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Stakeholder Power in Corporate Governance**

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IN CORPORATE GOVERNANCE**

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## WHO DISCIPLINES THE CFO? AN ASSESSMENT OF STAKEHOLDER POWER IN CORPORATE GOVERNANCE

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### **Abstract**

We analyze the respective influence of employee and shareholder interests on the dismissal of 89 Chief Financial Officers (CFOs) of major German companies between 1999 and 2006. Drawing on stakeholder-agency theory, we argue that employees wield sufficient power to affect executive replacements. We show that the provision of job security as a proxy for employee interests has a significant effect on the likelihood of CFO dismissal. This effect is independent of the fulfillment of shareholders' objectives. We conclude that stakeholder groups beyond shareholders exert influence on corporate governance. We argue that executives need to respond to several stakeholder groups simultaneously.

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A major focus of the established corporate governance literature lies on the potential agency conflicts between management and shareholders (Fama & Jensen, 1983; Jensen & Meckling, 1976; Shleifer & Vishny, 1997). In contrast, this literature has devoted only little attention to the notion that in their decision-making, top managers might have to consider the claims of stakeholder groups other than shareholders. Stakeholder-agency theory (Hill & Jones, 1992), drawing on resource dependency theory (e.g., Pfeffer & Salancik, 1978), suggests that those groups of stakeholders who have the power to provide or withhold resources effectively exert some control over the firm's management, regardless of whether they share in ownership rights. Authors like Gollan & Patmore (2002) and Pfeffer (2007) argue that employees in particular have considerable means to push for the pursuit of their own interests at firm level, as human and social capital usually represent critical resources. Moreover, legitimacy theory (Suchman, 1995) suggests that employees hold power through their ability to influence the firm's perceived legitimacy in the outside community.

The corporate governance literature regards dismissal as the ultimate device to discipline top management (Bushman & Smith, 2001; Menon & Williams, 2008; Volpin, 2002). Several authors have shown that this sanction works effectively i.e., that a firm's underperformance raises the likelihood for members of the firm's top management to be fired (Fee & Hadlock, 2004; Mian, 2001). In addition, its political and symbolic significance makes the replacement of an executive an attractive subject for stakeholder influence as well as a suitable means for governance bodies to signal responsiveness to these groups. If stakeholder power actually exists for employees as suggested by stakeholder-agency theory, we should expect top management dismissals to take place not only if the firm's performance is below the expectations of shareholders, but also in those situations where the firm fails to fulfill central expectations of employees. However, little evidence exists on how far the employees' power

base reaches, and, in particular, whether they can actually affect top management turnover decisions (Rock & Wachter, 1999; Schnepfer & Guillén, 2004).

In this paper, we explore the importance of shareholders' and employees' voice in driving the replacement of Chief Financial Officers (CFOs) in large corporations in Germany. We choose the CFO position as the object of our analysis for two reasons. First, this position is substantially affected by potential conflicts of interests between shareholders and other stakeholder groups. CFOs are widely seen as key representatives of shareholder interests (Mian, 2001; Zorn, 2004). Moreover, the CFO's "primary responsibility for the management of the financial system" (Mian, 2001, p. 145; see also Zorn & Dobbin, 2003) includes power over policies that significantly affect employees e.g., cost cutting decisions. Second, due to the increased importance attached to CFOs, recent publications explicitly encourage further CFO-related research (Baxter & Chua, 2008; Chua, 2007; Geiger & North, 2006). We contribute to filling this research gap.

Our analysis shows that the question of whether a firm satisfies employee interests – independent of whether it also satisfies shareholder interests – significantly affects the likelihood of CFO dismissals. Therefore, we suggest that, at least in the German corporate governance context, the CFO needs to balance the objectives of both stakeholder groups. Our analysis casts doubt on the perspective that top managers are the agents of shareholders only (Denis & McConnell, 2003; Shleifer & Vishny, 1997). In contrast, we argue that in order to avoid sanctions, top managers need to be responsive to the interests of several parties simultaneously, regardless of whether these carry ownership rights in the formal sense.

The structure of the paper is as follows. In the next section, we review the existing literature and derive our research questions. Thereafter, we provide an overview of our data, measures, and statistical methods, followed by our presentation of the results. Finally, we summarize the

main findings and discuss their implications for theory and managerial practice. We also identify the limitations of the study and suggest avenues for future research.

## **REVIEW AND HYPOTHESES**

### **The Importance of Stakeholders in the Governance Decisions of Firms**

The established economics and finance literature largely considers corporate governance to be an instrument in the hands of the shareholders to supervise, steer, and discipline managers (Denis & McConnell, 2003; Gompers, Ishii, & Metrick, 2003; Shleifer & Vishny, 1997). In contrast, the stakeholder-agency perspective suggests that stakeholder groups<sup>2</sup> other than shareholders may also exert an indirect or even a direct influence on critical corporate governance decisions (Hill & Jones, 1992). Drawing on resource dependency theory, stakeholder-agency theory assumes "unequal resource dependencies (...) between managers and stakeholders" (Hill & Jones, 1992, p. 152) that provide the latter party with power over the former (Pfeffer & Salancik, 1978). It argues that the influence of stakeholder groups on corporate governance decisions is based on their ability to temporarily or permanently withdraw critical resources from the firm. Whether a resource is critical depends on the firm's ability to continue functioning in the absence of that resource (Pfeffer & Salancik, 1978). According to this perspective, the more critical a stakeholder group's contribution to the firm, the greater is its voice in the firm's governance (Hill & Jones, 1992). Coff (1999)'s interpretation of the resource-based view of the firm follows a similar reasoning arguing that stakeholders, being providers of (critical) resources to a firm, hold bargaining power enabling them to influence decisions in their favor.

Similarly, legitimacy theory suggests that stakeholder groups other than shareholders may influence corporate decision-making to the extent that they affect the perception of the

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<sup>2</sup> According to Freeman (1984), a firm's stakeholders include any "group or individual who can affect or is affected by the achievement of the organization's objectives" (p. 46).

company by other parties (Dowling & Pfeffer, 1975; Suchman, 1995). Drawing on resource dependency theory, legitimacy theory proposes that a company needs to be perceived by its environment as being legitimate in order to persist (Parsons, 1960) and grow (Rao, Chandy, & Prabhu, 2008). Defined as the perceived congruence between an organization's behaviors and the shared beliefs or values of its environment, legitimacy constitutes a critical resource for the firm (Suchman, 1995). Its actions have to be perceived as "desirable, proper, and appropriate" (Suchman, 1995, p. 574) for the company to be able to sell its output and attract new resources. Given their direct relationship with the firm, key stakeholders act as multipliers able to affect the firm's perceived legitimacy in the respective community. In this situation, the firm needs to shape its actions in such a way as to be perceived responsive to these stakeholders. Therefore, legitimacy theory proposes that the objectives of a particular stakeholder group might affect firm decisions even without any form of action being taken by this group or its direct involvement in governance decisions. Suchman (1995) argues that governance bodies have incentives to anticipate the interests of a specific stakeholder group and to make decisions accordingly, in order to preserve legitimacy in the respective group as well as in the community influenced by it.

There is widespread support for the proposition that, apart from shareholders, employees represent a particularly important group among a firm's stakeholders (Lopez-Cabrales, Valle & Herrero, 2006), given their lasting and intense relationship with the firm (Aoki, 1984; Donaldson & Preston, 1995). Rock & Wachter (1999) argue that employees provide a critical resource to firms, which significantly affects their competitive position, in particular in knowledge-intensive industries (Gollan & Patmore, 2002; Pfeffer, 2007). Coff (1999) compares the provision of human and social capital by employees (e.g., Burt, 1997) to the provision of financial capital by shareholders, arguing that both parties have similar levels of bargaining power arising from their respective ability to withdraw the resource concerned.



Moreover, employees represent a strong source of legitimacy for a firm, as their relatively large number (e.g., as compared to suppliers of intermediate inputs) provides them with multiple contact points to other relevant constituencies in the firm's environment such as customers or potential new recruits. By influencing the firm's legitimacy as perceived by these parties, employees affect their company's competitive position above and beyond their roles as providers of knowledge and labor. This argument is independent of widespread normative claims for workforce participation (Fauver & Fuerst, 2006; Schneper & Guillén, 2004) and employees' official representation in governance bodies, which varies significantly between countries, as the comparative industrial relations literature attests (e.g., Edwards, 2004; Gospel & Pendleton, 2005; Kaufman, 2004; Weil, 2005).

Despite the widespread consensus on the importance of employees as a stakeholder group, there is little empirical evidence on whether the extent to which a firm satisfies the objectives of employees influences its governance decisions. The objectives of employees may or may not be consistent with those of other stakeholders. If firms attribute priority to the interests of employees, we would expect that these interests rank highly in management's decision-making criteria – and that failure to satisfy these objectives is followed by appropriate sanctions – even if the pursuit of these interests may run counter to the fulfillment of the objectives of other stakeholder groups, such as shareholders. The economics and finance literature considers shareholder value maximization as the "unitary goal" (Boatright, 2004, p. 8), or at least the dominating interest, of shareholders (Datta, Iskandar-Datta, & Raman, 2005; Shleifer & Vishny, 1997; Shleifer & Vishny, 1986). In contrast, employee interests are often summarized as "higher wages, promotions, and greater job security" (Rock & Wachter, 1999, p. 122). Efficiency-driven headcount reductions, which firms often try to justify by the need to enhance shareholder value, constitute a particularly salient example of a firm's decision to

put the interests of one stakeholder group before those of others (Franks & Mayer, 1998; Schneper & Guillén, 2004).

### **Top management replacement as a governance device**

According to Pfeffer & Salancik (1978), the forced replacement of executives represents an ideal context for analyzing the extent to which alternative stakeholder groups, on the basis of their discretion over critical resources, are able to influence a firm's governance. They argue that "[...] power will be used to influence the choice of top administrative personnel" (Pfeffer & Salancik 1978, p. 236; see also Pfeffer & Salancik, 1974; 1977). Among the various disciplinary options offered by corporate governance – which aims to protect the interests of all stakeholders in the firm (Aivazian, Ge, & Qiu, 2005) – executive dismissal constitutes the "ultimate element of an error-correcting process" (Renneboog & Trojanowski, 2002, p. 4). Legitimacy theory refers to executive turnover as a – partly symbolic – decision taken in order to (preemptively) address the interests of a specific stakeholder group, and, thus, to preserve legitimacy among the members of this group. An executive might even be dismissed as a scapegoat to relieve pressure on the firm caused by dissatisfaction of a particular interest group (Pfeffer & Salancik, 1978; Suchman, 1995).

Over the past few years, the issue of executive replacement has gained increasing attention from practitioners and management theorists alike. CEO turnover rates in Europe have increased since the mid-1990s and have, in 2007, even exceeded the comparable rate in North America (Karlsson, Neilson, & Webster, 2008). This development includes both dismissals and cases of executive turnover not induced by corporate governance, e.g., orderly retirements or voluntary resignations. However, a research setting analyzing the stakeholder influence on executive turnover – via corporate governance mechanisms – needs to clearly distinguish between turnover events that are of disciplinary nature and those that are not. Only dismissals represent clear disciplinary action taken by the governance bodies of the firm concerned (e.g.,

its supervisory board in countries with a dual board structure) on behalf of the relevant stakeholder groups (Aivazian et al. 2005; Denis, Denis, & Sarin, 1997; Denis & McConnell, 2003).

We argue that the CFO role constitutes a particularly salient executive position in order to study the strength of alternative stakeholder groups in affecting their firm's governance decisions. On the one hand, the CFO is widely seen as the primary advocate of shareholder interests, especially as his or her function includes responsibility for investor relations (Deloitte Consulting, 2003; Mercer & Russell Reynolds Associates, 2006) and supervisory board communication (McKinsey, 2008). The responsibility for these tasks has substantially raised the importance of the CFO in recent years (Zorn, 2004). CFOs have developed "from bean counters to spin doctors" (Zorn, 2004, p. 345) as companies have become increasingly oriented towards the financial markets. As a result of their increased importance and ability to influence company performance, CFOs are frequently penalized for poor results (Menon & Williams, 2008). Therefore, shareholders have a substantial interest in the choice or replacement of these executives.

On the other hand, the CFO's "primary responsibility for the management of the financial system" (Mian, 2001, p. 145; see also Geiger & North, 2006; Zorn, 2004; Zorn & Dobbin, 2003) also includes authority over decisions that significantly affect employees. CFOs take direct responsibility for decisions that may materially affect the interests of employees e.g., decisions regarding staff costs and headcount reductions (Baxter & Chua, 2008). More generally, employees have an interest in ensuring that shareholders do not appropriate an excessively large share of the income generated by the firm (Coff, 1999). They should try to enforce this interest in particular in situations where the total income available for appropriation by the various stakeholder groups is comparatively small. In these situations,

employees should be particularly motivated to ensure that the CFO considers their objectives in the allocation of the firm's returns, rather than to act on behalf of shareholders only.

The recent case of Austrian Airlines CFO Thomas Kleibl illustrates this reasoning. During his tenure as CFO from 2001 to 2008, Kleibl implemented an austerity policy that met with financial success, and was widely approved by shareholders. At the same time, this policy led to increasing confrontation with employees, which culminated in the preemptive resignation by Kleibl from his position in March 2008, following massive pressure from the workers' council (APA, 2008; Wirtschaftsblatt, 2008).

Extant literature provides ample empirical evidence for a negative relationship between firm performance and CEO turnover (Bresser, Valle Thiele, Biedermann, & Lüdeke, 2005; Coughlan & Schmidt, 1985; Kim, 1996; Warner, Watts, & Wruck, 1988; Weisbach, 1988). Several authors show that firms that fail to satisfy the expectations of shareholders are more likely to replace their CEOs than firms that generate higher shareholder returns (Denis et al., 1997; Fee & Hadlock, 2004; Huson, Malatesta, & Parrino, 2004). Fee & Hadlock (2004) report that this finding extends to non-CEO executives as well, however, without making specific statements regarding particular management roles or positions. Mian (2001) was the first to investigate the antecedents of CFO turnover, finding a significant negative relationship between stock market performance and CFO replacement for a large sample of U.S. companies. However, to the best of our knowledge, no empirical evidence has been produced so far on the extent to which employee interests – in absolute terms and relative to the interests of shareholders – affect the choice and replacement of a firm's top managers in general, and of its CFOs in particular.

To summarize our argument above, we expect that the extent to which a firm satisfies the interests of shareholders negatively affects the likelihood of the subsequent dismissal of the

firm's CFO (H1). However, we also expect this relationship to hold true with respect to the extent to which the firm satisfies the interests of employees (H2).

*H1: A significant negative relationship exists between the satisfaction of shareholder interests and the likelihood of subsequent CFO dismissal.*

*H2: A significant negative relationship exists between the satisfaction of employee interests and the likelihood of subsequent CFO dismissal.*

Furthermore, we are interested in whether the hypothesized effects between the satisfaction of shareholder and employee interests, respectively, and the likelihood of subsequent CFO dismissal are contingent on one another, and whether these effects are mutually reinforcing. As the objectives of shareholders and employees are not necessarily aligned (Coff, 1999; Schnepfer & Guillén, 2004), the interests of one group can be fulfilled independent from the interests of the other group. We expect both parties to exert direct or indirect pressure when their respective interests are not satisfied. Hence each party should be able to affect the likelihood of CFO dismissal independent from the other one. Thus, hypothesis H3 is as follows:

*H3: The negative relationship between the satisfaction of the interests of one party (shareholders or employees) and the likelihood of subsequent CFO dismissal exists irrespective of whether the interests of the other party are satisfied.*

In addition, if a firm fails to satisfy the interests of both shareholders and employees, we would expect the hypothesized negative effects on the likelihood of CFO dismissal to reinforce one another. While the governance body of the firm concerned might be able to oppose a claim from one important stakeholder group, it will face a much harder case if the two groups raise the same claim. Analytically speaking, we expect the effect of the satisfaction of shareholder interests on the likelihood of CFO dismissal to complement the effect of the satisfaction of employee interests. Complementarities exist where the marginal

effects of one variable increase in the level of another variable (Milgrom & Roberts, 1990 and 1995; Milgrom, Qian, & Roberts, 1991). In our context, complementarity would exist if the effect of the satisfaction of employee interests on CFO dismissal was stronger when shareholder interests were unsatisfied as well (and vice versa).

*H4: The respective negative effects of insufficiently fulfilled shareholder and employee interests on the likelihood of subsequent CFO dismissal are complementary to one another.*

While our reasoning allows us to develop hypotheses (H3 and H4) on whether the effects of unsatisfied shareholder and employee interests on CFO replacement are *related* to one another, it does not give us any indication on how strong these two effects are *relative* to each other. In our empirical work we explore the respective effect sizes of the extent to which shareholder and employee interests are being fulfilled on the likelihood of CFO dismissal.

## METHODS

### Sample selection and data base

We based our analysis on the 121 non-financial services (Mian, 2001) firms that were listed for at least one full year in the German DAX or MDAX indices (which, together, comprise the 80 largest prime standard companies in terms of market capitalization) between 1998 and 2006. For these firms, we included all years of listing on the stock exchange in which there was no IPO, delisting, merger, or bankruptcy, leading to a total of 868 company years in our sample. We drew financial data on these firms from the Thomson ONE Banker, Amadeus, and Datastream databases. The number of company years in our sample diminished to 797 because of missing data in at least one of these sources. Table 1 displays descriptive statistics of the overall sample as well as the firm years with CFO turnover events.

**Insert Table 1 here**

We classified as CFO turnover cases all changes in the CFO position for the above sample that occurred in the relevant time frame.<sup>3</sup> By comparing the names and roles of the top executives in the yearly firm profiles from the Hoppenstedt corporate database, we identified all cases in which there was a change in the CFO position. Following Mian (2001), we defined the CFO as the most senior executive in charge of Investor Relations – independent of his or her hierarchical rank and further responsibilities. The overall number of turnover cases in our sample was 156. By adjusting for double replacements within one year and cases coinciding with IPO, delisting, merger, or bankruptcy, we excluded 30 turnover cases. We furthermore excluded another seven cases, where the CFO position was newly created or had been vacant before i.e., there was no outgoing CFO. Consequently, 119 turnover cases remained.

Following Huson et al. (2004) and Schrader & Lüthje (1995), we conducted an extensive press research to distinguish between three types of CFO turnover cases: dismissals, routine turnover cases and a residual category, “cases with other reasons for turnover”. We classified CFO replacements as dismissal if press articles provided a clear indication that the respective CFO had been asked to leave the position on the initiative of the executive or supervisory board, for example following open criticism of his or her work or differences concerning matters of corporate policy. We classified turnover cases as routine if our press research provided clear indication for an age- or health-related cause. Turnover events in our third, residual category resulted from different reasons. First, there were some cases where the old CFO had voluntarily resigned, e.g. to accept a different job. Second, this group might as well have included cases where CFOs stepped down seemingly voluntarily in order to preempt being fired. Of the 119 replacement cases in our sample, we classified 33 (28%) as forced

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<sup>3</sup> The relevant time frame for turnover cases was 1999-2006, as we needed data from two consecutive years to identify CFO turnover.

replacements, 30 (25%) as routine and 56 (47%) as other. We report the distribution of the 119 turnover cases across years of investigation and across industries in Table 2. As our study focuses on stakeholder influence on forced CFO replacement as a governance decision, the majority of our analyses involved our sample of dismissal cases only.

### **Insert Table 2 here**

The temporal distribution of turnover cases across years was relatively even with slightly fewer cases (11) in 2001 and 2004 and a peak in 1999 (20 cases). We did not find any strong evidence of disproportionate industry representation, as CFO turnover rates did not vary significantly across industries.

### **Measures**

Following other studies on the antecedents of executive turnover (Mian, 2001; Huson et al., 2004, Denis et al., 1997; Kang & Shivdasani, 1995), we used the yearly *industry-adjusted total return to shareholders (RTS)* as a proxy for the extent to which a firm satisfied the interests of its shareholders. We calculated *RTS* as the relative change in the company's total return index compared to the preceding year (Fee & Hadlock 2004). The definition of a company's total return index takes into account both the change in stock price and dividends paid, and it is adjusted for potential stock splits in the year concerned. To determine *industry-adjusted RTS*, we subtracted from a firm's *RTS* the same-year average *RTS* of all companies in the sample belonging to the same industry, using the ICB industry classification (Weisbach, 1988; Warner et al., 1988).<sup>4</sup>

Extant literature provides little guidance on which measures to use in order to capture the extent to which a firm fulfills the interests of its employees. We followed Blair & Roe (1999)

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<sup>4</sup> We also experimented with *index-adjusted RTS* by subtracting from a firm's *RTS* the average performance of all companies in the sample that belong to the same stock market index. As the results for this measure were broadly consistent with the results for *industry-adjusted RTS*, we only report our findings with respect to the latter measure, following established practice (Fee & Hadlock, 2004; Kang & Shivdasani, 1995).



who characterize employee satisfaction as a function of job security and wage levels (see also Rynes, Gerhart & Minette, 2004). Due to its fundamental importance and easy observability, we focused specifically on job security. Therefore, we used a firm's *headcount development* – defined as the firm's aggregate headcount in a particular year divided by its headcount in the previous year<sup>5</sup> – as a proxy for the extent to which employee interests are satisfied. Reductions in a firm's workforce tend to attract considerable public attention (more than changes in aggregate compensation levels paid to employees) and can easily affect the firm's perceived legitimacy (Schneper & Guillén, 2004). Particularly in countries with a stakeholder-centered legislation, like Germany, the public tends to expect large corporations to put employment stability ahead of the pursuit of financial objectives (Rock & Wachter, 1999; Roe, 2000).

As the dependent variable in our multivariate analyses, we employed a binary measure *CFO dismissal* that took the value of 1 if the CFO was forced to leave the company in a particular year. We further included several control variables. As firm-specific control variables, we used *firm size*, measured by the log of total assets (Volpin, 2002; Dahya, Lonie, & Power, 1998; Denis et al., 1997), *share of institutional ownership* (Dahya et al., 1998; Denis et al., 1997), *debt-to-equity ratio* (Renneboog & Trojanowski, 2002), and the dummy variable *finance* capturing significant changes in a firm's structure through capital increases or increases in long-term debt (Geiger & North, 2006; Ashbaugh, LaFond, & Mayhew, 2004). Moreover, we controlled for *CFO age*, as the literature on executive demographics suggests a considerable effect of age on turnover probability even beyond orderly retirement (Coughlan & Schmidt, 1985; Firth, Fung, & Rui, 2006; Kang & Shivdasani, 1995; Veiga, 1983). Finally,

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<sup>5</sup> We also compiled data on domestic headcount development, as the majority of employee representatives in the companies in our sample were located in Germany, and German trade unions might gear their claims primarily to the domestic staff (Deutscher Gewerkschaftsbund, 1996; Schneper & Guillén, 2004). However, we do not report our findings on this measure, as the results were essentially unaffected by whether we used total or domestic headcount figures.

in line with previous studies on executive turnover, we included dummy variables for each calendar year in order to control for one-time effects (Fee & Hadlock, 2004; Volpin, 2002).

### **Analytical Methods**

In order to test hypotheses H1 and H2, we conducted several types of analyses. First, in line with other literature on executive turnover, we carried out univariate control group comparisons (Fauver & Fuerst, 2006; Fee & Hadlock, 2004; Volpin, 2002). To this end, we categorized all company years along the two dimensions calendar year and industry and assigned them to either test or control group (i.e., all years unaffected by CFO turnover). Then we matched each test group company year to the control group average for the respective industry and calendar year. In order to compare mean and median of our key variables between test and control group, we applied *t*-tests and Wilcoxon Sign-Rank tests, respectively. We conducted two separate analyses to independently test for the respective effects of *RTS* and *headcount development* one year (*t-1*) and two years (*t-2*) before the turnover event.<sup>6</sup>

Second, we conducted univariate analyses to calculate turnover frequencies in relation to each one of our independent variables. Separately for each measure and for *t-1* and *t-2*, we divided our total sample of CFO dismissal events into two subsamples based on whether the interests of the respective stakeholder groups were fulfilled or not. With respect to the interests of shareholders, we split the sample into a group of companies with negative industry-adjusted shareholder returns (*RTSneg*) and a group of companies with positive RTS (*RTSpos*). Similarly, with respect to the interests of employees, we divided our total sample into a group of companies with negative (*HDneg*) and those with positive headcount development (*HDpos*). We then used chi-square tests to compare the observed turnover frequencies in groups *HDneg* and *HDpos* and in groups *RTSneg* and *RTSpos* with the respective expected

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<sup>6</sup> Across analyses, we do not analyze the year of CFO turnover itself, i.e., *t<sub>0</sub>*. This happens for the following reasons: first, our data refers to year-end results, and, thus, *t<sub>0</sub>*, in most cases, involves effects that happened after the actual turnover event. Second, the dates of turnover disperse throughout the year and, consequently, the effect of our measures in *t<sub>0</sub>* on the turnover event is incomparable across firms.

CFO dismissal frequencies. We calculated the expected number of CFO dismissals by multiplying the average CFO dismissal rate from the total sample with the number of firm years in each subsample.

In order to test hypothesis H3, we extended the above analysis by constructing a 2x2-matrix combining the two dimensions *RTS* and *headcount development*. Each quadrant in this matrix represented one of the following subgroups: *HDposRTSpos* contained all firm years where both *headcount development* and *RTS* were positive; in *HDnegRTSpos*, *headcount development* was negative and *RTS* was positive; in *HDposRTSneg*, *headcount development* was positive and *RTS* was negative; and in *HDnegRTSneg*, both *headcount development* and *RTS* were negative. This approach enabled us to compare CFO dismissal frequencies across scenarios where stakeholder interests were fulfilled to different extents. We performed Fisher's exact test on the dismissal frequencies of the four quadrants to test whether their distribution suggested a dependency between the two dimensions *RTS* and *headcount development*.

Finally, to test hypothesis H4, we used the inequality proposed by Cassiman & Veugelers (2006), which must hold if complementarity exists:

$$TF(HDnegRTSpos) - TF(HDnegRTSneg) \geq TF(HDposRTSneg) - TF(HDposRTSpos) \quad (1)$$

where  $TF(X)$  denotes the CFO dismissal frequency in quadrant  $X$  and  $X$  refers to the groups defined above. While we could calculate the inequality with the average dismissal frequencies from the 2x2-matrix, this procedure did not allow us to test whether the results were statistically significant. In order to overcome this problem, we used bootstrapping to derive the distribution of the difference of the four dismissal frequencies, and subsequently applied a  $t$ -test.

In order to identify potential differences in the respective effect sizes of the fulfillment of shareholder and employee interests, we again applied bootstrapping to compare the differences in dismissal frequency between groups *HDneg* and *HDpos* with the difference in dismissal frequency between groups *RTSneg* and *RTSpos*. This approach allowed us to perform a *t*-test on the resulting difference in dismissal frequencies.

In order to validate the results of our univariate tests, we applied multivariate logistic (logit) regression, using the existence of *CFO dismissal* as the dependent (dummy) variable (Coughlan & Schmidt, 1985; Denis et al., 1997; Fee & Hadlock, 2004; Volpin, 2002; Warner et al., 1988; Weisbach, 1988). To address hypotheses H1, H2, and H3, we estimated two different logistic regression models for *CFO dismissal*, one for t-1 and the other one for t-2. Moreover, we specified models where we included dummy variables indicating whether *RTS* and *headcount development* were positive or negative, instead of using continuous variables. In addition to the logit models on *CFO dismissal*, we also fitted a multinomial logistic regression model (mlogit) on a sample including all identified turnover cases. This model showed whether a relationship between unsatisfied shareholder or employee interests and CFO turnover could also be established for those cases where CFO turnover was routine or motivated by reasons other than outright dismissal or orderly retirement.

We tested hypothesis H4 by applying bootstrapping in a similar way as for the univariate analyses. However, instead of observed dismissal frequency, we focused on the predicted CFO dismissal probabilities from the logit model. For this purpose, we calculated the estimated dismissal probability for each of the four settings characterized by the two dummy variables for *RTS* and *headcount development* taking either the value of one or of zero, respectively. For each control variable, we included the mean value. Finally, to compare the effect sizes of *RTS* and *headcount development* on CFO dismissal probability, we again analyzed the predicted dismissal probabilities resulting from our bootstrapping procedure. In

this context, we built on the results of the logit model with both *RTS* and *headcount development* as continuous variables. We determined the effect size of *headcount development* by comparing the predicted dismissal probabilities for its 10<sup>th</sup> and for its 90<sup>th</sup> percentile with all other variables, including *RTS*, held at their mean. Analogously, we determined the effect size of *RTS*. After bootstrapping the difference between these two effect sizes, we applied a *t*-test to assess whether it was significantly different from zero.

## RESULTS

### Univariate analyses

Table 3 summarizes the results from our control group comparison of means and medians for our key variables *RTS* and *headcount development*. When testing for the relationship between *RTS* and CFO dismissal, we find both the mean and the median of *RTS* to be significantly below zero in period t-1. For t-2, we do not find *RTS* levels that are significantly different from zero. In order to test for the robustness of these results given our relatively small sample size, we report the respective power for each test in Table 3. For *RTS* in t-1, the test power has an acceptable level of 0.9 (Fleiss, Levin & Paik, 2003). For t-2, however, the test power is too low to draw robust conclusions. Overall, our findings provide support for hypothesis H1 when focusing on *RTS* in the year immediately prior to the CFO replacement event, but not when analyzing *RTS* two years prior to this event.

### Insert Table 3 here

Furthermore, we find evidence that both mean and median of the *headcount development* variable are significantly below industry average (i.e., control group-adjusted headcount is negative) in both years before a CFO dismissal event. This effect is stronger in t-1 than in t-2. Analogous to the *RTS* analysis, the test power for t-1 is satisfactory at levels above 0.9, whereas for t-2 the test does not appear to be robust. Thus, our findings for *headcount*

*development* in t-2 should be interpreted with caution. Nevertheless, we conclude that a clear and consistent negative relationship exists between *headcount development* in a particular year and CFO dismissal in the following year, which supports hypothesis H1.

We also analyzed the CFO dismissal frequencies as a function of shareholder and employee interests, respectively.<sup>7</sup> We find the CFO dismissal rate to be significantly higher for those firms with negative *industry-adjusted RTS* in t-1 than for those firms with positive *RTS*. For t-2, we do not find a significant difference between the CFO dismissal frequencies across the two subsamples. For *headcount development*, we find clear differences between the CFO dismissal frequencies across the subsamples as well. For both the t-1 and t-2-analysis, the CFO dismissal rate is significantly higher for firms with negative *headcount development* than for firms with positive *headcount development*. These findings are fully in line with the results from the control group comparison and provide support for hypotheses H1 and H2 with respect to t-1.

Table 4 contains the relative and absolute CFO dismissal frequencies for each quadrant of the 2x2-matrix differentiating between positive and negative *industry-adjusted RTS* and *headcount development*, respectively. At 19.2%, the relative CFO dismissal frequency is the highest when both *RTS* and *headcount development* are negative, while it is lowest (3.3%) when both of these measures are positive. With a *p*-value of 0.30, Fisher's exact test on the absolute frequencies provides no indication that the two dimensions are dependent on one another. Furthermore, Spearman's rank correlation coefficient on the two binary categories "*headcount development* < 0" and "*industry-adjusted RTS* < 0" has a value of 0.025, providing further support for the conclusion that the two dimensions are independent from each other. These findings support hypothesis H3: The negative relationship between the satisfaction of

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<sup>7</sup> The quantitative results are omitted here due to space constraints; they are available from the authors.

the interests of one party (shareholders or employees) and the likelihood of subsequent CFO dismissal appears to be irrespective of whether the interests of the other party are satisfied.

Our test for complementarity between whether shareholder and employee interests are satisfied (hypothesis H4) does not provide evidence for a significant complementary effect. Although Inequality (1) holds when inserting the relative dismissal frequencies for each subsample shown in Table 4, there is too much variation in our bootstrapping results for the difference between the two terms contained in the inequality to be statistically significant. Therefore, we cannot confirm hypothesis H4.

Furthermore, we find only limited evidence whether either *industry-adjusted RTS* or *headcount development* has a larger effect on the likelihood of CFO dismissal. In the univariate setting, we consider as effect size the difference between the relative CFO dismissal frequencies for firms with negative *industry-adjusted RTS* and for firms with positive *industry-adjusted RTS*.<sup>8</sup> Consequently, *RTS* has an effect size of 0.062 (= 0.109 - 0.047), i.e., it is 6.2 percentage points more likely to see the CFO be dismissed if *industry-adjusted RTS* is negative than when it is positive. Analogously, the effect size of *headcount development* is 0.083 (= 0.134 - 0.051). While the latter effect appears to be slightly larger than the former one, the difference (calculated on the basis of bootstrapping results) is not statistically significant. Consequently, we do not find indication that one of the two measures has a stronger negative relationship with CFO dismissal than the other one.

**Insert Table 4 here**

### **Multivariate analyses**

Table 5 and Table 6 contain the results of our logit regressions, separately for t-1 and t-2. We built several, increasingly complex models. Model M1 represents the basic context model

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<sup>8</sup> Again, the quantitative results are omitted here due to space constraints; they are available from the authors.

consisting of CFO and firm-level control variables only; in models M2 through M5, we successively added the independent variables of interest. In addition to the logit analyses, we fitted a multinomial logistic regression on model M4, in order to test whether routine and other unforced CFO turnover are also affected by the extent to which stakeholder interests are fulfilled. We report the mlogit results in Table 7.

**Insert Table 5, Table 6, and Table 7 here**

We provide two widely used measures of model fit in Tables 5 through 7, McFadden's and Nagelkerke's pseudo- $R^2$ . The results indicate that in particular our higher-order models (those models that go beyond the mere control variables and include the independent variables that are the focus of our analysis) have reasonable explanatory power. With values around 0.25 (McFadden pseudo- $R^2$ ) respectively 0.4 (Nagelkerke's pseudo- $R^2$ ), the mlogit models reported in Table 7 appear to have particularly high explanatory power. Following Hoetker (2007), we also calculated prediction accuracies for our various models, which turned out to be high. For example, when testing the prediction accuracy of our most comprehensive model (M4) by comparing its share of correct predictions with a default model, we found that model M4 reduced the prediction failure rate against the default model by 16.1 percent, a material reduction.<sup>9</sup>

The regression coefficient for *industry-adjusted RTS* as our measure of the extent to which shareholder interests are fulfilled is negative and significant for t-1 (see models M2, M4, and M5, Table 5). Consequently, the higher *RTS*, the lower the probability for CFO dismissal. However, the regression coefficient does not significantly differ from zero in our t-2 analysis (see models M2, M4 and M5, Table 6). Furthermore, the mlogit analysis gives clear indication for a negative influence of *RTS* in t-1 on CFO dismissal as well, whereas the other two types of CFO replacement (routine replacements and the residual category “other”

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<sup>9</sup> A complete overview of the prediction accuracies of the various models is available from the authors.



replacements) do not seem to be affected by *RTS*: For both categories, the regression coefficients on *industry-adjusted RTS* are not significantly different from zero. Consequently, in line with the findings from the univariate analyses, our multivariate regressions confirm the negative effect of our measure for shareholder interest fulfillment on the likelihood of subsequent CFO dismissal, thus supporting hypothesis H1.

Similarly, we found a negative and statistically significant effect of *headcount development* in t-1 on CFO dismissal probability (models M3 through M5, Table 5). When measured at t-2, the effect of headcount development on the likelihood of CFO dismissal is significant only when *headcount development* is measured as a binary variable (model M5, Table 6), but not when it is measured as a continuous variable (models M3 and M4, Table 6). These results are widely in line with the findings from the univariate analyses. They provide confirmatory evidence for hypothesis H2 regarding the negative effect of *headcount development* on CFO dismissal when headcount development is measured in t-1. Our logit analyses also provide further support for hypothesis H3, as all regression coefficients on *industry-adjusted RTS* and on *headcount development* in models M2 through M4 (Table 5) are statistically significant, irrespective of whether the other variable is included in the analysis or not.

Furthermore, our mlogit model indicates that *headcount development* does not significantly affect routine CFO turnover. For our category of non-routine CFO replacement cases driven by reasons other than dismissal, the findings are less clear. While, in t-1 there is a small, only tentatively significant effect of *headcount development* on CFO replacement, we find a significant negative effect in t-2. From our perspective, this effect is most likely due to the broad variety of CFO turnover cases contained in this category.

To facilitate a better interpretation of our findings, in Figures 1 and 2 we present graphical illustrations of the respective effects of *industry-adjusted RTS* and *headcount development* at

t-1 in model M4. Both key variables are included with original, non-standardized values, and all control variables are held at their mean.

**Insert Figure 1 and Figure 2 here**

Figure 1 plots the predicted likelihood of CFO dismissal as a function of *industry-adjusted RTS* for three levels of *headcount development*, ranging from one standard deviation below its mean to one standard deviation above. Inspection of Figure 1 clearly illustrates the negative relationship between *industry-adjusted RTS* and CFO dismissal, as hypothesized (H1). The convex shape of the graphs indicates that the effect of *RTS* on dismissal probability is stronger for lower levels of *RTS* than for higher ones. This finding holds particularly true for *RTS* levels below zero. In addition, for high levels of *RTS*, CFO dismissal probabilities do not differ strongly between the three graphs relating to different levels of *headcount development*, whereas, for lower *RTS* values, a large spread in the predicted dismissal probabilities is apparent. Specifically, the predicted CFO dismissal probability reacts stronger to *RTS* if *headcount development* is low than when it is high.

Figure 2 depicts forced CFO dismissal probability as a function of headcount development at different levels of *RTS*. Similar to Figure 1, CFO dismissal probability is a declining, convex function of headcount development, supporting hypothesis H2. For lower levels of *RTS*, the negative relationship between headcount development and CFO dismissal is particularly strong. These findings suggest a mutually reinforcing interaction effect between *RTS* and headcount development.

However, further analysis shows that this interaction effect between *RTS* and *headcount development* is not strong enough to reach statistical significance. We tested for complementarity by calculating Inequality (1) using the predicted CFO dismissal probabilities from model M5 (Table 5). The results, presented in Table 8, show a small complementarity

effect of 4.0% between the effects of *RTS* and *headcount development* on the likelihood of CFO dismissal, but this complementarity effect is below the level, where it would reach statistical significance. Thus, we are not able to confirm hypothesis H4. Overall, we conclude from our findings that the effects of *headcount development* and *industry-adjusted RTS* on the probability of CFO dismissal are significant and independent from each other, but do not mutually reinforce each other to a significant extent.

### **Insert Table 8 here**

We were also interested in the size of the effects of our key variables (*industry-adjusted RTS* and *headcount development*) on the likelihood of CFO dismissal. In line with Denis et al. (1997), Hoetker (2007), and Kang & Shivdasani (1995) we interpret marginal effects, calculated as the differences in predicted CFO dismissal probabilities for low and high values of our key variables, as effect sizes. Using the results from model M4 (Table 5), we find that a change in *industry-adjusted RTS* from the 10<sup>th</sup> percentile to the 90<sup>th</sup> percentile leads to a decrease in CFO dismissal probability by 5.98 percentage points (from 8.45 to 2.47 percent). With regard to *headcount development*, a change from the 10<sup>th</sup> to the 90<sup>th</sup> percentile leads to an absolute decrease in CFO dismissal probability by 6.56 percentage points (from 8.72 to 2.16 percent). Thus, both the absolute and the relative size of the effects of *RTS* and *headcount development* are almost identical, and bootstrapping suggests that any remaining difference is not statistically significant. Therefore, we do not have any indication that one of the two variables has a stronger effect on the probability of CFO dismissal than the other one.

## **DISCUSSION**

### **Discussion of results and implications**

The goal of our study was to contribute to the stakeholder-agency literature (Hill & Jones, 1992) by investigating whether the extent to which firms satisfy the interests of different

stakeholder groups affects executive dismissals as a specific form of corporate governance decisions. Specifically, we focus on the interests of shareholders and employees, the two stakeholder groups considered most important in the governance literature (e.g., Rock & Wachter, 1999). In the light of the potentially diverging interests of shareholders and employees, the CFO holds a particularly delicate position (Mian, 2001). We argue that, if a firm's failure to satisfy the interests of employees is followed by strong sanctions in the form of CFO dismissal, the use of this mechanism by the firm's governance bodies provides a clear indication that attention is being paid to employee interests.

Our univariate and multivariate analyses provide support for this argument. We find a significant negative relationship between a firm's *headcount development* – our proxy for the extent to which employee interests are fulfilled – and CFO dismissal, confirming hypothesis H2. In line with extant literature (Fee & Hadlock, 2004; Mian, 2001), the extent to which shareholder interests are fulfilled also exerts a strong, negative effect on the likelihood of CFO dismissal, consistent with hypothesis H1. These two effects exist independently from one another, confirming hypothesis H3. Overall, we interpret our results regarding the effects of the extent to which both shareholder and employee interests are satisfied on CFO dismissal as implying that both stakeholder groups hold power to affect corporate governance decisions. Both effects appear to materialize within about a year, calculated from the time at which stakeholder interests are being satisfied or not. The effects of shareholder interests and those of employee interests appear to be of similar magnitude. Both effects are particularly strong in situations where a firm does not only leave stakeholder interests unfulfilled, but clearly dissatisfies them (i.e., they are stronger in situations where shareholder returns and headcount development, respectively, are negative, rather than low but positive; see Figures 1 and 2). Our findings, however, do not provide a clear indication for a statistically significant complementarity between the two effects, and, thus, we have to reject hypothesis H4.

Our study has implications for the corporate governance literature in that it provides empirical evidence that, in addition to investors, other stakeholder groups play an important role in governance decisions. From our perspective, the resources that employees hold directly or indirectly (e.g., by influencing the firm's perceived legitimacy) provide them with a power base through which important corporate decisions are influenced in their favor (Coff, 1999; Pfeffer & Salancik, 1978; Suchman, 1995), even if their formal representation in corporate governance bodies is less strong than the one of shareholders.

Moreover, our study has implications for business practice. Our findings represent a clear signal to CFOs, and potentially other executives, that they have to consider the interests of multiple stakeholder groups when setting priorities and objectives for their firm. CFOs, and presumably other executives in top-level positions, must balance the interests and objectives of multiple parties if they wish to secure their position.

### **Limitations and directions for further research**

Our study has several limitations, of which we highlight two that we consider particularly important. First, despite an extensive literature review we were unable to find an established measure for the extent to which a company fulfills its employees' interests. Therefore, we had to rely on headcount development as a proxy for employees' interests. The scope of our study did not allow us to systematically validate alternative measures for capturing employee interests. Consequently, we derived our proxy from theoretical considerations in the governance literature. In this literature, job security and adequate remuneration are described as vital workforce interests (e.g., Blair & Roe, 1999). We argue that job security is the more reliable measure in our context, due to its existential importance for many employees, and its clear observability. From our perspective, a systematic validation of alternative measures of employee interests calls for further research.

Second, when compared to previous publications dealing with executive turnover in the U.S., the size of our sample is relatively small, due to the limited number of large listed companies in Germany. The two leading indices of listed companies, which we used to build our sample, contain only 80 firms in total, reflecting the comparatively limited role of the stock market in Germany as compared to the U.S. We deliberately chose not to inflate the size of our sample by including smaller firms than those considered in the respective indices or by extending the period of investigation, as doing so might have adversely affected data reliability. Publicly available data on smaller firms tends to be less comprehensive and less reliable. The sample size issue, however, represents an inevitable caveat researchers are facing in many countries outside large markets with a homogenous legal and governance structure, such as the U.S.

Apart from redressing these issues, we believe that our study calls for future research in particular with respect to the role of the institutional setting. Clearly, our study is characterized by its focus on the German corporate governance system with its relatively weak focus on shareholder rights as compared to some other countries (Fauver & Fuerst, 2006; Franks & Mayer, 1990). We find this feature reflected in the deviation of our results from previous studies in the U.S. and the U.K., which find an even stronger relationship between shareholder returns and executive turnover (Denis et al., 1997; Mian, 2001). According to the German Codetermination Act, employees are strongly represented in the supervisory boards of firms – in particular in those with more than 2,000 employees – although they do not hold the voting majority. Our study does not allow us to assess in what way the legal setting affects the extent to which top managers need to take employee interests into account. Hence this issue calls for further comparative research (Gospel & Pendleton, 2005). However, we submit that our underlying theoretical rationale for the importance of employee interests, which draws on resource-dependency and legitimacy theory, is independent from legislation.

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

	Whole sample (n=797)			Turnover firm years (n=119)		
	10 <sup>th</sup> percentile	Median	90 <sup>th</sup> percentile	10 <sup>th</sup> percentile	Median	90 <sup>th</sup> percentile
Total assets (EUR m)	364	1,797	35,011	360	1,763	30,251
Number of employees	2,407	12,859	107,856	3,013	13,889	114,952
Log of market value of equity	5.18	6.94	9.84	3.94	6.91	9.61
Book-to-market ratio	0.19	0.52	1.14	0.16	0.49	1.00
Revenue Growth	-0.11	0.06	0.24	-0.18	0.04	0.35
Debt-to-equity ratio	0.80	2.20	5.22	0.87	2.48	7.21

*Note.* Contains all cases of CFO turnover in the 121 largest German corporations between 1999 and 2006, adjusted for double replacements within one year, CFO installation with no outgoing CFO and cases coinciding with IPO, delisting, merger, or bankruptcy. A correlation table is available from the authors upon request.

**TABLE 2**  
**Distribution of CFO Turnover Events across Years and Industries**

Year	Number of Turnover Events	Turnover rate per year	Industry	Number of Turnover Events	Turnover rate per industry
1999	20	17.5%	Basic Materials	9	11.4%
2000	16	15.5%	Industrials	44	14.4%
2001	11	10.3%	Consumer Goods	31	13.8%
2002	13	13.0%	Health Care	8	10.4%
2003	17	17.2%	Consumer Services	21	17.6%
2004	14	15.2%	Telecommunications	2	15.4%
2005	11	12.1%	Utilities	2	8.0%
2006	17	18.1%	Technology	2	8.0%
<b>Total</b>	<b>119</b>		<b>Total</b>	<b>119</b>	

*Note.* Contains all cases of CFO turnover in the 121 largest German corporations between 1999 and 2006, adjusted for double replacements within one year, CFO installation with no outgoing CFO and cases coinciding with IPO, delisting, merger, or bankruptcy.

**TABLE 3**  
**CFO dismissals: Mean and median comparison tests**

	Time (t-1) (n=33)		Time (t-2) (n=28)	
	Mean	Median	Mean	Median
<i>Industry-adjusted RTS</i>	-0.2018*** (0.0030) [0.8951]	-0.2199*** (0.0055)	-0.0694 (0.3153) [0.1759]	-0.0253 (0.3504)
<i>Adjusted Headcount Development</i>	-0.08908*** (0.0022) [0.9150]	-0.0588*** (0.0046)	-0.0577** (0.0495) [0.5385]	-0.0488* (0.0876)

*Note.* The levels of significance are determined using *t*-tests (Wilcoxon Sign-Rank tests) for means (medians). *p*-values reported in parentheses, test power in brackets.

\*, \*\*, and \*\*\* denote significance levels for two-tailed tests at the 10%, 5%, and 1% level, respectively.

**TABLE 4**  
**Matrix of CFO dismissal rates by positive vs. negative *industry-adjusted RTS* and *headcount development***

Absolute number of CFO dismissal events								
	Time t-1				Time t-2			
	<i>RTS</i> < 0		<i>RTS</i> ≥ 0		<i>RTS</i> < 0	<i>RTS</i> ≥ 0		
<i>Headcount development</i> < 0	I	14	II	5	I	10	II	6
<i>Headcount development</i> ≥ 0	III	10	IV	4	III	7	IV	5
Relative CFO dismissal frequencies								
	Time t-1				Time t-2			
	<i>RTS</i> < 0		<i>RTS</i> ≥ 0		<i>RTS</i> < 0		<i>RTS</i> ≥ 0	
<i>Headcount development</i> < 0	I	19.2%	II	8.5%	I	12.9%	II	9.7%
<i>Headcount development</i> ≥ 0	III	7.8%	IV	3.3%	III	5.1%	IV	3.8%
Complementarity coefficient according to Equation (1)	6.2% (0.317)							

*Note.* The four quadrants of the matrix, numbered I to IV, denote the following subsamples: I) *RTS*negHDneg, II) *RTS*sposHDneg, III) *RTS*negHDpos, IV) *RTS*sposHDpos. Complementarity coefficient calculated by solving Inequality (1) for zero and bootstrapping the resulting term. *p*-value in parentheses.

\*, \*\*, and \*\*\* denote significance levels for two-tailed tests at the 10%, 5%, and 1% level, respectively.

**TABLE 5**  
**Results of Logit Analyses for t-1**

<b>Logit Regression Coefficients</b>	<b>M1</b>	<b>M2</b>	<b>M3</b>	<b>M4</b>	<b>M5</b>
<i>Industry-adjusted RTS</i>		-0.620** (0.015)		-0.573** (0.025)	
<i>Headcount Development</i>			-0.651*** (0.006)	-0.612*** (0.009)	
<i>Dummy variable indicating negative industry-adjusted RTS</i>					0.837* (0.070)
<i>Dummy variable indicating negative headcount development</i>					0.940** (0.027)
<i>Debt-to-equity Ratio</i>	0.878*** (0.000)	0.753*** (0.000)	0.756*** (0.000)	0.663*** (0.002)	0.697*** (0.001)
<i>Finance</i>	-0.279 (0.524)	-0.455 (0.317)	-0.105 (0.818)	-0.288 (0.540)	-0.321 (0.477)
<i>CFO Age</i>	0.093 (0.666)	0.103 (0.637)	0.016 (0.945)	0.027 (0.904)	0.065 (0.772)
<i>Share of Institutional Investors</i>	-0.120 (0.564)	-0.080 (0.705)	-0.177 (0.411)	-0.136 (0.536)	-0.150 (0.490)
<i>Firm Size</i>	-0.432* (0.060)	-0.319 (0.165)	-0.496** (0.036)	-0.376 (0.112)	-0.430* (0.059)
<i>Constant</i>	-3.674*** (0.000)	-3.757*** (0.000)	-3.803*** (0.000)	-3.891*** (0.000)	-4.483*** (0.000)
Number of observations	384	384	384	384	384
Pseudo- $R^2$ (McFadden)	0.124	0.155	0.164	0.190	0.165
Pseudo- $R^2$ (Nagelkerke)	0.156	0.194	0.204	0.235	0.205

*Note.* In order to improve comparability of coefficients, the variables were standardized. p-values are reported in parentheses.

\*, \*\*, and \*\*\* denote significance levels for two-tailed tests at the 10%, 5%, and 1% level, respectively.

**TABLE 6**  
**Results of Logit Analyses for t-2**

<b>Logit Regression Coefficients</b>	<b>M1</b>	<b>M2</b>	<b>M3</b>	<b>M4</b>	<b>M5</b>
<i>Industry-adjusted RTS</i>		-0.302 (0.216)		-0.304 (0.218)	
<i>Headcount Development</i>			-0.333 (0.182)	-0.337 (0.183)	
<i>Dummy variable indicating negative industry-adjusted RTS</i>					0.394 (0.401)
<i>Dummy variable indicating negative headcount development</i>					1.080** (0.022)
<i>Debt-to-equity Ratio</i>	0.816*** (0.000)	0.762*** (0.001)	0.777*** (0.001)	0.726*** (0.002)	0.673*** (0.004)
<i>Finance</i>	-1.184** (0.049)	-1.270** (0.038)	-0.995 (0.103)	-1.074* (0.084)	-1.039* (0.089)
<i>CFO Age</i>	-0.088 (0.697)	-0.071 (0.756)	0.120 (0.604)	-0.098 (0.672)	-0.104 (0.657)
<i>Share of Institutional Investors</i>	-0.242 (0.295)	-0.222 (0.342)	-0.251 (0.280)	-0.231 (0.323)	-0.281 (0.244)
<i>Firm Size</i>	-0.323 (0.205)	-0.291 (0.249)	-0.360 (0.164)	-0.327 (0.202)	-0.341 (0.180)
<i>Constant</i>	-4.118*** (0.000)	-4.137*** (0.000)	-4.152*** (0.000)	-4.185*** (0.000)	-4.750*** (0.000)
Number of observations	378	378	378	378	378
Pseudo- $R^2$ (McFadden)	0.144	0.153	0.154	0.163	0.179
Pseudo- $R^2$ (Nagelkerke)	0.175	0.186	0.187	0.198	0.217

*Note.* In order to improve comparability of coefficients, the variables were standardized.  $p$ -values are reported in parentheses.

\*, \*\*, and \*\*\* denote significance levels for two-tailed tests at the 10%, 5%, and 1% level, respectively.

**TABLE 7**  
**Results of Mlogit analyses**

<b>Logit Regression Coefficients</b>	<b>t-1</b>			<b>t-2</b>		
	<b>Routine</b>	<b>Forced</b>	<b>Other</b>	<b>Routine</b>	<b>Forced</b>	<b>Other</b>
<i>Industry-adjusted RTS</i>	0.227 (0.529)	-0.578** (0.018)	-0.006 (0.966)	-0.431 (0.214)	-0.293 (0.227)	-0.188 (0.237)
<i>Headcount Development</i>	-0.482 (0.150)	-0.605*** (0.007)	-0.276* (0.094)	-0.271 (0.468)	-0.319 (0.185)	-0.531*** (0.002)
<i>Debt-to-equity Ratio</i>	-0.552 (0.239)	0.701*** (0.000)	0.350** (0.020)	-0.802* (0.067)	0.754*** (0.000)	0.245 (0.171)
<i>Finance</i>	0.332 (0.624)	-0.185 (0.690)	0.210 (0.501)	-0.348 (0.573)	-1.078* (0.086)	0.051 (0.888)
<i>CFO Age</i>	7.232*** (0.000)	0.058 (0.810)	-0.197 (0.226)	4.860*** (0.000)	-0.070 (0.778)	-0.439** (0.012)
<i>Share of Institutional Investors</i>	0.308 (0.439)	-0.089 (0.671)	-0.016 (0.966)	-0.040 (0.903)	-0.211 (0.350)	0.071 (0.644)
<i>Firm Size</i>	0.355 (0.353)	-0.306 (0.165)	-0.163 (0.297)	0.032 (0.917)	-0.312 (0.206)	-0.185 (0.300)
<i>Constant</i>	-11.728*** (0.000)	-3.894*** (0.000)	-1.679*** (0.000)	-8.632*** (0.000)	-4.061*** (0.000)	-2.398*** (0.000)
Number of observations	476			458		
Pseudo- $R^2$ (McFadden)	0.260			0.240		
Pseudo- $R^2$ (Nagelkerke)	0.436			0.395		

*Note.* In order to improve comparability of coefficients, the variables were standardized.  $p$ -values are reported in parentheses.

\*, \*\*, and \*\*\* denote significance levels for two-tailed tests at the 10%, 5%, and 1% level, respectively.



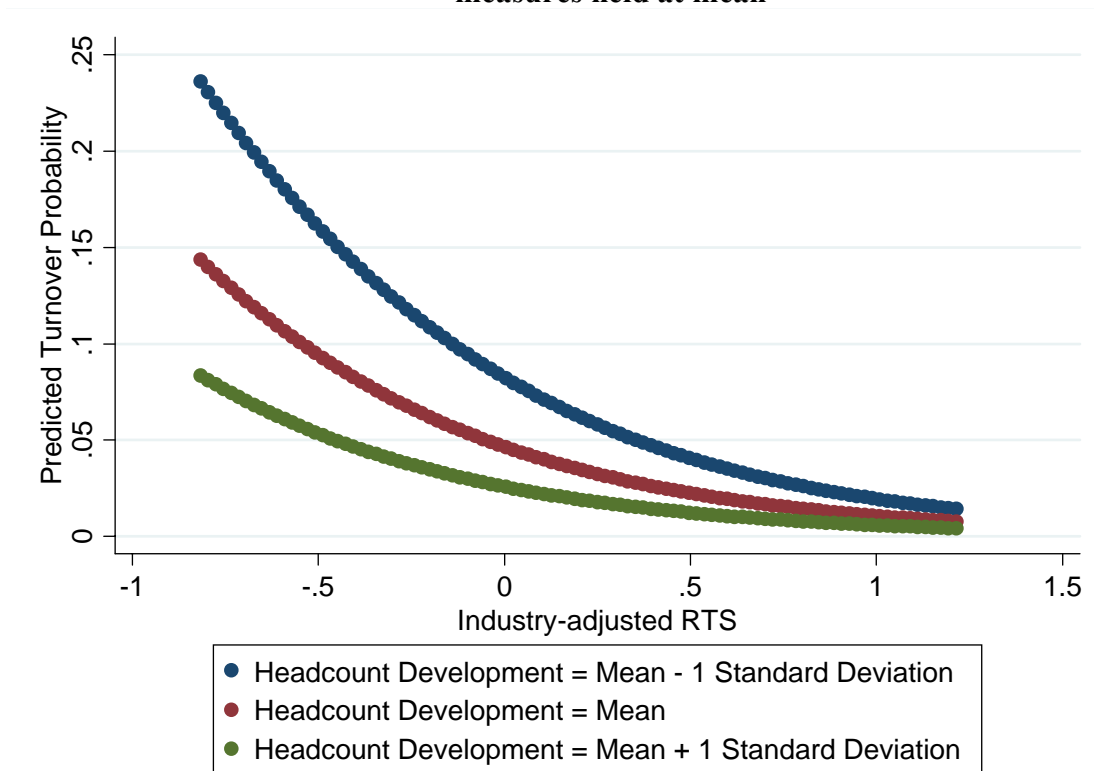
**TABLE 8**  
**Complementarity test based on bootstrapped logit results for t-1**

<b>Predicted probabilities of CFO dismissal</b>	<b>Time t-1 [n=384]</b>			
	<i>Industry-adjusted RTS &lt; 0</i>		<i>Industry-adjusted RTS ≥ 0</i>	
<i>Headcount development</i> < 0	I	14.1%	II	7.1%
<i>Headcount development</i> ≥ 0	III	5.7%	IV	2.7%
Complementarity coefficient according to Inequality (1)	4.0% (0.186)			

*Note.* The four quadrants of the matrix, numbered I to IV, denote the following subsamples: I) RTSnegHDneg, II) RTSposHDneg, III) RTSnegHDpos, IV) RTSposHDpos. Complementarity coefficient calculated by solving Inequality (1) for zero and bootstrapping the resulting term. *p*-value in parentheses.

\*, \*\*, and \*\*\* denote significance levels for two-tailed tests at the 10%, 5%, and 1% level, respectively.

**FIGURE 1**  
**Predicted Turnover Probability by industry-adjusted RTS for model M4 in t-1, all other measures held at mean**



**FIGURE 2**  
**Predicted Turnover Probability by headcount development for model M4 in t-1, all other measures held at mean**

