



Munich Personal RePEc Archive

The Effect of the Adoption of an Alternative Corporate Governance System on Firms' Performances. The Case of Italian Unlisted SMEs.

Bellavite Pellegrini, Carlo and Sergi, Bruno and Sironi,
Emiliano

Department of Economic and Business Management Sciences and
Centre for Studies in Applied Economics, Università Cattolica del
Sacro Cuore, Milan, Italy, Davis Center for Russian and Eurasian
Studies, Harvard University, Cambridge, Massachusetts, USA and
Department of Economics, University of Messina, Messina, Italy,
Department of Decision Sciences, Bocconi University, Milan, Italy

20 October 2015

Online at <https://mpra.ub.uni-muenchen.de/104648/>

MPRA Paper No. 104648, posted 31 Mar 2021 11:37 UTC

The effect of the adoption of an alternative corporate governance system on firms' performances

The case of Italian unlisted SMEs

Carlo Bellavite Pellegrini

*Department of Economic and Business Management Sciences and
Centre for Studies in Applied Economics, Università Cattolica del Sacro Cuore,
Milan, Italy*

Bruno S. Sergi

*Davis Center for Russian and Eurasian Studies, Harvard University,
Cambridge, Massachusetts, USA and Department of Economics,
University of Messina, Messina, Italy, and*

Emiliano Sironi

*Department of Statistical Sciences,
Università Cattolica del Sacro Cuore, Milan, Italy and
Department of Decision Sciences, Bocconi University, Milan, Italy*

Abstract

Purpose – Alternative corporate governance systems (CGSs) have attracted a significant bulk of research recently. While the connection between the adoption of an alternative system (one tier board or two tier board system) and firms' performances has not been fully analysed yet, the purpose of this paper is to analyse whether companies which have turned into an alternative board system have eventually improved their performance over time.

Design/methodology/approach – Using a sample of more than 15,000 Italian unlisted joint stock companies, the authors compare performance outcomes in 2009 of firms adopting alternative systems with performances of firms that maintained the system in force before the 2003 Corporate Law Reform (defined as "traditional"). Because of the choice of an alternative system (one tier or two tier board) instead of a traditional one is not random, the authors reduce selection bias implementing matching methods and comparing firms that are close in terms of propensity score measured in 2003 (the year before the new CGSs have been introduced by a corporate law reform).

Findings – The authors do not find evidence of a significant improvement of performances in 2009 concerning those firms that have adopted a one tier or two tier board systems with respect to those which maintained a traditional one.

Originality/value – The novelty of the study concerns the application of propensity score matching for the evaluation of the impact of the change of the CGS that is possible in presence of two conditions that are all verified in our setting: first, to have a country where corporate law allows for choosing among different systems; in this case Italy is a good laboratory, because it allows for the choice among three different systems; and second, to have the opportunity to evaluate the effect of the change in light of a relatively recent "pre-treatment" condition; this is made possible by the fact that before the 2003 Reform of corporate law all the companies had a traditional system.

Keywords Corporate governance, Firm performance, One-tier board, Propensity score, Two-tier board
Paper type Research paper

1. Introduction and literature review

This paper provides an innovative point of view in the corporate governance debate, enquiring whether the adoption of alternative governance systems is likely to improve firms' performances. Financial literature has mainly devoted its attention to the impact of a properly designed board composition on firms' performance for listed corporations, documenting the idea that an appropriate board structure is relevant for good corporate governance (Dahya *et al.*, 2002; Hossain *et al.*, 2001; Carline *et al.*, 2002) and that investors are likely to pay for it. The same happens for small and medium privately held enterprises (Uhlener *et al.*, 2007) or eventually with more widespread ownership structure (Brunninge *et al.*, 2007).

In relation to the US market, Gompers *et al.* (2003) analyse the relationship between corporate governance and long-term equity returns, giving evidence that well-governed companies trigger 8.5 per cent yearly abnormal returns in comparison with poorly governed firms. Larcker *et al.* (2003) develop extensive innovative measures for corporate governance, showing that these factors are related to future operating performance, Tobin's Q, and future excess stock returns. Moreover, Bhagat and Bolton (2008) outline that better corporate governance, stock ownership of board members, and CEO-Chair separation is significantly positively correlated with better contemporaneous and subsequent operating performance. In relation to small and medium enterprises, Shaker *et al.* (2007) find that governance systems, and more specifically the presence of independent outside directors in the board, influence knowledge based resources necessary for the development of internationalization.

With specific attention to alternative corporate governance systems (CGSs), financial literature has mainly devoted its efforts in analysing the corporate determinants of the choice among different CGSs for listed companies in terms of efficiency and agency costs with relation to Germany and UK (Jungmann, 2006) and to France (Millet-Reyes and Zhao, 2010).

The case of Italy, addressed in literature by Bellavite Pellegrini *et al.* (2010), is particularly interesting, because of the recent corporate law reform, approved in 2003 and implemented since the 1st January 2004, which allowed Italian companies to eventually adopt two new CGSs as alternatives to the traditional one composed by a Board of Directors and a Board of Auditors. The possibility to choose among three different CGSs and the relatively recent availability of pre-choice data allows us for an original longitudinal study, devotes to understand whether the adoption of an alternative system between 2003 and 2009 induced improvements in performance changes with respect to the firms that maintained a traditional system.

Past studies focused on the effect of the reform on the costs and to the expenses of board members (Bellavite Pellegrini *et al.*, 2013) comparing companies opting for alternative one with unlisted joint stock firms which, conversely, maintained a traditional one. The outcomes highlight that one-tier model, which is more likely to be adopted by small firms, with more fragmented ownership structure and under control and coordination, is less expensive in "pro capite" remuneration of board members than the traditional and the two tier model. However, not any other previous studies generalized the analysis to overall firm's performance after the adoption of one among the two alternative systems introduced by the Reform. Indeed Bellavite Pellegrini *et al.* (2013) is limited only to the remuneration of the board members and leaves out overall firm performances, while the issue of how governance mechanisms affect the firm strategy covers also other broader aspects of business management (Giovannini, 2009), especially with respect to unlisted enterprises (Brunninge *et al.*, 2007; Al-Najjar, 2015).

In light of the existing literature, differently from Bellavite Pellegrini and Sironi (2015) which focuses its attention exclusively on one tier model, this paper aims at expanding the debate around the effect of the adoption of an alternative system (one tier or two tier) instead of a traditional one, focusing on the overall change in firm performances after that choice.

This paper is organized as follows: Section 2 provides some technical details while Section 3 displays descriptive statistics of the data. Section 4 presents the statistical methodology and Section 5 presents the empirical results, meanwhile the last section discusses and concludes.

2. The corporate governance reform in Italy

In the Italian business system, which is characterized by a continuing predominance of small and medium-sized enterprises closely controlled by families, corporate governance is a debated issue: the possibility of choosing between two new alternative CGSs (i.e. one-tier and two-tier boards) instead of the traditional one was introduced in Italy by the corporate law reform implemented at the beginning of 2004. The normative background of the reform, which dates back to Title III of the Regulation 2157/2001 (October 2001), dictated the rules concerning the governance structure of the “European Society”, identifying two alternative models of management and control and leaving the choice to statutory autonomy (Art. 38). The choice between these two models of corporate governance (one-tier and two-tier), thanks to their diffusion within the European Union, has even been shared by the Italian legislator, which introduced new opportunities for Italian firms to adopt these alternative CGSs (Art. 2409-octies and ss. and 2409-sexiesdecies and ss. of the Civil Code). This choice was not feasible before 2004, and thus represents an innovative approach to corporate governance within the Italian framework (Ghezzi and Malberti, 2008).

The one-tier model, which derives from the Anglo-Saxon tradition with some peculiarities due to the different framework, looks like to be simpler and more flexible than the others. This model is interesting for at least two reasons. The first is that it saves time and money compared to the other two models: the Board of Directors (traditional model) and the Supervisory board often use up time and costs that are not always justified and that could be reduced. The second reason is the improved information transparency between the Board of Directors and the controlling body (composed of directors who are part of the board), which allows a larger amount of information to reach this controlling body that should perform better in its supervisory function than the traditional Board of Auditors. On the other hand, the identifying feature of this model seems to be that of the “closeness” between the controller and the controlled, which undermines the “independence” of the body.

In contrast, the two-tier model could be defined as the most composite one. It should be clarified that in Italy the two-tier model has not perfectly replicated the German discipline, but has incorporated some changes in order to make it suitable for the Italian legislative framework. One important difference is related to the composition of the Supervisory Board. Compared to the provisions of the German two tier system, Italian legislative framework does not allow any representatives of stakeholders to be appointed as members of this body due to the different nature of their relationship with the corporation. Moreover, the function of consultations with social partners is not expected to be one of the duties of supervisory boards in Italy.

Many of the opportunities related to the adoption of the two-tier model are gathered in comparison with the discipline of the traditional model. In particular, with regard to the differences between the supervisory board and the board of auditors, the greater

degree of flexibility in the former's power to appoint and dismiss members, together with less stringent conditions of independence, impartiality and professional requirements, could affect efficiency in different ways. Furthermore, the closeness between the two bodies should allow management to be monitored more closely, with a positive effect on conflicts of interest. Some researchers, however, have also highlighted the critical issues and risks relating to the adoption of this model (Abbadessa, 2009). On the other hand, similarly to both the traditional and the two-tier models, we can observe the presence of an external auditor who checks the firm's compliance with accounting procedures.

Over the years, some evidence has shown that the one-tier system is probably more efficient in cases where the company has a majority or prevailing shareholder. The joining together of the managerial and supervisory bodies may be beneficial, because it makes the adoption of important decisions faster and more efficient. A different situation occurs in the presence of a dispersed ownership structure. In these companies, the shareholders are unable to articulate the goals of the company as their interests differ. In such cases, an important role may be played by the supervisory board, which is separate from the management board – as highlighted in the two-tier model. The separation between these two bodies leads to positive effects in terms of better-quality supervision and more transparent decisions, made in the key interests of the shareholders.

In spite of this evidence, some questions relating to body composition, overlapping tasks and coordination remain unanswered, thus identifying the lack of a universal answer to the question of which corporate governance model should be adopted in different situations, particularly with regard to the actual power of the two-tier model to meet the interests of the company and its shareholders (Enriques and Volpin, 2007). Hence, in this paper we explore the relationships between the change of CGS and firm performance, testing the theoretical framework explored in the literature and implementing an accurate analysis on a large sample of more than 15,000 firms.

3. Data and description

We take into analysis a wide sample of the Italian unlisted joint stock companies enrolled in "Register of Companies" for the years 2003 and 2009. All accounting data have been obtained from Aida BvD, while the list of the companies featured by one tier and two tier boards belonging to our sample in 2009 have been obtained by Infocamere Archive, a database implemented by the Chamber of Commerce. We rely on two different databases, because Infocamere Archive provides us complete evidence about the universe of all the joint stock companies existing in Italy and of those which eventually implemented one tier or two tier board, but does not provide full evidence about corporate and accounting data in 2003 and 2009. For this reason we have to rely on the above mentioned Aida BvD, which however does not cover the whole universe. Since our attention is concentrated on firm performances with the aim to verify whether the adoption of one or two tier board did eventually affect their performance, we have to compare results obtained by these firms prior and after the 2003 Italian reform.

Table I compares the whole universe of joint stock companies[1] with the ones belonging in our sample and the same for joint stock companies adopting alternative systems in 2009.

Table I shows that joint stock companies which adopted an alternative CGS represents 0.55 per cent[2] of the population and the ratio between one tier and two tier companies in our sample and the total of joint stock companies belonging to our sample is 1.27 per cent. Almost six years after its first introduction, one tier board was still

quite uncommon among Italian joint stock companies. Table II provides some evidence about the geographical distribution of Italian unlisted joint stock companies belonging to the sample in 2009.

Table II gives evidence that the majority of Italian joint stock companies is located in North of Italy and more specifically in North-West and the same occurs for companies adopting alternative CGSs. About 16 per cent of the sample is located in the central regions of Italy, meanwhile the southern Italian regions and the islands account for about 6 per cent. Focusing our attention to the activities of Italian joint stock companies we find the evidences highlighted in Table III.

Previous tables show an identikit of firms adopting traditional and alternative corporate providing details on the sector and on geographical localization. These sorts of variables are time invariant and are the same between 2003 and 2009. Conversely, balance sheet items are time dependent and vary across years. In addition, the adoption of an alternative CGSs may affect the firm strategy and consequently their performance in the medium run. Nevertheless, the choice of changing CGS may also be affected by different performance indicators, such as by modifications in the ownership structure. Hence, it is interesting to offer an overview of balance sheet items in 2003, i.e. before the reform that allows for adopting alternative systems, by CGS in 2009, in order to understand whether selectivity characterized firms that chose to change their CGS later.

Results in Table IV confirm our previous assumption: several indicators are different for firms belonging to traditional and alternative CGSs. In particular, one tier model displays best performances in terms of ROE and ROA before the implementation of the Reform, suggesting that more efficient firms were most likely to choose a simpler system. Conversely, one tier board companies display the lowest level of revenues from sales and of total assets, presenting the one tier board system as eligible especially for

Corporate governance system at 31 December 2009	Sample	Population	% (Sample/population)
Traditional companies	14,862	57,107	25.71
One tier board companies	134	180	74.44
Two tier board companies	58	138	42.03
Total	15,054	57,425	

Source: Aida BvD and Infocamere

Table I.
Universe of joint stock companies and composition of the sample in 2009

Corporate governance system at 31 December 2009	North-west	North-east	Centre	South	Islands	Total
Traditional companies	6,829 (45.95%)	4,251 (28.6%)	2,422 (16.3%)	902 (6.07%)	458 (3.08%)	14,862 (100%)
One tier board companies	71 (52.99%)	25 (18.66%)	22 (16.42%)	10 (7.46%)	6 (4.48%)	134 (100%)
Two tier board companies	24 (41.38%)	24 (41.38%)	4 (6.90%)	5 (8.62%)	1 (1.72%)	58 (100%)
Total	6,924 (45.99%)	4,300 (28.56%)	2,448 (16.26%)	917 (6.09%)	465 (3.09%)	15,054 (100%)

Source: Aida BvD and Infocamere

Table II.
Geographical distribution of unlisted Italian joint stock companies with traditional and alternative corporate governance systems belonging to the sample in 2009

Economic activity	Traditional corporate governance system		One tier board		Two tier board		Total	%
		%		%		%		
Accommodation and food service activity	248	1.67	0	0.00	2	3.45	250	1.66
Agriculture, forestry and fishing	90	0.61	1	0.75	0	0.00	91	0.60
Arts, entertainment and recreation	97	0.65	4	2.99	1	1.72	102	0.68
Construction	956	6.43	5	3.73	6	10.34	967	6.42
Electricity, gas and steam	378	2.54	3	2.24	2	3.45	383	2.54
Financial and insurance activities	127	0.85	4	2.99	5	8.62	136	0.90
Human health, social work activities and education	204	1.37	1	0.75	0	0.00	205	1.36
Information and communication	452	3.04	7	5.22	0	0.00	459	3.05
Manufacturing	7,302	49.13	54	40.30	22	37.93	7,378	49.01
Professional, scientific and technical activities	583	3.92	18	13.43	5	8.62	606	4.03
Real estate activities	444	2.99	5	3.73	5	8.62	454	3.02
Transportation and storage	652	4.39	4	2.99	0	0.00	656	4.36
Wholesale and retail trade	2,846	19.15	24	17.91	10	17.24	2,880	19.13
Not available	20	0.13	3	2.24	0	0.00	23	0.15
Other	463	3.12	1	0.75	0	0.00	464	3.08
Total	14,862	100	134	100	58	100	15,054	100

Table III. Economic activity classification of unlisted Italian joint stock companies with traditional and alternative corporate governance system

Source: Aida BvD and Infocamere

Table IV. Means of balance sheet items of unlisted Italian joint stock companies with traditional or alternative board corporate governance systems for the year 2003	Income balance sheet items 2003	Traditional companies	One tier board companies	Two tier board companies
	ROE		3.754	8.865
ROA		3.749	4.521	1.180
Leverage		5.954	5.264	4.726
Net worth		1.71×10^7	0.70×10^7	0.93×10^7
Revenues from sales		3.98×10^7	2.10×10^7	2.17×10^7
Net income		717,184.8	493,775.5	370,184
Total assets		5.33×10^7	2.19×10^7	2.47×10^7

Source: Aida BvD and Infocamere

small-medium enterprises. Two tier board companies, which are the smallest number of all, present very peculiar features: they are characterized by the lowest levels in some performance indicators (ROE and ROA), while traditional firms show the highest levels of total assets, revenues from sales and total assets. This last observation presents the traditional one as the system preferred by medium-large enterprises.

Hence, these aspects demonstrate that a process of auto-selection probably involved the choice of changing a CGS. The systematic difference in balance sheet indicators does not allow for estimating the effect of the adoption of an alternative corporate governance on comparing the simple difference in means of the outcomes in 2009.

Therefore, we need a more reliable estimation strategy in order to reduce the bias deriving from selectivity.

4. Research questions and methodology

As above mentioned, our analysis is focused in enquiring whether there exists an effect deriving from the choice of a specific CGS on firm economic performances. For this reason we implement a statistical analysis with the aim to discover whether the adoption of one tier (two tier) board did affect companies' economic outcomes with respect to the performances of firms that decided to maintain a traditional system between 2003 and 2009[3].

More in detail, we aim at answering to the following test of hypotheses:

H0. Firms that adopted an alternative system have not improved their performance.

H1. Firms that adopted an alternative system have improved their performance.

The *H0* suggests that there is no evidence of an improvement of firm performance, meaning that CGSs did not contribute to achieve better economic results, which might be unchanged or even worsen. Conversely, the alternative *H1* allows for a sort of positive relationship between a one tier or two tier board system of corporate governance and firm performances, implying that the former have had a positive impact on the latter. Performance indices considered as outcome variables for testing the improvement in performances of corporation that turned into one tier or two tier board systems are those that are ROE, ROA, the leverage ratio and the sales to assets ratio.

To measure the effect of the adoption of a one tier (or two tier) board system, we assume a potential outcome approach; each firm is supposed to have two potential outcomes in 2009, i.e. after the adoption of one among the alternative systems: Y_{1i}^{2009} and Y_{0i}^{2009} : Y_{1i}^{2009} in the case the firm have adopted a one tier (two tier) board between 2003 and 2009 and Y_{0i}^{2009} if it has maintained a traditional CGS in the time considered. The causal impact of the adoption of one specific alternative system for a firm included in the analysis is $Y_{1i}^{2009} - Y_{0i}^{2009}$. Since this is a firm specific variable, Rosenbaum and Rubin (1983) suggested focusing on the quantity $E[Y_{1i}^{2009} - Y_{0i}^{2009}]$ that in econometric literature is defined as the average treatment effect; i.e. in our case the average effect of the adoption of the alternative system on the outcome of interest. Let T_i be a dichotomous variable, denoted in potential outcome literature as treatment, which takes value 1 if a firm adopted a one-tier (or two tier in a separate alternative analysis) board system between 2003 and 2009 and 0 otherwise, Heckman (1997) proposed to restrict the analysis only to those firms that are actually eligible for the treatment (in our case the choice of an alternative system). Hence, leaving out the subscript i the main quantity of interest is:

$$ATT = E[Y_{1i}^{2009} - Y_{0i}^{2009} | T_i = 1] - E[Y_{1i}^{2009} - Y_{0i}^{2009} | T_i = 0] \quad (1)$$

That is defined average treatment effect on the treated (ATT), where $E[Y_{1i}^{2009} - Y_{0i}^{2009} | T_i = 1]$ is unobservable, because only one among the potential outcomes can be observed for each enterprise. A possible solution to overcome this problem is to consider the difference between treated and untreated groups:

$$ATT = E[Y_{1i}^{2009} - Y_{0i}^{2009} | T_i = 1] - E[Y_{1i}^{2009} - Y_{0i}^{2009} | T_i = 0] \quad (2)$$

This assumes that there is no selection bias, which means that the firms that adopted a one tier (two tier) board system is randomly selected from the population so that the two groups may be considered as comparable in all other relevant characteristics.

However, this assumption is not realistic because the two groups may be different in terms of both observable and unobservable characteristics. Hence, identification of the ATT in (3) is feasible if we condition the expected values on a vector of covariates that summarizes all differences between the treated and control groups; this requires imposition of mean independence (Smith and Todd, 2005), i.e.:

$$E(Y_{0i}^{2009} | X_{0i}^{2003}; T = 1) = E(Y_{0i}^{2009} | X_{0i}^{2003}; T = 0) \quad (3)$$

A second problem dealing with ATT estimates concerns the difficulty in finding entities with identical values of vector X^{2003} when the covariates are many or include continuous indices, as in the case of balance sheet. Rosenbaum and Rubin (1983) proposed matching based on univariate quantity called a propensity score, which is defined as the conditional probability of receiving the treatment given X^{2003} :

$$p(X^{2003}) = P(T = 1 | X^{2003}) \quad (4)$$

Matching units with the same propensity score is equivalent to comparing them on the components of X^{2003} , together with the advantage that an estimate of the propensity score is easily obtained through a simple logistic regression. Therefore, the ATT with the propensity score approach (ATT_{PSM}) can be formalised as:

$$ATT_{PSM} = E_{p(X^{2003})} [Y_{1i}^{2009} | X_{1i}^{2003}; T = 1] - E_{p(X^{2003})} [Y_{0i}^{2009} | X_{0i}^{2003}; T = 0] \quad (5)$$

Another problematic aspect in determining the ATT_{PSM} consists in the reliability of estimates only in presence of selection bias from observable characteristics.

The method illustrated above is developed for all the companies. As we have to obtain sample estimates of ATT, we cannot find firms with exactly equal values of propensity score. Indeed in presence of a continuous it is unlikely in presence of finite samples to find one treated and one control with the exact value of propensity score. A comparison, in practise, is feasible only if we match similar units drawn from treated and controls. The more similar the estimates propensity score of treated units with the selected controls, the higher the reduction of selection bias will be. Therefore, we have to implement matching algorithms (Sianesi and Leuven, 2003) in order to overcome the problem and to find a procedure for selection and then comparing firms that are as close as possible in terms of estimated propensity score. In this framework, we implement nearest neighbour matching without replacement that is suggested in presence of few treated units vs a large sample of control units (Caliendo and Kopeinig, 2008)[5]. Nearest neighbour matching which consists of comparing each treated unit i with the closest control unit in terms of propensity score. In this case, we will have the following:

$$ATT = \frac{1}{N_1} \sum_{i \in \text{ATT}} y_{1i}^{2009} - \sum_{j \in \text{ATT}} w_{ij} y_{0j}^{2009} \quad (6)$$

where N_1 indicates the number of units that experienced a change into a one tier (two tier) board system, and w_{ij} represents a sample weight for control units used in the matching procedure and is usually equal to one.

5. Empirical results

Table V displays the results of estimated ATT after having run propensity score.

The vector X^{2003} used in order to reduce the bias of estimates includes all qualitative and quantitative variables that significantly affect the probability of abandoning a traditional system in favour of a one tier (two tier) one documented by the existing literature (see Bellavite Pellegrini *et al.*, 2010). The set of qualitative variables includes: the legal form[6], the economic activity[7] (excluded in the last stage of the analysis because not significant) and the geographical location[8]. Vector X^{2003} includes also quantitative variables that are all measured in 2003: total assets, net worth, net assets and the starting level of the outcome variables before the change of the CGSs, i.e. ROE, ROA, leverage and the sales to assets ratio (presented in Table IV).

The first column of Table V lists the outcome of interests, splitting the analysis in two parts. The first one presents a comparison between the performances of one tier model CGSs vs traditional companies (after the provisional exclusion of two tier board system corporations). The second part of the analysis compares the performances of firms adopting a two tier board system against a traditional one. For each of the two models taken into account we consider unmatched and matched estimations. Unmatched estimations of ATT are obtained without propensity score; matched estimates of ATT are obtained with propensity score matching.

As we can see from the Table V, estimates of ATT relevantly vary after running propensity score. While unmatched estimates takes into consideration equally firms drawn from the treated and the control groups, estimated ATT computes the differences only between treated and the subsample of controls that are closest in terms of propensity score. More in details, it matches each firm adopting a one tier board or two tier board system with the traditional company that is closest in terms of propensity score. This procedure allows us for comparing only similar companies, estimating the net effect of the adoption of an alternative system and reducing the bias in estimates that derives from considering companies that are too different, especially in the case of two tier companies that are only 58. Table V shows that ROE does not significantly change pre and post the adoption of an alternative CGS. More interesting results regard the comparison of ROA in 2009 for treated and controls. The outcomes from Table V affirm that the adoption of an alternative system (one tier or two tier board system) instead of a traditional one negatively affects ROA performance, net of the effect of the possible confounders listed in X^{2003} .

The results of sales to assets and of leverage are also in favour of our H_0 , confirming that the change of a CGS did not improve the performances.

Income balance sheet items (2009)	(One tier vs traditional)		(Two tier vs traditional)	
	Unmatched	Matched	Unmatched	Matched
ROE	1.521	-0.687	-4.848	0.524
ROA	-1.520	-3.237***	-2.092	-2.784*
Leverage	-0.806	-11.551	0.348	-3.367
Sales/assets	0.069	0.009	-0.073	-0.125

Notes: *0.1 $p < 0.05$; **0.05 $p < 0.01$; *** $p < 0.01$

Source: Aida BvD and Infocamere

Table V.
Estimated average treatment effect on treated (ATT) of balance sheet items values in 2009 of unlisted Italian joint stock companies with alternative CGSs vs traditional

Concluding remarks

One of the main questions about corporate governance is whether firm performance depends in some ways on it. If better corporate governance is connected to better firm performance, better-governed companies should perform better than poorly governed firms. This study is based on an analysis of the medium run effects of 2003 Italian reform of corporate governance which introduces two alternative CGSs, giving both listed and unlisted companies the possibility to choose among the traditional and alternative CGSs. Focusing specifically our attention on the analysis of the performances of one and two tier board in comparison to the traditional one, the aim of this paper is to investigate in which way companies that switched into an alternative CGS have improved or not their performance. We analysed the outcomes obtained by Italian unlisted joint stock companies prior and after the introduction of 2003 Italian corporate law reform. The survey supplies descriptive statistics on a significant sample of unlisted joint stock companies, according to their CGS. In particular, we provide a general overview of the main features in terms of geographical distribution, economic activities, balance sheet and corporate items and accounting indices. The statistical analysis, using propensity score estimation strategy, is able to reduce the effect of selection bias. Selection bias might arise when firms that decided to change the CGS into an alternative one systematically differ from the sample of traditional firms for a set of observable indicators affecting the choice of the system. The variables that may affect both the probability of choosing the alternative system and performance outcomes may pollute the estimation of the interplay between CGS and performance. Controlling for these variables and comparing firms adopting an alternative system only with the traditional ones that show similar features in terms of 2003 balance sheet indices is the best way for reducing the effect of confounders and is successfully realized through the application of propensity score matching. The set of confounders includes both qualitative (legal form, economic activity and geographical location) and quantitative variables (total assets, net worth, net assets and the starting level of the outcome variables before the change of the CGS) according the 2003 values of balance sheet items and accounting indices.

Indeed, the opportunity of evaluating the effect of the change of a CGS through a match of units with close values of propensity score is legitimated by the fact that before the corporate law reform, which took place in 2003, all the companies included in the sample were obliged to adopt a traditional system. Hence, the use of a common start point for matching both the traditional and alternative firms allows us for protecting estimates by the risk of an endogenous relationship between performances and the choice of a CGS. In addition, the availability of a larger set of control units (traditional firms) to be matched with treated ones (alternative ones), allows us for a good choice of observations to match.

Therefore the analysis, that focuses on a heretofore unexplored sample of more than 15,000 unlisted joint stock companies, is led separately for the comparison of performances of firms that adopted a one tier board vs the traditional one and for the comparison of two tier board performances vs the traditional one.

The set of dependent variables of the model representing the outcome variables measured at the end of 2009 (after the adoption of a CGS) are: return on equity; return on assets; leverage ratio and; the sales to assets ratio. Our analysis shows that the adoption of a one-tier model of corporate governance between 2003 and 2009 has not improved performance indicators and in particular ROE, sales/assets and leverage have remained stable after six years from the implementation of the reform, in accordance with the *H0* of

our model. Furthermore, ROA seems to be worst for companies that decided to adopt a one tier board, reinforcing the idea that the change of a governance system into a one tier one did not improved performances. Similarly, there are not significant differences between the performances of firms adopting a two tier board system with those that confirm a traditional one in terms of ROE, sales/assets and leverage. In this case there is also a light evidence of a worsened performance in ROA for two tier board companies. This evidence may partially explain the low number of companies adopting this model, which represents a very small percentage of the whole universe of unlisted Italian joint stock companies, notwithstanding financial literature highlights lower costs of corporate bodies in one tier board system.

Notes

1. Technically the universe is composed by joint stock companies and single shareholders joint stock companies.
2. $(138+180)/57,425 \approx 0.55\%$.
3. The choice of that interval relies to the effect of the Reform that allows for leaving out the traditional system and for adopting an alternative one since the 1 January 2004. Therefore, 2003 was the last year with a unique corporate governance system in Italy and it is the most recent baseline for a comparison, *ceteris paribus*, of the increase or decrease of performance indices for the sampled firms.
4. The variables used for the specification of propensity score are measured in 2003 and are those that included in Table IV; with the addition of the geographical area and a dummy variable for distinguishing the financial companies from industrial ones.
5. This is particularly true for the case of two tier board system, where the scarce sample size (only 58 firms) in comparison of the high number of control units required an accurate selection of units to match.
6. We distinguish unlisted joint stock companies with only one shareholder from those that have more than one, in order to take into account for the ownership structure of each sampled firm.
7. We use economic sector classification according to the ATECO of 2007, used in Table III, even if propensity score algorithm considers main sectors as not significant in predicting the choice of a one tier board system. In addition, the scarce frequency of some categories and the large number of them in comparison to the treated units does not allow us for using all the information. Hence, the use of some sectors in propensity score specification has to be considered as a robustness check.
8. We adopt the classification illustrated in Table II.

References

- Abbadessa, P. (2009), *Sistema dualistico e governance bancaria*, Giappichelli Editore.
- Al-Najjar, B. (2015), "The effect of governance mechanisms on small and medium-sized enterprise cash holdings: evidence from the United Kingdom", *Journal of Small Business Management*, Vol. 53 No. 2, pp. 303-320.
- Bellavite Pellegrini, C. and Sironi, E. (2015), "Does one tier corporate governance system affect performances? Evidences from Italian small medium enterprises unlisted Corporations", Quaderni dell'Istituto di Politica Economica (working paper), Università Cattolica del Sacro Cuore, Milan.

- Bellavite Pellegrini, C., Pellegrini, L. and Sironi, E. (2010), "Alternative vs traditional corporate governance systems in Italy: an empirical analysis", *Problems and Perspectives in Management*, Vol. 8 No. 3, pp. 1-15.
- Bellavite Pellegrini, C., Pellegrini, L. and Sironi, E. (2013), "Costo degli organi societari e scelta dei sistemi di governance alternativi: l'evidenza empirica in Italia", *Rivista dei Dottori Commercialisti*, Vol. 65 No. 1, pp. 41-62.
- Bhagat, S. and Bolton, B. (2008), "Corporate governance and firm performance", *Journal of Corporate Finance*, Vol. 14 No. 3, pp. 257-273.
- Brunninge, O., Nordqvist, M. and Wiklund, J. (2007), "Corporate governance and strategic change in SMEs: the effects of ownership, board composition and top management teams", *Small Business Economics*, Vol. 29 No. 3, pp. 295-308.
- Caliendo, M. and Kopeinig, S. (2008), "Some practical guidance for the implementation of propensity score matching", *Journal of Economic Surveys*, Vol. 22 No. 1, pp. 31-72.
- Carline, N.F., Linn, S.C. and Yadav, P.K. (2002), "The influence of managerial ownership on the real gains in corporate mergers and market revaluation of merger partners: empirical evidence", working paper, University of Oklahoma, Norman.
- Dahya, J., McConnell, J.J. and Travlos, N. (2002), "The Cadbury committee: corporate performance, and top management turnover", *Journal of Finance*, Vol. 57 No. 1, pp. 461-483.
- Enriques, L. and Volpin, P. (2007), "Corporate governance reforms in Continental Europe", *Journal of Economic Perspectives*, Vol. 21 No. 1, pp. 117-140.
- Ghezzi, F. and Malberti, C. (2008), "Corporate law reforms in Europe: the two-tier model and the one-tier model of corporate governance in the Italian reform of corporate law – between hypothetical bargain and regulatory competition", *European Company and Financial Law Review*, Vol. 5 No. 1, pp. 1-64.
- Giovannini, R. (2009), "Corporate governance, family ownership and performance of Italian firms", *Journal of Management and Governance*, Vol. 14 No. 2, pp. 145-166.
- Gompers, P.A., Ishii, J.L. and Metrick, A. (2003), "Corporate governance and equity prices", *Quarterly Journal of Economics*, Vol. 118 No. 1, pp. 107-155.
- Heckman, J.J. (1997), "Instrumental variables: a study of implicit behavioral assumptions used in making program evaluations", *Journal of Human Resources*, Vol. 32 No. 3, pp. 441-462.
- Hossain, M., Prevost, A. and Rao, R. (2001), "Corporate governance in New Zealand: the effect of the 1993 Companies Act on the relation between board composition and firm performance", *Pacific Basin Finance Journal*, Vol. 9 No. 2, pp. 119-145.
- Jungmann, C. (2006), "The effectiveness of corporate governance in one-tier and two-tier board systems", *European Company and Financial Law Review*, Vol. 3 No. 4, pp. 426-474.
- Larcker, D.F., Richardson, S.A. and Tuna, I. (2003), "How important is corporate governance?", working paper, The Wharton School, University of Pennsylvania, Philadelphia, PA.
- Millet-Reyes, B. and Zhao, R. (2010), "A comparison between one-tier and two-tier board structures in France", *Journal of International Financial Management and Accounting*, Vol. 21 No. 3, pp. 279-310.
- Rosenbaum, P.R. and Rubin, D. (1983), "The central role of the propensity score in observational studies for causal effects", *Biometrika*, Vol. 70 No. 1, pp. 41-55.
- Shaker, A.Z., Neubaum, D.O. and Naldi, L. (2007), "The effects of ownership and governance on SME's international knowledge based resources", *Small Business Economics*, Vol. 29 No. 3, pp. 309-327.

- Sianesi, B. and Leuven, E. (2003), "PSMATCH2: Stata module to perform full Mahalanobis and propensity score matching, common support graphing and covariate imbalance testing", Department of Economics, Boston College, Boston, MA.
- Smith, H. and Todd, P. (2005), "Does matching overcome LaLonde's critique of non-experimental estimators?", *Journal of Econometrics*, Vol. 125 Nos 1-2, pp. 305-353.
- Uhlaner, L., Wright, M. and Huse, M. (2007), "Private firms and corporate governance: an integrated economic and management perspective", *Small Business Economics*, Vol. 29 No. 3, pp. 225-241.

Further reading

- Erkens, D., Hung, M. and Matos, P.P. (2012), "Corporate governance in the 2007-2008 financial crisis: evidence from financial institutions worldwide", *Journal of Corporate Finance*, Vol. 18 No. 2, pp. 389-411.