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**Working Paper**

**The impact of managerial ownership, monitoring and accounting standard choice on accrual mispricing**

CEFS working paper series, No. 2009-02

**Provided in cooperation with:**

Technische Universität München

Suggested citation: Gegenfurtner, Bernhard; Ampenberger, Markus; Kaserer, Christoph (2009) :  
The impact of managerial ownership, monitoring and accounting standard choice on accrual  
mispricing, CEFS working paper series, No. 2009-02, <http://hdl.handle.net/10419/48411>

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**Working Paper No. 2009-02**

**The Impact of Managerial Ownership, Monitoring and Accounting  
Standard Choice on Accrual Mispricing**

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**WORKING PAPER SERIES**



**Center for Entrepreneurial and  
Financial Studies**



# The Impact of Managerial Ownership, Monitoring and Accounting Standard Choice on Accrual Mispricing

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First Version: Nov 2008

This Version: Jan 2009

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# The Impact of Managerial Ownership, Monitoring and Accounting Standard Choice on Accrual Mispricing

## **Abstract:**

We analyse to what extent the accrual anomaly is related to the choice of the accounting system as well as firm-level heterogeneity in corporate governance mechanisms. Using a unique dataset of listed German firms over the period 1995 to 2005 we first corroborate former results indicating that the accrual anomaly is also present in Germany. However, this anomaly seems to be driven mainly by firms with managerial ownership. In a second step, we test how different corporate governance mechanisms affect the anomaly. For the German experiment on voluntary adoption of IFRS our results confirm previous findings that the anomaly is less likely to be present under a conservative accounting system. While creditor monitoring is able to reduce the accrual anomaly, shareholder monitoring is not. Apart from offering evidence related to the cross-sectional difference in the degree of accrual mispricing, our results give also some insights related to the cross-country variation of this phenomenon.

**JEL Classification:** G32, G34, M4, M41

**Keywords:** Accrual Anomaly, Earnings Quality, Corporate Governance, Managerial Ownership, Capital Market Efficiency, Accounting Standard, Shareholder Monitoring, Creditor Monitoring

## 1. Introduction

In the accounting literature, earnings management and accrual mispricing are two well documented phenomena (cf. Dechow and Schrand (2004)). Among others, the following stylized facts emerge from this literature. First, the accrual anomaly is related to earnings management discretion (cf. Xie (2001) and Chen and Cheng (2002)). Second, earnings management is driven by the corporate governance environment a firm faces. In fact, Leuz et al. (2003) show that earnings management decreases in investor protection. As a consequence, one would expect from these results the accrual anomaly to be more pronounced in code law countries as compared to civil law countries, given that the latter have a higher degree of investor protection. However, empirical results point in the opposite direction. Though Pincus et al. (2007) and LaFond (2005) find the accrual anomaly to be a global phenomenon, their results indicate that it is less severe in code law countries rather than in civil law countries.

This paper aims to shed more light on these conflicting results by scrutinizing the drivers for the accrual anomaly in a code law country setting in more detail. By and large, the stylized characteristics of a code law system compared to a civil law system are the following: (i) stronger insider involvement (cf. Leuz et al. (2003)); (ii) more bank oriented financing (Gorton and Schmid (2000)); (iii) less developed markets for corporate control (cf. Wenger and Kaserer (1998), Köke (2004)); (iv) rather conservative accounting systems (until recently, at least) (cf. Daske et al. (2008)); and (v) less pronounced accounting rules enforcement (cf. Hope (2003)).

Starting from these observations and considering that informativeness of financial statements is the result of a complex interaction of various institutional factors (fixed at the jurisdictional level) and firm specific corporate governance mechanisms, it is by far not clear in which of the two systems the accrual mispricing should be more widespread. In fact, while less developed external corporate governance might lead to the expectation that accrual mispricing is more severe, ubiquitous insider ownership and stronger creditor monitoring may have the opposite effect. It should be noted, however, that the direction of the impact of insider ownership on the informativeness of earnings is unclear, as the literature points in different directions (cf. Warfield et al. (1995), Gabrielsen et al. (2002)). Moreover, according to Kaserer and Klingler (2008) the accounting system is a driving factor for the accrual anomaly.

Hence, for a better understanding of the accrual anomaly it is important to gather a deeper knowledge about the impact of these different factors. In this paper we focus on the analysis of firm-specific corporate governance mechanisms holding the set of institutional factors constant. More specifically, we start from results offered by Kaserer and Klingler (2008), who have shown that German firms switching deliberately from a conservative accounting system to a true-and-fair-view system reinforce the accrual anomaly (i.e. decrease the informativeness of their financial statements). They argue, that in an institutional setting like Germany, where the enforcement of accounting regulation is comparatively weak (cf. Hope (2003)), the introduction of a true-and-fair-view accounting system with difficult-to-verify information is not suitable as it may give the management more discretion in managing reported earnings.<sup>1</sup>

Of course, following the earnings management literature this dilution of the informativeness of earnings is related to the firm specific corporate governance mechanisms in place. However, Kaserer and Klingler (2008) did not account for that effect. It is therefore the major contribution of this paper to extend their approach by integrating corporate governance mechanisms in the analysis. Specifically, we scrutinize to what extent the accrual anomaly is driven by firm-level heterogeneity in managerial ownership and corporate governance characteristics including the choice of the accounting system. Using a single-country-study for Germany allows us to hold the institutional setting constant in order to isolate firm-level differences in terms of managerial ownership and corporate governance mechanisms. Apart from offering some explanations for the cross-sectional difference in the degree of accrual mispricing, our results give also some insights related to the cross-country variation of this phenomenon.

In this paper we analyse 575 German firms over the period 1995 to 2005 (3,109 firm-year observations). Our results extend existing literature in several ways. Previous studies have shown that the existence of the accrual anomaly depends on the applied accounting standard (Kaserer and Klingler (2008)) and institutional differences *across* countries (LaFond (2005), Pincus et al. (2007)). To our knowledge, this is the first study which shows how the existence of the accrual anomaly is related to differences in ownership structure and corporate governance issues *within* one country. First, we find that the level of managerial ownership

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<sup>1</sup> Cf. Van Tendeloo and Vanstraelen (2005) and Zimmermann and Gontcharov (2003). According to their studies German firms reporting under IFRS/IAS are more engaged in earnings management and income smoothing than those firms applying German GAAP.

has a significant impact on the existence of the accrual anomaly in the German capital market. Based on the suggested link between the quality and informativeness of reported earnings and the accrual mispricing this finding suggests that managerial power, measured by managerial ownership, has an important impact on the extent of earnings management. Based on that finding, we continue to analyse the sub-sample of managerial ownership firms. In particular, we focus on the impact of other firm-level corporate governance mechanisms, such as the accounting standard, shareholder and creditor monitoring.

Second, our findings corroborate existing evidence that accounting rules matter for the existence of the accrual anomaly (Kaserer and Klingler (2008)). We find that the accrual anomaly is less prevalent for firms complying with German GAAP. In fact, if enforcement of accounting rules is weak, a conservative accounting approach, such as German GAAP, might be better suitable to reduce information asymmetries between corporate insiders and investors than a true-and-fair-view accounting system, such as IFRS or US-GAAP.

Third, our findings indicate that creditor monitoring has an influence on the accrual anomaly while shareholder monitoring has not. We interpret this finding in a way that sophisticated lenders (especially banks) are better capable to monitor management than shareholders, probably because of a less developed market for corporate control in Germany.

Fourth, our hedge portfolio test indicates that the relationship of managerial ownership and the accrual anomaly in Germany is also of high economic significance. An active portfolio strategy that goes long in a group of firms with low accruals and short in a group of firms with high accruals would result in significant positive abnormal stock market returns for the managerial ownership firms but not for firms without managerial investment. Of course, market imperfections such as transaction costs, can limit the implementation of such a strategy in the real world.

The remainder of the paper is structured as follows: Section 2 discusses the theoretical background underlying our study and develops hypotheses. Section 3 describes the research design. In section 4 the empirical results are presented while section 5 concludes.

## **2 Theory and Hypotheses**

### **2.1 The impact of earnings management and earnings quality on the accrual anomaly**

The study by Xie (2001) is the first one analyzing the impact of earnings management on the accrual anomaly. By introducing a more sophisticated measure of earnings management based on the definition of abnormal accruals according to Jones (1991), she shows that the accrual anomaly is, in fact, driven by abnormal accruals. Hence, she concludes that the mispricing is due to managerial discretion in manipulating reported earnings. This result is further corroborated in a study presented by Chen and Cheng (2002). They argue that abnormal accruals can be used by the management either to signal private information about future performance or for opportunistic earnings management. By identifying a sub-sample of firms where the management is more likely to engage in earnings management, they can show that future abnormal returns are negatively associated with abnormal accruals, whereas the association is positive for those firms that are presumed to use abnormal accruals as a mean for signalling future performance. These results suggest that investors seem not to be able to detect the management's motivation for using abnormal accruals.<sup>2</sup>

### **2.2 Managerial Ownership and Accrual Anomaly**

According to the “law and finance” literature the institutional setting of a country (such as legal origin, level of investor protection, legal enforcement, level of financial market development, corporate ownership patterns, etc.) is a major determinant for corporate policy decisions (cf. LaPorta et al. (1998, 1999, 2000)). Leuz et al. (2003) build on that literature and analyse earnings management as one distinct corporate policy choice around the world. Based on an analysis of 31 countries they find large international differences across several earnings management measures, such as loss avoidance or earnings smoothing. Hence, they conclude that corporate governance is a major determinant of earnings management. In particular they argue about “insiders’ incentives to manage earnings as a way to conceal their private control benefits” (cf. Leuz et al. (2003), p. 508). If differences in corporate governance *across*

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<sup>2</sup> Gunny et al. (2007) and Jacob and Jorgensen (2007) show that earnings measured over alternative annual periods appear less likely to suffer from the effects of managerial income manipulation than earnings measured over the fiscal year. This is documented by a significant higher hedge return based on fiscal year accruals than based on accruals for the alternative annual periods.



countries matters for earnings management, we expect also differences in corporate governance *within* one country to be relevant for earnings management. In fact, the rationale behind this study is to analyse the relevance of firm-level differences in corporate ownership and corporate governance for the accrual anomaly. Thereby, we hold the institutional corporate governance setting constant by focusing on a single-country study.

From a theoretical point of view managerial ownership seems to have conflicting effects on quality of reported earnings: On the one hand, there are good arguments for a positive relationship between managerial ownership and earnings quality. Firms with high managerial investments are less dependent on capital market pressure. Hence, accounting choices of firms with high managerial ownership seem to reflect the true economic situation rather than personal motives. Or expressed differently: Managers in firms underlying a stronger capital market pressure might c.p. more likely make income-increasing or income-smoothing accounting decisions (Stein (1989), Klassen (1997)). Moreover, based on agency theory the *convergence-of-interests hypothesis* would suggest that managerial ownership leads to a better information content of reported earnings. On the other hand, there are also good arguments for a negative relationship between managerial ownership and earnings quality. First, the *managerial entrenchment hypothesis* suggests that this negative relationship is due to the fact that managers use earnings management in order to conceal their private control benefits.<sup>3</sup> Second, there is the possibility that managerial ownership is endogenous in a way that managers purposely invest in firms with low earnings quality. Finally, following the idea that earnings quality does not only depend on managerial discretion (supply of earnings quality) but also on investors' expectations (demand for earnings quality), one could argue that investors require a better quality of reported earnings if ownership is diffuse and information asymmetry higher. As empirical evidence for a non-US-setting suggests a negative relationship between managerial ownership and earnings quality (Gabrielsen et al. (2002)), we expect that managerial ownership might be relevant for the existence of the accrual anomaly. In particular, we expect the accrual anomaly to be present mainly in firms with managerial ownership. Consequently, we test the following null-hypothesis:

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<sup>3</sup> A particular aspect of such private benefits in the context of this study might be the fact that insider ownership in Germany is closely related to family ownership. The income of these family members often, however, depends to a large extent on the firm's dividend payment. This gives an additional incentive to insiders to smooth earnings.

$H_0(i)$ : *Accrual anomaly hypothesis in relation with managerial ownership*: Firms with managerial ownership and firms without managerial ownership do not significantly differ with respect to the pricing of earnings components, i.e. accruals and cash-flows.

### **2.3 Accounting System and Accrual Anomaly**

Kaserer and Klingler (2008) already argue that the mispricing of accruals can be explained along two dimensions: corporate governance and accounting standard. Conclusive with this argument they find that the application of a true-and-fair-view accounting system, such as IFRS or US-GAAP, is an important determinant for the existence of the accrual anomaly in Germany. It should be noted in this context that conservative accounting relies on easy-to-verify information, while true-and-fair-view accounting has the goal to incorporate a substantial amount of difficult-to-verify information, like fair value information of non traded assets.<sup>4</sup> Evidently, the latter approach leaves more discretion to management than the former one. Hence, earnings management and income smoothing activities will be easier to implement under a true-and-fair-view accounting system than under a conservative accounting system. Empirical evidence for Germany in line with this argument was presented by Van Tendeloo and Vanstraelen (2005) and Zimmermann and Gontcharov (2003). In this study, we use the capital market experiment on voluntary adoption of international accounting standards in Germany to test the following null hypothesis:

$H_0(ii)$ : *Accrual anomaly hypothesis in relation with managerial ownership and a conservative accounting standard*: The accounting standard has no influence on the existence of the accrual anomaly.

### **2.4 Creditor Monitoring and Accrual Anomaly**

Evidently, the extent to which management uses accounting discretion is related to all corporate governance mechanisms in place. Hence, beyond insider ownership other mechanisms, like creditor monitoring, are presumed to be important. The monitoring effect of debt uses two different channels. First, according to the free cash-flow hypothesis (cf. Jensen (1986)) debt payments simply reduce managerial discretion over corporate funds. Second, to

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<sup>4</sup> However, recent amendments to the German GAAP aim to introduce some fair value elements leading to a dilution of some conservative accounting elements.

the extent that debt is granted by sophisticated institutions, like banks, monitoring capabilities as well as incentives have to be taken into account. As banks play still an important role in providing funds to German firms, we expect creditor monitoring to significantly improve earnings quality and therefore to reduce the mispricing of earnings components. Concretely, we test the following null-hypothesis:

$H_0$ (iii): *Accrual anomaly hypothesis in relation with managerial ownership and creditor monitoring*: Creditor monitoring has no influence on the existence of the accrual anomaly.

## **2.5 Shareholder Monitoring and Accrual Anomaly**

Finally, shareholders are another group of capital providers that have a natural interest to observe the true economic situation of the firm. Hence, shareholder monitoring is another corporate governance device to limit managerial discretion and earnings management activities. Grossman and Hart (1980) show that there is no incentive for shareholders to engage in monitoring activities in a widely-held corporation. However, large shareholders have both the means and the incentives to overcome this free-rider problem associated with atomistic shareholder structures (Shleifer and Vishny (1986)). Thus, we expect monitoring by large shareholders to have an influence on earnings quality and the accrual anomaly. Precisely, we test the following null-hypothesis:

$H_0$ (iv): *Accrual anomaly hypothesis in relation with managerial ownership and shareholder monitoring*: Shareholder monitoring has no influence on the existence of the accrual anomaly.

## **3. Data**

Our sample is constructed as follows: We start off by identifying all German corporations whose common stock is listed in the broadest German stock index, the Composite German stock index (CDAX) in the period 1995 to 2005.<sup>5</sup> The choice of the

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<sup>5</sup> In principal, German companies can issue common and preference shares. The issuance of dual class shares has been common in Germany for a long time-period. While holders of common shares have a voting right in the shareholders assembly, holders of preference shares do usually not. Usually every firm issues at least common shares and potentially additional preference shares. However, there are very few exceptions in our sample which are only listed with preference shares. Since their ownership structure with dispersed ownership of preference

sampling period results from data availability constraints: The disclosure of voting rights (not cash-flow rights) became mandatory in Germany according to the German Securities Trading Act (*Wertpapierhandelsgesetz, WpHG*) in 1995. Since then, reporting of corporate ownership to both the Federal Financial Supervisory Authority (BaFin) and the traded company is mandatory for shareholders starting with ownership threshold of 5%.<sup>6</sup> Hence, the starting point for our sampling period is 1995 since the quality of ownership data in Germany is not reliable beforehand. Our sample period ends in 2005 which was the last year with available ownership, accounting and capital market information when constructing the dataset. Based on this sampling period we identify 891 firms whose stock has ever been listed in the CDAX between 1995 and 2005. We exclude banks, insurance companies and other financial services providers due to industry-specifics in the financial accounting and the accrual process.<sup>7</sup> Taking missing values and the elimination of outliers<sup>8</sup> into account, our final sample consists of 3,109 firm years.<sup>9</sup> The core data for our analysis comes from *Hoppenstedt Aktienführer* which publishes annual data on ownership structures, management and supervisory board compositions of publicly listed German firms. In order to verify ownership information we use several further databases: *Bureau van Dijk's Amadeus database*, *Commerzbank's Wer gehört zu wem*, the director dealings database of the *Bundesanstalt für Finanzdienstleistungsaufsicht* and web research. Accounting data used in the study is from Worldscope database, whereas capital market data are from Thomson Financial Datastream database.

Our empirical design is based on two dependent variables: earnings and abnormal stock market returns. To analyse to which extent earnings persistence is attributable to the relative magnitude of the cash-flow and accrual component of earnings, we define earnings  $EAR_t$  as the year-end's income before extraordinary items deflated by the average of total assets. The cash-flow component  $CF_t$  is measured as the year-end's net cash-flow from

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shares and heavily concentrated ownership of voting rights is untypical for German CDAX firms, we have decided to exclude them from our analysis.

<sup>6</sup> In January 2007 the European Union's Transparency Directive 2004/109/EG was implemented with the *Transparenzrichtlinien-Umsetzungsgesetz (TUG)*, which has further reduced the mandatory reporting limit to 3% of voting rights according to §21 *WpHG*. Currently, the thresholds for shareholders' mandatory reporting according to the *WpHG* are 3%, 5%, 10%, 15%, 20%, 25%, 30%, 50% and 75% of voting rights. In case of bypassing any of these thresholds shareholders have to report their voting rights to both the listed company and the Federal Financial Supervisory Authority (BaFin).

<sup>7</sup> Cf. e.g. Sloan (1996); the identification of firms from financial services industries is based on the ICB industry classification in Thomson Financial Datastream.

<sup>8</sup> For all relevant variables in our empirical analysis we detect and eliminate extreme values based on the 0.5% tails on both ends of the distribution. Hence, 99% of all observations remain within our sample.

<sup>9</sup> Note that the sample consists of 575 firms and is thus more comprehensive than earlier studies about the German stock market.

operating activities which is also deflated by average total assets. The accrual component results from the difference between earnings and cash-flow.<sup>10</sup> To test whether stock markets are able to fully reflect the information contained in the actual cash-flow and accrual component of earnings we use the yearly abnormal stock market return of firm  $i$  ( $ARE_{i,t+1}$ ) as dependent variable. In detail, we calculate  $ARE_{i,t+1}$  as the buy-and-hold return for each security  $i$  starting four months after the fiscal year end minus the CDAX return for the same period of time.<sup>11</sup>

In our regression models we control for several factors: We use the market value  $MV_t$  defined as the log of market capitalization, the book-to-market ratio  $BTM_t$  calculated as the book value of equity divided by the market value of equity and the earnings-to-price ratio  $ETP_t$  calculated as the earnings per share divided by the stock price. All control variables are measured four months after fiscal year end and are included to control for the well documented size-, market-to-book and earnings-to-price effects.<sup>12</sup> Furthermore, we use yearly beta factors (BETA) which are based on 52-weeks-estimation-windows closing at fiscal year end to incorporate a measure of systematic risk. We include industry and year dummies in our analysis to control for industry- and time-specific effects.

As we intend to test the influence of managerial ownership on earnings quality and the accrual anomaly the sample is split in two sub-samples – one including observations where the management is not invested in the firm while the second includes all firm-year observations with managerial ownership.<sup>13</sup> In a second step, we build further sub-samples for the managerial ownership group based on (a) the applied accounting standard, (b) leverage and (c) the existence of further blockholders. Concerning the accounting standard we distinguish between firms using a true-and-fair-view accounting standard (international accounting standards IFRS and US-GAAP) and firms using a more conservative accounting

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<sup>10</sup> To calculate the accrual component we follow the cash-flow approach proposed by Collins and Hribar (2000) to ensure our results are comparable to previous studies about the accrual anomaly (cf. LaFond (2005), Pincus et al. (2007), Kaserer and Klingler (2008)).

<sup>11</sup> For auditing reasons it usually takes about four month after the fiscal year end to publish an annual report. Hence, to measure capital market reactions after the disclosure of accounting information it is essential to take this time gap into account. Consequently, we use stock-market returns four month after the fiscal year end (not calendar year end) for our calculation of abnormal stock market returns. Being the broadest stock index in Germany the CDAX can be considered as the best approximation for a market return in Germany.

<sup>12</sup> For a deeper understanding of the effects cf. Banz (1981), Basu (1983) and Rosenberg et al. (1985).

<sup>13</sup> We have used the median value of managerial ownership to divide the sample into two groups. Since the median value of managerial ownership is zero, we receive one sub-sample with managerial ownership and one sub-sample without managerial ownership. However, if the management board is invested, this ownership stake is usually substantial as the mean (median) value of 36.3% (35.6%) for this sub-sample indicates.

standard (German GAAP). We use total debt divided by total assets as our measure for leverage. Based on the argument of Jensen (1986) we transfer this continuous variable into a dummy variable for firms with high leverage (good corporate governance) and firms with low leverage (bad corporate governance). Thereby, we use the median value for the leverage to divide the managerial ownership sample into the two sub-groups. Finally, we test for the effect of shareholder monitoring by separating firms with a large blockholder (good corporate governance) from firms without a large blockholder (bad corporate governance). We consider all blockholders with an ownership stake of 5% for our analysis.<sup>14</sup>

## 4. Results

### 4.1 Descriptive Statistics

Table 1 presents descriptive statistics for selective financial and corporate variables. To get a first picture of how the variables differ across the total sample, the sub-group with managerial ownership and the sub-sample where management is not invested, table 1 shows the mean and median values as well as the standard errors for the variables of interest.

- Insert table 1 about here -

As expected the mean of accruals is negative. This is consistent with related empirical studies<sup>15</sup> and due to the large impact of depreciation costs on the accruals.<sup>16</sup> The average return on assets (defined as earnings before extraordinary items deflated by average total assets, and denoted EAR) is slightly negative for the full sample. This is an unexpected finding. However, one possible explanation is provided by the highly negative values for realised return on assets in the years 2001 to 2003. This period of low profitability might be a result of the burst of the new market bubble.<sup>17</sup> This assumption is supported as the negative returns during this period are most notably present in the sub-sample with managerial

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<sup>14</sup> The 5% threshold is motivated twofold: First, a 5%-ownership stake guarantees the right of shareholders to call a shareholders' meeting according to § 122 I of the German Stock Corporation Act (Aktiengesetz). Second, 5% was the mandatory disclosure threshold during the sample period.

<sup>15</sup> E.g. Kaserer and Klingler (2008).

<sup>16</sup> E.g. Xie (2001); consistent with the study by Xie we find depreciation costs (deflated by average total assets) for the total sample of about 0.064.

<sup>17</sup> The average return on assets for the years 2001 to 2003 is about -0.05. Note that in all other years the average return on assets is positive.

ownership which contains a much higher rate of firms in high tech industries.<sup>18</sup> The mean abnormal returns for the full sample as well as for the sub-samples are quite close to zero. As the weighted means are even closer to zero the samples should not suffer of any selection bias. It should be noted that firms in the sub-sample with managerial ownership are on average smaller, have a higher beta and a lower earnings-to-price ratio. They also show a higher rate of annual accounts released under international accounting standards (68% in the sub-sample with managerial ownership versus 32% in the sub-sample without managerial ownership). As expected, the probability for the existence of an external block holder is lower for the firms where the management is invested in the firm. The mean leverage with about 0.20 is almost equal across the two sub-samples.

Table 2 reports the Pearson and Spearman correlation coefficients for the total sample and the two sub-samples. Consistent with earlier studies for the US stock market we find a Pearson correlation coefficient of about -0.29 between cash-flows and accruals for the total sample. Following the argumentation of Kaserer and Klingler (2008) the significant negative correlation may partly be driven by the standardization of earnings by average total assets. However, this does not seem to have a big impact in our analysis as the correlation between deflated accruals and return on assets is only 0.165.<sup>19</sup> Hence, we can argue that this negative correlation is most probably due to firms that use accruals to smooth their earnings.

- Insert table 2 about here –

The second and third panel of table 2 report the correlation statistics for the two sub-samples. Over all panel two and three show the same picture as the total sample. Again, both sub-samples report a highly significantly negative correlation between accruals and cash-flows. Nevertheless there is one interesting difference. While the correlation between the accruals and the abnormal return shows only a slight negative value in the sample without managerial ownership, the Pearson correlation coefficient for the other sub-sample is -0.203. This implies that in the sub-sample with managerial ownership a more pronounced overvaluation of accruals can be expected.

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<sup>18</sup> The rate is measured by the ICB industry classification used in Thomson Financial Datastream. While the rate of high-tech firms between 2001 and 2003 for firm-year observations with no managerial ownership is about 0.13 the corresponding rate for firm-year observations with stock owned by the management is about 0.41.

<sup>19</sup> Note that the negative correlation between cash-flows and accruals would be just a normalization effect if the correlation between deflated earnings and deflated accruals would equal 1.

## 4.2 Persistence of Earnings components

The first step of our empirical analysis concerns the earnings persistence with respect to accruals and cash-flows. Following the approach introduced by Sloan (1996) we estimate the following linear forecasting equation:

$$EAR_{t+1} = \alpha_0 + \beta_0 \cdot d + (\alpha_1 + \beta_1 \cdot d) \cdot ACC_t + (\alpha_2 + \beta_2 \cdot d) \cdot CF_t + \varepsilon_{t+1} \quad (1)$$

The dummy variable  $d$  is used to test whether persistence is related to managerial ownership. The first column of table 3 presents the regression results for the full sample. In accordance with the seminal study by Sloan (1996) as well as the study for the German capital market by Kaserer and Klingler (2008) we find a significantly higher persistence of future earnings with respect to cash-flows. However the absolute value of the regression parameter  $\alpha_1$  for the accrual component with about 0.40<sup>20</sup> shows a substantial lower persistence<sup>21</sup> than the ones in the above mentioned studies. This finding is most probably due to the increased market pressure during the stock market hype.<sup>22</sup> As the persistence parameter of the cash-flow component with 0.716 is even slightly higher than the one reported in the study by Kaserer and Klingler (2008)<sup>23</sup> our results go along with international evidence that expects accruals to be the primary earnings management instrument.

- Insert table 3 about here –

Column two analyses the impact of managerial ownership on the persistence parameters. To isolate the influence of firms with managerial ownership we introduce a dummy variable  $d$  which is one if management is invested and zero otherwise (in the base case scenario). It turns out that persistency of the accrual and the cash-flow component is not significantly affected by managerial ownership.

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<sup>20</sup> The regression parameter for the accrual component in the paper by Sloan is 0.765; in the paper by Kaserer and Klingler (2008) it is 0.506.

<sup>21</sup> As our study includes the most actual data this implies that the overall persistence seems to decline. This is in line with the results reported by Kaserer and Klingler (2008), where they show that in the second time period of their paper (2000-2002) the persistence of earnings with respect to accruals is significantly lower than in the first time period of their study (1995-1999).

<sup>22</sup> Note that in not tabulated results the persistence parameter for the accrual component prior to the new market is about 0.48, while this value declines in the first years of the new market hype to 0.19.

<sup>23</sup> They report a regression parameter for the cash-flow component of 0.688.



### 4.3 Test of the accrual anomaly hypothesis

In the previous section we have seen that the persistence of future earnings with respect to actual cash-flows and accruals differs. This holds true for firms with and without managerial ownership. Now we address the question whether investors at the capital market take this different persistence into account when valuing an investment. If this is the case security prices will be efficient and future abnormal returns will not be predictable based on past accruals or cash-flows.

Following former studies we use two different approaches to test for this efficiency question. The first one is a linear pooled OLS regression approach, while the second one uses a regression equation system that consists of a forecasting equation and a rational pricing equation. We start with the OLS regression approach. If investors have rational expectations, i.e. they do not make any systematic errors in forecasting returns, future abnormal returns should not depend on past accounting figures. However, if investors overestimate (underestimate) the persistence of accruals (cash-flows), we expect that this mispricing will be resolved over time, and, hence, future abnormal returns will be negatively (positively) associated with past accruals (cash-flows). This hypothesis can be directly tested by the following linear regression model:

$$\begin{aligned} ARE_{t+1} = & \alpha_0 + \beta_0 \cdot d + (\alpha_1 + \beta_1 \cdot d) \cdot ACC_t + (\alpha_2 + \beta_2 \cdot d) \cdot CF_t + \beta_3 \cdot MV_t + \beta_4 \cdot BTM_t \\ & + \beta_5 \cdot ETP_t + \beta_6 \cdot BETA_t + \text{year dummies} + \text{industry dummies} + \varepsilon_{t+1} \end{aligned} \quad (2)$$

As already mentioned above equation (2) contains four additional variables besides the cash-flow and accrual component of future earnings to control for size, book-to-market and earnings-to-price effects. We further include year and industry dummies into our regression model.<sup>24</sup> The dummy variable  $d$  tests whether a possible market over- or under- reaction is due to managerial ownership. Capital market efficiency with respect to the information contained in accruals and cash-flows requires the condition  $\alpha_j = 0$  in the base case to hold, and respectively  $\alpha_j + \beta_j = 0$  ( $j=1,2$ ) in the case when the impact of managerial ownership is considered.

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<sup>24</sup> We include industry dummies which are based on the ICB industry classification used in Thomson Financial Datastream.

Column one of table 4A reports the results for the initial question whether the accrual anomaly is also present in the German capital market. Consistent with previous findings for the German stock market we find a significant overvaluation of the earnings persistence with respect to actual accruals. The cash component of earnings on the other hand is by trend undervalued but not at a level of statistical significance. As these findings hold after including the above described control variables as well as industry and time dummies we conclude that the accrual anomaly is a phenomenon which is also present in Germany.

- Insert table 4A about here –

Column two of table 4A addresses the hypothesis that managerial ownership influences the efficiency of the capital market with respect to the information contained in actual earnings components. Following the line of argumentation in section 2 we expect to find a misvaluation of actual accruals mainly in firms where management is invested and the null hypothesis  $H_0(i)$  should be rejected based on a joint test of  $\alpha_1 + \beta_1 = 0$ . First of all, when analyzing the regression parameters  $\alpha_1$  and  $\alpha_2$  in column two it becomes obvious that in the base case scenario no misvaluation of accruals but an undervaluation of cash-flows occurs. When the firms with managerial ownership are considered ( $d=1$ ) we find a significant overvaluation of the accrual component of earnings but no misvaluation of the cash component. This finding is reflected in the rejection of  $\alpha_1 + \beta_1 = 0$  at a significance-level of 99%, but no rejection of  $\alpha_2 + \beta_2 = 0$ . Therefore we conclude that the accrual anomaly is mainly driven by firms with managerial ownership and reject hypothesis  $H_0(i)$ .

The second test approach to analyse the above raised efficiency question starts with the efficient market model. In such a model of efficient capital markets abnormal security returns should depend positively on unexpected earnings changes:

$$ARE_{t+1} = \beta_1 \cdot [EAR_{t+q} - E(EAR_{t+q})] + v_{t+1} \quad (3)$$

Now, putting together the earnings forecasting model in equation (1), where the dummy variable  $d$  is eliminated, with the rational pricing equation (3), we get the following regression equation system<sup>25</sup>:

$$\begin{aligned} EAR_{t+1} &= \alpha_0 + \alpha_1 \cdot ACC_t + \alpha_2 \cdot CF_t + \varepsilon_{t+1} \\ ARE_{t+1} &= \beta_1 \cdot [EAR_{t+1} - (\alpha_0^* + \alpha_1^* \cdot ACC_t + \alpha_2^* \cdot CF_t)] + \nu_{t+1} \end{aligned} \quad (4)$$

The null hypothesis of capital market efficiency with respect to the information contained in accruals is tested by the nonlinear condition  $\alpha_1^* = \alpha_1$  by a Wald coefficient test<sup>26</sup>. Consistent with results in the pooled OLS approach for the total sample column one of table 4B reports a significant overestimation of the investors' subjective earnings persistence with respect to the accrual component ( $\alpha_1^* = 0.657$ ) compared to the objective persistence parameter ( $\alpha_1 = 0.402$ ). In contrast with the first test approach we find also a misvaluation of the cash component ( $\alpha_2^* = 0.457$ ,  $\alpha_2 = 0.716$ ).

- Insert table 4B about here -

Column two reports the results for the isolated effect of managerial ownership. Again it becomes clear that a misevaluation with respect to actual accruals is most likely driven by firms with managerial ownership. This can be seen as  $\alpha_1^* = \alpha_1$  cannot be rejected in the base case scenario. The joint hypothesis of  $\alpha_1^* + \beta_1^* = \alpha_1 + \beta_1$  on the other hand is refused at a level of significance of 99%.

#### **4.4 The influence of corporate governance mechanisms on the misvaluation of accruals**

The previous findings show that the accrual anomaly in the German capital market is mainly driven by firms with managerial ownership. This result might be influenced by managerial corporate policy choices: Management might exploit judgement latitudes to manage reported earnings in a system like the German one with weak enforcement of

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<sup>25</sup> Note that the rational pricing equation besides the accrual and cash-flow component again contains the above described control variables, year and industry dummies. To make the mechanism clear equation (4) presents only the basic construct.

<sup>26</sup> Cf. Greene (2000) for a description of the Wald coefficient test. We refrained from using the Mishkin test as an alternative test procedure due to its weaknesses described by Kraft (2007).

accounting rules and thus avoid passing private information to outside investors.<sup>27</sup> Based on this finding, we raise the question if differences in firm-level corporate governance are able to explain this market inefficiency. We test the impact of three distinct corporate governance mechanisms to reduce managerial discretion for the sub-sample with managerial ownership: conservative accounting, shareholder and creditor monitoring.<sup>28</sup>

The first mechanism under scrutiny is the accounting standard used by the sample firms to release the annual accounts. Following the findings by Kaserer and Klingler (2008) the anomaly should be more pronounced under a true-and-fair-view accounting system, which relies on difficult-to-verify information. Furthermore, such an accounting system leaves management more discretion in accounting policies compared to a conservative accounting system.<sup>29</sup> Hence, we presume that the accrual anomaly should be less pronounced under the conservative German GAAP as under the true-and-fair-view oriented IFRS.

Table 5A reports the results for the corporate governance mechanisms received with the pooled OLS regression approach. Again, control variables, year and industry dummies are included to assure the findings are not biased by these effects.

- Insert table 5A about here –

The results with respect to the accounting standard are reported in column one. In the base case scenario parameter  $\alpha_1$  indicates at a significance-level of 99% that security returns are not efficient with reference to actual accruals. However, if the regression is run in order to isolate the influence of firms reporting under German GAAP results are quite different. This becomes obvious as parameter  $\beta_1$  is significantly positive, resulting in no rejection of  $\alpha_1 + \beta_1 = 0$ . This shows that for firms in the sub-sample with managerial ownership the anomaly does not occur if firms report under a conservative accounting standard. Therefore we reject the null hypothesis  $H_0(ii)$ .

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<sup>27</sup> Cf. e.g. Van Tendeloo and Vanstraelen (2005).

<sup>28</sup> As a robustness check, we have performed the same analysis for the entire sample. Our results indicate that the effects of those corporate governance mechanisms also hold true – sometimes at a different level of statistical significance – for the full sample.

<sup>29</sup> Cf. e.g. Guay and Verrecchia (2006).

We continue our analysis with another corporate governance device: the impact of creditor monitoring approximated by the leverage of the firm.<sup>30</sup> Column two presents the results of this second mechanism. Again in the base case scenario  $\alpha_1$  with a value of about -0.703 is significantly different from zero indicating a misvaluation of actual accruals. When we are isolating the effect of firms with a high leverage a comparable picture to that in column one arises. The regression parameter  $\beta_1$  is positive at a level of significance of 95% and the joint test of  $\alpha_1 + \beta_1 = 0$  cannot be refused. Hence, we show that creditor monitoring is an efficient corporate governance mechanisms and we can reject hypothesis  $H_0(iii)$ .

Finally, we analyse the impact of shareholder monitoring on the existence of the accrual anomaly. The results concerning the influence of an external blockholder are reported in column three. In contrast to both other regressions we find  $\alpha_1$  not to be significantly different from zero. In this case that implies no mispricing can be assumed. Contrary to our expectation we find a misvaluation in the regression that isolates the influence of firms with an external block holder.<sup>31</sup> This becomes clear as  $\alpha_1 + \beta_1 = 0$  is different from zero at a level of significance of 99%. Hence, the null hypothesis  $H_0(iv)$  is rejected. However, instead of reducing the existence of the accrual anomaly, the presence of a blockholder even reinforces the capital market inefficiency. One potential explanation is that management and outside blockholders work together in such cases to expropriate minority investors by extracting private benefits of control. One might ask whether the mode of action of the three corporate governance mechanisms does hold if they are analysed simultaneously within one linear regression model. Hence, as a further robustness check we perform such a regression including all three corporate governance mechanisms simultaneously. Please note, that

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<sup>30</sup> Note that the precise variable of interest to measure the impact of bank monitoring would be bank debt. However, the Worldscope database does not report this variable. Hence, we take total debt as a proxy. To assure this assumption is reasonable we calculated for a sub-sample of Prime Standard firms in 2003 (which is the first year of the Prime Standard as the transparency standard with the highest disclosure requirements in Germany) the correlation between hand collected bank debt from annual reports and total debt as reported by the Worldscope Database. As this correlation is considerably high with about 0.77, we believe total debt to be rather useful approximation for creditor monitoring by banks. In our analysis we have transformed the continuous variable of total leverage into a binary variable which is one for firms with a high leverage and zero for firms with a low leverage. We have used the median value of total debt to generate this dummy variable. We believe that this procedure makes sense since otherwise we would assume a linear relationship between leverage and monitoring effects. However, we interpret Jensen's (1986) free cash-flow hypothesis in a way that it neither assumes this linearity nor is the monitoring effect of debt related to a certain level of leverage. However, our results remain qualitatively unchanged if we substitute the dummy variable with the continuous variable total debt in our analysis.

<sup>31</sup> This result is robust against an alternative test with outside blockholders having a larger voting power. In particular, we have used ownership levels of 10% and 25% to perform such a robustness test with unchanged results.

although not tabulated here the effects of the three corporate governance mechanisms remain unchanged if we apply such a simultaneous test procedure.

- Insert table 5B about here –

Table 5B reports the results for the second test approach. Column one of table 5B corresponds to the findings of column one in table 5A. Again the second test approach confirms the results of the pooled OLS regression. In the base case scenario  $\alpha_1^* = 0.767$  is significantly higher than  $\alpha_1 = 0.377$  showing the subjective overestimation of earnings persistence with respect to actual accruals. Isolating the effect stemming from firms reporting under German GAAP we find no significant misvaluation.

Column two concerns the impact of creditor monitoring. In accordance with the findings in table 5A we find a significant mispricing only in the base case. Finally, we test the effects of shareholder monitoring. Again, the result of the Wald coefficient test for shareholder monitoring is consistent with the result of the pooled OLS regression. Shareholder monitoring seems not to be an efficient corporate governance mechanism.

#### **4.5 Evaluating the economic relevance of findings**

Section 4.3 showed that in a statistical sense accruals are not properly reflected in security prices at the German capital market and that this inefficiency is mainly driven by firms with managerial ownership. In this section we address the question if this inefficiency is not only from a statistical point of view but also from an economic point of view meaningful. Therefore we conduct a hedge portfolio test comparable to that in the seminal paper by Sloan (1996).<sup>32</sup> We have to mention that a significant hedge return is not a sure indication of market inefficiency, as the hedge portfolio test does neither include control variables, nor does it

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<sup>32</sup> Note that in contrast to the hedge portfolio test used in the study by Sloan (1996), we do not use deciles portfolios but calculate the hedge returns by taking a long position in the stock of firms in the lowest 30% percentile of accruals and taking a short position in the stock of firms in the highest 30% percentile of accruals. We have to perform the hedge portfolio test in this way, since our sub-sample with managerial ownership has too little observations for a procedure based on deciles. However, it should be mentioned that our procedure is more conservative and hedge returns are expected to be even higher when taking the long and short positions only in the extreme deciles.

consider arbitrage limits like short selling constraints or transaction costs. However we expect that a significant hedge return should occur most likely in the sample with managerial ownership. Due to too little observations in the years 1995 to 1997 the hedge returns are only calculated for the period from 1998 to 2005.

- Insert figure 1 about here -

Panel (A) plots the yearly hedge portfolio returns for the full sample. In accordance with the finding in section 4.3 that the accrual component is not properly reflected in security prices, the mean yearly hedge return is about 0.148 showing a maximum of 0.476 in the year 2002 and a minimum of 0.046 in the year 2003. Hence, there is not a single year in which the hedge return is negative.

Panel (B) shows the results for the sample without managerial ownership. In contrast to the results for the full sample two of eight yearly hedge returns are negative and two more are quite close to zero. This results in a mean hedge portfolio return for the period 1998 to 2005 of 0.083 with a standard deviation of 0.146. Hence for the sub-sample without managerial ownership we find no statistically significant positive hedge return.

The last panel documents the findings for the sub-sample with managerial ownership. As expected from the results of section 4.3 the mean hedge return for this sub-sample is the highest with a value of 0.237. Again like in the total sample no observation shows a negative value. The minimum yearly hedge return is 0.070 in year 2003, the maximum 0.569 in year 2002. Including the standard deviation of 0.158 the mean yearly hedge return of this sub-sample is positive at a level of significance of 99%.

Overall, the hedge portfolio test corroborates earlier findings for the U.S. (e.g. by Sloan 1996) that an investment strategy based on the accrual anomaly leads to significant abnormal stock market returns (for the full sample). However, this is the first study to confirm the success of such an investment strategy for Germany. Moreover, we show that managerial ownership is an important determinant for the existence of the accrual anomaly not only from a statistical but also from an economic point of view. In fact, it has a strong impact on the success of such an investment strategy. A comparison of the two sub-samples for firms with and without managerial ownership indicates significant differences in realised returns. As

supposed, abnormal returns are much higher for the sub-sample of firms with managerial ownership. However, as already noted above the implementation of such a strategy in the real world might be hindered by market imperfections, such as transaction costs.

## **5. Summary and Conclusion**

This paper aims to analyse how the accrual anomaly is related to firm-level differences in corporate ownership and governance mechanisms. In particular, we focus on the impact of managerial ownership and selected corporate governance mechanisms. In accordance with previous studies for the US capital market as well as for the German capital market we find earnings to be less persistent with respect to prior year's accruals than with respect to prior year's cash-flows for German firms. Also in line with previous findings we document an overvaluation of accruals in Germany. Based on the panel structure of our data which allows us to cover different firms over a longer period of time, we can show that the accrual anomaly for Germany documented by Kaserer and Klingler (2008) seems to be quite robust.

Our second finding indicates that the accrual anomaly is mainly driven by firms with managerial ownership. However, we do not find evidence for a significant accrual mispricing in the sub-sample without managerial ownership complying with international accounting rules. This corroborates the results presented by Gabrielsen et al. (2002), who showed that in a continental European setting earnings quality declines with the level of managerial ownership. Moreover, we find the degree of accrual mispricing to be inversely related to the degree of creditor management. However, shareholder monitoring seems to be no effective monitoring mechanism in the context of less developed markets for corporate control, such as Germany.

Overall, our results complement existing research about factors influencing the accrual anomaly. We show that besides the institutional setting (LaFond (2005), Pincus et al. (2007)) and the accounting system (Kaserer and Klingler (2008)), firm-level ownership and corporate governance characteristics have also a strong impact on the existence of the accrual anomaly. However, there are some limitations to these findings: First, earnings quality can be measured in several ways. In our study we focus on capital market reactions by analysing the accrual anomaly. However, an alternative approach would be to test the impact of managerial ownership on earnings manipulation and accounting policies. Second, our study intentionally



is based on one single country – Germany – in order to hold the institutional setting constant. In this sense, it is important to see whether our results hold true for other countries and more importantly for other institutional settings (e.g. common law countries like the U.S. and the U.K.). Another natural avenue for future research is to test the impact of other corporate governance devices on the existence of the accrual anomaly, e.g. monitoring by the board of directors, analyst coverage or executive compensation.

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**Table 1**  
**Mean, Median and Standard Deviation of Selected Variables**

<i>Sample</i>	1995-2005	1995-2005	1995-2005
	ALL	NO Managerial Ownership	Managerial Ownership
<i>N</i>	3109	1839	1270
$EAR_{t+1}$	-0.005129 <i>0.023988</i> (0.140638)	0.015249 <i>0.026819</i> (0.105693)	-0.034637 <i>0.017035</i> (0.175468)
$ACC_t$	-0.062578 <i>-0.053111</i> (0.118024)	-0.056936 <i>-0.053135</i> (0.097047)	-0.070748 <i>-0.053007</i> (0.142696)
$CF_t$	0.053267 <i>0.064998</i> (0.115176)	0.06696 <i>0.072727</i> (0.094036)	0.033441 <i>0.048843</i> (0.137901)
$ARE_{t+1}$	0.046222 <i>-0.034959</i> (0.533331)	0.04272 <i>-0.017226</i> (0.482405)	0.051293 <i>-0.065381</i> (0.59962)
weighted mean	0.03279	0.0348	0.01200
$MV_t$	5.143304 <i>5.034388</i> (0.891012)	5.424959 <i>5.33967</i> (0.916345)	4.735457 <i>4.665909</i> (0.668415)
$BTM_t$	0.81541 <i>0.589442</i> (0.910592)	0.775649 <i>0.56528</i> (0.907607)	0.872985 <i>0.639759</i> (0.912185)
$ETP_t$	-0.137017 <i>0.034048</i> (0.640257)	-0.069461 <i>0.042269</i> (0.502929)	-0.23484 <i>0.01725</i> (0.788317)
$BETA_t$	0.531127 <i>0.435328</i> (0.564422)	0.465641 <i>0.359471</i> (0.52306)	0.625952 <i>0.539471</i> (0.607254)
weighted mean	0.83431	0.79446	1.19827
$MO_t$	0.148417 <i>0</i> (0.23656)	0 <i>--</i> <i>--</i>	0.36333 <i>0.3557</i> (0.242716)
$LEV_t$	0.198659 <i>0.170556</i> (0.177073)	0.197738 <i>0.174529</i> (0.169317)	0.199994 <i>0.158935</i> (0.187797)
5% Blockholder <sub>t</sub>	0.696687	0.814573	0.525984
National	0.471213	0.573681	0.322835
International	0.528787	0.426319	0.677165

The variables are defined as follows: EAR=Earnings before extraordinary items deflated by total average assets; ACC=Earnings before extraordinary items minus cash flow from operating activities deflated by average total assets; CF=Cash flow from operating activities deflated by average total assets; ARE=Abnormal return measured as the annual buy-and-hold stock return minus the annual return of the CDAX Index for Germany starting four months after the fiscal year end; MV=Logarithm of the market value four months after the fiscal year end; BTM=Book-to-market ratio four months after the fiscal year end; ETP=Earnings-to-price ratio four months after the fiscal year end; BETA=52 weeks beta calculated with respect to the CDAX Index over a period ending at fiscal year end. MO=Stock owned by the management of the firm. LEV=Total Debt deflated by total average assets. 5% Blockholder is a dummy variable which equals 1 if there is an outside blockholder. National standards include firms complying with HGB, HGB with EEC and IASC guidelines, HGB with some EEC guidelines. International standards include firms complying with IFRS/IAS, US GAAP, US GAAP reclassified from local standards.

**Table 2**  
**Correlation Statistics**

*Sample: ALL* N (firm-years): 3.109

	<i>EAR<sub>t+1</sub></i>	<i>ACC<sub>t</sub></i>	<i>CF<sub>t</sub></i>	<i>ARE<sub>t</sub></i>	<i>MV<sub>t</sub></i>	<i>BTM<sub>t</sub></i>	<i>ETP<sub>t</sub></i>	<i>BETA<sub>t</sub></i>
<i>EAR<sub>t+1</sub></i>	1	0.101**	0.463**	0.242**	0.366**	-0.359**	0.457**	-0.088**
<i>ACC<sub>t</sub></i>	0.165**	1	-0.46**	-0.111**	0.146**	-0.078**	0.335**	-0.03
<i>CF<sub>t</sub></i>	0.488**	-0.294**	1	0.096**	0.324**	-0.187**	0.418**	-0.081**
<i>ARE<sub>t</sub></i>	0.173**	-0.141**	0.036*	1	0.01	0.115**	0.06**	-0.029
<i>MV<sub>t</sub></i>	0.326**	0.172**	0.305**	-0.066**	1	-0.393**	0.389**	0.104**
<i>BTM<sub>t</sub></i>	-0.265**	-0.103**	-0.134**	0.136**	-0.337**	1	-0.06**	0.011
<i>ETP<sub>t</sub></i>	0.36**	0.503**	0.285**	-0.109**	0.343**	-0.308**	1	-0.135**
<i>BETA<sub>t</sub></i>	-0.181**	-0.071**	-0.114**	0.014	0.116**	0.062**	-0.141**	1

*Sample: LOW Managerial Ownership* N (firm-years): 1.839

	<i>EAR</i>	<i>ACC</i>	<i>CFL</i>	<i>ARE</i>	<i>MV</i>	<i>BTMV</i>	<i>ETP</i>	<i>BETA</i>
<i>EAR<sub>t+1</sub></i>	1	0.07**	0.463**	0.26**	0.3**	-0.305**	0.402**	-0.027
<i>ACC<sub>t</sub></i>	0.17**	1	-0.526**	-0.043	0.096**	-0.018	0.306**	-0.032
<i>CF<sub>t</sub></i>	0.477**	-0.346**	1	0.103**	0.261**	-0.158**	0.363**	-0.002
<i>ARE<sub>t</sub></i>	0.197**	-0.062**	0.048*	1	0.069**	0.088**	0.105**	-0.048*
<i>MV<sub>t</sub></i>	0.295**	0.129**	0.27**	-0.014	1	-0.314**	0.27**	0.265**
<i>BTM<sub>t</sub></i>	-0.176**	-0.012	-0.099**	0.082**	-0.312**	1	0.079**	-0.011
<i>ETP<sub>t</sub></i>	0.33**	0.429**	0.263**	-0.049*	0.328**	-0.145**	1	-0.021
<i>BETA<sub>t</sub></i>	-0.098**	-0.062**	-0.054*	0	0.239**	-0.036	-0.07**	1

*Sample: HIGH Managerial Ownership* N (firm-years): 1.270

	<i>EAR</i>	<i>ACC</i>	<i>CFL</i>	<i>ARE</i>	<i>MV</i>	<i>BTMV</i>	<i>ETP</i>	<i>BETA</i>
<i>EAR<sub>t+1</sub></i>	1	0.132**	0.46**	0.219**	0.402**	-0.415**	0.509**	-0.141**
<i>ACC<sub>t</sub></i>	0.151**	1	-0.392**	-0.193**	0.228**	-0.152**	0.393**	-0.02
<i>CF<sub>t</sub></i>	0.475**	-0.278**	1	0.076**	0.333**	-0.206**	0.462**	-0.144**
<i>ARE<sub>t</sub></i>	0.165**	-0.203**	0.029	1	-0.137**	0.16**	-0.034	0.005
<i>MV<sub>t</sub></i>	0.328**	0.232**	0.318**	-0.161**	1	-0.502**	0.455**	0.048
<i>BTM<sub>t</sub></i>	-0.349**	-0.19**	-0.16**	0.2**	-0.419**	1	-0.238**	0.033
<i>ETP<sub>t</sub></i>	0.355**	0.545**	0.277**	-0.154**	0.364**	-0.466**	1	-0.229**
<i>BETA<sub>t</sub></i>	-0.212**	-0.066*	-0.132**	0.026	0.105**	0.169**	-0.172**	1

This Table gives the Pearson (lower diagonal) and Spearman (upper diagonal) correlation coefficients. The variables are defined as follows: EAR=Earnings before extraordinary items deflated by total average assets; ACC=Earnings before extraordinary items minus cash flow from operating activities deflated by average total assets; CF=Cash flow from operating activities deflated by average total assets; ARE=Abnormal return measured as the annual buy-and-hold stock return minus the annual return of the CDAX Index for Germany starting four months after the fiscal year end; MV=Logarithm of the market value four months after the fiscal year end; BTM=Book-to-market ratio four months after the fiscal year end; ETP=Earnings-to-price ratio four months after the fiscal year end; BETA=52 weeks beta calculated with respect to the CDAX Index over a period ending at fiscal year end. \*\* indicates significance at the 0.01 level (two-tailed), \* indicates significance at the 0.05 level (two-tailed).

**Table 3**

**Pooled OLS Regression of One-year Ahead Earnings on Current Accruals and Cash Flows**

(White adjusted Standard Errors in Parentheses)

$$EAR_{t+1} = \alpha_0 + \beta_0 \cdot d + (\alpha_1 + \beta_1 \cdot d) \cdot ACC_t + (\alpha_2 + \beta_2 \cdot d) \cdot CF_t + \varepsilon_{t+1}$$

<i>Model Sample Basecase</i>	(1) All	(2) All NO Managerial Ownership
<i>N (firm-years)</i>	3109	3109
$\alpha_0$	-0.018119*** (0.003121)	-0.006969** (0.003369)
$\beta_0$		-0.024775*** (0.006053)
$\alpha_1$	0.402174*** (0.035522)	0.414038*** (0.047242)
$\beta_1$		-0.036202 (0.068633)
$\alpha_2$	0.71633*** (0.033329)	0.683866*** (0.041839)
$\beta_2$		0.028967 (0.063102)
$R^2$	0.34178	0.347452
<i>adj. R<sup>2</sup></i>	0.341356	0.3464
$\alpha_1 = \alpha_2$	rejection***	rejection***
$\alpha_1 + \beta_1 = \alpha_2 + \beta_2$		rejection***

The variables are defined as follows: EAR=Earnings before extraordinary items deflated by total average assets; ACC=Earnings before extraordinary items minus cash flow from operating activities deflated by average total assets; CF=Cash flow from operating activities deflated by average total assets; d=Dummy variable equal 0 in the base case szenario and otherwise equal 1 (in eq. (2) if firm-year belongs to group "Managerial Ownership"). \*\*\* indicates significance at the 0.01 level (two-tailed), \*\* indicates significance at the 0.05 level, \* indicates significance at the 0.1 level (two-tailed).  $\alpha_1 = \alpha_2$  is tested by comparing the confidence intervals of the coefficients;  $\alpha_1 + \beta_1 = \alpha_2 + \beta_2$  is tested by a Wald test statistic (cf. Greene (2000), p. 153 n.).



Table 4A

**Pooled OLS Regression of Abnormal Returns on Earnings Components and Control Variables**

(White adjusted Standard Errors in Parentheses)

$$ARE_{t+1} = \alpha_0 + \beta_0 \cdot d + (\alpha_1 + \beta_1 \cdot d) \cdot ACC_t + (\alpha_2 + \beta_2 \cdot d) \cdot CF_t + \beta_3 \cdot MV_t + \beta_4 \cdot BTM_t + \beta_5 \cdot ETP_t + \beta_6 \cdot BETA_t + \varepsilon_{t+1}$$

<i>Model Sample Basecase</i>	(1) ALL	(2) ALL NO Managerial Ownership
<i>N (firm-years)</i>	3109	3109
$\alpha_0$	-0.164803** (0.080793)	-0.113074 (0.086299)
$\beta_0$		-0.037751 (0.025139)
$\alpha_1$	-0.428434*** (0.142702)	-0.136966 (0.160078)
$\beta_1$		-0.473647** (0.221022)
$\alpha_2$	0.212039 (0.131251)	0.437594** (0.192042)
$\beta_2$		-0.350408 (0.236021)
$\beta_3$	0.0000632 (0.0129)	-0.009386 (0.013712)
$\beta_4$	0.044832*** (0.014754)	0.04092*** (0.014902)
$\beta_5$	-0.007349 (0.025846)	-0.003414 (0.026374)
$\beta_6$	0.016035 (0.022467)	0.01989 (0.022788)
Year Dummies	included	included
Industry Dummies	included	included
$R^2$	0.100885	0.103936
<i>adj. R<sup>2</sup></i>	0.094181	0.096376
$\alpha_1 + \beta_1 = 0$		rejection***
$\alpha_2 + \beta_2 = 0$		no rejection

The variables are defined as follows: EAR=Earnings before extraordinary items deflated by total average assets; ACC=Earnings before extraordinary items minus cash flow from operating activities deflated by average total assets; CF=Cash flow from operating activities deflated by average total assets; ARE=Abnormal return measured as the annual buy-and-hold stock return minus the annual return of the CDAX starting four months after the fiscal year end; MV=Logarithm of the market value four months after the fiscal year end; BTM=Book-to-market ratio four months after the fiscal year end; ETP=Earnings-to-price ratio four months after the fiscal year end; BETA=52 weeks beta calculated with respect to the CDAX Index over a period ending at fiscal year end. d=Dummy variable equal 0 in the base case szenario (in eq. (2) if management is not invested in the firm) and otherwise equal 1. \*\*\*, \*\*, \* Significance at the 0.01, 0.05 and 0.1 level, resp., using a two-tailed t-test.  $\alpha_1 + \beta_1 = 0$  and  $\alpha_2 + \beta_2 = 0$  is tested by a Wald test statistic (cf. Greene (2000), p. 153 n.).

**Table 4B**

**Estimation for the System of Forecasting Equation and Rational Pricing Equation**

(Asymptotic Standard Errors in Parentheses)

$$EAR_{t+1} = \alpha_0 + (\alpha_1 + \beta_1 d) \cdot ACC_t + (\alpha_2 + \beta_2 d) \cdot CF_t + \varepsilon_{t+1}$$

$$ARE_{t+1} = \gamma_1 \cdot \left[ EAR_{t+1} - (\alpha_0^* + (\alpha_1^* + \beta_1^* d) \cdot ACC_t + (\alpha_2^* + \beta_2^* d) \cdot CF_t) \right] + \nu_{t+1}$$

<i>Model</i>	<b>(1)</b>	<b>(2)</b>
<i>Sample</i>	ALL	ALL
<i>Basecase</i>		NO Managerial Ownership
<i>N (firm-years)</i>	3109	3109
$\alpha_1$	0.402174 (0.018138)	0.385498 (0.028654)
$\beta_1$		0.026094 (0.035277)
$\alpha_2$	0.71633 (0.018586)	0.727921 (0.028839)
$\beta_2$		-0.023608 (0.037191)
$\alpha_1^*$	0.657299 (0.078458)	0.492889 (0.100317)
$\beta_1^*$		0.267084 (0.112371)
$\alpha_2^*$	0.457181 (0.074074)	0.253678 (0.107101)
$\beta_2^*$		0.325722 (0.120714)
$\alpha_1 = \alpha_1^*$	< 0.001	< 0.304
$\alpha_1 + \beta_1 = \alpha_1^* + \beta_1^*$		< 0.001
<i>Significance Level (Wald Test)</i>		

The variables are defined as follows: EAR=Earnings before extraordinary items deflated by total average assets; ACC=Earnings before extraordinary items minus cash flow from operating activities deflated by average total assets; CFL=Cash flow from operating activities deflated by average total assets; ARE=Abnormal return measured as the annual buy-and-hold stock return minus the annual return of the CDAX starting four months after the fiscal year end; The included control variables in the rational pricing equation cover: MV=Logarithm of the market value four months after the fiscal year end; BTM=Book-to-market ratio four months after the fiscal year end; ETP=Earnings-to-price ratio four months after the fiscal year end; BETA=52 weeks beta calculated with respect to the CDAX Index over a period ending at fiscal year end; The rational pricing equation contains also industry and year dummies; d=Dummy variable equal 0 in the base case szenario (in eq. (2) if management is not invested in the firm) and otherwise equal 1.  $\alpha_1 = \alpha_2$  and  $\alpha_1 + \beta_1$  are tested by a Wald test statistic (cf. Greene (2000), p. 153 n.).

Table 5A

**Pooled OLS Regression of Abnormal Returns on Earnings Components and Control Variables**

(White adjusted Standard Errors in Parentheses)

$$ARE_{t+1} = \alpha_0 + \beta_0 \cdot d + (\alpha_1 + \beta_1 \cdot d) \cdot ACC_t + (\alpha_2 + \beta_2 \cdot d) \cdot CF_t + \beta_3 \cdot MV_t + \beta_4 \cdot BTM_t + \beta_5 \cdot ETP_t + \beta_6 \cdot BETA_t + \varepsilon_{t+1}$$

<i>Model Sample Basecase</i>	(1) HIGH MO INTERNATIONAL	(2) HIGH MO LEVERAGE LOW	(3) HIGH MO NO BLOCKHOLDER
<i>N (firm-years)</i>	1270	1270	1270
$\alpha_0$	-0.111673 (0.210367)	-0.038275 (0.198376)	-0.04253 (0.201101)
$\beta_0$	0.049692 (0.051902)	-0.005876 (0.034704)	-0.027919 (0.035048)
$\alpha_1$	-0.62575*** (0.221911)	-0.702784*** (0.240185)	-0.316435 (0.24644)
$\beta_1$	0.709457* (0.386862)	0.601784** (0.29624)	-0.356695 (0.289341)
$\alpha_2$	0.020197 (0.192524)	0.028475 (0.203117)	0.264105 (0.227554)
$\beta_2$	0.600841* (0.32902)	0.453814 (0.280921)	-0.224379 (0.271778)
$\beta_3$	-0.048058 (0.032891)	-0.048357 (0.032588)	-0.044941 (0.032718)
$\beta_4$	0.074426*** (0.028136)	0.064612** (0.027919)	0.073461*** (0.028216)
$\beta_5$	0.018784 (0.033162)	0.004893 (0.035404)	0.020017 (0.032702)
$\beta_6$	0.026113 (0.033455)	-0.005876 (0.032199)	0.018593 (0.032081)
Year Dummies	included	included	included
Industry Dummies	included	included	included
$R^2$	0.129036	0.129915	0.126149
<i>adj. R<sup>2</sup></i>	0.110818	0.111716	0.10787
$\alpha_1 + \beta_1 = 0$	no rejection	no rejection	rejection***
$\alpha_2 + \beta_2 = 0$	rejection*	rejection*	no rejection

The variables are defined as follows: EAR=Earnings before extraordinary items deflated by total average assets; ACC=Earnings before extraordinary items minus cash flow from operating activities deflated by average total assets; CF=Cash flow from operating activities deflated by average total assets; ARE=Abnormal return measured as the annual buy-and-hold stock return minus the annual return of the CDAX starting four months after the fiscal year end; MV=Logarithm of the market value four months after the fiscal year end; BTM=Book-to-market ratio four months after the fiscal year end; ETP=Earnings-to-price ratio four months after the fiscal year end; BETA=52 weeks beta calculated with respect to the CDAX Index over a period ending at fiscal year end; Blockholder is defined as an outside investor who holds more than 5% of the outstanding shares. d=Dummy variable equal 0 in the base case szenario (in eq. (2) if the accounting standard is international) and otherwise equal 1. \*\*\*, \*\*, \* Significance at the 0.01, 0.05 and 0.1 level, resp., using a two-tailed t-test.  $\alpha_1 + \beta_1 = 0$  and  $\alpha_2 + \beta_2 = 0$  is tested by a Wald test statis

**Table 5B**

**Estimation for the System of Forecasting Equation and Rational Pricing Equation**

(Asymptotic Standard Errors in Parentheses)

$$EAR_{t+1} = \alpha_0 + (\alpha_1 + \beta_1 d) \cdot ACC_t + (\alpha_2 + \beta_2 d) \cdot CF_t + \varepsilon_{t+1}$$

$$ARE_{t+1} = \gamma_1 \cdot [EAR_{t+1} - (\alpha_0^* + (\alpha_1^* + \beta_1^* d) \cdot ACC_t + (\alpha_2^* + \beta_2^* d) \cdot CF_t)] + v_{t+1}$$

<i>Model Sample Basecase</i>	<b>(1)</b> HIGH MO International	<b>(2)</b> HIGH MO Leverage LOW	<b>(3)</b> HIGH MO NO Blockholder
<i>N (firm-years)</i>	1270	1270	1270
$\alpha_1$	0.376508 (0.032013)	0.369407 (0.037035)	0.352939 (0.045303)
$\beta_1$	0.010331 (0.078312)	0.01276 (0.056231)	0.037766 (0.056577)
$\alpha_2$	0.696735 (0.035375)	0.748137 (0.037224)	0.680768 (0.04638)
$\beta_2$	0.064715 (0.075108)	-0.107381 (0.066128)	0.054975 (0.062438)
$\alpha_1^*$	0.767402 (0.125344)	0.824923 (0.132981)	0.514651 (0.159647)
$\beta_1^*$	-0.474552 (0.223896)	-0.42227 (0.162104)	0.29125 (0.157429)
$\alpha_2^*$	0.575173 (0.118782)	0.61168 (0.120457)	0.337982 (0.154142)
$\beta_2^*$	-0.424573 (0.219653)	-0.43566 (0.189182)	0.269493 (0.173645)
$\alpha_1 = \alpha_1^*$	< 0.003	< 0.002	< 0.330
$\alpha_1 + \beta_1 = \alpha_1^* + \beta_1^*$			
<i>Significance Level (Wald Test)</i>	< 0.699	< 0.905	< 0.003

The variables are defined as follows: EAR=Earnings before extraordinary items deflated by total average assets; ACC=Earnings before extraordinary items minus cash flow from operating activities deflated by average total assets; CF=Cash flow from operating activities deflated by average total assets; ARE=Abnormal return measured as the annual buy-and-hold stock return minus the annual return of the CDAX starting four months after the fiscal year end; The included control variables in the rational pricing equation cover: MV=Logarithm of the market value four months after the fiscal year end; BTM=Book-to-market ratio four months after the fiscal year end; ETP=Earnings-to-price ratio four months after the fiscal year end; BETA=52 weeks calculated over a period ending at fiscal year end; The rational pricing equation contains also industry and year dummies; d=Dummy variable equal 0 in the base case szenario (in eq. (2) if the firm reports its yearly account under international standards) and otherwise equal 1.  $\alpha_1 = \alpha_2$  and  $\alpha_1 + \beta_1 = 0$  are tested by a Wald test statistic (cf. Greene (2000), p. 153 n.).

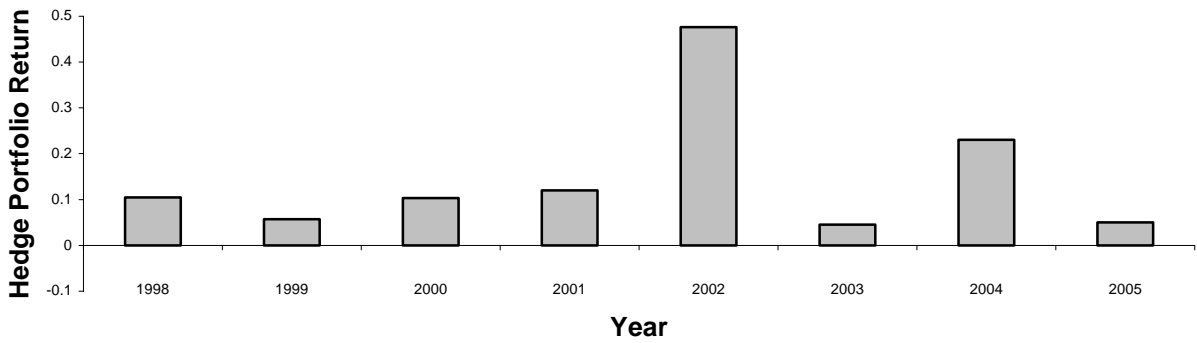
Figure 1

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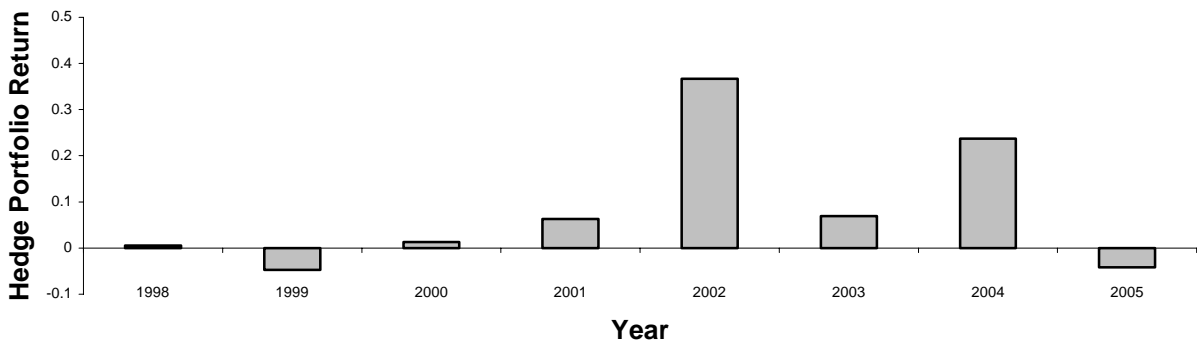
**Hedge Portfolio Returns for the total sample, firms with no managerial ownership and firms with managerial ownership**

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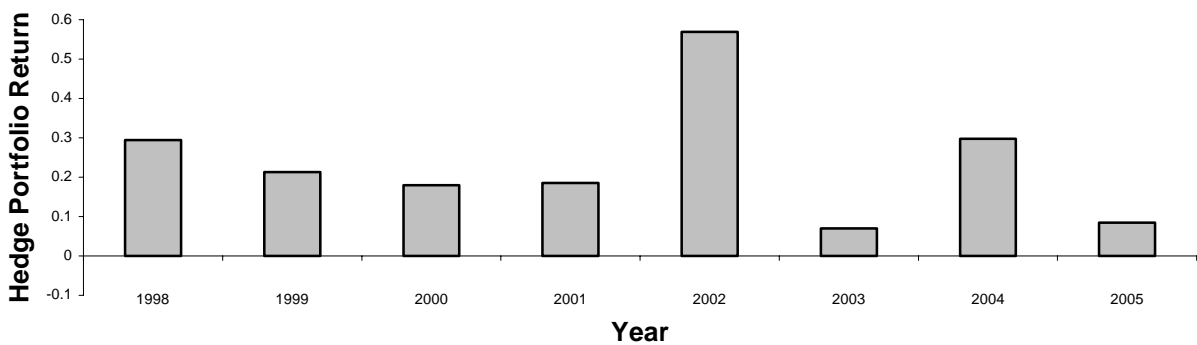
**(A) Total Sample**



**(B) No Managerial Ownership**



**(C) Managerial Ownership**



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Returns by calendar year to a hedge portfolio taking a long position in the stock of firms in the lowest 30% percentile of accruals and taking a short position in the stock of firms in the highest 30% percentile of accruals. Returns are cumulated over a one-year period beginning four months after fiscal year end. Accruals are defined as Earnings before extraordinary items minus cash flow from operating activities deflated by average total assets. The years 1995 to 1997 are dropped due to too little observations. All portfolios included consist at least of 15 stocks.