and other shareholders. In this perspective, Staatz (1983) believes that the protection of one's reputation is a strong incentive for directors to carry out their work well. In fact the directors aspire to be re-appointed, therefore, they must maintain a good reputation if they do not want to be penalized (Fama and Jensen, 1983).

On the other hand, despite they have partial incentives to perform their jobs well, board members may be tempted to fail to comply with their duty of care or collude with managers (Holmstrom, 1999). There are at least four potential reasons why cooperative directors compared to corporate board may do not perform well their tasks.

First of all the high fragmentation of cooperative ownership, along with restrictions to profits distribution and the mechanism one vote per capita reduce shareholder incentives to effectively monitor directors or managers. Thus, in cooperatives free-rider problem are more severe than in joint stock companies (Vitaliano, 1983; Hart and Moore, 1998; Borgen, 2004). These problems are also compounded by the high complexity of the banking business that can further contribute to the weakening of the member's involvement in the life of the bank. In addition as a consequence of the weak property rights and of the overlapping between members and customers, cooperative members see themselves more as customers rather than owners. Therefore cooperative members fail to monitor directors or managers because they may be more interested in getting cheap credit or to obtain good conditions on their deposits than to exercise their property rights (Lewellyn, 2007).

Secondly, the ambiguous figure of the owners, at the same time customers (depositors and borrowers) and employees, delineates an opaque, not clearly defined corporate objective (Hart and Moore, 1998). Consequently, on one hand, directors could fail in their task of monitoring management due to the ambiguity of co-operative objectives (Richards, Klein, and Wallburger, 1998). Such ambiguity make it difficult to establish what parameters are suitable for evaluating management and does not facilitate the design of a reward system that aligns managerial interests with those of co-operatives. On the other hand, directors and managers may be tempted to extract private benefits. Cuevas and Fischer (2006) point out that directors may be induced to pursue their own interests at the expense of cooperative members, also by interfering with the operative tasks of managers. Odera (2012) by analysing the conflicts of interest in Savings, Credit and Cooperative Societies (SACCOs) highlights that the low incentives of members in the monitoring of top-executives can increase the risk that directors and managers may collude to protect their own interests. For example,

managers may set higher wages for themselves, the directors may press to get loans in their favor or to their friends. In conclusion, in cooperatives it is likely an increasing level of managerial discretion or managerial inertia with a low propensity to change and innovation.

Thirdly the market does not exert a disciplining effect on cooperative directors and managers given the non-tradability of the shares of cooperative banks and the poor competition to which such banks are exposed in the local areas in which they operate. (Alchian and Demsetz, 1973; Hart and Moore, 1998; Cook and Iliopoulos, 1999; Kontolaimou and Tsekouras, 2010).

Finally, cooperative directors are generally elected from among the members (Shaw, 2006). As a consequence this situation creates an agency problem like inside/outside equity (Myers, 2000). Briefly it casts serious doubts on the independence of the member-directors and on their propensity to act in the interest of all members (Fonteyne, 2007). In this regard, Dunn, Crooks, Frederick, Kennedy, and Wadsworth (2002) in their survey conducted on American agricultural cooperatives reveal that the cooperative members surveyed express serious concerns about member-directors behavior that often make decisions not based on economic reasons, but on political motivations. To reduce these problems, Reynolds (2004) in his survey on American agricultural cooperatives shows that some managers express their interest in appointing outside directors on the board namely non-members. Therefore, to the extent that the effects listed above outweigh board incentives to perform well in their tasks, we should expect that the BoDs of cooperative banks to be relatively weaker than that of joint-stock banks. Therefore, we tested the following hypothesis:

Hp 1: *In cooperative banks, Board of Directors show significant deficiencies in performing its duties compared to Board of Directors of banks established as joint stock companies.*

We can investigate further our first research questions to understanding in which activities the BoDs of cooperatives may suffer more of deficiencies. We expect that deficiencies in the tasks of cooperative board are especially likely in the area of credit management. In this sense Fontayne (2007) highlights that unlike the joint stock banks that have the goal of maximizing shareholder value cooperatives are designed to accumulate capital, as they have to limit profits distribution to their members. This capital constitutes an intergenerational endowment in the availability of current members that cooperative directors and managers have to enhance and preserve in favour of next generation. In this perspective, the author notes about cooperative governance that the reduced incentives for members in effectively monitor top management could induce the latter to manage the cooperative endowment in their own interests or in favour of specific constituencies. Therefore, board members could be less effective in selecting and monitoring borrowers. They could facilitate loans to their friends or to members who elected them. From a theoretical view point the soft budget constraints problem discussed for example by Kornai, Maskin and Roland (2003) and Bolton and Sharfstein (1996) represents a good potential explanation of this effect.

Therefore the hypothesis to test is the following:

Hp 2: *In cooperative banks, Board of Directors show significant deficiencies in credit management compared to Board of Directors of banks established as joint stock companies.*

The role of board turnover in cooperative board deficiency

Finally we further extend our investigation to analyse which board characteristic can have a major role in explaining the deficiency of cooperative board. In particular we focus on

board turnover. As is well know the turnover of board members or top-manager is a disciplining mechanism that allows exerting a pressure on these subjects so that they act in the interests of shareholders. In fact, the latter can threaten dismissal if the former do not act in the interests of the owners (Kaplan, 1994; Hermalin and Weisbach, 2003).

However, as noted above in the cooperative banks the disciplining mechanisms of board members, including the replacement of the directors, are significantly weakened.

Consequently co-operative model characteristics increase the risk that board members become powerful and entrenched as they are insulated and protected from any kind of pressures both internal and external (Spear, 2004). In this respect the literature highlights that compared to joint stock bank in cooperative bank there is a lowest level of board turnover (Ferri, Masciandaro and Messori, 2001; Battistin, Graziano and Parigi, 2012; Stefancic, 2014). Thus cooperative directors remain in their charge for a long time, although they perform inefficiently their duties. In this situation, board members can exploit cooperative resources to pursue their advantage, for example to protect their position. Directors may represent the interests of one group of members, perhaps those who elected them, and in some cases only their own interests. Of course, the low level of board turnover is a factor that negatively affects the independence of board members. Directors who sit on the board for too long tend to have close relationships with managers; as a result the effectiveness of their monitoring is weakened. Therefore it is to test the hypothesis that the turnover of directors constitutes a mediating variable in the relationship between the cooperative model and the ineffectiveness of the board. Therefore, we test the following hypothesis:

Hp 3: *Board turnover mediate the relationship between cooperative banks and board deficiencies. In particular, co-operative model characteristics lead to low board turnover, which, in turn leads to high board deficiencies.*

RESEARCH DESIGN: SAMPLE, VARIABLE AND ESTIMATION FRAMEWORK

To test our research hypotheses we refer to the Italian banking industry. We consider Italy an interesting case as this country has a well-developed system of cooperative banks (Giagnocavo, Gerez and Sforzi, 2012). Excluding the branches of foreign banks, the Italian banking sector currently consists of approximately 600 banks with a network of over 30,000 branches across the country. The co-operative form is the legal status the most widespread among Italian banks with a strong presence in local areas. Specifically, more than 70% of Italian banks is established as co-operative, while joint stock banks are the remaining (Statistical Database of the Bank of Italy, 2015).

Italian Banking Law (Legislative Decree no. 385/1993) stipulates that banks are established as joint stock companies or as cooperatives (Art. 14). Cooperative status can be adopted by the Italian Banche di Credito Cooperativo (BCCs) (Art. 28) and by the Italian Banche Popolari Cooperative (BPs) (Tarantola, 2009). Although they belong to the category of cooperative banks, the BCCs and BPs have significant differences. The main similarity involves the voting rights of their members who are entitled to one vote per capita. Despite this likeness BCCs and BPs differ in several ways. In particular BCCs can only operate in a limited area and prevailingly with their members; the members of the bank must reside or permanently work in the reference territory of the bank. Furthermore, the banks must allocate almost 70 per cent of their annual net returns to the legal reserve. Finally, cooperative members elect the directors from amongst themselves. Unlike BCCs, BPs operate everywhere and with everyone also with non-members. The BPs must allocate at least 10 per

cent of their net profits to the legal reserve, while the remaining part can be distributed to members. Finally, BPs can list their shares on a stock market. Therefore, BPs constitute a hybrid category, which has characteristics of both joint stock banks and BCCs. However, from a dimensional and an operational viewpoint, BPs are closer to the first category. In fact, unlike BCCs that are small banks that operate locally with a range of financial services simple and unsophisticated, the BPs are large banks, which operate on a national or international scale by offering a wide range of financial products in order to meet the needs of various categories of customers (Tarantola, 2009).

Sample and data collection

The test of our research hypothesis was carried out on the population of Italian banks in the time-span 2006-2012. Based on the statistical information system of the Bank of Italy, we have identified the population of banks operating in Italy in the years under observation. In particular, we focus on banks established as joint stock banks and on cooperative banks, namely the Italian BCCs. We excluded from our analysis the branches of foreign banks and BPs. As noted above BPs are a hybrid type of banks. Therefore, in order to avoid gray zones and reduce confounding effects we decided to not include them in the analysis. With reference to the selected time-span we chose 2006 as the starting year of the analysis to avoid non-comparability issues in financial reporting. Indeed, prior to 2006 Italian banks drew up the financial statements abiding by the Italian accounting principles, while from 2006 they prepared their financial statements by applying the IAS/IFRS accounting principles.
Overall, we identify 727 cross-section units that are operative over the period under investigation (2006-2012). In this group we also include banks that have started their business after 2006 as well as banks that closed down before 2012, but imposing as a constraint the availability of information for at least two consecutive years (Pathan, 2009). From this initial group we thus eliminate 89 banks due to the lack of data or missing information. Finally we exclude all year observations pertaining to banks that in the period under review were subjected to extraordinary measures by the Supervisory Authority (special administration, interim management, etc.). Therefore, we analysed 638 banks. In particular, the final sample is composed of 198 joint stock banks and 440 cooperative banks.

We collect our data from different databases. From the statistical information system of the Bank of Italy we collected all demographic information (bank name, location, age, etc.) relating to the operative Italian banks in the time-span of our analysis and information about banks that acquired other banks in the same period. In addition, from the Bank of Italy website we downloaded the Supervisory Bulletins to retrieve up the information on penalties imposed by the Supervisory Authority on the directors of Italian banks (Brogi, 2011; Caiazza, Cotugno, Fiordelisi, Stefanelli, 2014). The Bank of Italy monthly publishes the Supervisory Bulletin with which makes public the sanctions imposed on the board of directors of the banks. Therefore, from the consultation of this report we detect the governing bodies that were punished, the list of infringements with relative description of board misconduct that constitutes the rationale for the penalty, the bank processes where the violations were detected, and the (total) amount of the penalty.

As for the information on bank board characteristics, we hand collected this data through the consultation of governance reports and financial statements available on banks website. We checked and supplemented, when missing, this information through the consultation of ABI (Associazione Bancaria Italiana) Yearbooks. The Yearbook is yearly published by the Italian Banking Association and reports the composition of the governing bodies for each bank operating in Italy. Finally, we used the database Bankscope to collect bank balance

sheet data and further checked and supplemented these data by consulting the annual financial statements of each bank.

The data collection returned an unbalanced panel of 4176 observations. In particular only 6.66% of yearly observations refers to banks whose directors were punished by the Authority. On average 41 banks have been subject to punishment each year.

The dependent variable - Sanctions to the Board of Directors.

Given our aim to study the board of directors in cooperative versus joint stock banks, the use of financial performance as proxy of the effectiveness of corporate governance mechanisms (Yermack, 1996; Dalton, Daily, Johnson and Ellstrand, 1999; Hermalin and Weisbach, 2003; de Andres and Vallelado, 2008; Grove et. al. 2011) could raise concerns about the significance of our results (the risk to reach biased results) because of the different systems of incentives under which these two groups of banks operate. In general, cooperative and joint stock banks differ as concerns corporate objectives because profit is not the main cooperative objective (Fontayne, 2007).

Therefore, to test our hypotheses we decided to assume the Supervisory Authority perspective and focus on bank internal governance system, a limited but crucial component of bank governance (EBA, 2011). Such Authority (in Italy the Bank of Italy) has the task of monitoring the internal governance system (art. 22, Directive 2006/48/EC) regardless of the bank institutional setting. In this perspective, we use as dependent variable the sanctions imposed by the Bank of Italy as a measure of internal governance system quality. In particular, the sanctions could be considered as evidence of deficiencies in board functioning. This variable seems to be more appropriate to study the differences between the governance of cooperative and joint stock banks because it abstracts from bank objectives and from the key bank stakeholders (shareholders, customers, etc.).

The supervisory activity takes place on a regular basis and beyond the will of the supervised banks. In particular, the Authority continuously monitors the behavior of banks through an off-site control, on the basis of the regular information flows that banks are obliged to submit to the Authority, and an on-site control (Bank of Italy, 2008b). When the Authority detects directors' behaviour that do not meet the standards of sound and prudent management, as required by the regulation, the Authority is entitled to punish the directors and make public the sanctions trough the Supervisory Bulletin.

In particular, for each sanction reported in the Bulletin the Authority lists the infringements that motivate the sanction, the identity of directors involved[1] responsible for these violations, and the amount of the penalty to be paid. The amount of the penalty is calculated by following the standards set by law and the provisions of the Supervisory Authority (Bank of Italy, 2012) so that there is no discretionary power of the Authority in their definition. The directors sanctioned have to pay the amount due within 30 days from the notification of the decision. It is jointly liable with the directors also the bank in which they are appointed. However, the bank has to claim against the directors. The directors may appeal to the court to cancel the sanction.

In collecting data, we take into account that on average there is a time-gap of one year between the time in which the board commits a violation and when the Supervisory Authority publishes the sanction. Given that our research covers the time span 2006-2012, we examined the Supervisory Bulletin over the period 2007 to 2013. In order to match as precisely as

[1] More than 95% of all the sanctions that we have examined involve the bank board as a whole. Only in few cases, we found sanctions that involved a limited number of directors. However in the latter cases, the chairman was always involved.

possible a sanction to a given year *t* when the violation was committed, we check that the directors who sit on the board in the year *t* are the same as those mentioned in the sanction.
Therefore, for each bank *i* in year *t* we collected the available information and we created the following variables: i) a binary variable (1/0 - penalty/no penalty -) to detect if the board of a bank has been sanctioned; ii) a count variable to measure the number of infringements notified by the Authority; iii) the amount of the fine imposed on directors as a proxy for the severity of the violation. In addition, we recorded the rationale that justifies the sanction. The sanction report does not mention the specific facts but refer to a generic description of violations and to the rule infringed. This allows us to assign the violations to specific bank processes. In more than 95% of the cases we have examined, the Authority notified three types of violations:

1. deficiencies in organization and internal controls;
2. deficiencies in credit management;
3. deficiencies in risk management.

Thus we built three dummy variables for each of the just mentioned categories.

Given that the sanctioned directors may file an appeal to the court, we also verify if the court have dismissed the sanction. This information was obtained from the Supervisory Bulletin and from the website of the Italian administrative justice.

Key Independent and control variables

To test the first two hypotheses that relate to the relationship between board deficiencies and bank institutional setting, our key independent variable is a dummy variable equal to 1 for cooperative banks. Joint stock banks is the baseline category.
To avoid spurious relations between dependent and independent variables we consider a set of control variables to account for bank and board characteristics in order to control the factors that may affect the quality of the board work and the effort of the Supervisory Authority in detecting board misconduct.
As regards the variables at the bank level, is well known that the quality of governance is influenced by firm characteristics (Markarian and Parbonetti, 2007). Therefore, a first group of variables controls for bank size, bank age and the ratio between loans and total assets as a proxy of bank business model (de Andres and Vallelado, 2008). We measure bank size as the natural log of total assets at the end of the fiscal year. Bank age is the natural log of the age of a bank.
A second group of variables account for some differences across the banks that may have effects on the Supervisory Authority effort in detecting board deficiencies during the regular controls. Indeed, we acknowledge that the Authority effort can be higher or lower given certain bank conditions and lead to a higher or lower number of infringements detected and thus the amount of the penalty. In this group, we consider whether a bank is listed in a stock market; if in year *t*, a bank acquires another bank; the bank risk and the achievement of abnormal profitability (Wang, 2013; Khanna, Kim, and Lu, 2014). In general, listed companies are more scrutinized by investors, authorities, stock market, etc. (Dyck, Morse, and Zingales, 2010). The bank risk, abnormal profitability and the fulfillment of acquisitions are factors that may induce the Authority to put a great effort in control the bank, even though still on a regular basis. In this regard, we measure the level of the bank's risk as the natural log of the ratio of non-performing loans (NPL) and gross loans, as a proxy for credit risk taking. The abnormal level of profitability was measured with a dummy variable equal to 1 if the ROE of the bank *i* in the year *t* is higher or lower to the 90th or 10th percentile, respectively, 0 otherwise. Finally, we considered a dummy variable equal to 1 if the bank *i* in time *t* fulfilled an acquisition, 0 otherwise.
As for the control variables on board level, consistently with the Agency perspective we consider the following factors in explaining the quality of board and its deficiency.

Board size expressed by its natural log. In the Agency Theory perspective board size is a key mechanism that impact on the effectiveness of board monitoring. The literature highlights the negative relationship between board size and the effectiveness of the board in carrying out its duties (Jensen, 1993; Yermack, 1996; Eisenberg, Sundgren and Wells, 1998; Hermalin and Weisbach, 2003). As board size increases the board loses effectiveness and efficiency both in decision-making and in monitoring management. In other words, as board size grows, coordination issues, free-riding or shirking may increase. With mixed results, also in the banking industry board size is deemed a key dimension of board structure in order to enhance board effectiveness (de Andres and Vallelado, 2008; Pathan, 2009; Grove et al., 2011; Adams and Mehran, 2011).

Gender diversity expressed by the proportion of female directors on board. It is one of the demographic characteristics that influences board effectiveness. In the Agency Theory perspective, scholars suggest that the presence of women on the board increases the independence of the board and improves the monitoring of management (Carter, Simkins, and Simpson, 2003; Terjesen, Sealy and Singh, 2009).

Board meetings expressed by its natural log. The frequency of board meetings is a proxy of the effectiveness of the board in monitoring managers (Conger, Finegolda, and Lawler, 1998).

Board turnover. We calculate our proxy for board turnover following Eldenburg, Hermalin, Weisbach and Wosinska (2004):

$$\frac{(\text{N.of new directors at } t) + (\text{N.of directors that left the board between } t \text{ and } t\text{-1})}{2 \times (\text{Board size at } t-1)}$$

The literature shows that the replacement of the directors constitutes a means to encourage them to do their job properly (Franks, Mayer and Renneboog, 1995; Kang and Shivdasani, 1995; Kaplan, 1994). In addition, board turnover is also a measure of the risk of entrenchment since low levels of directors' turnover increase the risk of entrenchment (Schulze, Lubatkin, Dino and Buchholtz, 2001).

In addition, we considered the **governance model** of banks. Italian commercial law stipulates three alternative governance models. The so-called traditional model is based on the presence of a BoDs and a Board of statutory auditors (BSA). The BoDs guides and monitors the management. The BSA is the body entrusted to monitoring BoDs by law (Melis, 2004). Specifically the BSA has to verify that directors' behaviour comply with the law and the bank statute. In 2004, company law reform has provided two additional governance models: a one tier and a two-tier board that reflect the Anglo-Saxon and the German model characteristics, respectively. However, the most widespread corporate governance model is the traditional one, which is adopted by more than 99% of Italian banks. The remaining uses a two-tier board model. No bank uses the one-tier model. Thus we considered a dummy variable equal to 1 for banks using a two-tier governance model, 0 otherwise.

Although the literature considers that when CEO serves as board chairman (CEO duality) the board monitoring is affected, there are no conclusive results on the effects that the CEO duality exerts on the effectiveness of corporate governance mechanisms (Jensen, 1983; Fama and Jensen, 1983; Rechner and Dalton, 1991; Baliga, Moyer and Rao, 1996; Brickley, Coles and Jarrell, 1997; Bhagat and Black, 2008). We opted for considering this factor as a control variable. Notably, with reference to Italian banks we observe that CEO duality is limited to few cases. In cooperative banks the role of the CEO is taken by the board as a whole or by an executive committee. In the joint-stock banks, especially larger ones, although there is the CEO position its coincidence with the board chairman is limited to few cases, excluded from the analysis.

Furthermore, the literature points out that the presence of independent directors on the board is beneficial. Given that their interests should be not aligned with those of managers, independent directors increase corporate governance quality because they contribute to a better monitoring of managers (Fama, 1980; Boyd, 1994; Rechner and Dalton, 1991). However, in our estimations we have omitted this variable because independent directors are not easily identifiable in cooperative banks. As already noted, in these banks directors are elected among the owners, who are also customers of the bank, both as depositors or debtors. Therefore, it is doubtful whether the directors are independent (BCBS, 2015; EACB, 2015; Grove et al., 2011). For this reason we considered not appropriate to control for this variable which would create multicollinearity problems with the dummy for cooperatives. Moreover, we argue that the variable board turnover can help in this regard because it can be expected that in presence of high levels of directors turnover it is less likely that entrenchment problems arise, therefore board members should be able to carefully control managers (Boubakri, Dionne and Triki, 2008).

Finally, we controlled for **bank location** (Aguilera and Jackson, 2003). We identified three dummy variables for the Northwest Italy, Central and South-Islands[2]. The Northeast area is used as baseline.
All models are estimated taking into account the time fixed effects to control changes in macroeconomic conditions or in supervisory approach.

Summary statistics

Table 1 presents the descriptive statistics for our main variables. For the same variables Table 2 and 3 show, respectively, the mean comparison between Joint Stock and Cooperative banks and the difference in mean between banks with sanctioned and non-sanctioned board. In Table 4 we present the correlation matrix.

TABLE 1
Summary Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Bank size (€/billion)	4176	3,92	24,5	0,003214	438
Bank age (year)	4176	58.062	43.596	0.5	183
Loans/TA	4176	0.659	0.184	0.006	0.990
NPL/Gross Loan	3832	8.255	6.525	0	215.873
Roe	4175	0.048	0.094	-0.741	0.912
Board size	4176	9.740	2.835	5	24
Gender diversity	4176	0.047	0.073	0	0.444
Board turnover	4172	0.126	0.199	0	1.417
No of Board meetings	3842	16.052	2.760	8	25
No of infringements	4176	0.127	0.555	0	10
Severity of penalty (€/thousand)	4176	11.422	101.164	0	4,008.770

As shown in Table 1 in the time span 2006-2012 the Supervisory Authority notified on average about 0.127 infringements every year or about 1 infringement every eight years. The severity of the penalty imposed by the Authority was on average of an amount of 11,422 euros, with a maximum of about 4 million euros.

TABLE 2
Univariate Tests of Difference Between Joint-Stock and Cooperative Banks

[2] This geographical breakdown is the same as those used by the Italian bureau of statistics (ISTAT) and by EUROSTAT.

Variable	Joint Stock Banks	Cooperative Banks	t-value
Bank size (*ln*)	21.498	19.324	49.222***
Bank age(*ln*)	2.967	3.898	-27.26***
Loans/TA	0.640	0.668	-4.602***
NPL/Gross Loan (*ln*)	1.787	2.136	-15.80***
Roe (ln)	0.041	0.043	-0.571
Board size (ln)	2.328	2.192	14.361***
Gender diversity	0.035	0.052	-7.059***
Board turnover (*ln*)	0.153	0.085	13.174***
No of Board meetings (*ln*)	2.766	2.758	1.324†
No of infringements	0.118	0.131	-0.687
Severity of penalty (€/thousand)	20.134	7.444	3.766**
No of obs.	1309	2867	
Significant at ***p<0.1%; **p<1%; †p<10%			

As regards the difference between joint stock and cooperative banks (Table 2) it emerges that there are significant differences between the two groups of banks with reference to bank structure and board characteristics. In particular, compared to joint stock, cooperative banks are smaller in size (t = 49.222, p < 0.1%) and are more aged (t = – 27.26, p < 0.1%). Their business model is primarily based on loans activity (t = – 4.602, p < 0.1%) and they suffer for greater credit risk (t = – 15.80, p < 0.1%). Compared to the board of joint stock banks the board of directors in cooperative banks is smaller in size (t = 14.361, p < 0.1%) with a higher proportion of female directors (t = – 7.059, p < 0.1%). In addition in cooperative banks board turnover is significantly lower than in joint stock banks (t = 13.174, p < 0.1%). Finally, no difference exists between these two groups of banks with reference to the yearly number of infringements committed by their board of directors. However the severity of penalty imposed by the Supervisory Authority is higher for the board of joint stock than cooperative banks (t = 3.766, p < 1%) as expected.

TABLE 3
Univariate Tests of Difference Between Sanctioned and Non-Sanctioned Banks

	Non-sanctioned	Sanctioned	t-value
Bank size (*ln*)	20.014	19.883	1.291
Bank age (*ln*)	3.622	3.40	3.288**
Loans/TA	0.6589	0.656	0.232
NPL/Gross Loan (*ln*)	2.012	2.381	-9.484***
Roe (ln)	0.045	-0.001	7.789***
Board size (*ln*)	2.231	2.279	-2.663**
Gender diversity	0.047	0.046	0.07
Board turnover (*ln*)	0.109	0.067	4.41***
No of Board meetings (*ln*)	2.762	2.746	1.432†
No of obs.	278	3898	
Significant at ***p<0.1%; **p<1%; † p<10%			

Table 3 compares banks whose board was not sanctioned and banks whose board was sanctioned. It shows that banks with sanctioned board are younger (t = 3.288, p<1%), riskier (t= – 9.484, p>0.1%) and less profitable (t = 7.789, p<0.1%). In addition, the two groups of banks significantly differ with reference to board size and board turnover. In particular, compared to the others, in banks whose board was sanctioned the size of the board is higher (t

= – 2.663, $p < 1\%$) and board turnover is lower ($t = 4.41$, $p < 0.1\%$). To control for the large difference in terms of the number of observations belonging to the two groups (278 for sanctioned banks vs 3898 for banks with no sanctions) we also run the non-parametric Mann-Whitney U test. The results (not tabulated) are aligned with those in Table 3.

Finally from Table 4 we can see that correlation coefficients between our main variables are quite low, thus we can retain that multicollinearity problems in our models are modest.

TABLE 4
Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11
Bank size (*ln*)	1										
Bank age(*ln*)	-0.078**	1									
Loans/TA	0.138**	0.163**	1								
NPL/Gross Loan (*ln*)	-0.221**	0.111**	0.029	1							
Roe (*ln*)	0.101**	0.065**	-0.092**	-0.359**	1						
Board size (*ln*)	0.472**	-0.148**	0.082**	-0.097**	0.051**	1					
Gender diversity	-0.047**	0.085**	0.037*	0.090**	-0.043**	0.016	1				
Board turnover (*ln*)	0.109**	-0.175**	-0.065**	0.040*	-0.102**	0.065**	0.083**	1			
Board meetings (*ln*)	0.025	-0.008	-0.004	-0.001	0.006	0.003	-0.003	0.017	1		
No of infringements	-0.013	-0.057**	0.001	0.130**	-0.125**	0.040**	-0.009	-0.058**	-0.018	1	
Severity of penalty	0.090**	-0.020	0.014	0.043**	-0.052**	0.078**	-0.015	-0.031*	-0.002	0.551**	1

Significant at **p<1%; *p<5%

Methodology

In order to investigate whether board deficiencies are higher in cooperative banks compared to joint stock banks we estimate the following panel model:

$$Board\ deficiencies_{i,t} = \beta_0 + \beta_1 Cooperative_{i,t} + \beta_j Control\ variables_{i,t} + \beta_k Time\ dummies + \varepsilon_{i,t} \quad [1]$$

We measure Board deficiencies as a dummy variable taking value 1 if the board of bank *i* in the year *t* is punished by the Supervisory Authorities, 0 otherwise. In addition to the control variables discussed above, we also consider the dependent variable lagged one year in order to control the effort that the Authority may put in place to control a bank whose board which has already been sanctioned.

To model the dependent variable we use nonlinear models. Instead of OLS regression, the literature suggests to employ logit or probit model (Cameron and Trivedi, 1998). Despite the logit and probit models differ for different cumulative distribution function (logistic, in the logit model and standard normal, in the probit one) they are expected to provide similar results, so that the choice between them is almost neutral. In our case, we choose to use a probit model because of its usefulness in dealing with some specification problems (Wooldridge, 2009).

As concerns the specification of the model, we take into account the panel structure of our dataset. Firstly, we exclude the appropriateness of a panel model with cross-section fixed effects because our independent variable (dummy for cooperative banks) is time invariant (Wooldridge, 2002). As a consequence we checked the usefulness of a pooled model against a panel model with cross section random effects. The likelihood ratio test confirmed the appropriateness of a panel probit model with cross section random effects. However, we anticipate that the two models lead to the similar results.

To check that our results are not biased by the definition of our proxy for bank board deficiency, we re-estimated the model [1] by using two alternative dependent variables with two different regression techniques.

In the first alternative, we decide to use a count variable for the annual number of violations notified and punished by the Authority. To model this variable we exclude the estimation of an OLS model. As suggested by the literature, count variables should be modelled by using, alternatively, a Poisson or a Negative binomial regression (Cameron and Trivedi, 1998). The first model is suitable when the conditional variance and the conditional mean of the dependent count variable are not different, in other words when there is not data overdispersion. On the contrary when overdispersion arises, (i.e. when the variance of the dependent is significantly higher than their average), the Negative Binomial model is more appropriate. Our analysis shows a significant data overdispersion, therefore, we use a negative binomial model. In addition, the Likelihood ratio test rejected the need for a panel specification of the model, so we estimate a pooled negative binomial model. Finally, the Vuong test rejects a zero-inflated specification of the model (see Table 5, column 2). Thus, we estimate a standard negative binomial model.

In the second alternative we used as proxy of the board deficiency the amount of the sanction that, compared to the previous board deficiency variables, will include relevant information about the severity of violations. This is a continuous variable but with a large proportion of zeros such that its distribution is clearly right skewed. In our dataset only 6.66% (278 on 4176) of our observations refers to banks whose board has been sanctioned, while the remaining relates to banks not sanctioned. In these cases the use of an OLS regression to model such variable is unsuitable for a number of reasons, primarily because it would lead to predict negative values that would not make sense since the amount of a penalty is always

greater than or equal to 0. To this aim, the literature suggests to use a two-part model. This type of model is widely used in health economics to model for example the trend of health care costs as this variable presents a large proportion of zero observations (Duan, Manning, Morris and Newhouse, 1983; Duan, Manning, Morris and Newhouse, 1984).
The two-part model assumes that two processes generate the data. In terms of our severity of the sanctions, the first process involves the probability that a board will be sanctioned or not. This is followed by the severity of the sanctions conditional on having received a sanction by the Supervisory Authority. Given that zero sanctions are too frequent it seems that the factors that explain the probability of being sanctioned may be not the same as those that affect the severity of sanctions. Therefore, it would be suitable to estimate two models to explain this two phenomenon. The first part of our model specifies a binary outcome model to explain the probability that a board will be sanctioned or not. Define

$$Y^* = \begin{cases} 0 \; for \; Y = 0 \\ 1 \; for \; Y > 0 \end{cases}$$

Then,

$$Pr(Y^* = 1 \mid X) = \Pr(Y > 0 \mid X) = G(X\theta) \qquad [2]$$

where X is a matrix of explanatory variables, θ is a vector of variable coefficients and $G(\cdot)$ is the probit function (or, alternatively, a logit). The model is estimated on the full sample. Now suppose that for sanctioned boards the following equation determines the severity of the sanctions:

$$Y = \beta X + \varepsilon \qquad [3]$$

where X is a matrix of explanatory variables and β is a vector of variable coefficients. The second part is conditional on $Y>0$, as a consequence it is estimated on the sample of non-zero observations by using an appropriate model (OLS, negative binomial for count, etc.). This model explains how the explanatory variables impact on the severity of the sanctions.
Given this methodological approach, we estimate the first part of the model on the whole sample of observations. We use a probit model with dependent variable the dummy sanctioned/not sanctioned board. Evidently, this first part is similar to the model [1]. The second part of the model only uses the observations relating to banks whose board has been sanctioned in the period 2006-2012. For this second part, we use an OLS regression with dependent variable the natural logarithm of the amount of the penalty.
To test the second hypothesis, we estimated three panel probit models with the dependent variable, respectively, the probability that the board is sanctioned for deficiencies i) in organization and internal controls, ii) in the area of credit management and, finally, iii) in the area of risk management. The specification of these models as regards the independent and control variables is similar to the model [1].
Finally, to test the third hypothesis about the mediation effect of board turnover we follow the approach of Baron and Kenny (1986) (Tab. 7). Therefore, as first step, we test the existence of a significant relationship between the independent variable and the mediator by estimating the following panel model:

$$Board\ turnover_{i,t} = \beta_0 + \beta_1 Cooperative_{i,t} + \beta_j Control\ variables_{i,t} + \beta_k Time\ dummies + \varepsilon_{i,t} \quad [4]$$

As control variables, we consider the natural log of total assets, the natural log of bank age, the ratio loans on total assets, the risk of the bank and the natural log of bank performance (ROE) which we lag one period to prevent simultaneity bias. Finally, we consider a dummy variable to account for the geographical location, a dummy variable for listed banks and a dummy for banks adopting a two tier board model (Liu, Wang Zhao, Ahlstrom, 2013; Eriksson, Strøjer Madsen, Dilling-Hansen and Smith, 2001).

We then estimate the relationship between the independent variable (cooperative bank dummy) and the probability that the board may be punished. To test this relation we use the model [1] less board turnover as control variable. We also test the relationship between the mediator and the dependent variable (model [1] less the independent variable). Finally, we combine the two previous models and we test if the dummy for cooperative bank affects the dependent variable through board turnover as the model [1]. The hypothesis on the existence of a mediation effect may not be rejected if the mediator reduces or cancels the effect and/or the significance level of the relationship between the independent variable and the dependent.

Endogeneity issue

Endogeneity is a recurring issue in corporate governance research attempting to analyse the link between firm performance and governance practices. In our setting endogeneity is mitigated because of the peculiar source and construction of the dependent variable, which is based on the regulatory authority supervisory power to sanction the banks' directors (our proxy for board deficiency). The probability that the board is sanctioned, the number of detected violations and the amount of penalty assigned are all essentially exogenous to the bank. First, the probability that the board is detected and then sanctioned is exogenous because the Authority supervises banks on a regular basis (both off-site and on-site), regardless of the willingness of the bank, its activities, their specific attributes or performance. However, we recognize that the regulator effort in detecting the violations may presumably be affected by the bank's overall conduct and thus we control for it. Moreover, it should be noted that the amount of the penalty is also specified ex-ante on fixed criteria by regulation. Thus it is exogenous to the bank (Wang, 2006).

Furthermore, it should also be pointed out that the independent variable of our interest is an exogenous variable. Indeed, in banking industry regulation affects the corporate governance of banks, in the first place by fixing the institutional settings that banks can adopt. Therefore, banks are not free to use the optimal ownership structure for them or adapt it to their needs (Gorton and Schmid, 1999). We highlight that in our dataset the dummy for cooperative bank is time-invariant. Therefore, there is no simultaneity bias between the institutional setting of a bank and the deficiencies of the board.

RESULTS

In this section we present the results of our analyses. In Table 1 we show the results of our regression models to test Hypothesis 1 that investigates the association between bank institutional setting and board of directors' deficiencies. In particular, we predict a positive association between cooperative banks and board deficiencies. We first measure board deficiencies by the probability that the board is sanctioned by the Supervisory Authority. In column (1) we show the results of the probit panel model estimated with non-robust standard errors.

TABLE 5

Regression results of Board Deficiency

	(1)	(2)	(3)		
Dependent	Prob. (sanction)	No of infringements	Two part model: Severity of penalty		
Estimation Method	Probit model	Negative binomial model	Part I: Binary model	Part II: OLS Regression	
			3(a)	3(b)	3(c)
Control Variable					
Bank size (ln)	0.018	0.009	0.018	0.130*	0.235***
	(0.44)	(0.12)	(0.49)	(2.45)	(3.76)
Bank age (ln)	-0.166***	-0.281***	-0.149***	-0.041	-0.034
	(-4.01)	(-3.91)	(-4.09)	(-0.80)	(-0.67)
Loans/TA	0.576*	1.393*	0.570†	0.379	0.480
	(1.97)	(2.40)	(1.89)	(1.18)	(1.49)
NPL/Gross Loans (ln)	0.602***	1.163***	0.546***	0.240*	0.220*
	(7.52)	(6.86)	(7.06)	(2.37)	(2.19)
Abnormal ROE	0.586***	1.081***	0.592***	0.240†	0.284*
	(5.33)	(5.56)	(5.52)	(1.80)	(2.11)
M&A	0.365†	1.084*	0.322	0.468	0.351
	(1.76)	(2.23)	(1.49)	(1.24)	(0.97)
Listed bank	0.739***	1.786***	0.690***	0.572*	0.410
	(3.40)	(4.19)	(3.30)	(2.13)	(1.52)
C.G. model	0.174	0.008	0.073	-0.028	-0.347
	(0.28)	(0.00)	(0.11)	(-0.11)	(-1.22)
Board size (ln)	0.268†	0.459	0.251	0.695***	0.734***
	(1.66)	(1.50)	(1.59)	(3.46)	(3.74)
Gender Diversity	0.273	0.298	0.194	-0.886	-0.691
	(0.53)	(0.31)	(0.43)	(-1.25)	(-0.98)
Board meetings (ln)	-0.246	-0.320	-0.243	0.156	0.137
	(-1.25)	(-0.79)	(-1.36)	(0.58)	(0.51)
Board turnover (ln)	-1.795***	-3.226***	-1.657***	0.234	0.246
	(-5.96)	(-5.18)	(-5.51)	(0.59)	(0.63)
Sanctions (t-1)	-0.206	-0.001	-0.015	0.003	0.006
	(-1.36)	(-0.01)	(-0.12)	(0.22)	(0.42)
Year dummies	Yes	Yes	Yes	Yes	Yes
Location dummies	Yes	Yes	Yes	Yes	Yes
Independent variable					
Cooperative dummy	0.349**	0.550*	0.337**	-0.380*	4.196**
	(2.62)	(2.19)	(2.85)	(-2.21)	(2.72)
Cooperative dummy × Bank size					-0.225**
					(-2.90)
Constant	-5.794***	-8.222***	-5.604***	6.271***	3.924**
	(-5.90)	(-4.21)	(-6.37)	(4.80)	(2.63)
Number of obs.	3829	3829	3829	278	278
Wald χ^2	184.35***	293.34***	227.85***		
LR test against pooled	5.88**	0.37			
LR test against a		453.67***			

Poisson			
Vuong test	0.34		
ΔF-value		5.98***	7.31**
Adj R^2		0.2924	0.3095
Significant at ***p<0.1%; **p<1%; *p<5%; †p<10%			

We find a positive and significant association between cooperative bank dummy and the dependent variable (β = 0.349, p < 1%). Therefore we conclude that the board of directors of cooperative bank is more likely to incur in a sanction, so that it is more likely to be deficient in its tasks than the board of joint stock banks. Thus our first hypothesis is not rejected. Our control variables have the expected signs and the coefficients reveal that low board turnover lead to high board deficiencies.

In column 2 of Table 1 we reported the estimates of a standard negative binomial model with dependent variable the number of infringements notified by the Supervisory Authority to the board of the bank. We estimate the model using the clustered robust standard errors. The results presented in column 2 are in line with those in column 1. In particular, it appears that the board of cooperative banks commits on average more violations compared to the board of joint-stock banks (β = 0.550, p < 5%).

Finally, in column 3 we present the results of the two-part model with dependent variable the amount of the penalty imposed on the board by the Supervisory Authority. The model is estimated with a simultaneous covariance matrix of the sandwich/robust type obtained by combining the estimation results of first and second part. As noted above, in column 3(a) we showed the results of the probit model that represents the first part of the model. As expected, the results of this first part are similar to those exposed in Column 1, given that the dependent variable is the same. In column 3 (b) we showed the results of the second part of the model, an OLS model estimated on non-zero observations. We find a significant and negative relationship between cooperative banks and the severity of sanctions imposed by the Authority. This would suggest that although the board of cooperatives have a higher probability of incurring in penalties, however, they are less severe (lower amount). However, this effect may be influenced by the regulatory criteria to assess the penalty, since the severity of penalties is influenced by the size of the bank in terms of total assets (Bank of Italy, 2012). Therefore, in column 3 (c) we show the results of the model that includes an interaction term between bank size and cooperative dummy. We notice that the introduction of the interaction term has improved the model. The full model compared with the reduced one has a higher adjusted R^2 of 1.71%. Furthermore, the addition of the interaction term is truly informative (ΔF = 7.31, p < 1%). As for the other models, we find that the coefficient of the variable cooperatives dummy is positive and significant (β = 4.196, p <1%) and that of the moderator variable (bank size) is positive and significant (β = 0.235, p <0.1%), while the interaction term is significant and negative (β = -0225, p <1%). The regression results do not reject the hypothesis that bank size moderates the relationship between cooperative dummy and the severity of violation. Overall, we can conclude that our first hypothesis is not rejected in this case and that violations are more severe in small cooperative banks compared to large ones.

As for the hypothesis 2, in Table 6 we present the results of three probit models with the dependent variable, respectively, the probability that the bank board incur in penalties for deficiencies i) in organization and internal controls; ii) in credit management; iii) in risk management. The regressors of these three models are the same as those considered for the estimation of model [1] (column 1 of Table 5). The results show that the probability of sanctions to the board of cooperative banks is higher for deficiencies in credit management (β = 0.646, p <0.1%) and with only marginal significance for deficiencies in organization and internal control (β = 0.232, p <10%). Thus hypothesis 2 is not rejected.

TABLE 6
Probit regression results of board deficiency by type of violation.

Dependent	Probability of sanctions for deficiencies in		
	organization and internal control	credit management	risk management
Control Variable			
Bank size (ln)	0.050	0.034	-0.079
	(1.10)	(0.68)	(-1.14)
Bank age (ln)	-0.197***	-0.141**	-0.207**
	(-4.12)	(-2.87)	(-2.77)
Loans/TA	0.357	1.539***	1.114*
	(1.12)	(3.58)	(1.99)
NPL/Gross Loans (ln)	0.509***	0.821***	0.378**
	(5.60)	(7.67)	(2.77)
Abnormal ROE	0.503***	0.610***	0.332†
	(4.12)	(4.73)	(1.91)
M&A	0.293	0.090	0.499
	(1.25)	(0.31)	(1.60)
Listed bank	0.480†	0.972***	1.543***
	(1.95)	(3.56)	(4.11)
C.G. model	0.322	-5.658	-4.874
	(0.50)	(-0.00)	(-0.01)
Board size (ln)	0.184	0.071	-0.092
	(1.00)	(0.37)	(-0.32)
Gender diversity	0.393	0.330	0.379
	(0.67)	(0.55)	(0.45)
Board meetings (ln)	-0.178	-0.132	-0.029
	(-0.79)	(-0.56)	(-0.08)
Board turnover (ln)	-1.983***	-1.897***	-1.363*
	(-5.36)	(-4.95)	(-2.57)
Sanctions (t-1)	-0.127	-0.464*	0.165
	(-0.62)	(-2.13)	(0.40)
Year dummies	Yes	Yes	Yes
Location dummies	Yes	Yes	Yes
Independent variable			
Cooperative dummy	0.232†	0.646***	0.136
	(1.57)	(3.75)	(0.60)
Constant	-6.340***	-7.676***	-4.485**
	(-5.63)	(-6.18)	(-2.71)
Number of obs.	3829	3829	3829
Wald χ^2	126.039***	138.326***	58.687***
χ^2 *test against pooled*	4.57*	2.51†	1.64†

Significant at ***p<0.1%; **p<1%; *p<5%; †p<10%

Finally, to test the mediating effect of board turnover (hypothesis 3) we first estimate the model in equation [4]. Accordingly, Table 7 presents in column (2) the results estimated by using robust standard errors of model [4] which tests the relationship between our main independent variable (cooperative dummy) and the mediator variable namely the board

turnover; in column (4) the results of the model that analyses the influence of the independent variable on dependent variable namely the probability of sanctions imposed on a bank board; in column (5) the results of the model that analyses the relationship between the mediator and the dependent variable; in column (6) the results of the full model that contains as regressors the independent and the mediator variables. Finally, columns (1) and (3) contain only control variables.

TABLE 7
Regression Results of the Mediation Effect of Board Turnover on Board Deficiency.

	Board Turnover		Board deficiencies -Prob. (sanction)			
	(1)	(2)	(3)	(4)	(5)	(6)
Control variables						
Bank size (ln)	0.010***	0.002	-0.057†	0.017	-0.044	0.018
	(4.70)	(0.62)	(-1.82)	(0.46)	(-1.33)	(0.44)
Bank age (ln)	-0.014***	-0.009**	-0.104**	-0.143***	-0.133***	-0.166***
	(-4.61)	(-2.63)	(-2.76)	(-3.69)	(-3.36)	(-4.01)
Loans/TA	-0.005	-0.003	0.480†	0.499†	0.567†	0.576*
	(-0.22)	(-0.13)	(1.74)	(1.80)	(1.95)	(1.97)
NPL/Gross Loans (ln)	0.010†	0.014*	0.582***	0.555***	0.623***	0.602***
	(1.84)	(2.52)	(7.67)	(7.35)	(7.77)	(7.52)
Abnormal ROE			0.454***	0.531***	0.527***	0.586***
			(4.35)	(5.01)	(4.87)	(5.33)
M&A			0.332†	0.310	0.387†	0.365†
			(1.66)	(1.56)	(1.85)	(1.76)
Listed banks	0.033	0.024	0.613**	0.707***	0.661**	0.739***
	(1.51)	(1.11)	(2.99)	(3.47)	(3.03)	(3.40)
Bank performance$_{(t-1)}$ (ln)	-0.164***	-0.140**				
	(-3.77)	(-3.16)				
C.G. Model	0.032	0.047	0.155	0.001	0.303	0.174
	(0.77)	(1.61)	(0.26)	(0.00)	(0.48)	(0.28)
Board size (ln)			0.354*	0.269†	0.338*	0.268†
			(2.30)	(1.76)	(2.11)	(1.66)
Gender diversity			-0.025	-0.110	0.352	0.273
			(-0.05)	(-0.23)	(0.68)	(0.53)
Board meetings (ln)			-0.264	-0.248	-0.256	-0.246
			(-1.38)	(-1.30)	(-1.30)	(-1.25)
Sanctions (t-1)			-0.304*	-0.295*	-0.199	-0.206
			(-2.05)	(-2.00)	(-1.32)	(-1.36)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Location dummies	Yes	Yes	Yes	Yes	Yes	Yes
Independent variable						
Cooperative dummy		-0.050***		0.419***		0.349**
		(-5.48)		(3.30)		(2.62)
Mediator						
Board turnover (ln)					-1.875***	-1.795***
					(-6.22)	(-5.96)
Constant	-0.059	0.110*	-4.377***	-5.844***	-4.579***	-5.794***
	(-1.31)	(2.12)	(-5.30)	(-6.23)	(-5.32)	(-5.90)
Number of obs.	3271	3271	3831	3831	3829	3829
ΔF-value	12.064***	30***				
Adj. R^2	0.048	0.058				
Wald χ^2			157.878***	169.988***	178.510***	184.348***

χ^2 test against pooled	4.57*	0.00	5.57**	3.37*	7.51**	5.88**
Significant at ***p<0.1%; **p<1%; *p<5%; †p<10%						

From Table 7 we can see that our key independent variable (the dummy for cooperative banks) has a highly significant and negative effect on board turnover ($\beta = -0.050$, $p < 0.1\%$) and a highly significant and positive effect on the probability of sanctions imposed on bank board ($\beta = 0.419$, $p < 0.1\%$). In particular, in column (5) we find that the mediator variable negatively impacts on the probability of sanctions imposed on a bank board ($\beta = -1.875$, $p < 0.1\%$). Finally, in column (6) we observe that when the moderator is added to the model with the independent variable, the latter remains significant ($\beta = 0.349$, $p < 1\%$) as the mediator ($\beta = -1.795$, $p < 0.1\%$). However, the coefficient of the cooperative dummy is reduced from 0.419 (in column 4) to 0.349 (column 6) as well as the significance level of the coefficient that is reduced from 0.1% to 1%. Thus, we can conclude that board turnover partially mediates the relationship between the cooperative status of a bank and the probability that its board is sanctioned by the Supervisory Authority. As a consequence hypothesis 3 is partially supported.

Robustness Checks

Table 5 shows that our results are robust to the change of the dependent variable, our proxy for board deficiency and to different model specification. By using as the dependent variable either the number of violations or the severity of the penalty instead of the probability of sanction imposed on the board the results obtained are consistent with each other. In addition, we conduct further robustness test. First, we re-estimate the probit model in column 1 of Table 5 through bootstrapped robust standard errors with 500 replications (Cameron and Trivedi, 2010). The results confirm those shown in Table 5. Using the same technique we re-estimate the probit models presented in Tables 6 and 7. Also in this case the use of bootstrapped robust standard errors generally confirmed the previous results. The only exception is for the model shown in column 1 of Table 6 in which the use of bootstrapped robust standard errors highlighted the non-significance of cooperative dummy. However, the estimation with non-robust standard errors has already highlighted its marginal significance.

Furthermore, in line with the literature on corporate fraud, we re-estimate the probit model in column 1 of Table 5 using a bivariate probit model to account for partial observability of board misconduct (Poirier, 1980). The literature shows that the probability of observing a bad behaviour is actually the result of two latent probabilities, i.e. the probability that the board takes a bad behaviour and the likelihood of being detected (Wang, 2013; Khanna, Kim and Lu, 2014; Nguyen, Hagendorff, and Eshraghi, 2015). However, we are able to observe only the bad behaviours that have been detected. In this perspective, it has been argued that a standard probit model is unable to differentiate the probability that the board takes a bad behaviour from the probability that the board is discovered after committing a bad behaviour. For this reason, the literature suggests to use a bivariate probit model in order to consider that the probability of observing a board's bad behaviour is determined by the two distinct and latent processes mentioned above. This model assumes that the two processes are correlated with each other (Cameron and Trivedi, 2010). However, if the two processes are not correlated then the bivariate probit model may not be necessary and a standard probit model is suitable. In our case the results of the bivariate probit model rejected the existence of a significant correlation between the two processes, so we opted for an estimation based on a standard probit model. The low correlations, in our setting, may be attributable to the regularity of the supervisory authority controls over the board behaviour. We anticipate that

the results of the bivariate probit model confirm those obtained with the standard probit model. All the tables related to the robustness test are available upon request.

DISCUSSION AND CONCLUSIONS

This study contributes to the literature on bank governance in several ways. Although bank governance are the subjects of wide debate in the literature, to the authors' knowledge no relevant empirical contribution has focused on cooperative bank governance. In this respect taking into account the characteristics of the cooperative model we suggest and empirically demonstrate that the board of directors of cooperative banks is more ineffective compared to that of joint stock banks and in particular small cooperatives suffer more of this deficiency. Furthermore we suggest that board turnover significantly mediate the relationship between cooperative model and board ineffectiveness.

The empirical analysis has focused on all operative Italian banks over the period 2006-2012, with a final sample of 638 cross-section units. Compared to other works on corporate governance, our work differs from a theoretical and methodological standpoint. While the current literature on corporate governance focus on the shareholder perspective by using the financial performance as a proxy of the effectiveness of governance mechanisms, in our study we take the Supervisory Authority perspective a key banks' stakeholder, and focus on internal governance system. The effectiveness of corporate governance was measured in terms of board deficiency detected by the Italian Supervisory Authority as proxied by the sanctions for misconduct inflicted on the board of directors of Italian banks.

Our empirical evidence does not reject the hypothesis that cooperative board is more ineffective than board of joint stock bank. In particular, regression results show that cooperative boards have on average a higher probability to be deficient, to incur in a higher number of violations and, especially for small cooperatives, to more severe penalty. This supports the theory that has largely emphasized the drawbacks to the corporate governance of the cooperative banks due to the specific features that their status implies. Our results also highlight the specific bank process where board deficiencies are more likely to occur for cooperative banks than for joint stock banks, that is to say, in their credit management. Cooperative banks operate in limited local areas and mainly with their members. This situation is considered beneficial for cooperatives since it allows reducing moral hazard problems through peer monitoring mechanisms that enhance the credit quality (Banerjee, Besley, Guinnane, 1994). However, the close relations that are established in the area between the directors and the bank's customers, which are mainly also the owners of the bank, can lead to negative effects because board members may be tempted to favor their friends or their own interests or those of the coalition of owners who elected them rather than promote the welfare of all. Consequently, they may also finance borrowers with financial problems or put less effort in the monitoring of borrowers.

To explain these findings we investigated the effect of board turnover as potential mediating variable in the relationship between cooperative bank model and board deficiencies. Consistent with previous literature our results show that in cooperatives the board turnover is lower than in joint stock banks. Additionally our research makes a contribution to the literature by showing the existence of a partial but significant mediation effect of board turnover on the relationship between cooperative model and board deficiencies. Consequently cooperative model has an indirect impact on board ineffectiveness through board turnover. Therefore, we can conclude that in cooperative banks board deficiencies is partially explained by the low board turnover. Of course this situation increases the risk, on one hand, that cooperative directors keep close relationships with

managers and become less objective in their monitoring. On the other hand, they could become powerful and use the bank to pursue their own interests for example by lending money to less reliable borrowers.

While these results are, again, in line with the agency theory, they also have implications for bank corporate governance regulations as it suggests the need for new tailor-made standards for the cooperative boards. Practically, our last results points out that new standards should focus in particular on the low turnover of cooperative directors as it is a strong contributing factor of their deficiency.

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