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### **Are independent directors good monitors of public utilities? Evidence from Europe**

Questa è la Versione finale referata (Post print/Accepted manuscript) della seguente pubblicazione:

*Original Citation:*

Are independent directors good monitors of public utilities? Evidence from Europe / Claudio Becagli; Andrea Paci; Sara De Masi. - 1:(2013), pp. 1-26. (Intervento presentato al convegno The firm's role in the economy. Does a growth-oriented business model exist? tenutosi a Lecce nel 19-21 settembre 2013) [10.978.886611/2945].

*Availability:*

This version is available at: 2158/880327 since:

*Publisher:*

Cacucci Editore sas di N. Cacucci & C.

*Published version:*

DOI: 10.978.886611/2945

*Terms of use:*

Open Access

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# Are independent directors good monitors of public utilities? Evidence from Europe

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(August 2013)

## Abstract

Recently introduced corporate governance codes and guidelines in Europe have emphasized the importance of appointing independent directors to lead organizations' boards. Many commentators and institutional investors believe that independent directors are particularly effective in controlling the actions of CEOs by pushing them to make decisions to improve firm performance and firm growth. This issue is especially relevant in the public utility industry where the maximization of profit is only one of many interests that must be satisfied. Using a unique financial and governance dataset from European public utilities, we studied whether the presence of independent directors and other board variables correlates with firm performance and firm growth. We found evidence that independent directors do not influence present and future firm performance, and firm growth. Executive directors impact positively both present and future firm performance. Our results challenge corporate governance codes' conventional wisdom that a larger number of independents in board composition improves firm results.

*JEL classification:* G30; L94; L95

*Keywords:* Corporate Governance; Independent directors; Firm Performance; Public Utility.

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This paper has benefited from several comments. We would like to thank Kose John, Genever McBain, Maurizio Murgia, Miriam Simun, Oliviero Roggi for their helpful suggestions. We are also grateful to conference participants in 5th Florence - Ritsumeikan workshop 2013, EBEN Annual Conference 2010, University of Trento; ISLE - SIDE Annual Conference 2010, University of Bolzano and to PhD students at London School of Economics and London Business School

## **1. Introduction**

Recent corporate scandals and the financial crisis have focused attention on the issue of corporate governance. As researchers, business people, and politicians have examined elements influencing firm performance, renewed scrutiny has been given to the role and structure of boards of directors.

There is considerable literature on the impact of the composition of boards of directors. According to the classical principal-agent framework (Fama, 1980), shareholders want managers to work in their best interests—that is, to maximize their wealth. However, managers may make decisions based on poor business acumen, such as the selection of suboptimal investments, or self-interest. In this context, governance structure and board composition can be used as tools to monitor managers and reduce agency costs.

A number of corporate governance mechanisms have been proposed to ameliorate the principal-agent problem. These mechanisms include a smaller board size, more outsiders on the board, more board meetings, a higher CEO pay-performance sensitivity, higher managerial ownership, higher institutional ownership, and stronger shareholder rights. Many studies (e.g. Morck, Shleifer, and Vishny, 1988; Yermack, 1996; Gompers, Ishii, and Metrick, 2003) suggest that changing these governance instruments would lead managers to better align their interests with those of their shareholders, resulting in a higher firm value.

One such mechanism that deserves increased scrutiny is the role of independent directors. Independent directors are directors without affiliations with the company (i.e. not current employees, without business or relatives relationships with the company). The common assumption is that independent directors are particularly effective at reducing agency costs and increasing shareholder wealth by using their experience to understand which decisions would improve firm performance and then directing managers to implement those decisions. According to this view, boards controlled by independents can positively influence firm performance. Some studies have found better stock returns and operating outcomes when

outside directors held a significant percentage of board seats (Rosenstein and Wyatt, 1990; Byrd and Hickman, 1992). On the other hand, recent research shows that the presence of independents may have no effect or even reduce firm performance. Yermack (1996), Core et al. (1999), Bhagat and Black (2000), Fernandes (2008), and Kumar and Sivaramakrishnan (2008) document that firms with more independent directors do not have better performance than other firms. One reason could be related to the problem of asymmetric information. Independent directors make decisions based on information they receive from CEOs and other executive directors, who may provide only partial information or information that supports the executives' previously established positions. Without external mechanisms to incentivize independent directors to improve firm performance (such as reputation, monetary incentives, threat of dismissal, etc), board independence alone may be an ineffective tool for good firm results.

Of these previous studies, many have focused on industrial sectors. However, public utility companies until now have been overlooked, despite possessing characteristics that provide an interesting context in which to analyze the efficacy of independent directors. Public utility companies work in a regulated environment<sup>1</sup>, in which the maximization of profit is only one element that must be satisfied. Moreover, since in most countries directors of public utilities are also politicians, their incentive to act upon different stakeholders' interests (i.e. satisfaction of interests of political parties, control of some industries, reduction of unemployment level, development of a specific geographical area, etc.) rather than shareholders' interests can become a concern. While the strong presence of the "Political

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<sup>1</sup> European law distinguishes public utility industries in different segments, each of them characterized by a different market regulation. In particular there are some segments in which more competitors are allowed (in market competition) and others in which the nature of assets required (network) and the impossibility to duplicate them don't permit the presence of more than a competitor for each geographical area. This monopoly market structure is regulated by the "competition for the market" model. In this kind of segments, public utilities offer services of general interest, according to the definition given by the European Commission. Because of these characteristics these segments are regulated in order to guarantee an "efficient and non-discriminatory services" supplying. Despite this distinction, many public utility companies, and first of all energy ones, are involved in different businesses and/or in different segments of these businesses at the same time.

Hand” may favor rent expropriation by directors-politicians, both the pressure of public opinion on politicians and governance mechanisms can serve as limiting factors (Barontini, Bozzi, 2011).

In this context, the role of independent directors in public utilities is more relevant and controversial than in other sectors, even as their empirical impact remains unclear. This article evaluates the effect of the presence of independent directors upon firm performance and firm growth for listed public utility firms within the energy sector. Specifically, we analyze public utilities’ governance characteristics in Italy, Spain, France, and the United Kingdom from 2002 to 2009.

We chose to study a single industry since, as Gertner and Kaplan (1996) argue, optimal governance may differ across industries, making it difficult to identify the effect of governance on performance. Similar arguments have been put forth by Romano (1996) and Hermalin and Weisbach (2003).

Consistent with previous studies in corporate governance, we examined the relationship between the independent directors in the board and firm performance. To proxy firm performance we use three measures: Tobin’s Q, Market Capitalization and Ebit. We further examined how the inclusion of independent directors affects the growth of the firm.

This paper contributes to existing literature on multiple levels. Although this topic has been studied widely, in our knowledge there has been no empirical analysis of regulated public utilities in Europe. Due to the difficulties involved with collecting corporate governance data, prior research has focused primarily on companies within the United States. In addition, the time period we selected was characterized by the introduction of new ways to compete and structure the boards of public utility companies.

The paper is organized as follows: Section 2 reviews the literature; Section 3 describes the data and the estimation methodology; Section 4 presents the empirical results; and Section 5 offers our conclusions.

## **2. Literature review**

In recent years, the value of outside and independent directors has been one of the most widely discussed questions regarding boards. This discussion has paralleled the introduction of new corporate governance codes in Europe that, in turn, have led to an increase in the number of independent directors. This pattern reflects the common view that one of the principal responsibilities of a board is to monitor management, and independent directors—unhindered by internal politics and allegiances—are better able to execute this task.

In academic literature, however, the effects of the presence of independent directors in the board are ambiguous. Some existing literature has examined contemporaneous correlations between accounting measures of performance and the proportion of outside directors on the board, analyzing the issue by considering outsiders as controllers of executive actions (Hermalin and Weisbach, 1991; Mehran, 1995). Hermalin and Weisbach (1998), Klein (1998), and Bhagat and Black (2000) studied relationships between accounting performance measures and the fraction of outside and independent directors on boards within U.S. companies, reporting no significant results. Another approach, suggested by the work of Morck et al. (1988), is to use Tobin's Q as a performance measure in order to reflect the "value added" of intangible factors such as governance. Using this method, Hermalin and Weisbach (1991) found no noticeable relationship between the proportion of independent directors and Tobin's Q. Instead, when Bhagat and Black (2000) examined the effect of board composition on long-term stock market and accounting performance, they found that a larger

number of independents in board composition not only did not improve but may actually reduce firm performance. Hermalin and Weisbach (1998) in turn offered a possible explanation by suggesting that poor performance may lead to an increase in the number of independents in board composition. If true, in a cross-section independent directors would appear at a disadvantage since they would be disproportionately associated with firms with historically poor performance.

All the empirical studies discussed above considered companies within the United States. However, results can vary based on the country selected. Krivogorsky (2006), Garcia-Meca and Sanchez-Ballesta (2006), and Lefort and Urzúa (2008) found, respectively, that for continental European firms listed in the United States, Spain, and Chile, the relationship between the proportion of independent directors on the board and accounting performance was positive and statistically significant.

This research offers an interesting perspective when analyzing the effect of independent directors on firm results within the public utility sector. While directors should make decisions in order to maximize both their shareholders' and consumers' wealth, the public pressure they may face as politicians could similarly influence their effect on firm results.

### **3. Methodology and data**

As discussed above, though most empirical studies consider U.S. companies, Krivogorsky (2006), Garcia-Meca and Sanchez-Ballesta (2006), and Lefort and Urzúa (2008) analyzed continental European firms listed in the United States, Spain, and Chile and found a positive relationship between independent directors on the boards and firms' performances. These results may be stronger when we consider regulated markets and, in particular, public utilities. According to the definition given by the European Commission, public utility

companies offer *services of general interest*. In other words, they should provide “efficient and non-discriminatory service.” According to this view, they should consider social welfare but, since they are listed firms, they also must guarantee an appropriate shareholders’ return. In addition, since most directors of public utilities are politicians or are appointed by politicians, public pressure can push them to satisfy first other stakeholders’ interests rather than shareholders’ interests. Moreover, since independent directors have not affiliations with the company, they are particularly effective at reducing agency costs and increasing shareholder wealth by using their experience to understand which decisions would improve firm performance and then directing managers to implement those decisions. This argument leads to the first hypothesis.

*Hypothesis 1: The relationship between independent directors and firm performance (present and future) in public utilities is positive.*

Since independent directors should monitor CEOs’ and executive directors’ actions and guarantee firm growth in the long run, we also expect a positive relationship between a larger number of independents in board composition and firm growth.

*Hypothesis 2: The proportion of independent directors on the board has a significant positive relationship with firm growth.*

We collected evidence on 43 listed public utility companies within the energy sector in Italy, France, Spain, and the United Kingdom. The panel was based on 344 year-observations for the period from 2002 to 2009. Data was collected from different sources. Financial data came from the Datastream-Worldscope database, which contains historical financial data on



the world's leading public companies. The uniqueness of our dataset comes from the governance data. In particular, data about board structure and board composition were hand-collected by downloading the annual corporate governance reports of each company.

Consistent with previous research, we examined the effect of independent directors on measures of firm performance measured with Tobin's Q, Market Capitalization and Ebit. We measure firm growth as the difference between the logarithm of total assets at the end of the year and the logarithm of total assets of the previous years. We followed the common practice of dividing directors into inside directors (current officers in the company), outside directors (not current employees but likely to have business relationships with the company, such as investment bankers and lawyers; officers in the recent past; or relatives of employees), and independent directors (outside directors without such affiliations). We included a dummy variable to indicate whether the CEO also was the Chairman since it is argued that the power concentration of a joint CEO/Chairman could impede the supervisory ability of the board and, therefore, separation of these roles is good governance.

The regressions were controlled for board size, years, countries, and sectors (divided into gas, electricity, and multi-utilities that also provide energy). Since we had a panel of firms with data both across firms and over time, we use the fixed effect method. This methodology allowed us to control for the unobserved firm effects that influence the dependent variable (present and future firm performance and firm growth) and cannot be measured.

The models we tested are:

$$Performance_{it} = \beta_1 Independent_{it} + \beta_2 Executive_{it} + \beta_3 Bsize_{it} + \beta_4 CEOduality_{it} + \beta_5 X_{it} + \varepsilon_{it}$$

**(1)**

$$Performance_{it} = \beta_1 Independent_{it-1} + \beta_2 Executive_{it-1} + \beta_3 Bsize_{it-1} + \beta_4 CEOduality_{it-1} + \beta_5 X_{it-1} + \varepsilon_{it-1}$$

(2)

Where  $Performance_{it}$  is firm performance measured with three different proxies: Tobin's Q, the logarithmic transformation of market capitalization and the logarithmic transformation of Ebit. Tobin's Q is computed as the ratio of the market value of equity minus book value of equity plus the book value of assets to the book value of assets (Palia, 2001); market capitalization is calculated as Market Price-Fiscal Period End \* Common Shares Outstanding; Ebit is earning before taxes and interests and it is calculated by taking the pre-tax income and adding back interest expense on debt and subtracting interest capitalized.  $Independent_{it}$  and  $Executive_{it}$  are, respectively, the number of independent and executive directors on the board;  $Bsize_{it}$  is the total number of directors on the board;  $CEOduality_{it}$  is a dummy to indicate whether the CEO is also the Chairman; and  $X_{it}$  reflects dummies for years, countries and sectors. Using equation (1) we tested the first hypothesis about the relationship between independent directors and present firm performance. Using equation (2) we tested the relationship between independent directors and future firm performance.

The second hypothesis considered the following model:

$$AnnualGrowthRate_{it} = \beta_1 Independent_{it-1} + \beta_2 Executive_{it-1} + \beta_3 Bsize_{it-1} + \beta_4 CEOduality_{it-1} + \beta_5 X_{it} + \varepsilon_{it} \quad (3)$$

Where  $AnnualGrowthRate_{it}$  is the firm growth rate, measured as the difference between the logarithm of total assets at time t and the logarithm of total assets at time t-1.

As mentioned above, the estimation method used was fixed effect; we selected this method since it is possible to control for many unobservable or difficult-to-measure firm

characteristics and omitted variables that often affect this kind of model. The results are shown in the next section.

Table 1 gives descriptive statistics for the governance variables and financial data in the sample. Descriptive statistics for each country and the correlation matrix are presented in appendices A and B, respectively.

#### **4. Empirical Results**

This section reports the results of the relationship between board variables and firm performance and firm growth. The regressions contain indicator variables that control for the years, the countries, and the sectors (divided into gas, electricity, and multi-utilities that also provide energy).

Table 2 presents the effect of independent directors on firm performance measured as Tobin's Q, market capitalization and Ebit. Controlling for board size, the results show that independent directors do not affect present firm performance and the relationship is not statistically significant. Indeed, executive directors have a positive effect on firm performance, as Tobin's Q, market capitalization and Ebit are considered. We include in the model CEO duality that is a dummy that assume 1 if the CEO is also Chairman. We find that this variable is positive and statistically significant, meaning that when CEO is also Chairman the firm performance is higher.

In the table 3, we test whether the presence of independent directors impacts future firm performance. We test the model considered lagged board variables. Also in this case, the independent directors variable is not statistically significant. Consistent with previous studies about U.S. companies, in European public utilities the presence of independents does not affect future firm performance. One interpretation of these results is that a larger number of independents in the board composition alone does not mean better present and future

performance. Having more independent directors do not lead to an increase in the firm performance. This means that their effectiveness does not depend on the number of independent directors in the boardroom. To increase their effectiveness, it could be necessary, for example, to strength the incentives that they have, such as stronger incentive compensation schemes or a higher reputation effect. Moreover, the results in the table 3 show also that executive directors affect positively future firm performance measured as market capitalization. The relationship is not statistically significant when Ebit and Tobin's Q proxy firm performance. The interpretation of this result is that also in the public utilities executive directors pay more attention of stock market results than accounting measures.

In the table 4, we tested the effect of independent directors on firm growth. Since firm growth is measured as the difference between the logarithm of total assets at time  $t$  and the logarithm of total assets at time  $t-1$ , the board variable also should be lagged at time  $t-1$ . Again the results show that the presence of independent directors does not affect firm growth; however, executive directors and CEO duality do influence firm growth. Specifically, an increase in the number of executive directors leads to a reduction of firm growth.

Again, independent directors do not influence growth rate but executive directors affect it.

## **5. Conclusions**

Corporate governance—and, in particular, board composition and the role of independent directors—has been a topic of much attention lately. Although this recent scrutiny is particularly topical due to well-publicized governance failures and subsequent regulatory changes, corporate governance is an area of longstanding interest. Corporations have an enormous share of economic activity in modern economies, and the cost of their agency

problems and the effect of their corporate governance characteristics are issues of fundamental importance. Regulated sectors, such as that of public utilities, have an additional significance since they provide a service of *general interest*: they have to pay attention to consumers' wealth but, contemporaneously, they have to guarantee an appropriate shareholders' return. It is not surprising that in recent years most European countries have introduced corporate governance codes providing guidelines to improve firm results. According to these codes, the presence of independent directors on agency boards is a tool to reduce organizational costs and improve firm results.

This paper establishes the effects of board variables on firm performance and firm growth, focusing on the role of independent directors. Similar to previous studies on companies within the United States, we find that independent directors do not influence—rather than increase—firm performance. Specifically, we observe no evidence that more independent boards achieve better firm performance and higher firm growth. We find, instead, that executive directors on firms' boards increase present and future firm performance. Our results thus do not support the conventional wisdom that a larger number of independents in the board composition improves firm performance.

One of the reasons, explored in the second section, could be related to the problem of asymmetric information (Kumar and Sivaramakrishnan, 2008). By definition, independents are directors who are not affiliated with the company through past or present business relationships or related to employees. They therefore have limited knowledge about the company and are reliant on information they receive from the CEO and other executive directors to make decisions. Because the information received may be influenced by its source and filtered to better support the decisions of the CEO or executives, the independent directors' lack of comprehensive information could reduce their effectiveness of monitoring.

Another possibility is that some directors who are classified as independent are not truly independent because they are beholden to the company or the company's current CEO may exert too much influence on board decisions. For example, some nominally independent directors may be employed by a foundation that receives financial support from the company, or some directors may have personal relationships with the CEO that affect their independence. Unfortunately, the data needed to capture these relationships are not available.

A third explanation is that independent directors need to be better incentivized. Creating remuneration schemes that push them to increase firm performance could be an instrument that would tie board independence to firm results. Reputation also could provide an incentive for independent directors. Yermack (2004) shows that when firms perform well, the likelihood of obtaining new directorships increases so dramatically that it incentivizes independents. According to him, reputation is one of the strongest motivators for independent directors.

More research is needed to explore these avenues and to evaluate whether value could be added through other board variables, such as an increase in the number of inside directors. An extension of our study also could consider other measures of firm performance (e.g., using accounting profitability ratios) or add other governance variables, such as the percentage of shares owned by directors or dummies for politically connected directors.

**TABLE 1**  
**Descriptive Statistics**

| Variable  | Mean               | Std. Dev.          | Min      | Max                | Obs |
|---|--------------------|--------------------|----------|--------------------|-----|
| 1. Board size   | 10.68              | 3.82               | 3        | 23                 | 271 |
| 2. Number of independent directors                      | 5.30               | 3.16               | 0        | 16                 | 250 |
| 3. Number of executive directors                        | 2.28               | 1.53               | 0        | 9                  | 255 |
| 4. Number of independent directors scaled by board size | 0.49               | 0.24               | 0        | 0.89               | 250 |
| 5. Number of executive directors scaled by board size   | 0.25               | 0.21               | 0        | 1                  | 255 |
| 6. CEO duality  | 0.30               | 0.46               | 0        | 1                  | 265 |
| 7. Total Assets   | $2.21 \times 10^7$ | $3.77 \times 10^7$ | 152.85   | $2.39 \times 10^8$ | 312 |
| 8. Market capitalization                                | $1.30 \times 10^7$ | $2.09 \times 10^7$ | 4334     | $1.48 \times 10^8$ | 284 |
| 9. Ebit   | 1669705            | 3537066            | -6030904 | $2.74 \times 10^7$ | 309 |
| 11. Tobin's Q   | 1.36               | 0.67               | 0.39     | 8.14               | 281 |
| 12. Annual Firm Growth Rate                             | 0.10               | 1.06               | -6.20    | 7.12               | 301 |

*Board Size* is the number of members in the boardroom. *CEO duality* is a dummy that is equal to 1 if the CEO is also the Chairman, 0 otherwise. *Tobin's Q* is measured as the ratio of the market value of equity minus the book value of equity plus the book value of assets to the book value of assets. *Market capitalization* is calculated as Market Price-Fiscal Period End \* Common Shares Outstanding. *Ebit* is Earning before taxes and interests and it is calculated by taking the pre-tax income and adding back interest expense on debt and subtracting interest capitalized. *Annual Firm Growth Rate* is the difference between the logarithm of total assets at time t and the logarithm of total assets at time t-1.

**TABLE 2**  
**Effects of board composition on present firm performance in the public utilities in Europe (years 2000-2009)**

|                              | <i>Tobin's Q</i>  | <i>Log(Mktcap)</i> | <i>L(Ebit)</i>     | <i>ROA</i>       |
|------------------------------|-------------------|--------------------|--------------------|------------------|
| <i>Independent directors</i> | -0.09<br>(-0.57)  | 0.03<br>(0.93)     | 0.02<br>(0.72)     | 1.10<br>(1.02)   |
| <i>Executive directors</i>   | 0.04*<br>(1.73)   | 0.10***<br>(2.94)  | 0.12***<br>(2.80)  | -1.42<br>(-0.64) |
| <i>Board Size</i>            | 0.01<br>(0.89)    | -0.01<br>(-0.67)   | 0.19<br>(0.67)     | -0.90<br>(-0.98) |
| <i>CEO duality</i>           | 0.16***<br>(3.84) | 0.33***<br>(3.02)  | 0.32<br>(1.36)     | 0.21<br>(0.06)   |
| <i>_cons</i>                 | 0.83***<br>(3.05) | 14.71***<br>(6.94) | 12.42***<br>(4.02) | 10.95<br>(0.96)  |
| <i>Years-dummy</i>           | Yes               | Yes                | Yes                | Yes              |
| <i>Fixed Effect</i>          | Yes               | Yes                | Yes                | Yes              |
| <i>R-squared</i>             | 0.19              | 0.56               | 0.32               | 0.05             |
| <i>F-statistic</i>           | 17.87             | 16.38              | 13.56              | 0.74             |
| <i>Prob&gt;F</i>             | 0.00              | 0.00               | 0.00               | 0.69             |

The table shows fixed effect regressions. Standard errors are cluster. T-statistics are reported in brackets. \*, \*\* and \*\*\* denotes significance at 10%, 5% and 1% respectively. All regressions include year dummies. *Tobin's Q* is calculated as the ratio of the market value of equity minus the book value of equity plus the book value of assets to the book value of assets. *Log(Mktcap)* is the logarithmic transformation of market capitalization, calculated as Market Price-Fiscal Period End \* Common Shares Outstanding. *Log(Ebit)* is the logarithmic transformation of Earning before taxes and interests and it is calculated by taking the pre-tax income and adding back interest expense on debt and subtracting interest capitalized. ROA is return on asset for the year and it is equal to (Net Income before Preferred Dividends + ((Interest Expense on Debt-Interest Capitalized) \* (1-Tax Rate))) / Average of Last Year's and Current Year's Total Assets \* 100.



**TABLE 3**  
**Effects of board composition on future firm performance in the public utilities in**  
**Europe (years 2000-2009)**

|                                    | <i>Tobin's Q</i>   | <i>Log(MarketCap)</i> | <i>L(Ebit)</i>     | <i>ROA</i>       |
|------------------------------------|--------------------|-----------------------|--------------------|------------------|
| <i>Independent directors</i> $t-1$ | -0.02<br>(-1.21)   | 0.16<br>(1.00)        | -0.01<br>(-0.61)   | 0.03<br>(0.15)   |
| <i>Executive directors</i> $t-1$   | 0.01<br>(0.67)     | 0.07***<br>(2.03)     | 0.10<br>(1.56)     | 0.57<br>(0.59)   |
| <i>Board Size</i> $t-1$            | 0.60<br>(0.89)     | -0.03***<br>(-2.05)   | 0.01<br>(0.62)     | -0.01<br>(-0.04) |
| <i>CEO duality</i> $t-1$           | 0.02<br>(0.57)     | 0.30***<br>(3.50)     | 0.22<br>(1.33)     | 0.03<br>(0.05)   |
| <i>_cons</i>                       | 1.18***<br>(14.77) | 15.04***<br>(11.33)   | 12.83***<br>(4.28) | 0.35<br>(0.06)   |
| <i>Years-dummy</i>                 | Yes                | Yes                   | Yes                | Yes              |
| <i>Fixed Effect</i>                | Yes                | Yes                   | Yes                | Yes              |
| <i>R-squared</i>                   | 0.30               | 0.61                  | 0.36               | 0.04             |
| <i>F-statistic</i>                 | 17.76              | 16.82                 | 14.24              | 2.49             |
| <i>Prob&gt;F</i>                   | 0.00               | 0.00                  | 0.00               | 0.02             |

The table shows fixed effect regressions. Standard errors are cluster. T-statistics are reported in brackets. \*, \*\* and \*\*\* denotes significance at 10%, 5% and 1% respectively. All regressions include year dummies. Independent variables are lagged. *Tobin's Q* is calculated as the ratio of the market value of equity minus the book value of equity plus the book value of assets to the book value of assets. *Log(Mktcap)* is the logarithmic transformation of market capitalization, calculated as Market Price-Fiscal Period End \* Common Shares Outstanding. *Log(Ebit)* is the logarithmic transformation of Earning before taxes and interests and it is calculated by taking the pre-tax income and adding back interest expense on debt and subtracting interest capitalized. ROA is return on asset for the year and it is equal to (Net Income before Preferred Dividends + ((Interest Expense on Debt-Interest Capitalized) \* (1-Tax Rate))) / Average of Last Year's and Current Year's Total Assets \* 100.

**TABLE 4**  
**Effects of board composition on firm growth in the public utilities in Europe (years 2000-2009)**

|                                    | <i>Annual Growth Rate</i> |                     |
|------------------------------------|---------------------------|---------------------|
| <i>Independent directors</i> $t-1$ | 0.03<br>(0.58)            | 0.03<br>(0.50)      |
| <i>Executive directors</i> $t-1$   | -0.28***<br>(-2.79)       | -0.30***<br>(-3.31) |
| <i>Board Size</i> $t-1$            | -0.08<br>(-1.52)          | -0.09*<br>(-1.82)   |
| <i>CEO duality</i> $t-1$           | -0.60***<br>(-2.00)       | -0.36<br>(-1.29)    |
| <i>_cons</i>                       | 1.66***<br>(3.41)         | 1.70***<br>(3.18)   |
| <i>State-owned</i>                 |                           | 0.08<br>(0.15)      |
| <i>Years-dummy</i>                 | Yes                       | Yes                 |
| <i>Fixed Effect</i>                | Yes                       | Yes                 |
| <i>R-squared</i>                   | 0.13                      | 0.12                |
| <i>F-statistic</i>                 | 2.49                      | 1.93                |
| <i>Prob&gt;F</i>                   | 0.00                      | 0.03                |

The table shows fixed effect regressions. Standard errors are cluster. T-statistics are reported in brackets. \*, \*\* and \*\*\* denotes significance at 10%, 5% and 1% respectively. All regressions include year dummies. Independent variables are lagged. *Annual Growth Rate* is calculated as the difference between the logarithm of total assets at time t and the logarithm of total assets at time t-1. *State-owned* is a dummy that it is equal to 1 if the company is controlled by a state or a municipality.

**APPENDIX A**  
**Descriptive statistics by country (thousands of euros)**

|   | <b>Mean</b> | <b>Median</b> | <b>Min</b> | <b>Max</b>           |
|---|-------------|---------------|------------|----------------------|
| ITALY   |             |               |            |                      |
| <i>Board Variables</i>                                  |             |               |            |                      |
| 1. Board size   | 9.87        | 9             | 4          | 18                   |
| 2. Number of independent directors                      | 6.06        | 6             | 1          | 16                   |
| 3. Number of executive directors                        | 1.64        | 1             | 1          | 6                    |
| 4. Number of independent directors scaled by board size | 0.60        | 0.70          | 0.01       | 0.89                 |
| 5. Number of executive directors scaled by board size   | 0.17        | 0.14          | 0.08       | 0.56                 |
| 6. CEO duality  | 0.23        | 0.00          | 0          | 1                    |
| <i>Financial Variables (thousand euro)</i>              |             |               |            |                      |
| 7. Total Assets   | 19,826,570  | 4,306,183     | 144,828    | 1.54*10 <sup>8</sup> |
| 8. Market capitalization                                | 12,496,678  | 2,161,580     | 43,121     | 93,776,560           |
| 9. Tobin's Q  | 1.16        | 1.14          | 0.78       | 1.63                 |
| SPAIN   |             |               |            |                      |
| <i>Board Variables</i>                                  |             |               |            |                      |
| 1. Board size   | 14          | 15            | 9          | 21                   |
| 2. Number of independent directors                      | 6.47        | 6.50          | 0          | 12                   |
| 3. Number of executive directors                        | 1.79        | 1             | 1          | 9                    |
| 4. Number of independent directors scaled by board size | 0.44        | 0.45          | 0          | 0.80                 |
| 5. Number of executive directors scaled by board size   | 0.13        | 0.10          | 0.06       | 0.64                 |
| 6. CEO duality  | 0.52        | 1.00          | 0          | 1                    |

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|   |            |            |        |            |
|---|------------|------------|--------|------------|
| <i>Financial Variables</i><br>(thousand euro) |            |            |        |            |
| 7. Total Assets                               | 22,382,384 | 10,672,920 | 35,661 | 88,095,060 |
| 8. Market capitalization                      | 12,634,784 | 8,637,600  | 42,664 | 50,708,580 |
| 9. Tobin's Q                                  | 1.37       | 1.36       | 0.91   | 1.87       |

#### UNITED KINGDOM

|   |      |      |   |      |
|---|------|------|---|------|
| <i>Board Variables</i>                                  |      |      |   |      |
| 1. Board size   | 8.83 | 9.50 | 4 | 14   |
| 2. Number of independent directors                      | 4.32 | 4    | 0 | 8    |
| 3. Number of executive directors                        | 3.45 | 3    | 0 | 6    |
| 4. Number of independent directors scaled by board size | 0.45 | 0.50 | 0 | 0.72 |
| 5. Number of executive directors scaled by board size   | 0.39 | 0.40 | 0 | 1    |
| 6. CEO duality  | 0.04 | 0    | 0 | 1    |

|   |           |           |           |            |
|---|-----------|-----------|-----------|------------|
| <i>Financial Variables</i><br>(thousand euro) |           |           |           |            |
| 7. Total Assets                               | 9,334,861 | 6,955,368 | 152.85    | 49,915,580 |
| 8. Market capitalization                      | 8,248,169 | 3,769,870 | 20,494.83 | 49,569,753 |
| 9. Tobin's Q                                  | 1.50      | 1.31      | 0.33      | 8.14       |

#### FRANCE

|   |       |       |   |      |
|---|-------|-------|---|------|
| <i>Board Variables</i>                                  |       |       |   |      |
| 1. Board size   | 12.34 | 13.50 | 3 | 23   |
| 2. Number of independent directors                      | 4.60  | 4     | 0 | 11   |
| 3. Number of executive directors                        | 1.50  | 1     | 0 | 6    |
| 4. Number of independent directors scaled by board size | 0.36  | 0.38  | 0 | 0.79 |
| 5. Number of executive directors                        | 0.22  | 0.07  | 0 | 1    |

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|   |            |            |       |                      |
|---|------------|------------|-------|----------------------|
| scaled by board size                          |            |            |       |                      |
| 6. CEO duality                                | 0.65       | 1          | 0     | 1                    |
| <i>Financial Variables</i><br>(thousand euro) |            |            |       |                      |
| 7. Total Assets                               | 43,023,781 | 25,605,505 | 7,028 | 2.39*10 <sup>8</sup> |
| 8. Market capitalization                      | 21,119,052 | 8,797,522  | 4,334 | 1.48*10 <sup>8</sup> |
| 9. Tobin's Q                                  | 1.41       | 1.33       | 0.94  | 2.64                 |

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**APPENDIX B**  
**Matrix correlation**

|                                    | 1       | 2       | 3        | 4     | 5       | 6    | 7       | 8    |
|------------------------------------|---------|---------|----------|-------|---------|------|---------|------|
| 1. Board size                      | 1.00    |         |          |       |         |      |         |      |
| 2. Number of independent directors | 0.67*** | 1.00    |          |       |         |      |         |      |
| 3. Number of executive directors   | -0.07   | -0.13** | 1.00     |       |         |      |         |      |
| 4. CEO Duality                     | 0.21*** | 0.03    | -0.33*** | 1.00  |         |      |         |      |
| 5. Log (Ebit)                      | 0.33*** | 0.27*** | 0.07     | 0.01  | 1.00    |      |         |      |
| 6. Log(Market Cap)                 | 0.41*** | 0.27*** | 0.05     | 0.07  | 0.95*** | 1.00 |         |      |
| 7. Tobin's Q                       | -0.07   | -0.06   | 0.00     | -0.02 | -0.13** | 0.08 | 1.00    |      |
| 8. Annual Growth Rate              | -0.08   | -0.04   | 0.09     | -0.06 | 0.05    | 0.03 | 0.15*** | 1.00 |

*Board Size* is the number of members in the boardroom. *CEO duality* is a dummy that is equal to 1 if the CEO is also the Chairman, 0 otherwise. *Log(Ebit)* is the logarithmic transformation of Earning before taxes and interests and it is calculated by taking the pre-tax income and adding back interest expense on debt and subtracting interest capitalized. *Log(Mktcap)* is the logarithmic transformation of market capitalization, calculated as Market Price-Fiscal Period End \* Common Shares Outstanding. *Tobin's Q* is calculated as the ratio of the market value of equity minus the book value of equity plus the book value of assets to the book value of assets. *Annual Growth Rate* is calculated as the difference between the logarithm of total assets at time t and the logarithm of total assets at time t-1..

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