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### When do German Firms Change their Dividends?

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**WHEN DO GERMAN FIRMS CHANGE THEIR  
DIVIDENDS?**

By Luis Correia da Silva, Marc Goergen, Luc Renneboog

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**Discussion paper**

# When do German firms change their dividends?

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## ABSTRACT

Anecdotal evidence suggests that the dividend policy of German firms is more flexible than the one of their Anglo-American counterparts. This paper analyses the decision to change the dividend for a panel of 221 German firms from 1984 to 1994. The choice of the period of study is motivated by the fact that at the start of this period there was an economic boom which was followed by a recession. Consistent with the traditional dividend literature, e.g. Lintner (1956), net earnings are key determinants of the decision to change the dividend. However, the study comes up with two findings which are contrary to Lintner (1956) and Miller and Modigliani (1961). First, the level of net earnings is not the only key determinant of the dividend decision, as the occurrence of a loss – whatever its magnitude – has an explanatory power exceeding the one of the level of the loss. Second, dividend cuts or omissions tend to be temporary and the majority of German firms quickly (within two years) revert to their initial dividend level. This stands in marked contrast with DeAngelo et al. (1992) who find that US firms are more likely to reduce their dividend when earnings deteriorate on a permanent basis. Furthermore, the fact that German firms frequently omit and cut their dividend and quickly return to their initial dividend suggests that dividends in Germany have less of a signalling role than dividends in the US and the UK. Our findings also contradict Bhattacharya's (1979) argument that the costs of dividend changes are asymmetric with dividend reductions being more costly to the firm than dividend increases. Finally, we find evidence that firms with banks as their major shareholder are more willing to omit their dividend than firms controlled by other types of shareholder.

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**Key words:** Dividend policy, ownership, control, corporate governance

**JEL classification:** G32, G35

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## When do German firms change their dividends?

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Anecdotal evidence suggests that the dividend policy of German firms is more flexible than the one of their Anglo-American counterparts. This paper analyses the decision to change the dividend for a panel of 221 German firms from 1984 to 1994. The choice of the period of study is motivated by the fact that at the start of this period there was an economic boom which was followed by a recession. Consistent with the traditional dividend literature, e.g. Lintner (1956), net earnings are key determinants of the decision to change the dividend. However, the study comes up with two findings which are contrary to Lintner (1956) and Miller and Modigliani (1961). First, the level of net earnings is not the only key determinant of the dividend decision, as the occurrence of a loss – whatever its magnitude – has an explanatory power exceeding the one of the level of the loss. Second, dividend cuts or omissions tend to be temporary and the majority of German firms quickly (within two years) revert to their initial dividend level. This stands in marked contrast with DeAngelo et al. (1992) who find that US firms are more likely to reduce their dividend when earnings deteriorate on a permanent basis. Furthermore, the fact that German firms frequently omit and cut their dividend and quickly return to their initial dividend suggests that dividends in Germany have less of a signalling role than dividends in the US and the UK. Our findings also contradict Bhattacharya's (1979) argument that the costs of dividend changes are asymmetric with dividend reductions being more costly to the firm than dividend increases. Finally, we find evidence that firms with banks as their major shareholder are more willing to omit their dividend than firms controlled by other types of shareholder.

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## 1. Introduction

Company directors of UK firms frequently complain that they have little flexibility in terms of their dividend policy. The recent case of BT plc is a good illustration of this anecdotal inflexibility. According to the Guardian of 18 May 2001 (p.31), ‘[...] *British Telecom got in a mess and required a rescue financing. The City was appalled at the scrapping of the dividend. There were some who argued that it should have maintained a payout so as to protect its longer term investment grade status ...*’. Already in 1994, the then Financial Secretary to the Treasury, Stephen Dorrell, argued that ‘*dividend payouts [in the UK], which have risen substantially since 1979, may have become too high and inflexible*’.<sup>1</sup> It is then surprising that in Germany, where anecdotal evidence suggests that dividend policy is much more flexible (see e.g. The Economist, 29/1/1994), some of the largest companies have been gradually adopting Anglo-American dividend policies. For example, Daimler-Benz AG (now DaimlerChrysler) announced in the mid 1990s that it was “*considering changing its dividend policy to come into line with what the group’s finance director [Gerhard Liener] described as ‘Anglo-American’ practice ... In the long term, Daimler-Benz was considering making sure that its dividend was more closely related to the group’s earnings*”.<sup>2</sup>

In a Miller and Modigliani (1961) framework of perfect capital markets, dividend policy is irrelevant. However, as real world market frictions violate the MM-assumptions, dividend policy may have an important impact on the firm’s value. For example, if managers are believed to have a better idea about the future profitability than outside investors, changes in the dividend policy may convey new information. One reason why dividend policy may have a different economic role in Germany compared to Anglo-American countries is that it is embedded in a different corporate governance system. Most German firms tend to have a large, controlling shareholder and the role of the stock market in the provision of financing is less pronounced (Barca and Becht 2001). Furthermore, large shareholders hold at least 50% of the board seats on the supervisory board and are assumed to monitor the management. Consequently, the traditional agency problems between management and shareholders

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<sup>1</sup> Financial Times of 29 April 1994

<sup>2</sup> Financial Times of 8 July 1994

may be less of an issue in Germany. If this capital-market and corporate-governance system can be associated with lower informational and monitoring problems, then the need to use dividends as a signalling device may be less pronounced in Germany than in the US or UK where corporate ownership is more dispersed and stock markets are important.

Dividend signalling is costly. Therefore, one can argue that a corporate governance system which requires less dividend signalling will be preferred to one that relies more heavily on this kind of signalling. Although, the international debate on the best corporate governance system has been going on for more than two decades (see McCahery et al. 2002), to-date little is still known about the dividend policy of firms operating outside the Anglo-American corporate governance system.

The remainder of the paper is organised as follows. The next section reviews the arguments behind the decision to change the dividend and the impact of concentrated shareholder control on dividend policy. Section 3 discusses the methodology and describes the sample of German firms. Section 4 focuses on a probit analysis of the decision to change the dividend. In section 5, we address the timing of dividend omissions and cuts. Section 6 concentrates on the speed of dividend re-initiations and increases (the so called dividend-rebounds) after dividend omissions and dividend reductions, respectively. In section 7, we study the role of corporate control in the dividend decision. Section 8 concludes.

## **2. Theories and empirical studies on dividend changes**

### *Theories on dividend changes*

Most theoretical models explaining dividend changes focus on dividend signalling and are based on the assumption of asymmetric information between the managers and outside investors. If managers have more information on the firm's future prospects than outsiders, then dividend increases may convey information about increases in the firm's expected value. However, dividends will only act as a credible signal if firms with poor prospects cannot mimic the signal of firms with good prospects.

To be credible a signal therefore needs to be costly enough so that bad firms cannot use it. The costs associated with dividends vary across models. Bhattacharya (1979) and John and Williams (1985) argue that dividends are credible signals given that they are taxed at a higher rate than capital gains. However, there is no such tax disadvantage for dividends in Germany (Amihud and Murgia, 1997). Miller and Rock (1985) show that net dividend increases – defined as increases in dividends minus the proceeds from seasoned equity issues – reveal favourable information while the cost of an incorrect signal is underinvestment. Ofer and Thakor (1987) design a model in which share repurchases and dividends are used to signal unobserved cash flows. The signals are costly as they will require the firm to raise new, external equity in the future which is a costly process. These models agree on two points: first, that increases in dividends can serve as signals of improved firm value; and second, that dividend signalling is costly.

Ownership may be an alternative way to signal firm value. For example, Leland and Pyle (1977) show that the founder can signal his company's quality by the proportion of shares he retains after the initial public offering (IPO). The higher the proportion of shares retained by the founder the higher is the market's expectation about the future value of the firm. The signal is credible as by selling fewer shares in the IPO the founder bears the costs of holding an undiversified portfolio. Likewise, Born (1988) argues that insider ownership is important when assessing dividend signals. The validity of the signal can be checked *ex ante* in the case where a proportion of the managers' ownership cannot be sold until after the performance of the firm can be observed.<sup>3</sup> Hence, managers with long-term holdings will only signal if they believe that their shares are substantially undervalued as they will not be able to exploit the short-term wealth effects of false signals. The managers will suffer if the signal is misused, as the decline in the value of the shares that are restricted from trading may

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<sup>3</sup> These restrictions exist in practice. First, firms that have recently gone public may be subject to so called lock-in agreements which prevent the initial owners from selling additional shares during a pre-specified period after the IPO. Espenlaub, Goergen and Khurshed (2001) report that, although there is no such legal requirement, the initial shareholders of UK IPOs often have their shares locked in until the publication of the next company accounts. Second, a significant number of German firms have dual-class shares with the non-voting shares being listed on the stock exchange and the voting shares being in the hands of the large shareholder. As the latter are not listed, this may restrict their trading at least in the short term.

exceed the gain from the false signal. Born's model faces an important criticism: the argument that long-term shareholders (who are restricted to trade their shares) are concerned about the short-term value of their holding is counter-intuitive to the least.

To summarise, theory suggests that both dividend increases and insider ownership can act as signals of improved firm performance. However, there is no general theory which clearly analyses the interactions between these two types of signal. The above theories provide three strong predictions. First, managers will only increase the dividend, if they have good reasons to believe that the future cash flows will remain high enough to sustain the higher dividend. Second, managers will only proceed with dividend decreases, if they think that future cash flows will be persistently too low to sustain the present dividend levels. Third, there is a positive link between stock returns and the announcements of dividend changes. There is a vast number of empirical studies which confirm at least one of these predictions, although most of these studies are based on samples of US firms.

#### *Studies on dividend changes*

The dividend-rigidity literature has its roots in Lintner's survey (1956) and the reluctance to change the dividend was corroborated by the Fama and Babiak (1968) study. More recently, DeAngelo and DeAngelo (1990), and DeAngelo et al. (1992, 1996) have documented managerial reluctance to cut and omit dividends. For example, DeAngelo et al. (1992) study a sample of NYSE firms with at 10 years of positive earnings before 1980. The sample consists of 167 firms with at least one year of negative earnings during the period of 1980 to 1985 and 440 firms without negative earnings during the same period. They find that 51 per cent of the loss-making firms reduce their dividend against 1 per cent of the firms without a loss. They conclude that a loss is a necessary condition, but not a sufficient condition, for a dividend reduction. Marsh (1992) finds a similar reluctance for the case of UK firms. This is confirmed by Edwards and Mayer (1986). The latter conduct a survey of the 'Hundred Group', an association of the largest UK companies with offices in London. They find that managers reduce their dividend only when they are facing a persistent decline in earnings.



Pettit (1972) is one of the first to document the positive relationship between dividend changes and stock returns. Conversely, Watts (1973) and Gonedes (1978) find conflicting evidence in the sense that the information content of dividends can be trivial. However, more recent studies, using more sophisticated research methodologies, confirm Pettit's findings. Aharony and Swary (1980), Asquith and Mullins (1983, 1986), Healy and Palepu (1988), Kane et al. (1984), Ofer and Siegel (1987), and Christie (1994) have all found that US dividends convey information. For the UK, Marsh (1992) finds results that are very similar to the US findings both in quantitative and qualitative terms. Amihud and Murgia (1997) conclude that the share price reaction to dividend news in Germany is similar to the one in the US, despite the fact that dividends paid by German companies do not suffer from a tax advantage as the ones paid by US firms.

### 3. **Methodology, sample and data description**

#### *Methodology*

We use a discrete-choice model to address the following issues. First, we test whether bottom line earnings and changes in earnings are the key determinants of dividend reductions and dividend increases. Although, Lintner (1956) argues that earnings should determine dividend changes, his sample consists mainly of large, profitable US firms which have a high propensity for dividend increases. DeAngelo et al. (1992) examine whether bottom line earnings also explain dividend decreases. Second, we analyse at what point in time German firms omit dividends as opposed to just reduce them. For example, DeAngelo and DeAngelo (1990) argue that managers avoid dividend omissions at all costs and prefer to reduce dividends now in order to avoid future dividend omissions. We determine the degree of flexibility of the dividend policy of German firms and the importance of current changes in profitability rather than permanent shocks for the setting for the dividend setting. Finally, in section 7, we investigate the impact of large shareholders on the dividend decision.

The decision to reduce, maintain or increase the dividend is clearly an ordinal variable. A simple multinomial logit or probit model would fail to account for the ordinal nature of the variable. Likewise, the use of OLS is also not recommended as such a regression would treat the difference between decreasing and maintaining the

dividend in the same way as the one between maintaining and increasing the dividend. To account for the ordinal nature of the dependent variable, we use an ordered probit as developed by McElvey and Zaviona (1975). The model is built around a latent regression in the same manner as the binomial probit model.<sup>4</sup> The underlying model is:

$$y^* = \beta'X + \epsilon \quad (1)$$

where  $y^*$  is an unobserved variable,  $X$  is a set of explanatory variables, and  $\epsilon$  is the residual. The decision to decrease takes the value 0, maintain takes the value 1 and increase takes the value 2. Although  $y^*$  is not observed, we observe  $y$ :

$$\begin{aligned} y = 0 & \quad \text{if } y^* \leq 0, \\ y = 1 & \quad \text{if } 0 < y^* \leq \tau, \\ y = 2 & \quad \text{if } \tau < y^* \end{aligned}$$

$\tau$  is an unknown parameter to be estimated with  $\epsilon$ . Assume that  $\epsilon$  is normally distributed across observations (as in the binomial probit model) and the mean and the variance of  $\epsilon$  are set to zero and one, respectively.<sup>5</sup> With the normal distribution we have the following probabilities:

$$\begin{aligned} P(y = 0) &= \Phi(\beta'X) \\ P(y = 1) &= \Phi(\tau - \beta'X) - \Phi(\beta'X) \\ P(y = 2) &= 1 - \Phi(\tau - \beta'X) \end{aligned}$$

where  $\Phi$  is the cumulative standard normal. The coefficients are estimated by using the maximum likelihood function.

We estimate the dividend change-earnings model using levels of earnings and changes in earnings (and alternatively levels of and changes in cash flows) lagged by one or more periods. However, lags beyond lag 1 were neither individually nor jointly statistically significant. We tested the null hypothesis of homoskedasticity using a Lagrange Multiplier test (Davidson and MacKinnon 1984). As there was not enough evidence to reject the null hypothesis of homoskedasticity, all models were estimated assuming multiplicative heteroskedasticity (i.e.,  $\text{var}[\epsilon_i] = [\exp(\gamma y_i^*)]^2$ , essentially adding an additional parameter vector to the model).

<sup>4</sup> See Maddala (1983, pp.46-49) for a more detailed account of this technique.

<sup>5</sup> As Greene (1993, p.673) puts it, the model can also be estimated with a logistically distributed disturbance. In practice, this re-formulation makes virtually no difference.

### *Sample and data description*

Our sample is a panel of data ranging from 1984 to 1993. The sample consists of 221 quoted German industrial and commercial firms listed on the 8 German stock exchanges for the period 1984-93. The reason why we chose this particular 10 year-data panel is that the first half of this period is characterised by an economic boom period which is followed by an economic recession. Hence, it is likely that firms will be under pressure to revise their dividend policy during this period. The sample is highly representative of the population of listed German firms, as it contains more than half the listed German companies. The sample includes all the German companies that were quoted on at least one of the German stock markets and that have at least five years of accounting data over the ten years ranging from 1984 to 1993.

Our initial sample included 13 firms that left the stock market: 6 of them went bankrupt, 5 were taken over and 2 put so called 'control agreements' in place during 1984-93. We excluded firms with 'control agreements' in place over the entire period 1984-93. Control agreements are between a company and its parent company and are either Profit and Loss Agreements (PLA, *Gewinnabführungsvertrag*) or a Subordination of Management Agreement (SMA, *Beherrschungsvertrag*). For the latter contracts, the controlling company is required to absorb all the losses, but the transfer of profits is optional. In the case of a PLA, both profits and losses are always transferred to the parent company. The reason for excluding such firms is that their accounting information tends to be limited. Frequently, the profit is not disclosed and reporting is limited to the amount transferred to the parent company (*Gewinnabführung*) as well as the dividends paid to the minority shareholders. Thirty-six firms were introduced on the stock exchange after 1984. All in all, there are 2,098 firm-year observations: the panel counts ten years of observations for 174 firms, 9 for 13 firms, 8 for 15 firms, 7 for 8 firms, 6 for 9 firms and 5 for 2 firms.

We collect all the accounting items from the *Hoppenstedt Saling Aktienführer*. Dividends per share ( $D_{t-1}$ ) are calculated as the weighted average of dividends on ordinary shares and on preference shares (if outstanding). The weights are based on the relative market capitalization of both types of shares. Forty-four of the 221 firms in the sample had preference shares outstanding in at least one year of our sample

period. It should be noted that in 37 of these 44 cases dividends on German preference shares usually change along with those on the ordinary shares.

Special dividends on ordinary shares are also included in the dividend per share. There were 191 such special dividend payments for the total 2,098 firm-year observations (i.e. 9% of the sample). A simple inspection of the dividend per share series reveals that in an overwhelming majority of the cases these special dividends frequently reflect shifts in dividend policy rather than just transitory increases in dividends and earnings. Brickley (1983) studies the dividend payouts and earnings of a sample of US firms in the year following the announcement of special dividends and finds results supporting this view. However, in 10 cases we observed large one-off payments (Sonderausschüttung) either associated with 'special anniversaries', or sales of subsidiaries (in one case), or distributions of reserves previously accumulated at a different rate of taxation. Similarly to the methodology in Behm and Zimmermann (1993), we excluded these 10 firm-year observations.

German accounting rules are often considered to be particularly deficient in the information disclosed to investors. German financial reporting tends to be more conservative than Anglo-American financial reporting (see Harris et al. (1994) for an overview of the system). In particular, there are three factors that contribute to a conservative bias in the published profit figure. First, there is some degree of prudence in asset valuation. According to the imparity principle (*Imparitätsprinzip*) unrealised losses need to be reported but not unrealised gains.

Second, the regulation of the profit distribution, which is referred to in paragraph 150 of the German Stock Corporation Act (AktG §150) establishes a link between dividends and earnings. This provision requires companies to build up a legal reserve (*gesetzliche Rücklage*) from their profits in the balance sheet. The annual profit, after the transfer to the legal profit reserve, is then the basis for dividend distribution. The provisions of AktG §58 specify that the management board (*Vorstand*) and the supervisory board (*Aufsichtsrat*) can retain no more than half of the annual profits, unless they get the approval of the shareholders for a lower distribution. In other words, this provision requires companies to pay out at least 50 percent of their current profits as dividends. However, that is not the case for all companies as other requirements such as legal reserves and special provisions in the articles of

association of companies mitigate the impact of AktG §58 such that the management board may be authorised to transfer up to 100 percent of the year's profit to profit reserves. As a consequence of the link established by the AktG §58 between dividends and earnings, it is in the interest of managers not to report earnings that attain a desired dividend policy because higher reported earnings may create shareholder pressure for higher dividends.

Third, the existence of pension provisions may also account for a certain downward bias in the published profit figure. In the light of this conservative reporting, and other German company law specificities, we use an alternative measure of corporate profitability throughout this paper. Our profit measure ( $NI_t$ ) is measured by zero distribution profits which adjust for the fact that the German tax system affects both measured profits and dividend payouts (Mayer and Alexander (1990)). Given that dividends are taxed at a different rate than earnings retentions, corporate tax liabilities are sensitive to dividend payouts. In particular, in Germany, dividends are taxed at a lower rate than retentions. Therefore, we measure profits as zero distribution profits:

$$\frac{D(1 - t_c)}{1 - t_d} - R$$

where  $t_d$  is the tax rate on dividends,  $t_c$  is the tax rate on retained profits,  $D$  are the dividends net of tax,  $D/(1-t_d)$  are the gross dividends and  $R$  are the recorded retentions given a dividend distribution of  $D$ . To illustrate how dividends in Germany affect the corporate tax liabilities, assume that a firm makes a loss. If it omits its dividend, then there will be no tax liability (as  $t_c$  will be zero). However, if it decides to pay out a dividend despite its loss, then there will be a tax liability (amounting to  $t_d$  times the dividend distribution).

We use cash flows as an alternative profit measure to adjust for the conservatism of German accounting practices (see above). Cash flows ( $CF_t$ ) are defined as zero distribution profits gross of depreciation and changes in provisions. Changes in provisions are the changes in pension provisions (*Pensionsrückstellungen*) and other provisions (*Sonstige Rückstellungen*).<sup>6</sup>

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<sup>6</sup> The inclusion of pension provisions in the calculation of the cash flow deserves a comment, as in the UK this item does not apply. One could argue that pension provisions should be regarded as a liability (from the company towards the employees) and therefore it should not be treated as retentions. However, in our view, there is a strong case for the inclusion of changes in pension provisions in the

The net income, cash flow, and changes in net income and cash flows are standardised by the book value of equity of the previous period. In the models described below, we also include a dummy variable that takes the value of one if there is a loss in period  $t$  ( $NI_{loss_t}$  or  $CF_{loss_t}$ ).

We also collect data on corporate control (i.e. ownership of voting equity) from the *Hoppenstedt Saling Aktienführer*. The types of shareholder we distinguish are: families, other German firms, the German state, banks, insurers, foreign firms or institutions, holding firms, charitable foundations and unknown shareholders. As pyramids of ownership are frequent in German firms (Becht and Boehmer 2001), we report both first-tier control and ultimate control. A firm is widely held at the first tier, if it does not have a shareholder at the first tier owning more than 25% of its voting equity. A firm will have an ultimate controlling shareholder at the first tier if that shareholder is either widely held (i.e. a widely held firm, bank or insurer), or a shareholder of the following types: the German State, a foreign firm or institution, or an individual or family. Otherwise, the ultimate shareholder is at a higher tier, i.e. a tier with either a widely held shareholder or a shareholder from one of the above categories.

#### 4. The decision to change the dividend

Table 1 answers the question as to whether the decision to increase, maintain or reduce dividends depends on past earnings or cash flows. Table 1 contains the results of the ordered probit model. The dependent variable is zero, if the dividend is cut, 1 if it is maintained and 2 if it increased. We estimated several specifications of the model. Each specification includes at least some of the following explanatory variables: a lagged dependent variable ( $dD_{t-1}$ ), i.e., which indicates whether there was a decreased dividend, an unchanged dividend or an increased dividend in period  $t-2$  to  $t-1$ , the current level of net income ( $NI_t$ ) or cash flow ( $CF_t$ ), the level of past net

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cash flow. Edwards and Fischer (1994, table 3.4, p.66) report that, for the period of 1970 to 1989, pension provisions accounted for around 6 percent of the internally generated funds for non-financial companies. The authors also argue that firms frequently have a high degree of discretion over the way in which pension provisions are invested. This is one reason why the bottom line profit figure may be so conservative in Germany. Because of this argument, we included this item in the cash flow figure. The item ‘other provisions’ is net of tax provisions such as deferred taxation.

income ( $NI_{t-1}$ ) or cash flow ( $CF_{t-1}$ ) and the change in net income from period  $t-1$  to  $t$  ( $?NI_t$ ) or cash flow ( $?CF_t$ ). The latter three variables were standardised by the book value of equity of the previous period. Finally, we test the significance of a dummy variable that takes the value of one if there is a loss in period  $t$  ( $NIloss_t$  or  $CFloss_t$ ). Panel A and panel B report the results with earnings and cash flow as the performance measure, respectively.

In each of the specifications (a) to (e), the past dividend has a positive and statistically significant effect on the likelihood of having a change in the current dividend. Panels A and B show that there is a high probability for dividends to increase in the current year if dividends increased over the preceding financial year. The probability of a dividend increase will be higher when there are positive earnings in the current year (specifications (a) – (c), (e)). The same relationship holds for the specifications with cash flows (panel B). Provided that net earnings or cash flows are positive over the current year, dividends are more likely to increase if the net earnings or cash flows of the preceding year were negative (specification (b)). Alternative specifications were estimated including further lags of net income or cash flow, but these further lags were neither individually nor jointly statistically significant.

The inclusion of an earnings loss dummy/negative cash flow dummy (specifications (c) and (d) of panels A and B) improves the goodness of fit of the model. Firms that report an annual loss are therefore significantly more likely to reduce their dividend, a result which is consistent with DeAngelo et al. (1992). Finally, specification (d) and (e) show that not just earnings levels are important, but also the earnings dynamics. Rising net earnings or cash flows also lead to dividend increases.

When comparing panels A and B, it seems that our cash flow measure is a weaker predictor (as suggested by the lower pseudo  $R^2$ ) of a shift in the dividend policy than net income. A model, containing both current net earnings with a lagged variable and current cash flow, was also estimated. In line with the previous results, the coefficients on the cash flow variables were no longer statistically significant.

*[insert table 1 about here]*

Although, in general, the above findings corroborate Lintner's (1956) results that current earnings are key determinants of the dividend decision, they are also a major

departure from Lintner's findings. Our results suggest that earnings losses have substantial predictive power over and above current net income and changes in current net income. However, in turn, our own results may be subject to some criticism. According to Miller and Modigliani (1961), a shift in the dividend policy of a firm with a long track record of dividend payments and appreciation in its dividends is likely to be interpreted as a shift in managers' expectations about the future value of the firm. In other words, if managers have adopted a stable dividend policy and decide to shift it, this shift is likely to be interpreted as carrying more information than a shift by managers of a firm with less stable past dividends. As in the above analysis, we have included both types of firms, this may have had an effect on the estimation results.

##### 5. **The decision to omit or decrease the dividend**

A change in dividend policy will be more informative for firms with a consistent dividend policy. As mentioned above, we have chosen the period 1984-93 as our sample period, as this period can be divided into two sub-periods, the first one reflecting a favourable economic climate (1984-88) and the second one reflecting a recession (1989-93). To test the informational value of a shift in dividend policy, we only retain those firms with strictly positive earnings and dividends over the first subperiod (1984-88). This leaves us with 189 firms out of 221. We then partition the sample of 189 firms into two sub-samples. The first consists of the 71 firms with at least one annual loss during the second sub-period (1989-93). The second sub-sample consists of the 118 firms which continue to generate strictly positive earnings and dividends during 1989-93. So, both types of firms have a similar, stable dividend policy in the first period, but one sub-sample remains profitable in the second sub-period whereas the other generates losses.

Table 2 reports the frequency of dividend cuts, omissions, increases and dividends maintained by sub-sample. For the loss-making firms, we report what happens to the dividend in the year of the *first* annual loss.<sup>7</sup> For the firms without losses, the table records what happens to the dividend during each of the five years of 1989-93. This

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<sup>7</sup> We do not record the dividend behaviour of the loss-making firms for the years after the first loss because we want focus on the impact of the current loss on the current dividend payout rather than on its impact on the long-term payout.



gives us 568 firm-year observations. The vast majority of loss-making firms (57 firms or 80%) omit their dividend in the year of their first loss. Eight loss-making firms (or 11%) cut their dividend. The total percentage of the firms cutting or omitting dividends amounts to 92%. This stands in marked contrast with profitable firms of which only 14% cut or omit their dividend (0.7% omit their dividend and 13.6% reduce their dividend). Hence, an annual loss (irrespective of its level) is a key determinant of the decision to omit the dividend. Given that we corrected for past dividend policy and earnings, these findings are not influenced by cumulative, past poor performance.

*[insert table 2 about here]*

These results stand in stark contrast with those obtained by US studies. DeAngelo et al. (1992), for instance, report significantly different results for 167 loss-making NYSE firms and 440 profit-making NYSE firms. Only 15 per cent of their loss-making firms omit their dividend. The majority of loss-making firms (51%) reduce their dividend. Similarly, DeAngelo and DeAngelo (1990) find that for a sample of 80 NYSE firms, managers of firms with long track records of dividends are less likely to cut their dividend.

We not only test the impact of earnings losses on dividend policy, but also investigate whether a fall in earnings triggers dividend reductions. 178 firms experience a drop in earnings (including the 71 loss-making firms from table 2). Using an ordered probit model, we determine the extent to which a change in dividend policy can be explained by levels and changes in net earnings. In the models of table 3 dividend omissions are represented by the value 0, cuts to a positive level by 1 and maintained or increased dividends by 2. The independent variables are the current net earnings, changes in net earnings and a loss dummy which is set to one if the current net income is negative. The level and the change in net income are again divided by the book value of equity from the previous period. The main reason for dividend reductions or omission is earnings losses (specifications (c) to (f)). Specification f has the highest goodness of

fit<sup>8</sup> and shows that both earnings reductions and earnings losses, but not net earnings levels, are responsible for changes in dividend policy.

*[insert table 3 about here]*

As a robustness check of the above results, we also estimate the ordered probit regressions for a slightly different sample. This sample includes the 71 firms with the event year being the first loss-making year as well as 118 firms with an event year capturing the first year of a net earnings or cash flow decline. This yielded 221 observations, as for some firms we had two event years given that the year of the decline in net earnings did not coincide with the one of the decline in cash flow. The results (not reported) are very similar to the ones shown in table 3.

To summarise the results so far, there is strong evidence that it is annual earnings losses rather than declines in earnings which trigger changes (mainly omissions) in dividend payments in German companies. These results are very different from what has been observed for the case of US and UK firms. In the UK and US, earnings declines trigger dividend cuts to still positive levels of dividends rather than dividend omissions. Thus, it seems that the dividend policy of German firms is characterised by a higher downward flexibility than the one of Anglo-American firms.

If dividends convey information about the future prospects of the firm, as suggested by Modigliani and Miller (1958, 1959), dividends would only be omitted if the managers were pessimistic about the future, long-term profitability of the firm. Therefore, we investigate whether or not dividend omissions are associated with a persistent decline in performance. This hypothesis is tested by running a binomial probit model on the sample of 71 firms with stable past dividends and positive net earnings and cash flows over the period 1984-88 and with losses in at least one year during the period 1989-93.<sup>9</sup> Three of the 71 firms went bankrupt two years after the year of the initial loss. The dependent variable takes the value of one if there is a dividend omission, and zero otherwise. The net earnings in year  $t+1$  are used as a

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<sup>8</sup> It should be noted, however, that the pseudo  $R^2$  does not include a penalty for increasing the number of exogenous variables (see Aldrich and Nelson, 1984) such as the adjusted  $R^2$  for OLS regressions.

<sup>9</sup> As fifteen of these firms had their initial loss-making year in 1993, data on earnings and dividends were collected for 1994.

proxy for the management's expectations of the future earnings with  $t$  representing the year of the first earnings loss.

The statistical significance of the specifications in table 4 is very low. The past level of net earnings has no explanatory power on the decision to change the dividend. Only the current level of net earnings is statistically different from zero (at the 10% level). The negative sign of the net earnings in the year following the year of the initial loss suggests that in the case of dividend omissions by loss-making firms, future earnings will be low. However, the variable is only significantly different from zero at the 14 per cent level. Our results are very different from those of DeAngelo et al. (1992) for the US. DeAngelo et al. find that the decision to reduce the dividend depends strongly on the net earnings before the event year, on the current net earnings and on the net earnings of the year following the event year. It should be noted that the inclusion of future net earnings (as in our setting and in the one of DeAngelo et al. (1992)) might induce a serious endogeneity problem because the current dividend captures expectations about future earnings. If this is the case, including  $NI_{t+1}$  in the probit model will not add any additional information. There is no easy way to solve this problem, apart from including analysts' earnings forecasts. Unfortunately, this kind of information was not available for the period of study.

*[insert table 4 about here]*

To conclude, our results suggest that German firms do not hesitate to reduce their dividend in the case of a temporary deterioration of their earnings. However, unlike Healy and Palepu (1988) and DeAngelo et al (1992), we do not find evidence that dividend omissions only occur when managers believe that the earnings deterioration will persist in the future and are not just temporary.

We also estimated the above model using cash flow instead of net earnings as the explanatory variable. We found that lower cash flows two years and one year before the initial loss-making year were associated with significantly higher odds of having a dividend omission. A similar effect was found for the specification containing only the future cash flow. However, the effects disappeared when all three cash flow variables were jointly included. At best, this suggests a weak correlation between dividend omissions and persistently bad performance.

Our results suggest that in Germany the signalling role of dividends is much less pronounced than in the US or UK. First, earnings losses are the main driving factor for dividend reductions and omissions. Second, it seems that managers cut and omit dividends when earnings are depressed on a temporary basis rather than over longer time periods. In the light of these findings, it is interesting to determine the extent to which German firms revert to the dividend payouts prior to the dividend reduction or omission. This issue is addressed in the next section.

#### **6. Dividend rebounds after dividend cuts and dividend omissions**

If German firms are more willing to reduce their dividend in the case of a temporary earnings problem, they may also be more prone to increase their dividend in the case of a temporary earnings improvement. If this were not the case, one would observe a decrease in the payout ratio of German firms over the long run. In this section, we analyse changes in dividend policy in the aftermath of dividend reductions and omissions. In particular, we address the following questions: (1) how many years does it take a firm to increase or initiate its dividend after a dividend cut or omission, respectively, and (2) in the case of a dividend increase or initiation, what is the average dividend increase or (re)initiation relative to the payout before the dividend cut or omission.

In analysing the dividend behaviour surrounding dividend omissions, we first focus on the firms which omitted their dividend some time during 1985-91 and retain only those with a five-year data-window around the omission. The window starts with the year preceding the omission, includes event year  $t$  and ends 3 years after the omission. We obtain 63 observations consisting of 61 firms (out of 221) satisfying the above criteria; 2 of these firms omitted their dividend twice. By definition, all the firms in the sample paid a strictly positive dividend in year  $t-1$ .

Table 5 shows what happens in the aftermath of a dividend omission. First, panel A reveals that 56% of the firms in the sample re-initiate their dividend within the two years after the omission with 29% re-initiating already in the year immediately after the omission. Second, panel B shows that during the two years after the omission the majority of firms revert to the dividend-payout level in place before the omission. The average gross dividend for the firms that re-initiate in years  $t+1$  and  $t+2$  is similar to

the one paid in year  $t-1$ . Third, the results are not driven by the fact that in period  $t-1$  the sample firms paid a relatively low dividend per share, as their gross dividend in  $t-1$  is similar to the average gross dividend of DM12.30 for the panel of 221 firms during the 1984-93 period.

*[insert table 5 about here]*

We also study the dividend behaviour in the years surrounding dividend cuts (to a still-positive level). Our sample consists of 62 firms that reduced their dividend during the period 1985-91 and had data available over a five-year window surrounding the dividend cut and starting with the year prior to the cut.<sup>10</sup> Table 6 confirms the rapid rebound after dividend cuts. Panel A reports that 76% of the sample increases dividends during the two years following the cut with 50% doing so in the first year after the reduction. Panel B confirms that dividends revert to about the same level as that of  $t-1$  over the 2 years after the cut.

*[insert table 6 about here]*

## **7. Ownership structures and the dividend decision**

The analysis in sections 4 and 5 has shown that annual net earnings losses in firms with a track record of good past performance and stable dividend payout policies cause dividend omissions in 80 per cent of the cases in the year of the loss. In addition, dividend omissions were weakly correlated with higher and more persistent earnings problems, such that it seems that dividends play a weaker role as signalling devices in Germany than in the US and UK.

It may well be that there is less need for dividends to reveal information to the markets given that the average listed German firm is closely held. Large shareholders control at least half of the board seats of the supervisory board<sup>11</sup> and hence have every

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<sup>10</sup> The sample excludes 8 cases of reduction in 'specially designated dividends' which had been paid in year  $t-1$ .

<sup>11</sup> In Germany, supervisory board representation of shareholders and employees is enshrined in corporate law. In companies with more than 500 but fewer than 2000 employees, two thirds of the supervisory board consists of shareholder representatives with the remainder of board seats being reserved for labour representatives. In larger firms with more than 2000 employees, a system of quasi-parity co-determination exists as employee representatives make up half of the supervisory board but

opportunity to be well-informed about the future prospects of the firm. They may therefore not require the costly signal of dividend changes. Moreover, banks also tend to be well-informed as German firms usually have a *Hausbank*. Such banks not only hold superior information as major creditors but also hold a large proportion of voting rights via proxy votes for the individual shareholders who have deposited voting shares with the bank (*Depotstimmrecht*). As a result of the presence of large shareholders and the importance of banks, a change in dividend policy may just reflect temporary deterioration in performance and not a permanent change in net earnings. Thus, in the presence of large-shareholder monitoring there may be less need for dividend signalling.

Table 7 documents the control structure for our sample for the starting year, the middle year and the last year of the sample period (1984, 1989 and 1993, respectively). At the first tier, less than 16 % of the firms are widely-held (do not have a shareholder controlling at least 25 per cent of the voting equity). Families and other German firms are the most important types of shareholder (panels A-C). Each of these categories of shareholders is the major shareholder in about a quarter of the firms. At the ultimate level, the percentage of voting rights controlled by families has risen at the expense of industrial firms. Except for a decline in the importance of ownership by banks, the table shows that over the period 1984-1993 control has hardly changed. Goergen (1998) documents a similar decline of the importance of German banks as equity holders in initial public offerings.

*[insert table 7 about here]*

Using the control data from table 7, we create a set of dummy variables,  $WH_{1i}$  and  $WH_{2i}$ , which are equal to 1 if there is no shareholder with at least 25% and 50%, respectively, of the voting equity of firm  $i$ , and zero otherwise.  $B_i$ ,  $F_i$ , and  $IC_i$  are set to 1 if a bank, a family or an industrial company, respectively, are the controlling shareholder of firm  $i$ , holding at least 25 per cent of the voting equity, and zero otherwise. We also create interactive terms with control that are set to 1 if there is an earnings loss in a widely-held firm, in a bank-dominated firm, in a family-controlled

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the chairman who is a shareholders representative has a casting vote in case of stale-mate (Goergen and Renneboog, 2002).

firm and a firm controlled by an industrial company. All control variables measure the degree of ultimate control, at time  $t-1$ .

As specified in section 4, we estimate the effect of a significant deterioration in performance (such as an earnings loss) on dividends after a period of strictly positive profits and dividends. The dependent variable of the model in table 8 equals 0 if the dividend is omitted, 1 if the dividend is cut to a strictly positive level and 2 if the dividend is increased or maintained. The sample consists of all firms with dividend omissions or cuts (over the period of 1989-93) which had positive earnings as well as a stable dividend policy over the preceding period (1984-88).

Table 8 confirms that net earnings losses have a strong statistically significant effect on the decision to omit dividends. Net income levels are not significantly correlated with the dividend policy decision.<sup>12</sup> Specifications (a) to (c) indicate that control by banks increases the likelihood of a dividend omission in the wake of earnings losses. This is consistent with the fact that banks, owning directly or indirectly a large percentage of the voting rights, mitigate asymmetries of information and agency costs, and thus reduce the need for dividends as signalling and monitoring devices. This result is consistent with evidence for Japanese firms: Dewenter and Warther (1996) show that *Keiretsu* firms cut and omit dividends more often than other Japanese firms. However, family control<sup>13</sup> (specifications (a), (b) and (d)) as well as control by other categories (not shown) do not seem to have a large impact on the dividend decision.

Whereas specification (a) shows that the lack of a controlling shareholder has no impact on the dividend decision, specification (e) shows that firms that suffered an earnings loss in  $t-1$  and have diffuse control are more reluctant to omit or cut their dividend. This may be due to the fact that in widely-held firms, dividend changes do not reflect temporary changes in earnings but longer term changes in earnings levels.

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<sup>12</sup> The results do not change significantly if we use changes in net earnings instead of levels of earnings.

<sup>13</sup> The dummy variable of control by corporate shareholders is excluded to avoid multicollinearity problems.

Alternative specifications with variables interacting earnings losses with control by category of owner did not yield significant results. The control variables are individually and jointly insignificant, and therefore do not explain the decision to decrease, maintain or increase the dividend. This result is true for both the cash flow and the published profits model. A binary probit for the decision to omit or not to omit the dividend was also estimated to check our initial assumption of ordering and produced similar results.

*[insert table 8 about here]*

## **8. Conclusion**

To date, there has been a lot of anecdotal evidence that German firms benefit from a more flexible dividend policy than their US or UK counterparts. This paper applies a discrete choice approach to the dividend decision of German firms. We analyse how past, current and future net earnings affect the decision to change the dividend. In order to adjust for the potential conservatism of German accounting practices, we also check whether cash flows determine the decision to change the dividend. The choice of the period of study (1984-1994) is motivated by the fact that at the start of this period there was an economic boom which was followed by a recession.

Consistent with Lintner (1956), we find that net earnings are key determinants of the decision to change the dividend. However, we find evidence that contradicts the findings from the Anglo-American empirical literature (e.g. DeAngelo et al. 1992) and also contradicts the Miller and Modigliani (1961) predictions. First, we find that it is not the net earnings level which is a key determinant of the decision to change the dividend, but rather the occurrence of a loss. We observe that 80% of the loss-making German firms, with at least five preceding years of positive earnings and dividends, omit the dividend in the year of the loss. They do so irrespectively of the size of the loss and of the level of the past and future earnings. Second, the vast majority of German firms quickly revert to their initial dividend payout after the omission or cut. We find that in both the case of dividend omissions and the one of dividend cuts, the majority of the firms re-initiate the dividend within two years to revert to the initial dividend payout level. This finding contradicts Lintner's (1956) and Miller and Modigliani's (1961) predictions that managers will only change the dividend if they



believe that the firm's earnings will be permanently, and not just temporarily, affected.

Our results stand in marked contrast with those of DeAngelo et al. (1992) for the US. They find that firms are more likely to reduce their dividend if their earnings problems are of a permanent nature. The fact that German firms frequently omit and cut their dividend and quickly return to their initial dividend-payout policy suggests that dividends in Germany have less of a signalling role than dividends in the US and the UK. Our findings also contradict Bhattacharya's (1979) assumption that the costs of dividend changes are asymmetric with dividend reductions being more costly to the firm than dividend increases.

Finally, when measures of control are added to the probit model, bank control is associated with a higher likelihood to omit the dividend when the firm makes a loss. This result suggests that bank control (which depends on the voting equity the bank owns as well as the proxy votes) mitigates informational asymmetry and agency costs. However, control by other types of shareholders as well as the degree of control concentration do not influence the dividend decision. In widely-held loss-making firms we find some evidence of a reluctance to cut the dividend which suggests that in these firms changes in dividend policy bear more information and are more likely to signal future cash flow.

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**Table 1**  
**Ordered Probit Analysis of Decision to Decrease, Maintain or Increase Dividends**

The dependent variable equals zero if the dividend is cut, one if maintained and two if increased. The sample consists of 221 industrial and commercial firms and data cover the period 1984-93. The sample size is 1655 firm-year observations in all regressions. Net income, cash flow and the change in net income and in cash flow are standardised by the book value of equity of the preceding year. All models are estimated with a correction for multiplicative heteroskedasticity. All model specifications are significant with  $p$ -values < .001. Pseudo  $R^2$  follows McFadden (1974).  $R_p^2$  stands for the percentage of correct predictions. Standard errors are between brackets. \*\*\*, \*\*, \* stand for statistical significance at the 1%, 5% and 10% level, respectively, for the two-tailed test.

<b>Panel A: Dividend choice model with earnings</b>					
	(a)	(b)	(c)	(d)	(e)
<b>Const.</b>	0.915*** (0.068)	0.942*** (0.074)	1.167*** (0.079)	1.209*** (0.082)	0.938*** (0.075)
<b>dD<sub>t-1</sub></b>	0.087* (0.049)	0.128*** (0.048)	0.093* (0.049)	0.096** (0.048)	0.137*** (0.049)
<b>NI<sub>t</sub></b>	0.723*** (0.059)	0.968*** (0.064)	0.402*** (0.074)	-	0.360*** (0.080)
<b>NI<sub>t-1</sub></b>	-	-0.554*** (0.083)	-	-	-
<b>? NI<sub>t</sub></b>	-	-	-	0.659*** (0.073)	0.628*** (0.094)
<b>NIloss<sub>t</sub></b>	-	-	-0.844*** (0.142)	-0.891*** (0.134)	-
<b>log-likel.</b>	-1618.7	-1597.5	-1577.1	-1572.8	-1594.8
<b>Pseudo R<sup>2</sup></b>	4.7%	6.0%	7.2%	7.4%	6.1%
<b>R<sub>p</sub><sup>2</sup></b>	50.6%	50.4%	51%	51.9%	50.6%
<b>Panel B: Dividend choice model with cash flows</b>					
	(a)	(b)	(c)	(d)	(e)
<b>Const.</b>	0.729*** (0.071)	0.871*** (0.078)	0.853*** (0.078)	0.927*** (0.073)	0.891*** (0.080)
<b>dD<sub>t-1</sub></b>	0.194*** (0.047)	0.183*** (0.046)	0.173*** (0.048)	0.178*** (0.047)	0.188*** (0.048)
<b>CF<sub>t</sub></b>	0.175*** (0.034)	0.551*** (0.047)	0.113*** (0.037)	-	0.011 (0.039)
<b>CF<sub>t-1</sub></b>	-	-0.499*** (0.051)	-	-	-
<b>? CF<sub>t</sub>? ?</b>	-	-	-	0.580*** (0.052)	0.613*** (0.062)
<b>CFloss<sub>t</sub></b>	-	-	-0.645*** (0.215)	-0.270 (0.199)	-
<b>log-likel.</b>	-1667.6	-1632.1	-1660.3	-1623.7	-1625
<b>pseudo R<sup>2</sup></b>	1.90%	3.90%	2.30%	4.40%	4.40%
<b>R<sub>p</sub><sup>2</sup></b>	49.20%	49.60%	48.50%	50.20%	49.90%

<b>Table 2</b>					
<b><i>Dividend Changes for 71 Loss-making Firms and 118 Firms with Strictly Positive Earnings through 1989-1993.</i></b>					
Both sub-samples of loss-making and profitable firms had similar stable dividend policies and strictly positive earnings during the period 1984-88. Dividend cuts are defined as reductions in dividends whereas omissions stand for 100% reductions in the dividend. For the loss-making sub-sample, we show the number of dividend cuts, omissions, increases and unchanged dividends in the year of the first earnings loss. For the firms without losses, we give the frequency of dividend cuts, omissions, increases and unchanged in the total number of firm-year observations during 1989 to 1993.					
	<b>Number of Firm-Years</b>	<b>Number (percentage) of cases with dividend</b>			
		<b>Cuts</b>	<b>Omissions</b>	<b>Increases</b>	<b>Maintained</b>
<b>Loss-making firms</b>	71	8 (11.3%)	57 (80.3%)	1 (1.4%)	5 (7%)
<b>Firms without losses</b>	568	77 (13.6%)	4 (0.7%)	244 (43%)	243 (42.8%)

**Table 3**  
**Ordered Probit Analysis of the Decision to Omit, Cut or Maintain/Increase Dividends in Loss and Non-Loss Making Firms during 1989-93**

The dependent variable  $dD$  equals zero if the dividend is omitted, one if the dividend is cut to a strictly positive level and two if the dividend is increased or maintained. The sample consists of (1) 71 firms for which the event year corresponds to the initial year they made losses (measured over the period 1989-93), and (2) 107 firms for which the event year is the first year there was an earnings decline to strictly positive earnings (measured over 1989-93). There are therefore 178 observations. Earnings and changes in earnings are standardised by the book value of equity for the previous year. All models are corrected for multiplicative heteroskedasticity. All model specifications are significant with  $p$ -values  $<.001$ . Pseudo  $R^2$  follows McFadden (1974).  $R^2_p$  stands for the percentage of correct predictions. Standard errors are between brackets. \*\*\*, \*\*, \* stand for statistical significance at the 1%, 5% and 10% level, respectively, for the two-tailed test.

	(a)	(b)	(c)	(d)	(e)	(f)
<b>Const.</b>	0.692*** (0.159)	1.175*** (0.153)	1.692*** (0.225)	1.570*** (0.255)	1.779*** (0.236)	1.686*** (0.255)
<b>NI<sub>t</sub></b>	0.390** (0.185)	-	-	0.419* (0.237)	-	0.277 (0.250)
<b>?NI<sub>t</sub></b>	-	1.570*** (0.210)	-	-	0.609*** (0.206)	0.619*** (0.244)
<b>NIloss<sub>t</sub></b>	-	-	-2.355*** (0.251)	-1.957*** (0.332)	-2.118*** (0.283)	-1.890*** (0.337)
<b>log-likel.</b>	-163.7	-150.7	-116.3	-114.8	-113.5	-109.1
<b>pseudo R<sup>2</sup></b>	10.3%	17.5%	36.3%	37.1%	37.8%	40.2%
<b>R<sup>2</sup><sub>p</sub></b>	55.6%	62.4%	76.4%	76.4%	75.8%	76.5%

**Table 4*****Binomial Probit Analysis of the Decision to Omit Dividends and the Persistence and Depth of Net Earnings Difficulties around the Year of Losses***

The dependent variable equals one if the dividend is omitted and zero otherwise. The sample consists of 71 firms in which the event year corresponds to the initial year in which they made losses over the period 1989-1993 and which experienced at five years of strictly positive earnings and dividend payments over the period 1984-88. Net earnings in periods  $t-2$ ,  $t-1$ ,  $t$  and  $t+1$ , where  $t$  is the year of the annual loss, are standardised by the book value of equity for the previous year. Standard-errors are robust to heteroskedasticity following White (1980). Pseudo- $R^2$  follows McFadden (1974).  $R^2_p$  stands for the percentage of correct predictions. Standard errors are between brackets. \*\*\*, \*\*, \* stand for statistical significance at the 1%, 5% and 10% level, respectively, for the two-tailed test.

	(a)	(b)	(c)	(d)	(e)
<b>Constant</b>	1.369*** (0.448)	1.326*** (0.404)	0.811** (0.415)	1.158*** (0.302)	0.705 (0.495)
<b>NI<sub>t-2</sub></b>	-0.145 (0.953)	-	-	-	-
<b>NI<sub>t-1</sub></b>	-	-0.377 (1.194)	-	-	-0.185 (1.181)
<b>NI<sub>t</sub></b>	-	-	-1.303* (0.791)	-	-1.073 (0.729)
<b>NI<sub>t+1</sub></b>	-	-	-	-0.526 (0.357)	-0.663 (0.457)
<b>log-likel</b>	-36.6	-36.6	-34.5	-35.2	-33.7
<b>pseudo R<sup>2</sup></b>	0.01%	0.01%	5.8%	3.9%	7.9%
<b>R<sup>2</sup><sub>p</sub></b>	78.9%	78.9%	78.9%	77.5%	78.9%
<b>signif. level (%)</b>	0.880	0.915	0.074	0.096	0.124



<b>Table 5</b>			
<b><i>Dividend Rebounds After Dividend Omissions</i></b>			
The sample consists of 61 firms. The event year is the first year during 1985-1991 in which firms omitted the dividend per share. There are 63 observations as two firms omitted the dividend twice during the period of analysis. $t$ stands for the first year of dividend omission after at least one year of strictly positive payouts.			
<b><i>Panel A:</i></b>			
<b><i>Number (proportion) of firms re-initiating the dividend</i></b>			
<b>1 Year After <math>t</math></b>	<b>2 Years After <math>t</math></b>	<b>3 Years After <math>t</math></b>	<b>&gt; 3 Years After <math>t</math></b>
18 (28.6%)	17 (27%)	6 (9.5%)	22 (34.9%)
<b><i>Panel B:</i></b>			
<b><i>Average (Median) gross dividend (DM) around <math>t</math> of firms re-initiating the dividend</i></b>			
	<b>1 Year After <math>t</math></b>	<b>2 Years After <math>t</math></b>	<b>3 Years After <math>t</math></b>
<b><math>t-1</math></b>	10.5 (8.2)	9.4 (9.4)	13.6 (11.7)
<b><math>t</math></b>	0 (0)	0 (0)	0 (0)
<b><math>t+1</math></b>	8.8 (8.6)	0 (0)	0 (0)
<b><math>t+2</math></b>	-	10.2 (6.3)	0 (0)
<b><math>t+3</math></b>	-	-	16.05 (14.85)

<b>Table 6</b>		
<b><i>Dividend Rebounds After Dividend Reductions</i></b>		
The sample consists of 62 firms and observations. The event year is the initial year during 1985 to 1991 in which firms reduced the dividend to a still-positive level. $t$ stands for the first year of dividend reduction after at least one year of strictly positive payouts.		
<b><i>Panel A:</i></b>		
<b><i>Number (proportion) of firms increasing the dividend</i></b>		
<b>1 Year After <math>t</math></b>	<b>2 Years After <math>t</math></b>	<b>?3 Years After <math>t</math></b>
31 (50%)	16 (25.8%)	15 (24.2%)
<b><i>Panel B:</i></b>		
<b><i>Average (Median) gross dividend (DM) around <math>t</math> of firms increasing the dividend</i></b>		
	<b>1 Year After <math>t</math></b>	<b>2 Years After <math>t</math></b>
<b><math>t-1</math></b>	17.6 (15.6)	18.0 (16.1)
<b><math>t</math></b>	11.1 (9.4)	11.9 (10.2)
<b><math>t+1</math></b>	15.9 (12.1)	11.5 (9.4)
<b><math>t+2</math></b>	-	14.0 (12.1)

**Table 7**  
**Control Structure of 221 Quoted German Industrial and Commercial**  
**Quoted Firms in 1984, 1989 and 1993**

Widely held firms are firms that do not have any shareholder holding at least 25 or 50 percent of the voting shares. The sample size varies over the 10-year period as some firms in our sample are not quoted during the whole period and some others went private or bankrupt.

	First-Tier Control				Ultimate Control			
	?25%		?50%		?25%		?50%	
	%	NR.	%	NR.	%	NR.	%	NR.
<b>Panel A: 1984</b>								
<b>A. Widely held</b>	15.4	28	45.6	83	15.9	29	46.2	84
<b>B. Closely held, the largest shareholder being:</b>								
1. Family	25.8	47	19.8	36	33.0	60	24.7	45
2. Indust./Com. Firm	25.8	47	18.7	34	11.0	20	8.2	15
3. State	4.4	8	3.3	6	7.7	14	5.5	10
4. Bank	12.1	22	2.7	5	15.9	29	5.5	10
5. Insurer	0.5	1	0	0	1.1	2	0	0
6. Foreign Firm/Inst.	6.0	11	4.9	9	8.2	15	7.1	13
7. Holding	9.3	17	4.4	8	0	0	0	0
8. Foundation	0.5	1	0.5	1	1.6	3	1.1	2
9. Unknown	0	0	0	0	5.5	10	1.6	3
<b>Total</b>	<b>100</b>	<b>182</b>	<b>100</b>	<b>182</b>	<b>100</b>	<b>182</b>	<b>100</b>	<b>182</b>
<b>Panel B: 1989</b>								
<b>A. Widely held</b>	15.8	35	41.2	91	16.3	36	41.6	92
<b>B. Closely held, the largest shareholder being:</b>								
1. Family	26.7	59	22.6	50	36.2	80	29.4	65
2. Indust./Com. Firm	27.6	61	19.5	43	10.0	22	7.2	16
3. State	3.6	8	3.2	7	6.3	14	5.0	11
4. Bank	8.6	19	2.7	6	12.2	27	5.0	11
5. Insurer	0.5	1	0	0	0.5	1	0	0
6. Foreign Firm/Inst.	6.3	14	4.1	9	9.5	21	7.2	16
7. Holding	9.5	21	5.4	12	0.9	2	0	0
8. Foundation	1.4	3	1.4	3	2.7	6	1.8	4
9. Unknown	0	0	0	0	5.4	12	2.7	6
<b>Total</b>	<b>100</b>	<b>221</b>	<b>100</b>	<b>221</b>	<b>100</b>	<b>221</b>	<b>100</b>	<b>221</b>
<b>Panel C: 1993</b>								
<b>A. Widely held</b>	14.9	31	39.4	82	15.9	33	39.9	83
<b>B. Closely held, the largest shareholder being:</b>								
1. Family	22.1	46	16.3	34	32.7	68	25.0	52
2. Indust./Com. Firm	33.7	70	26.4	55	12.0	25	9.6	20
3. State	4.3	9	3.4	7	8.7	18	6.3	13
4. Bank	7.7	16	2.4	5	10.1	21	3.8	8
5. Insurer	1.9	4	0	0	1.9	4	0	0
6. Foreign Firm/Inst.	5.3	11	5.3	11	10.6	22	10.6	22
7. Holding	9.1	19	5.8	12	0.5	1	0.5	1
8. Foundation	1.0	2	1.0	2	1.9	4	1.4	3
9. Unknown	0	0	0	0	5.8	12	2.9	6
<b>Total</b>	<b>100</b>	<b>208</b>	<b>100</b>	<b>208</b>	<b>100</b>	<b>208</b>	<b>100</b>	<b>208</b>

**Table 8**  
**Ordered Probit Analysis of the Relation Between Dividend Omissions,  
Earnings Losses and Control Structures**

The dependent variable equals zero if the dividend is omitted, one if the dividend is cut to a strictly positive level and two if the dividend is increased or maintained. The sample consists of (1) 71 firms in which the event year corresponds to the initial year they made losses over the period 1989-93, and (2) 107 firms in which the event year is the first year there was an earnings decline but strictly positive earnings during 1989-93. In addition, all sample firms have a stable dividend policy and positive earnings over 1984-88. We excluded firms with unavailable ownership data as well as those firms controlled by the state or foundations. The final sample consists of 129 observations. Earnings ( $NI_{it}$ ) are standardised by the book value of equity of the previous year.  $NILOSS_{it}$  is a dummy variable that equals 1 if there is an annual earnings loss in year  $t$ .  $B_{i,t-1}$  and  $F_{i,t-1}$  are dummy variables which equal 1 if a bank or a family, respectively, are the controlling shareholders of firm  $I$  at time  $t-1$ , and zero otherwise.  $WH_{1i,t-1}$  and  $WH_{2i,t-1}$  are dummy variables that equal 1 if there is no large shareholder with at least 25 or 50 per cent, respectively, of the voting shares of firm  $i$  at time  $t-1$ , and zero otherwise.  $WHLOSS_{1i,t-1}$  is an interactive term of widely held at 25 percent level and presence of an annual earnings loss. All models are estimated with multiplicative heteroskedasticity. All model specifications are significant with  $p$ -values  $< .001$ . Pseudo  $R^2$  follows McFadden (1974).  $R^2_p$  stands for the percentage of correct predictions. Standard errors are between brackets. \*\*\*, \*\*, \* stand for statistical significance at the 1%, 5% and 10% level, respectively, for the two-tailed test.

	(a)	(b)	(c)	(d)	(e)
<b>Constant</b>	1.844*** (0.490)	2.044*** (0.349)	2.005*** (0.339)	1.673*** (0.229)	1.737*** (0.240)
<b><math>NI_{it}</math></b>	0.213 (0.196)	0.209 (0.190)	0.220 (0.185)	0.198 (0.166)	0.167 (0.247)
<b><math>NILOSS_{it}</math></b>	-2.258*** (0.399)	-2.292*** (0.394)	-2.299*** (0.382)	-2.162*** (0.343)	-2.261*** (0.328)
<b><math>B_{i,t-1}</math></b>	-0.794 (0.501)	-0.968*** (0.384)	-0.927*** (0.368)	-	-
<b><math>F_{i,t-1}</math></b>	0.111 (0.443)	-0.076 (0.272)	-	0.190 (0.259)	-
<b><math>WH_{1i,t-1}</math></b>	0.304 (0.474)	-	-	-	-0.007 (0.386)
<b><math>WHLoss_{1i,t-1}</math></b>	-	-	-	-	1.027* (0.659)
<b><math>WH_{2i,t-1}</math></b>	-	-	-	-	-
<b>log-likel.</b>	-86.125	-86.409	-86.453	-95.385	-90.723
<b>pseudo <math>R^2</math></b>	35.74%	35.53%	35.50%	28.83%	32.30%
<b><math>R^2_p</math></b>	73.6%	73.6%	73.6%	71.3%	71.5%