

STUDY ON THE INFLUENCE OF GOVERNANCE MECHANISMS ON PERFORMANCE: EVIDENCE OF NONLINEAR RELATIONSHIPS OF LISTED COMPANIES IN DIFFERENT CONTEXTS

J. Augusto Felício*, Ricardo Rodrigues**

Abstract

This work concerns the study of the influence of governance mechanisms on the performance of listed companies in different contexts, with evidence for nonlinear relationships. The sample consisting of 146 companies is grouped in 46 Portuguese and 100 British companies. The multiple linear regression and nonlinear regression were used. It was concluded that the influence of governance mechanisms on the performance of companies in different contexts is diverse and that there are nonlinear relationships whose effect represents an important contribution to understand the governance model.

Keywords: Governance Mechanisms, Performance, Agency Theory, Nonlinear Relationships

* Management Department, ISEG – School of Economics and Management, Technical University of Lisbon, Lisbon, Portugal
Email: jaufeli@iseg.utl.pt or jaufeli@netcabo.pt

** Centre for Management Studies, ISEG – School of Economics and Management, Technical University of Lisbon, Portugal

1. Introduction

The literature distinguishes the Anglo-American, or outside model based on shareholder dispersion, and the European Continental and Japanese model, or inside model, based on the shareholder concentration (Aguilera and Jackson, 2003). However, globalization reinforces the importance of the governance mechanisms and the convergence of these models in the valuation of organizations and in defence of shareholder interest (Armour et al., 2003; Lane, 2003). This convergence influenced by the diffusion of codes of good governance (Zattoni and Cuomo, 2008), seems to overlook factors specific to each country, leading to potential disparity between governance practices and company performance. Its importance stems from the role of good governance to ensure the owners control over the managers (Jensen and Meckling, 1976; Fama and Jensen, 1983; Eisenhardt, 1989) and firms with poor governance being unable to adopt strategies for recovery and value creation for shareholders (Adjaoud et al., 2007).

There is insufficient knowledge of how different mechanisms of governance, for example, the composition of the board of directors and leadership structure of the company (Barnhard and Rosenstein, 1998; Wagner et al., 1998; Dalton et al., 1998; Rhoades et al., 2000) and other factors as the type of activity, influence the performance, due to the impact on the company's valuation and earnings for shareholders (Johnson et al., 1996; Coles et al., 2001).

This work relies on agency theory and stewardship theory, to support the mechanisms of corporate governance, and institutional theory (DiMaggio and Powell, 1983; Scott, 2001) to assess how, in particular, the context affects the mechanisms of governance.

The theoretical model is essentially based on the agency problem and collective action in an attempt to answer to the insufficient understanding of the effects of control mechanisms on performance, as there are different results. The well-known conflict of interest or confluence of interest between principal and agent are associated with greater or lesser shareholder dispersion.

The fact that the majority of studies base their analysis on linear relationships could justify the disparity in results, especially when some of the mechanisms of control exhibit nonlinear effects and thus obtaining critical issues enabling better knowledge of the governance models. The study examines this important theoretical gap enabling better understanding of the effect of certain control mechanisms in the performance of companies and the complexity of these models. Due to the fact that the study of linear relationships is not conclusive, De Miguel et al. (2005) analyzed the control mechanisms based in the nonlinear relationships, assuming the premise that if the relationship between some of the mechanisms and performance is nonlinear there may be points of optimization.

As there are many governance mechanisms, (Yermack, 1996, Shleifer and Vishny, 1997; Klein,

2002; Hermalin and Weisbach, 2003; Vafeas, 2003; Mintz, 2005; Lasfer, 2006, Erickson et al., 2006; Larcker et al., 2007) we decided to choose only four of these mechanisms, in order to simplify the model and the detail analysis of linear and nonlinear relationships, i.e. the composition of the board of directors (Daily and Dalton, 2003), separation of roles between Chairman and CEO (Bhagat and Black, 1999), incentives for managers (Westphal and Zajac, 1994) and the concentration of voting rights (Lins, 2003).

The focus is to assess the impact of governance mechanisms on the performance of companies and verify if these relationships have a linear or nonlinear behaviour, and if so, determine the critical points for a better understanding of the governance model. It was decided, also, by considering different contexts and analyze the effects of size (Klapper and Love, 2003) and business activity (Demsetz and Lehn, 1985). What governance mechanisms influence the performance? Is this influence linear or does it exhibit nonlinear behaviour? Is that relationship different or not depending on the context? Does the firm size and type of activity affect the model?

After the introduction and literature review, the following section presents the conceptual model and the model variables. The fourth section presents the instruments and the sample, the fifth section the data and statistical results and in the following section the discussion is developed. Finally, the conclusions are drawn and the implications for management, guidelines for future research and limitations and recommendations are presented.

2. Literature review

In the Seventies the agency theory, associated with the separation between ownership and corporate control, was presented as a central feature of modern capitalism and one of the main issues in stake in corporate governance. The agency problem is important in the relationship between ownership and control within the contractual perspective of the firm (Shleifer and Vishny, 1997; Paterson, 2001; Learmount, 2002) and relevant in the relationship between majority and minority shareholders for reasons of expropriation (La Porta et al., 1999). Their magnitude and nature, according to Gillan and Starks (2003), are associated directly with the ownership structure and differ from country to country, with variations in how different they are, the kind of consequences and solutions found. This theory supports the Anglo-American model of corporate governance based on creating shareholder value (Armour et al., 2003) and profitability and business growth. However, in Continental European and Japanese model, besides the shareholders there are other agents that play an important role in influencing firms, as the case of workers, suppliers and customers in formal terms or in the case of the community in

informal terms, by admitting that stakeholders assume risks associated with business activity involving the need to ensure better increase in value.

Several authors (Shleifer and Vishny, 1997; Gillan and Starks, 2003; Bhojraj and Sengupta, 2003; Gompers et al., 2003) consider that the adoption of certain measures of governance contributes to improved performance in the interests of shareholders, or the value of assets, and interests of stakeholders. According to Lane (2003), these “measures of governance” can be grouped and strengthen the internal control mechanisms, associated with shareholder concentration, and external control mechanisms associated with situations of greater dispersion. It is assumed that the purpose of various control mechanisms adopted in the agency perspective is to align interests between managers and shareholders, through the control and monitoring of agents, to act in the best interest of the principal or the valuation of companies (Eisenhardt, 1989; Daily et al., 2003; Dalton et al., 2003; Hill and Jones, 2004).

The stewardship theory focuses on another important discussion about the guardian manager (steward) of assets and valuation of the company. In this case, the separation between ownership and control should be an advantage, as managers tend to be more motivated to act in the interest of the company rather than in their own interest, particularly senior managers, imbued with ensuring the continuity and long-term success. Notwithstanding the existing supervision and monitoring systems, it is necessary to ensure that assets are managed in the best interest of the company (Wheelen and Hunger, 2002; Learmount, 2002). This, because it is not the same to act in the valuation of companies or in the interest of shareholders, as in many cases, for specific reasons, it does not match with the defence of company assets. According to the theory of stewardship, in many situations, managers act in seeking valuation of companies, which in the immediate situation may be detrimental to shareholders in order to safeguard the long-term assets.

The institutional theory extends to understanding the processes that tend to make organizations more similar and with different performance (DiMaggio and Powell, 1983) by use of cognitive-cultural approach (Scott, 2001). The interest and behaviour of shareholders and managers are influenced by personal factors and other effects of the social, cultural and economic environment. However, firms in similar environments may have different results which lead to induce the importance of factors intrinsic to organizations.

Most studies derive from analysis based on linear relationships between control mechanisms and performance, with mixed results in regard to the choice of governance models. In this sense, De Miguel et al. (2005) ascertained the importance of analyzing the nonlinear relationships. Their

verification enables to evaluate the alternatives, as the behaviour of relationships with the identification of critical points will be better understood. Consequently, the following working hypotheses are formulated:

Hypothesis 1: The governance mechanisms influence corporate performance differently in distinct contexts.

Hypothesis 2: The relationships between governance mechanisms and performance are linear and nonlinear.

Business characteristics such as size and sector of activity are determined by the business and investment strategies adopted and also by the control exerted by shareholders and the board of directors, ascertaining that a certain type of investors tend to invest in specific sectors. These characteristics influence the performance of companies (Tam and Tan, 2007). Several empirical studies show that the composition of the board is influenced by activity, size and age of the company (Adams and Mehran, 2003; Raheja, 2005; Boone et al., 2007). In turn, Anderson and Reeb (2003) found that size is negatively related to the valuation of the company. It was decided to consider different contexts and the effects of size and sector of activity in which companies operate, which led to the formulation of following hypotheses:

Hypothesis 3: The company size and sector of activity influence the governance mechanisms and performance, differently in distinct contexts.

Hypothesis 3 (a): The company size influences negatively in non-linear relationships the valuation of the company.

Hypothesis 3 (b): The sector of activity influences positively the return on equity and the growth of the company activity.

To reduce the problems of collective action, Becht et al. (2003) admitted the existence of alternative models, particularly based on the concentration of ownership, the board of directors and incentive compensation for executives. In another sense, Baysinger and Hoskisson (1990) indicate that, among the internal mechanisms, the separation of duties between the board chairman and CEO contributes to satisfy stakeholders and improves corporate governance. In turn, Armour et al. (2003) and Jobome (2006) report the need to use different mechanisms of governance to ensure the valuation of the company, for which they resorted particularly to independent directors and the incentives for managers.

Given the importance of the Cadbury report and in response to its recommendations, Marchica and Mura (2005) showed that it increased the proportion of independent directors on the boards of UK companies, where the manager's control prevails. This happened because the independent directors have been given the duty to avoid some of the relationships that might interfere with the exercise of their

judgement (Matolsky et al., 2004) for the protection of minority interests which requires better oversight, integrity in action and good understanding of business. Ghosh and Sirmans (2003) highlight the fact that their appointment to the board is one of the important mechanisms to reduce agency problems that affect performance. This means, according to Li (1994), that the independence of managers and legal power must imbue the structure of firms, in line with Daily and Dalton (2003) when referring that "more independent boards will result in greater oversight of corporate management and that this, in turn, will lead to improved firm performance".

There are, however, empirical studies that have produced mixed results regarding the effects of board independence on firm performance (Bhagat and Black, 2000; Daily and Dalton, 1994; Kiel and Nicholson, 2003). Some do not prove the relationship and others do confirm, although it was not significant (Daily and Dalton, 1997; Brickley et al., 1997; Dulewicz and Herbert, 2004).

The companies generally admit independent managers to improve the effectiveness of control, although there is little evidence that they are associated with higher performance (Hermalin and Weisbach, 2003) because the composition of the board is endogenous and improves monitoring and information provided (Raheja, 2005; Coles et al., 2006). In the same vein, Weir and Laing (1999) and Fosberg (1989) argue that because the boards have a majority of independent directors it does not imply that performance is better compared with boards consisting mainly of dependent directors and there was any relationship between the proportion of independent directors and the performance measures (ROE and sales). However, Nicholson and Kiel (2007) report that Lawrence and Stapledon (1999) found no robust relationship between the proportion of independent managers and various measures of performance, while Hermalin and Weisback (1991) found no such relationships. In turn, Dalton et al. (1998) found no relationship between board composition and performance, while Rhoades et al. (2000) found weak positive relationships. Other studies found that high growth companies, with higher proportion of independent managers on board, attained better performance, based on rate of return on equity (ROE) (Hutchinson, 2002). However, Uzun et al. (2004) found that the greater proportion of independent directors was associated with a lower probability of committing acts detrimental to the development of the company.

These various results lead us to conclude that the existence of a number of independent managers may have positive effects on performance but that its greater or lesser number can affect the results in a different way or simply not influence. The possibility of this behaviour occurring for reflecting the nonlinearity of the relationship leads to its evaluation.

Rhoades et al. (2001) ascertained, based on the contingency model suggested by Finkelstein and D'Aveni (1994), that the independent board structure was beneficial when the company's performance and power of managers were weak, because it strengthens the leadership and allows greater unity of command. Abdullah (2004) found a negative relationship between board independence and firm performance. In turn, Baysinger and Butler (1985), Rosenstein and Wyatt (1990), Peng et al. (2003) and Bonn (2004) found that the existence of independent managers had positive relationship with performance and contributes to value the company. Geddes and Vinod (1997) and Weisbach (1998) indicate that in firms with weak performance the existence of a significant number of independent managers improves business results. Rechner and Dalton (1991) and Finkelstein and D'Aveni (1994) found evidence that the choice of independent directors reflects positively on performance. In turn, Hambrick and Jackson (2000) found evidence that firms with independent managers had better performance by introducing improvements in governance. As a result, the following working hypothesis is formulated:

Hypothesis 4: The existence of independent directors on the board influences in a nonlinear way the performance of the company.

Regarding the management structure of the board, it is ascertained that the Unitarian structure of the board or concentration in management is prevalent in Anglo-Saxon countries (Hopt and Leyens, 2004), Japan (Jackson and Moerke, 2005) and European countries with exception of Germany, the Netherlands and Austria (Gregory and Bosch, 1999) where the structure adopted has been the dualistic or of management separation. However, in the composition of the board, the separation of the chairman and CEO is essential to reduce agency costs (Fama, 1980) with a positive influence on company performance (Learmount, 2002; Kiel and Nicholson, 2003).

In an industry with limited resources or more complex, the concentration of functions correlates positively with the ROI, while the duality of functions shows no significant relationship (Boyd, 1995). Peng (2004) ascertained that in economies in transition, firms with unified functions recorded higher sales growth but not of ROE. He further noted that the efficiency could be improved by adopting the dual function, as it reduces the information asymmetry, due to a more focused management and business goals aligned with the own interests and by the fact that transaction costs improve and thus the performance.

Research results are mixed on the effects of the functions duality or unity on company performance. Authors found a positive relationship between duality and performance (Boyd, 1995), which was contrary to what Dalton et al. (1998) and Coles et al. (2001) found. Still others showed that duality did not affect nor improve performance (Weir and Laing, 1999).

Baliga et al. (1996) ascertained that there is weak evidence that the duality of functions affects the long-term performance of companies. Faced with such diverse situations and considering for this study companies operating in different contexts, the following hypotheses are formulated:

Hypothesis 5: The concentration of management functions positively influences the ROE and growth of business activity but a separation of functions influences the valuation of the company.

The incentives given to managers (or sanction) by contingent compensation, is also based on agency theory and aims to promote their alignment with the owners or shareholders of the company with effect on performance, at least partially (Beatty and Zajac 1994; Zajac and Westphal, 1994; McDonald et al., 2008). According to the theorists of agency, managers receive financial rewards depending on the results of the company for which they are evaluated (Westphal and Zajac, 1994; Daily et al., 2003). However, Kubo (2005) considers that there are few the studies that examine the effects on performance of companies of the remuneration policy and that this relationship is weak in the case of large Japanese companies.

Studies of corporate governance (Dalton et al., 2003; Jensen and Murphy 1990) have shown that the incentives that are based on the high incomes of CEOs' are strongly related to the success of firms and its value. Tosi and Gomez-Mejia (1994) showed, in turn, that monitoring of the board compensation has an effect on company performance. Mishra and Nielsen (2000) go further and argue that the payment made to executives for performance, by aligning the interests of shareholders with incentives provided to managers, should be an option for independent managers.

The causal relationship between managers' remuneration and performance of companies is not yet clear, with studies showing the relationship (Boyd, 1994) and other studies not proving it (Hempel and Fay, 1994; Vafeas, 1999).

Ittner et al. (2003), Larcker (2003) and Ryan and Wiggins (2004) prove and the evidence indicates that supervision of the board tends to reinforce the links between company performance and way of CEO compensation. Jensen and Murphy (1990), Conyon and Peck (1998) and Cordeiro et al. (2000) ascertained that managers' compensation was positively related to company performance, particularly with the growth. Vafeas (1999) found no significant relationship between the incentives given to managers and performance. As a result, the following hypothesis is formulated:

Hypothesis 6: The adoption of performance-based incentives influences positively the ROE and the growth of the company activity and doesn't influence the valuation of the company.

Recent studies (Wiwattanakantang, 2001; Lins, 2003; Suto, 2003) found that ownership concentration positively influences the performance of companies,

especially relevant in countries where investor protection is low, for mitigating the conflicts between owners and managers by aligning both interests or because the owners use strong control action. It is, however, ascertained that the excessive concentration of voting rights despite reducing the problem of collective action can lead to situations of expropriation of minority shareholders. Tam and Tan (2007) consider that the concentration of ownership and control leads managers to the entrenchment and mastery or control of the shareholders' interests.

Marchica and Mura (2005) referring to Asian companies consider corporate governance a weakness to overcome, which the rapid growth of newly industrialized economies has not allowed to mature, to ensure appropriate governance structure and good performance. In the study of governance practices in companies in Malaysia, it was ascertained that there are no significant relationships between concentration of ownership and company performance, but there are variations in the company performance with different types of property. The different results may indicate that the greater or lesser shareholder concentration binds with the options of governance that the nonlinear relationships can portray.

Liu (2005) pointed out that the dispersion of ownership allows the market and not the largest shareholders to influence the development and implementation of corporate governance. Kapopoulos and Lazaretus (2007), based on Greek companies listed on stock markets, noted the influence of ownership structure on company performance. With reference to literature the following hypothesis is formulated:

Hypothesis 7: The concentration of shareholder voting rights influences positively the valuation of the company and doesn't influence ROE and the growth of the company activity.

3. The conceptual model and variables

The research model is based on the evaluation of the relationship between governance mechanisms and performance of companies.

Four independent variables were chosen to characterize the mechanisms of governance: the percentage of independent directors on the board of directors (PID), separation of roles between the Chairman and the CEO (SCC), remuneration of managers (VRM), and concentration of the voting rights (CVR). Four dependent variables were chosen to measure corporate performance: return on equity (ROE), Tobin's q ratio (Q), market to book ratio (MBR) and sales growth rate (SGR). The two control variables were firm size and activity sector.

3.1 Independent variables

Independent board members are considered to provide an impartial evaluation of top managers' activity,

enrich the board with added experience, and help to raise the quality of the board of directors (Bhojraj and Sengupta, 2003; Wood and Patrick, 2003). In this study, the percentage of independent directors on the board of directors was calculated based on the information provided by the companies in their reports. Note that this information, though the concepts of independence derive from specific regulations in each country, can also depend on the interpretation made by each company of those regulations.

The separation of roles between the Chairman and the CEO is a way to address the non-compatibility of supervision and decision duties (Davis and Kay; 1993). In this work, the separation of duties between the Chairman and the CEO was classified as a dummy variable with 0 standing for duties concentration and 1 for roles separation.

According to several authors, a properly drawn remuneration plan (in view of performance) will contribute to align managers' and shareholders' interests, minimising the agency problem (Becht et al., 2003). The variable used in this work was the variable remuneration of the managers, calculated using disclosed information concerning the yearly remuneration of the executive members of the board.

A line of thought associates corporate governance to a high capital dispersion pattern, leading to the existence of a high number of shareholders, whereby none of them has a dominating position over the remaining (La Porta et al., 2000). In this situation a "semi-concentrated property" (Becht et al., 2003) would be a solution for the collective action and agency problems, a conclusion reached in several studies (Pivovarsk, 2003; Guriev and Rachinsky, 2005). In this work, the information concerning the three major shareholdings and their voting rights was summarized in the variable concentration of voting rights.

3.2 Dependent and control variables

Return on equity (ROE) is determined based upon the relation between net income (NI) and equity (E). This ratio is the privileged measure of efficiency for shareholders and investors. Brealey and Myers (2000), state that this is a ratio which allows checking the "efficiency level in which the corporations are using their equity".

Tobin's q ratio (Q) is based on the market and expresses the company evaluation made by investors. The ratio establishes the relation between the "market value of the indebtedness sum and equity of a company and the reposition cost of its assets" (Brealey and Myers, 2000). This indicator has been used in many studies (Loderer and Martin, 1997; Cho, 1998; Demsetz and Villalonga, 2001). Wiwattanakantang (2001) studied the effectiveness of the existing corporate governance mechanism on performance using Tobin's Q. La Porta et al. (2002)

used an alternative calculation method for Q to study the relationship between the protection of investors and the valorisation of corporations, which will be followed in the scope of this work. The ratio establishes the relationship between the ‘book value of assets less book value of common equity less deferred taxes plus market value of common equity’ and the ‘book value of assets’.

The market to book ratio (MBR) compares the market value of shares with its book value. This ratio corresponds to an index of the value created for the shareholder for the total investment he or she made in the company. The ratio establishes the relationship between the ‘market value’, and the ‘book value’.

The sales growth rate (SGR) measures the operational performance of corporations (Gompers et al., 2003). This variable avoids the repercussions of “profit volatility and manipulability” in relation to the profit growth. The ratio establishes the relation between the ‘sales (i) less sales (i-1)’ and the ‘sales (i-1)’, in which i represents the year.

Firm size (Cho and Kim, 2007) is calculated using the natural logarithm of the assets of the companies as a continuous variable.

The variable sector of activity (Tam and Tan, 2007) is calculated as dummy variable of the financial sector.

4. Research methods

4.1 Data collection/sample

The “reports and accounts” and the “report on corporate governance” of the 46 corporations listed on December 31, 2004, 2005, 2006, coinciding with the year’s closing, at the main market of Euronext Lisbon, are the universe, and were obtained at the Portuguese Stock Market Supervisory Authority (CMVM).

From the main market of London Stock Exchange (LSE), consisting of 1.294 firms (31 October 2006), 100 companies were selected randomly, using an algorithm to replicate the structure of the UK market, and their reports and accounts were collected from their institutional sites. Since the fiscal year is not identical for all companies and differs from the calendar year, we tried to approximate the conditions of the sample of study years 2004, 2005 and 2006. In statistics, we used the average of three years. The final sample consisted of 146 listed companies, of which 46 Portuguese companies and 100 UK companies.

4.2 Instruments

We used simple linear regression and multiple regression models. In the case of non-linear regressions, we proceeded to the necessary transformation of variables aiming at its’ linearization. The conditions of applicability of the

linear regression model were checked, using in particular the Durbin-Watson statistic, residuals analysis, VIF statistics and eigenvalues and condition index.

The analysis of contribution of each of the variables in the model was carried out through its’ coefficient, signal and significance. The analysis of multiple regression models, built up on simple relationships already known, took into consideration the coefficient of variability adjusted and the respective p-value.

5. Analyse and Results

5.1 Descriptive analysis

The companies listed in Portugal, based on average sales in the period of three years, on average, were nearly double the size of listed companies in the UK, have assets about eleven times higher, have more than doubled equity and recorded less than three times the results (Appendix A, Table A.1 and Table A.2). This should result from the fact that the sample matches the universe of Portuguese companies, consisting of larger companies, which should reflect the lower propensity of firms to enter the stock market and therefore less maturity of the market and a lower relative importance of the stock market in the financing of companies.

The data also show, on average, that British companies have on the board a majority of independent directors, about double compared to the Portuguese companies that, on average, represent a minority; that Portuguese companies opt for a higher percentage of variable compensation than British companies; and that the level of dispersion of capital is clearly differentiated, being British companies in general characterized, by “widely-held” while the Portuguese companies, in large measure, are characterized by “block-holdings”.

GDP per capita in PPS, Portugal, with 10.6 million inhabitants in 2007 was of 76.2 of the EU27 average = 100 and in the UK, with 60.8 million inhabitants, of 119,2.

5.2 Exploratory Analysis

The multiple linear regression model was used to analyze the cumulative effect of independent variables on each dependent variable. To optimize results for each pair of independent and dependent variables were used linear and simple nonlinear regressions and functions were obtained with better explanatory power and significance relationships between variables.

5.2.1 Portugal

By applying the multiple regression for each of the performance variables, it was ascertained that the

return on equity (ROE) is explained by variables separation of roles (SPP) and incentive compensation (VRM) in 13.2% of the total variability in the adjusted model ($\alpha = 0.025$) (Table 1). The valuation of companies measured by Tobin's Q is explained by the independent variables of board composition (PID), SCC, sector and in 18.7% of the total variability in the

adjusted model ($\alpha = 0.019$) and measured by market to book ratio (MBR) variables explained by PID and SCC in 17.7% of the total variability ($\alpha=0.008$). The growth in sales (SGR) is explained by the variables size, sector and VRM in 9.0% of the total variability ($\alpha=0.084$).

Table 1. Standardized coefficients of multiple linear regressions – Portugal

Independent Variable	ROE	Q	MBR	SGR
Size				0.252
Sector		-0.377 **		0.101
PID		1.025 **	0.232	
PID^2		-0.960 **		
SCC	0.286 ***	0.111	0.363 **	
VRM	0.234			0.153
R2 adjusted	13.2% **	18.7% **	17.7% *	9.0% ***
p-value model	0.025	0.019	0.008	0.084

Significance: * $\alpha = 0.01$, ** $\alpha = 0.05$ e *** $\alpha = 0.10$

In the study of relationships between each independent variable and the dependent variables, the simple linear regression was used. We analyzed then the more common nonlinear functions, in particular

the quadratic and cubic function as alternatives to linear function, in search of better explanatory power for each relationship (Table 2).

Table 2. Values R2 and p-value of simple regressions. Portuguese companies

Independent Variables	Dependent Variables							
	ROE		Q		MBR		SGR	
Size (Assets)	Linear	Ln	Linear	Quadr.	Linear	Cubic	Linear	n. d.
	0.004 (0.697)	0.057 (0.113)	0.025 (0.295)	0.051 (0.325)	0.024 (0.311)	0.041 (0.415)	0.102 (0.031)	n. d.
Sector (Dummy)	Linear	n. d.	Linear	n. d.	Linear	n. d.	Linear	n. d.
	0.011 (0.493)	n. d.	0.085 (0.049)	n. d.	0.060 (0.106)	n. d.	0.067 (0.082)	n. d.
PID	Linear	Quadr.	Linear	Quadr.	Linear	n. d.	Linear	n. d.
	0.000 (0.891)	0.052 (0.341)	0.034 (0.230)	0.130 (0.058)	0.083 (0.058)	n. d.	0.047 (0.155)	n. d.
SCC	Linear	n. d.	Linear	n. d.	Linear	n. d.	Linear	n. d.
	0.117 (0.027)	n. d.	0.083 (0.065)	n. d.	0.166 (0.007)	n. d.	0.031 (0.268)	n. d.
VRM	Linear	n. d.	Linear	Quadr.	Linear	Quadr.	Linear	n. d.
	0.123 (0.023)	n. d.	0.009 (0.535)	0.089 (0.155)	0.003 (0.720)	0.028 (0.567)	0.067 (0.094)	n. d.
CVR	Linear	n. d.	Linear	Cubic	Linear	Cubic	Linear	Cubic
	0.059 (0.121)	n. d.	0.024 (0.318)	0.067 (0.433)	0.044 (0.175)	0.064 (0.456)	0.001 (0.806)	0.118 (0.174)

Note: Numbers without brackets correspond to R2. The numbers in brackets refer to significance of regression (p-value).

By studying each of the relationships it was found that the firm size explains 10.2% of the total variability of sales growth (SGR) and industry explains 8.5% of the total variability of Tobin's Q and 6.7% of sales growth. The independent composition of the board (PID) explains 8.3% of the variable MBR. The separation of roles (SCC) explains 11.7%

of return on equity, 8.3% of Tobin's Q and 16.6% of MBR. Variable incentive remuneration to managers (VRM) explains 12.3% of the ROE and 6.7% of SGR. The values calculated are significant but the variability explained is low, allowing, however, indications of trend.

Applying the non-linear regressions, the quadratic function of the variable composition of the board (PID) was found with better explanatory power, explaining 13.0% of the total variability of Tobin's Q. This result shows that there is a point of maximization of the concave function ($c < 0$), with successively increasing and decreasing tempo.

In short, there are relationships of influence of the governance mechanisms on ROE, Tobin's Q, MBR and SGR and deepens the nonlinear behaviour between the PID and Tobin's Q. The analysis of mechanisms shows greater influence on Tobin's Q and MBR as performance variables. The size of firms and activity sector influence the performance.

5.2.2 United Kingdom

Using the multiple linear regression model to analyze the combined influence of independent variables, showed that 13.1% of the total variability of return on equity (ROE) in the adjusted model ($\alpha = 0.007$) is explained by the independent variables size and CVR, 33.2% of the total variability of Tobin's Q in the adjusted model ($\alpha = 0.000$) explained by the variables Size, Sector and PID, 5.6% of the total variability in the valuation of companies (MBR) in the total model ($\alpha = 0.016$) explained by the variable Size and 19.9% of the total variability in sales growth (SGR) in the total model ($\alpha = 0.001$) explained by the variables Size, PID, VRM and CVR (Table 3).

Table 3. Standardized coefficients of multiple linear regressions - United Kingdom

Independent Variable	ROE	Q	MBR	SGR
Inv. Size	-0.247 **	0.484 *	0.259 **	-0.260 **
Sector		-0.394 *		
PID		0.039		3.594
PID ²		-0.148		-9.699
PID ³				6.216
VRM				0.218
CVR	-3.893 **			-2.230 **
CVR ²	9.561 *			
CVR ³	-5.944 *			
R2 adjusted	13.1% *	33.2% *	5.6% **	19.9% *
p-value	0.007	0.000	0.016	0.001

Note: Significance * $\alpha = 0.01$, ** $\alpha = 0.05$ and *** $\alpha = 0.10$.

Applying linear regression to all the variables showed that the sector of activity explains 12.8% ($\alpha = 0.001$) of the total variability of Tobin's Q. The variable composition of the board (PID) explains 4.8% ($\alpha = 0.048$) of the variable Q, the variable

incentive for managers (VRM) explains 4.0% ($\alpha = 0.050$) of the variable SGR (Table 4). The variable concentration of voting rights (CVR) explains 3.6% ($\alpha = 0.091$) of the variable SGR.

Table 4. Values R2 and p-value of simple regressions. British Companies

Independent Variables	Dependent Variables							
	ROE		Q		MBR		SGR	
	Linear	Inverse	Linear	Inverse	Linear	Inverse	Linear	Inverse
Size (Assets)	0.004 (0.561)	0.042 (0.049)	0.004 (0.532)	0.162 (0.000)	0.007 (0.426)	0.067 (0.016)	0.000 (0.932)	0.085 (0.004)
Sector (Dummy)	Linear 0.000 (0.925)	n. d. n. d.	Linear 0.128 (0.001)	n. d. n. d.	Linear 0.020 (0.188)	n. d. n. d.	Linear 0.007 (0.405)	n. d. n. d.
PID	Linear 0.000 (0.978)	Cubic 0.027 (0.480)	Linear 0.048 (0.040)	Quadr. 0.069 (0.047)	Linear 0.012 (0.314)	Inverse 0.015 (0.253)	Linear 0.019 (0.184)	Cubic 0.066 (0.097)
SCC	Linear 0.002 (0.656)	n. d. n. d.	Linear 0.004 (0.538)	n. d. n. d.	Linear 0.000 (0.954)	n. d. n. d.	Linear 0.001 (0.745)	n. d. n. d.
VRM	Linear 0.027 (0.115)	Cubic 0.055 (0.170)	Linear 0.009 (0.367)	Quadr. 0.030 (0.273)	Linear 0.002 (0.660)	n. d. n. d.	Linear 0.040 (0.050)	n. d. n. d.
CVR	Linear 0.001 (0.798)	Cubic 0.116 (0.028)	Linear 0.008 (0.445)	Inverse 0.026 (0.163)	Linear 0.000 (0.883)	n. d. n. d.	Linear 0.036 (0.091)	n. d. n. d.

Note: Numbers without brackets correspond to R2. The numbers in brackets refer to significance of regression (p-value).

Applying non-linear functions on each of the relationships, it was found those with better significance and explanatory power. The size of companies using the inverse equation explains 4.2% ($\alpha = 0.049$) of the total variability of return on equity (ROE), explains 16.2% ($\alpha=0.000$) of Tobin's Q, explains 6.7% ($\alpha=0.016$) of company's value, measured by the ratio of market price to book value (MBR), and explains 8.5% ($\alpha=0.004$) of sales growth (SGR). The variable PID explains 6.9% ($\alpha = 0.047$) of the total variability of Tobin's Q variable, using the quadratic equation, and explains 6.6% ($\alpha = 0.097$) of the variable SGR, using the cubic equation. Using the cubic equation, the variable CVR explains 11.6% ($\alpha = 0.028$) of the total variability of ROE. These results obtained with the cubic equation change with three different tempos. For example, the results grow to a certain point, then decline and grow back, determining two inflection points that are calculated using the second derivative, enabling a better understanding of the type of relationship between variables.

In short, the study done between each governance mechanism adopted and each performance variable checks relationships of influence on ROE, Tobin's Q and SGR and deepens the nonlinear behaviour. The combined analysis of mechanisms shows greater influence on Tobin's Q and SGR as performance variables. Both firm size and activity sector influence the performance.

6. Discussion

It is observed that the governance mechanisms influence the return on equity, sales growth and the valuation of companies. This relationship differs depending on the context. In the Portuguese listed companies there are larger shareholdings, a fewer number of directors on the board and higher focus on variable remuneration while the UK listed companies have a higher dispersion of capital, higher average number of directors on the board and lower focus on the incentives for managers.

The combined analysis of the mechanisms in the case of Portuguese firms shows a greater influence on Tobin's Q and MBR as performance variables and in the case of UK companies, higher influence on Tobin's Q and sales growth. This difference, observed on the side of the British companies, stressed the importance of incentives for executive directors and admission of independent directors on the board in view of greater shareholder dispersion.

The literature considers that the adoption of certain control mechanisms contributes to improved performance in the interest of the shareholder or valuation of company assets (Gillan and Starks, 2003; Bhojraj and Sengupta, 2003; Gompers et al., 2003) to address problems of agency and collective action in the perspective of creating shareholder value (Armour

et al., 2003) and the valuation of the company (Wheelen and Hunger, 2002) which is in line with the results. This perspective is consonant with the greater or lesser shareholder dispersion, under theories of agency and stewardship. In turn, the mechanisms of governance that affect the return on equity, sales growth and MBR differentiate between the Portuguese and British companies, which is in accordance with the observation of Gillan and Starks (2003) when referring to the fact of ownership structure having an effect on results, different from country to country, admitting, however, that it may converge to a similar model as observed by DiMaggio and Powell (1983). Hypothesis 1 is proven.

The literature generally ascertains linear effect between mechanisms of governance and performance and evaluates the intensity and signal with varying results, sometimes contradictory, which leads to insufficient understanding of the particular agency problems and collective action. The deepening of the behaviour of nonlinear relationships found that independent managers in the board, to a certain number, have positive effects on the valuation of the company, showing after a negative effect or zero, determining a peak, with consequences for the agency problem. In the case of the larger shareholder concentration, it has been noted its positive influence on return on equity that decreases as shareholder dispersion increases up to a certain minimum value, after which it increases again up to a maximum and falling back on a continuous negative relationship. The prospect of non-linear relations follows the observations of De Miguel et al. (2005). Hypothesis 2 is proven.

There is evidence of the size and activity of companies influencing different measures of performance. By analyzing Portuguese companies, it was found that the size has a positive effect on sales. In turn, the business sector has positive influence on sales and negative on the valuation of companies.

In the study of UK companies, it was found that the increasing size of companies match the rapid increase in return on equity and sales growth increases with decreasing marginal decrease and rapid recovery of firms with decreasing marginal increases, both to a point of indifference. That is, the larger British companies are those that less value and achieve greater return on equity and sales growth. There are two distinct behaviours which ensures different governance models depending on objectives. In turn, the business sector has a negative effect on the valuation of companies, ascertaining in this study that both the British and Portuguese companies of the financial sector negatively influence their valuation.

The size of companies, as they operate in specific contexts, particularly in economies with higher or lower level of development and own legal, financial and social structures, influences their performance differently (Tam and Tan, 2007). In a

specific context, Anderson and Reeb (2003) showed that the size has negative effects on the valuation of companies. Confirmed the hypotheses 3 and 3 (a). In this case, there was a negative nonlinear relationship between the size and valuation of companies but a positive nonlinear relationship with profitability and sales. In the case of hypothesis 3 (b), it was found that the activity has a positive influence on the growth of business and has no significant relationship with profitability. It shows, however, a negative relationship with the valuation of companies.

The literature shows mixed results regarding the option for independent directors on the board of companies influencing the performance. A group of authors (Rechner and Dalton, 1991; Finkelstein and D'Aveni, 1994; Peng et al., 2003; Bonn, 2004) referred to be positive its relationship with performance without, however, specifying how this influence is exerted. Another group (Abdullah, 2004) refers to the negative relationship between board independence and firm performance. Others (Hermalin and Weisback, 1991; Dalton et al., 1998), still consider that the independent managers do not influence the performance of companies. This finding allows us to consider that different situations lead to different results or that with the same situation the relationship shows a non-linear evolution, and may observe different kinds of positive, negative or neutral effects. Similarly, in safeguarding the interests of minority shareholders, different authors (Matolcsy et al., 2004; Ghosh and Sirmans, 2003; Hutchinson, 2002) refer to this relationship as a mechanism to reduce problems of collective action or to minimize acts detrimental to the development of firms. They admit the existence of positive or negative influence relationships without specifying their behaviour and whether they are identical or not for companies operating in different contexts.

The analysis of results shows that the valuation of Portuguese firms increases with the integration of independent directors in the board. However, boards with more independent managers have a tendency to negatively influence the value of companies, which leads to observe a point of optimization.

Although, on average, there are more independent managers on board of UK companies, compared to the boards of Portuguese companies, their inclusion influences positively the sales and value of companies, this measured by Tobin's Q, to a certain extent, from which the larger inclusion of independents has a negative effect on the value of British companies. Also, in this case, there is an optimum point where the existence of a certain number of independent directors maximizes the performance of companies, as a nonlinear relationship is found. The hypothesis 4 is proven. The relationship between composition of the board and performance determines a maximum point and the curve expressing the relationship has different development.

The separation of duties between the Chairman and the CEO is considered another of the mechanisms leading to the reduction of agency problems and improving performance (Learmount, 2002; Kiel and Nicholson, 2003). However, other authors (Boyd, 1995; Peng, 2004) show that in economies with greater complexity or limited resources or in less developed economies, the concentration of duties improves performance. The issue of duality or concentration of duties as governance mechanism has wide-ranging discussion.

UK companies have no data with significance on the effects of separation of duties in the performance. As for Portuguese companies the concentration of duties between the Chairman and the CEO has strong significance values, allowing to verify the influence on the return on equity and the valuation of companies. The hypothesis 5 considers that the concentration of functions has an influence on profitability, which is proved, and that separation of roles influences the valuation of the company, which is not proven, ascertaining the relationship between the concentration and valuation of the company.

The variable referring to the remuneration of the managers is another important mechanism of governance in view of the agency theory, used to align the agent with the principal (Daily et al., 2003; McDonald et al., 2008). By indexing the financial retribution of managers to results achieved, owners or shareholders with concentrated equity intend to ensure control of firms and warrant the value to shareholders. However, when shareholder equity is dispersed, incentives granted may reverse only in the interests of managers and dissociate from the valuation of firms, which leads Kubo (2005) to invoke the weak relationship between results and incentives to managers, in the case of large firms. Several authors (Ittner et al., 2003; Dalton et al., 2003; Ryan and Wiggins, 2004) show that a positive relationship exists between the incentives of managers and the results attained, which others do not (Hempel and Fay, 1994; Vafeas, 1999).

With the use of variable remuneration of the executive members of the board, is intended to alleviate the agency problem by making them share the same interests of shareholders. There is evidence of the incentive given to Portuguese managers having a positive effect on return on equity and sales growth. Also ascertained is the fact of incentives of variable remuneration to British managers having a positive influence on sales growth.

The incentives offered to managers through variable remuneration has positive effects with strong significance of the return on equity and weak significance of sales growth of Portuguese companies and strong significance of the British companies. Hypothesis 6 is proven.

The concentration or dispersion of shareholder voting rights are a further control mechanism that determines the governance model, dependent on how

societies organize themselves in terms of legal, financial and social structure, with effects on company performance (Aguilera and Jackson, 2003; Zattoni and Cuomo, 2008). Recent authors like Suto (2003) and Kapopoulos and Lazaretus (2007) show there is influence between the concentration of voting rights and company performance, but do not mention the type of relationships, which was highlighted by Marchica and Mura (2005) but these authors do not explicit when referring to the existence of variations in the performance of firms with different types of property.

It is ascertained that the concentration of voting rights in Portuguese firms shows no significant values. In the case of British companies, characterized by dispersion, the higher concentration of voting rights in relation to the return on equity, in a certain range, decreases slightly to go up as there is greater shareholder dispersion, after which it decreases abruptly, in a nonlinear relationship. In the interval with lower shareholder dispersion, agency problems are reduced insofar as the interests of the principal are respected by the agent. The issues of expropriation of minority shareholders may emerge, to the extent that the excessive concentration of voting rights can lead to perverse effect, leading to the majority shareholders seeking to draw direct benefits from the dominance by favouring in trades with the company, a situation referred to as "expropriation of minority shareholders". The optimization of performance occurred with the shareholder dispersion. In a certain range, it appears that an increase in shareholder concentration results in a better performance of the organization, according to the theory, but for high values of concentration performance decreases, in line with what applies to the expropriation of minority shareholders. It is noticed that sales growth of British companies decreases as there is greater shareholder dispersion. There were non-linear relationships but the hypothesis 7 is not proven.

7. Conclusions

The control mechanisms influence the performance of companies. However, companies listed in a less developed economy that is characterized by shareholder concentration, a lower average number of directors on the board and a greater incentive for managers, focus more on their valuation. For companies listed on a developed economy that had greater shareholder dispersion, a higher average number of directors on the board and lower bet on incentive for managers, in addition to valuing the companies, focus on sales growth.

Certain control mechanisms showed nonlinear effects in the relationship with performance, with implications for governance models, which may explain the different results obtained by different authors. The evaluation of nonlinear relationships shows that there exist critical points which

understanding allows better matching the complexity of governance models, according to agency theory and of collective action.

It was observed in the case of Portuguese firms that separation of roles influences the return on equity and the value of companies, not ascertained in the case of British companies. The valuation of Portuguese companies is clearly influenced by the existence of independent directors on the board, while in British companies their presence affects sales in a positive manner to a certain number of directors, negative when that number increases and positive again with the larger number on the board. In this relation there were two points of optimization, a maximum and a minimum, which means that sales are growing with the existence of independent directors on the board, decrease with the further increase and increase again with a large number in the board.

For British companies, the largest concentration of shareholder voting rights positively influences the return on equity up to a maximum, at a certain interval, which contradicts the agency problem, i.e. solves the problem of collective action, from which the influence is very negative. It tends to be the reason why to a certain level of shareholder concentration they may exert moderate influence on managers. From a certain level of influence on, it can be deduced that the shareholder return instead of resulting from return on invested capital is the result of business with the company by way of expropriation of minority shareholders. In turn, the highest concentration negatively influences the volume of activity. It is also noted that the larger size of firms influences positively, with decreasing gains, the return on equity and sales and negatively with decreasing gains, the value of companies.

7.1 Implications for Management

This work shows nonlinear relationships between several of the governance mechanisms with influence on performance, which allows determining points of optimization with implications on management. It also shows, the influence of context implying differences between the mechanisms of governance and performance, reflected in the type of governance model.

7.2 Directions for Future Research

The studies should be extended to other mechanisms of governance and deepen their influence on the performance of firms exploiting the nonlinear relationships to determine maximum or minimum inflection points. There certainly are other nonlinear functions with explanatory power, possibly, higher.

Other points should consider different sectors to better understand the effects on corporate behaviour, through the mechanisms of governance and study the implications of company size, as well as introduce a

new control variable to ensure the influence of the quotation time of the company in the stock market and make the study more comprehensive, extending the number of variables of the governance mechanisms. The context should consider other variables such as the legal, financial and social systems.

7.3 Limitations and recommendations

Despite the identification of significant models there is, however, and in general, weak explanatory power, which justifies the continuation of studies. It is recognized, particularly in the Portuguese case, that there are limitations derived from the sample size of listed companies, which may extend to other nonlisted companies and similar between the two samples.

References

1. Abdullah, S. (2004), "Board composition, CEO duality and performance among Malaysian listed company", *Corporate Governance*, Vol. 4 No. 4, pp. 47-61.
2. Adams, R. and Mehran, H. (2003), "Is corporate governance different for bank holding companies?", *Economic Policy Review*, Vol. 9, pp. 123-142.
3. Adjaoud, F., Zeghal, D. and Andaleeb, S. (2007), "The effect of board's quality on performance: a study of Canadian firms", *Corporate Governance: An International Review*, Vol. 15 No. 4, pp. 623-635.
4. Aguilera, R. and Jackson, G. (2003), "The cross-national diversity of corporate governance: dimension and determinants", *Academy of Management Review*, Vol. 28 No. 3, pp. 447-465.
5. Anderson, R. and Reeb, D. (2003), "Founding-family ownership and firm performance: evidence from the S&P 500", *The Journal of Finance*, Vol. 58 No. 3, pp. 1301-1328.
6. Armour, J., Deakin, S. and Konzelmann, S. (2003), "Shareholder primacy and the trajectory of UK corporate governance", *British Journal of Industrial Relations*, Vol. 41 No. 3, pp. 531-555.
7. Baliga, B., Moyer, R. and Rao, R. (1996), "CEO duality and firm performance: what's the fuss?", *Strategic Management Journal*, Vol. 17 No. 1, pp. 41-53.
8. Barnhard, S. and Rosenstein, S. (1998), "Board composition, managerial ownership, and firm performance: an empirical analysis", *Financial Review*, Vol. 33 No. 4, pp. 1-36.
9. Baysinger, B. and Hoskisson, R. (1990), "The composition of board of directors and strategic control: effects on corporate strategy", *Academy of Management Review*, Vol. 15 No. 1, pp. 72-87.
10. Baysinger, R. and Butler, H. (1985), "Corporate governance and the board of directors: performance effect of changes in board composition", *Journal of Law, Economics and Organization*, Vol. 1 No. 1, pp. 101-124.
11. Beatty, R. and Zajac, E. (1994), "Managerial incentives, monitoring, and risk bearing: a study of executive compensation, ownership, and board structure in Initial Public Offering", *Administrative Science Quarterly*, Vol. 39 No. 2, pp. 313-335.
12. Becht, M., Bolton, P. and Roell, A. (2003), "Corporate governance and control", In Constantinides, G., Harris, M. and Stulz, R. (Eds.), *Handbook of the Economics of Finance*, North-Holland, Amsterdam, pp. 1-109.
13. Bhagat, S. and Black, B. (1999), "The uncertain relationship between board composition and firm performance", *Business Lawyer*, Vol. 54 No. 3, pp. 921-963.
14. Bhagat, S. and Black, B. (2000), "Independence du conseil d'administration et performance corporative", *Gouvernance Revue Internationale*, Vol. 1, pp. 68-95.
15. Bhojraj, S. and Sengupta, P. (2003), "Effect of corporate governance on bond ratings and yields: the role of institutional investors and outside directors", *Journal of Business*, Vol. 76 No. 3, pp. 455-475.
16. Bonn, I. (2004), "Board structure and firm performance: evidence from Australia", *Journal of Australian and New Zealand Academy of Management*, Vol. 10 No. 1, pp. 14-24.
17. Boone, A.L., Field, L.C., Karpoff, J.L. and Raheja, C.G. (2007), "The determinants of corporate board size and composition: an empirical analysis", *Journal of Financial Economics*, Vol. 85 No. 1, pp. 66-101.
18. Boyd, B. (1994), "Board control and CEO compensation", *Strategic Management Journal*, Vol. 15 No. 5, pp. 335-344.
19. Boyd, B. (1995), "CEO duality and firm performance: a contingency model", *Strategic Management Journal*, Vol. 16 No. 4, pp. 301-312.
20. Brealey, R. and Myers, S. (2000). *Principles of Corporate Finance*, 6th ed., Burr Ridge, IL: Irwin McGraw-Hill.
21. Brickley, J., Coles, J. and Jarrell, G. (1997), "Leadership structure: separating the CEO and the chairman of the board", *Journal of Corporate Finance*, Vol. 3 No. 3, pp. 189-220.
22. Cho, D.-S. and Kim, J. (2007), "Outside directors, ownership structure and firm profitability in Korea", *Corporate Governance: An International Review*, Vol. 15 No. 2, pp. 239-250.
23. Cho, M. (1998), "Ownership structure, investment, and the corporate value: an empirical analysis", *Journal of Financial Economics*, Vol. 47 No. 1, pp. 103-121.
24. Coles, J., McWilliams, V. and Sen, N. (2001), "An examination of the relationship of governance mechanisms to performance", *Journal of Management*, Vol. 27 No. 1, pp. 23-55.
25. Coles, J., Naveen, D. and Naveen, L. (2006), "Managerial incentives and risk-taking", *Journal of Financial Economics*, Vol. 79, pp. 431-468.
26. Conyon, M. and Peck, S. (1998), "Board control, remuneration committees and management compensation", *Academy of Management Journal*, Vol. 41, pp. 146-157.
27. Cordeiro, J., Veliyath, R. and Erasmus, E. (2000), "An empirical investigation of the determinants of outside director compensation", *Corporate Governance: An International Review*, Vol. 8 No. 3, pp. 268-279.
28. Daily, C. and Dalton, D. (1994), "Bankruptcy and corporate governance: the impact of board composition and structure", *Academy of Management Journal*, Vol. 37 No. 6, pp. 1603-1617.
29. Daily, C. and Dalton, D. (1997), "CEO and board chairperson roles held jointly or separately: much ado about nothing", *Academy of Management Executive*, Vol. 11 No. 3, pp. 11-20.
30. Daily, C. and Dalton, D. (2003), "Dollars and sense: the path to board independence", *The Journal of Business Strategy*, Vol. 24 No. 3, pp. 41-43.

31. Daily, C., Dalton, D. and Rajagopalan, N. (2003), "Governance through ownership: centuries of practice, decades of research", *Academy of Management Journal*, Vol. 46, pp. 151-158.
32. Dalton, D., Daily, C., Certo, S. and Roengpitya, R. (2003), "Meta-analyses of financial performance and equity: fusion or confusion?", *Academy of Management Journal*, Vol. 46 No. 1, pp. 13-26.
33. Dalton, D., Daily, C., Ellstrand, A. and Johnson, J. (1998), "Meta-analytic reviews of board composition, leadership structure, and financial performance", *Strategic Management Journal*, Vol. 19 No. 3, pp. 269-290.
34. Davis, E. and Kay, J. (1993), "Corporate governance, takeovers, and the role of the non-executive director", In Bishop, M. and Kay, J. (Eds.), *European Mergers and Merger Policy*, Oxford University Press, Oxford, pp. 200-215.
35. De Miguel, A., Pindado, J. and De la Torre, C. (2005), "How do entrenchment and expropriation phenomena affect control mechanisms?", *Corporate Governance: An International Review*, Vol. 13 No. 4, pp. 505-516.
36. Demsetz, H. and Lehn, K. (1985), "The structure of corporate ownership: causes and consequences", *Journal of Political Economy*, Vol. 93 No. 6, pp. 1155-1177.
37. Demsetz, H. and Villalonga, B. (2001), "Ownership structure and corporate performance", *Journal of Corporate Finance*, Vol. 7 No. 3, pp. 209-233.
38. DiMaggio, P. and Powell, W. (1983), "The iron cage revisited: institutional isomorphism and collective rationality in organizational fields", *American Sociological Review*, Vol. 48, pp. 147-160.
39. Dulewicz, V. and Herbert, P. (2004), "Does the composition and practice of boards and directors bear any relationship to the performance of their companies?", *Corporate Governance: An International Review*, Vol. 12 No. 3, pp. 263-280.
40. Eisenhardt, K. (1989), "Agency theory: an assessment and review", *Academy of Management Review*, Vol. 14 No. 1, pp. 57-74.
41. Erickson, M., Hanlon, M. and Maydew, E. (2006), "Is there a link between executive equity incentives and accounting fraud?", *Journal of Accounting Research*, Vol. 44, pp. 113-143.
42. Fama E.F. and Jensen, M.C. (1983), "Separation of ownership and control", *Journal of Law and Economics*, Vol. 26 No. 2, pp. 301-325.
43. Fama, E.F. (1980), "Agency problems and the theory of the firm", *Journal of Political Economy*, Vol. 88 No. 4, pp. 288-307.
44. Finkelstein, S. and D'Aveni, R. (1994), "CEO duality as a double-edged sword: how boards of directors balance entrenchment avoidance and unity of command", *Academy of Management Journal*, Vol. 37 No. 5, pp. 1079-1108.
45. Fosberg, R.H. (1989), "Outside directors and managerial monitoring", *Akron Business and Economics Review*, Vol. 20 No. 2, pp. 24-32.
46. Geddes, R. and Vinod, H. (1997), "CEO age and outside directors: a hazard analysis", *Review of Industrial Organization*, Vol. 12 No. 5, pp. 767-780.
47. Ghosh, C. and Sirmans, C.F. (2003), "Board independence, ownership structure and performance: evidence from real estate investment trusts", *Journal of Real Estate Finance and Economics*, Vol. 26 No. 2/3, pp. 287-318.
48. Gillan, S.L. and Starks, L.T. (2003), "Corporate governance, corporate ownership and the role of institutional investors: a global perspective", *Journal of Applied Finance*, Vol. 12 No. 2, pp. 4-22.
49. Gompers, P., Ishii, J. and Metrick, A. (2003), "Corporate governance and equity prices", *Quarterly Journal of Economics*, Vol. 118 No. 1, pp. 107-155.
50. Gregory, F., and Bosch, F. (1999), "On the supposed independence of two-tier boards: formal structure and reality in the Netherlands", *Corporate Governance*, Vol. 1 No. 7, pp. 31-37.
51. Guriev, S. and Rachinsky, A. (2005), "The role of oligarchs in Russian capitalism", *Journal of Economic Perspectives*, Vol. 19 No. 1, pp. 131-150.
52. Hambrick, D. and Jackson, E. (2000), "Outside directors with a stake: the linchpin in improving governance", *California Management Review*, Vol. 42 No. 4, pp. 108-127.
53. Hempel, P. and Fay, C. (1994), "Outside director compensation and firm performance", *Human Resource Management*, Vol. 33 No. 1, pp. 111-133.
54. Hermalin, B. and Weisbach, M. (2003), "Boards of directors as an endogenously determined institution: a survey of the economic literature", *Economic Policy Review*, Vol. 9 No. 1, pp. 7-26.
55. Hermalin, B. and Weisbach, M. (1991), "The effects of board composition and direct incentives on firm performance", *Financial Management*, Vol. 20 No. 4, pp. 101-112.
56. Hill, C. and Jones, G. (2004), *Strategic Management: An Integrated Approach*, Houghton Mifflin, Boston.
57. Hopt, K.J. and Leyens, P.C. (2004), "Board models in Europe: recent developments of internal corporate governance structures in Germany, the United Kingdom, France, and Italy", *European Corporate Governance Institute. Working Paper No. 18/2004*, European Corporate Governance Institute, Brussels.
58. Hutchinson, M. (2002), "An analysis of the association between firms' investment opportunities, board composition and firm performance", *Asia-Pacific Journal of Accounting and Economics*, Vol. 9 No. 1, pp. 17-38.
59. Ittner, C., Larcker, D. and Randall, T. (2003), "Performance implications of strategic performance measurement in financial services firms", *Accounting, Organizations & Society*, Vol. 28 No. 7/8, pp. 715-741.
60. Jackson, G. and Moerke, A. (2005), "Continuity and change in corporate governance: comparing Germany and Japan", *Corporate Governance: An International Review*, Vol. 13, pp. 351-361.
61. Jensen, M. and Meckling, W. (1976), "Theory of the firm: managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, Vol. 3 No. 4, pp. 305-360.
62. Jensen, M. and Murphy, K. (1990), "Performance pay and top management incentives", *Journal of Political Economy*, Vol. 98 No. 2, pp. 225-264.
63. Jobome, G. (2006), "Management pay, governance and performance: the case of large UK nonprofits", *Financial Accountability and Management*, Vol. 22 No. 4, pp. 331-358.
64. Johnson, J., Daily, C. and Ellstrand, A. (1996), "Boards of directors: a review and research agenda", *Journal of Management*, Vol. 22 No. 3, pp. 409-438.
65. Kapopoulos, P. and Lazaretus, S. (2007), "Corporate ownership structure and firm performance: evidence

- from Greek firms”, *Corporate Governance: An International Review*, Vol. 15 No. 2, pp. 144-158.
66. Kiel, G. and Nicholson, G. (2003), “Board composition and corporate performance: how the Australian experience informs contrasting theories of corporate governance”, *Corporate Governance: An International Review*, Vol. 11 No. 3, pp. 189-205.
67. Klapper, L. and Love, I. (2003), “Corporate governance, investor protection, and performance in emerging markets”, *Journal of Corporate Finance*, Vol. 195, pp. 1-26.
68. Klein, A. (2002), “Audit committee, board of director characteristics, and earnings management”, *Journal of Accounting and Economics*, Vol. 33 No. 3, pp. 375-400.
69. Kubo, K. (2005), “Executive compensation policy and company performance in Japan”, *Corporate Governance: An International Review*, Vol. 13 No. 3, pp. 429-436.
70. La Porta, R., Lopez-De-Silanes, F., and Shleifer, A. (1999), “Corporate ownership around the world”, *Journal of Finance*, Vol. 54 No. 2, pp. 471-518.
71. La Porta, R., Lopez-De-Silanes, F., Shleifer, A. and Vishy, R. (2002), “Investor protection and corporate valuation”, *Journal of Finance*, Vol. 57, pp. 1147-1170.
72. La Porta, R., Lopez-De-Silanes, F., Shleifer, A. and Vishy, R. (2000), “Investor protection and corporate governance”, *Journal of Financial Economics*, Vol. 58 No. 1, pp. 3-27.
73. Lane, C. (2003), *Changes in Corporate Governance of German Corporations: Convergences to the anglo-american model?*, University of Cambridge, Cambridge.
74. Larcker, D. (2003), “The association between performance plan adoption and corporate capital investment”, *Journal of Accounting and Economics*, Vol. 5, pp. 3-30.
75. Larcker, D., Richardson, S. and Tuna, I. (2007), “Corporate governance, accounting outcomes, and organizational performance”, *The Accounting Review*, Vol. 82, pp. 963-1008.
76. Lasfer, M. (2006), “The interrelationship between managerial ownership and board structure”, *Journal of Business Finance & Accounting*, Vol. 33, pp. 1006-1033.
77. Lawrence, J. and Stapledon, G. (1999), *Do independent directors add Value?*, Melbourne Centre for Corporate Law and Securities Regulation, University of Melbourne.
78. Learmount, S. (2002), *Theorizing Corporate Governance: New organizational alternatives*, University of Cambridge, Cambridge.
79. Li, J. (1994), “Ownership structure and board composition: a multi-country test of agency theory predictions”, *Managerial and Decision Economics*, Vol. 15 No. 4, pp. 359-368.
80. Lins, K. (2003), “Equity ownership and firm value in emerging markets”, *Journal of Financial and Quantitative Analysis*, Vol. 38, pp. 159-184.
81. Liu, G. (2005), “Comparative corporate governance: the experience between China and the UK”, *Corporate Governance: An International Review*, Vol. 13 No. 1, pp. 1-4.
82. Loderer, C. and Martin, K. (1997), “Executive stock ownership and performance: tracking faint traces”, *Journal of Financial Economics*, Vol. 45 No. 2, pp. 223-255.
83. Marchica, M.-T. and Mura, R. (2005), “Direct and ultimate ownership structures in the UK: an intertemporal perspective over the last decade”, *Corporate Governance: An International Review*, Vol. 13 No. 1, pp. 26-45.
84. Matolcsy, Z., Stokes, D. and Wright, A. (2004), “Do independent directors add value?”, *Australian Accounting Review*, Vol. 14 No. 1, pp. 33-40.
85. McDonald, M., Khanna, P. and Westphal, J. (2008), “Getting them to think outside the circle: corporate governance, CEOs’ external advice networks, and firm performance”, *Academy of Management Journal*, Vol. 51 No. 3, pp. 453-475.
86. Mintz, S. (2005), “Corporate governance in an international context: legal systems, financing patterns and cultural variables”, *Corporate Governance*, Vol. 13, pp. 582-597.
87. Mishra, C. and Nielsen, J. (2000), “Board independence and compensation policies in large bank holding companies”, *Financial Management*, Vol. 29 No. 3, pp. 51-70.
88. Nicholson, G. and Kiel, G. (2007), “Can directors impact performance? A case-based test of three theories of corporate governance”, *Corporate Governance: An International Review*, Vol. 15 No. 4, pp. 585-608.
89. Paterson, J. (2001), “Corporate governance, the limits of rationality and proceduralisation”, Working Paper N.º 198, ESRC Centre for Business Research, University of Cambridge.
90. Peng, M. (2004), “Outside directors and firm performance during institutional transitions (in China)”, *Strategic Management Journal*, Vol. 25 No. 5, pp. 453-471.
91. Peng, M.W., Buck, T. and Filatotchev, I. (2003), “Do outside directors and new managers help improve firm performance? An exploratory study in Russian privatization”, *Journal of World Business*, Vol. 38, pp. 348-360.
92. Pivovarsky, A. (2003), “Ownership concentration and performance in Ukraine’s privatized enterprises”, *IMF Staff Papers*, Vol. 50 No. 1, pp. 10-42.
93. Raheja, C. (2005), “Determinants of board size and composition: a theory of corporate boards”, *Journal of Financial and Quantitative Analysis*, Vol. 40 No. 2, pp. 283-306.
94. Rechner, P. and Dalton, D. (1991), “CEO duality and organizational performance: a longitudinal analysis”, *Strategic Management Journal*, Vol. 12 No. 2, pp. 155-160.
95. Rhoades, D., Rechner, P. and Sundaramurthy, C. (2000), “Board composition and financial performance: a meta-analysis of the influence of outside directors”, *Journal of Management Issues*, Vol. 12 No. 1, pp. 76-91.
96. Rhoades, D., Rechner, P. and Sundaramurthy, C. (2001), “A meta-analysis of board leadership structure and financial performance: are ‘two heads better than one?’”, *Corporate Governance: An International Review*, Vol. 9 No. 4, pp. 311-319.
97. Rosenstein, S. and Wyatt, J.G. (1990), “Outside directors, board independence and shareholder wealth”, *Journal of Financial Economics*, Vol. 26 No. 2, pp. 175-192.
98. Ryan, H. and Wiggins, R. (2004), “Who is in whose pocket? Director compensation, board independence, and barriers to effective monitoring”, *Journal of Financial Economics*, Vol. 73, pp. 497-524.
99. Scott, R.W. (2001). *Institutions and Organizations*. 2nd Ed., Sage, Thousand Oaks, CA.

100. Shleifer, A. and Vishny, R. (1997), "A survey of corporate governance", *The Journal of Finance*, Vol. 52 No. 2, pp. 737-783.
101. Suto, M. (2003), "Capital structure and investment behaviour of Malaysian firms in the 1990s: a study of corporate governance before the crisis", *Corporate Governance*, Vol. 11, pp. 25-39.
102. Tam, O.K. and Tan, M. (2007), "Ownership, governance and firm performance in Malaysia", *Corporate Governance: An International Review*, Vol. 15 No. 2, pp. 209-222.
103. Tosi, H. and Gomez-Mejia, L. (1994), "CEO compensation monitoring and firm performance", *Academy of Management Journal*, Vol. 37 No. 4, pp. 1002-1016.
104. Uzun, H. Szewczyk, S. and Varma, R. (2004), "Board composition and corporate fraud", *Financial Analyst Journal*, Vol. 60 No. 3, pp. 33-43.
105. Vafeas, N. (1999), "Board meeting frequency and firm performance", *Journal of Financial Economics*, Vol. 53 No. 1, pp. 113-142.
106. Vafeas, N. (2003), "Length of board tenure and outside director independence", *Journal of Business Finance and Accounting*, Vol. 30, pp. 1043-1064.
107. Wagner, J., Stimpert, J. and Fubara, E. (1998), "Board composition and organizational performance: two studies of insider/outsider effects", *Journal of Management Studies*, Vol. 35, pp. 655-677.
108. Weir, C. and Laing, D. (1999), "Governance structures, size and corporate performance in UK firms", *Management Decision*, Vol. 37 No. 5, pp. 457-464.
109. Weisbach, M. (1998), "Outside directors and CEO turnover", *Journal of Financial Economics*, Vol. 20 No. 1/2, pp. 431-460.
110. Westphal, J. and Zajac, E. (1994), "Substance and symbolism in CEOs' long-term incentive plans", *Administrative Science Quarterly*, Vol. 39, pp. 367-390.
111. Wheelen, T.L. and Hunger, J.D. (2002), *Strategic Management and Business Policy*, Eighth Edition, Prentice Hall, New Jersey.
112. Wiwattanakantang, Y. (2001), "Controlling shareholders and corporate value: evidence from Thailand", *Pacific-Basin Finance Journal*, Vol. 9, pp. 323-362.
113. Wood, M. and Patrick, T. (2003), "Jumping on the bandwagon: outside representation in corporate governance", *The Journal of Business and Economic Studies*, Vol. 9 No. 2, pp. 48-53.
114. Yermack, D. (1996), "Higher market valuation of companies with a small board of directors", *Journal of Financial Economics*, 40 No. 2, pp. 185-211.
115. Zajac, E. and Westphal, J. (1994), "The costs and benefits of managerial incentives and monitoring in large U.S. corporations: when is more not better?", *Strategic Management Journal*, 15, pp. 121-142.
116. Zattoni, A. and Cuomo, F. (2008), "Why adopt codes of good governance? A comparison of institutional and efficiency perspectives", *Corporate Governance: An International Review*, 16, pp. 1-15.

Appendix A. Descriptive Statistics**Table A .1** Descriptive statistics – Portugal

	Mean	Std. Dev.	Median	Min	Max
Control variables					
Net income	256.006	910.538	17.004	-15.493	5.807.325
Equity	1.589.163	5.791.230	137.398	-383	37.096.709
Assets	18.269.677	76.718.610	793.139	31.314	488.440.058
Sales	2.198.759	5.615.144	579.233	10.939	34.850.762
PAI	0,307	0,229	0,300	0,000	1,000
PRV	0,295	0,227	0,287	0,000	0,830
CDV	0,606	0,228	0,650	0,130	0,970

Source: Banco de Portugal, 2007.

Note: Value in thousands of Euros. Exchange rate, 1 Euro = 0,68434 Pound.

Table A.2 Descriptive statistics - United Kingdom

	Mean	Std. Dev.	Median	Min	Max
Control variables					
Net income	63.727	130.338	20.968	-141.567	892.537
Equity	491.007	1.394.559	177.633	-776.267	11.847.370
Assets	1.154.676	2.488.945	376.577	8.170	17.360.926
Sales	699.750	1.839.600	182.960	1.258	14.632.114
PAI	0,568	0,204	0,500	0,250	1,000
PRV	0,251	0,192	0,253	0,000	0,677
CDV	0,292	0,137	0,267	0,137	0,770

Source: Banco de Portugal, 2007.

Note: Value in thousands of Euros. Exchange rate, 1 Euro = 0,68434 Pound.

Appendix B. Tables of correlation

Table B.1 Pearson correlation – Portugal

	Size	Sector*	independent directors	separation of roles*	variable remuneration of managers	concentration of voting rights	return on equity	Tobin's q	market to book ratio	sales growth
Size	1.00									
Sector*	.63	1.00								
independent directors	.05	.01	1.00							
separation of roles*	.25		.18	1.00						
variable remuneration of managers	.76	.43	-.02	.29	1.00					
concentration of voting rights	-.40	-.22	-.07	-.07	-.27	1.00				
return on equity	.18	.07	-.20	.35	.32	-.16	1.00			
Tobin's q	-.11	-.28	.15	.28	.11	-.13	.35	1.00		
market to book ratio	-.10	-.17	.29	.39	-.01	-.22	.51	.65	1.00	
sales growth	.23	.28	-.23	-.18	.20	-.03	.31	.03	.01	1.00

* Dummy variables

Table B.2 Pearson correlation – United Kingdom

	Size	Sector*	independent directors	separation of roles*	variable remuneration of managers	concentration of voting rights	return on equity	Tobin's q	market to book ratio	sales growth
Size	1.00									
Sector*	-.09	1.00								
independent directors	-.20	.56	1.00							
separation of roles*	.17		.16	1.00						
variable remuneration of managers	.40	-.19	-.60	-.07	1.00					
concentration of voting rights	-.18	.02	-.18	-.23	.15	1.00				
return on equity	.02	.07	-.02	-.09	-.00	-.13	1.00			
Tobin's q	-.34	-.30	-.20	.07	.06	.06	-.32	1.00		
market to book ratio	-.26	-.29	-.18	.04	.07	.04	-.09	.84	1.00	
sales growth	.12	.05	-.15	-.04	.26	-.23	.05	.09	.05	1.00

* Dummy variables