Corporate Governance and the Design of Stock Option Programs

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Abstract

Investors and academics increasingly criticize that various design features of executive stock option (ESO) plans reflect self-dealing by managers and the inability of corporate governance mechanisms in monitoring executives (managerial power hypothesis). We use a unique and not publicly available data set to investigate design features of ESO programs. The companies in our sample show a very large variation with respect to the characteristics of their ESO plans (e.g. in the use of relative performance targets that need to be met before options become exercisable). We study the relationship between the design of ESO plans and corporate governance structures to test the managerial power hypothesis. We document that when governance structures are weak, option plans are designed in a way desired by managers. When ownership concentration is low, firms more often have ESO plans that are favorable to executives. We also find that firms with fewer outside board members and weaker creditor rights more often have option plans that are favorable to managers. Favorable ESO plans usually coincide with large option packages.

Keywords: Stock Option Programs, Program Design, Corporate Governance, Empirical Evidence

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1 Introduction

Recently, active institutional investors and shareholder activists have sharply criticized various features of stock option plans. They argue that the design of many stock option programs is an example of managerial self-dealing and finally illustrates the inability of existing corporate governance mechanisms in monitoring executives. At the same time, there is increasing criticism in the academic literature saying that both the escalation and the design of stock option compensation reflect managerial rent-seeking rather than optimal contracting. Bebchuk and Fried (2003, 2004) and Bebchuk et al. (2002), for example, argue that managers exercise their influence to maximize wealth transfers with stock options. In their view, executive compensation *reflects* agency problems rather than solving them and weak corporate governance structures lead to an inefficient design of stock option plans. Bebchuk and Fried as well as Bebckuk et al. argue that features of stock option plans like no indexing to market movements, exercise prices that equal market prices at grant dates and option repricings can be seen as evidence consistent with this kind of self-dealing. They claim that the greater the power of managers and the weaker the governance system, the greater their ability to self-deal by influencing executive pay in a way that is favorable to them (the so-called managerial power hypothesis).[1] The problem of managerial self-dealing when governance structures are weak is known for quite a long time as a quote from Shleifer and Vishny (1997) in their often cited corporate governance survey shows: "The more serious problem with high powered incentive contracts is that they create enormous opportunities for self-dealing for the managers, especially if these contracts are negotiated with poorly motivated boards of directors rather than with large shareholders."[2]

It is well documented that managers possess significant control rights and that they use their discretion in firms to benefit themselves personally in various ways (by expropriating funds, empire building, consumption of perquisites, no cash-out of free cash flow, or by entrenching themselves in positions that make it difficult to displace them when they per-

[1] Hall and Murphy (2003) contradict this hypothesis by claiming that governance structures have improved in the past preventing the self-dealing by corporate officers.

[2] Shleifer and Vishny (1997), p. 745.

form badly).[3] Moreover, there is little doubt that managers have at least some influence on the level, structure, and design of their compensation packages. As pointed out by Murphy (1999), the *process* in which the structure and design of compensation schemes is developed is likely to be exposed to managerial power. Usually, initial recommendations for incentive plans are developed by the internal human resources departments and not by independent advisors.[4] Moreover, compensation recommendations often need the approval of top managers before being passed to the compensation committee. Managers can therefore influence compensation proposals in their own interests.

Following this line of argument, Ryan and Wiggins (2004) state that recent empirical research "... suggests that the process of determining compensation is better described as a negotiation process between the board and the CEO" rather than by an optimal contracting approach.[5] It is therefore evident to ask to what extent the design of stock option programs is correlated with variables influencing this bargaining process. We can think of factors such as the structure and composition of the board, the existence of blockholders or differences in legal regimes. Due to data limitations, existing research has not provided an answer to this question yet. So far, there is no evidence on whether the design of executive stock option (ESO) plans is related to shareholder structures or the composition of boards of directors.

Recent research in the field of corporate finance suggests that inside board members, large boards, busy chairmen or the absence of large blockholders result in less effective monitoring and in weak corporate governance.[6] Based on this work, we want to investigate in this study whether there exists a significant association between the design of executive stock option programs and the structure of a firm's corporate governance. We therefore investigate the design of ESO programs and try to explain the observed variation in the design of these programs with differences in the corporate governance schemes of firms. Simply put, we examine whether firms with weak governance structures have stock option programs that are designed in a way that is desired by managers. We hereby test

[3] See Jensen and Meckling (1976), Shleifer and Vishny (1989, 1997) or Jensen (1986).

[4] Even if outside compensation consultants are involved, it is unlikely that they work independently as their fees depend on the mandates of the advised companies.

[5] Ryan and Wiggins (2004), p. 498.

[6] See Becht et al. (2003), Shleifer and Vishny (1997), Hermalin and Weisbach (2003) or Holderness (2003) for surveys.

the managerial power hypothesis developed in Bebchuk and Fried (2003, 2004). A stock option plan is desired by managers if there is no link to corporate performance and if the ESO plan is not transparent to shareholders and hence minimizes the outrage that results from the recognition of the option plan by the public (see Bebchuk and Fried, 2003).[7]

To study the association between governance structures and ESO design, data on European stock option programs provides a promising environment. Due to accounting and tax regulations, the variation in the design of ESO programs for U.S. firms is rather limited compared to European firms (see Murphy, 1999). U.S. firms, for example, usually do not use performance-based ESO programs because tax and accounting rules would otherwise imply adverse cost effects.[8] Our data on European stock option plans therefore provides the unique opportunity to test the importance of governance structures for the design of ESO programs. European stock option plans show large variations with respect to their design features and hence provide a natural environment for an attempt to test the managerial power hypothesis. We are able to use detailed data on the stock option programs very large European corporations belonging to the Euro Stoxx 50, the Stoxx 50, and the DAX 30. Our data set includes information on five core design features of the ESO programs of these firms: on relative and absolute performance requirements, on accounting treatments, participation structures, and on the transparency of the programs. Data on performance requirements and participation structures are usually not publicly available in Europe. We gathered our ESO data with the help of Union Investment, the third largest mutual fund manager in Germany, who conducted a mail survey to receive the ESO data we needed to test the managerial power hypothesis. Comparable with CalPERS in the U.S., Union Investment is known as a very strong supporter of good corporate governance arrangements in firms. To our knowledge, comparable ESO design data is not available for the U.S. We combine the data on the design features of the ESO plans with hand-collected data on the corporate governance structures (ownership structures, board structures and legal structures) of our sample firms.

Our main results can be summarized as follows. We find that the firms in our data set show

[7] See below for a more formal definition of a stock option plan that is desired by executives.

[8] ESO Programs without performance conditions were treated preferably according to tax and FASB accounting rules, see, e.g., Bebchuk et al. (2002).

very large heterogeneity with regard to the implementation of their stock option plans. The companies, for example, exhibit a very wide variation in the use of relative performance targets that need to be met before options become exercisable. While some firms require the outperformance of competitors in the same industry, others use no relative performance evaluation at all. We document that when governance structures are weak, option plans are more likely to be designed in a way that is desired by executives. More specifically, we find that cross-sectionally, *ownership variables* are related to the ESO design in a way that is consistent with the managerial power hypothesis. When ownership concentration is low and the exposition to the U.S. capital market little, firms have ESO plans implemented that are more favorable to their executives. This finding supports the view that controlling shareholders are important in monitoring managerial compensation and behavior. Our evidence on the role of blockholders complements findings of related studies documenting that large shareholders play an active role in corporate governance. Our cross-sectional findings further suggest that firms with insider-dominated boards are more likely to have stock option plans that are favorably designed. More specifically, we find that a higher percentage of outsiders is generally associated with ESO programs that are less favorable to managers. Further support for the self-dealing view is provided by the finding that firms with weaker creditor rights more often have ESO plans that are desired by top managers. Our results are robust to many different specifications of our main dependent variable that captures the ESO design. They are also robust to different specifications of the regression models. In the robustness section, we also take the volume of the option packages that were granted to CEOs and the overall level of CEO compensation into account. Our estimations suggest that more favorable ESO plans usually coincide with larger option packages.

The rest of this paper is organized as follows. The next section surveys the literature that links corporate governance, executive compensation, and self-dealing. Section 3 derives benchmarks for the assessment of executive stock option programs. We use these benchmarks as well as the managerial power literature to assess whether a specific ESO plan is desired by managers or not. This section further states the hypothesis we want to investigate empirically. Section 4 presents our data sets and variables, and provides an exposition of the empirical strategy that is employed. Section 5 documents our empirical results on the design of the studied option programs and its relationship to corporate

governance structures. It also presents an interpretation and discussion of our results. We also look at various robustness checks of our results. The last section summarizes the main findings and concludes.

2 Related Literature on Self-Dealing and Executive Compensation

Several empirical papers have examined the relation between corporate governance structures and various aspects of executive compensation.

Some studies have looked at whether there is an association between the level of compensation and governance structures. Core et al. (1999), for example, use a sample with CEO compensation data of 205 publicly traded U.S. firms. They examine the relation between corporate governance (proxied by board and ownership variables) and CEO compensation to test whether CEOs earn greater compensation when corporate governance structures are less effective. Controlling for economic determinants of compensation, they find that "... CEOs earn greater compensation when governance structures are less effective."[9] Lambert et al. (1993) also find support for what they call the "managerial-power model". Their findings suggest that CEOs get higher salaries when they have appointed a larger fraction of the board members. The existence of a large external blockholder is negatively related to the level of executive compensation. Lambert et al. argue that their "... results provide support for the importance of managerial power in explaining levels of executive compensation".[10]

Other empirical research examines whether corporate governance structures affect the pay-for-performance sensitivity of executive compensation. Hartzell and Starks (2003), for example, find that institutional shareholding concentration and the pay-for-performance sensitivity of executive compensation are strongly positively related. They show that for an average executive, an increase of one standard deviation in the percentage of institutional ownership by the five largest shareholders is associated with an estimated 20% increase in

[9] Core et al. (1999), p. 371.

[10] Lambert et al. (1993), p. 457.

the sensitivity of options to stock price changes. Additionally, they find that institutional ownership concentration is negatively related to the overall level of compensation. In a recent paper, Ryan and Wiggins (2004) find that powerful CEOs use their position to influence the compensation of directors in a way to provide fewer monitoring incentives. Furthermore, they influence their own pay such that it becomes less sensitive to stock price changes.

Bertrand and Mullainathan (2001, 2002) find that "... better governed firms pay their CEO less for luck" (windfall profits).[11] They conclude that their results can not be explained with a simple contracting approach. Bertrand and Mullainathan argue that their findings are better explained by a view where CEOs exercise effective power over the pay-setting process. Newman and Mozes (1999) provide additional evidence suggesting that observed compensation practices are more likely to be consistent with managerial self-dealing than with optimal contracting. They document that CEOs receive preferential treatment when insiders are members of compensation committees. Harvey and Shrieves (2001) find a significant relationship between ownership and board variables on the one hand and the use of incentive compensation on the other hand: incentive compensation is more pronounced in firms with a larger fraction of outsiders on the board and in firms where blockholders are present.[12]

Further evidence for a relationship between compensation practices and governance structures is provided by Yermack (1997). He studies the timing of stock option grants and finds that CEOs receive stock options shortly prior to the release of good news. Since stock options are usually granted with a strike price equal to the stock price on the grant date, CEOs effectively receive in-the-money options by making grants before good news. Compensation and wealth hereby increase by reasons that are unrelated to managerial ability, effort or performance. Moreover, he finds that the difference between the stock price 30 days after grant and the strike price at the grant day is higher in firms with weaker corporate governance. Similar evidence is provided by Aboody and Kasznik (2000).

[11] See Bertrand and Mullainathan (2001), p. 901.

[12] Similar results are provided by Mehran (1995). He examines the relationship between executive compensation structures and ownership variables of 153 firms. Mehran finds that companies with more outside directors provide a higher fraction of their executive compensation in an equity-based form.

Other studies have examined the association between ownership/board structures and the repricing of stock options. Some authors provide evidence that option repricing reflects governance problems. Chance et al. (2000), for example, find that insider-dominated boards are more likely to reprice stock options in a way that is favorable to managers (which suggests managerial entrenchment and self-serving behavior). Similarly, Brenner et al. (2000) show that the attendance of executives in the compensation committee increases the likelihood of option repricing. Empirical evidence also suggests that managers tend to time repricing decisions in order to increase option values. Callaghan et al. (2004) document that this kind of timing is "... more likely in firms with weak corporate governance".[13]

The study that is most closely related to our work is a paper by Pasternack and Rosenberg (2003). Using a sample of Finnish firms, they study determinants of the scope of ESO plans, of exercise prices, target groups, and of dividend protection clauses. Their results suggest that firms with bigger monitoring difficulties use more equity incentives. There seems to be no association between their incentive measure and ownership structures. Exercise prices of options and ownership variables also seem to be unrelated. Their results, however, suggest that institutional ownership increases the likelihood that a broad-based option plan is used. Pasternack and Rosenberg also show that the degree of foreign stock owners reduces the likelihood of dividend protection mechanisms in ESO plans.

Overall, empirical evidence seems to suggest that corporate governance schemes and various aspects of executive compensation are related in a way that is consistent with the managerial power hypothesis. The relationship between the design of stock option programs and governance structures is much less explored and also less conclusive. The goal of our paper is to extend the existing body of literature by explicitly examining the design features of the ESO plans of the largest European companies and by studying the important link between corporate governance schemes and the design of stock option programs.

[13] Callaghan et al. (2004), p. 1652. Contradicting evidence of no association between corporate governance schemes and option repricing is provided by Chidambaran and Prabhala (2003) who study the relation between option repricing and diffuse stock ownership as well as institutional ownership. Similarly, Carter and Lynch (2001) find no evidence that the likelihood of a repricing decision is related to governance problems.

3 Managerial Power and the Stock Option Design

The managerial power hypothesis suggests that the greater an executives's power and the weaker the corporate governance structures, the greater his ability to influence the design of a stock option plan in a way that is favorable to him. This section discusses in more detail the design arrangements that are favorable to top executives according to the managerial power view. Stock option programs evolved as a solution (or at least as a mitigation) of the agency problem that is caused by the separation of ownership and control (see Jensen and Meckling, 1976). It is uncontroversial among academics that equity-based compensation, if well designed, provides effective incentives to top managers. We therefore take economic insights and suggestions about the ESO design as a benchmark to evaluate the real ESO programs in our sample.

Agency theory predicts that managers should be awarded for outcomes over which they have control, and which are informative about the actions they have taken (see Holmström, 1979, 1982). Stock prices do provide information about the actions taken by managers. However, they are only noisy measures of executives performance. Efficient compensation contracts should therefore filter out stock price changes that are due to general market trends (windfall profits) and that are hence unrelated to managerial performance. From an optimal contracting point of view, incentive pay should consequently be tied to the performance *relative* to comparable firms or competitors and not to absolute performance as such.[14] A relative performance evaluation can essentially be regarded as a way to remove the noise of stock price movements (see Murphy, 1999). To filter out general industry or market trends in practice, the vesting of stock options can be made dependent on the meeting of specific relative performance targets.[15] More specifically, a stock option plan can be constructed such that options become exercisable if and only if the stock price of the company outperforms a certain benchmark index consisting of main competitors in the industry. Powerful managers, however, would like to make their exercise gains from

[14]The so-called relative performance evaluation developed in Holmström (1982). Some recent papers question the need for a relative performance evaluation in situations were industry returns and executives outside opportunities are related (see Oyer, 2004 and Rajgopal et al., 2005). We follow the standard agency literature and related research such as Bertrand and Mullainathan (2001) and assume that compensation contracts need to filter out industry and market effects.

[15]Bebchuk and Fried (2003) call these kind of ESO programs "reduced-windfall" plans. As an alternative mechanism, one can link the exercise prices of stock options to market or sector indexes to get a relative evaluation.

option exercises independent of the pressure to outperform an industry or general market index. The managerial power view therefore suggests that ESO plan that are favorable to managers contain no relative performance targets that need to be met before options vest. By looking at the oil industry, Bertrand and Mullainathan (2001) empirically study the implementation of relative performance targets and find that better governed firms pay their CEO less for windfall profits (which they consider as evidence for the managerial power approach).

It is sometimes argued that a stock option plan without any *absolute* performance target might be problematic as well. Institutional investors and active investors usually ask that exercises gains by managers should depend on the firm obtaining at least some minimum stock return that exceeds, for example, the risk-free rate of interest or the firm-specific cost of capital. In the absence of any absolute return targets, managers might realize exercise gains even though a stock investment in the firm did not outperform a risk-free investment. Practitioners therefore regularly demand stock option programs that contain at least some absolute performance targets. If stock option plans include such benchmarks, incentive effects naturally increase in the stock return that is required.[16] It is therefore often demanded that a stock option plan should typically include some absolute stock return thresholds that is required to be met before options become exercisable. On the contrary, stock option plans that are favorable to executives would rather have no or only very low absolute performance requirement. As this line of argument is questionable from a pure agency theoretic point of view, we also perform our empirical analysis with the exclusion of an absolute performance target as a design feature. It turned out that our results are robust to the inclusion/exclusion of an absolute performance target in the analysis (see below for details).

Another important aspect of the managerial power hypothesis is camouflage that is used by executives to minimize outrage costs (see Bebchuk and Frid, 2003). Powerful managers want to influence their option plans such that the self-dealing and the low performance targets of their ESO plans are not transparent to their shareholders and the public. One way to camouflage the self-dealing and to make the ESO plans less transparent is to avoid the accounting costs of stock options. From an economic point of view, stock options

[16] At least up to a certain point.

constitute economic costs to the issuing companies that should be expensed. The cost of a stock option is the amount an outside investor would pay for the option at the date of grant, assuming that he shows exercise and forfeiture patterns that are identical to those of inside employees. In practice, there used to be no legal requirement for the accounting of stock option plans, and many firms were reluctant to expense the costs of ESO programs in their accounts. Accounting Principles Board (APB) Opinion 25, for example, ruled that firms that have set the strike price of their options equal to the stock price at the date of grant, did not have to expense the costs of their option programs at all. Instead, they were asked to disclose an estimate of the value of the ESO program in a footnote. Financial Accounting Standard (FAS) 123, issued in 1995, recommended that firms treat stock option programs as an accounting expense and advised them to use the "fair market value" of options as an estimate for the cost of an ESO plan. However, as FAS 123 provided firms with the choice to continue reporting according to the older APB 25, only a number of firms actually adopted this economically correct FAS approach (see Hall and Murphy, 2003).[17]

Several authors emphasize the economic importance of expensing stock options. Guay et al. (2003), for example, argue that "... accounting should reflect the true costs of doing business, and labor acquired through ESO grants is a real economic cost that firms should deduct from earnings as an expense."[18] Moreover, they expose that accounting for ESOs leads to a more efficient functioning of the economic system. Interestingly, Guay et al. also link stock option accounting and corporate governance hypothesizing that better governed firms would be more likely to expense stock option.[19] We can therefore conclude that well governed firms should expense the costs of their ESO programs to reflect their true costs of doing business. However, when managers have significant power due to weak governance structures, firms will rather prefer not to expense their stock options in order to camouflage the true costs of their ESO plans and to avoid public outrage.

Executives likewise desire stock option plans that are very broad-based and only vaguely

[17] From 2005 onwards, firms are required to expense the costs of stock options under IFRS 2 and US-GAAP.

[18] See Guay et al. (2003), p. 409.

[19] Empirical evidence by Dechow et al. (1996) suggests that managers from firms that were lobbying against the FASB drafts to expense the costs of options received both a higher total compensation and a higher fraction of compensation in options.

defined. Kato et al. (2005), for example, document that large option grants are associated with opportunistic managerial behavior. Agency theory provides a rationale why it makes sense to link the compensation of top-managers via stock options to company performance. It is, however, less clear why managers at *lower* levels in a firm should also participate in costly stock option programs. On an individual basis, lower-level employees usually have a significantly smaller impact on firm performance compared to top-managers, and it is well known that stock prices are much less informative about the actions takes by these individuals at lower levels in an organization. Hall and Murphy (2003) therefore argue that "... it seems implausible that stock options provide meaningful incentives to lower-level employees".[20] Using empirical data, Oyer and Schaefer (2005) actually find that stock options for middle-level managers are a very inefficient way of providing incentives.[21] We broad-based and vaguely defined option plans help top managers to camouflage their own option grants, we hypothesize that more powerful managers prefer such types of stock option plans.[22]

Finally, in the interest of a clear-cut evaluation of a firm's compensation schemes by investors, shareholders and the public, firms should follow a *transparent* communication strategy with respect to their adopted ESO programs (full transparency in the proxy statements). Disclosures should include information on exercise prices, on the number of options granted and held per director, on vesting conditions or on dilution effects. Information of this type allows both shareholders and investors to critically assess the compensation schemes of firms, their mechanics and incentive effects. As documented in Bebchuk and Fried (2003), powerful managers would on the contrary rather prefer less transparent pay practices that camouflage the scope and dilution effects of their ESO plans.

Our elaborations so far show that the *precise form* (rather than the pure existence) of

[20] Hall and Murphy (2003), p. 58. Alternative measures of performance such as divisional profits therefore provide much more efficient ways to boost incentives at these lower grades (see Bushman et al., 1995 and Ittner et al., 1997).

[21] They show that for the additional risk imposed on them, very high risk premia need to be paid to get an increase in effort.

[22] Note that we do not argue that broad-based option plans are generally bad. Employee stock option might be very useful in certain industry sectors. We rather argue that broad-based plans are more favorable as they help camouflaging. See Oyer and Schaefer (2005), Zhang (2002) or Bergman and Jenter (2006) for arguments why firms might use broad-based ESO plans.

ESO contracts matters if options are used to motivate managers in an appropriate way. The above recommendations provide benchmarks that enable us to investigate to what extent the observed features of the stock option plans in our data set are consistent the desires by powerful managers. In Subsection 4.2 we show how we operationalize these benchmarks.

Based on the literature that studied the relationship between governance structures and executive compensation and based on the managerial power hypothesis, we can formulate the hypothesis that we want to test empirically:

$$ESO\ Program\ Design = f(Corporate\ Governance\ Variables,\ Control\ Variables) \quad (1)$$

i.e. we want to test whether the design of stock option programs and governance structures are related. Our hypothesis is that firms with weaker corporate governance structures have stock option programs that are more favorable to their executives. Under this hypothesis, managers behave opportunistically by designing option programs that are desired by them if governance structures are ineffective and weak.

4 Data Sets and Methodology

4.1 Data Sets

Our empirical analysis is based on the combination of three data sets. The first data set consists of detailed information on ESO program characteristics of Euro Stoxx 50, Stoxx 50, and DAX 30 companies. It includes information on five core variables of the ESO programs: relative and absolute performance targets, accounting treatments, participation structures, and transparency of the respective programs. The program information is based on a survey that was conducted by Union Investment, the third largest mutual fund manager in Germany. We have ESO data on all firms that had an executive stock option with options granted in 2003. Comparable with CalPERS in the U.S., Union Investment is a very active institutional investor with significant stakes in all large European corporations. We are therefore very confident that the information gathered by Union Investment is very reliable and correct. Being one of the largest fund managers in Germany, Union

Investment was able to exercise considerable power over the companies in the data set such that they reported the information that was required. We cross-checked the survey answers with publicly available data (e.g. from 20-F filings).

The second data set includes detailed information on the corporate governance structures of Euro Stoxx 50, Stoxx 50, and DAX 30 firms. It contains information on various ownership variables, on board variables (e.g. structure, size, fraction of outsiders, mandates of the chairmen) as well as on legal variables. The information is based on hand-collected data from 20-F filings and annual proxy statements. A third data set comprises information on control variables like Tobin's Q or leverage. The source of data for the latter variables is Datastream. The year of observation is 2003 (the year in which the examined ESO plans were granted).

Our combined initial data set consists of 89 firms. Seven firms were dropped because they abandoned or stopped their stock option programs in 2003. Even though the sample size of our study is limited, we believe that the uniqueness of our data set provides interesting and useful results on the link between governance structures and the ESO plan design.

4.2 Measurement of Variables

4.2.1 ESO Design Data

For each company j and for each of the five ESO design features in our data set, $i = 1, ..., 5$, we construct a subscores that values the arrangement of the respective design component. The subscore of program feature i of company j is denoted as S_{ij}. We evaluate a company's entire ESO program by constructing a subscore for each of the five program arrangements. To evaluate whether a firm's stock option program feature is desired by its executives, we use the economic benchmarks on the ESO design that were discussed above and the implications derived from the managerial power hypothesis. The better a subscore, i.e. the smaller the number of a subscore, the less favorable is a certain design feature to a firm's managers. Having evaluated each of the five program features, we construct an overall *ESO Design Score* S_j by aggregating the five subscores into an overall score (see below). A very large number of this overall score suggests that the design of a certain

ESO plan is very favorable to the firm's executives. The different cut-off points within the five subscores were defined and applied to the data by Union Investment. We only have the categorized ESO data available.

Relative Performance Target S_{1j} is a variable that measures to what extent the vesting of the options in the ESO program of firm j depends on the meeting of specific relative performance targets. It takes the value $S_{1j} = 1$ or 2 if the relative performance target is an industry specific benchmark (like the average performance of major competitors), $S_{1j} = 3$ or 4 if it is a standard market index (e.g. the Euro Stoxx 50), and $G_{1j} = 5$ if no benchmark exists at all.[23] If a non-standard benchmark exists, the grade depends on an individual evaluation. *Absolute Performance Target* S_{2j} is a variable that measures the absolute stock return that is required before options become exercisable. It takes the value $S_{2j} = 1$ if the absolute performance target is larger than 8% p.a., $S_{2j} = 2$ if it is between 6% and 8% p.a., $S_{2j} = 3$ if it is between 4% and 6% p.a., $S_{2j} = 4$ if it is between 2% and 4% p.a., and $S_{2j} = 5$ if it is smaller than 2% p.a. By constructing the absolute performance target, the moneyness of the options at the grant date was taken into account. In the robustness section, we also performed our empirical analysis based on a *ESO Design Score* that did not the *Absolute Performance Target* S_{2j}. *Accounting* reflects to what extent firms expense the economic costs of their stock option programs. The variable takes the value $S_{3j} = 1$ if a fair value accounting approach is used by firm j (like IFRS 2 or SFAS 123), $S_{3j} = 2$ if the intrinsic value is expensed, $G_{3j} = 3$ or 4 if the APB 25 methodology is used, and $S_{3j} = 5$ if the stock option program is dilutive (no disclosure or expense at all). *Participation Structure* G_{4j} depicts the broadness of a firm's stock option plan. It takes the value $S_{4j} = 1$ if the program is well defined and of small size, $S_{5j} = 2$ if it is of medium size, and $S_{5j} = 3$ if it is very vaguely defined and very broad-based. *Transparency* S_{5j} reflects the transparency of the ESO plan of firm j to the public. It takes the value $S_{5j} = 1$ if the program is very transparent to shareholders and investors, $S_{5j} = 2$ if it is only partly transparent, and $S_{5j} = 3$ if it severely lacks transparency (no information on the number of granted options, no data on dilution effects, etc.).

[23] Whether a 1 or 2 (3 or 4) was assigned by Union Investment depends on the precise construction and the institutional design of the respective program feature. The same applies for the following subscores if more than one score value per category is stated.

Having graded each of the five program features, we evaluate the *overall* design of the stock option program of firm j by aggregating the values of the subscores into a firm-specific overall *ESO Design Score* (abbreviated S_j). The construction of this score is straightforward and follows the methodology employed in Gompers et al. (2003), La Porta et al. (1998) or Djankov et al. (2006): for each firm we add the values of the subscores into an overall score of the respective ESO program. The *ESO Design Score* for a certain company j is therefore defined as $S_j = \sum_{i=1}^{5} S_{ij}$, with S_j ranging between 5 and 21.[24] While this score is very simple by nature, it has the advantage of being transparent and easily reproducible. Note that a very large number of the score suggests that the design of a certain ESO plan is very favorable to the top managers.

4.2.2 Corporate Governance Data

We use measures from three different areas to capture managerial power and the corporate governance structures of firms: (1) ownership variables, (2) board variables, and (3) legal variables. Throughout the paper, we follow the literature and assume that when governance structures are weak, managers have substantial power over their pay. We employ four measures for the ownership structure of a firm. To reflect the exposure of a corporation to the U.S. capital market, we use a binary variable that takes the value 1 if a corporation is listed on the New York Stock Exchange, and 0 otherwise. Based on the findings presented in Section 2 (e.g. the study by Hartzell and Starks, 2003), we believe that ownership structures significantly affect the design of stock option programs. Following, for example, Mehran (1995), we calculate the percentage of equity that is held by outside blockholders as a measure of ownership concentration.[25] We therefore add the percentages of equity owned by individual investors, institutional investors, corporations, families or governments that hold more than 5% of the common stock of a firm. Government ownership is measured by a binary variable that takes the value 1 if the state government or a

[24] We are aware that the fact that two subscores range between 1 and 3 only (while the others range between 1 and 5) implies an implicit weighting of the subscores. However, we believe that this weighting is appropriate from an economic point of view. We believe that both the participation structures and the transparencies of the ESO programs are relatively less important for a testing of the managerial power hypothesis compared to the remaining three design features. Nevertheless, we tested in the robustness section whether our results are sensitive to this kind of weighting and found that this is not the case (see Subsection 5.4).

[25] If equity holdings and voting rights differ, we use a blockholder's voting rights.

government-owned institution holds a stake larger than 5% in the firm, and 0 otherwise. Finally, we capture the effects of family ownership in a firm by a variable that takes the value 1 if a closed family owns more than 5% in a given firm, an 0 otherwise.

We employ a wide set of measures for the structure and composition of a firm's board of directors. To take into account the heterogeneity in European board systems, we use a dummy variable that takes the value 1 if a firm has a unitarian one-tier system with executive and non-executive directors on the same board (like in Spain or in the United Kingdom). Similarly, this dummy takes the value 0 if a corporation is governed by a two-tier system consisting of a supervisory board on the one hand and an executive board on the other hand (like in Germany or in the Netherlands).

Lipton and Lorsch (1992) and Jensen (1993), among others, argue that larger boards of directors are less effective as monitors than smaller boards. Supporting this argument, recent empirical evidence suggests that small boards of directors perform better monitoring and are associated with better decisions and superior firm performance (see, e.g., Yermack, 1996, Eisenberg et al., 1998 and Hermalin and Weisbach, 2003). We therefore also study the size of a firm's board and its association with the ESO design. We measure board size as the total number of non-executive directors on the board (one-tier system) or supervisory board (two-tier system). Recent discussions on corporate governance schemes in Europe stress the importance of independent outside directors for the functioning of an effective governance in firms. In this vein, several studies show that firms with a higher fraction of outsiders make better decisions on issues like executive compensation, CEO turnover or corporate acquisition. (see, e.g. Core et al., 1999, Borokhovich et al., 1996 or Weisbach, 1988). To account for effects due to independent outside directors, we use a variable that is defined as the ratio of independent outside directors to the total number of directors. We define outside directors as members of the board that are neither executives, retired executives, former executives, employees nor union activists.

Core et al. (1999) argue that outside directors may become less effective as they serve on 'too many' boards. Following this conjecture and following other researchers in the field, we ascertain the number of companies where the chairman is also serving on the board. We also try to account for the effects of employee representation on the board by using a dummy variable that takes the value 1 if employees are represented on the board of

directors or supervisory board. Following Ryan and Wiggins (2004), we use CEO tenure as a further measure of managerial entrenchment and managerial power. We therefore count the number of years the CEO has been serving on the board of directors of the firm since his initial appointment.

A third set of corporate governance variables tries to capture differences in creditor rights (how strong bondholders and banks are protected) and shareholder protection against managerial expropriation. To measure creditor rights, we employ the data from La Porta et al. (1998). They use an index that is the result of an aggregation of various different creditor rights and that ranges between zero and four. A higher number of the index is associated with stronger creditor rights in a certain country. To measure shareholder protection against expropriation by corporate insiders, we use the anti self-dealing index developed in Djankov et al. (2006). A higher number of the index is associated with stronger protection against self-dealing in a certain country.

Table 1 summarizes the set of governance variables we use in our subsequent analysis.

Control variables we use are firm size, leverage, growth opportunities, business risk, and past stock returns. The proxy for firm size is the log of the book value of total assets. Leverage is measured as the ratio of total debt to total assets. Consistent with the literature, our proxy for growth opportunities is Tobin's Q. Tobin's Q is the market value of a firm's securities divided by the replacement costs of its tangible assets. We use the Chung and Pruitt (1994) measure, i.e. the market value of equity, long-term debt, short-term debt, and preferred stock divided by total assets. Following Mehran (1995), we measure business risk by the standard deviation of the percentage change of operating income (sales minus total operating expenses). The latter is measured with annual data ranging from 1998-2003. Stock Return is the firms' average annual stock market return for over the past five years (in percent). We control for industry fixed effects using dummies for the sectors energy, retail, manufacturing, financial services, telecommunications, and 'other industries'.

4.3 Empirical Strategy

Our hypothesis is that firms with weak governance structures have stock option plans that are designed in a way that is desired by managers. We use ordered response models to test this hypothesis. The ordered response is a discrete ordered outcome and given by our *ESO Design Score* S_j. Ordered response models are used to exploit the ordinal and ordered character of the score data. The fact that a stock option plan with an *ESO Design Score* of 15 is more favorable to executives than a plan with an *ESO Design Score* of 14 conveys valuable information that we want to make use of.[26] A linear regression assumes that the score categories are equally spaced and treats the difference between, say, 13 and 12 identically to the difference between, say, 12 and 11. However, the score realizations in our set-up provide only an ordinal ranking without cardinal saying (see Borooah, 2002). For comparison and to check robustness, we also run linear regressions. We use truncated regression models to account for the upper and lower limits of our *ESO Design Score*. Using a linear model is rather unproblematic, given that our ordered response can vary between 5 and 21. In all regression, we use the corporate governance variables (which are supposed to capture managerial power) as well as the firm controls as independent variables.

Empirical results on corporate governance can generally be interpreted as either equilibrium or our-of equilibrium phenomena (see Hermalin and Weisbach, 2003). Given that increasing empirical evidence suggests that executive compensation is better described as an out-of-equilibrium phenomenon, we assume in the following analysis that compensation practices rather follow this second view (see, e.g, Ryan and Wiggins, 2004 or Dittmann and Maug, 2006). More specifically, we follow the related literature in the field and assume that corporate governance structures are exogenous and set *before* decisions about the design of the stock option plans are made (see, e.g. Ryan and Wiggins, 2004 or Muslu, 2005). We believe that this assumption is consistent with the actual pay-setting process that is, for example, described in Murphy (1999). In such an out-of-equilibrium environment, managerial power and the stock option design can be related in a causal way that is consistent with managerial self-dealing.

[26] As discussed in Borooah (2002), not treating a variable as ordered, when in fact it is ordered, can lead to a loss in efficiency.

From an equilibrium perspective, corporate governance structures (like ownership concentration or board outsiders) as well as the design of managerial compensation arise simultaneously and endogenously, and depend on firm and/or manager characteristics only. From such a perspective, one should not expect any causal relationship between governance mechanisms and the design of executive stock option plans. In this view, both elements are set optimally to maximize shareholder value. Moreover, both are determined by factors such as unobserved managerial power or the firms operating or informational environment. This endogeneity could then potentially bias obtained regression results. We believe that potential endogeneity is not a big concern in our study as the predicted relationship in such a situation would be the same. Unobserved managerial power, for example, would affect both corporate governance structures and the design of the ESO plans in the same direction. Both would be more favorable to the manager. Unobserved heterogeneity should hence be not much of an issue for our analysis. Potential concerns could further arise because of causality running in the reverse direction, i.e. from the ESO design to the corporate governance structures of the firms. While reverse causality is generally a serious issue in empirical corporate governance studies, we believe that causality from option design to governance structures is not a plausible story in our set-up.

We nevertheless have the alternative equilibrium perspective in mind and try to be careful with an interpretation our results and with attempts to infer causalities out of our findings. The observation that firms with weak corporate governance structures have stock option program that are desired by managers could therefore have two theoretical explanations: (i) there is no need for high-powered stock option programs *and* strong governance schemes (equilibrium view) or, alternatively, (ii) managers exploit weak governance structures and missing monitoring devices for self-dealing with favorable stock option plans (out-of-equilibrium view, which is consistent with our hypothesis). As a consequence of these methodological issues, we rather concentrate on studying whether empirical regularities between governance structures and the design of option programs exist in our data set and hesitate to draw causal conclusions from our results.

5 Empirical Results

5.1 Sample Characteristics

Summary statistics for a set of sample firm characteristics are presented in Table 2. The year of observation is 2003. The data was obtained from Datastream. Market capitalization is the market value of equity at the end of the year. The mean (median) market capitalization is approximately 33.8 billion Euro (28.3 billion Euro). The average value of the firms' sales is about 34.8 billion Euro (median 29.0 billion Euro), with a maximum of 141.3 billion Euro. Sales represents gross sales less discounts for industrial firms, and total operating revenue for financial firms. The mean (median) value of the sample firms' total assets is 180.5 billion Euro (53.1 billion Euro). Leverage is measured as the ratio of total debt to total assets. The mean (median) leverage is 0.2588 (0.2618), and the mean (median) value of Tobin's Q is 1.1207 (0.7802). Firms generated positive cash flows on average, with a mean (median) value of EBITDA equal to approximately 5.8 billion Euro (5.0 billion Euro), and a minimum (maximum) of -444 million Euro (22,6 billion Euro). EBITDA is defined as earnings before interest expenses, income taxes and depreciation. Business Risk is measured as defined above and based on annual data from 1998-2003. The mean (median) value of our business risk measure is 181.86 (52.98). The mean (median) stock price performance over the five year horizon was about 3.78% (2.62%) p.a. All currencies were transferred into Euro on the basis of year-end exchange rates.

5.2 Governance Structures and Stock Option Design: Descriptive Results

5.2.1 Descriptive Statistics on the ESO Design

Table 3 gives summary statistics for the *ESO Design Score* S_j and the five subscores. Recall that S_j is the sum of the five subscores and that the score has a possible range from 5 to 21. Panel A shows that the mean (median) value of the score is 14.38 (14.00). The company with the option program that is least favorable to executives has a score value of 8, which is only slightly above the best possible value. Panel A also shows that the highest *ESO Design Score* in our data set is 21. Panel B documents that the sample companies

show a very large variation in the design of their executive stock option programs. If we define a stock option program as being "not favorable to executives" if S_j is low ($S_j \leq 11$) and as "favorable to executives" if it is very high ($S_j > 15$), than only about 27% of the programs can be considered as being "not favorable". But on the other hand, around 44% of the programs have to be regarded as being non-satisfactory ("favorable") as their program features are designed in a way that is desired by the firms' top managers. Panel C of Table 3 gives summary statistics for the five subscores. Recall that the subscores *Relative Performance Target*, *Absolute Performance Target* and *Accounting* range from 1 to 5, while *Participation Structure* and *Transparency* range from 1 to 3 only. Interestingly, Panel C documents that the absolute performance targets of firms are much less ambitious than their relative ones (mean values of 4.46 and 3.48, respectively). The median firm discloses the costs of its ESO programs in the footnotes only. More information on the exact distribution of the values of the subscores are provided in Panel D. It documents a large cross-sectional variation in the use of relative performance targets: while some firms tie option exercises to the outperformance of comparable firms in the same industry, others completely refrain from implementing a relative performance evaluation. Astonishingly, 68.29% of all firms have absolute performance targets that require annual stock price increases of below 2%. Panel D also shows that only 22 companies (26.83%) use a fair value accounting approach to expense the costs of their stock options, while 26 firms (31.71%) do not disclose or expense ESO costs at all.

Table 4 shows summarized examples of the ESO design features for six selected companies (including the values for the five subscores as well as the value of overall *ESO Design Score* S_j). To get an idea of the heterogeneity of the stock option design across different industries, Table 5 provides summary statistics for the *ESO Design Scores* and for the five subscores for the main industry sectors in our sample (energy, retail, manufacturing, financial services and telecommunications).

Spearman correlation coefficients between the five subscores as well as the significance level of each correlation coefficient (in parentheses) and the number of observations used in calculating the coefficient are presented in Table 6. An important observation is that none of the subscores are negatively correlated. A negative correlation would have been problematic for the construction and validity of our overall *ESO Design Score* as that

would imply that option plans are systematically favorable to managers in one design domain while being unfavorable to them in another one. Among other things, the table shows that firms with low relative performance targets generally have unfocused ESO programs. Transparency is significantly associated with better relative performance targets, better accounting practices and more focused participation structures. The table also shows that firms with high relative benchmarks typically do not seem to simultaneously employ high absolute performance targets.

5.2.2 Descriptive Statistics on Corporate Governance Structures

Descriptive statistics of our corporate governance variables are presented in Table 7. About 61% of the companies in the sample have either common shares or American Depository Receipts (ADR) that are traded on the New York Stock Exchange. Ownership concentration plays an important role in our data set. Ownership structures are much more concentrated compared to the U.S., with 18.80% of the equity being held by investors that own more than 5% of the respective firms' capital (median 12.20%). Not surprisingly, national governments still play a significant role in our sample corporations, with 14.63% of the firms having the state or a government-dependent institution as a significant shareholder owning more than 5%. Similarly, about 13.75% of the firms have a family that holds more than 5% as an owner.

One-tier and two-tier board systems are about equally distributed with approximately 48% of the firms having a one-tier system. The average board consists of 13.63 directors, a figure that is close to the one reported in Core et al. (1999). Board size, however, varies widely with the largest board consisting of 22 directors.[27] On average, boards have about 69% outside directors, ranging from only 25% to 100%. By and large, our figures on board independence reflect recent attempts in Europe to strengthen governance structures by following suggestions made by various national governance committees to increase the number of independent directors. On average, chairmen serve on 3.59 additional boards of directors/supervisory boards. Again, the numbers vary widely across the firms (between 0 and 9 additional supervisory mandates). Employees are represented on boards of about 37% of our sample firms, a number that is driven mainly (but not only) by German firms

[27] One firm has only executive board members and hence a board size of 0.

as a result of the system of codetermination in Germany. Our measure of managerial entrenchment, CEO tenure, varies widely across our sample, and the median value of the variable is 6 years (range from 0 to 30 years).

The mean (median) value for our measure of creditor rights is about 2.20 (2.50) and respective values for the anti self-dealing variable 0.4316 (0.3700).

5.3 Governance Structures and Stock Option Design: Main Regression Results

The association between corporate governance structures and the stock option design is examined using cross-sectional ordered probit models (see Section 4). The regressions include the *ESO Design Score* S_j as the ordered response and corporate governance as well as control variables as regressors. Regression results are presented in Table 8. t-statistics appear below each estimate in parentheses, based upon heteroscedasticity robust standard errors. The number of observations (Obs.) vary slightly due to data missings for certain variables and certain firms.

The regression results show that firms that are listed on the New York Stock Exchange employ stock option programs that are on average designed in a way that is less desired by managers. Thus, European companies that are exposed to the U.S. capital market seem to provide less self-dealing opportunities to their managers (when option programs are considered). This result is possibly due, at least in part, to the disclosure requirements that result from listings on the New York Stock Exchange.

Furthermore, we find a negative and significant relation between our measure of ownership concentration and S_j. That is, firms with a higher fraction of blockholders have ESO plans that are less favorable to their executives. This finding supports the view that controlling shareholders are important in monitoring managerial compensation and behavior. They seem to put pressure on the management in a way that prevents self-dealing with favorably designed ESO programs. Our evidence on the role of blockholders in exercising corporate governance complements evidence of other studies in the field. Shleifer and Vishny (1997), Franks and Mayer (2001), Shivdasani (1993) and others also document that large share-

holders play an active role in corporate governance.[28] With respect to the more specific issue of executive compensation, our finding is in line with results showing that ownership structures and executive compensation are related in the way that better governance structures are associated with higher pay-performance sensitivities and lower managerial compensation (see, e.g., Hartzell and Starks, 2003, Lambert et al. (1993) or Core et al., 1999). The coefficients for government and family ownership and board structure turned out to be insignificant, suggesting that family and state ownership and the general board structure (one-tier vs. two-tier) are not systematically related with the executive stock option design.

Consistent with the managerial power view, we find a significant association between the fraction of outsiders on the board and the design of ESO programs. More specifically, our evidence suggests that a higher percentage of outsiders is generally associated with less favorable ESO programs. This result is similar to the conclusions in Core et al. (1999), Chance et al. (2000), Bertrand and Mullainathan (2001), and related papers that document the ability of executives to influence compensation packages through their ability to influence non-independent inside directors. Consequently, we have strong evidence suggesting that board composition of firms is not only of symbolic but rather of economic importance.

If board sizes increase, we typically expect that boards have greater coordination problems and hence perform monitoring less effectively. In the case of ESO programs, this would suggest that executives have more power and exploit these circumstances by influencing their stock option pay in the way that incentive effects and the overall ESO design become less ambitious. Contrary to this conjecture, we find that firms with larger boards *more often* have less favorable stock option programs.

Further support for the view that governance structures and managerial self-dealing are related is provided by the coefficient of our creditor rights variable. We find that firms with greater creditor rights employ ESO programs that are more consistent with economic recommendations. Strong creditor rights therefore seem to limit the opportunistic behavior of managers regarding the design of their option programs.

[28] For further evidence, see Becht et al. (2003) and Hermalin and Weisbach (2003).

The estimation results moreover show that the design of a firm's stock option program is cross-sectionally related to a company's growth opportunities (as proxied by Tobin's Q), its business risk (as proxied by the standard deviation of the percentage change of operating income), and its past stock market return. Firms with higher growth opportunities have programs that are more favorable to executives. As growth opportunities are usually used as a proxy for monitoring difficulties, this result suggests that managers in firms that are difficult to monitor have more opportunities to design their option pay in a desired way. An alternative interpretation of our finding is that high volatility companies with many growth opportunities need to offer broad-based ESO programs that are very favorable to attract and retain high quality managerial talent. Core et al. (1999) provide a similar argument to interpret their finding that firms with higher investment opportunities pay higher CEO compensation. The coefficient of Stock Return is negative and significant showing that firms with a high annual stock market return over the past five years generally have ESO plans that are appealing to managers. The coefficients on firm size (proxied by the log of total assets) and leverage turned out to be statistically insignificant. In terms of overall performance of our econometric models, our regression results indicate that corporate governance variables together with our controls have significant power in explaining the observed variation in the design of ESO plans.

Overall, our results provide evidence on the view that when managers have significant power due to poor governance schemes, stock option programs are generally designed in a way that is more favorable to managers. We find that a firm's *ownership structure* is related to the ESO design in a way that is consistent with the managerial power view. The significant signs of the variables that capture the influence of blockholders and the NYSE listing confirm the view that when governance systems are weak, ESO programs are designed and implemented in way that favors executives. Further support for this perspective is provided by the finding that weak creditor rights are correlated with favorable stock option plans. Our results further suggest that the *board composition* is also related to the ESO design in a way that supports the arguments of the managerial power view. Our findings hence seem to suggest that the main variable driving our results is the power and insulation of the top management. In the subsequent section we provide various robustness checks to show that our results are robust to different specifications of our ESO design variable and to different regression models. We also address the question

of how the design of the stock option plans relates to the size of the CEO's compensation and in particular to the volume of his option packages.

5.4 Robustness Checks

5.4.1 Level of Executive Compensations

As a robustness check, we also look at the *value* of managerial option compensation (and at the volume of other compensation components). We thereby try to rule out the argument that option packages might be favorably designed from a managerial perspective, but at the same time only of small magnitude in terms of transferred option value. In the subsequent analysis, we focus on the compensation of the CEO as remuneration for chief executives is most frequently available. Also, CEOs are usually the most powerful managers in a firm and in the center of the managerial power hypothesis. Table 9 provides summary statistics on the compensation of the CEOs in our data set. All compensation data is hand-collected from annual reports as standardized data sets such as ExecuComp are not available for European firms.[29] The year of observation is 2003. CEO Cash Compensation is the sum of the fixed and variable cash compensation paid to a firm's CEO. The mean (median) value of cash remuneration to the chief executive in 2003 was 2,763,000 Euro (2,215,000 Euro). We have a total number of 77 observations on CEO cash compensation. CEO Option Compensation is the value of stock options granted to the firms' CEOs in 2003. Stock options were valued using the Black-Scholes formula. If the exercise price of the options was not explicitly reported, we used the stock price at the end of the year. If the time to maturity was not reported, we used the mean value of the time to maturity of the options granted to CEOs were we had data on the maturities (the mean value was seven years). The packages of granted CEO option had a mean value of 3,207,000 Euro, which is a very significant number for European compensation standards. Data on stock option compensation was available for 59 out of 82 firms. CEO Stock Compensation is the value of shares granted to CEOs in 2003. It is calculated by multiplying the number of granted shares by a firm's stock price at the end of the year. As many firms did not grant any shares to their CEOs, the mean value of the granted shares was only

[29] To what extent firms report details on CEO compensation mainly depends on national regulation and on whether or not a firm is listed in the U.S.

757,000 Euro. CEO Total Compensation is the sum of CEO Cash Compensation, CEO Option Compensation, and CEO Stock Compensation, calculated for those firms where we had information on the value of the option packages.

Table 10 shows estimates of the relationship between the level of CEO compensation (cash compensation, option compensation and total compensation) and the *ESO Design Score* S_j for the 59 firms where we have data on the volume of the option packages. We estimate linear regressions (OLS) as well as Heckman selection models (Heckit) to account for the effect that option compensation data is available only for subset of 59 firms.[30] Dependent variables are the logs of CEO Cash Compensation, CEO Option Compensation, and CEO Total Compensation, respectively. We also employ a dependent variable that captures CEO Excess Compensation. CEO Excess Compensation is defined as the residual of a compensation regression where the dependent variable is CEO Total Compensation and where the independent variables are economic determinants of CEO compensation (tenure, firm size, and past firm performance). The residual of this equation is often used in the executive compensation literature as a measure of excess compensation (see, e.g., Yermack (2006).

The regression results show a positive and significant relationship between the *ESO Design Score* S_j and the volume of the option packages (CEO Option Compensation). This relation suggests that more favorable option plans usually coincide with larger option packages and it further strengthens the results of the previous sections on the managerial power hypothesis. The *ESO Design Score* is also positively related to CEO Total Compensation and CEO Excess Compensation, even though this relationship is not as strong as the one in option compensation regression.

5.4.2 Different ESO Design Score Constructions

(i) Equally-Weighted ESO Design Score

To account for the possibility that the implicit but deliberate under-weighting of the subscores for *Participation Structure* and *Transparency* has an impact on our results, we

[30] We use legal origin and a dummy for the NYSE listing as variables in the selection equation.

also performed regressions where all five scores where measured on a one to five scale.[31] The resulting new design score is hence an equally-weighted score and is denoted *EW ESO Design Score* S_j^{ew}, with a possible range from 5 to 25. We again employed ordered response models using the same set of explanatory variables as in the previous sections. Table 11 summarizes the regression results. The estimates show that our regression results and conclusions from the previous section do not change and are hence not sensitive to the fact that two subscores are measured on a 1 to 3 scale only (with the exception of the NYSE variable).

(ii) Modified ESO Design Score

We argued that an evaluation of the presence and design of *absolute* performance targets might not be justified from a pure agency theoretic point of view. In this subsection, we therefore provide regression results that were obtained when we excluded the absolute performance target from our calculation of the overall *ESO Design Score* S_j. The resulting new *Modified ESO Design Score* is hence calculated on the basis of the following four subscores: *Relative Performance Target*, *Accounting*, *Participation Structure*, and *Transparency*. The new *Modified ESO Design Score* S_j^{mod} ranges between 4 and 16. Regression results (ordered probit) using this modified design score are presented in Table 12.

Overall, the estimates show that our results are robust to the exclusion of a subscore that evaluates the absolute performance target of a certain ESO plan: the regression results again document that firms listed on the New York Stock Exchange have stock option programs that are designed in a way that is less favorable to executives. Moreover, we still find a negative and significant relation between our measure of ownership concentration and the *ESO Design Score* S_j^{mod}. We find further evidence suggesting that the fraction of outsiders on the board is associated with the ESO plan design. Our conclusions from the previous subsections are therefore robust to the inclusion of a score for an absolute performance target.

(iii) Principal Component Analysis Based ESO Design Score

In further robustness checks, we also calculated an *ESO Design Score* based on a principal

[31] Recall that each of these two subscores ranges from 1 to 3 only, while the others range from 1 to 5. We therefore assigned the values 1, 3 and 5 instead of 1, 2 and 3 to the realizations of the variables *Participation Structure* and *Transparency*.

component analysis (S_j^{pca}). We therefore construct a score using the underlying principal components of the five subscores. The principal component approach explicitly incorporates the correlations between the subscores and combines them in a way that best explains the cross-sectional variance in the ESO data. It is therefore a technique that lets the data dictate the weights used in calculating the *ESO Design Score*. Even if we use this newly constructed score S_j^{pca}, we still find a significant relationship between corporate governance structures and the stock option design that is consistent with the managerial power view. More specifically, our results again suggest that firms with higher ownership concentration and firms with stronger creditor rights have option plans that are less favorable for managers. Moreover, our measure of board size is again negatively related to the *ESO Design Score*.

5.4.3 Different Regression Model

As a final robustness check, we estimate a linear regression model for comparison and to check robustness. Linear models are generally easier to interpret than ordered response models and the number of ordered responses for our score should be large enough for a linear regression model. To account for the upper and lower limits of our *ESO Design Score* S_j, we used a truncated model. The regression estimates can be found in Table 13 and show that our results are also robust to a change in the specification of our regression model.

6 Conclusion

Various features of existing stock option programs have been heavily criticized by shareholder activists and institutional investors. It is argued that the design of many stock option programs is an example of managerial self-dealing, and illustrates the inability of existing corporate governance mechanisms in monitoring executives. There is also increasing criticism by academic scholars which argue that both the escalation and the design of stock option compensation reflect managerial rent-seeking rather than optimal contracting (see Bebchuk and Fried, 2003, 2004 and Bebchuk et al., 2002). Based on these critical views, we investigated empirically whether there really exists an association between the

design of executive stock option programs and corporate governance structures. We tried to explain the observed variation in the design of ESO programs with differences in governance schemes. Simply put, we examined whether firms with weak corporate governance and powerful managers have stock option programs that are designed in a way that is favorable to executives.

To perform this task, data on European stock option programs provided a promising and unique environment. Compared to stock option plans in the U.S., European programs show much larger variation. They therefore provide a natural environment for an attempt to test the managerial power approach. We analyzed the association between the stock option design and corporate governance structures using detailed data on the option programs of corporations belonging to the the Euro Stoxx 50, the Stoxx 50, and the DAX 30. Our main results can be summarized as follows. We found that cross-sectionally, *ownership variables* are related to the ESO design in a way that is consistent with the managerial power view. When ownership concentration is low and the exposition to the U.S. capital market little, firms have implemented ESO programs that are desired by its executives. Further support for this view is provided by the finding that firms with weaker creditor rights more often have stock option plans that are consistent with the managerial power hypothesis. Our findings further suggest that *board structures* (fraction of insiders on the boards) are related to the stock option design in a way that supports the arguments and predictions of the self-dealing view: firms with few outsiders on average have programs that are more favorable to managers. Our results are robust to many different specifications of our main dependent variable and to different regression specifications. We further control for the volume of the CEO option packages and for the overall level of CEO compensation. Our estimations suggest that favorable ESO plans usually coincide with large option packages.

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Table 1: **Definition of Corporate Governance Variables**

This table summarizes and defines the corporate governance variables used in the empirical analysis.

Variable	Description
Ownership variables	
Listing NYSE	Binary variable that takes the value 1 if a corporation is listed on the New York Stock Exchange; and 0 otherwise.
Ownership concentration	Sum of the stockholdings of blockholders that own more than 5%.
Government ownership	Binary variable that equals 1 if the government or a government-owned institution holds more than 5%; and 0 otherwise.
Family ownership	Binary variable that equals 1 if a family holds more than 5% of the shares; and 0 otherwise.
Board variables	
Board structure	Binary variable that takes the value 1 if a corporation has a one-tier, unitarian board system; and 0 otherwise.
Board size	Total number of non-executive directors on the board (one-tier system) or supervisory board (two-tier system)
Outside directors	Percentage of outside directors on the board/supervisory board (defined as being neither a top executive, retired executive, former executive, employees nor a union activists).
Busy chairman	Number of companies where the chairman also serves on the board.
Employee part.	Binary variable that takes the value 1 if employees are represented on board of directors/supervisory board
Tenure CEO	Number of years the CEO has been serving on the board of the firm since his first appointment.
Legal variables	
Creditor rights	Creditor rights based on an index that aggregates different creditor rights (see La Porta et al., 1998)
Anti self-dealing	Index that measures legal protection of shareholders against expropriation by executives (see Djankov et al., 2006)

Table 2: **Summary Statistics of Firm Characteristics**

This table provides summary statistics on the firms that are included in our data set. The data was obtained from Datastream. Market capitalization is the market value of equity at the end of the year. Sales represents gross sales less discounts for industrial firms, and total operating revenue for financial firms. Total assets is the sum of total assets, long term receivables, investments, plant, equipment and other assets. Bank loans and security holdings are also included. Leverage is measured as the ratio of total debt to total assets. Tobin's Q is the market value of a firm's securities relative to the replacement costs of its tangible assets. We use the Chung and Pruitt (1994) measure, i.e. the market value of equity, long-term debt, short-term debt, and preferred stock divided by total assets. EBITDA is earnings before interest expenses, income taxes and depreciation. Business Risk is measured by the standard deviation of the percentage change of operating income (sales minus total operating expenses) and is measured with annual data from 1998-2003. Stock Return is the firms' average annual stock market return over the prior five years (in percent). The year of observation is 2003.

Firm characteristics

Variable	Mean	Median	Min.	Max.	Std.dev.
Market capitalization (million Euro)	33,810	28,301	3,536	136,478	27,537
Sales (million Euro)	34,829	28,991	1,514	141,343	27,900
Total Assets (million Euro)	180,511	53,126	2,453	896,487	250,108
Leverage	0.2588	0.2618	0.0051	0.5333	0.1419
Tobin's Q	1.1207	0.7802	0.0793	6.7721	1.0984
EBITDA (million Euro)	5,823	4,982	-444	22,645	4,690
Business Risk	181.86	52.98	4.39	2.709	408
Stock Return	3.7790	2.6237	-55.4347	87.7419	17.5508

Table 3: **ESO Design Score and Subscores: Summary Statistics**

This table presents summary statistics of the *ESO Design Score* that is used in our empirical analysis. The sample consists of 82 firms. The year of observation is 2003. For definitions, see Subsection 4.2.

Panel A:

ESO Design Score S_j: Summary Statitics

Mean	14.38	Median	14.00
Min	8.00	Max	21.00
Std.dev.	3.50	Obs.	82

Panel B:

ESO Design Score S_j: Distribution

Realization	Freq.	Percent	Cum.
$5 < S_j \leq 7$	0	0.0000	0.0000
$7 < S_j \leq 9$	5	0.0610	0.0610
$9 < S_j \leq 11$	17	0.2074	0.2683
$11 < S_j \leq 13$	14	0.1707	0.4390
$13 < S_j \leq 15$	10	0.1220	0.5610
$15 < S_j \leq 17$	17	0.2073	0.7683
$17 < S_j \leq 19$	14	0.1707	0.9390
$19 < S_j \leq 21$	5	0.0610	1.0000

Panel C:

Subscores: Summary Statistics

Subscore	Mean	Median	Std.dev	Min.	Max.
Relative Performance Target	3.48	4.00	1.48	1.00	5.00
Absolute Performance Target	4.46	5.00	0.84	1.00	5.00
Accounting	3.09	3.00	1.63	1.00	5.00
Participation Structure	1.66	2.00	0.71	1.00	3.00
Transparency	1.70	2.00	0.75	1.00	3.00

Panel D:

Subscores: Frequency of realizations

Subscore	1	2	3	4	5
Relative Performance Target	11	14	14	11	32
Percent	13.41	17.07	17.07	13.41	39.02
Absolute Performance Target	2	0	12	12	56
Percent	2.44	0.00	14.63	14.63	68.29
Accounting	22	13	9	12	26
Percent	26.83	15.85	10.98	14.63	31.71
Participation Structure	39	32	11	-	-
Percent	47.56	39.02	13.41	-	-
Transparency	39	29	14	-	-
Percent	47.56	35.37	17.07	-	-

Table 4: **Examples of ESO Program Design Features**

This table presents examples for the design features of the ESO programs of six selected companies (summaries only). It includes information on their relative performance targets, their absolute performance target, their accounting practices, their participation structures as well as on the transparency of their programs. The table also includes the values of the subscores and of the overall *ESO Design Score* S_j of company j.

Company	*Relative Performance Target*	S_{1j}	*Absolute Performance Target*	S_{2j}	*Accounting*	S_{3j}	*Participation Structure*	S_{4j}	*Transparency*	S_{5j}	S_j
Air Liquide	no target	5	no target	5	dilutive	5	senior executives and employees	2	partly transparent	2	19
Bayer	Euro Stoxx 50	3	4.6% p.a.	3	market-to-market	2	clearly defined but large	2	very transparent	1	11
Barclays	outperf. againts peer group of 11 banks	1	company specific	5	SFAS 123, expensed	1	executive directors	1	very transparent	1	9
DaimlerChrysler	no target	5	1.84% p.a.	5	SFAS 123 expensed	1	clearly defined but large	2	very transparent	1	14
Suez	Euro Stoxx Utility Index (1% p.a.)	1	3.7% p.a.	4	French GAAP, dilutive	5	chief executives, executives (2,069), medium, defined	2	partly transparent	2	14
Total	no target	5	no target	5	French GAAP, dilutive	5	top executives, officers and other employees (in 2003: 3,950)	2	partly transparent	2	19

Table 5: **ESO Design Scores for Different Industries**

This table provides summary statistics on the *ESO Design Score* as well as on the subscores for the main industry sectors in our sample (energy, retail, manufacturing, financial services and telecommunications). The table also includes the number of observations (Obs.) for the respective industries. The industry classification is based on the categorization by Datastream. The *ESO Design Score* has a possible range between 5 and 21, the subscores *Relative Performance Target*, *Absolute Performance Target*, and *Accounting* have a possible range from 1 to 5, and the subscores *Participation Structure* and *Transparency* a possible range from 1 to 3.

Industry Sector		*ESO Design Score*	*Relative Performance Target*	*Absolute Performance Target*	*Accounting*	*Participation Structure*	*Transparency*	Obs.
Energy	Mean	13.71	4.43	3.14	3.28	1.43	1.43	7
	Median	13.00	5.00	4.00	3.00	1.00	1.00	7
Retail	Mean	14.87	4.31	3.38	3.54	1.69	1.92	13
	Median	16.00	5.00	3.00	4.00	2.00	2.00	13
Manufacturing	Mean	14.50	4.30	4.00	2.83	1.63	1.75	24
	Median	15.00	4.50	5.00	2.00	2.00	2.00	24
Financial Services	Mean	13.77	4.54	3.08	2.92	1.61	1.61	26
	Median	14.00	5.00	3.00	2.50	2.00	1.00	26
Telecommunications	Mean	16.14	4.71	4.00	4.86	2.00	1.57	7
	Median	17.00	5.00	5.00	4.00	2.00	1.00	7

Table 6: **Correlation between ESO Design Subscores**

This table presents correlations between the subscores *Relative Performance Target*, *Absolute Performance Target*, *Accounting*, *Participation Structure*, and *Transparency*. It further includes the significance level of each correlation coefficient (in parentheses) as well as the number of observations used in calculating the correlation coefficient. * indicates significance at 10%; ** indicates significance at 5%; *** indicates significance at 1%.

	Relative Performance Target	*Absolute Performance Target*	*Accounting*	*Participation Structure*	*Transparency*
Relative Performance Target	1.0000				
	82				
Absolute Performance Target	0.0680	1.0000			
	(0.5438)				
	82	82			
Accounting	0.1652	0.1742	1.0000		
	(0.1379)	(0.1176)			
	82	82	82		
Participation Structure	0.4753	0.1223	0.1655	1.0000	
	(0.0000)***	(0.2736)	(0.1374)		
	82	82	82	82	
Transparency	0.3681	0.1666	0.3809	0.4439	1.0000
	(0.0017)**	(0.1346)	(0.0004)***	(0.0000)***	
	82	82	82	82	82

Table 7: **Descriptive Statistics of Corporate Governance Variables**

This table provides summary statistics of the corporate governance variables used in our empirical analysis. The corporate governance data was obtained from 20-F filings and from proxy statements. For a description of the variables, see Table 2. The year of observation is 2003 and the full sample consists of 82 firms.

Panel A: Ownership variables

Variable	Mean	Median	Min.	Max.	Std.dev.
Listing NYSE (0/1)	0.6098				
Ownership concentration	18.80	12.20	0.00	83.01	21.77
Government ownership (0/1)	0.1463				
Family ownership (0/1)	0.1375				

Panel B: Board variables

Variable	Mean	Median	Min.	Max.	Std.dev.
Board structure (0/1)	0.4756				
Board size	13.63	13.00	0.00	22.00	4.79
Outside directors	0.6867	0.7000	0.2500	1.0000	0.2113
Busy chairman	3.59	3.00	0.00	9.00	2.43
Employee part. (0/1)	0.3704				
Tenure CEO	6.89	6.00	0.00	30.00	5.53

Panel C: Legal variables

Variable	Mean	Median	Min.	Max.	Std.dev.
Creditor rights	2.1951	2.5000	0.00	4.00	1.3648
Anti self-dealing	0.4316	0.3700	0.2000	0.9500	0.2491

Table 8: **Relationship between ESO Design Score and Corporate Governance Variables: Ordered Probit Models**

This table shows estimates of ordered response models (ordered probit). The ordered response is the *ESO Design Score* S_j. Definitions of the explanatory governance variables are presented in Table 1. As controls, we use firm size, leverage, Tobin's Q, business risk, the past stock return, and industry dummies. t-statistics appear below each estimate in parentheses, based upon heteroscedasticity robust standard errors. * indicates significance at 10%; ** indicates significance at 5%; *** indicates significance at 1%.

ESO Design Score S_j	(1)	(2)	(3)	(4)	(5)
Listing NYSE			-0.5773**	-0.5728**	-0.5778**
			(-2.11)	(-2.02)	(-2.11)
Ownership concentration			-1.9557**	-2.5398**	-2.4049**
			(-2.19)	(-2.28)	(-2.52)
Government ownership			0.5527	0.5618	0.5630
			(1.50)	(1.51)	(1.53)
Board structure			0.5540	0.5829*	0.4754
			(1.55)	(1.64)	(1.11)
Board size			-0.1241***	-0.1229***	-0.1122**
			(-3.24)	(-3.18)	(-2.51)
Outside directors			-1.9557**	-1.8622**	-2.0814**
			(-2.19)	(-2.03)	(-2.08)
Busy chairman			-0.0960	-0.0890	-0.0976
			(-1.48)	(-1.31)	(-1.49)
Tenure CEO			0.0005	-0.0007	-0.0009
			(0.02)	(-0.04)	(-0.04)
Employee part.					-0.1959
					(-0.44)
Family ownership				0.1877	
				(0.30)	
Creditor rights		-0.6369***	-0.5279***	-0.5179***	-0.5394***
		(-5.56)	(-4.10)	(-4.06)	(-3.73)
Anti self-dealing		1.4577***	0.0209	-0.2325	-0.0839
		(2.61)	(0.02)	(-0.23)	(-0.08)
Size	0.4878	0.3499	0.2466	0.2642	0.2137
	(1.41)	(1.05)	(0.70)	(0.72)	(0.59)
Leverage	0.6953	0.6248	-0.2135	-0.2605	-0.3083
	(0.95)	(0.86)	(-0.26)	(-0.32)	(-0.39)
Tobin's Q	0.3428***	0.3918**	0.4878***	0.4909***	0.4803**
	(2.59)	(2.48)	(2.60)	(2.60)	(2.58)
Business Risk	0.0001	0.0004	0.0006**	0.0006**	0.0006**
	(0.43)	(1.55)	(2.26)	(2.48)	(2.16)
Stock Return	0.0050	-0.0099	-0.0180*	-0.0193*	-0.0185*
	(0.55)	(-1.04)	(-1.08)	(-1.90)	(-1.71)
Industry Dummies	YES	YES	YES	YES	YES
Obs.	82	80	78	77	78
Pseudo R^2	0.0288	0.1119	0.1501	0.1500	0.1498
Prob> χ^2	0.0244	0.0000	0.0000	0.0000	0.0000

Table 9: **Summary Statistics on CEO Compensation**

This table provides summary statistics on the compensation of the CEOs of the firms in our data set. The year of observation is 2003. CEO Cash Compensation is the sum of fixed and variable cash compensation paid to a firm's CEO. CEO Option Compensation is the value of stock options granted to a firm's CEOs in 2003. Stock options were valued using the Black-Scholes formula. If the exercise price of the options was not explicitly reported, we used the stock price at the end of the year. If the time to maturity was not reported, we used the mean value of the time to maturity of the options granted to CEOs were we had data on the maturities (the mean value was 7 years). CEO Stock Compensation is the value of shares granted to CEO in 2003. It is calculated by multiplying the number of granted shares by a firm's stock price at the end of the year. CEO Total Compensation is the sum of CEO Cash Compensation, CEO Option Compensation, and CEO Stock Compensation. In some cases, only the cash, option or stock compensation to the entire group of executive board members was reported. In such cases, we calculated the cash, option, and stock compensation of the CEO by dividing the group number by the number of members on the board and multiplied the resulting number by two (assuming a higher compensation for the CEO compared to ordinary executive board members). All values are in thousand Euro. The table reports means, medians, the 25 and 75% percentile as well as the standard deviation. We also report the number of observations (Obs.) that was available for the respective variables. The number of observations differ as a result of different degrees of data availability.

Compensation Component	**Mean**	**Median**	**25%**	**75%**	**Std.dev.**	**Obs.**
CEO Cash Compensation ('000 Euro)	2,763	2,215	1,695	3,100	1,702	77
CEO Option Compensation ('000 Euro)	3,207	1,914	628	4,004	3,057	59
CEO Stock Compensation ('000 Euro)	757	0	0	407	2,266	78
CEO Total Compensation ('000 Euro)	7,269	5,379	3,328	8,147	6,149	59

Table 10: **Relationship between ESO Design and Level of CEO Compensation**

This table shows estimates of the relationship between the level of CEO compensation (cash compensation, option compensation and total compensation) and the *ESO Design Score* S_j. We estimate linear regressions (OLS) as well as Heckman selection models (Heckit). Dependent variables are the logs of CEO Cash Compensation, CEO Option Compensation, and CEO Total Compensation, respectively. CEO Cash Compensation, CEO Option Compensation, and CEO Total Compensations are used as defined for Table 9. We also use CEO Excess Compensation as a dependent variable. CEO Excess Compensation is the residual of a compensation regression where the dependent variable is CEO Total Compensation and where the independent variables are economic determinants of CEO compensation (tenure, firm size, and past firm performance). The residual of this equation is often used as a measure of excess compensation (see, e.g. Yermack (2006). Apart from the *ESO Design Score* S_j, independent variables in the four main regression models are firm size (log of total assets), CEO tenure, and each firms' average annual stock market return over the years 1998-2003 (Stock Return). t-statistics appear below each estimate in parentheses, based upon heteroscedasticity robust standard errors. * indicates significance at 10%; ** indicates significance at 5%; *** indicates significance at 1%.

	CEO Cash Compensation			CEO Option Compensation			CEO Total Compensation			CEO Excess Compensation		
	OLS	OLS	Heckit	OLS	OLS	Heckit	OLS	OLS	Heckit	OLS	OLS	Heckit
ESO Design Score S_j	0.0039	0.0057	0.0098	0.0519**	0.0515**	0.0548**	0.0210*	0.0206	0.0230*	0.0197	0.0206	0.0230*
	(0.48)	(0.72)	(1.13)	(2.32)	(2.23)	(2.33)	(1.73)	(1.62)	(1.82)	(1.65)	(1.62)	(1.82)
Tenure CEO		-0.0075	-0.0028		0.0094	0.1585		-0.0026	0.0021		-0.0009	0.0039
		(-1.47)	(-0.55)		(0.65)	(0.90)		(-0.30)	(0.23)		(-0.10)	(0.41)
Size		0.0953	0.1188		0.0649	-0.0200		0.1573*	0.0956		-0.0170	-0.0787
		(1.47)	(1.64)		(0.32)	(0.09)		(1.75)	(0.82)		(-0.19)	(-0.67)
Stock Return		-0.0024*	-0.0001		-0.0013	0.0003		-0.0009	0.0003		-0.0007	0.0005
		(-1.69)	(-0.10)		(-0.43)	(0.07)		(-0.62)	(0.12)		(-0.52)	(0.17)
Intercept	6.3267***	5.6444***	5.3759***	5.5156***	4.9836***	5.6865***	6.4521***	5.3079***	5.8190***	-0.2819	-0.1609	0.3502
	(50.87)	(11.60)	(9.81)	(16.50)	(3.17)	(3.43)	(35.47)	(7.88)	(6.47)	(-1.60)	(-0.24)	(0.39)
Obs.	59	59	59	59	59	59	59	59	59	59	59	59
R^2	0.0030	0.0598		0.0899	0.0967		0.0564	0.1101		0.0030	0.0974	

Table 11: **Relationship between Equally-Weighted ESO Design Score and Corporate Governance Variables: Ordered Probit Models**

This table shows estimates of ordered response models (ordered probit). The ordered response is the equally-weighted design score *EW ESO Design Score* S_j^{ew}. Hereby, all subscores were measured on a 1 to 5 scale. Definitions of the explanatory governance variables are presented in Table 1. As controls, we use firm size, leverage, Tobin's Q, business risk, the past stock return, and industry dummies. t-statistics appear below each estimate in parentheses, based upon heteroscedasticity robust standard errors. * indicates significance at 10%; ** indicates significance at 5%; *** indicates significance at 1%.

EW ESO Design Score S_j^{ew}	(1)	(2)	(3)	(4)	(5)
Listing NYSE			-0.3266	-0.3030	-0.3263
			(-1.18)	(-1.04)	(-1.18)
Ownership concentration			-2.4232***	-2.5419**	-2.4219***
			(-2.60)	(-2.25)	(-2.60)
Government ownership			0.5187	0.5408	0.5241
			(1.53)	(1.52)	(1.54)
Board structure			0.7110**	0.7152**	0.6721
			(2.01)	(2.02)	(1.59)
Board size			-0.1160***	-0.1137***	-0.1100***
			(-3.15)	(-3.04)	(-2.56)
Outside directors			-1.6681*	-1.6291*	-1.7293*
			(-1.90)	(-1.77)	(-1.77)
Busy chairman			-0.0868	-0.0839	-0.0875
			(-1.37)	(-1.24)	(-1.37)
Tenure CEO			-0.0022	-0.0027	-0.0029
			(-0.11)	(-0.14)	(-0.14)
Employee part.					-0.0983
					(-0.21)
Family ownership				0.1500	
				(0.23)	
Creditor rights		-0.6377**	-0.4908***	-0.4890***	-0.4961***
		(-5.55)	(-3.61)	(-3.62)	(-3.33)
Anti self-dealing		1.3255**	-0.6741	-0.5668	-0.6345
		(2.38)	(-0.68)	(-0.69)	(-0.61)
Size	0.4780	0.3127	0.1746	0.1698	0.1580
	(1.30)	(0.91)	(0.49)	(0.46)	(0.44)
Leverage	0.6665	0.6128	-0.5081	-0.5668	-0.5563
	(0.89)	(0.85)	(-0.64)	(-0.69)	(-0.72)
Tobin's Q	0.3495***	0.4068***	0.4884**	0.4857**	0.4845**
	(2.58)	(2.62)	(2.52)	(2.51)	(2.53)
Business Risk	0.0002	0.0004*	0.0007***	0.0007***	0.0007***
	(0.64)	(1.78)	(2.63)	(2.89)	(2.58)
Stock Return	0.0028	-0.0124	-0.0226**	-0.0237**	-0.0228**
	(0.30)	(-1.28)	(-1.99)	(-2.18)	(-1.98)
Industry Dummies	YES	YES	YES	YES	YES
Obs.	82	80	78	77	78
Pseudo R^2	0.0250	0.1021	0.1349	0.1350	0.1350
Prob> χ^2	0.0325	0.0000	0.0000	0.0000	0.0000

Table 12: **Relationship between Modified ESO Design Score and Corporate Governance Variables: Ordered Probit Models**

This table shows estimates of ordered response models (ordered probit). The ordered response is the modified design score *Modified ESO Design Score* S_j^{mod}. Hereby, the subscore *Absolute Performance Target* was not included in the calculation of the design score. Definitions of the explanatory governance variables are presented in Table 1. As controls, we use firm size, leverage, Tobin's Q, business risk, the past stock return, and industry dummies. t-statistics appear below each estimate in parentheses, based upon heteroscedasticity robust standard errors. * indicates significance at 10%; ** indicates significance at 5%; *** indicates significance at 1%.

Modified ESO Design Score S_j^{mod}	(1)	(2)	(3)	(4)	(5)
Listing NYSE			-0.5852**	-0.5817*	-0.5871*
			(-2.03)	(-1.94)	(-2.01)
Ownership concentration			-2.3799**	-2.5969**	-2.3846**
			(-2.52)	(-2.28)	(-2.53)
Government ownership			0.6594*	0.6828*	0.6900*
			(-1.73)	(1.71)	(1.81)
Board structure			0.6393**	0.6756**	0.4510
			(2.05)	(2.12)	(1.25)
Board size			-0.1036***	-0.1015***	-0.0747*
			(-2.62)	(-2.63)	(-1.68)
Outside directors			-2.0815**	-1.9383**	-2.3877**
			(-2.19)	(-2.03)	(-2.22)
Busy chairman			-0.1180*	-0.1079	-0.1227*
			(-1.88)	(-1.65)	(-1.93)
Tenure CEO			0.0042	0.0002	0.0008
			(0.20)	(0.01)	(0.04)
Employee part.					-0.4788
					(-1.14)
Family ownership				0.2974	
				(0.49)	
Creditor rights		-0.6101***	-0.5239***	-0.5123***	-0.5512***
		(-5.62)	(-4.66)	(-4.55)	(-4.39)
Anti self-dealing		0.9112**	-0.5114	-0.5867	-0.3195
		(1.53)	(-0.49)	(-0.56)	(-0.29)
Size	0.6290*	0.5565	0.5254	0.5482	0.4458
	(1.80)	(1.64)	(1.42)	(1.43)	(1.18)
Leverage	0.9934	1.0595	0.2116	0.1484	-0.0179
	(1.27)	(1.42)	(0.26)	(0.18)	(-0.02)
Tobin's Q	0.3276**	0.3947**	0.4838**	0.4919**	0.4657**
	(2.29)	(2.43)	(2.45)	(2.46)	(2.37)
Business Risk	0.0001	0.0003	0.0005*	0.0005*	0.0004
	(0.39)	(1.20)	(1.66)	(1.89)	(1.49)
Stock Return	0.0014	-0.0135	-0.0214*	-0.0235**	-0.0227*
	(0.16)	(-1.42)	(-1.89)	(-2.16)	(-1.97)
Industry Dummies	YES	YES	YES	YES	YES
Obs.	82	80	78	77	78
Pseudo R^2	0.0325	0.1218	0.1589	0.1598	0.1610
Prob> χ^2	0.1506	0.0000	0.0000	0.0000	0.0000

Table 13: **Relationship between ESO Design Score and Corporate Governance Variables: Truncated Linear Regressions**

This table shows estimates of a truncated linear regression model. The truncated dependent variable is the the *ESO Design Score* S_j. Definitions of the explanatory governance variables are presented in Table 1. As controls, we use firm size, leverage, Tobin's Q, business risk, the past stock return, and industry dummies. t-statistics appear below each estimate in parentheses, based upon heteroscedasticity robust standard errors. * indicates significance at 10%; ** indicates significance at 5%; *** indicates significance at 1%.

ESO Design Score S_j	(1)	(2)	(3)	(4)	(5)
Listing NYSE			-1.3340**	-1.3395*	-1.3335**
			(-2.06)	(-1.95)	(-2.05)
Ownership concentration			-4.8052**	-5.1471**	-4.7555**
			(-2.25)	(-1.97)	(-2.24)
Government ownership			1.2811	1.3256	1.2911
			(1.42)	(1.41)	(1.44)
Board structure			1.6206*	1.7057*	0.4354
			(1.67)	(1.74)	(1.27)
Board size			-0.2728***	-0.2712***	-0.2462**
			(-3.02)	(-2.95)	(-2.21)
Outside directors			-4.2092*	-3.9971*	-4.4448*
			(-1.91)	(-1.67)	(-1.86)
Busy chairman			-0.2193	-0.2036	-0.2213
			(-1.41)	(-1.19)	(-1.41)
Tenure CEO			-0.0073	-0.0135	-0.0105
			(-0.14)	(-1.19)	(-0.19)
Employee part.					-0.4354
					(-0.39)
Family ownership				0.4663	
				(0.27)	
Creditor rights		-1.8123***	-1.3170***	-1.3078***	-1.3366***
		(-6.16)	(-4.56)	(-4.46)	(-4.22)
Anti self-dealing		4.3126***	-0.3348	-0.4703	-0.1679
		(2.65)	(-0.13)	(-0.18)	(-0.06)
Size	1.8814	0.9384	0.6873	0.7319	0.6173
	(1.54)	(1.04)	(0.72)	(0.73)	(0.62)
Leverage	3.0552	1.9431	-0.2621	-0.3752	-0.4521
	(1.07)	(0.93)	(-0.13)	(-0.18)	(-0.23)
Tobin's Q	1.4882**	1.1989**	1.2752**	1.2929***	1.2566**
	(2.35)	(2.50)	(2.55)	(2.57)	(2.51)
Business Risk	0.0008	0.0012	0.0016**	0.0016**	0.0015**
	(0.58)	(1.61)	(2.20)	(2.43)	(2.12)
Stock Return	0.0274	-0.0228	-0.0400	-0.0435	-0.0410
	(0.72)	(-0.84)	(-1.43)	(-1.61)	(-1.46)
Industry Dummies	YES	YES	YES	YES	YES
Obs.	82	80	78	77	78
Prob> χ^2	0.1321	0.0000	0.0000	0.0000	0.0000