# The Determinants of the German Corporate Governance Rating

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**Abstract**

This paper analyzes the determinants of the German corporate governance rating recently developed by Drobetz, Schillhofer, and Zimmermann (2004). We find a non-linear relationship between ownership concentration and the quality of firm-level corporate governance as measured by the rating. Firms with larger boards of directors have lower governance ratings, but firms that apply US-GAAP or IAS rules and/or use an option-based remuneration plan have higher corporate governance ratings. Our results question the comply-or-explain principle embedded in recent corporate governance codes and call for a more rules-based approach in improving corporate governance in Europe.

**Keywords:** Corporate governance, endogeneity, ownership structure, board size, accounting principles, executive compensation.

**JEL Classification:** G12, G34, G38.

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## 1. Introduction

In recent years many countries have introduced "Corporate Governance Codes". These codes represent unmistakable improvements in minority shareholder right protection as well as transparency, and they generally entail a movement towards Anglo-Saxon institutions. Many of the rules in these codes are only *recommendations*, however, and there is much scepticism that best-practice recommendations and/or principles-based approaches are effective substitutes for more rule-based approaches, such as the US Sarbanes Oxley Act. This is all the more the case, since there is the widespread perception that markets do not function well in punishing deviant behaviour of managers particularly in Continental Europe, where regulators tend to rely heavily on principles-based approaches in their attempts to reform corporate governance. There are many reasons to believe that markets are less of a constraint on managerial discretion in Continental Europe than in the US or UK, in particular. For example, ownership and voting right concentration is tremendous, liquidity of shares is low, and there is frequently a separation between cash flow and voting rights.[4] In general, therefore, the "exit option" is less of a threat to firms' management, and "voice" of institutional investors, in particular, ought to be strengthened.

The existing literature on codes is scant at best, and if it exists it is on the effects of corporate governance codes on performance.[5] Most recently, Drobetz, Schillhofer, and Zimmermann

4 See Barca and Becht (2001), Becht and Röell (1999), Gugler (2001), and La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998) for analyses of ownership and voting right concentration. See Becht (1999) on liquidity, and see Claessens, Djankov, Fan, and Lang (2002) and Gugler and Yurtoglu (2003a) on the separation of voting and cash flow rights. Pagano, Roell, and Zechner (2002) show that European markets having the highest trading costs, lowest accounting standards and poorest shareholder protection fare worst in attracting and retaining cross-border listings.

5 There is a much more developed literature on the effects of corporate governance mechanisms on performance, though. Using firm-level data from 27 developed countries, La Porta, Lopes-de-Silanes, Shleifer, and Vishny (2002) find that better shareholder protection is associated with higher valuation

(2004) construct a corporate governance rating for 91 German firms and find that the rating of a firm positively affects market value and the returns to shareholders. Their empirical analysis reveals that for the median firm a one standard deviation change in the governance rating results in about a 24% increase in the value of Tobin's Q.

This evidence notwithstanding, there are problems with the link between corporate governance code ratings and firm performance. First, there is the well-known endogeneity problem already mentioned above: if only "good" firms adopt the code (e.g., because the costs are low, since they fulfill the code anyway), one must expect a positive code-performance relationship.[6] Second, a high rating on the code only indirectly affects performance: a high rating must correlate with the true "spirit" of good governance, which can only then affect performance.[7] In fact, very little is known about the underlying mechanism that relates corporate governance practices and firm performance (e.g., see Shleifer and Wolfenzon (2002)).

A more cautious approach of analysing corporate governance codes is adopted in this paper. We take one step back and do not try to assess the impact of the codes on the performance of companies (which is, of course, ultimately the most interesting question). Instead, we use the corporate governance rating constructed by Drobetz, Schillhofer, and Zimmermann (2004) for publicly listed German firms and analyze the determinants of this rating. This approach has at least two advantages. First, we do not run into the same endogeneity problems with the de-

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of corporate assets. Gompers, Ishii, and Metrick (2003) report for a broad sample of US firms that firms with stronger shareholder rights receive higher valuations and have higher profits, higher sales growth, and lower capital expenditures. Klapper and Love (2003) use firm-level data from 14 emerging stock markets and also report that better corporate governance is highly correlated with better operating performance and higher market valuation.

6 On the endogeneity issue and suggestions for cure, see Börsch-Supan and Köke (2002) and Gugler and Yurtoglu (2003b).

terminants of code fulfilment than we would encounter by trying to assess the effects on firm performance. For example, one cannot sensibly argue that a high or low governance rating affects the voting rights of the largest shareholder or the size/composition of the supervisory board. It must be the case that the decision making process is determined or at least monitored by the largest shareholder and/or the board, and their decisions naturally affect compliance with the code. The decision to improve corporate governance practices and attitudes should be made in awareness of its consequences and obligations (e.g., see Demsetz and Lehn (1985)). Second, we only have a cross section of data at hand, and while performance is affected by all sorts of past decisions (e.g., on investment, human capital or strategy), the decision to comply with the code or not is taken at one moment in time. Thus, we can be confident that our influencing variables such as voting right concentration, accounting practice or size of the board are causally related to the firm's decision to comply with the code.

Our results show that there is a non-linear relationship between ownership concentration and the corporate governance rating. Moreover, firms with larger boards, family-controlled firms, and firms lower down a corporate pyramid have lower ratings, but firms that apply US-GAAP or IAS rules or use an option-based remuneration plan have higher ratings.

The remainder of this paper is structured as follows. Section 2 develops our hypotheses that are subject to empirical testing. Because our corporate governance rating mainly refers to the rules and recommendations of the German Corporate Governance Code, we give a brief and general comparative analysis of the governance codes in place throughout the European Union in section 3. Section 4 presents our empirical results, and section 5 concludes.

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7 For example, Cuervo (2002) argues that especially in civil law countries such as in Germany the codes of good governance can be applied formally, following the letter but not the spirit of the law, since they cannot be legally enforced.

## 2. Hypotheses

We analyse the determinants of the German corporate governance rating, recently developed by Drobetz, Schillhofer, and Zimmermann (2004). This rating is largely based on the rules and recommendations of the German Corporate Governance Code. We postpone a more detailed description of the code until section 3, and formulate our empirical hypotheses in this section.

Germany is the prototype of an insider system of finance and control, and thus our hypotheses as to the determinants of ratings must reflect its institutional background. The most striking fact of even large, listed firms in Germany is that ownership and voting right concentration is tremendous. While the median largest ultimate voting block in US or UK listed firms is well below 10%, this median largest voting block is above 50% in Germany, Italy, or Austria (see Becht and Röell, 1999). Therefore, presumably the owner of this block has ultimate control over the company and can decide which stance to adopt with regards to the code of good corporate governance. Accordingly, we hypothesize that the voting power of the largest shareholder affects the code rating. We also develop the notion that the size of the board of directors, a firm's accounting principles, and its method of executive remuneration impact the code ratings.

### *2.1 Ownership concentration*

In the literature two main effects of large shareholders have been disentangled (e.g., see Claessens, Djankov, Fan, and Lang (2002), and Gugler, Mueller, and Yurtoglu (2003a)). First, with increasing cash flow rights of the largest shareholder, there is a positive incentive effect. A good code rating – provided it is awarded by the capital market – increases the value of the firm and, hence, the value of the ownership stake of the largest shareholder. She should there-

fore have an incentive to comply with the code. However, there is a second, negative entrenchment effect. The larger the voting rights of the largest shareholder, the more entrenched she is and the more she can influence the decision making process. A high code rating achieved by making it easier for small shareholders to cast their votes in general assemblies, increasing transparency by disclosing information on individual compensation of management and supervisory board, or agreeing to strict incompatibility regulation, to give a few example, is not necessarily in the largest shareholder's interest. We summarize the discussion in hypothesis 1:

*Hypothesis 1:* Ownership concentration is non-linearly related to the corporate governance rating. At low to intermediate holdings of the largest shareholder the entrenchment effect outweighs the incentive effect and we expect a negative relation between ownership concentration and the corporate governance rating. At high levels of ownership concentration the incentive effects outweighs the entrenchment effect and, hence, we expect a positive relation between ownership concentration and the corporate governance rating.

### *2.2 Board size*

Our second determinant of code compliance is the size of the supervisory board. The decision making process on the supervisory board is likely to be affected by its size for at least two reasons. First, coordination problems are larger on a large board compared to a small board. Jensen (1993) and Lipton and Lorsch (1992) suggest that large boards can be less effective than small boards, presuming that the emphasis on politeness and courtesy in boardrooms is at the expense of truth and frankness. Specifically, when boards become too big, agency problems (e.g., director free-riding) increase and the board becomes more symbolic and neglects its monitoring and control duties. Moreover, large boards may reflect an inadequate percep-

tion of the true executive function, particularly in firms with public involvement. Supporting this rather ad-hoc proposition, Yermack (1996) was the first to report empirical evidence for a negative relationship between board size and firm valuation (see also Eisenberg, Sundgren, and Wells (1998); Beiner, Drobetz, Schmid, and Zimmermann (2004)). Second, on a large board it is likely that more conflicting groups of stakeholders, such as representatives of large shareholders, employees, and creditors, are represented than on smaller boards. Third, many companies do have a (and if, at most one) representative of small shareholders. However, the larger the board the less weight this representative has at a ballot. All of these arguments lead us to hypothesis 2:

*Hypothesis 2:* Larger boards tend to be reluctant to adopt "good" corporate governance practices and, hence, board size is negatively related to the corporate governance rating.

### *2.3 Accounting principles*

There are several papers that find significant effects of accounting practices on the performance of companies as well as on the distribution of profits among stakeholders, e.g., dividends or interest payments on debt (see e.g., La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997, 1998, and 2000); Gugler, Mueller, and Yurtoglu (2003b)). In Germany there are three possibilities how firms are allowed to account, US-GAAP (US Generally Accepted Accounting Principles), IAS (International Accounting Standards) and HGB ("Handelsgesetzbuch"). US-GAAP and IAS contain much stricter rules on accounting practices than HGB, which is the national law standard for accounting, particularly with respect to transparency and details of information. Due to its conservative approach (e.g., historical cost accounting), HGB accounting appears to favor debtholders and large shareholders versus minority shareholders. Accounting according to international standards and compliance with the code can be viewed

as complements for a number of reasons. First, many of the requirements of code compliance are antedated by the decision to account according to international principles. Thus the marginal costs of code compliance are smaller for these firms than for firms using HGB. Second, firms that account with US-GAAP or IAS may want to signal their good investment opportunities, and code compliance is one way to achieve this goal. Finally, although we explicitly account for firm size (total assets) in the determinants regressions below, part of the covariation in accounting principles and code rating may be attributable to firm size (e.g., due to measurement errors of true firm size), which is a main determinant of international accounting. Accordingly, we formulate hypothesis 3:

*Hypothesis 3:* Firms accounting according to US-GAAP or IAS have higher corporate governance ratings than firms accounting according to HGB.

### *2.4 Executive remuneration*

Our final variable affecting code rating is whether or not the firm has adopted an option-based remuneration plan. Diamond and Verrechia (1982) and Holmstrom and Tirole (1993) developed models that are based on the interaction of capital markets and contingent compensation. Giving managers an equity stake in the firm is a solution to ensure that managers pursue the interests of shareholders without increasing managerial entrenchment. Provided that a high governance rating is awarded by the capital market, management has an incentive to comply with the code. Therefore, we formulate hypothesis 4:

*Hypothesis 4:* Firms that use an option-based remuneration plan have higher corporate governance ratings than other firms.

## 3. Codes of good corporate governance

### *3.1. European Corporate Governance Codes*

Recently, all EU member states have adopted at least one governance code document. [8] It is generally acknowledged that the legal framework for corporate governance is most effective if it aims at ensuring: (i) fair and equitable treatment of all shareholders, (ii) managerial and supervisory body accountability, (iii) transparency as to corporate performance, ownership structure and governance, and (iv) corporate responsibility. The "soft regulation" of the different European corporate governance codes strongly reflects this regulatory philosophy. While the codes originate from countries with very diverse cultures, financing traditions, ownership structures, and legal origins, they are remarkably similar in their general notion of "best practice" corporate governance rules. In fact, codes appear to serve as a converging force in corporate governance practices. Nevertheless, two observations are noteworthy. First, the coverage of the codes can differ substantially due to differences in the legal origins and frameworks. Some codes address principles and practices of corporate governance that other nations establish more fully through company laws and securities regulation. Second, due to differences in ownership structure, some codes strongly emphasize the ability of the supervisory body to hold managers accountable to a broad base of relatively dispersed shareholders (e.g., in the UK). Other codes put the focus on the protection of minority shareholders to ensure equal treatment when there is a dominant shareholder and ensuring that a controlling

8 Specifically, a variety of organizations have issued governance codes, including governmental entities, committees and commissions organized or appointed by governments, stock exchange-related bodies as well as business, industry and academic associations. In addition to national codes, several pan-European and international governance codes have emerged (e.g., the OECD Principles of Corporate Governance). For the codes of almost 40 countries, see http://www.ecgi.org/codes/all_codes.htm. For an extensive comparative analysis we refer to: http://europa.eu.int/comm/internal_market/en/company/company/news/corp-gov-codes-rpt_en.htm.

shareholder, and/or cross-holding arrangements do not overly influence supervisory and management bodies (e.g., in Germany).

As regards to the stated objectives, the codes can be characterized as having three major themes: (i) stakeholder and/or shareholder interests, (ii) the work of supervisory and managerial bodies, and (iii) disclosure requirements. First, different codes articulate the purpose of corporate governance in different ways, i.e., some emphasize broad stakeholder interests and others emphasize ownership rights of shareholders. However, the majority of codes recognize that corporate success, shareholder profit, employee security and well being, and the interests of other stakeholders are strongly interrelated. To the extent that codes directly address shareholder rights, they generally call for shareholders to be treated equitable, disproportional voting rights to be avoided or at least fully disclosed to all shareholders, and removal of barriers to shareholder participation in general meetings, whether in person or in proxy.[9] Second, all codes strongly relate to the notion that supervisory responsibilities are distinct from management responsibilities. Despite structural differences between two-tier and unitary board systems, the codes express consensus on issues relating to board structure, roles and responsibilities. Many suggest practices designed to enhance the distinction between the roles of the supervisory and managerial bodies, including supervisory body independence, separation of the chairman and CEO roles, and reliance on board committees. Another important issue in virtually all codes is the proposition that some supervisory body functions may be delegated, at least to some degree, to board committees (e.g., a nominating committee).[10] Finally, all codes contain various disclosure requirements. An issue that received specific public attention is the

9 Baums and Fraune (1994) report that typically only 58 percent, on average, of all voting rights are represented at the annual meeting of a German publicly listed firm.

10 For empirical analysis see Loderer and Peyer (2002).

greater voluntary transparency as to executive and director compensation.[11] In addition, the codes also support the increasing public interest on disclosure as regards to director independence (in both one-tier board and two-tier board systems), share ownership, and in many instances, issues of broader social concerns.

With regards to code enforcement, the prescriptions supplement and complement the mandatory prescriptions provided by company and securities laws and listing rules. However, they are non-imperative and lack mandatory compliance authority. The vast majority of codes merely require companies to provide greater voluntary disclosure of governance practices, including in some instances, disclosure about the extent of compliance with a particular code. Alternatively, several codes rely on a mandatory disclosure requirement to encourage compliance. Listed companies are required to disclose whether they comply with the specified code and explain any deviations ("comply or explain"). Even though compliance with code provisions is wholly voluntary, reputational market forces can result in significant compliance pressures. Finally, codes are increasingly used by investors and market analysts, rating agencies, shareholder monitoring groups and commentators to benchmark supervisory and management bodies.

### *3.2. The German Corporate Governance Code*

After a few private interest groups began establishing best practices of corporate governance in the late 1990s, in June 2000 the German federal government appointed a commission with the goal to formulate proposals for modernizing German corporate law. The results of this report laid the ground, among other things, for the development of a national code for improv-

11 Because two thirds of the German firms included in the DAX blue-chip index opted out and do not report the salaries of each director separately, the public discussion has intensified only recently. There are even suggestions by major political parties to cap management pay.

ing the management and control functions of publicly quoted companies. The results were elaborated to the code of conduct by a second, follow-up commission. The German Corporate Governance Code was finally published on 26 February 2002, and the Transparency and Disclosure Act (TransPuG), which took effect on 26 July, 2002, obliges the boards of directors and supervisory boards of publicly quoted companies on the application of the code recommendations. The code is an example of self-commitment by the corporate sector and requires disclosure on the "comply or explain" rule described in section 3.1. This enables companies to reflect sector- and firm-specific requirements and contributes to more flexibility and self-regulation in the German corporate constitution. It also reflects the common belief that implementing adequate governance structures should be understood as a chance, as opposed to an obligation, by corporate decision makers.

Interestingly, the stated goal of the code is to "promote the trust of international and national investors, customers, employees and the general public in the management and supervision of listed German stock corporations".[12] This is in contrast to the Anglo-Saxon view of corporate governance, where there is little room for the general public. Nevertheless, the code constitutes a regime shift in the German corporate governance system. It takes a surprisingly pragmatic view on the "fundamental" differences in stakeholder and shareholder interests, an issue that has been fiercely debated in particular in the German literature (e.g., see Albach (2003)). The code clearly recognizes that corporate success, shareholder profit, employee security and the interests of other stakeholders are heavily co-dependent.

12 See the German Corporate Governance Code (2002), www.corporate-governance-code.de.

## 4. Data description

### *4.1. A German corporate governance rating*

The corporate governance rating applied in this paper is from Drobetz, Schillhofer, and Zimmermann (2003, 2004). They construct a broad, multifactor corporate governance rating, which is based on responses to a survey sent out to a broad sample of German publicly listed firms. To qualify for an inclusion into the corporate governance rating, each practice and attitude (i) had to refer to a governance element that is not (yet) legally required and (ii) needed to be considered as international market practice from an investor's perspective. The (not legally required) recommendations of the German Corporate Governance Code provided a natural starting point for a survey analysis. In fact, most proxies included in the rating represent recommendations and suggestions of the German Corporate Governance Code. Note that while the former work according to the comply-or-explain principle, the latter are wholly voluntary. A few other governance proxies originate from the DVFA German Corporate Governance Scorecard[13], from CalPERS German Market Principles, and from the Deminor Corporate Governance Checklist. In total, the rating contains 30 governance proxies divided into five categories: (1) corporate governance commitment, (2) shareholder rights, (3) transparency, (4) management and supervisory board matters, and (5) auditing. A sample of representative questions in each category is listed below:

- Are there firm-specific corporate governance guidelines set out in writing?
- Are there measures in place to facilitate the personal exercising of shareholder voting rights (e.g., via internet) and to assist the shareholders in the use of proxies?

13 DVFA is the German Society of Investment Analysis and Asset Management.

- Are the fixed and variable remuneration elements as well as share ownership (including existing option rights) of members of the management and supervisory board published separately and in individualized form in the notes to the financial statements?
- Are there supervisory board committees to deal with complex matters (e.g., audit, compensation, strategy)?
- Are there firm-specific rules to ensure that the auditor does not perform other services for the firm (e.g., consulting work)?

The questionnaire with all thirty governance proxies was sent out to all firms in the four principal market segments of the German stock exchange: DAX 30 (blue-chip stocks), MDAX (mid-cap stocks), NEMAX 50 (index of growth firms), and SDAX (small-cap stocks), comprising a total of 253 firms. Data collection was completed at the end of March 2002. Overall, the survey had a response ratio of 36 percent, which results in a sample of 91 German firms.

The construction principles of the aggregate governance rating are kept simple. First, a higher acceptance level of a proxy variable indicates an active move by the firm's management to have improved its governance system. Second, 25 basis points are added for each acceptance level of the respective proxy in a five-scale answering range. Finally, for each firm the aggregate rating is an unweighted sum of the basis points across all proxies, ranging from 0 (minimum) to 30 (maximum).[14] This straightforward procedure results in an aggregate corporate governance rating and five sub-indices for each category mentioned above. Hence, the independent variables in our empirical analysis are: *OVERALL* (aggregate corporate governance rating), *CG_UNT* (governance commitment), *CG_AKT* (shareholder rights), *CG_TRA* (transparency), *CG_ENT* (management and supervisory board matters), and *CG_ABS* (auditing).

14 More in-depth analysis in Drobetz, Schillhofer, and Zimmermann (2004) shows that an equal-weighting scheme is not a restrictive assumption.

Figure 1 shows the distribution of the corporate governance rating. To simplify, the ratings have been rounded to the nearest integer. The histogram shows that the rating over the 91 firms in our sample is slightly skewed to the right. More than 40% of the firms have a rating between 20 and 23. Nevertheless, the figure reveals that the governance proxies are adequately selected to reach a sufficiently wide distribution, which mitigates a possible sample selection bias in the survey.

Panel A in Table I presents summary statistics of the dependent variables. Due to data limitations for the independent variables, the sample in our empirical analysis is reduced to 80 firms. The average rating is 19.51, with firm ratings ranging from 9.75 to 27.25. The subindices with the highest ratings are *CG_ENT* (management and supervisory matters) and *CG_TRA* (transparency), which can be explained by the fact that these areas are strongly accompanied by laws and regulation.

[Insert Figure I here]

### *4.2. Explanatory variables*

The data for ownership structure/voting rights are based on the CD-ROM "Wer gehört zu Wem" (Who owns whom?, 30 April 2002) and from "BaFin (Bundesanstalt für Finanzdienstleistungsaufsicht, March 2002)". All other variables are based on annual reports as of end 2001. To appropriately capture the distribution of control rights and decision power among shareholders, we use voting concentration as a proxy for ownership concentration. Following the hypothesis formulated in section 2, we construct several variables related to voting concentration. *VR1* denotes the voting rights of the largest ultimate shareholder. To account for a possibly non-linear relationship between ownership concentration and the corporate govern-

ance rating, *VR1^2* is the squared value of *VR1*. Alternatively, we follow Morck, Shleifer, and Vishny (1988) and use the following variables to estimate piecewise linear regressions:

*VR1_25* = voting rights of the largest shareholder if voting rights < 25%,
= 25% if voting right of the largest shareholder ≥ 25%;

*VR1_25to50* = 0 if the voting rights of the largest shareholder < 25%,
= voting rights of the largest shareholder minus 25%
if 25% ≤ voting rights < 50%,
= 25% if voting rights of the largest shareholder ≥ 50%;

*VR1_50* = 0 if voting rights of the largest shareholder < 50%,
= voting rights minus 50% of voting rights ≥ 50%.

Panel B in Table I presents a breakdown of the aggregate corporate governance rating by four breaking points of ownership concentration. The average rating is higher than 21 points if the largest shareholder holds less than 25% in voting rights, but it is lower than 19 (18) points if VR1 is larger than 25% (50%) but smaller than 50% (75%). The average rating again increases above 19 points if the firm is in super-majority control (VR1>75%). This hints at possible non-linear effects of the largest shareholder on firms' ratings.

To estimate the relationship between board size and the corporate governance rating, *BOARDSIZE* denotes the number of directors on the company's supervisory board. The data is taken from the firms' annual reports as of year-end 2001. *GAAP* is a dummy variable and equals 1 if a firm uses US-GAAP as the accounting standards in its annual report, and equals 0 otherwise. Similarly, *IAS* is a dummy variable and is set to 1 if IAS are used as accounting standards in the annual reports, and equals 0 otherwise. *OPTION* is a dummy variable that equals 1 if the firm uses an option-based remuneration plan, and 0 otherwise. Finally, we use

two additional control variables: (i) *SIZE* is defined as the natural logarithm of the book value of total assets, and (ii) *TQ* refers to the Tobin's Q, approximated as the ratio of market value of equity plus liabilities divided by book value of total assets. A summary statistics of the independent variables is given in panel C of Table I.

[Insert Table I here]

## 5. Empirical results

### *5.1. Main empirical results*

Table II presents our main results. In each regression the dependent variable is the German corporate governance rating, originally developed by Drobetz, Schillhofer, and Zimmermann (2004). In equation (1), *VR1* and *SIZE* are the only independent variables. The corresponding coefficient on *VR1* is negative and statistically significant at the 5% level. Controlling for size, we observe that larger voting rights are associated with lower governance ratings, indicating than the entrenchment effect, on average, dominates the alignment effect. We will explore this relation in more detail below. As expected, the coefficient on *SIZE* is positive and statistically significant. The explanatory power (adjusted $R^2$) for this simplest regression specification is almost 20%.

In equation (2), *BOARDSIZE* is included as an additional explanatory variable. Confirming our second hypothesis, the relationship between board size and the governance rating is significantly negative. The analysis again controls for firm size, taking into account that larger firms also possess larger boards. This result confirms the hypothesis by Jensen (1993) and Lipton and Lorsch (1992), suggesting that larger boards are hampered by coordination and communication problems. In addition, the decision finding process may be complicated by more conflicting groups of stakeholders in larger boards.

Equation (3) contains the full set of explanatory variables, where the possibly nonlinear relationship between the corporate governance rating and the voting rights by the largest shareholders is captured using the three variables related to the breakpoints described in section 4.2. We find supporting evidence for all four hypotheses. First, there is some evidence that the relationship between the corporate governance rating and ownership concentration is non-linear. At intermediate holdings of the largest shareholder the entrenchment effect dominates the incentive effect, as indicated by the negative and significant coefficient on the *VR25_50* variable. However, with ownership concentration above 50%, the incentive alignment effect dominates, as reflected by the positive (albeit insignificant) coefficient on the *VR1_50* variable. Together, these results imply a U-shaped relationship between the corporate governance rating and ownership concentration. In addition, confirming our second hypothesis, board size is negatively related to the corporate governance rating even when we include all our explanatory variables. The coefficient on *BOARDSIZE* is estimated significantly at the 5 percent level. Our empirical results further support the third hypothesis, hence, firms accounting according to US-GAAP or IAS have higher governance ratings than firms accounting according to HGB. This is indicated by the significant positive coefficients on both the *GAAP* and *IAS* dummy variables. Finally, we find supporting evidence for our fourth hypothesis that firms with option-based remuneration plans have higher governance ratings than other firms. The coefficient on *OPTION* is (marginally) significantly positive. Again, the regression controls for firm size, as measured by *TA*, confirming that larger firms exhibit a higher governance rating. Finally, the explanatory power is reasonably high, with an adjusted R-square of 45.5 percent.

In equation (4) we use *VR1* and *VR1^2*, in addition to all other explanatory variables, to measure the non-linear relationship between the governance rating and ownership concentra-

tion. The results confirm our previous findings. The coefficients on *VR1* and *VR1^2* are significantly negative (at 5% level) and positive (at 10% level), respectively, again indicating a U-shaped relationship between the governance rating and ownership concentration. All other coefficient estimates are as before.

[Insert Table II here]

*5.2. Robustness tests*

In order to determine the reliability of our results, we conduct two robustness tests for equation (4) in Table II. First, we test whether industry-effects drive the results and estimate a fixed-effects model. Using the Dow Jones STOXX classification scheme, the model incorporates intercepts for 18 industries. The estimation results are shown in Table III. Compared to the previous results in Table II, *VR1* and *IAS* are now significant only at the 10% level, and the squared term *VR^2* as well as *BOARDSIZE* and *OPTION* turn insignificant. The notion that industry is a determinant of board size, compensation packages and accounting standards should come as no surprise. For example, supervisory boards of traditional industries tend to be larger, while boards of "New Economy" firms are smaller. Furthermore, the optimal compensation package is likely to be influenced by the presence of asymmetric information between principal and agent, by the riskiness of the firm's environment and by its "asset specificity" (e.g., see Demsetz and Lehn (1985)). All of these firm characteristics are likely to be influenced by the industry a firm operates in.

[Insert Table III here]

As a second robustness test, note that one (so far) possibly omitted variable is the performance of a firm. Firms with better performance and higher valuations could be more inclined to choose better corporate governance instruments as they can afford to invest in better control

systems or to rebel against suppressive majority investors. We apply Tobin's Q as a measure of firm valuation and use this variable as an additional explanatory variable for the governance rating. To account for endogeneity, we estimate a two-stage least square regression. The first stage regression involves a regression of Tobin's Q on all exogenous variables and the following instrument variables: industry dummies (18 different industry dummies according to the Dow Jones STOXX classification), a firm's beta value calculated from monthly stock returns over the period from 1998 to 2001, and the natural logarithm of the age of the firm. The second stage regression applies all governance mechanisms and the fitted value of Tobin's Q as the explanatory variables. As shown in Table III, Tobin's Q is insignificant, a Hausman-test accepts exogeneity, and all the results for the different corporate governance mechanisms remain qualitatively the same, both in magnitude of the coefficients and their level of significance. Overall, these results indicate that our previous results for the baseline regressions in Table II are not afflicted by the inclusion/exclusion of Tobin's Q.

### *5.3. Results for the components of the governance rating*

In this section we split the aggregate rating into its five components: (1) shareholder rights, (2) management and supervisory board matters, (3) transparency, (4) governance commitment, and (5) auditing. The results of the regressions using the respective sub-indices as dependent variables are shown in Table IV.

Shareholder rights (eq. 1 in Table IV) encompass criteria such as the one-share-one-vote principle, subscription rights for capital increases, and modern communication (i.e., internet) used for the general meeting and/or the voting process. As can be seen from equation (1) in Table IV, there is no positive part in the relation between this sub-index and *VR1*. Regressing *VR1* linearly on the shareholder rights rating, *VR1* is estimated significantly (at the 5% level) nega-

tive. This indicates that the largest shareholder is particularly wary of code recommendations that increase the control rights of minority shareholders.

A significantly negative/positive relationship between *VR1* and a sub-index are obtained for the categories management and supervisory board matters (eq. 2) and auditing (eq. 5). Management and supervisory board matters encompass dimensions like remuneration and performance criteria of board members; disclosure of individual board members' variable and fixed pay components in the annual reports; selection process of directors; separate committees within the board; and the number of board members' directorships. We therefore argue that this category (besides shareholder rights) is the most relevant with respect to corporate governance improvement. Given that board size also has a significantly negative influence, our main results are confirmed strongest for this sub-index.

[Insert Table IV here]

None of our corporate governance variables are significant in the regression for the category transparency (eq. 3). Together with the fact that the average rating is extremely high (4.55 out of a maximum of 5), this reflects the general understanding in Germany as well as in other Continental European countries that transparency is vital for good corporate governance, and not even large shareholders can oppose. A major improvement in transparency legislation was achieved when the European Union's Transparency Directive (88/627/EEC) was transposed into German law and became effective at the beginning of 1995.

The component related to governance commitment (eq. 4) investigates whether there are corporate governance guidelines set out in writing, or whether there is a corporate governance representative reporting on corporate governance issues to the supervisory board. The only significant governance variable is *GAAP*. This could be explained by the fact that firms, em-

ploying US-GAAP are those which strive for a listing in the US, where corporate governance is organised more formally, and where it is more common to structure the corporation according to corporate governance guidelines.

Finally, the sub-index referring to auditing (eq. 5) is based on the following questions: Do quarterly reports contain segment reporting? Are there firm-specific rules to ensure that the auditor does not perform other services for the firm? Does the annual report contain information about the risk-management system of the corporation? Besides the significant negative/positive *VR1* influence, international accounting standards (*IAS* and *GAAP*) exert a positive and significant influence on auditing. International accounting standards, which are supposed to reveal more information than national accounting standards, also raise the quality of auditing.

## 6. Conclusion

There is mounting empirical evidence that there is a relationship between the quality of firm-level corporate governance and firm valuation. Ultimately, this is the only reason why corporate governance issues should be of interest for financial economists at all. Unfortunately, all empirical studies are inherently plagued with endogeneity problems, as causality could well run from performance to governance. This paper circumvents the problem of causality by taking one step back and investigating the determinants of good corporate governance as measured by the corporate governance rating of Drobetz, Schillhofer, and Zimmermann (2004). It is ultimately the owners who decide (or at least monitor the decision) on whether or not to adopt better governance practices. Therefore, ownership structure can safely be regarded as exogenous in our context. This is all the more the case in Continental European countries, where significant ownership concentration is the rule rather than an exception.

Similarly, the structure of the supervisory authorities can be expected to affect the governance rating of a firm. The board of directors ultimately takes the decisions with respect to all governance issues (and, hence, has to assume responsibility for all corporate governance malfunctions), and it is hard to believe that causality runs from high or low corporate governance ratings to board size or board composition.

While our research question is clearly a lot more modest than directly exploring the link between corporate governance and firm valuation, we still uncover several interesting interrelationships within firms. We confirm the non-linear relationship between ownership concentration and the quality of firm-level governance familiar from previous governance/performance studies. We interpret it as being caused by two opposing influences, incentive alignment and entrenchment, and document a significant entrenchment effect at intermediate holdings of the largest shareholder (between 25 and 50%). With increasing holdings of the largest shareholders (more than 50%), there are positive wealth effects and, hence, incentive effects starting to dominate. Our results hold up strongest when analysing the sub-index relating to management and supervisory board matters. In addition, firms with larger board size have lower governance ratings, but firms that apply US-GAAP or IAS rules and/or use an option-based remuneration plan have higher governance ratings.

It is worth putting our results into perspective. First, there is a positive and reassuring message. Corporate governance codes potentially improve the governance and decision making processes of companies. Otherwise, if provisions were not binding anyway, large shareholders or large boards had no need to oppose (some of) them (e.g., transparency of executive pay). Second, however, there is a more negative and cautious conclusion that follows from our results. Large shareholders still have a tight grip on companies and veto recommendations that

might lead to a loss of their control and power, such as recommendations for one-share-one-vote or disclosure of individual board members' pay. This questions the comply-or-explain approach and calls for a more rules based approach in reforming corporate governance in Europe.

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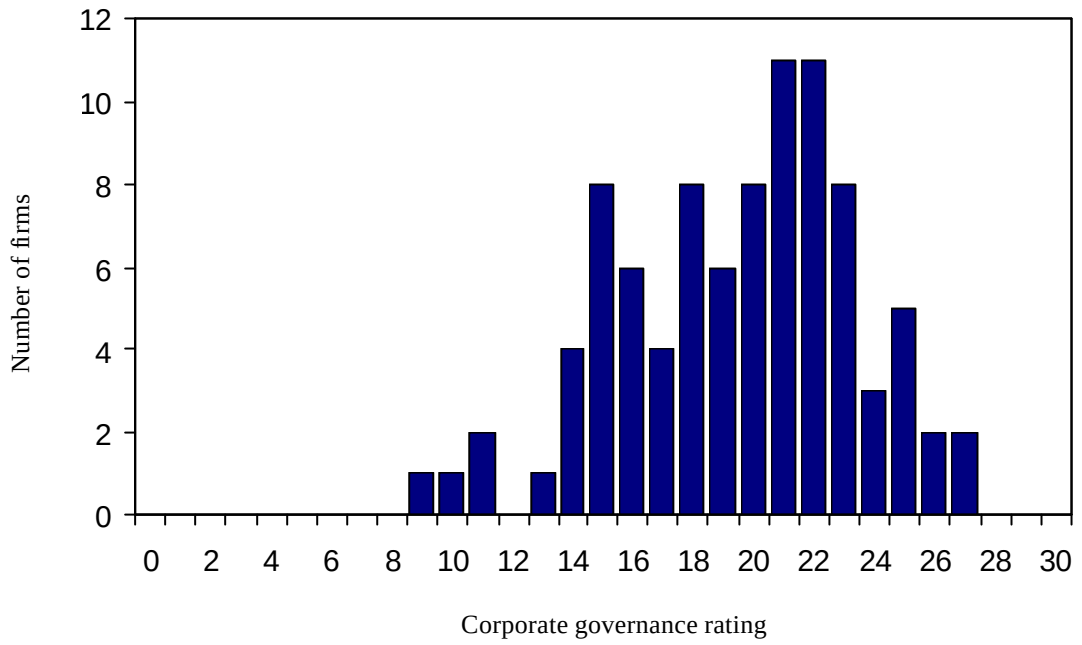
Figure 1: Distribution of the German corporate governance rating




This figure shows the distribution of the survey-based corporate governance rating (CGR) for 91 German public firms from Drobetz, Schillhofer, and Zimmermann (2004). The survey was sent out in February 2002, and the data collection was completed by the end of March 2002. The rating represents an unweighted sum of the basis points (on a five-scale answering range) for all governance proxies in five broad categories: (1) corporate governance commitment, (2) shareholder rights, (3) transparency, (4) management and supervisory board matters, and (5) auditing. The corporate governance rating ranges from 0 (minimum) to 30 (maximum). The ratings in the figure are rounded to the nearest integer.

| *Table I: Summary statistics* | | | | | |
|---|---|---|---|---|---|
| Variables | Mean | Median | Minimum | Maximum | Obs. |
| *Panel A: Aggregate rating and components* | | | | | |
| *OVERALL* | 19.51 | 19.75 | 9.75 | 27.25 | 85 |
| *CG_UNT* | 2.27 | 2.00 | 0.00 | 5.00 | 85 |
| *CG_AKT* | 3.07 | 3.00 | 0.00 | 5.00 | 85 |
| *CG_TRA* | 4.55 | 4.75 | 2.00 | 5.00 | 85 |
| *CG_ENT* | 5.98 | 6.25 | 1.25 | 9.50 | 85 |
| *CG_ABS* | 3.63 | 3.75 | 1.00 | 5.00 | 85 |
| *Panel B: Aggregate rating by ownership concentration* | | | | | |
| *VR1<25%* | 21.42 | | | | 33 |
| *25%£VR1>50%* | 18.67 | | | | 21 |
| *50%£VR1>75%* | 17.30 | | | | 21 |
| *VR1³75%* | 19.47 | | | | 8 |
| *Panel C: Independent variables* | | | | | |
| *VR1* | 37.13 | 31.85 | 4.60 | 100.00 | 80 |
| *VR1^2* | 2,112.94 | 1,014.45 | 21.16 | 10,000.00 | 80 |
| *VR1_25* | 19.80 | 25.00 | 4.60 | 25.00 | 85 |
| *VR1_25to50* | 12.01 | 9.10 | 0.00 | 25.00 | 85 |
| *VR1_50* | 6.45 | 0.00 | 0.00 | 50.00 | 80 |
| *BOARDSIZE* | 10.29 | 8.00 | 3.00 | 21.00 | 85 |
| *GAAP* | 0.26 | 0.00 | 0.00 | 1.00 | 85 |
| *IAS* | 0.32 | 0.00 | 0.00 | 1.00 | 85 |
| *OPTION* | 0.60 | 1.00 | 0.00 | 1.00 | 85 |
| *TA* | 13.78 | 13.22 | 8.26 | 20.64 | 85 |
| *TQ* | 1.63 | 1.17 | 0.46 | 8.02 | 85 |

The variables relating to the corporate governance score are drawn from the study by Drobetz, Schillhofer, and Zimmermann (2004), estimates on the ownership structure are based on the CD-ROM "Wer gehört zu Wem" (Who owns whom?, 30 April 2002) and from "BaFin (Bundesanstalt für Finanzdienstleistungsaufsicht)" March 2002, all the rest of the calculations are based on annual reports as of end 2001. The independent variables are: *OVERALL* (corporate governance rating), *CG_UNT* (governance commitment), *CG_AKT* (shareholder rights), *CG_TRA* (transparency), *CG_ENT* (management and supervisory board matters), *CG_ABS* (auditing). The corporate governance variables are: *VR1* denotes the voting rights of the largest ultimate shareholder, and *VR1^2* is the squared value of VR1. *VR1_25* equals the voting rights of the largest shareholder if the voting rights are below 25%, in any other case it is set to 25%. *VR1_25to50* is 0 if the voting rights of the largest investor are below 25%, if the voting rights are beyond or equal to 25% and below 50%, this variable is calculated as voting rights –25%. *VR1_50* is set to 0 if the voting rights are below 50%, in any other case it is computed as voting rights –50%. *BOARDSIZE* is the number of directors on the company's supervisory board. *GAAP* is a dummy variable and equals 1 if US-GAAP are used as accounting standards in the annual reports and equals 0 otherwise. *IAS* is a dummy variable and is set to 1 if IAS are used as accounting standards in the annual reports and equals 0 otherwise. *OPTION* is a dummy variable and equals 1 if the firm uses an option-based remuneration plan and 0 otherwise. *TA* is defined as the natural logarithm of the book value of total assets. *TQ* equals the ratio of market value of equity plus liabilities divided by book value of total assets.

***Table II:*** **Main equations**

| Eq. | *VR1* | *VR1^2* | *VR1_25* | *VR1_25to50* | *VR1_50* | *BOARDSIZE* | *GAAP* | *IAS* | *OPTION* | *TA* | Const. | Obs. | Adj. $R^2$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) | -0.0300 | | | | | | | | | 0.5457 | 13.0737 | 80 | 0.1965 |
| | (-2.18)** | | | | | | | | | (3.72)*** | (5.92)*** | | |
| (2) | -0.0296 | | | | | -0.3429 | | | | 1.2584 | 6.7290 | 80 | 0.2793 |
| | (-2.26)** | | | | | (-3.14)*** | | | | (4.73)*** | (2.31)** | | |
| (3) | | | 0.0061 | -0.0969 | 0.0468 | -0.2536 | 3.2071 | 1.6669 | 1.2759 | 0.9555 | 7.4942 | 80 | 0.4555 |
| | | | (0.10) | (-2.09)** | (1.55) | (-2.54)** | (3.59)*** | (2.31)** | (1.81)* | (3.87)*** | (2.76)*** | | |
| (4) | -0.0834 | 0.0007 | | | | -0.2447 | 3.0942 | 1.6288 | 1.2002 | 0.9627 | 8.2896 | 80 | 0.4470 |
| | (-2.08)** | (1.75)* | | | | (-2.44)** | (3.48)*** | (2.24)** | (1.69)* | (3.88)*** | (3.06)*** | | |

The estimating sample contains 85 German firms; variations are due to data limitations. Time period: 2002. The table shows the results from OLS regressions of the corporate governance rating as dependent variable on the main corporate governance mechanisms along with the control variable. Eq. (1) is a partial model with ownership concentration explaining the corporate governance score. Eq. (2) introduces another corporate governance mechanism, the firm's board, into the equation. Eq. (3) includes all corporate governance mechanisms and is similar to the piece-wise linear regression estimated by Morck, Shleifer, and Vishny (1988), however, other turning points are used. Eq. (4) allows for non-linearities by including a squared term. The dependent variable refers to the corporate governance rating as calculated by Drobetz, Schillhofer, and Zimmermann (2004). The corporate governance variables are: *VR1* denotes the voting rights of the largest ultimate shareholder, and *VR1^2* is the squared value of *VR1*. *VR1_25* equals the voting rights of the largest shareholder if the voting rights are below 25%, in any other case it is set to 25%. *VR1_25to50* is 0 if the voting rights of the largest investor are below 25%, if the voting rights are beyond or equal to 25% and below 50%, this variable is calculated as voting rights –25%. *VR1_50* is set to 0 if the voting rights are below 50%, in any other case it is computed as voting rights –50%. *BOARDSIZE* refers to the number of directors on the company's supervisory board. *GAAP* is a dummy variable and equals 1 if US-GAAP are used as accounting standards in the annual reports and equals 0 otherwise. *IAS* is a dummy variable and is set to 1 if IAS are used as accounting standards in the annual reports and equals 0 otherwise. *OPTION* is a dummy variable and equals 1 if the firm uses an option-based remuneration plan and 0 otherwise. The control variable is *TA*, the natural logarithm of the book value of total assets. ***/**/* denotes significance at the 0.01/0.05/0.10 error level, respectively.

***Table III.*** **Robustness tests**

| | Industry fixed effects | | Endogeneity (2SLS) | |
|---|---|---|---|---|
| | Coeff. | t-value | Coeff. | t-value |
| *VR1* | -0.0880 | (-1.79)* | -0.0737 | (-1.71)* |
| *VR1^2* | 0.0007 | (1.37) | 0.0007 | (1.52) |
| *BOARDSIZE* | -0.1000 | (-0.72) | -0.2776 | (-2.58)** |
| *GAAP* | 3.5001 | (2.99)*** | 2.5774 | (2.40)** |
| *IAS* | 1.5394 | (1.84)* | 1.6891 | (2.24)** |
| *OPTION* | 1.1015 | (1.13) | 1.1029 | (1.40) |
| *TA* | 0.6701 | (1.91)* | 1.0926 | (3.85)*** |
| *TQ* | | | 0.3518 | (0.75) |
| Const. | 11.0366 | (2.86)*** | 6.2065 | (1.71)* |
| Obs. | 80 | | 77 | |
| Adj. $R^2$ | 0.3685 | | 0.4458 | |
| Hausman-test: | | | | |
| $\chi^2(7)$ | | | | 2.55 |
| p-value | | | | 0.9232 |

The estimating sample contains 85 German firms; variations are due to data limitations. Time period: 2002. The table shows robustness test for equation (4) from Table II. The first specification applies an industry-fixed effect model to equation (4). The second specification uses two-stage least squares whereby in the first stage *TQ* (Tobin's Q, ratio of market value of equity plus liabilities divided by total book value of assets) is regressed on the following instruments: industry (refers to 18 different industries from Dow Jones EURO-STOXX classification), beta value calculated from monthly stock returns over the period from 1998 to 2001, and the natural logarithm of the age of the firm. A Hausman-test accepts exogeneity. The dependent variable refers to the corporate governance score as calculated by Drobetz, Schillhofer, and Zimmermann (2004). The corporate governance variables are: *VR1* denotes the voting rights of the largest ultimate shareholder, and *VR1^2* is the squared value of *VR1*. *BOARDSIZE* is the number of directors on the company's supervisory board. *GAAP* is a dummy variable and equals 1 if US-GAAP are used as accounting standards in the annual reports and equals 0 otherwise. *IAS* is a dummy variable and is set to 1 if IAS are used as accounting standards in the annual reports and equals 0 otherwise. *OPTION* is a dummy variable and equals 1 if the firm uses an option-based remuneration plan and 0 otherwise. The control variable is *TA*, the natural logarithm of the book value of total assets. ***/**/* denotes significance at the 0.01/0.05/0.10 error level, respectively.

***Table IV:*** **Components of the corporate governance rating**

| Eq. | *VR1* | *VR1^2* | *BOARDSIZE* | *GAAP* | *IAS* | *OPTION* | *TA* | Const. | Obs. | Adj. $R^2$ |
|---|---|---|---|---|---|---|---|---|---|---|
| (1) | -0.0046 | -0.00003 | -0.0256 | 0.1152 | 0.3189 | 0.4539 | 0.2218 | 0.0721 | 80 | 0.3131 |
| | (-0.38) | (-0.23) | (-0.83) | (0.42) | (1.44) | (2.09)** | (2.93)*** | (0.09) | | |
| (2) | -0.0590 | 0.0006 | -0.1375 | 1.2683 | 0.5007 | 0.4978 | 0.4001 | 2.0826 | 80 | 0.3134 |
| | (-2.68)*** | (2.52)** | (-2.49)** | (2.60)*** | (1.25) | (1.27) | (2.93)*** | (1.40) | | |
| (3) | 0.0019 | -0.000001 | -0.0148 | -0.0530 | -0.0892 | 0.1962 | 0.0864 | 3.3753 | 80 | 0.0431 |
| | (0.26) | (-0.01) | (-0.79) | (-0.32) | (-0.65) | (1.47) | (1.85)* | (6.61)*** | | |
| (4) | 0.0080 | -0.0001 | -0.0494 | 0.9239 | 0.1061 | -0.1883 | 0.1917 | -0.0021 | 80 | 0.0656 |
| | (0.41) | (-0.69) | (-1.01) | (2.14)** | (0.30) | (-0.55) | (1.59) | (-0.00) | | |
| (5) | -0.0297 | 0.0003 | -0.0174 | 0.8397 | 0.7922 | 0.2406 | 0.0628 | 2.7616 | 80 | 0.2769 |
| | (-2.53)** | (2.61)*** | (-0.59) | (3.22)*** | (3.72)*** | (1.15) | (0.86) | (3.47)*** | | |

The estimating sample contains 85 German firms; variations are due to data limitations. Time period: 2002. The table shows the results from OLS regressions of the components of the corporate governance rating as dependent variables on the main corporate governance mechanisms along with the control variable. The dependent variables in the different equations are: Eq. (1) shareholder rights ("Aktionärsrechte"). Eq. (2) management and supervisory board matters ("Entscheidungs- u. Kontrollgremien"). Eq. (3) transparency ("Transparenz"). Eq. (4) governance commitment ("Unternehmensausrichtung und Corporate Governance"). Eq. (5) auditing ("Abschlussprüfung"). The corporate governance variables are: *VR1* denotes the voting rights of the largest ultimate shareholder, and *VR1^2* is the squared value of *VR1*. *BOARDSIZE* is the number of directors on the company's supervisory board. *GAAP* is a dummy variable and equals 1 if US-GAAP are used as accounting standards in the annual reports and equals 0 otherwise. *IAS* is a dummy variable and is set to 1 if IAS are used as accounting standards in the annual reports and equals 0 otherwise. *OPTION* is a dummy variable and equals 1 if the firm uses an option-based remuneration plan and 0 otherwise. The control variable is *TA*, the natural logarithm of the book value of total assets. ***/**/* denotes significance at the 0.01/0.05/0.10 error level, respectively.