

TILEC

# TILEC Discussion Paper

## Corporate monitoring by shareholder coalitions in the UK

Rafel Crespi\* and Luc Renneboog\*\*

### Abstract:

*This paper investigates whether voting coalitions are formed by shareholders in order to discipline incumbent management. Shapley values capturing the relative power of shareholder coalitions by category of owner, outperform models with percentage ownership stakes and models measuring the relative voting power of individual blockholders. There is evidence of successful executive director resistance to board restructuring if these executive directors can combine their ownership stakes to a substantial block of voting power. Poor performance is penalised by industrial and commercial companies and by non-executive directors with large relative voting power. The voting power of insurance companies is positively related to executive director turnover, but this voting power is used to remove management for reasons other than performance. Investment/pension funds and funds managed by banks do not play a role in the management substitution process. A large number of share blocks change hands, and new shareholders – industrial companies, individuals and families – are related to increased executive director turnover. Still, these changes in share stakes do not constitute a market in (partial) control since there is no systematic evidence that these changes are triggered by poor performance with the notable exception of industrial companies. There is little evidence that adjusting the board composition to allow for more independence for non-executive directors leads to higher managerial removal. In contrast, high gearing facilitates substitution of executive directors, especially if the company needs to be refinanced. The models control for potential endogeneity problems of the alternative governance mechanisms.*

\* Department of Business Economics, Universitat Illes Balears.

\*\* Department of Finance and CentER, Tilburg University

*Acknowledgements:* We are grateful to Julian Franks, Carles Gispert, Colin Mayer, Marc Goergen, Dennis Mueller, Alan Hughes, Juergen Weigand, Eddy Wymeersch, and Joe McCahery for stimulating discussions on corporate governance and disciplining mechanisms. This paper also benefited from advice by Geof Stapledon on the institutional and legal aspects of shareholder voting in annual meetings in the UK. We incorporated useful suggestions from participants of the conferences of the AFA (New Orleans 2000), of the EFA (Barcelona 2001), of the ‘Convergence and of the ‘Diversity of Corporate Governance Systems and Capital Markets’-conference (Eindhoven) and of the Corporate Investment and Governance Network’-workshop (Aarhus). R. Crespi also acknowledges financial support from the Spanish MCYT Ministry, BEC2001-2552-C03-03 project. Luc Renneboog is grateful to the Netherlands Organization for Scientific Research for financial support. The usual disclaimer applies.

JEL classification : G3 (Corporate finance and governance), G32 (financial policy; capital and ownership structure), G38 (government policy and regulation)

Keywords : Corporate Control, Corporate governance, Shareholder coalitions, Shapley values, Ownership structures.

Address for correspondence: Luc Renneboog, Tilburg University, Warandelaan 2, 5000 LE Tilburg, Netherlands.  
Fax : 00 31 13 466 2875. Email: Luc.Renneboog@uvt.nl

## Corporate monitoring by shareholder coalitions in the UK

### *Abstract:*

*This paper investigates whether voting coalitions are formed by shareholders in order to discipline incumbent management. Shapley values capturing the relative power of shareholder coalitions by category of owner, outperform models with percentage ownership stakes and models measuring the relative voting power of individual blockholders. There is evidence of successful executive director resistance to board restructuring if these executive directors can combine their ownership stakes to a substantial block of voting power. Poor performance is penalised by industrial and commercial companies and by non-executive directors with large relative voting power. The voting power of insurance companies is positively related to executive director turnover, but this voting power is used to remove management for reasons other than performance. Investment/pension funds and funds managed by banks do not play a role in the management substitution process. A large number of share blocks change hands, and new shareholders –industrial companies, individuals and families– are related to increased executive director turnover. Still, these changes in share stakes do not constitute a market in (partial) control since there is no systematic evidence that these changes are triggered by poor performance with the notable exception of industrial companies. There is little evidence that adjusting the board composition to allow for more independence for non-executive directors leads to higher managerial removal. In contrast, high gearing facilitates substitution of executive directors, especially if the company needs to be refinanced. The models control for potential endogeneity problems of the alternative governance mechanisms.*

JEL classification : G3 (Corporate finance and governance), G32 (financial policy; capital and ownership structure), G38 (government policy and regulation)

Keywords : Corporate Control, Corporate governance, Shareholder coalitions, Shapley values, Ownership structures.

## I. INTRODUCTION : SEPARATION OF OWNERSHIP AND CONTROL.

In the traditional international corporate governance literature, governance systems are classified according to the trade-off between liquidity and control (see e.g. Becht and Röell (1997))<sup>1</sup>. In Anglo-American or market-based governance systems -characterised by a large number of listed companies, strong boards and prevalence of institutional investors- individual investors and investment funds benefit from high trading liquidity of shares. Still, the high free float may create a serious agency problem, sometimes referred to as ‘strong managers, weak owners’ (Roe (1994)). In contrast, the blockholder system refers to Continental European countries and Japan which have a (relatively) small number of listed companies, concentrated ownership, complex cascade-like shareholding structures with powerful controlling families, industrial firms or holding companies (Barca and Becht (2001)). In this system, share liquidity is low and agency costs of a different type may arise, namely those between majority and minority shareholders.

Given that controlling a firm is expensive (in terms of portfolio diversification), several mechanisms have been developed in countries with the blockholder system to deviate from the one-share-one-vote rule. By utilising dual class shares, ownership pyramids or proxy votes<sup>2</sup>, some shareholders can exert a higher degree of control than their cash flow rights would lead one to expect. Likewise, in the market-based governance systems, several mechanisms exist to reduce agency problems or to avoid that the balance of power is tilting too much towards management. First, the lack of shareholder monitoring may be compensated by an active take-over market. In contrast to US evidence (e.g. Martin and McConnell (1991)), Franks and Mayer (1996) are not convinced that the market for hostile take-overs in the UK fulfils a disciplinary role. Second, management remuneration schemes can be designed to align managerial interest with those of the shareholders. However, a large body of UK empirical evidence has shown that the compensation packages consisting of salary, bonus, long term incentive plans and option schemes, are more related to corporate growth than value creation (e.g. Conyon and Murphy (2000)). Thirdly, it may be that – in spite of the diffuse nature of control concentration – UK blockholders actively monitor firms and reduce the problem of free-riding on control by creating *voting pacts*. This paper attempts to investigate the monitoring role of shareholder voting coalitions in the UK. Testing the impact of such coalitions directly is not possible because their existence is usually not disclosed. The reason is that the regulatory authorities consider a long term shareholder coalition (investor group) as one shareholder who has to comply with all regulations concerning information disclosure, mandatory

---

<sup>1</sup> For similar classifications also Wymeersch (1994), Franks and Mayer (1995), Shleifer and Vishny (1997).

<sup>2</sup> For example, proxy votes are used by German banks: the *Depotstimmrecht* (e.g. Wenger and Kaserer (1997) and (Franks and Mayer (2001)).

tender offer, disclosure of strategic intent etc. Therefore, if coalitions are formed, they exist on an ad hoc basis with a specific aim, like the removal of underperforming management. Hence, we investigate (indirectly) whether disciplining actions are the consequence of interactions among shareholders with high relative voting power.

To our knowledge, little empirical research has been performed on shareholder voting coalitions. Interesting models were developed by Zwiebel (1995) and Bennedsen and Wolfenzon (2000). The former paper develops a game theory model in which small block shareholders join to form controlling coalitions. This deters other block investors such that the ruling coalition will not be challenged. The latter paper shows that, in the absence of a resale market for shares, the firm's founder may optimally choose the ownership structure such that there are multiple large shareholders in order to prevent that a single shareholder could take unilateral actions that might hurt other shareholders. Subsequently, the founder may benefit from coalitions competing to seize control. In our study, we also allow insider and outsider blockholders to compete for control. If the outsiders win, they replace management. If the management wins, they are able to impede board restructuring by coalitions of outside shareholders, even in the wake of poor corporate performance.

We first report the ownership structure of a random sample of UK firms and calculate the relative voting power of the largest shareholders and of potential coalitions of shareholders. Subsequently, we estimate the relation between executive board restructuring (corrected for natural turnover) and different measures of shareholder concentration: a. ownership percentages, b. Herfindahl indices, c. Shapley values of the largest shareholders and d. Shapley values of the shareholders of specific categories of owner. We consistently find that the models with Shapley values of shareholder coalitions (d) outperform the other specifications (a, b and c). We also obtain robust results that coalitions of executive directors successfully ward off any attempts to discipline underperforming management. If management does not own a sufficient level of relative voting power, managerial disciplining is undertaken by large corporations and by coalitions of institutions (insurance companies).

As shareholders and coalitions are not the only source of corporate monitoring, we also investigate whether corporate performance triggers large changes in ownership concentration which in turn leads to a higher level of board restructuring (Denis et al. (1997)). Likewise, we analyse whether or not the board of directors, the capital structure or corporate refinancing are instrumental at disposing of poorly performing management. We find little evidence of a market in ownership blocks. In addition, we conclude that it is easier to discipline management in highly levered

companies, in companies that are refinanced by means of seasoned equity issues and in companies where the roles of the CEO and the (non-executive) chairman are separated.

Section 2 describes the legal aspects of coalition formation and formulates the hypotheses. Section 3 discusses the data sources and describes the data. In section 4, the methodology is explained, while section 5 presents the results. Section 6 concludes.

## **II. SHAREHOLDER VOTING COALITIONS AND ALTERNATIVE CORPORATE GOVERNANCE MECHANISMS.**

### *A. Relative shareholder control and voting pacts.*

Since shareholders bear all costs related to their control efforts but only benefit in proportion to their shareholding, monitoring management may be prohibitively expensive for small shareholders (Grossman and Hart (1980)). Only a substantial blockholding makes monitoring cost-effective: the costs of corporate control can be internalised and free riding on control can be constrained. In this perspective, little shareholder monitoring is expected in the UK as most listed industrial UK companies (85%) are widely-held (lacking a controlling share block of 25% or more).<sup>3</sup> Previous empirical research confirms a lack of monitoring by individual shareholders in the UK (e.g. Lai and Sudarsanam (1997), Franks and Mayer (2001)).

Still, the agency problem resulting from a lack of large blockholders may be reduced if a coalition of shareholders assumes the role of a monitoring controlling blockholder. Defining shareholder coalitions is somewhat problematic because coalitions formed for longer periods of time are considered by the regulatory authorities as an investor (group), which is liable to all the disclosure, reporting and governance regulations that apply to large shareholders. For instance, a coalition owning more than 15% of the shares is required to disclose its ‘strategic intent’ or, if it controls 30% or more of the votes, the Take-over Panel may require the coalition to comply to the mandatory take-over rule (Stapledon (1996), Goergen and Renneboog (2001)). Consequently, the existence of long-term shareholding coalition agreements are not made public or voting coalitions are only forged on an ad hoc basis with a specific aim (e.g. to remove incumbent management, to react to a take-over announcement). Although coalitions are commonly kept confidential, explicit voting contracts are drawn up (see e.g. Van Hulle (1998)). Given the confidential nature of voting pacts, there is little direct evidence of shareholder coalitions in the UK. Therefore, we resort to testing the existence of UK shareholder coalitions indirectly, namely in the context of top

---

<sup>3</sup> Bebchuk and Roe (1999) argue that Anglo-American diffuse ownership persists – in spite of its inherent drawbacks in terms of agency costs – as a result of historic regulatory evolution (structure- and regulation-driven path dependence).

management removal: we fit a variety of control measures of individual blockholder and the blocks of potential voting coalitions to conflictual managerial turnover.

In contrast to most previous corporate control research where absolute measures of voting power (percentage stakes of equity or Herfindahl indices) were used, this study captures the *relative* voting power of each blockholder in potential voting coalitions<sup>4</sup>. To do so, we simulate all potential pacts by company and by year and calculate shareholders' Shapley values (SV's) (see section 3) to measure the extent to which individual shareholders (or groups of shareholders) are pivotal in potential winning voting coalitions. Subsequently, we relate the relative voting power of shareholders or shareholder groups to the observed disciplinary actions against executive directors or the CEO. Especially in the context of poor corporate performance, we expect a strong positive relation. Comparing the strength of the relation between relative voting power and board restructuring to that of the relation between ownership concentration and board restructuring, allows us to draw conclusions about the existence of (ad hoc) voting coalitions in the UK. If the former relation is stronger than the latter, we interpret this as indirect evidence of the role of voting coalitions in the context of the removal of underperforming management. Thus, our basic hypothesis is that: shareholders or coalitions of shareholders with high relative voting power remove underperforming management (Hypothesis 1a).

### *B. Voting coalitions and the nature of ownership.*

#### 1. Managerial entrenchment and voting blocks.

Hypothesis 1a assumes that every blockholder has an equal propensity to take part in a shareholder voting pact and to be active in the monitoring and disciplining process. In other words, the monitoring by a coalition of shareholders is assumed to be independent of the type of shareholder(s). However, specific categories of shareholders may have different incentives or abilities to monitor a firm such that it may be easier for shareholders to forge coalitions with shareholders of the same category. For example, given that executive directors have similar private benefits of control, they may combine their shareholdings into one voting block and try to obstruct any attempts to remove them. Evidence of such *managerial entrenchment* in the UK is given in Lai and Sudarsanam (1997) and Franks et al. (2001). Consequently, it is possible that the relative voting power of a coalition is better described as resulting from a voting game consisting of two stages: it may be easier for specific classes of shareholders to form ex ante coalitions (first stage) before entering in a voting game as a block (second stage). Therefore, we first sum the equity stakes of the

---

<sup>4</sup> Interesting studies relating voting power (measured by power indices) and performance are those by Leech (1988) and Leech and Leahy (1991) who uses probabilistic indices for the UK and by Zwiebel (1995) for the US.

shareholders who are likely to bundle voting rights and, subsequently, we calculate the relative voting power of this voting block.<sup>5</sup>

## 2. Outsider coalitions and corporate monitoring.

Whereas the management is expected to impede board restructuring, which categories of large shareholders are expected to monitor the firm (c.q. remove underperforming management)? From the repeated call for more *institutional shareholder activism* by the Cadbury (1992), Greenbury (1995) and Hampel (1998) corporate governance commissions, one might infer that the level of institutional investor involvement in corporate control in the UK is (too) low. Institutions may take a passive stance due to lack of monitoring expertise or due to the desire to safeguard the liquidity of their investments since insider trading regulation may immobilise informed portfolio rebalancing. This may be the reason why, for instance, occupational pension funds do not seem to create any monitoring value (Faccio and Lasfer (2000)). Furthermore, the Newbold Committee of Inquiry (1999) into UK vote execution by institutions reports that the voting cycle for institutions represents 'a tortuous process' as the proxy forms are held by the custodians and not by the fund managers (Stapledon and Bates (2002)). Alternatively, the casting of votes by institutions has been on the rise, although it is a relatively recent phenomenon (since the second half of the 1990s). Surveys reveal that many UK institutions have established voting policies (for examples, see Mallin (1999)).<sup>6</sup> Furthermore, the PIRC-survey (1999) on institutional voting trends concludes that overall proxy voting levels have increased to over 50%. These observations and the fact that institutional investors regularly meet through the national associations (like i.e., the National Association of Pension Funds), may justify the calculation of SV's for accumulated share blocks held by coalitions of bank managed funds, of investment and pension funds and of funds managed by insurance companies in order to test for institutional activism.

Similarly, other categories of outsider shareholders (non-executive directors, industrial companies, and individuals and families) may also forge voting coalitions. The reason why a coalition consisting of shareholders of one particular category may be easier to forge, results from similarities

---

<sup>5</sup> For example, when we assume that executive directors are likely to bundle their voting power, we do not investigate the relative voting power of every individual executive director but rather that of the executive directors as a group and examine whether the voting power of such a coalition is able to resist managerial disciplining.

<sup>6</sup> As a necessary (but not sufficient) condition for potential voting pact formation by institutions, the casting of votes at annual meetings is considered. Legally, many corporate issues are subject to a shareholder vote: e.g. declaration of the dividend (after board recommendation), transactions involving the acquisition or disposal of assets worth 25% or more of the company's net assets, removal of directors, certain alterations in the capital structure (e.g. share repurchases), disapplication of the pre-emption rights, directors' remuneration, etc. For an exhaustive enumeration see Stapledon (1996:84). The evolution of institutional voting is described in the following studies: only 20% of investment funds exercised voting rights in 1991 (ISC (1991)), 35% voted in 1995 (Mallin (1996)) and 41% in 1997 (MVA (1998)). Pension funds exercise voting rights more frequently with 44% in 1993 (ISC (1993)) and 59% in 1996 (Mallin (1996)). The vast majority of insurance companies votes: 70% exercised voting rights in 1993 (ISC (1993)) and 87% in 1996 (Mallin (1996)).



in private benefits of control. Indeed, for the US, Barclay and Holderness (1989) detected that blocks were priced at substantial premiums of, on average, 20% reflecting the private benefits of control the investors are expected to capture in the form of additional compensation and perquisites. Furthermore, the premiums differ according to the acquirer's ownership class. That different classes of owner have different abilities to extract control rents is also empirically supported for the US (a.o. Holderness and Sheehan (1988)), for Italy (Zingales (1994), Nicodano (1998)), for France (Banerjee et al. (1997)) and for Belgium (Renneboog (2000)).<sup>7</sup> Firm value does not only depend upon ownership concentration but also upon the specific skills and expertise of blockholders because poor corporate performance not only results from managerial underperformance but also from a breakdown in corporate control (Barclays and Holderness (1991)). This leads to the following hypothesis: Shareholder coalitions consisting of - respectively - institutions, industrial companies and non-executive directors and retaining strong relative voting power, discipline underperforming management unless executive directors are able to form a strong voting coalition to impede board restructuring (Hypothesis 1b).

### *C. The market for control.*

The relative voting power described above does not capture any dynamic patterns in control. Burkart et al. (1997) and Bolton and von Thadden (1998) state that even when tight shareholder control is ex post efficient, it constitutes ex ante an expropriation threat which reduces managerial discretion to undertake investment initiatives. Their models imply that equity control should be state-contingent: in some states of the world (e.g. with poor corporate profitability or financial distress), close monitoring resulting from strong control concentration is desirable. In other states, close monitoring may reduce managerial discretion and hence management's effort. Therefore, changes in performance may induce a (partial) corporate control market or a market in share blocks. If poor performance results from underperforming management but also from insufficient corporate control, low quality monitors may sell their stakes and new (controlling) shareholders could improve future corporate performance by substituting incumbent management. Bethel et al. (1998) find empirical support for US companies: activist shareholders purchase large blocks in diversified companies with poor profitability. Hence, we expect that: Poor corporate performance gives rise to changes in the ownership structure in companies without sufficiently large shareholders or with shareholders who take a passive stance on monitoring. Hence, increases in shareholdings or new share blocks are associated with higher managerial turnover in the same year or the year preceding the monitors' disciplinary actions (Hypothesis 2).

---

<sup>7</sup> For an international comparison of potential private benefits (measured by the voting premium of voting rights compared to non-voting rights): see Dyck and Zingales (2002).

Voting power is not the only corporate control mechanism and, given the interdependence of corporate governance mechanisms, it is not a priori certain which mechanism dominates (Agrawal and Knoeber (1996)). Therefore, it is important to include alternative governance mechanisms like board structure and capital structure-related variables into the voting power models.

#### *D. Internal corporate governance systems.*

Part of the fiduciary duty of non-executive directors consists of monitoring corporate and managerial performance. A well functioning board reduces transaction or agency costs associated with separation of ownership and control. Moreover, non-executive directors have incentives to develop reputations as experts in decision control because the value of their human capital depends on their performance as monitors in other organisations. Consequently, directors are also subjected to disciplining of passive leadership by the external labour market. Brickley et al. (1999) find that both the likelihood that a retired CEO serves on his own board two years after his retirement and the likelihood of serving as an outside director on other boards, are positively and strongly related to his earlier performance while CEO and his performance as a monitor of other firms. Kaplan and Reishus (1990) and Gilson (1990) confirm that the number of non-executive directorships dwindles for poorly performing managers.

Separating the roles of CEO and of non-executive chairman is supposed to strengthen the board's monitoring ability as a non-executive chairman can ensure more independence from management.<sup>8</sup> Consequently, we expect that a greater proportion of non-executive directors implies lower board domination by management due to higher monitoring ability by non-executive directors. This may be reflected by increased executive director or CEO turnover when performance is poor. We hypothesize that separating the functions of CEO and chairman also facilitates disciplining of underperforming management: such dual control should lead to higher board restructuring (Hypothesis 3).

#### *E. Capital structure as a pre-commitment device.*

The probability of defaulting on debt covenants rises with leverage. Hence, enhanced creditor intervention may be expected with falling levels of profitability and of interest coverage and with rising debt/equity ratios. The choice of gearing can therefore be considered as a precommitment mechanism for management (e.g. in Aghion and Bolton (1992)): high leverage pre-commits management to generate sufficiently high cash flows to meet the debt service. Consequently, if high

---

<sup>8</sup> Such recommendations have been formulated in the U.S. Bacon report (1993), the U.K. Cadbury Committee report in 1992, the French Viénot report II in 2000, the Dutch Peters Commission report in 1997, the Belgian corporate governance guidelines by the Stock Exchange Commission, the Association of Employers and the Commission for Banking and Finance (all in 1998).

leverage is related to intensified monitoring (as shown by Denis and Denis (1993) for the US), higher executive director turnover may be expected. The relative power of creditors also increases when there is corporate underperformance and a need to refinance the company. Thus, we expect that management of poorly performing companies with high leverage and poor liquidity experience increased turnover (Hypothesis 4).

### **III. DATA SOURCES AND VARIABLE DESCRIPTION.**

#### *A. Sample description.*

A sample of 250 companies was randomly selected from all the companies quoted on the London Stock Exchange in 1988 excluding financial institutions, real estate companies and insurance companies. We collected data on voting rights (ownership), performance, capital structure and board structure over the period 1988 to 1993. This period is prior to the implementation of the Cadbury report on good corporate governance and allows us to test whether or not some of the recommendations were essential. Only those companies for which at least three years of ownership data were available, were retained in the sample in order to have lags for instrumental variables and to allow a dynamic analysis via panel data (as do Himmelberg et al. (1999)). Companies delisted through take-overs or insolvencies between 1988 through to 1990 are therefore excluded, but those that were delisted subsequent to 1990 are included in the analysis. In addition, seven of the remaining 250 companies are dropped through lack of performance data. Subsequent to 1990, 29 of the sample companies were acquired and 5 were liquidated or entered a formal bankruptcy process.

#### *B. Ownership and control data.*

Ownership data on the size of shareholdings both for existing and new shareholders for each year in the period 1988-1993 are collected. All directors' holdings greater than 0.1% are included as well as outside shareholders' stakes of 5% and more (until 1989) and of 3% and above (from 1990 when the statutory disclosure threshold was reduced to 3%). Non-beneficial share stakes held by directors on behalf of their families or charitable trusts are added to the directors' beneficial holdings. Although directors do not obtain cash flow benefits from these non-beneficial stakes, they usually have control rights. Shareholdings are classified into 9 categories: bank managed funds, funds managed by insurance companies, investment/pension funds, industrial and commercial companies, families and individuals (not directly related to any director), government stakes, real estate companies, executive directors (and their immediate family and trusts), and non-executive directors (and their immediate family and trusts). Directors and their families are hence called 'insiders'

whereas other major shareholders are labelled ‘outsiders’.<sup>9</sup> The identity of the owner of substantial shareholdings labelled as ‘nominees’ was collected from the company secretaries who were contacted by fax or phone. In almost all cases, the shareholder behind the nominee company is an institutional investor. Attempts to collect data on shareholder attendance and the casting of votes for a subsample of companies failed as these companies were not willing to disclose such data.

### *C. Performance measures and capital structure.*

In order to investigate the relation between substitute forms of corporate governance and performance, several performance measures are collected for the period 1986-1995: abnormal share price returns, dividends per share, after tax cash flow margins (cash flows divided by total sales), operational return (before interest and taxes) on assets, after tax rates of return on book equity, and changes in earnings after tax and interest (standardised by total assets). Abnormal share price returns are calculated using the London Share Price Database (LSPD) and include a beta-correction for non-synchronous trading. Accounting returns are collected from Datastream. Data on capital structure (gearing, measured as the book value of debt/total assets) and liquidity (interest coverage, measured as EBIT/interest payments) are from Datastream. A second leverage measure includes market data from the LSPD: debt/(debt + market capitalisation). Corporate refinancing in the form of new equity issues are collected from the LSPD.

### *D. Board of Directors.*

In order to determine the number of directors who had borne board responsibility over the fiscal years, as well the number of directors joining and leaving the board, the notes of the annual reports over the period 1988-93 is consulted. About all directors, the following information is collected: name, status (executive versus non-executive, chairman, CEO), age and tenure (for CEO and chairman only). The reasons for directors leaving the board are gathered from annual reports as well as from the Financial Times and Nexus databases. This way, a distinction is made between conflictual and natural turnover, the latter being defined –in line with Weisbach (1988)- as turnover due to illness, death, and retirement at the age of 63 or above. Due to lack of informative reasons and the use of euphemistic terms explaining director turnover, all non-natural turnover is considered to be conflictual. For companies entering bankruptcy procedures or taken over, board turnover is included only up to the year prior to the event.

---

<sup>9</sup> The pattern of ownership is not significantly affected by recent IPOs (where insider ownership is particularly high) because the large majority of our companies, 71%, have been listed for at least eight years.

## IV. METHODOLOGY

### A. Shareholder control measurement.

The one-share-one-vote principle is upheld in listed UK companies as there are no dual class voting shares and as regulation has impeded cascade ownership structures (Goergen and Renneboog (2003)). Still, the percentage of ownership does not necessarily reflect the degree of control as 50% of equity plus 1 vote yields absolute control. Given that most UK companies are characterised by diffuse ownership structures, measures need to be used which capture the true degree of shareholder control. To some extent, the Herfindahl index captures the dispersion of ownership across shareholders. For example, if there are three shareholders with 40%, 40% and 20%, the total percentage of voting rights of the largest three shareholders amounts 1.00 whereas the Herfindahl of the 3 largest shareholdings sums the squared percentages to 0.36. Still, the Herfindahl does not reflect the degree of control which individual shareholders (on a stand-alone basis or in a coalition) can exert. Therefore, we resort to Shapley values (SV's) which assign a power index to each shareholder reflecting his relative importance in forming winning voting coalitions. In the example given above, each shareholder's SV is 0.33 because each is pivotal in coalitions yielding more than 50% of the control rights.

Within a framework of co-operative games - with transferable utility - in characteristic functional form, Shapley (1953) developed 'Shapley value assignment'  $\phi$  defined as follows:

$$\phi_a(\mathbf{w}) = \text{def } \frac{1}{n!} \sum_{X \subseteq N} (|X|-1)!(n-|X|)! (\mathbf{w}X - \mathbf{w}(X - \{a\}))$$

and game  $\mathbf{w}$  is a real-valued function whose domain is the power set (the set of subsets) of  $N$  (a non-empty finite set) such that  $\mathbf{w}\emptyset=0$ . Any member of  $N$  (the grand coalition of  $\mathbf{w}$ ),  $a$ , is a player of  $\mathbf{w}$ . If  $X$  is a coalition, the real number  $\mathbf{w}X$  is called the worth of  $X$  in  $\mathbf{w}$ .

Shapley and Shubik (1954) introduced the concept of 'P-power' which posits an office-seeking motivation of voting behaviour and which is reflected in the Shapley values (or Shapley-Shubik values). If the coalition wins, it gains collective possession of a fixed amount of transferable utility and each of the winning votes receive a non-negative payoff, all adding up to the total prize. The remaining voters get zero as a pay off (Felsenthal and Machover (1998)). In the context of this study, the winning coalition disciplines the incumbent management. As differential voting behaviour is motivated by different conceptions of future performance and private benefits under

the incumbent management, the resisting shareholders (among which the equity owning incumbent management) are expected will suffer a reduction in financial returns and private benefits.<sup>10</sup>

A problem in calculating the relative voting power is induced by the fact that the owners of a substantial proportion of the equity capital (on average about 56%) are unknown. These anonymous shareholders – hence called atomistic shareholders - are not directors (for whom full disclosure of equity stakes is mandatory) and do not have to comply with the disclosure regulation because their share stakes do not exceed the notification threshold of 3%. Although assumptions on potential coalition formation and voting behaviour could be quantified for this ‘ocean’ of atomistic shareholders, we assume that they do not participate in voting coalitions (to discipline management) as it is in practice difficult to organise minuscule share stakes into voting blocks (Chung and Kim (1999)). During protracted hostile take-over battles, coalitions of large shareholders may solicit votes of atomistic shareholders to buttress a coalition, but management removal seems to be more the competence of large shareholders due to free riding behaviour of small shareholders. Therefore, prior to calculating the SV’s, rescaling the sum of the large share blocks (the director’s stakes and the share stakes exceeding the 3% threshold) to 100% is a fair assumption. The resulting SV’s reflect the relative voting power whereby a winning coalition is expected to reach absolute control (50%+1 of the rescaled vote).<sup>11</sup>

It should also be noted that a dual hypothesis is embedded in our hypothesis 1b: (i) the nature of concentrated ownership matters -in terms of monitoring- rather than mere control concentration, and (ii) it is coalitions consisting of shareholders of the same category that discipline underperforming management rather than large individual blockholders. For hypothesis 1a, which investigates the relation of relative voting power and turnover, the SV’s are computed as if shareholders enter the Shapley voting game as individual players. In contrast, the shareholders in hypothesis 1b form ex ante coalitions with shareholders belonging to the same category of owner such that the relative voting power of their corresponding category is computed as the SV of their accumulated share stakes.<sup>12</sup>

The following example shows how the SVs for coalitions of shareholders of category  $i$  ( $SV_{\text{category } i}$ 's)

---

<sup>10</sup> Felsenthal and Machover (1998) also discuss several alternative power indices like the Deegan-Packel index and the Johnston index but illustrate the “extremely counter-intuitive ‘pathological’ behaviour of these indices” (p.211).

<sup>11</sup> There are a few cases where a shareholder who owns only a little share stake is given a disproportionately large relative voting power. For example, when the sole large shareholder holds 3% of the shares, he received a SV of 1. In order to avoid this potential problem, we have excluded companies with only one shareholder with an ownership stake less than 5% and companies with 2 shareholders each owning less than 5%. This resulted in removing 3% of the observations.

<sup>12</sup> As such, hypotheses 1a and 1b are two extreme cases. Several intermediate cases are possible. For example, it may be that only the executive directors form a voting pact, whereas the other shareholders do not engage in the creation of coalitions such that they participate in the Shapley game as individual players.

and the SVs of the individual (c.q. the largest) blockholder of a specific category  $i$  ( $SV_{\text{largest/cat}}^i$ ) are computed. Suppose a company has 5 shareholders: industrial company 1 (controlling 16% of the voting rights), industrial company 2 (controlling 8%), insurance company 1 (controlling 6%), insurance company 2 (controlling 6%) and a family which is not related to a director (controlling 14%). In total, these large shareholders own 50% of the company. We assume that the ocean of atomistic shareholders is not involved in toppling incumbent management. Therefore, the above equity stakes are rescaled which, in this example, doubles their voting stake in the company. Calculating the SV's of the individual shareholders gives 0.30 and 0.13 for industrial companies 1 and 2, respectively, 0.13 for each of the insurance companies and 0.30 for the family. The ranked SV's of individual shareholders (independent of their category of owner) were input in the model of table 6. The  $SV_{\text{largest/cat}}^i$  of table 7 are 0.30 for the class of industrial companies, 0.13 for insurance companies and 0.30 for the category of individuals and families. With regard to the  $SV_{\text{category}}^i$ , all the share stakes by category are first added and subsequently the SV of the combined shareholders by category is calculated. In this example, the categories of industrial companies, insurance companies and families own rescaled ownership stakes of, respectively, 48%, 24% and 28%. The  $SV_{\text{category}}^i$ 's happen to be equal for each of the categories to 0.33.

## B. Methodology.

### 1. Endogeneity, sample selectivity and measurement error

The results of most empirical corporate finance research frequently suffer from econometric biases, listed in Börsch-Supan and Köke (2000): endogeneity problems caused by structural reverse causality or unobserved heterogeneity, sample selectivity and measurement error. The endogeneity problem can particularly bias the results. For instance, Himmelberg et al. (1999) document that, although low levels of managerial ownership may lead to agency problems when the management is not maximizing shareholder value, 'low managerial ownership may be an optimal incentive arrangement for the firm if the scope for perquisite consumption (or more generally, the severity of the moral hazard problem for managers) happens to be low for that firm'. Therefore, we use a two-step econometric approach which allows us to use (deeply) lagged values of the endogenous variables as instruments.<sup>13</sup>

A second frequently occurring difficulty in corporate governance research is the problem of missing variables. In this paper, we include most corporate governance mechanisms such that we are not only testing the governance role of shareholder coalitions but are also estimating the effectiveness of coalitions' monitoring in relation to alternative corporate control devices. The fact that we run a 'horse

<sup>13</sup> An alternative estimation method based on GMM in systems (whereby lags of both the levels and differences of the independent variables are used) cannot be used as our dependent variable is either truncated (executive board turnover) or a dummy variable (CEO turnover).

race' with all governance mechanisms while also accounting for a variety of control variables is likely to minimise potential biases resulting from the missing variable problem. The estimations are performed with, as dependent variable, executive director turnover or CEO turnover and, as independent variables, alternative lagged corporate governance variables capturing board composition, dual versus unitary board control, changes in ownership and capital structure, as well as other lagged control variables like corporate performance, size, financial distress, refinancing and industry dummies. The parameter coefficient of the interaction terms indicates whether corporate governance actions are triggered by (lagged) poor performance.

A third general estimation problem exposed in Börsch-Supan and Köke (2000) relates to sample selectivity: 'Most empirical studies on corporate governance analyze only the largest [...] companies. These companies are also likely to be the most profitable firms in the market.' The sample selection bias is small in this study as we use a randomly selected, unbalanced sample (which includes firms that were taken over or went bankrupt).

Finally, measurement error in exogenous variables causes parameter estimates to be biased and inconsistent. For instance, many studies use a single performance variable (share price performance, Tobin's Q, ROA, dividend changes etc.) to proxy for the same (not directly observable) firm performance but Geroski (1998) demonstrates that the correlation between all these different performance variables is rather weak. To examine the robustness of our results, we use both share price performance as well as performance measures using accounting, cash flow and dividend information.

## 2. The model

As the dependent variable is executive board turnover, Tobit models are used to adjust for the truncation of the dependent variable. When the dependent variable is CEO turnover (a dummy variable equalling one in case of conflictual CEO replacement), a logit regression<sup>14</sup> is employed.

The model is structured as follows:

- a. performance (performance at t, t-1 and t-2; whereby performance is measured by annual abnormal returns, operational ROA, earnings losses, ROE, cash flow margin and dividend changes),
- b. relative voting power (SV's at t or t-1 and interaction between SV's at t and performance at t-1; whereby various assumptions are made about the likelihood that specific classes of shareholders vote: see section 2),
- c. changes in voting power (increases in ownership concentration by class of shareholder),
- d. leverage and refinancing (leverage at t-1, interaction of leverage with performance at t-1, interest coverage at t-1 and interaction of interest coverage with performance at t-1, new equity

<sup>14</sup> In section VI, we only show the tables for executive board turnover for reasons of conciseness. The results for CEO turnover discussed in the text if they are different from the executive turnover models are similar and are available upon request.



- issues at  $t$ ; whereby leverage is measured as the ratio of debt on (debt + market capitalisation), interest coverage as EBIT/interest payments and new equity issues as a dummy variable),
- e. board structure (proportion of non-executive directors at  $t-1$  and interaction with performance at  $t-1$ , separation of CEO and chairman at  $t$  and interaction with performance at  $t-1$ ) and
  - f. disclosure dummy and controls (change in disclosure threshold (dummy) and industry variables).

The potential endogeneity problem of this model may arise from the fact that specific ownership or control concentration measures (in aggregate or by type of shareholder) are determined by other factors like performance, board characteristics or other governance measures. We use these variables as instruments while verifying whether they are uncorrelated with the error term. To combine an instrumental variable approach with a Tobit estimation, we use a multi-step econometric approach: we first create the predicted values of right hand side endogenous terms, that is the ownership structure variables (% of equity) or the voting power indices (Shapley values), using lagged ownership variables, performance and other governance variables. This first stage equation (the reduced form equation) allows us to create predictions uncorrelated with the error term. These predictions are plugged into the second stage analysis, a Tobit (or Logit) specification of the model. The results of this analysis produce consistent estimates of the model parameters if quality instrumental variables have been used. In addition to producing consistent estimates and accurate standard errors, this also allows for the statistical testing of endogeneity by comparing the log of the likelihood functions calculated with and without the residuals that are included in the second stage model. Under the null hypothesis, the models are appropriately specified with all explanatory variables as exogenous. Under the alternative hypothesis, the suspected endogenous variables are expressed as linear projections of a set of instruments, and the residuals from those first-stage regressions are added to the model.

## **V. DESCRIPTION OF OWNERSHIP IN THE UK AND COALITION FORMATION.**

### *A. Share stake concentration and the nature of ownership.*

Panel A of table 1 shows that the largest shareholder's equity stake is between 14 and 19% with an average of 16.6%. A coalition of the three largest shareholders owns 30.1% of the voting shares in the average listed company and the combined equity stake of all large shareholders (owning 3% or more) amounts to about 40%. Panel B shows the relative importance of the different classes of shareholders in terms of ownership. Institutions, and in particular insurance companies, are the most important shareholder category owning 24.4% of the total equity (averaged over the companies with an institutional investor as owner). Still, since many institutions hold stakes between 2 and 3% of a

firm's equity, the true accumulated holdings of institutions are estimated to be around 60%. The combined board of directors controls 17.3% of voting rights. On average, the combined shareholdings of families and individuals amount to 16.3% while industrial and commercial companies control 14.3% of the voting rights.

*Insert about here Tables 1 and 2*

The number of investors owning at least 3% in the average sample company is about 6 (Table 2, panel A). This average has increased from 3.8 in 1988 to 6.4 in 1992 because of the change in transparency regulation which decreased the mandatory disclosure threshold from 5% to 3%.<sup>15</sup> Panel B reveals that most institutional shareholdings are small (below 10%). Larger stakes are rare with an average of respectively 0.31 shareholders per company. The most important category of shareholder controlling stakes of 10% or more are directors with 60 stakes (38 of which are held by executives). In 19% of sample companies industrial and commercial companies hold 34 large blocks of 10% or more.

The SV's presented in table 1 represent the relative voting power of a shareholder in potential voting coalitions. In this computation, it is assumed that all large investors (owning 3% and more) and all directors can participate in potential voting coalitions (regardless of the category of owner) and that shareholders without disclosed shareholdings are atomistic and do not buttress a coalition with their voting rights. The SV's of the individual shareholders are subsequently aggregated by class of owner. The dispersed nature of the shareholding structure is reflected in panel A of table 1: the largest shareholder with an ownership stake of about 15% has a relatively high SV of at least 0.50. If the largest three shareholders form a coalition, their relative voting power increases to over 0.75. This means that such a coalition would have a de facto supermajority yielding substantial power and enabling it to even change the articles of incorporation (see Stapledon (1996)). Still the SV's of panel A may be misleading as they assume that every large shareholder has a similar interest in accumulating voting power, a similar propensity to participate in voting coalitions and similar control abilities. Section 2 reported some empirical evidence that specific classes of shareholders are better monitors than others, which motivates the inclusion of SV's calculated by class of owner in the disciplining models. Panel B of table 1 shows the relative voting power by shareholder class. The SV of the largest shareholder by class of owner shows that insurance

---

<sup>15</sup> After 1991, the average number of shareholders decreases to 5.5. As mentioned in section 3.1, we study the impact of relative voting power in relation to performance and managerial disciplining. Hence, in order to capture the dynamics of voting power, at least 3 years of data were required for each sample company in the period 1988-1991. This implies that the companies that were taken over or went bankrupt were excluded from the sample. In the years 1992 and 1993, more than 30 companies, with a size smaller than the median, disappear from our sample following receivership or take-overs.

companies hold a SV of 0.26 in the average company, industrial companies have an average SV of 0.34, and executive and non-executive directors respectively can exert a relatively power of 0.21 and 0.16.<sup>16</sup>

*B. The market for share stakes.*

Table 3 exhibits that the market in share stakes is not unimportant: it shows the number of increases and decreases in large shareholdings by degree of ownership concentration and also distinguishes between new shareholders (those who transgress the disclosure threshold of 3% for the first time) and 'old' shareholders who increase their existing stakes. The table reveals that the number of sales of share stakes is more or less balanced by the number of purchases, which confirms the fact that, once a block of shares is assembled, a control position is unlikely to be dismantled (Shleifer and Vishny (1986)). It is in the large shareholder's interest to wait until someone who values control, expresses an interest in this block, as if the block is broken up and sold on the open market, part of the firm's value arising from the possibility of value-increasing monitoring is lost. A shareholding increase of more than 5% takes place in 60% of the sample companies, while in 16.5% of the sample substantial shareholding increases of 10% or more occur and new share stakes of similar size are acquired.

*Insert about here Tables 3 and 4.*

*C. Performance, capital structure and corporate size.*

Table 4 reports summary statistics of the performance data and shows, as expected for a random sample, that the average annual abnormal return is close to zero, while this average company has an ROE of 11.8%, a cash flow margin (cash flow/sales) of 6.2 and a profit margin of 2.9. This firm's capital gearing amounts to 37% and its interest coverage is more than 9 times (with a median of about 4). Eleven per cent of companies issued new equity using rights issues (146 rights issues are recorded over the period 1988-93). The working capital ratio (short term assets/ short term liabilities) amounts to 1.42 for the average company.

*D. Board composition and top management turnover.*

In the average UK company, the number of directors amounts to 9.5 with a median of 9 (table 5).

---

<sup>16</sup> The numbers mentioned in the text refer to the left hand side columns of panel B where the average SV is taken over all companies with stakes of a specific shareholder class represented in the company. The numbers in the right hand side columns are necessarily smaller because the total number of sample companies is taken as denominator (which includes companies for which there is no shareholder of a specific shareholder class present).

Over time, there has been a gradual increase in the average number of directors from 9.2 to 10.1. Sixty-one per cent of directors hold executive positions in the company and in about two thirds of the sample firms, the positions of CEO and chairman are held by separate directors. The CEOs' and chairmen's average age is 53 and 59 years, respectively, with tenures of 5 and 6 years.

Total board turnover amounts to 7.4% yearly, with a higher proportion of executive directors leaving the board (8.7%) than of non-executives (4.7%). The annual turnover of CEOs is 11.4% while the turnover of the chairmen amounts to 7.8%. These turnover data are corrected for natural turnover due to age related retirements (at 63 or above), illness or death. There is a strong relation between executive and CEO board turnover and performance. In loss making companies, average annual executive director and CEO turnover are amount to 15% and 26%, respectively, more than two and three times the turnover in profitable companies. A similar degree of differentiation in turnover is found for companies with and without substantial dividend reductions. Companies with the lowest abnormal returns (below -25%) experience an average annual executive turnover of about 15% and a CEO turnover of about 20%, whereas the turnover in the other quintiles is only about half this number. Franks et al. (2001) and Faccio and Lasfer (1999) confirm the non-linearity in the performance-turnover relation for the UK as do Morck et al. (1988) for the US. Non-executive director turnover is not statistically different between subsamples of poorly and well performing companies.

*Insert here table 5.*

## **VI. RESULTS.**

In this section, the results of Tobit regressions with instrumental variables are presented, measuring the relation between relative voting power and alternative governance mechanisms, and executive board restructuring. The results from the instrumented logit models with CEO turnover as an alternative dependent variable are nor shown but are discussed in the text.

### *A. Monitoring by individual shareholders or by coalitions.*

Table 6 shows that (non-natural) turnover of the executive board is strongly dependent upon performance: negative abnormal share price returns, negative accounting returns, and dividend decreases lead to significant increases in executive director turnover in the current and two preceding years. A company in the lowest decile of abnormal performance (-50% or lower) during three consecutive years, will experience between 7 and 9% higher annual executive turnover compared to average performing companies. A dividend decrease in the year of turnover and one

year prior, gives about 8% more annual executive turnover than companies without decreases<sup>17</sup> and loss making companies face 15.4 to 17.3% more annual turnover than firms generating profits. For both the US (e.g. Weisbach (1988)) and the UK (e.g. Lai et al. (1997)), there is evidence that the negative relation between performance and turnover is non-linear with high turnover being concentrated in the worst performing deciles of performance. We find weak support for our hypothesis that there is a relation between control concentration and managerial disciplining. While the absolute measures of ownership (in percentage of equity controlled by the largest to the 5<sup>th</sup> largest blockholder) do not seem correlated to managerial disciplining, there is (weak) evidence (within the 10% level of statistical significance) that the relative voting power (SV) of the strongest blockholder matters in restructuring the executive board. The relative voting power of the second and of smaller blockholders is not related to conflictual executive turnover.

In order to account for possible endogeneity of ownership and control, we use as instruments (deeply) lagged control variables, board composition variables, capital gearing and performance. The negative (non-significant) coefficients of the Shapley values may result from the fact that some of these largest share stakes are held by directors which may oppose board restructuring. This would suggest that not mere control concentration matters, but the nature concentrated control which investigate in table 7. We conclude from table 6 that whereas mere ownership concentration does not matter, relative voting control leads to increased managerial departures. The support for hypothesis 1a is confirmed by logit models with CEO turnover as dependent variable.

*Insert here table 6.*

To test hypothesis 1b, the monitoring merits of blockholdings by nature of ownership are investigated. A distinction is made between seven classes of owner: (i-iii) institutions, consisting of bank managed funds, of investment and pension funds and of insurance companies, (iv) industrial and commercial companies, (v) individuals and families (not related to a director) and (vi-vii) executive and non-executive directors.<sup>18</sup> In order to investigate whether large individual shareholders or coalitions of substantial shareholders discipline underperforming management, we estimate three different control models in table 7 for each of five measures of performance. First, the largest equity stake classified by type of owner is included as it may be that the disciplining of underperforming management is left to the largest blockholder. Second, the relative voting power of the largest blockholder (measured by the SV or the degree to which the largest shareholder by

---

<sup>17</sup> These increases are net of additional turnover due to monitoring actions by large shareholders, creditor and corporate boards.

<sup>18</sup> Other classes of owner, like governmental institutions or real estate companies, are not included as they only own a limited number of (relatively small) shareholdings.

category is pivotal in the potential coalitions) is tested and henceforth called  $SV_{\text{largest/cat}}^i$ . Third, according to hypothesis 1b, coalition formation among shareholders of the same ownership class is facilitated by the fact that private benefits of control may be similar to blockholders of a particular category. Consequently, SV's of the sum of all shareholdings by category of blockholder are calculated (henceforth called  $SV_{\text{category}}^i$ ), reflecting the relative voting power of this class of shareholders. This third definition not only tests whether specific categories of shareholders are more able to monitor, but also enables us to make a comparison of strength of the relation between  $SV_{\text{largest/cat}}^i$  and  $SV_{\text{category}}^i$ , respectively, and managerial disciplining. Hypothesis 1b predicts monitoring by coalitions of outsiders and resistance to board restructuring by management coalitions.

*Insert here table 7.*

Table 7 unveils an (at best) weakly negative correlation between the percentage of the equity owned by the largest executive director ( $\% \text{Eq.}_{\text{largest}}$ ) and managerial disciplining (in each first regression of the 5 performance models in panels A and B). Interestingly, the evidence of executive director opposition against executive turnover is much stronger (within the 5% and 1% levels of statistical significance) when the Shapley value of the strongest executive blockholder ( $SV_{\text{largest/cat}}^i$ ) is included (in each second regression of the performance models). This shows that the relative voting power of the largest executive director is an important impediment against executive board restructuring. Even more interesting is the fact that the Shapley value of the whole executive board ( $SV_{\text{category}}^i$ ) is negatively and strongly significantly related to managerial disciplining. The fact that this measure is both statistically and economically<sup>19</sup> more significant than the SV of the largest executive blockholder implies that executive directors can successfully form coalitions with the aim of blocking managerial disciplining, which supports hypothesis 1b.<sup>20</sup> Our instrumented logit models confirm above results. Faccio and Lasfer (1999) also report that substantial managerial ownership may create an entrenchment effect in the UK.

Whereas the percentage of equity held by the largest non-executive director is not related to executive board turnover, the relative voting power of a coalition of non-executive directors ( $SV_{\text{category}}^i$ ) leads to increased managerial disciplining. This implies that the coalition uses its

---

<sup>19</sup> The parameter estimate of the coalition SV is at least equal but frequently higher than that of the SV of the largest blockholder. Furthermore, the average coalition SV is higher than the SV of the largest shareholder.

<sup>20</sup> The SV for non-executives is determined by performance at t-3, lagged board composition at t-2 and lagged SV's at t-2. When we re-estimate all models of table 7 using fixed effects but without instruments, we find a stronger negative relation for each measure of executive control. This suggests that endogeneity problems of ownership may play a modest role.

relative voting power to support the removal of underperforming incumbent management.<sup>21</sup> Hence, non-executive directors seem to assume their fiduciary duties of removing underperforming top managers, but do so only when their *relative* voting power is high. In contrast, Franks, Mayer and Renneboog (2001) document that non-executive directors usually support incumbent management even in the wake of poor performance. They justify their finding by the fact that poor corporate performance may not only be the consequence of managerial underperformance but also of a breakdown of corporate governance by non-executive directors. Thus, non-executives may also be also culpable for the weak corporate performance. However, their result may be biased as a consequence of the endogeneity non-executive ownership: when we estimate a Tobit model that is not corrected for potential endogeneity of non-executive control, we obtain results similar to Franks et al. (2001).

Even when investment/pension funds or banks control large voting stakes, there is no evidence that their control power has an impact on managerial substitution. Regarding institutional investor activism, it is only the relative control power of insurance companies that is related to managerial disciplining in all performance models of table 7. The fact that it is insurance companies rather than investment and pension fund managers or fund managing banks, who exert their voting rights is not surprising for the following two reasons. First, insurance companies often hold larger share stakes in a single company. Second, as the surveys on the exercise of voting rights (discussed in section 2) revealed, insurance companies exert their voting right more frequently than other institutions. The fact that the  $SV_{\text{category}}^i$  measure is statistically (and economically) more significant than the  $SV_{\text{largest/cat}}^i$  measure implies that insurance companies seem to forge coalitions in case executive directors need to be removed. This evidence partially supports hypothesis 1b.

Finally, industrial and commercial companies with high relative voting power seem to remove management in badly performing companies. As the voting power measures are significant whereas the percentage of ownership is not, we confirm that it is relative rather than absolute voting power that provides incentives to monitor a firm. Table 7 also shows that in most performance models, the specification including  $SV_{\text{largest/cat}}^i$  is similar to the specification with  $SV_{\text{category}}^i$  in terms of statistical and economic significance. This is not unexpected as in most firms, there is at most one large corporate blockholder present. Table 7 also demonstrates that the voting power of individuals or families is not related to managerial disciplining.

---

<sup>21</sup> It should be noted that the non-executives'  $SV_{\text{category}}^i$  measure (the relative voting power of non-executive directors as a group) has a higher correlation with executive board turnover than the  $SV_{\text{largest/cat}}^i$  measure (which captures the relative voting power of non-executive directors as individuals). This provides indirect evidence that non-executive directors form coalitions to ward off executive board changes.

### *B. Robustness checks.*

The robustness of the findings with the  $SV_{\text{category}}^i$ -measures of table 7 was verified by re-estimating the models including, respectively, the cumulative percentage of equity by category of owner and the sum of the Shapley values of individual shareholders by category of owner<sup>22</sup>. These models showed results similar to the models with  $SV_{\text{category}}^i$ -measures, but at lower levels of statistical significance. This further supports our conclusion that coalitions are forged within the categories of executive directors, of non-executives and of insurance companies.

Repeating the models of table 7 for CEO disciplining (non-natural CEO turnover) using a logit approach generally yields weaker results: there is little evidence of monitoring by insurance companies and industrial companies, but substantial executive ownership protects the CEO of an underperforming company against a forced resignation. The non-executive directors do not undertake disciplinary actions against the incumbent CEO nor do they use their voting power to support the CEO.

From the above analyses, we conclude that there is a strong relation between executive turnover and relative voting power and that the use of voting power measures constitutes an important improvement to the ownership variables used in earlier studies. The influence of control can be summarised as follows: there is evidence of shareholder coalition formation by outside shareholders (mainly for insurance companies, and less so by non-executive directors) to discipline management and by executive directors to resist board restructuring.

So far, the analysis has focused on the impact of relative voting power on board restructuring while controlling for capital and board structure. Still, several questions remain unanswered. Firstly, although relative voting power and coalitions may matter, we have not analysed whether or not coalitions of large shareholders discipline management *as the result of poor corporate performance*. Secondly, we have not yet analysed whether *alternative governance mechanisms* are functioning in the wake of poor performance. The next section attempts to provide the answers.

### *C. Alternative corporate governance mechanisms.*

Corporate monitoring is not only expected from blockholders or coalitions, but also from the internal control mechanisms (the non-executive board, board committees), the market in share stakes and creditors (see hypotheses 2-4). Including all monitoring mechanisms into one model

---

<sup>22</sup> The SV calculated via this method amount for the categories of industrial companies, of insurance companies and of family to, respectively, 0.43, 0.27 and 0.30.



allows for testing which disciplinary devices dominate in the UK.<sup>23</sup> Moreover, including interaction terms of all governance mechanisms with performance can give an answer to the question whether or not it is poor performance which triggers managerial disciplining by one or more governance mechanism.

Table 8, which includes the  $SV_{category}^i$  (shown in table 7 to yield the strongest correlation with managerial disciplining), confirms that executive board changes are induced by poor share price and accounting performance, measured by abnormal returns, earnings losses, return (after interest and tax) on equity, cash flow margin and dividend changes.<sup>24</sup> In addition, the findings supporting hypothesis 1b are largely confirmed. Coalitions of executive directors seem to be able to defend their positions by impeding board restructuring irrespective of corporate performance: the Shapley variables are strongly significant but the relative power of executive directors interacting with performance is not. Thus, even if the company performs poorly, a voting pact among the management is able to ward off managerial disciplining. In contrast, industrial and commercial companies with high relative voting power seem to discipline executive directors. That this happens when performance is poor, is reflected by the statistically significant negative interaction terms with lagged performance. Managerial disciplining is also performed by coalitions of insurance companies. Still, it is not clear whether or not executive director substitution by insurance companies is related to underperformance as the interactive terms vary in sign. It may well be that insurance companies are instrumental in supporting management teams with strategic alternatives whereas removing management teams when the company is subject to (extreme) poor performance is left to other agents.

The Shapley values by category of owner capture the distribution of voting rights but not the trading in blocks of share stakes. For example, it may be that a shareholder with low monitoring ability sells out to a shareholder with a managerial alternative. If the new shareholder is of the same category of owner, the SV will not reflect the change. Therefore, gross increases in voting rights for each category of owner are included in the models of table 8.<sup>25</sup> We find strong evidence that changes in ownership structure lead to increased board turnover. With the exception of increases in equity stakes by institutions, ownership increases by the shareholder categories industrial

---

<sup>23</sup> The model estimated in this section and presented in table 8 is a fixed effects model. The complexity of the model which includes interaction terms of lagged performance with lagged governance variables does not allow us to find good instrumental variables.

<sup>24</sup> The performance variable at t-1 in table 8 is not significant in contrast to this variable in table 7. This results from the fact that performance at t-1 in table 8 is included in the interactive terms.

<sup>25</sup> In 1989, the ownership disclosure threshold was reduced from 5% to 3%, which is reflected in annual reports of 1990. As the data used for table 8 reflect all changes, the data as of 1990 are more refined, a disclosure dummy variable was included. The results do not change if the models are estimated using only data subsequent to the disclosure change.

companies, individuals and families, executive and non-executives are all positively related to increased board turnover.<sup>26</sup> The interactive terms test whether these increases are triggered by performance: the changes in shareholdings do not seem to constitute a performance-induced market for (partial) control (hypothesis 2). There is no evidence that increases in voting rights are related to increased monitoring with the exception of increases in stakes controlled by corporations.

Hypothesis 3 states that an independent non-executive board will acquit themselves better of their governance tasks. Two measures are used as proxies for non-executive directors' independence from management: the proportion of non-executive directors on the board and duality of the functions of CEO and chairman.<sup>27</sup> The degree of independence (and hence monitoring) is expected to rise when the non-executive directors are not outnumbered by executive directors and when the CEO does not chair the board. Table 8 shows that there is little consistent evidence to support hypothesis 3. In four performance models, the larger the percentage of non-executive directors on the board, the more negative the correlation with executive turnover. This counter-intuitive finding is neutralised by the negative interaction terms (in two performance models). This indicates that, when performance is poor, the percentage of non-executive directors on the board is not related to executive removal. It should be pointed out that this analysis focuses on the 'pre-Cadbury' period. In 1993, the London Stock Exchange required all listed companies to implement the recommendations for good corporate governance of the Cadbury commission, in which the independence and monitoring role of non-executive directors was strengthened. Table 8 also reveals that separating the functions of CEO and chairman is not related to more corporate governance actions.

A high gearing ratio may be a pre-commitment device for management to generate a steady stream of cash flows. If the gearing ratio increases due to poor performance and equity erosion, increased creditor monitoring is expected. We do find that high gearing is significantly positively related to executive board turnover (table 8). The negative interaction terms show that when high gearing coincides with low abnormal returns, managerial disciplining is intensified, which supports hypothesis 4. In contrast, low liquidity (in combination with poor performance) does not seem to be

---

<sup>26</sup> At first sight, the positive sign of the changes in executive directors' stakes is counterintuitive or at least is not in line with the entrenchment effect documented above. The changes in ownership are taken over the period  $[t-1, t]$  whereby  $t$  is the year of executive turnover. We find that the changes in the (non)executive directors' ownership are predominantly new equity blocks acquired by the new executive and non-executive directors who replace the removed management. Consequently, the changes in (non)executive ownership are the result of managerial disciplining rather than its cause. For the other categories the causality problem was not an issue: most of those changes preceded the board restructuring. Lagging one more period (for  $[t-2, t-1]$ ) does not make sense because if new blockholder emerges in a poorly performing company why wait more than one year to remove underperforming management?

<sup>27</sup> Note that the period analyzed is prior to the Cadbury recommendations. Therefore, few corporate governance variables (like the presence of audit, remuneration and nomination committees, the number of outside directorship etc.) were consistently reported in this period and they could therefore not be included in the model.

a reason to remove management.<sup>28</sup> Refinancing the corporation using a seasoned equity offering increases managerial disciplining because a need to recapitalize the company is the prime occasion for existing shareholders or new shareholders to remove management (Slovin et al. (2000)).<sup>29</sup> The fact that the interactive term of refinancing with performance is significant in four models confirms that poor performance combined with corporate refinancing leads to high executive turnover.

The results for models with disciplining of the CEO as dependent variable are again weaker: there is evidence of managerial entrenchment and (weak) disciplining by corporations. Furthermore, poor performance combined with a critical financial situation (i.e. refinancing need) and separating the functions of CEO and chairman enhances the probability of CEO removal. For a small sample of companies, data on CEO tenure were available. For this subsample, long CEO tenure reduces the probability of CEO removal as potential past successes in longer track records may compensate current underperformance.

*Insert here table 8.*

## **VII. CONCLUSION.**

This paper has investigated whether voting coalitions are formed by shareholders in order to discipline incumbent management in the wake of corporate underperformance. The relative power of shareholder coalitions by category of owner was measured by power indices (Shapley values) which outperform other measures of voting power, like the percentage of voting rights controlled by the largest shareholders and the relative voting power of the largest blockholder by category of owner. There is strong evidence of successful executive director resistance to board restructuring if these executive directors can combine their ownership stakes to a substantial block of voting power. We also document that poor corporate performance is penalised by industrial companies with high relative voting power and by coalitions consisting of non-executive directors. The voting power of insurance companies is positively related to executive director turnover, but this voting power is used for remove management for reasons of other than performance, which may be of strategic nature. Investment/pension funds and funds managed by banks do not play a role in the management substitution process.

A large number of share blocks change hands, and new shareholders –industrial companies, individuals and families– are related to increased executive director turnover. Still, these changes in

---

<sup>28</sup> The correlation between liquidity (interest coverage) and capital gearing is low and does not lead to multicollinearity. Deleting capital gearing or liquidity, does not lead to statistically significant results across the performance models.

<sup>29</sup> Refinancing takes place in the same year as executive director turnover. However, this does not induce a causality problem because in almost all cases, the equity issue takes place prior to the management turnover.

share stakes do not constitute a market in (partial) control as there is no systematic evidence that control changes are triggered by poor performance with the notable exception of industrial companies. There is little evidence that adjusting the board composition to allow for more independence for non-executive directors leads to higher managerial removal. In contrast, high gearing facilitates substitution of executive directors, especially if the company needs to be refinanced. These findings result from Tobit models which are corrected for potential endogeneity of the different corporate governance devices by using an instrumental variable approach. When focussing on CEO turnover using instrumented logit models, we find roughly similar results but at lower levels of statistical significance.

### References:

- Aghion, P. and P. Bolton. "An incomplete contracts approach to financial contracting", *Review of Economic Studies* 59 (1992), 473-494.
- Agrawal, A. and C. Knoeber. "Firm performance and mechanisms to control agency problems between managers and shareholders." *Journal of Financial and Quantitative Analysis* 31 (1996), 377-397.
- Banerjee, S., B. Leleux and T. Vermaelen. "Large shareholdings and corporate control: an analysis of stake purchases by French holding companies." *European Financial Management* 3 (1997), 23-43.
- Barca, F. and M. Becht (eds). "The control of corporate Europe." Oxford University Press, 2001.
- Barclay, M. J. and C. G. Holderness. "Private benefits from control of public corporations." *Journal of Financial Economics* 25 (1989), 371-395.
- Barclay, M. J. and C. G. Holderness. "Negotiated block trades and corporate control." *Journal of Finance* 46 (1991), 861-878.
- Bebchuk, L. and M. Roe. "A Theory of Path Dependence in Corporate Governance and Ownership." *Stanford Law Review* 52 (1999), 127-170.
- Becht, M. and A. Röell. "European Corporate Governance: Trading Off Liquidity against Control." *European Economic Review* 43 (1999), 1071-83.
- Bennedsen, M. and D. Wolfenzon. "The balance of power in closely held corporations." *Journal of Financial Economics* 58 (2000), 113-139.
- Berger, P. E. Ofek and D. Yermack. "Managerial entrenchment and capital structure decisions." *Journal of Finance* 52 (1999), 1411-1438.
- Bethel, J., J. Porter Liebeskind and T. Opler. "Block share purchases and corporate performance." *Journal of Finance* 53 (1998), 605-634.
- Bolton, P. and E. von Thadden. "Blocks, liquidity and corporate control." *Journal of Finance*, 53 (1998), 1-25.
- Börsch-Supan, A. and J. Köke. "An applied econometricians' view of empirical corporate governance studies", Working paper, University of Mannheim (2000).
- Brickley, J., J. Linck and L. Coles. "What Happens to CEOs after They Retire? New Evidence on Career Concerns, Horizon Problems, and CEO Incentives." *Journal of Financial Economics* 52 (1999), 341-77.
- Burkart, M., D. Gromb and F. Pannunzi. "Large Shareholders, Monitoring, and the Value of the Firm." *Quarterly Journal of Economics* 112 (1997), 693-728
- Chung, K. and J.-K. Kim. "Corporate ownership and the value of a vote in an emerging market." *Journal of Corporate Finance* 5 (1999), 35-54.
- Coles, J., M. Lemmon and F. Meschke. "Endogeneity in corporate finance", Working paper, Arizona State University (2002).
- Conyon, M. and K. Murphy. "The Prince and the Pauper? CEO Pay in the US and the UK." *Economic Journal* 110 (2000), 640-683.

- Denis, D and D. Denis, "Managerial discretion, organizational structure and corporate performance", *Journal of Accounting and Economics* (1993), 209-236.
- Dennis, D., D. Denis and A. Sarin, "Ownership and top executive turnover", *Journal of Financial Economics* 45 (1997), 193-222.
- Dyck, A. and L. Zingales, "Private benefits of control: an international comparison", *Journal of Finance* (2002) forthcoming.
- Faccio, M. and A. Lasfer. "Managerial ownership, board structure and firm value: The UK evidence." Working paper City Business School (1999).
- Faccio, M. and A. Lasfer. "Do occupational pension funds monitor companies in which they hold large stakes?" *Journal of Corporate Finance* 6 (2000), 71-110.
- Felsenthal, D. and M. Machover. "The measurement of voting power." Edward Elgar publishing Inc. (1998), 322 p.
- Franks, J. and C. Mayer. "Ownership and control", in "Trends in Business Organisation: Do participation and co-operation increase competitiveness?", ed. Horst Siebert, published by J.C.B. Mohr (Paul Siebeck) Tuebingen (1995).
- Franks, J. and C. Mayer. "Hostile take-over and the correction of managerial failure." *Journal of Financial Economics* 40 (1996), 163-181.
- Franks, J. and C. Mayer. "Ownership and control in German corporations." *Review of Financial Studies* 14 (2001), 943-977.
- Franks, J., C. Mayer and L. Renneboog. "Who disciplines management in poorly performing companies?", *Journal of Financial Intermediation* 10 (2001), 209-248.
- Geroski, P. "Applied econometricians' views of large company performance", *Review of Industrial Organization* 13 (1998), 271-294.
- Gilson, S. C. "Bankruptcy, boards, banks, and blockholders." *Journal of Financial Economics* 27 (1990), 55-387.
- Goergen, M. and L. Renneboog. "Strong managers and passive institutional investors in the UK", in *The control of corporate Europe*, F. Barca and M. Becht (eds.), Oxford University Press (2001), 259-284.
- Goergen, M. and L. Renneboog. "Why are the levels of control (so) different in German and UK companies?", *Journal of Law, Economics and Organization* 19 (2003), 141-175.
- Grossman, S. J. and O. Hart. "Take-over bids, the free-rider problem, and the theory of the corporation." *Bell Journal of Economics* 11 (1980), 42-64.
- Himmelberg, C., G. Hubbard and D. Palia. "Understanding the determinants of managerial ownership and the link between ownership and performance", *Journal of Financial Economics* 53 (1999), 353-384.
- Holderness and Sheehan. "The role of majority shareholders in publicly held corporations: an exploratory analysis." *Journal of Financial Economics* 20 (1988), 317-346.
- ISC (Institutional Shareholders Committee). "The responsibilities of institutional shareholders in the UK." ISC, London (1991).
- ISC (Institutional Shareholders Committee). "Report on investigation of voting rights by institutions." ISC, London (1993).
- Jensen, M. "The eclipse of the public corporation." *Harvard Business Review* 67 (1989), 61-75.
- Kaplan, S. N. and D. Reishus. "Outside directorships and corporate performance." *Journal of Financial Economics* 27 (1990), 389-410.
- Lai, J. and S. Sudarsanam. "Corporate restructuring in response to performance decline: Impact of ownership, governance and lenders." *European Finance Review* 1 (1997), 197-233.
- Leech, D. "The relationship between shareholding concentration and shareholder voting power in British companies: a study of the application of power indices for simple games." *Management Science* 34 (1988), 509-527.
- Leech, D. and J. Leahy. "Ownership structure, control type classifications and the performance of large British companies." *Economic Journal* 101 (1991), 1418-1437.
- Mallin, C. "The voting framework: a comparative study of voting behaviour of institutional investors in the US and the UK." *Corporate Governance: An International Review* 4 (1996), April.
- Mallin, C. "Corporate governance: Financial institutions and their relations with corporate boards." Working paper Nottingham Business School (1999).
- MVA (Manifest Voting Agency). "Proxy voting 1997 Survey, Mandate Vol. 3, Issue 1." Manifest Voting Agency Ltd (1998).

- Martin, J. and J. J. McConnell. "Corporate Performance, Corporate take-overs and management turnover." *Journal of Finance* 46 (1990), 671-687.
- Morck, R., A. Shleifer and R. W. Vishny. "Management ownership and market valuation: An empirical analysis." *Journal of Financial Economics* 20 (1988), 293-316.
- Nicodano, G. "Business Groups, Dual Class Shares and the Value of the Voting Right", *Journal of Banking and Finance* 22(1998), 1117-1137
- PIRC. "Proxy voting trends 1999." Pensions & Investment Research Consultants Ltd, London, (1999).
- Renneboog, L. "Ownership, managerial control and the governance of companies listed on the Brussels Stock Exchange." *Journal of Banking and Finance* 24 (2000), 1959-1995.
- Roe, M. "Strong managers, weak owners. The political roots of American corporate finance." Princeton University Press (1994).
- Shapley, L. "A value for n-person games", in Contributions to the Theory of Games II (Annals of Mathematics Studies 28), Kuhn, H. and A. Tucker (eds). Princeton: Princeton University Press, (1953).
- Shapley, L. and M. Shubik. "A method for evaluating the distribution of power in a committee system." *American Political Science Review* 48 (1954), 787-792.
- Shleifer, A. and R. W. Vishny. "Large shareholders and corporate control." *Journal of Political Economy* 95 (1986), 461-488.
- Shleifer, A. and R. W. Vishny. "A survey of corporate governance." *Journal of Finance*, 52 (1997), 737-83.
- Slovin, M., Sushka, M. and K. Lai. "Alternative floatation methods, adverse selection and ownership structure: evidence from seasoned equity issuance in the UK." *Journal of Financial Economics* 57 (2000), 157-190.
- Stapledon, G. "*Institutional Shareholders and Corporate Governance*." Oxford: Clarendon Press (1996).
- Stapledon, G. and J. Bates. "Enhancing efficiency in corporate governance: how recognising the nature of modern shareholding can lead to a simplified voting process", in 'Convergence and diversity of corporate governance regimes and capital markets', J. McCahery, P. Moerland, T. Raaijmakers and L. Renneboog (eds.), Oxford University Press, (2002).
- Van Hulle, C. "On the nature of European holding groups", *International Review of Law and Economics* 18 (1998), 255-277
- Wenger, E. and C. Kaserer, "The German system of corporate governance – a model which should not be imitated." American Institute for Contemporary German Studies, The Johns Hopkins University, WP 14 (1997)
- Weisbach, M. S. "Outside directors and CEO turnover." *Journal of Financial Economics* 20 (1988), 431-460.
- Wymeersch, E.. "Elements of comparative corporate governance in Western Europe." in Aspects of Corporate Governance, eds. M. Isaksson and R. Skog, Juristforlaget, Stockholm, (1994).
- Zingales, L., "The value of the voting right: A study of the Milan stock exchange", *Review of Financial Studies* 7 (1994), 125-148.
- Zwiebel, J. "Block investment and partial benefits of corporate control." *Review of Economic Studies* 62 (1995), 161-185.

**Table 1 : Concentration and distribution of ownership and voting power.**

This table shows the ownership concentration and distribution of the largest shareholders by category of owner over the sample period.

Source: own calculations.

**Panel A : Ownership concentration and voting power of large shareholders.**

Year	Sample	Largest shareholder		3 largest owners		5 largest owners		all shareholders		
		%ownership	Shapley	%ownership	Shapley	%ownership	Shapley	%ownership	Shapley	Herfindahl
1988	193	18.9%	0.68	33.0%	0.92	36.5%	0.98	37.6%	1.00	0.46
1989	206	18.2%	0.68	31.6%	0.92	35.4%	0.98	36.4%	1.00	0.45
1990	232	17.3%	0.55	31.2%	0.80	37.7%	0.92	42.4%	1.00	0.32
1991	233	16.1%	0.50	30.3%	0.76	37.5%	0.90	43.6%	1.00	0.29
1992	204	15.3%	0.50	28.8%	0.77	35.6%	0.90	41.1%	1.00	0.29
1993	152	13.9%	0.56	25.5%	0.83	30.5%	0.94	33.7%	1.00	0.34

**Panel B : Ownership concentration and voting power of large shareholders by shareholder category.**

		Average based on total number of co's with a shareholding for this category of owner				Average based on total number of sample companies			
1992		Numb. of co's		with large owners		All sample companies		with large owners	
		% equity	Shapley	Herfindahl	% equity	Shapley	Herfindahl		
1 Banks	Largest	62	5.7%	0.16		204	1.7%	0.05	
	Sum		6.2%	0.18	0.04		1.9%	0.05	0.01
2 Investment and Pension funds	Largest	139	6.0%	0.20		204	4.1%	0.14	
	Sum		8.9%	0.27	0.08		6.1%	0.18	0.06
3 Insurance co's	Largest	173	8.4%	0.26		204	7.2%	0.22	
	Sum		17.1%	0.46	0.11		14.5%	0.39	0.09
Total Institutions	Largest	187	8.4%	0.32		204	7.2%	0.29	
	Sum		24.4%	0.68	0.18		22.4%	0.62	0.16
4 Industrial cos	Largest	86	12.8%	0.34		204	5.4%	0.14	
	Sum		14.3%	0.36	0.13		6.0%	0.15	0.06
5 Families and individuals	Largest	31	10.7%	0.19		204	1.6%	0.03	
	Sum		16.4%	0.27	0.07		2.5%	0.04	0.01
6 Government	Largest	6	5.7%	0.03		204	0.2%	0.00	
	Sum		5.7%	0.03	0.04		0.2%	0.00	0.00
7 Executive directors	Largest	103	8.1%	0.16		204	4.1%	0.08	
	Sum		11.6%	0.21	0.07		5.9%	0.11	0.04
8 Non-executive directors	Largest	58	10.3%	0.21		204	2.9%	0.06	
	Sum		14.5%	0.26	0.08		4.1%	0.07	0.02
Total directors	Largest	118	10.3%	0.21		204	4.1%	0.12	
	Sum		17.3%	0.31	0.10		10.0%	0.18	0.06

**Table 2 : Relative importance of shareholders by class of owner and by size of equity stake.**

This table shows the average number of large shareholders over the period 1988-1993. Mean (tot.) and Mean (cat.) stand for the average stake by class of shareholder whereby the denominator is, respectively, the total number of companies and the total number of companies with a shareholder of this category. # of invest. stands for the number of investors in this category. Note: Mean (tot.) and Mean (cat.) stand for the average stake by class of shareholder whereby the denominator is, respectively, the total number of companies and the total number of companies with a shareholder of this category. # of invest. stands for the number of investors in this category. Source: Own calculations with data of annual reports.

**Panel A: Number of shareholder by sample company.**

Year	1988	1989	1990	1991	1992	1993
Average number of shareholders per co.	3.77	3.92	6.08	6.62	6.44	5.45
Total number of investors in all sample co's	840	879	1429	1549	1327	839
Number of sample co's	223	224	235	234	206	154

**Panel B : Average number of large shareholders by shareholder category and by size of equity stake in 1992.**

	[3%,10%]			[10%,25%]			[25%,50%]			[50%,75%]			[75%,100%]		
	Mean (Tot.)	Mean (Cat.)	#. of Invest.	Mean (Tot.)	Mean (Cat.)	#. of Invest.	Mean (Tot.)	Mean (Cat.)	#. of Invest.	Mean (Tot.)	Mean (Cat.)	#. of Invest.	Mean (Tot.)	Mean (Cat.)	#. of Invest.
Banks	0.29	1.11	60	0.02	1.00	4	0.00	1.00	1	0.00	0.00	0	0.00	0.00	0
Invest./pension funds	1.06	1.63	219	0.04	1.00	9	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0
Insurance companies	2.01	2.57	414	0.22	1.21	46	0.02	1.00	4	0.00	0.00	0	0.00	0.00	0
Total Institutions	3.35	3.76	691	0.29	1.26	59	0.02	1.00	5	0.00	0.00	0	0.00	0.00	0
Industrial companies	0.31	1.14	64	0.11	1.05	22	0.04	1.00	9	0.01	1.00	2	0.00	1.00	1
Families and indiv.	0.22	1.84	46	0.03	1.40	7	0.02	1.00	4	0.00	0.00	0	0.00	0.00	0
Executive directors	0.24	1.40	49	0.14	1.38	29	0.04	1.14	8	0.00	1.00	1	0.00	0.00	0
Non-executive directors	0.26	1.71	53	0.08	1.23	16	0.02	1.00	5	0.00	1.00	1	0.00	0.00	0
Total directors	0.50	1.85	102	0.22	1.55	45	0.06	1.30	13	0.01	1.00	2	0.00	0.00	0
All shareholders	4.42	4.69	910	0.65	1.51	133	0.15	1.11	31	0.02	1.00	4	0.00	1.00	1



**Table 3: Changes in large shareholdings by size and shareholder concentration**

This table reports the number of share stake purchases and sales by size for different total shareholding concentrations. Panel A reports the number of large new shareholdings by size class. Panel B shows the number of increases in existing shareholdings while panel C reports the number of decreases in shareholdings. In order to avoid picking up changes due to the decrease of disclosure threshold, the number of changes reported in this table is the sum of the changes over the years 1990-91, 1991-92 and 1992-93. These changes in ownership took place in 594 firm-years (the number of co 's in 1991, 1992 and 1993 amount to respectively 234, 206 and 154) and the number of shareholdings can be found in table 2. Source : Own calculations with data of annual reports.

**Panel A : Number of large new shareholdings by size of the new shareholding and by total ownership concentration.**

	Size of new shareholdings					
	[3-5%[	[5-10%[	[10-15%[	[15-25%[	[25-50%[	>50%
Total ownership concentration						
<15%	67	20	7	1	2	0
[15%,25%[	63	25	5	3	1	0
[25%,35%[	106	41	8	3	2	0
[35%,50%[	143	60	9	4	3	0
>50%	134	75	19	11	4	0
Total	513	221	48	22	12	0

**Panel B : Number of increases in existing shareholdings by size and by total ownership concentration**

	Size of increases in shareholdings					
	[3-5%[	[5-10%[	[10-15%[	[15-25%[	[25-50%[	>50%
Total ownership concentration						
<15%	1	1	0	2	0	0
[15%,25%[	4	3	1	1	1	0
[25%,35%[	9	7	1	0	0	0
[35%,50%[	18	6	5	0	2	0
>50%	26	18	2	1	0	0
Total	58	35	9	4	3	0

**Panel C : Number of decreases in existing shareholdings by size and by total ownership concentration**

	Size of decreases in shareholdings					
	[3-5%[	[5-10%[	[10-15%[	[15-25%[	[25-50%[	>50%
Total ownership concentration						
<15%	36	12	1	1	0	0
[15%,25%[	56	14	2	2	0	0
[25%,35%[	101	45	6	4	0	0
[35%,50%[	188	76	12	8	3	0
>50%	153	93	17	16	7	2
Total	534	240	38	31	10	2

**Table 4 : Performance, capital structure and corporate size.**

This table presents 1992 summary data on performance measures, capital structure, corporate size. Notes: Annual abnormal return are calculated as deviations from its CAPM expectations with betas corrected for thin trading; Return on equity (%) = earnings / (equity capital and reserves - total intangibles + deferred tax); Cash flow margin (%) = earnings + depreciation + (overseas) tax equalisation / total sales \* 100; EBIT = Operating earnings before interest payments and taxes; Profit margin = Profit/Sales; Working capital ratio = total current assets / total current liabilities; Capital gearing (%) = (total loan capital + short term borrowings + preference capital + subordinated debt) / (total capital employed + short term borrowings (<1j) - total intangibles - future income tax benefits). Source: Own calculations with data from LSPD and Datastream.

<b>Panel A : Performance</b>	<b>Sample</b>	<b>Mean</b>	<b>Stand. Dev.</b>	<b>Skewness</b>	<b>Kurtosis</b>
Year	1992				
Annual abnormal return (%)	224	-0.24	42.01	0.39	0.35
Return on equity (%)	217	11.76	38.80	-5.27	57.21
Cash flow margin (%)	214	6.24	16.55	-7.89	94.44
Dividends per share (p/share)	217	6.41	5.78	1.79	5.15
EBIT (£ 000)	217	45123.86	179464.84	7.48	73.53
Earnings after tax (£ 000)	206	26610.66	131166.01	5.63	53.79
Earnings per share (p/share)	207	11.93	14.31	2.64	9.97
Profit margin (%)	215	2.92	14.38	-7.10	80.18
		<b>Sum</b>	<b>Std</b>		
Number of co's with losses	206	41	0.40		
Number of co's with div. reductions	217	55	0.44		
<b>Panel B: Capital Structure</b>	<b>Sample</b>	<b>Mean</b>	<b>Std</b>	<b>Skewness</b>	<b>Kurtosis</b>
Capital gearing (book) (%)	217	37.24	35.33	5.98	55.22
Interest coverage ratio	211	9.27	22.20	5.71	38.50
Number of co's with rights issues	211	16	0.25		
Working capital ratio	215	1.49	0.70	3.68	28.20
<b>Panel C: Company Size</b>	<b>Sample</b>	<b>Mean</b>	<b>Std</b>	<b>Skewness</b>	<b>Kurtosis</b>
Sales (£ 000)	208	973889.71	3598283.09	9.45	101.90
Number of employees	217	11523.85	28149.74	5.77	45.58

**Table 5 : Composition and structure of the board of directors and board turnover.**

This table presents data on the board composition, structure and turnover.

Source: Own calculations with data of annual reports.

	1988	1989	1990	1991	1992	1993	1988-93
Number of directors	9.2	9.3	9.3	9.4	9.6	10.2	9.5
% of executive directors	64.5%	62.6%	61.9%	60.8%	58.0%	57.2%	60.8%
% of non-executive directors	35.5%	37.4%	38.1%	39.2%	42.0%	42.8%	39.2%
CEO=chairman (1=yes)	36.6%	39.6%	37.7%	33.9%	29.2%	24.0%	33.5%
Age of CEO	51.2	52.2	52.3	53.1	53.4	53.6	52.6
Tenure of CEO	4.6	5.0	5.1	5.4	5.7	5.9	5.3
Age of Chairman	58.0	58.2	58.6	58.7	59.9	60.9	59.1
Tenure of Chairman	5.2	5.6	6.1	6.2	6.0	5.9	5.8
Total Turnover (%)	7.0%	8.4%	7.5%	7.1%	6.9%	7.6%	7.4%
Executive board turnover (%)	8.9%	9.5%	8.3%	8.1%	9.4%	7.9%	8.7%
Non-executive turnover (%)	3.8%	5.5%	4.9%	5.5%	3.3%	5.4%	4.7%
CEO turnover (%)	4.0%	10.7%	13.4%	12.1%	14.5%	13.5%	11.4%
Chairman turnover (%)	7.4%	9.5%	6.4%	4.4%	10.4%	8.7%	7.8%

**Table 6: Tobit relation between ownership concentration and managerial disciplining.**

This table investigates the relation between (non-natural) executive director turnover, performance and ownership concentration using Tobit models. Ownership concentration is measured respectively by the largest, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> largest stake by company and by the Shapley values of each of these stakes. Five different performance measures are calculated: annual abnormal returns, earnings losses, return on equity, cash flow margin and dividend cuts and omissions (-1=yes). As control variables were included: proportion of non-executive directors, capital gearing, equity refinancing (1=yes), change in disclosure regulation (1 for 1990 onwards) and industry dummies. In a 2SLS-setting, the ownership and control variables are instrumented using lags, performance, capital gearing and board composition variables. Capital gearing is instrumented by lagged gearing, ownership variables and board composition variables. The t-statistics are given below the estimated coefficients. \*\*\*, \*\*, \* stand for significance at respectively the 1%, 5% and 10% level. Source: own calculations.

		<b>Dependent Variable : Executive Director Turnover.</b>									
Performance:		<b>Ann. abn. return</b>		<b>Earnings losses</b>		<b>ROE</b>		<b>Cash flow margin</b>		<b>Dividend changes</b>	
		<b>% Equity</b>	<b>SV</b>	<b>% Equity</b>	<b>SV</b>	<b>% Equity</b>	<b>SV</b>	<b>% Equity</b>	<b>SV</b>	<b>% Equity</b>	<b>SV</b>
Intercept		0.065972***	-0.145465	0.257284***	0.006239	0.078782***	-0.164645	0.087405***	-0.144772	0.084488***	-0.239512
	t-stat	3.05	-0.95	7.30	0.05	3.81	-1.17	4.01	-1.05	3.96	-1.55
Largest		0.068232	0.225448	0.071221	0.244502*	0.079486	0.265062*	0.067263	0.251196*	0.02611	0.330036**
	t-stat	1.22	1.47	1.32	1.82	1.46	1.87	1.22	1.82	0.48	2.13
2nd largest		-0.184054	0.400264	-0.412734	0.251554	-0.229039	0.303675	-0.224781	0.298327	-0.029892	0.418788
	t-stat	-0.61	1.13	-1.47	0.79	-0.81	0.90	-0.80	0.91	-0.10	1.19
3rd largest		0.269816	-0.308819	0.43217	-0.102763	0.175922	-0.15011	0.367838	-0.168199	0.002879	-0.075942
	t-stat	0.52	-0.80	0.89	-0.28	0.38	-0.40	0.75	-0.45	0.01	-0.21
4th largest		-0.744933	0.007037	-0.501552	-0.149748	-0.732919	-0.375335	-0.715818	-0.219041	-0.75191	-0.298684
	t-stat	-0.55	0.02	-0.44	-0.38	-0.61	-0.88	-0.61	-0.53	-0.65	-0.66
5th largest		0.508674	1.118164	-0.117099	0.230299	0.383832	1.648152**	0.137231	1.114681	0.58286	0.911282
	t-stat	0.38	1.40	-0.10	0.69	0.32	2.10	0.12	1.48	0.50	1.11
Performance at t-2		-0.000422***	-0.000336**	-0.048836**	-0.046108*	-0.000039	0.000006	0.001308	0.001591	0.009331	0.014537
	t-stat	-3.08	-2.21	-2.19	-1.94	-0.43	0.06	1.46	1.64	0.97	1.29
Performance at t-1		-0.000710***	-0.000693***	-0.053061***	-0.049418**	-0.000154**	-0.000147**	-0.001762*	-0.001982*	-0.040221***	-0.043966***
	t-stat	-5.12	-4.62	-2.72	-2.39	-2.58	-2.25	-1.68	-1.78	-3.19	-3.12
Performance at t		-0.000227*	-0.000543***	-0.073151***	-0.057267***	-0.000148***	-0.000191***	-0.002024**	-0.002708**	-0.034658***	-0.036682***
	t-stat	-1.90	-2.49	-4.52	-3.26	-2.64	-2.88	-2.17	-2.33	-2.90	-2.97
<b>Control Variables t-1:</b>											
Prop. non-executives		-0.042013	-0.036485	-0.046784	-0.045952	-0.039265	-0.03513	-0.020908	-0.020333	-0.059563*	-0.051189
	t-stat	-1.17	-1.01	-1.40	-1.34	-1.15	-0.97	-0.61	-0.57	-1.79	-1.37
Unitary supervision (1=yes)		0.011663	0.01608	0.007615	0.00947	0.012604	0.014099	0.013939	0.015856	0.013237	0.013466
	t-stat	1.09	1.42	0.74	0.85	1.21	1.22	1.34	1.39	1.27	1.11
Capital gearing		0.000585***	0.000695***	0.000458**	0.000487**	0.000872***	0.000857***	0.000651***	0.000675***	0.000612***	0.000763***
	t-stat	2.68	2.92	2.43	2.45	4.72	4.31	3.35	3.26	2.64	2.92
Liquidity		0.000056	0.000067	0.000053	0.000064	0.00003	0.00006	0.000024	0.000045	0.000041	0.000086
	t-stat	0.82	0.90	0.78	0.87	0.44	0.78	0.35	0.59	0.61	1.08
Refinancing (1=yes)		0.03452**	0.042014***	0.026177*	0.039619**	0.020278	0.034001**	0.019462	0.032323**	0.007093	0.012085
	t-stat	2.35	2.65	1.83	2.55	1.40	2.10	1.35	2.03	0.48	0.74
Change in disclosure		0.030131**	0.032924**	0.025672*	0.025789*	0.01986	0.022257	0.024296*	0.029207**	0.031754**	0.033928**
	t-stat	2.04	2.20	1.83	1.82	1.41	1.52	1.72	1.99	2.16	2.13
Industry dummies		yes		yes		yes		yes		yes	
Observations		934		953		978		959		882	

**Table 7 : Tobit relation between ownership concentration and managerial disciplining.**

This table shows Tobit models exploring the relation between (non-natural) executive director turnover, performance and ownership concentration and its distribution over different categories of shareholders. Control is measured by the equity stake held by the largest shareholder by category of owner (%Eq<sub>largest</sub>). For these largest shareholders by category, the relative voting power (Shapley value) is computed, called SV<sub>largest/cat</sub><sup>i</sup>. For SV<sub>category</sub><sup>i</sup>, all substantial ownership stakes first are summed by category of owner and subsequently the SV of these combined shareholdings is calculated. Thus, SV<sub>category</sub><sup>i</sup> captures the relative voting power of a category. Seven different classes of owner are included: banks, investment and pension funds, insurance co's, industrial and commercial co's, individuals and families, executive and non-executive directors. Equity blocks held by governmental institutions or real estate co's were not included because they only few minor stakes. Six different performance measures are calculated: annual abnormal return, operational return on assets, earnings losses (-1=yes), return on equity (after interest and taxes), cash flow margin (cash flow/sales) and dividend cuts and omissions (-1=yes). As control variables were included: proportion of non-executive directors, unitary board supervision (dummy indicating whether the Chairman is the same person as the CEO (1=yes)), capital gearing, liquidity (interest coverage), refinancing via new equity issues (1=yes), change in disclosure regulation (1 for '90 onwards). In a 2SLS-setting, the ownership and control variables are instrumented using lags, performance, capital gearing and board composition variables. Capital gearing is instrumented by lagged gearing, ownership variables and board composition variables. \*\*\*, \*\*, \* stands for statistical significance at respectively the 1%, 5% and 10% level. T-statistics are given below the parameter estimates (between brackets). Source: own calculations.

**Panel A:**

Performance :	Annual abnormal return			Earnings losses			Return on equity (after tax)		
	% Eq <sub>largest</sub>	SV <sub>largest/cat</sub> <sup>i</sup>	SV <sub>category</sub> <sup>i</sup>	SV <sub>largest/cat</sub> <sup>i</sup>	SV <sub>category</sub> <sup>i</sup>	SV <sub>category</sub> <sup>i</sup>	% Eq <sub>largest</sub>	SV <sub>largest/cat</sub> <sup>i</sup>	SV <sub>category</sub> <sup>i</sup>
Intercept	0.059291***	0.046064	0.077754***	0.078485**	-0.001379	-0.010214	0.247862***	0.249211***	0.158851***
t-stat	3.04	1.17	4.08	2.05	-0.04	-0.27	7.38	5.56	3.36
Exec. dir.	-0.031262	-0.041241**	-0.062651***	-0.05603*	-0.050893***	-0.065462***	-0.078605*	-0.063604**	-0.066111**
t-stat	-0.72	-1.96	-2.54	-1.93	-2.54	-2.78	-1.93	-2.14	-2.35
Non-ex. dir.	0.02639	0.041258	0.028598	0.039997	0.093988**	0.092758**	0.010083	0.040966	0.083232**
t-stat	0.45	1.46	0.52	1.41	2.40	2.32	0.18	1.49	2.19
Banks	-0.121298	-0.026513	-0.211078	-0.14974	0.014244	0.082709	-0.164422	-0.088061	0.033031
t-stat	-0.54	-0.19	-0.94	-1.02	0.11	0.66	-0.73	-0.60	0.25
Invest/pensio	-0.097935	0.004217	-0.192491**	-0.009116	0.063621	0.064561	-0.156124*	0.002096	0.073294
Funds t-stat	-1.05	0.11	-2.09	-0.25	1.09	1.12	-1.71	0.06	1.30
Insur. co's	0.104407*	0.023934*	0.089455**	0.009368	0.099817**	0.091947***	0.046965	0.006221**	0.093645**
t-stat	1.96	1.85	2.22	0.33	2.26	2.61	0.86	2.23	2.12
Industr. co's	0.062693	0.013698	0.062265*	0.004771	0.086847**	0.079677**	0.04244	0.07103**	0.08253**
t-stat	1.35	0.46	1.82	0.16	2.37	2.18	0.90	2.07	2.22
Indiv./famil.	-0.038241	-0.062796	-0.070086	-0.079147*	0.001352	-0.001083	-0.094828	-0.09187**	-0.015304
t-stat	-0.56	-1.54	-1.02	-1.93	0.02	-0.02	-1.40	-2.31	-0.23
Perfor. at t-2	-0.000404***	-0.000454***	-0.000033	-0.000034	-0.000023	-0.000433***	-0.04816**	-0.052262**	-0.042277*
t-stat	-3.09	-3.37	-0.74	-0.74	-0.51	-3.19	-2.20	-2.36	-1.91
Perfor. at t-1	-0.000652***	-0.000676***	-0.000053**	-0.000055**	-0.000038*	-0.000644***	-0.045128**	-0.048552**	-0.041422**
t-stat	-4.99	-4.97	-2.35	-2.34	-1.95	-4.77	-2.38	-2.49	-2.15
Perfor. at t	-0.000263**	-0.000286**	-0.000101***	-0.000099***	-0.000091**	-0.00029**	-0.07423***	-0.07722***	-0.074868***
t-stat	-2.31	-2.37	-2.72	-2.60	-2.39	-2.41	-4.75	-4.84	-4.78
Prop. non-ex	-0.043202*	-0.039764*	-0.05277**	-0.053861**	-0.046036*	-0.034642	-0.051853**	-0.048843*	-0.042929*
t-stat	-1.77	-1.73	-2.18	-2.08	-1.80	-1.34	-2.17	-1.92	-1.71
Unit.Superv.	0.007048	0.004713	0.006154	0.003641	0.009059	0.010162	0.002016	-0.002396	0.00378
t-stat	0.74	0.47	0.65	0.37	0.94	1.05	0.21	-0.24	0.40
Cap.gearing	0.000582***	0.00054**	0.00083***	0.000827***	0.000902***	0.00061***	0.000417**	0.000419**	0.000505***
t-stat	2.80	2.56	4.71	4.51	4.97	2.86	2.31	2.28	2.74
Liquidity	0.000063	0.000059	0.000043	0.000042	0.000043	0.000057	0.00006	0.000061	0.000062
t-stat	0.96	0.86	0.63	0.61	0.62	0.84	0.91	0.90	0.92
Refinancing	0.039968***	0.040267***	0.027907**	0.028117**	0.032486**	0.046099***	0.031847**	0.032713**	0.036488***
t-stat	2.99	2.96	2.11	2.08	2.40	3.32	2.44	2.46	2.74
D disclosure	0.018933	0.018277	0.010459	0.009181	0.009687	0.014025	0.016876	0.018594	0.017988
t-stat	1.54	1.37	0.89	0.74	0.88	1.20	1.45	1.50	1.65
Industry	yes	yes	yes	yes	yes	yes	yes	yes	yes
Log Likelih.	1756.80	1726.10	1957.23	1650.19	1840.99	1860.70	1727.55	1863.50	1846.13
Observations	1122	1122	1122	1171	1171	1171	1143	1143	1143

**Table 7 continued**  
**Panel B:**

Performance :	Cash flow margin			Dividend changes		
	% Eq.largest	SV <sub>largest/cat</sub> <sup>i</sup>	SV <sub>category</sub> <sup>I</sup>	% Eq.largest	SV <sub>largest/cat</sub> <sup>i</sup>	SV <sub>category</sub> <sup>I</sup>
Intercept	0.086889***	0.090045**	0.021061	0.077016***	0.044472	0.001728
t-stat	4.33	2.39	0.56	0.02	0.04	0.04
Exec. dir.	-0.071955*	-0.042096*	-0.048552***	-0.058261	-0.010026**	-0.053205***
t-stat	-1.75	-1.75	-2.13	-1.62	-2.13	-2.64
Non-ex. dir.	0.027938	0.042897*	0.087076**	0.044583	0.043638	0.087404**
t-stat	0.51	1.66	2.28	1.21	0.58	2.65
Banks	-0.135193	-0.112145	0.03367	-0.098068	-0.083744	0.057574
t-stat	-0.60	-0.77	0.25	-1.29	-1.53	0.79
Invest/pension Funds	-0.131525	0.003401	0.069394	-0.147154	0.028753	0.084782
t-stat	-1.43	0.10	1.22	-1.43	0.53	1.37
Insur. co's	0.091465*	0.017726*	0.098364**	0.121504**	0.04912**	0.116346***
t-stat	1.67	1.65	2.30	2.31	2.04	2.78
Industr. co's	0.085251*	0.063692**	0.092264***	0.023669	0.020272	0.073965**
t-stat	1.85	2.44	2.61	0.46	0.62	2.34
Indiv./famil.	-0.082485	-0.084649**	-0.023433	-0.04802	-0.04044	0.098846
t-stat	-1.20	-2.11	-0.35	-0.36	-0.41	1.04
Perfor. at t-2	-0.001554***	-0.002354***	-0.002612***	0.002112	0.000686	0.005116
t-stat	-2.12	-2.80	-3.08	1.24	0.10	1.46
Perfor. at t-1	-0.002745***	-0.002793***	-0.00284***	-0.036337***	-0.04009***	-0.033378***
t-stat	-2.86	-2.87	-2.93	-2.95	-3.42	-3.10
Perfor. at t	-0.002091**	-0.002114**	-0.002178**	-0.039248***	-0.039246***	-0.037466***
t-stat	-2.48	-2.45	-2.55	-3.24	-3.25	-3.52
Prop. non-ex	-0.041684*	-0.044198*	-0.035709	-0.063157***	-0.059516**	-0.056428**
t-stat	-1.73	-1.73	-1.41	-2.74	-1.99	-2.04
Unit.Superv.	0.008017	0.004902	0.009923	0.006354	0.005351	0.00949
t-stat	0.85	0.50	1.04	0.71	0.57	0.73
Cap.gearing	0.000591***	0.000556***	0.000642***	0.000622***	0.000588***	0.000657***
t-stat	3.19	2.94	3.41	3.44	2.87	3.74
Liquidity	0.000041	0.000048	0.000046	0.000061	0.000066	0.00006
t-stat	0.62	0.70	0.67	0.46	0.89	0.25
Refinancing	0.026013**	0.025711*	0.030457**	0.007454*	0.006168	0.009897
t-stat	1.98	1.94	2.29	1.67	1.52	1.31
Δ disclosure	0.01987*	0.018554	0.017896*	0.024316**	0.028391**	0.020547*
t-stat	1.69	1.50	1.65	2.11	2.40	1.89
Industry dummies	yes	yes	yes	yes	yes	yes
Log Likelih.	1658.33	1739.53	1884.77	1422.17	1489.84	1396.21
Observations	1152	1152	1152	882	882	882

**Table 8: Alternative corporate governance mechanism and their disciplinary role.**

This table shows fixed-effects Tobit models exploring the relation between (non-natural) executive board turnover, performance and alternative corporate governance mechanisms. Ownership concentration is measured by summing all substantial ownership by category of owner and by subsequently computing the Shapley Values of these combined share stakes ( $SV_{category}^i$ ). As such, the relative voting power by category of owner is calculated. Seven different classes of owner are included: banks, investment and pension funds, insurance co's, industrial and commercial co's, individuals and families, executive and non-executive directors. Equity blocks held by governmental institutions or real estate co's were not included because there are only minor stakes. Five different performance measures are calculated: annual abnormal return, earnings losses (-1=yes), return on equity, cash flow margin and dividend cuts and omissions (-1=yes). Changes in shareholdings are gross changes; the increases of existing and new shareholders are summed by category of owner. Proportion of non-executive directors stands for number of non-executives/total number of directors on board. Unitary supervision means that the functions of chairman and CEO are held by one person (dummy which equals one if Chairman=CEO). Capital gearing is debt/total assets, liquidity is interest coverage, equity refinancing stands new equity issues (1=yes), size is the logarithm of total assets and change in disclosure threshold is the reduction of 5% to 3% in 1989 (dummy). All variables are interacted with performance at t-1. The t-statistics are given next to the parameter coefficients. \*\*\*, \*\*, \* stands for significance at respectively the 1%, 5% and 10% level. <sup>x</sup> denotes that this parameter estimate is multiplied by 1 million. Source: own calculations.

**Dependent Variable : Executive Director Turnover.**

	Par.Est.	t-stat	Par.Est.	t-stat	Par.Est.	t-stat	Par.Est.	t-stat	Par.Est.	t-stat
Intercept	0.06710***	(3.23)	0.21390**	(1.97)	0.07850***	(2.95)	0.03310	(0.95)	0.06330***	(2.93)
<b>Performance</b>										
<b>An. Abn. Return</b>			<b>Losses (-1=yes)</b>		<b>ROE</b>		<b>Cash flow margin</b>		<b>Dividend changes</b>	
Performance t-2	-0.00042***	(-3.61)	-0.0312*	(-1.87)	-0.00002	(-0.23)	0.00229***	(4.45)	0.00918	(1.23)
Performance t-1	0.00053	(0.90)	-0.0493	(-0.45)	-0.00065	(-0.73)	0.00320	(0.96)	0.06840	(0.85)
Performance t	-0.00020*	(-1.84)	-0.0634***	(-4.44)	-0.00010***	(-3.85)	-0.00166**	(-2.19)	-0.03150***	(-3.35)
<b>Relative voting power (Shapley Value: <math>SV_{category}^i</math>)</b>										
Directors' ownership: $SV_{category}^i$										
Executives	-0.0497**	(-2.46)	-0.1393	(-1.55)	-0.0649***	(-2.90)	-0.0446	(-1.56)	-0.0546***	(-2.61)
Non-executives	-0.0495*	(-1.89)	-0.1437*	(-1.66)	-0.0277	(-1.14)	-0.0149	(-0.43)	-0.0392*	(-1.65)
Institutional ownership: $SV_{category}^i$										
Bank managed funds	0.0422	(0.84)	-0.1507	(0.81)	0.0732	(1.03)	0.1084	(1.00)	0.047	(0.88)
Investm./pension funds	0.0211	(0.81)	0.0297	(0.19)	0.0122	(0.49)	0.0804*	(1.81)	0.0358	(1.42)
Insurers managed funds	0.0674***	(4.03)	-0.0062	(-0.08)	0.0694***	(3.92)	0.0992***	(4.20)	0.0871***	(5.02)
Corporate and indiv. ownership: $SV_{category}^i$										
Companies	0.0239	(1.20)	-0.0451	(-0.54)	0.0535**	(2.56)	0.0445*	(1.65)	0.0363*	(1.81)
Individuals and families	-0.0162	(-0.36)	-0.2037	(0.00)	0.00450	(0.06)	-0.0224	(-0.26)	-0.0257	(-0.48)
<b>Changes in voting rights (%) (t-1,t)</b>										
Institutions	0.000353	(0.67)	-0.00329	(-1.63)	0.000374	(0.68)	0.001032	(1.61)	0.000664	(1.33)
Companies	0.000781	(0.71)	0.01200***	(4.57)	0.002336***	(2.73)	0.002481**	(2.47)	0.000565	(0.51)
Individuals and families	0.003738**	(2.02)	0.003625	(0.20)	0.002854*	(1.66)	0.000611	(0.37)	0.003586*	(1.92)
Executives	0.006292***	(4.80)	0.006145***	(2.66)	0.005275***	(2.70)	0.004892**	(2.43)	0.006374***	(3.91)
Non-executives	0.004719***	(2.61)	0.006354	(0.42)	0.004809***	(2.60)	0.000019	(0.01)	0.004721***	(3.50)
<b>Internal control (t-1)</b>										
Non-execs on board	-0.0540**	(-2.53)	0.1086	(0.78)	-0.108***	(-2.85)	-0.0008	(-0.02)	-0.0589***	(-2.70)
Unitary supervision	0.0073	(0.70)	-0.0236	(-0.49)	0.0196	(1.47)	0.0147	(0.93)	0.0097	(0.88)
<b>Capital Structure</b>										
Capital Gearing (t-1)	0.000275	(1.14)	0.000543	(1.00)	0.000856***	(4.53)	0.000658***	(3.66)	0.000576**	(2.55)
Liquidity (t-1)	0.000053	(0.59)	0.000054	(0.63)	0.000056	(0.64)	0.000062	(0.62)	0.000054	(0.63)
Refinancing (t)	0.038200***	(3.01)	-0.13500***	(-3.60)	-0.000646	(-1.63)	-0.002225	(-1.31)	0.04470	(0.97)

<b>Table 8 continued</b>										
Size (ln total sales) (t-1) <sup>x</sup>	-0.001311	(-0.84)	-0.001517	(-0.122)	-0.001555 <sup>**</sup>	(-0.215)	-0.001692	(-1.11)	-0.001549	(-1.12)
Δ in disclosure threshold	0.0292 <sup>**</sup>	(2.36)	0.0267 <sup>**</sup>	(2.54)	0.0207 <sup>*</sup>	(1.91)	0.0239 <sup>**</sup>	(2.14)	0.0277 <sup>**</sup>	(2.35)
<b>Variables interacted with performance at t-1</b>										
<b>Relative voting power (Shapley Value:SV<sub>category<sup>i</sup></sub>)</b>										
Directors' ownership: SV <sub>category<sup>i</sup></sub>										
Executives	0.000235	(0.40)	-0.08910	(-0.97)	0.000575	(0.70)	-0.001064	(-0.39)	0.03430	(0.49)
Non-executives	-0.000454	(-0.71)	-0.10840	(-1.17)	-0.000402	(-0.48)	-0.002971	(-0.62)	0.01860	(0.27)
Institutional ownership: SV <sub>category<sup>i</sup></sub>										
Bank managed funds	-0.000599	(-0.37)	-0.20750	(-0.38)	-0.000199	(-0.08)	-0.005226	(-0.36)	0.1947	(0.77)
Investm./pension funds	-0.000707	(-0.98)	-0.00166	(-0.01)	0.000462	(0.73)	-0.005367	(-1.18)	-0.1738 <sup>*</sup>	(-1.89)
Insurers managed funds	-0.001670 <sup>***</sup>	(-3.01)	-0.08740	(-1.15)	0.001033 <sup>*</sup>	(1.94)	-0.00102	(-0.45)	-0.0833 <sup>*</sup>	(-1.71)
Corporate and individual ownership: SV <sub>category<sup>i</sup></sub>										
Companies	-0.00196 <sup>**</sup>	(-1.99)	-0.08010	(-0.94)	-0.000951 <sup>*</sup>	(-1.65)	-0.009431 <sup>**</sup>	(-1.94)	-0.1287 <sup>**</sup>	(-1.99)
Individuals and families	-0.000031	(-0.03)	-0.20460	(-0.00)	0.000385	(0.09)	-0.000976	(-0.10)	0.0695	(0.16)
<b>Changes in voting rights (%) at (t-1,t)</b>										
Institutions	0.000009	(0.64)	-0.000324	(-0.02)	0.00008	(0.98)	0.000819 <sup>***</sup>	(2.76)	-0.003535	(-0.20)
Companies	-0.000114 <sup>*</sup>	(-1.66)	0.020225 <sup>**</sup>	(2.10)	0.000043	(0.48)	0.000183	(0.64)	-0.012371 <sup>*</sup>	(-1.95)
Individuals and families	-0.000104 <sup>***</sup>	(-2.42)	0.001738	(0.11)	-0.000002	(-0.01)	0.000806 <sup>**</sup>	(2.20)	-0.001121	(-0.24)
Executives	0.000043	(0.89)	-0.019200 <sup>*</sup>	(-1.82)	0.000595 <sup>*</sup>	(1.92)	0.00109	(1.10)	-0.009445	(-0.25)
Non-executives	-0.000032	(-0.51)	0.000297	(0.51)	0.000003 <sup>***</sup>	(3.90)	-0.000027	(-1.61)	-0.00084	(-0.95)
<b>Internal control (t-1)</b>										
Non-exec. dir. on board	0.000101	(0.11)	-0.003804 <sup>*</sup>	(-1.83)	-0.00001	(-0.59)	-0.000121 <sup>**</sup>	(-2.00)	-0.001226	(-0.58)
Unitary supervision	-0.000137	(-0.39)	0.18590	(1.32)	0.001012	(1.18)	-0.005924	(-1.30)	-0.0972	(-0.74)
<b>Capital Structure</b>										
Capital Gearing (t-1)	-0.000016 <sup>***</sup>	(-3.24)	-0.0125 <sup>***</sup>	(-4.37)	-0.000027	(-0.98)	-0.000079	(-1.03)	-0.005315	(-1.46)
Liquidity (t-1)	-0.000221	(-0.77)	-0.0270	(-0.55)	-0.000564	(-1.00)	-0.00118	(-0.76)	-0.0396	(-1.00)
Refinancing (t)	0.000062	(0.17)	-0.1501 <sup>***</sup>	(-4.27)	-0.031900 <sup>**</sup>	(2.30)	-0.03800 <sup>**</sup>	(2.36)	-0.001596	(-0.11)
Log Likelihood		1473.286		1530.47		1514.367		1500.245		1410.609
Observations		906		939		949		930		854