

Management Behaviour and Market Response

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ABSTRACT

We study the relationship between management behaviour and the subsequent market response in the German IPO market. When applying two forms for earnings management, issuers that overperform in the long run manage earnings less aggressively. Over shorter measurement horizons, however, the performance is sensitive to the starting date of the measurement period. The market takes a considerable time to respond to the fundamental message conveyed by management behaviour towards earnings management at the time of the IPO. Within the first four months, IPO returns are essentially driven by factors other than fundamentals. This sheds light on the dynamics of IPO performance and the efficiency of the IPO aftermarket.

A RECENT LINE OF EMPIRICAL RESEARCH on Initial Public Offerings (IPOs) links the conventional measurement of stock returns with accounting information, aimed at providing more insights into the phenomena associated with IPOs and the decision for going public. Using a sample of 1,649 US IPOs issued between 1980 and 1992, Theo, Welch and Wong (1998) document the effect of the choice of accounting method towards earnings management during the IPO year on aftermarket stock price performance. They find that IPO issuers that use discretionary current accruals aggressively during the IPO year have a three-year aftermarket stock return of approximately 20 percent less than IPO issuers who manage their earnings more conservatively during this time.

One of the important implications of this study is that the market does respond to earnings management behaviour which signals fundamental information about the IPO firms. This result, however, draws heavily on the fact that three-year aftermarket performance is measured starting from a substantial period of time after the IPO date.¹ This measurement procedure leaves open the question of when the market starts to respond to fundamental information. The measuring strategy should not matter if the market is efficient as thought. However, if the market is not perfectly efficient, then the market learning process is an important issue to both economists and practitioners. It

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¹ Teoh, Welch and Wong (1998) measure the stock performance from three to six months after the end of the first fiscal year, that is itself several months after the IPO date (an average six months in the German market, for example).

might well be true that the market responds earlier than the time the previous literature has implied.

It is well known that IPOs perform poorly in the long-run, but outperform the market in the short-run (e.g., Stoll and Curley (1970), Ritter (1991), Schuster (1996)). This perplexing evidence might indicate that the IPO market is not largely determined by fundamental information of IPO firms in the short-run. In another paper, using a sample of 489 US IPOs between 1974 and 1984, Chaney and Lewis (1998) study the relationship between IPO aftermarket performance and yet another form of earnings management: income smoothing. They find that firms that report earnings with less variability relative to cash earned from operations perform better than other firms. Chaney and Lewis (1998) measure the stock performance from the IPO date, but their horizon is five years. Since income smoothing is an ex-post measurement, a long measurement horizon is very likely to bury the time characteristic of a market learning process. The result therefore gives little clue to the question of when the market responds.

The short-run overperformance of IPO stocks has drawn increasing attention in the recent literature. Several papers have tried to build-up theoretical models to explain this phenomenon. Scheinkman and Xiong (2002) derive an equilibrium model of bubbles where overconfidence and differences of beliefs can push the stock price above its fundamentals. In another recent paper, Duffie, Gârleanu and Pederson (2002) present a model in which short-selling constraints can drive the IPO stock price to an excessively high level before it declines. These models claim that the IPO market is at least partially determined by factors such as divergence of opinion (Miller (1977)), overconfidence or other institutional arrangements unique to the IPO market, such as stabilization, the “quiet period” or lock-up rules. Obviously, none of them is fundamental information about IPO firms.

In this paper, we study a set of 126 companies going public between 1988 and 1997 in the German market, with the aim to broaden our understanding of several unexplored issues related to IPOs. Using the same framework of Teoh, Welch and Wong (1998) and Chaney and Lewis (1998), we examine the relationship between the management behaviour towards earnings management and aftermarket performance in the German IPO market. By applying a similar measurement specification, we test whether the relationship between management behaviour, proxied by the aggressiveness of using discretionary current accruals and income smoothing, and the aftermarket IPO performance identified in the US market, also holds in one other major IPO market. We then deviate from this benchmark measuring specification to test whether the IPO market is informationally efficient in the sense that management behaviour can be efficiently inferred by the market. We also go beyond prior work to further examine the relationship between the two forms of strategic behaviour towards earnings management, and test how the market responds to their interaction. Finally, we combine the typical empirical IPO methodology of Ritter (1991) and the framework of discretionary current accruals and income smoothing to examine the driving sources of the dynamics of aftermarket IPO performance.

Our major findings include the following:

- (1) Managers of IPO firms tend to use discretionary current accruals to buoy up earnings during the IPO year and, to some extent, manage the firms' income. The long-run performance of German IPOs is related to such earnings-management behaviour. Firms that use discretionary current accruals more conservatively during the IPO year and firms that smooth their reported

income more, outperform their counterparts in the long-run. These results are generally consistent with US evidence.

- (2) The two commonly identified earnings management strategies in IPOs are found to be not deterministic, yet complementary. In the long-run, firms that use discretionary current accruals during IPO years more conservatively also tend to smooth their reported income more. Firms undertaking both strategies outperform the market and IPOs that only apply any one of the two strategies.
- (3) The relationship between IPO aftermarket performance and strategic earnings-reporting behaviour documented in the previous literature is sensitive to both the measurement horizon and the starting date. Ironically, we find that firms managing their earnings more opportunistically perform better than those managing their earnings more conservatively, when performance is measured from a date closer to the IPO and also when it is measured over shorter horizons.
- (4) The market takes a significant period of time to incorporate fundamentals into IPO prices. During this period, fundamental information about the IPO has weak explanatory power for long-run performance and the IPO market is dominated by other non-fundamental “noise”. After a period of learning, the market starts to respond and the power of fundamentals to explain long-run IPO returns increases substantially.

The structure of the paper is as follows. Section I describes the data and sample characteristics. In Section II, we measure Management Behaviour with Discretionary Current Accruals (DCA). Section III deals with the measurement of Management Behaviour with Income Smoothing (IS). A comparative analysis of the two methods of earnings management is provided in Section IV. In Section V, we study the dynamics of the explanatory power of fundamentals related to aftermarket performance. Section VI concludes the paper with a summary and a discussion of the findings.

I. Market Background and Data

A. Market Background

During the past decade, German Financial Markets have gone through some radical developments. One of the fundamental features of these developments has been the increasing tendency of companies towards going public. At the end of 2001, more than 1,000 German companies were listed on the Deutsche Börse AG or on one of the regional stock exchanges, double the number from the beginning of 1988, the start of our sample period. While this number seems to be small compared to worldwide figures, it indicates the structural shift towards an equity culture in Continental Europe in general and Germany in particular.

This structural shift has been enforced by developments such as the initial success of the much publicized flotation of Deutsche Telecom AG, the country’s former telecommunications monopoly, in November 1996. By the end of 2000, 12.33 million people – or 19.3 percent of the adult population in Germany – owned shares, 50 percent more than the previous year and double the level at the end of 1997, a change unprecedented in Germany’s post-war financial history.² During this period, the

² Source: Financial Times. Glagau (1876) documents evidence of a flurry of IPO activity on the Berlin Stock Exchange between 1871 and 1875 which indeed has some strikingly similar features to the IPO wave in the late 1990’s on the Neuer Markt, the market segment for growth companies set up in 1997.

German IPO market has also developed as one of the fundamental pillars of Continental European IPO activity. For our sample period between 1988 and 1997, for example, German IPO activity accounted, on average, for more than 25 percent of total IPO activity in Continental Europe based on number, funds raised and market capitalization.

B. Data

Our original sample consists of 156 companies from a total of 162 companies going public between 1988 and 1997 on the German domestic market, meeting the following criteria: (1) an offer price of Deutsche Mark (DM) 5.00 per share or more; (2) a market capitalization, measured in terms of end-1997 purchasing power, of DM 5.0 million or more; (3) the offering being unseasoned and involving common and/or preferred stock; and (4) the company being listed either on the Official Market (Amtlicher Handel), the Official Parallel Market (Geregelter Markt) or the New Market (Neuer Markt). We exclude foreign listings, investment companies, companies that changed the market segment and Real Estate Investment Trusts (REITs).³

In addition to these criteria, we must also have a minimum of one year pre-IPO and four years post-IPO accounting and stock price data available. After excluding IPOs from the Financial Sector (12), Privatization Issues (1) and IPOs with no reliable pre-IPO accounting information (17), the original sample falls to 126 companies for which we have a complete set of accounting and stock price data available. The total sample of companies represents around 88 percent of all IPOs in the respective market segments going public in Germany between 1988 and 1997. An interesting feature of our data is that it does not suffer from survivorship bias. Accounting for survivorship is a frequent issue in US studies. This has to do with the large number of mergers, acquisitions, takeovers and bankruptcies in the US market. Moreover, the delisting rules are clearly set out in the US regulatory framework. Until recently, this has not been the case in Germany. All the IPOs from the original sample were still listed after their fifth-year anniversary on the stock market. We therefore conclude that our sample is highly representative of the German IPO market during the sample period.

Due to a lack of accounting data spanning over a reasonably long period of time, this study does not include IPOs issued between 1998 and 2000. For the evaluation of earnings management, we use the full version (Vollbilanz) of balance sheets and income statements (inflation-adjusted) available from Hoppenstedt Verlag, a provider of financial data.⁴ Other information such as year of foundation or market sector was taken from the yearly issues of Hoppenstedt's *Saling Aktienführer*. To evaluate accounting numbers, we use consolidated financial statements, when available. Consolidated financial statements (Weltbilanz) are not the basis for either taxation or profit distribution. However, Financial Analysts draw heavily upon information contained in consolidated statements because they capture a more complete picture of, for example, the operating activities of companies with foreign subsidiaries. The full set of consolidated statements is available for 58 percent of the companies in our study. For the rest, we extract the accounting information from parent company accounts

³ We account for issues on the Frankfurt stock exchange and all regional stock exchanges. During the sample period, the share of the Frankfurt Stock Exchange, in terms of total German turnover in equity trading, has risen from 52 percent to 85 percent, underlying the increasing significance of the exchange. (Source: Deutsche Börse AG). We exclude offerings on the Over-the-Counter market (Freiverkehr).

⁴ A Specimen Balance Sheet and Profit and Loss Account and details on the calculation of the DCA and IS coefficients are shown in Appendix, Table AI and AII.

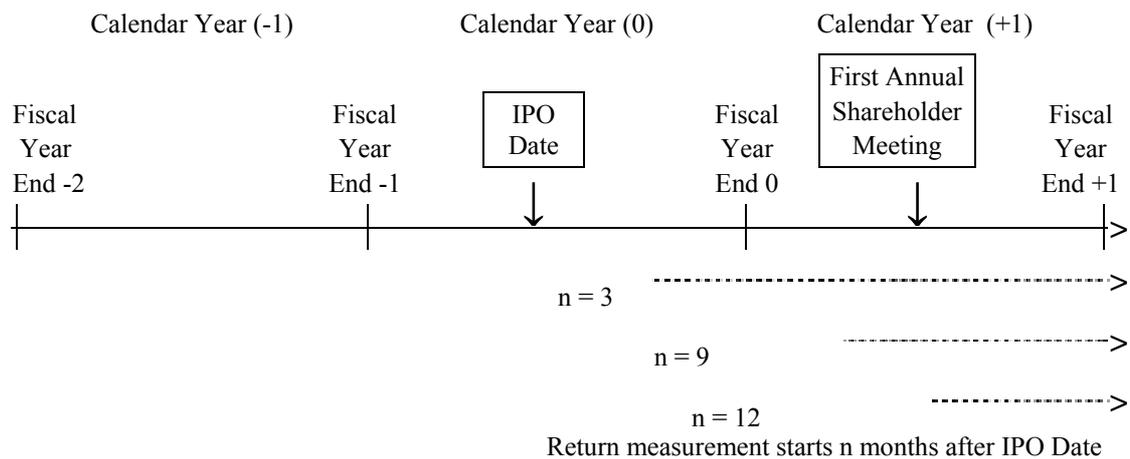


Figure 1. Time line

(Muttergesellschaft).⁵ The stock price data and GDP deflators were taken from Datastream and our own IPO database. We use the Dow Jones STOXX global sector classification standard for market sector classification.

In Figure 1, we illustrate our timing convention. The fiscal year in which the IPO occurs is Year 0 and includes both pre- and post-IPO information. Fiscal year -1 ends before the IPO. The large majority of German companies in our sample end the fiscal year with the calendar year. Our initial screening of IPOs is based on the company characteristics around the IPO date. It is important to note that, on average, German IPOs went public towards the middle of the calendar year. As illustrated in Table I, 65 percent of the companies in the sample conducted their IPO between May and October.

Because one of our main goals is to shed some light on the relationship between management behaviour and market response, we measure returns over 36 months. In order to compare our findings with the literature, we chose our benchmark starting date as nine months after the IPO. To study the dynamics in the relationship, we then move our starting date away and closer to the IPO date. In this case, we measure long-run performance after three and twelve months following the IPO. Interestingly, our benchmark starting date corresponds closely to the First Annual Shareholder Meeting (Erste Allgemeine Aktionärsversammlung).⁶

In this study, we report performance using equally-weighted buy-and-hold returns (BHRs) because it measures actual investors' experience.⁷ Aftermarket returns are measured as equally-weighted buy-and-hold returns, whereas one month is defined as a consecutive 21-day trading interval from the close of the first day of trading, using local trading days over the respective measurement interval. We adjust returns for movements in the value-weighted FAZ Index (Index der Frankfurter Allgemeinen Zeitung). This index is composed of the 100 most actively traded companies, adjusted for rights offerings and stock splits, and embraces about 75 percent of stock volume traded in German shares.

⁵ Due to the lack of foreign subsidiaries, for example, parent company accounts are equivalent to consolidated accounts for most of the 42 percent of companies that report only parent company accounts.

⁶ Based on the observations taken from a sample of 785 Annual Shareholder Meetings in 2002, almost 75 percent of the meetings took place during May, June and July (Source: Schutzgemeinschaft der Kleinaktionäre e.V.)

⁷ For a complete discussion of BHRs versus Cumulative Average Returns (CARs), see e.g., Fama (1998), Barber and Lyon (1997), Brown and Warner (1980), Kothari and Warner (1997) and Loughran and Ritter (2000).

Table I
Sample Distribution and Firm Characteristics

The sample consists of 126 IPOs going public between 1988 and 1997. The initial return is defined as the percentage change from the offering price to the first-day closing price. Age is defined as the year of going public minus the year of foundation, with companies founded before 1901 assumed to be founded in 1901. Size is defined as the number of shares times the closing price at the first day of trading, including overallocation options, where applicable, and expressed in end-1997 prices. The retention ratio (in percent) is defined as one minus the size of the public float (in percent). Underpricing is defined as the percentage change from the final offering price to the closing price after the first day of trading. Privatizations (1) and Financial Companies are excluded (12). We use the Dow Jones STOXX global sector classification standard for market sector classification.

Panel A: Sample Distribution classified by Market Sector

Market Sector	Sector Code	Frequency	Percentage
Basic Resources	1	3	2.4
Chemicals	2	3	2.4
Automobiles	3	8	6.3
Cyclical Goods & Services	4	27	21.4
Retail	6	9	7.1
Food & Beverages	7	5	4.0
Non-Cyclical Goods & Services	8	8	6.3
Healthcare	13	6	4.8
Construction	14	16	12.7
Industrial Goods & Services	15	24	19.0
Technology	16	14	11.1
Utilities	18	3	2.4
Total		126	100.0

Panel B: Sample Distribution classified by IPO Year and Calendar Month

Calendar Year	Frequency	Percentage	Calendar Month	Frequency	Percentage
1988	10	7.9	Jan.	3	2.4
1989	17	13.5	Feb.	5	4.0
1990	22	17.5	Mar.	4	3.2
1991	14	11.1	Apr.	6	4.8
1992	8	6.3	May	10	7.9
1993	6	4.8	Jun.	17	13.5
1994	8	6.3	Jul.	24	19.0
1995	16	12.7	Aug.	3	2.4
1996	6	4.8	Sep.	9	7.1
1997	19	15.1	Oct.	19	15.1
			Nov.	15	11.9
			Dec.	11	8.7
All firms	126	100.0	All firms	126	100.0

Panel C: Firm Characteristics

	Mean	Median
Age (years)	44.2	39.5
Underpricing (percent)	11.6	4.8
Retention Ratio (percent)	66.2	66.7
Debt/Equity Ratio (pre- IPO)	1.429	1.093
Debt/Equity Ratio (post- IPO)	0.779	0.643
Size (DM millions)	437.5	195.9

Table I provides some descriptive statistics for the 126 IPOs in our sample. Panel A indicates that there is some industry clustering in the sample of IPOs, with four sectors

representing almost 65 percent of the sample. It is not surprising to see so many construction-related companies in the sample, representing a large proportion of IPO activity following German unification and the subsequent surge in construction activity. Limiting this analysis to IPOs before 1998 eliminates the dominance in technology-related companies. Panel B documents considerable differences in issuing activity when characterizing the sample according to the calendar year of going public. In line with low IPO activity in other Continental European countries, there is also a considerably low level in issuing activity during the early 1990s in Germany. Apart from the reasons addressed earlier, the reversal of fortunes in the German IPO market after 1994 can also be linked to the success of some large offerings from companies such as Adidas AG, a sportswear company, and in particular the phenomenal long-run performance of SAP AG, an enterprise software company that recorded, and MLP AG, a financial services company, two IPOs in 1988.

In Panel C, reports number of characteristics for our IPO sample. The average IPOs is 44 years old before going public. IPOs retain 66 percent of their equity after going public and are underpriced by 11.69 percent, on average. The IPOs have an average market capitalization of DM437.5 million, consistent with the average IPO in Continental Europe during this period. As we have excluded privatizations, the size of Deutsche Telecom AG, a telecommunications company, does not influence the mean picture. As seen in Panel C, the IPO has a strong effect on the capital structure: The average debt-equity ratio declines from 1.429 pre-IPO to 0.779 post-IPO.

II. Market Response to Management Behaviour around the IPO year

A. Measuring Management Behaviour using Discretionary Current Accruals (DCA)

It is well known that there is high information asymmetry between issuers and public investors during the IPO process (Rao (1993)). Investors draw heavily on the financial statements published by issuers. For issuers, higher reported earnings lead to higher offering prices and hence higher IPO proceeds. This high information asymmetry provides issuers with both the incentive and the opportunity to window-dress their company accounts, in order to present better-looking financial statements for the IPO year. Furthermore, after the IPO, the firm also has an incentive to boost earnings at least for some time. The well-known reasons include inside interest (managers or entrepreneurs might want to sell part of personal holdings after the lock-up period) and outside pressure from underwriters or regulatory aspects.⁸ Firms that wish to manipulate their earnings can achieve this goal by various means. One of the typical ways to do so is to use accruals.⁹ Accruals are changes in non-cash working capital before income taxes payable, less total depreciation expenses and can be decomposed into current accruals and long-term accruals.¹⁰ Current accruals include short-term assets and liabilities from the day-to-day operations of the firm. Managers can deliberately increase current accruals in various ways, including advancing recognition of revenues with credit sales, delaying the recognition of expenses, decreasing bad-debt expenses or

⁸ Theo, Welch and Wong (1998) provide a full discussion on the incentives of firms to boost their earnings before and after the IPO date.

⁹ Under Generally Accepted Accounting Principles, GAAP, the firms using accrual accounting systems are allowed to make adjustments when reporting earnings.

¹⁰ This definition is adopted from Jones (1991) who tests in the context of earnings management during import relief investigations by the United States International Trade Commission (ITC).

decreasing inventory write-offs. Long-term accrual adjustment, which involves long-term assets, is, if at all, harder to achieve.¹¹ We base our measures of managers' opportunistic behaviour around the IPO date on their discretionary use of current accruals because managers have greater flexibility and control over current accruals as those are less prone to changes in firm business conditions.

From the investors' perspective, it is difficult to distinguish the accrual adjustment that is aimed at boosting higher short-term share prices from that aimed at reconciling the mismatch of economic realities between accrual accounting events and timing of cash flows. Given the fact that some of the accrual adjustments are appropriate and necessary for certain business conditions, it is even harder to infer how much of the proportion of the accrual adjustment is discretionary. The justified use of accruals, however, is not something that is totally independent from the firm's business activity. As pointed out in Kaplan (1985), changes in some working capital accounts and, thereby, accruals depend on the business activity of the firm. All things being equal, the accrual of a firm should be a relatively stable function of the firm's economic activities. Indeed, this is the spirit of the widely used accrual decomposing expectations model of Jones (1991). As in Teoh, Welch and Wong (1998), we use a variation of Jones' model because the emphasis is to decompose current accruals into a non-discretionary and discretionary part. This variation assumes that the current accruals, other things being equal, are a function of the amount of the firm's business activities, which are proxied by sales.¹²

The model specification is:

$$\frac{CA_{j,t}}{TA_{j,t-1}} = \alpha \left(\frac{1}{TA_{j,t-1}} \right) + \beta \left(\frac{\Delta Sales_{j,t}}{TA_{j,t-1}} \right) + \text{industry dummies} + \varepsilon_{j,t} \quad (1)$$

where j is the IPO firm index ($j=1, \dots, 126$). CA measures Current Accruals. TA is Total Assets. $\Delta Sales$ is the change in sales from Year_{t-1} to Year_t. Industry dummies are aimed at capturing the different features of the Accrual-Sales relationship across different industries.¹³

In this paper, Current Accruals (CA) are calculated as:

$$CA = \Delta \text{accounts receivables} + \Delta \text{inventory} + \Delta \text{other current assets} \\ - [\Delta \text{accounts payable} + \Delta \text{tax payable} + \Delta \text{other current liabilities}] \quad (2)$$

Given the current accruals of a firm i at year t , $CA_{i,t}$, the firm's discretionary current accruals of that year is the difference between its actual current accruals and expected current accruals:

$$DCA_{i,t} = \frac{CA_{i,t}}{TA_{i,t-1}} - \left[\hat{\alpha} \frac{1}{TA_{i,t-1}} + \hat{\beta} \frac{\Delta Sales_{i,t} - \Delta TR_{i,t}}{TA_{i,t-1}} \right] \quad (3)$$

where DCA is Discretionary Current Accruals, ΔTR is the change in Trade Receivables. Trade receivables represent amounts on open account owed by customers for goods and

¹¹ See, for example, Guenther (1994) and Teoh, Welch and Wong (1998).

¹² The calculation of the DCA and IS coefficients is illustrated in the Appendix, Table AII.

¹³ We also experimented with year dummies, not reported, to capture any cyclical and seasonal effects. The result is similar to the one that is reported.

services sold in the ordinary course of the business. We subtract the increase in trade receivables from changes in sales to allow for the possibility of credit sales manipulation by the issuer (for example, by allowing generous credit policies to obtain high sales prices ahead of the offering). $\hat{\alpha}$ and $\hat{\beta}$ are estimations of regression coefficients from equation (1) using a pooled estimation sample.¹⁴

Following Roosenboom, van der Goot and Mertens (2000), who study the relationship between methods of earnings management and aftermarket performance for a sample of 64 firms going public on the Amsterdam Exchanges between 1984 and 1994, we estimate model (1) using pooled time-series and cross-sectional data. Once estimated, $\hat{\alpha}$ and $\hat{\beta}$ can be used to estimate the discretionary current accruals.¹⁵

B. Time-Series Properties Of Discretionary Current Accruals (DCA)

In Table II, we present evidence concerning the time-series and cross-sectional characteristics of Discretionary Current Accruals (DCA) for German IPOs. Panel A displays the distribution of DCA by year relative to the IPO year for the whole sample.

The results indicate a clear tendency towards earnings management by using DCA around the IPO year. For example, the average percentage of DCA in Year -1 amounts to minus nine percent of total of the previous years' assets. The DCA rises to positive seven percent during the year of going public and remains positive during the first fiscal year. The strongly positive and significant mean and median confirms that management "borrows" a part of accruals from other years, to potentially convey abnormally positive fundamental information about the company at the time of going public. The dynamics of the DCA component over time indicates that, on average, aggressive earnings management using DCA during the IPO year is only a short-run phenomenon because companies have to make up for the advance borrowing of earnings at the long-run cost of their current accruals. This is manifested in a negative DCA from Year 2 of going public to the end of the measurement period. The results in Panel A are remarkably similar to the findings reported in Theo, Welch and Wong (1998) for US IPOs and Roosenboom, van der Goot and Mertens (2000) for IPOs in the Dutch market.

In Panel B, we rank the companies into quartiles depending on the aggressiveness of using DCA during the IPO year. Here, we can distinguish between companies that manage their earnings most conservatively around the IPO year, summarized in Quartile 1 (Q1), and companies that manage their earnings most aggressively, summarized in Quartile 4 (Q4). Panel B verifies our earlier results that show a wide variation in the opportunistic behaviour towards earnings management via DCA during the IPO year. For example, while the average DCA for the most conservative companies (Q1) deviates negative 27 percent from its mean during the IPO year, the deviation for the most aggressive group (Q4) is positive 43 percent. Panel B also explores the dynamics of DCA in more detail. While the most conservative companies manage their earnings more aggressively following the IPO, the most aggressive earnings managers have to life up to reality and apply a much more conservative use of DCA in later years.

¹⁴ This is similar to Teoh, Welch and Wong (1998) who also subtract the increase in Trade Receivables from changes in Sales to allow for the possibility of Credit Sales. Their results are robust to omitting this adjustment. Teoh, Wong and Rao (1998) discuss the robustness of this valuation method relative to other measures.

¹⁵ By using the pooled data, we have 1,170 firm-year observations in our estimation sample. We did not exclude observations for the year that firms conducted the IPO, from the sample. We experimented without IPO year observations and find that the results do not change qualitatively.

Table II
Time Series and Cross-Sectional Characteristics of Discretionary Current Accruals (DCA)

The sample consists of 126 German IPOs going public during 1988 and 1997, excluding Privatizations (1) and Financial Companies (12). Panel A reports the distribution of Discretionary Current Accruals (DCA) by Year relative to IPO date for the sample as a whole from Year -1 to Year 4 of going public. In Panel B, observations are divided into Quartiles ranked from the most conservative (Quartile 4) to the most conservative (Quartile 1) earnings manager. Year 0 is the IPO year.

		Year -1	Year 0	Year 1	Year 2	Year 3	Year 4
<i>Panel A: Distribution of Discretionary Current Accruals by Year Relative to IPO date, Total Sample</i>							
Whole Sample	Mean	-0.09	0.07	0.06	-0.03	-0.01	0.00
	p-value	0.01	0.02	0.33	0.12	0.63	0.92
	Median	-0.09	0.05	0.00	0.00	-0.01	-0.01
	z-value	0.00	0.00	0.46	0.32	0.25	0.49
	All firms	82	126	126	126	124	103
<i>Panel B: Distribution of Discretionary Current Accruals by Year Relative to IPO date, split in Quartiles</i>							
		Year -1	Year 0	Year 1	Year 2	Year 3	Year 4
Quartile 1	Mean	-0.17	-0.27	0.01	-0.06	0.02	-0.04
	p-value	0.00	0.00	0.83	0.08	0.40	0.16
	Median	-0.17	-0.20	0.05	-0.05	-0.02	-0.06
	z-value	0.01	0.00	0.15	0.09	0.98	0.11
	All firms	16	31	31	31	31	29
Quartile 2	Mean	-0.08	-0.01	-0.05	-0.09	-0.04	0.00
	p-value	0.20	0.20	0.04	0.20	0.15	0.95
	Median	-0.08	-0.01	-0.04	0.00	-0.04	0.01
	z-value	0.08	0.42	0.07	0.34	0.02	0.76
	All firms	23	31	31	31	31	27
Quartile 3	Mean	0.03	0.11	0.02	-0.01	-0.01	0.01
	p-value	0.71	0.00	0.42	0.84	0.76	0.70
	Median	0.03	0.12	0.02	0.00	-0.01	-0.01
	z-value	0.70	0.00	0.32	0.79	0.82	0.70
	All firms	23	31	31	31	30	24
Quartile 4	Mean	-0.17	0.43	0.25	0.02	0.01	0.04
	p-value	0.03	0.00	0.29	0.43	0.81	0.22
	Median	-0.17	0.30	0.00	0.01	0.01	0.00
	z-value	0.08	0.00	0.43	0.36	0.62	0.46
	All firms	20	33	33	33	32	23

C. Discretionary Current Accruals (DCA) and IPO Stock Returns

In this section, we extend the analysis to include the relation between Discretionary Current Accruals (DCA) and the short- and long-run stock price performance of German IPOs. Because our focus is on the dynamics of aftermarket returns, we measure aftermarket performance starting after three, nine and twelve months following the first day of trading. This procedure marks a crucial difference in comparison to the existing US literature, in which the evaluation of investment performance starts three to six months after the publication of the first annual report.¹⁶

¹⁶ Starting performance measurement after three to six months following the publication of the First Annual Report roughly corresponds to our benchmark starting date of nine months.

Table III
IPO performance categorized by Issue Year DCA Quartiles

The sample consists of 126 German IPOs between 1988 and 1997. Returns are calculated as equally-weighted buy-and-hold returns. One month is defined as a consecutive 21-day trading interval using the local trading calendar. Returns are reported separately as raw returns and returns adjusted by the broad-based value-weighted FAZ Index. The raw and market-adjusted buy-and-hold return is calculated after three, nine and twelve months following the IPO. Difference (Diff.) refers to the percentage change between the most aggressive earnings manager (Q4) and the most conservative earnings manager (Q1) in terms of DCA. Associated test statistics for Diff. refer to mean difference tests.

<i>Panel A: Measurement period starts three months after the IPO date</i>																		
Return	Year 1 (one year)						Year 2 (two years)						Year 3 (three years)					
	All	Q1	Q2	Q3	Q4	Diff.	All	Q1	Q2	Q3	Q4	Diff.	All	Q1	Q2	Q3	Q4	Diff.
Raw returns	0.4269	0.1245	-0.0318	0.3671	1.1978	1.0733	1.0428	0.3541	-0.0632	0.4786	3.2587	2.9047	0.1836	0.4358	-0.1457	0.2963	0.1503	-0.2855
p-value	0.2001	0.1019	0.6330	0.0177	0.3482	0.4124	0.2403	0.1003	0.5032	0.0209	0.3408	0.4077	0.0815	0.0656	0.1658	0.0497	0.6078	0.4456
Adjusted returns	0.3561	0.0519	-0.0765	0.2727	1.1265	1.0746	0.8121	0.1409	-0.2812	0.1932	3.0510	2.9101	-0.1771	0.1082	-0.4654	-0.1976	-0.1550	-0.2632
p-value	0.2835	0.4618	0.1959	0.0656	0.3765	0.4110	0.3586	0.4736	0.0047	0.3072	0.3708	0.4055	0.0959	0.6407	0.0002	0.1831	0.5995	0.4851
<i>Panel B: Measurement period starts nine months after the IPO date</i>																		
Return	Year 1 (one year)						Year 2 (two years)						Year 3 (three years)					
	All	Q1	Q2	Q3	Q4	Diff.	All	Q1	Q2	Q3	Q4	Diff.	All	Q1	Q2	Q3	Q4	Diff.
Raw returns	0.0527	0.1175	-0.0305	0.1379	-0.0098	-0.1272	0.1047	0.2991	-0.1470	0.2509	0.0213	-0.2777	-0.1010	0.1287	-0.1748	-0.0378	-0.3070	-0.4357
p-value	0.2372	0.0591	0.6241	0.0491	0.9427	0.4030	0.1532	0.0893	0.0913	0.0651	0.9002	0.2515	0.0280	0.2745	0.0310	0.6625	0.0000	0.0014
Adjusted returns	-0.0574	-0.0316	-0.1264	0.0127	-0.0828	-0.0511	-0.1465	0.0523	-0.4016	-0.0846	-0.1518	-0.2041	-0.4579	-0.2040	-0.5658	-0.5237	-0.5332	-0.3292
p-value	0.2032	0.5930	0.0502	0.8332	0.5645	0.7463	0.0454	0.7604	0.0001	0.5076	0.3810	0.4009	0.0000	0.1808	0.0000	0.0000	0.0000	0.0550
<i>Panel C: Measurement period starts twelve months after the IPO date</i>																		
Return	Year 1 (one year)						Year 2 (two years)						Year 3 (three years)					
	All	Q1	Q2	Q3	Q4	Diff.	All	Q1	Q2	Q3	Q4	Diff.	All	Q1	Q2	Q3	Q4	Diff.
Raw returns	0.0584	0.1025	-0.0014	0.1566	-0.0192	-0.1217	0.0550	0.2672	-0.1329	0.1458	-0.0532	-0.3204	-0.1130	0.0801	-0.1641	-0.0777	-0.2797	-0.3597
p-value	0.1389	0.1338	0.9820	0.0391	0.8533	0.3310	0.3743	0.1253	0.1314	0.1854	0.6289	0.1125	0.0192	0.5350	0.0319	0.4018	0.0006	0.0158
Adjusted returns	-0.0713	-0.0209	-0.1361	-0.0083	-0.1171	-0.0962	-0.2167	0.0311	-0.4110	-0.2317	-0.2528	-0.2839	-0.4732	-0.2755	-0.5859	-0.5094	-0.5192	-0.2437
p-value	0.0490	0.7462	0.0130	0.8892	0.2458	0.4242	0.0004	0.8539	0.0000	0.0264	0.0284	0.1565	0.0000	0.0954	0.0000	0.0000	0.0000	0.1731

In Table III, we report the adjusted and unadjusted buy-and-hold performance of German IPOs, categorized by DCA quartiles and calculated across various measurement periods and different starting dates. The results do confirm evidence that German IPOs issued during the sample period have underperformed, on average, in the long-run. When measured over three years, this underperformance is statistically and economically significant. For example, when viewing our return window after nine months of trading, the sample of 126 German IPOs underperformed the FAZ Index by 45.79 percent. When looking at shorter measurement horizons, however, the underperformance falls substantially to 14.54 percent over two years and 5.74 percent when measured over one year. Table III also shows that the magnitude of IPO aftermarket performance is not only sensitive to the length of the measurement period, but also to its starting date. Results in Panel A, B, and C indicate that the closer the starting point of the measurement period to the IPO date, the more favourable the long-run performance picture. The discrepancy is particularly large when calculating returns over short measurement horizons. For the sample as a whole, the two-year market-adjusted performance is positive 81.21 percent when measured after three months of trading and negative 21.67 percent when the two-year measurement begins after twelve months of trading.

Apart from the results obtained for the sample as whole, we also document aftermarket performance when categorizing the sample by DCA Quartile. This allows us to take a closer look at the cross-section of earnings management behaviour and market response. When return measurement starts after nine or twelve months following the IPO, companies that are less opportunistic towards earnings management during the IPO year outperform their counterparts over three years. When measuring three year returns starting after nine and twelve month of trading, for example, the market-adjusted return difference between the most conservative (Q1) and most aggressive (Q4) groups is 24.37 percent and 32.92 percent, respectively. When applying these starting times, this difference also generally applies when looking at shorter return horizons. Companies that manage earnings more conservatively during the IPO year consistently outperform their more aggressive counterparts. The longer the measurement horizon, the larger and more significant is this difference. When measuring from the benchmark starting date and afterwards, the results clearly indicate that the market identifies earnings management behaviour.

However, when measuring performance after month three following the IPO, the one-year and two-year return picture changes dramatically. The results are displayed in Panel A of Table III. The most aggressive managers substantially outperform their conservative counterparts. The difference of the market-adjusted return between the most aggressive (Q4) and the most conservative group (Q1) amounts to 107.46 percent over one year and 291.01 percent over two years. One reason for this discrepancy is that the more opportunistic managers in the IPO year tend to be the more aggressive managers in the year following the IPO. When measuring returns over three-years starting after three month of trading, however, this “wrong” relationship is corrected.¹⁷ The result is plotted in Figure 2.

¹⁷ The company with the largest price increase was EM.TV AG, a Media company, which recorded a DCA coefficient of 0.8962 and a three-year market-adjusted buy-and-hold return of positive 817.78 percent when measured after three months following the IPO, negative 63.56 percent when measured after nine month and negative 77.37 percent after twelve months after the IPO.

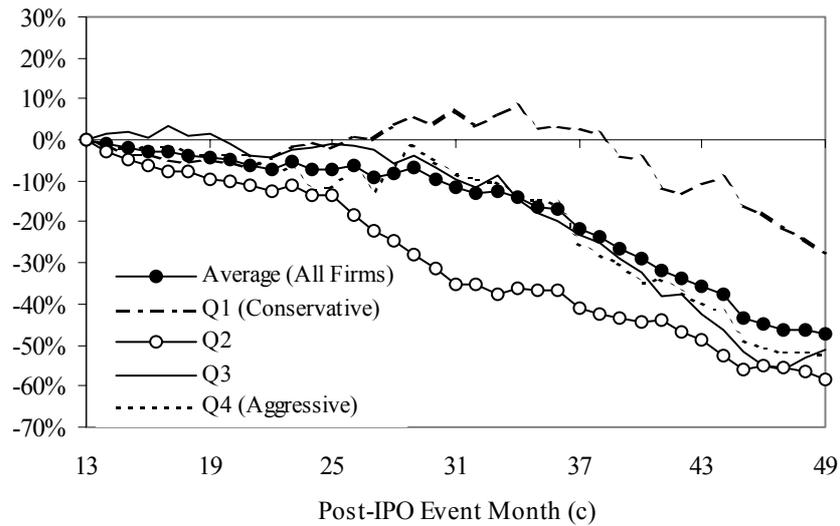
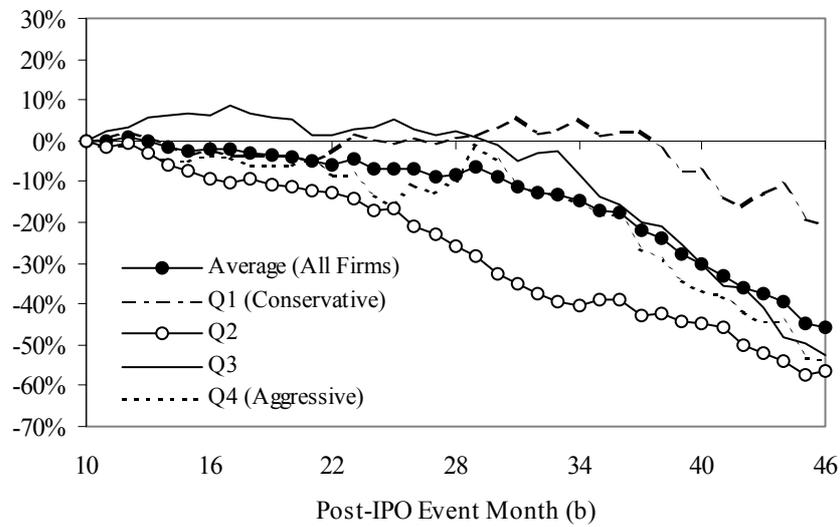
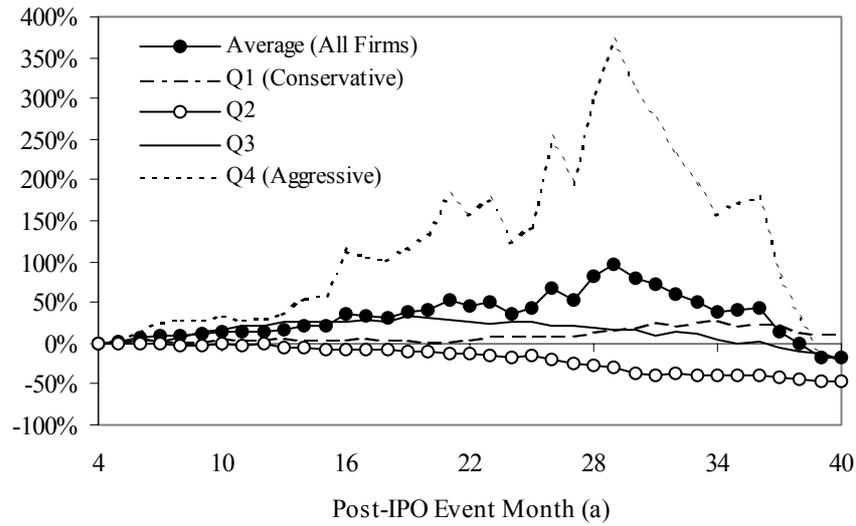


Figure 2. Market-adjusted buy-and-hold returns of DCA Quartiles (%). Returns are measured over 36 months with measurement starting after three, nine and twelve months post-IPO. Our proxy for earnings management is the firm's use of discretionary accruals (DCA). Firms are divided into quartiles based on how aggressively they manage earnings during the IPO year.

III. Market Response to Income Reporting Strategies

A. Measuring Management Behaviour with Income Smoothing (IS)

In contrast to firms using accruals to boost earnings in the short-term, firms might want to smooth their income to signal the firm's long-term strategy. As in Chaney and Lewis (1998), smoothing income is a long-term strategy and, in doing so, managers communicate the firm's "permanent earnings", a strategy which enhances investors' current and future perception of a firm. It is believed that firms with good future prospects will be able to smooth their income more effectively than firms that use accruals aggressively for window dressing, as discretionary accruals must reverse in the future. Thus, whether income is smoothed can be viewed as a management strategy that conveys fundamental information of a firm.

In this paper, the measure of income smoothing is the same as in Roosenboom, van Goot and Mertens (2000). The income smoothing (IS) coefficient is defined as the ratio of the variance in operating cash flow changes to variance of operating income changes:

$$IS_i = \frac{Var(\Delta CF_i)}{Var(\Delta OI_i)} \quad (4)$$

where ΔCF_i is defined as changes in operating cash flow for firm i , and ΔOI_i is defined as the changes in operating income for firm i .

The income smoothing (IS) coefficient defined in (4) compares the relative variability of changes in operating cash flow with the relative variability of changes in operating income. Since the operating cash flow is essentially not manageable, a successful income smoothing strategy will lead to a smaller variability in the changes of operating income (OI) and hence a larger coefficient for income smoothing. In other words, an income smoothing (IS) coefficient greater than one points to a company that tends to smooth its operating income relative to its operating cash flows. The drawback of this measurement is that we can only measure a firm's income smoothing ex-post.

In this study, we use five years of operating data to measure each IPOs income smoothing coefficient. In Table IV, we present some descriptive statistics for our sample of German IPOs. For the sample as a whole, the mean income smoothing

Table IV
Distribution of the Income Smoothing (IS) coefficient

For the analysis of Income Smoothing (IS), the sample is reduced to 124 companies because of missing information on operating cash flows for two companies (Refugium AG and Pro Sieben AG). We use the Mean difference test and Wilcoxon signed test to test for mean difference and the significance of the median.

<i>Distribution of the proxy for Income Smoothing categorized by IS Quartiles</i>							
	ALL	Q1	Q2	Q3	Q4	Diff.	p.value
Mean	1.18	0.80	0.98	1.13	1.81	-1.01	0.0000
p-value	0.0003						
Median	1.05	0.84	0.98	1.13	1.54	-0.70	0.0000
z-value	0.0008						
Max	4.91	0.91	1.05	1.22	4.91		
Min	0.17	0.17	0.91	1.05	1.22		
N	124	31	31	31	31		

coefficient is 1.18 and the median value is 1.05. Both values are significant at conventional levels. This indicates that, on average, German IPOs engage in earnings management by using income smoothing. Table IV also documents the distribution of the proxy for Income Smoothing by dividing the total sample into four equally-sized groups. The results reveal large and significant differences in the IS coefficient between conservative earnings managers who smooth the most (Q4), and aggressive earnings managers who smooth the least (Q1).

B. Income Smoothing (IS) and IPO Stock Returns

In Table V, we present the main findings. The results are reported both for the sample as a whole and for the individual Quartiles. Similarly, we measure performance with a benchmark starting date of nine months after the IPO. We also deviate from this benchmark starting date in order to study the dynamics of the market response. The result for measuring starting time of three-month, nine-month and twelve-month performance dynamics are presented in Panel A, B and C of Table V.

The results underline some earlier observations that the degree of aggressiveness in earnings management is related to the stock price performance. Over the long-run, companies with a higher IS coefficient tend to outperform their most aggressive counterpart regardless of the starting date of the measurement period. Based on market-adjusted three-year stock returns, the difference is 57.47 percent, 30.75 percent and 28.01 percent when measured from month three, nine and twelve following the IPO, respectively. The difference is consistently large and significant when measuring returns over two or three years after the start of the measurement periods. When measured over a one-year horizon, however, the difference in performance between companies that apply income smoothing most and those that do least, is not significant. This finding confirms our earlier result that the market is not able to respond to earnings management choices effectively in the short-run. However, the result here is less significant than the one when we used DCA. In Figure 3, the dynamics of aftermarket performance are shown graphically. Here, a similar picture to the one observed in Figure 2 emerges. The most conservative companies (Q4) display a significantly better performance than their more aggressive counterparts over the long-run. In the short-run, however, the differences are less clear. For example, in Graph (a) the second most aggressive group (Q2) outperforms others up until the medium-term.

Figure 3 underlines the importance of the month of seasoning when measuring aftermarket returns. Results reported from a date closer to the IPO make the distribution of returns more susceptible to the effect of other factors, such as extreme returns. It should be noted that the magnitude of long-run returns in the most conservative group of income smoothers (Q4) is clearly different from the rest of the sample companies which, in turn, do not display a large divergence in performance among them.¹⁸

¹⁸ This notion is similar to Brav and Gompers (1997) who find that the widely acclaimed underperformance reported for US IPOs in Ritter (1991) is due to nonventure-backed IPOs, and that venture-backed IPOs, which make up 21.52 percent of the sample, do not significantly underperform. Schuster (2003) finds that New Economy stocks, that account for around 28 percent of the sample, drive the positive aftermarket performance of a sample of 973 European IPOs issued between 1988 and 1998.

Table V
IPO performance categorized by Issue Year IS Quartiles

The sample consists of 124 German IPOs between 1988 and 1997. Returns are calculated as equally-weighted buy-and-hold returns. One month is defined as a consecutive 21-day trading interval using the local trading calendar. Returns are reported separately as raw returns and returns adjusted by the broad-based value-weighted FAZ Index. The raw and market-adjusted buy-and-hold return is calculated after three, nine and twelve months following the IPO. Difference (Diff.) refers to the percentage change between the most aggressive earnings manager (Q1) and the most conservative earnings manager (Q4) in terms of IS. Associated test statistics for Diff. refer to mean difference tests.

<i>Panel A: Measurement period starts three months after the IPO date</i>																		
Return	Year 1 (one year)						Year 2 (two years)						Year 3 (three years)					
	All	Q1	Q2	Q3	Q4	Diff.	All	Q1	Q2	Q3	Q4	Diff.	All	Q1	Q2	Q3	Q4	Diff.
Raw returns	0.4210	-0.0392	1.4914	0.1399	0.0919	0.1311	1.0611	-0.0782	3.7122	0.1643	0.4462	0.5244	0.1768	-0.1948	0.3835	0.0751	0.4434	0.6382
p-value	0.2134	0.4185	0.2740	0.0873	0.2637	0.1672	0.2396	0.3897	0.3084	0.2285	0.0530	0.0320	0.0956	0.0244	0.2239	0.5476	0.0700	0.0132
Adjusted returns	0.3501	-0.0604	1.4021	0.0551	0.0035	0.0639	0.8319	-0.2759	3.4616	-0.0307	0.1727	0.4485	-0.1821	-0.5251	0.0048	-0.2579	0.0496	0.5747
p-value	0.2992	0.2564	0.3024	0.4645	0.9658	0.5089	0.3547	0.0069	0.3406	0.7905	0.4003	0.0494	0.0889	0.0001	0.9877	0.0508	0.8313	0.0288
<i>Panel B: Measurement period starts nine months after the IPO date</i>																		
Return	Year 1 (one year)						Year 2 (two years)						Year 3 (three years)					
	All	Q1	Q2	Q3	Q4	Diff.	All	Q1	Q2	Q3	Q4	Diff.	All	Q1	Q2	Q3	Q4	Diff.
Raw returns	0.0571	-0.0762	0.1760	0.0767	0.0520	0.1282	0.1010	-0.1390	0.1388	0.0170	0.3870	0.5260	-0.0991	-0.2380	-0.1280	-0.0984	0.0682	0.3062
p-value	0.2067	0.0815	0.2506	0.2530	0.3826	0.0813	0.1691	0.0985	0.4301	0.8354	0.0597	0.0168	0.0310	0.0011	0.1467	0.3246	0.5183	0.0158
Adjusted returns	-0.0559	-0.1340	0.0406	-0.0693	-0.0610	0.0731	-0.1501	-0.3157	-0.1722	-0.2241	0.1114	0.4271	-0.4608	-0.5628	-0.4872	-0.5380	-0.2553	0.3075
p-value	0.2225	0.0133	0.7976	0.2535	0.2564	0.3227	0.0412	0.0012	0.3406	0.0123	0.5665	0.0480	0.0000	0.0000	0.0000	0.0005	0.0573	0.0564
<i>Panel C: Measurement period starts twelve months after the IPO date</i>																		
Return	Year 1 (one year)						Year 2 (two years)						Year 3 (three years)					
	All	Q1	Q2	Q3	Q4	Diff.	All	Q1	Q2	Q3	Q4	Diff.	All	Q1	Q2	Q3	Q4	Diff.
Raw returns	0.0648	-0.0193	0.0978	0.0591	0.1215	0.1408	0.0477	-0.1322	0.0290	-0.0387	0.3326	0.4648	-0.1087	-0.1892	-0.1209	-0.1625	0.0379	0.2271
p-value	0.1033	0.7726	0.3785	0.3259	0.1054	0.1576	0.4346	0.1432	0.7694	0.6059	0.0804	0.0261	0.0247	0.0081	0.2196	0.1019	0.7460	0.0944
Adjusted returns	-0.0675	-0.1022	-0.0614	-0.0867	-0.0195	0.0827	-0.2250	-0.3548	-0.2832	-0.2934	0.0313	0.3861	-0.4752	-0.5820	-0.4404	-0.5762	-0.3020	0.2801
p-value	0.0648	0.0855	0.5654	0.1138	0.7616	0.3396	0.0002	0.0000	0.0044	0.0016	0.8643	0.0524	0.0000	0.0000	0.0002	0.0001	0.0444	0.0922

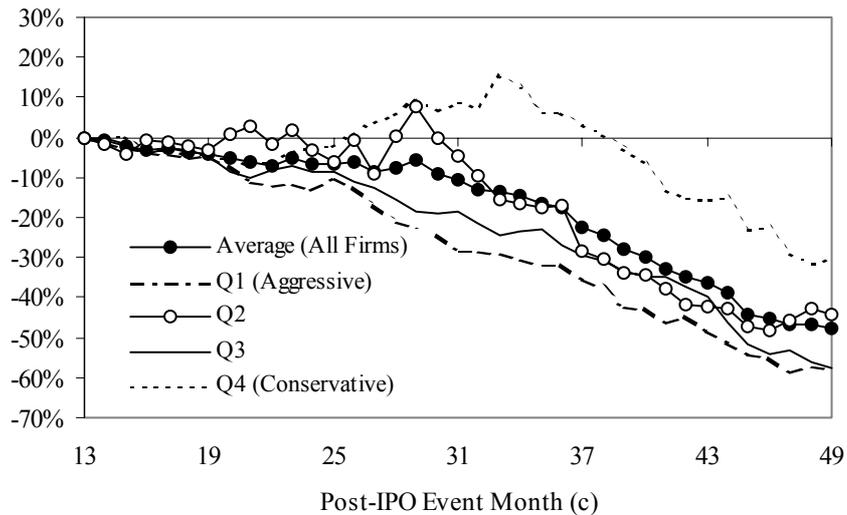
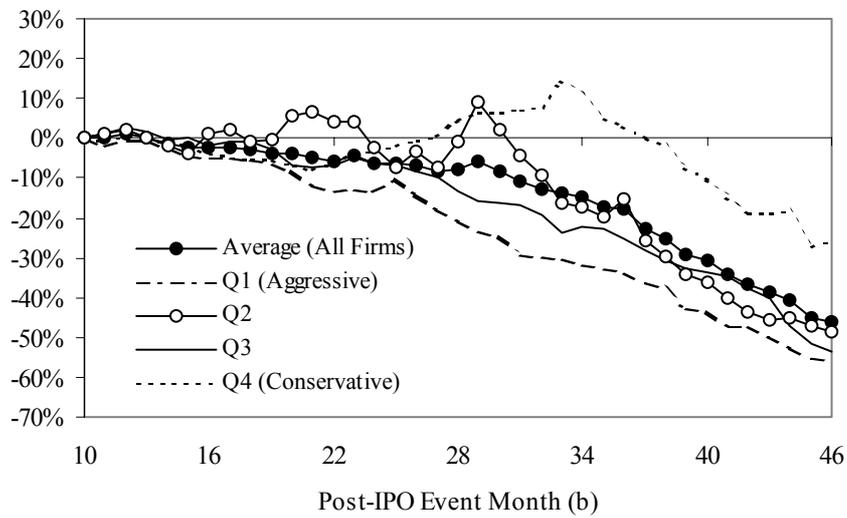
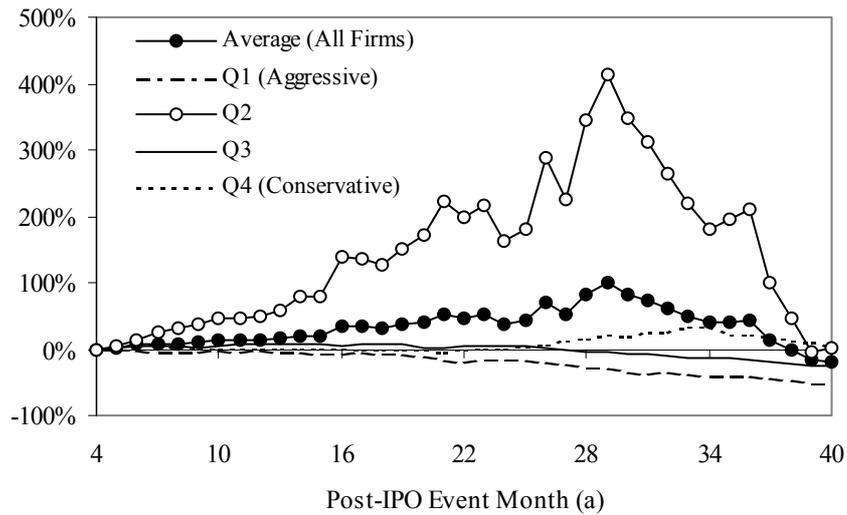


Figure 3. Market-adjusted buy-and-hold returns of IS Quartiles (%). Returns are measured over 36 months with measurement starting after three, nine and twelve months post-IPO. Our proxy for earnings management is the firm's use of income smoothing (IS). Firms are divided into Quartiles based on how aggressively they manage earnings during the IPO year.

IV. Comparative Analysis of Methods of Earnings Management

Thus far, we have investigated two widely cited forms of earnings management and the market response. While we have shown that the use of DCA is a predominantly short-term tool for opportunistic earnings managers, the nature of IS lies clearly in its ability to provide a framework for strategic long-run earnings management. In this section, we focus on the relation between these two forms, which thus far has been left unexplored in the literature. Based on our earlier results, we hypothesize a link between DCA and IS and design our research methodology accordingly.

In Panel A of Table V, we replicate the distribution of the DCA coefficients (in Quartiles) from Table II and calculate the IS coefficient of each DCA group. There is a tendency that companies, which manage their earnings least opportunistically in terms of DCA, also have the highest IS coefficient. For example, the most conservative group in terms of DCA recording a DCA of -0.27 also has the highest IS coefficient of 1.30. In Panel B, we replicate the distribution of our IS coefficient (in Quartiles) from Table IV and calculate the DCA of each IS group. Here, we find a similar tendency to the one reported above: companies with a higher income smoothing coefficient, that are also better stock market performers over the long-term, have a tendency to manage their earnings less opportunistically during the year of going public. In contrast, companies which have a low tendency to smooth their income are also likely to manage their earnings more aggressively. For example, the most aggressive group in terms of IS (Q1) recording a median IS coefficient of 0.84, has the highest median DCA of 0.12.

The results suggest that the two forms of earnings management are clearly not mutually exclusive. The column headed Diff. shows the difference in the coefficient between Q1 and Q4. The last column in Table VI reports the p-value of the mean

Table VI

Discretionary Current Accruals (DCA) versus Income Smoothing (IS)

In this table, we compare the two proxies for earnings management: Discretionary Current Accruals (DCA) and Income Smoothing (IS). We set the number of companies to 124, the sample size used when we measured the IS coefficient. In Panel A, companies are grouped by their DCA quartile. In Panel B, companies are grouped by their IS quartile. Diff. refers to the mean difference of Q1 and Q4. We use the Mean difference test and Wilcoxon signed test to test for mean difference and the significance of the median difference.

<i>Panel A: DCA and IS Grouped by DCA in the IPO year</i>								
Proxy		All	Q1	Q2	Q3	Q4	Diff.	p-value
DCA	Mean	0.07	-0.27	-0.01	0.11	0.43	-0.70	0.0000
	Median	0.05	-0.20	-0.01	0.12	0.30	-0.50	0.0000
IS	Mean	1.18	1.30	1.16	1.11	1.15	0.15	0.3854
	Median	1.05	1.11	1.06	1.06	1.02	0.03	0.1440
N		124	31	31	31	31		
<i>Panel B: DCA and IS Grouped by IS</i>								
Proxy		All	Q1	Q2	Q3	Q4	Diff.	p-value
IS	Mean	1.18	0.80	0.98	1.13	1.81	-1.01	0.0000
	Median	1.05	0.84	0.98	1.13	1.54	-0.70	0.0000
DCA	Mean	0.07	0.11	0.03	0.08	0.05	0.06	0.3434
	Median	0.05	0.12	0.05	0.04	0.02	0.10	0.2503
N		124	31	31	31	31		

Table VII
IPO performance of companies in the DCA/IS intersection

Table VII presents the adjusted and unadjusted buy-and-hold performance of the Best DCA/IS (Panel A) and Worst DCA/IS intersection (Panel B). The sample consists of 124 German IPOs going public between 1988 and 1997. Aftermarket returns are calculated as equally-weighted returns whereas one month is defined as a consecutive 21-day trading period using the local trading calendar. Adjusted and Unadjusted mean and median returns are calculated from month three, nine and twelve following the IPO date. Returns are adjusted using the broad-based value-weighted FAZ Index as the benchmark.

<i>Panel A: Best DCA/IS intersection</i>			
Returns	3 months after IPO	9 months after IPO	12 Months after IPO
Raw returns	1.2981	0.4119	0.3760
Median	0.6616	0.3830	0.2780
Adjusted returns	0.8577	0.1900	0.1785
Median	0.2456	0.1856	0.0243
Number of IPOs	10	10	10
<i>Panel B: Worst DCA/IS intersection</i>			
Returns	3 months after IPO	9 months after IPO	12 Months after IPO
Raw returns	-0.2241	-0.2641	-0.2013
Median	-0.3524	-0.3797	-0.2972
Adjusted returns	-0.4995	-0.3965	-0.4398
Median	-0.3515	-0.4413	-0.3670
Number of IPOs	9	9	9

difference test of coefficients between Q1 and Q4. While there is a tendency for companies to apply various techniques for earnings management, either equally aggressively or conservatively, the lack of statistical significance for both the mean and median might suggest that the two strategies are not deterministic.

In Table VII, we analyse the impact of the interaction of these two forms of earnings management on the dynamics of aftermarket returns. In Panel A, we present evidence concerning the long-run performance of companies, which fall into the intersection of companies with the most conservative form of earnings management in terms of DCA (Q1) and IS (Q4). Panel B contains the result of those companies that fall into the intersection that applies the most aggressive behaviour towards earnings management in terms of DCA (Q4) and IS (Q1). This approach allows us to study whether companies that use both forms of earnings management most conservatively (Best DCA/Best IS Quartile) do in fact experience performance differences and vice versa.

Overall, the results do confirm our earlier observation that the magnitude of long-run performance is sensitive to the start of the measurement period. There is a strong indication that mean and median returns of companies falling into the intersection of Best DCA/Best IS outperform other companies, that do not fall into this intersection, by a considerable margin. This result extends to all starting dates of our measurement period. For example, when measuring performance following the ninth month of aftermarket trading, the ten companies which fell into the Best DCA/Best IS intersection returned a market-adjusted 19.00 percent, while in Table III, the best DCA group (Q1) only enjoyed a negative 20.40 percent three-year market-adjusted return. Similarly, in Table V, the best IS Group (Q4) recorded a negative 25.53 percent three-year market-adjusted return when measured after nine months of trading.

The results are less robust for the intersection of Worst DCA/Worst IS, which is generally in line with the returns of the worst DCA and worst IS Quartiles reported in

Tables III and V.¹⁹ This is not surprising as 75 percent of the sample in both earnings management regimes produced similar long-run underperformance. It must be noted that, due to the small sample size, reported results must be treated with caution.

V. Aftermarket Return Dynamics and Earnings Management

As documented throughout the paper, the dynamics of aftermarket performance are sensitive to the start of the period from which returns are measured. Starting the measurement period at a date closer to the date of going public has a dramatically different effect on the return dynamics than when measuring returns from a date further away from the IPO date. In this section, we combine the empirical methodology of Ritter (1991) with the framework for analysing DCA and IS, in order to disentangle the observations. We include the two major explanatory variables DCA and IS, which are proxies for the fundamentals of IPO firms, into the regression model described in Ritter (1991) where most of the explanatory variables have no accounting features.

We use market-adjusted three-year returns as the dependent variable and measure performance following month three, nine and twelve of trading. The explanatory variables are the DCA coefficient in the IPO year, the IS coefficient, a proxy for New Economy companies (NEW), the logarithm of market value (MV), the log of one plus age, the percentage of equity retained (ER) and the initial return.²⁰

The generalised model specification is as follows:

$$R_i = \alpha + \beta_1 DCA_i + \beta_2 IS_i + \beta_3 NEW_i + \beta_4 \text{Log}(MV_i) + \beta_5 \text{Log}(1 + \text{Age}_i) + \beta_6 ER_i + \beta_7 IR_i + \epsilon_i \quad (5)$$

Table VIII reports the major results of a set of multivariate regression models (5). The results in Table VIII shed more light on our earlier observations about both the short- and long-run dynamics of IPO returns and the explanatory power of both proxies for earnings management. When measuring long-run returns in the three months after the IPO (Panel A), both proxies for earnings management have very little power to explain long-run returns. Including our accounting proxies for earnings management in the regression leads to just a marginal increase in explanatory power from 9.35 percent to 10.30 percent.²¹ In this case, the New Economy proxy shows considerable statistical power. This confirms our conjecture made in the previous chapter that the positive long-run abnormal return performance measured from the first day of trading of a sample of 973 European IPOs issued between 1988 and 1998 is driven by firms in the New Economy sectors. The power of the two accounting proxies for earnings management that help to explain long-run returns, however, increases dramatically when long-run performance is measured after nine or twelve months of trading.

As shown in Panel B, not only does the inclusion of the DCA and IS increase the overall explanatory power of the regression model from 5.52 percent to 11.40 percent, but DCA and IS also become significant. This finding demonstrates that factors other than fundamentals drive IPO prices in the short-run. In an environment characterized by high levels of “divergence of opinion” (Miller (1977)), company characteristics such as

¹⁹ Three out of the nine companies in the Worst DCA/Worst IS intersection are companies associated with strong retail brands: Jil Sander AG, a fashion company; Leica Camera AG, a camera manufacturer; and Marbert AG, a cosmetics company.

²⁰ New Economy firms represent Technology, Media, Telecommunications and Healthcare, respectively.

²¹ The R^2 s reported in this study are unadjusted. We also checked adjusted R^2 s and found that it does not change the results qualitatively.

Table VIII

OLS Regression Results for the Aftermarket Performance

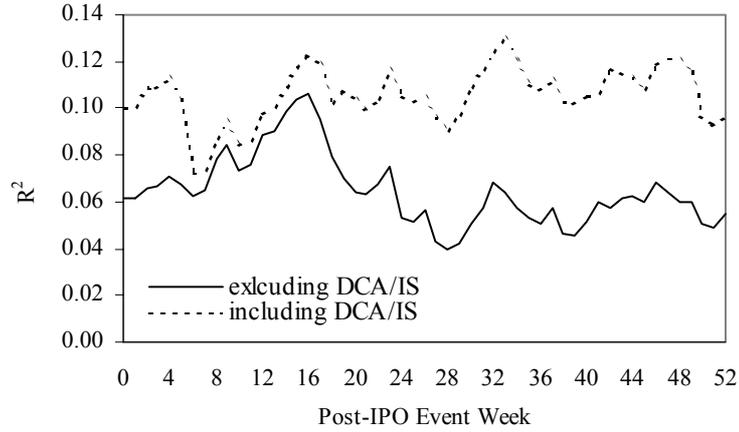
$$R_i = \alpha + \beta_1 DCA_i + \beta_2 IS_i + \beta_3 NEW_i + \beta_4 \text{Log}(MV_i) + \beta_5 \text{Log}(1+Age_i) + \beta_6 ER_i + \beta_7 IR_i + \varepsilon_i.$$

R_i is the three-year market adjusted return, measured from the applicable measurement starting date. DCA_i is the DCA of company i at the year of the IPO. IS_i is the income smoothing coefficient of company i measured over the whole period. DCA_i and IS_i are proxies for earnings management. New Economy (NEW_i) firms belong to market sectors 5,13,15,17 representing Technology, Media, Telecommunications and Healthcare, respectively, in the Dow Jones STOXX global sector classification scheme. $\text{Log}(MV_i)$ is the Market Value of the Firm at the IPO date defined as the total number of shares issued (including overallocation options) times the IPO price, measured in end-1997 purchasing power. $\text{Log}(1+Age_i)$ is defined as the year of going public minus the year of foundation, with firms founded before 1901 assumed to be founded in 1901. EquityRetention $_i$ (ER) is defined as one minus the percentage of Equity offered based on the IPO date. IR_i measures the Initial Returns of the IPO defined as the unadjusted percentage change between the IPO price and the first closing price; Standard Error (S.E) in parenthesis.

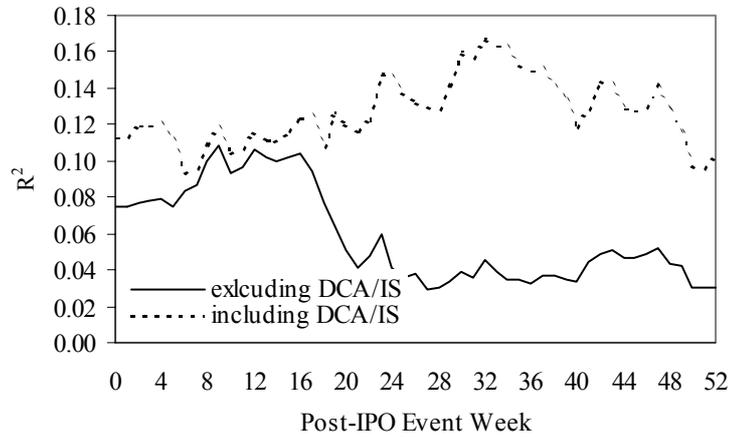
<i>Panel A: Coefficient estimates based on starting measurement after three months of going public</i>								
α	$\hat{\beta}_1$	$\hat{\beta}_2$	$\hat{\beta}_3$	$\hat{\beta}_4$	$\hat{\beta}_5$	$\hat{\beta}_6$	$\hat{\beta}_7$	R^2
-0.1893 ^c (0.1089)	0.1063 (0.3267)							0.0001
-0.4390 (0.2541)		0.2175 (0.1955)						0.0100
1.0700 (0.5437)			0.6855 ^b (0.3076)	-0.0694 (0.1022)	-0.1304 (0.0942)	0.6133 (0.5614)	0.2072 (0.5059)	0.0935
0.7186 (2.0156)	0.1125 (0.3220)	0.2105 (0.1922)	0.7043 ^b (0.3091)	-0.0649 (0.1033)	-0.1234 (0.0947)	0.5871 (0.5636)	0.1938 (0.5112)	0.103
<i>Panel B: Coefficient estimates based on starting measurement after nine months of going public</i>								
α	$\hat{\beta}_1$	$\hat{\beta}_2$	$\hat{\beta}_3$	$\hat{\beta}_4$	$\hat{\beta}_5$	$\hat{\beta}_6$	$\hat{\beta}_7$	R^2
-0.4399 ^a (0.0589)	-0.3089 ^c (0.1768)							0.0244
-0.7220 ^a (0.1374)		0.2212 ^b (0.1057)						0.0346
0.0313 (1.0999)			0.2588 (0.1719)	-0.0331 (0.0571)	-0.0165 (0.0526)	0.1982 (0.3138)	0.2924 (0.2828)	0.0552
-0.5570 (1.0969)	-0.3108 ^c (0.1752)	0.2120 ^b (0.1046)	0.2639 (0.1682)	-0.0146 (0.0562)	-0.0144 (0.0515)	0.1791 (0.3067)	0.3601 (0.2782)	0.1140
<i>Panel B: Coefficient estimates based on starting measurement after twelve months of going public</i>								
α	$\hat{\beta}_1$	$\hat{\beta}_2$	$\hat{\beta}_3$	$\hat{\beta}_4$	$\hat{\beta}_5$	$\hat{\beta}_6$	$\hat{\beta}_7$	R^2
-0.4582 ^a (0.0590)	-0.2504 (0.1770)							0.0161
-0.7139 ^a (0.1374)		0.2021 ^b (0.1057)						0.0291
0.3912 (1.1020)			0.2191 (0.1723)	-0.0484 (0.0572)	-0.0011 (0.0527)	0.0043 (0.3144)	0.2708 (0.2833)	0.0461
-0.1271 (1.1085)	-0.2405 (0.1771)	0.1962 ^b (0.1057)	0.2253 (0.1700)	-0.0328 (0.0568)	0.0013 (0.0521)	-0.0143 (0.3100)	0.3244 (0.2811)	0.0901

^{a,b,c} denote statistical significance at the 0.01, 0.05, and 0.10 levels, respectively, based on a simple t-test.

Panel A: Model Explanatory Power Dynamics (adjusted returns)



Panel B: Model Explanatory Power Dynamics (raw returns)



Panel C: Weekly Anormal Returns

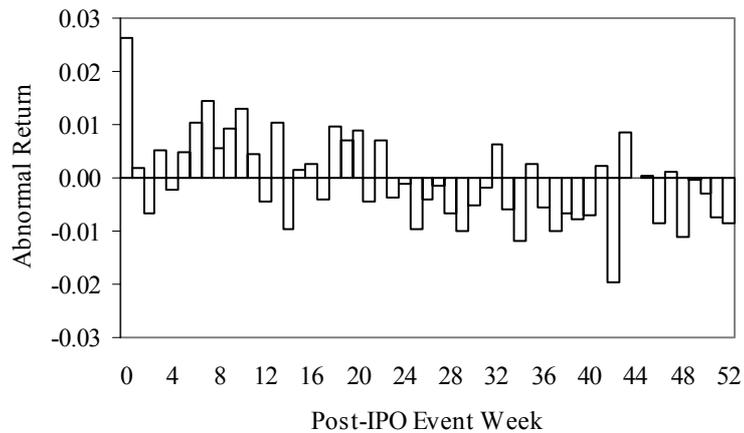


Figure 4. Model Explanatory Power Dynamics and Weekly Abnormal Returns. In Panel A and B, we measure the power of the regression model (including DCA/IS and excluding DCA/IS) from Table VIII to explain adjusted and unadjusted 36-month buy-and-hold returns. Panel C measures the weekly abnormal return dynamics (FAZ Index adjusted) during the first year of trading.

age, initial return, free-float, size or economic sector), short-selling constraints (Duffie, Gârleanu and Pederson (2002) and Gecy, Musto and Reed (2001)), lock-up periods (Brav and Gompers (2002)), underwriter stabilization (Aggarwal (2000)) or the expiration of the “quiet period” (Bradley, Jordan and Ritter (2002)) may be the driving forces behind short-run IPO returns.

In Figure 4, we study the explanatory power dynamics of model (5) in more detail. The 36-months returns (both raw and adjusted) are measured starting from the first week to 52 weeks after the IPO date. The R^2 s of the regression with and without the proxies for fundamentals (DCA and IS) are plotted in Panels A and B, respectively. Clearly, the R^2 s of the model, with and without the variables explaining fundamentals, are almost the same for the first several months after the IPO date. Take, for example, the adjusted return (Panel A). The model explanatory power with and without fundamentals starts to diverge only four to five months after the IPO date. After that, the explanatory power of the typical IPO explaining variables (such as size, age, initial returns, economic sector) starts to decrease while the explanatory power of fundamentals starts to increase dramatically. Both of them remain relatively stable one or two months afterwards. This pattern also holds when the raw return is used (Panel B).²² The substantially increased model explanatory power with DCA and IS after four to five months indicates that fundamentals start to play a bigger role in determining the long-run return of IPO stocks. After that time, the non-fundamental factors lessen their impact in determining IPO long-run performance.

We investigate this issue further by examining the actual short-term return dynamics of IPO stocks. The results are reported in Panel C of Figure 4. In Panel C, we document average weekly abnormal returns of IPO stocks. Clearly, during the first four to five months (the time that the fundamentals take to establish their role), the IPO stocks perform well relative to the market. After that, however, they start to underperform. When comparing the time when the fundamental factors start to play a bigger role with the time when the IPO stocks start to underperform, a clear picture emerges: in the short-run, IPO stocks outperform the market and their return dynamics are essentially driven by factors other than fundamentals. After some period of learning, fundamentals start to play a bigger role and IPOs start to underperform. This result casts light upon the reported anomaly documenting the significant short-run overperformance in IPOs in general and German IPOs in particular, as well as the sharp drop-off in performance thereafter.

VI. Summary and Conclusion

This paper has analysed management behaviour towards earnings management and the dynamics of the subsequent market response. The analysis has been conducted through the evaluation of accounting information and stock prices of a large number of companies that chose to go public in Germany over the ten-year period between 1988 and 1997. We have defined two widely acknowledged forms of earnings management and have investigated some issues that have so far remained unexplained. To our knowledge, this is the first study that applies this concept to German IPOs, a market which has gained considerable international attention during the past decade.

For the sample of German IPOs, we provide evidence that the IPO event itself may give managers an incentive to opportunistically manage earnings so as to maximize IPO

²² When the raw return is used, the market return is added to the right-hand side of model (5).

proceeds. We also find that the form of earnings management during the IPO year is indeed linked to the long-run aftermarket performance. Firms that perform best over the long-run manage earnings least opportunistically. This applies to the two methods of earnings management studied. We also find that two types of earnings management are not deterministic, yet complementary. The ten IPOs that fall into the intersection of companies with the lowest DCA and highest IS substantially outperform the rest of the sample and the market.

The outperformance of the less aggressive companies could be due to a variety of reasons such as varying risk premia, the empirical methodology or simply bad luck. To check for the robustness of our results, we exercised a set of robustness analyses. We found that the risk premium proxied by the standard deviation of monthly returns or age does not show significant difference between the more conservative and more aggressive earnings management groups. Since a broad set of the empirical literature (Clarkson and Thompson (1990), Ritter (1991), Chan and Lakonishok (1992), Keloharju (1993), Leleux and Muzyka (1998)) rejects the notion that beta can explain away the differences in return performance of IPO stocks, we believe that beta adjustments cannot account for the large performance discrepancies identified in this study. Moreover, using cumulative returns, another conventional method of returns measurement, we find that the qualitative nature of the results does not change.

This analysis has also been set up with the aim of shedding some light on the forces behind the return dynamics in aftermarket trading of IPOs. We find that the long-run performance is sensitive to the starting date of the measurement period. The explanatory power of both DCA and IS for long-run returns, proxies for fundamentals of IPO firms, increases dramatically when the performance is measured after some time of trading in the aftermarket (four to five months). This result indicates that investor sentiment, driven by institutional peculiarities in an IPO market typically characterised by high levels of “divergence of opinion” (such as the immediate IPO aftermarket), replaces fundamentals as the driving force behind the short-run price dynamics. It takes many months for the market to catch-up to the company fundamentals conveyed in the proxies for earnings management.

For academics and practitioners alike, the findings presented here have a number of repercussions: for academics, it matters when to start measuring performance. Delaying the start of the measurement period beyond the first four months is most likely going to improve the explanatory power of accounting information. Investors should not treat IPOs like any other firm that is being traded in the market, particularly during a firm’s first year of trading because IPO returns, as shown in this analysis, are largely driven by factors other than fundamentals in the short-run. The message for firms is that there is always a trade-off between short-term gains and long-term losses. If a firm is concerned about its long-term perspective, it should not manage its earnings aggressively, because the market is going to catch up sooner or later.

The findings also provide a potential rationale for investors to ignore IPO fundamentals in the short-run, because the extreme winner is likely to be found in those companies that manage earnings more aggressively. This indeed sheds light on the short-run aftermarket return dynamics of US IPOs during Internet bubble of 1999 and part of 2000, and on the even more extreme events that took place on the Neuer Markt and its subsequent fall.

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Table AI
Specimen Balance Sheet and Profit and Loss Account

For each individual German Initial Public Offerings (IPO), we collected the information for calculating the proxies for earnings management (the Discretionary Current Accrual (DCA) and Income Smoothing (IS) coefficients) from balance sheet and profit and loss accounts based on the full version (Vollbilanz) available from Hoppenstedt Finanzinformationen GmbH (in English and German language), a Germany-based provider of financial data.

row		row	
1	Name: Company XYZ (Version in English)	1	Name: Firma XYZ (Version in German)
2	Date	2	Datum
3	ASSETS	3	A K T I V A
4	outstanding contributions to subscribed capital	4	Ausstehende Einlagen
5	thereof called-in	5	(davon eingefordert)
6	expenses for starting up + extending business operations	6	Aufw. f. Ingangsetz./Erweit. Geschäftsb.
7	fixed assets	7	Anlagevermögen
8	gross values at the beginning of the year	8	Anfangsbestand
9	additions	9	Zugänge
10	appreciation/write-ups	10	Zuschreibungen
11	disposals	11	Abgänge
12	other changes	12	Sonstige Veränderungen
13	additions incl changes in scope of consolidation	13	(dav. Zug. incl. Veränd. Kons.kreis)
14	accumulated depreciation and write-downs	14	Kumulierte Abschreibungen
15	thereof depreciation during the year	15	(davon Geschäftsjahresabschreibungen)
16	thereof appreciation/write-ups under depreciation	16	(dav. Zuschr. b. Abschr.)
17	intangible assets	17	Immaterielle Vermögensgegenstände
18	gross values at the beginning of the year	18	Anfangsbestand
19	additions	19	Zugänge
20	appreciation/write-ups	20	Zuschreibungen
21	disposals	21	Abgänge
22	other changes	22	Sonstige Veränderungen
23	additions incl changes in scope of consolidation	23	(dav. Zug. incl. Veränd. Kons.kreis)
24	accumulated depreciation and write-ups	24	Kumulierte Abschreibungen
25	thereof depreciation during the year	25	(dav. Geschäftsjahresabschreib.)
26	thereof appreciation/write-ups under depreciation	26	(dav. Zuschr. b. Abschr.)
27	franchises, patents/similar rights/assets & licences	27	Konzessionen
28	gross values at the beginning of the year	28	Anfangsbestand
29	additions	29	Zugänge
30	appreciation/write-ups	30	Zuschreibungen
31	disposals	31	Abgänge
32	other changes	32	Sonstige Veränderungen
33	additions incl changes in scope of consolidation	33	(dav. Zug. incl. Veränd. Kons.kreis)
34	accumulated depreciation and write-ups	34	Kumulierte Abschreibungen
35	thereof depreciation during the year	35	(dav. Geschäftsjahresabschreib.)
36	thereof appreciation/write-ups under depreciation	36	(dav. Zuschr. b. Abschr.)
37	goodwill (from indiv statements/capital consolidation)	37	Geschäfts- oder Firmenwert
38	thereof goodwill from capital consolidation	38	(dav. Unterschiedsbetrag aus Konsol.)
39	gross values at the beginning of the year	39	Anfangsbestand
40	additions	40	Zugänge
41	appreciation/write-ups	41	Zuschreibungen
42	disposals	42	Abgänge
43	other changes	43	Sonstige Veränderungen
44	additions incl changes in scope of consolidation	44	(dav. Zug. incl. Veränd. Kons.kreis)
45	accumulated depreciation and write-ups	45	Kumulierte Abschreibungen
46	thereof depreciation during the year	46	(dav. Geschäftsjahresabschreib.)
47	thereof appreciation/write-ups under depreciation	47	(dav. Zuschr. b. Abschr.)
48	advance payments	48	Geleistete Anzahlungen
49	gross values at the beginning of the year	49	Anfangsbestand
50	additions	50	Zugänge
51	appreciation/write-ups	51	Zuschreibungen
52	disposals	52	Abgänge
53	other changes	53	Sonstige Veränderungen
54	additions incl changes in scope of consolidation	54	(dav. Zug. incl. Veränd. Kons.kreis)
55	accumulated depreciation and write-ups	55	Kumulierte Abschreibungen
56	thereof depreciation during the year	56	(dav. Geschäftsjahresabschreib.)
57	thereof appreciation/write-ups under depreciation	57	(dav. Zuschr. b. Abschr.)

TABLE AI *continued:*

58	..fixed tangible assets	58	..Sachanlagen
59	..gross values at the beginning of the year	59	..Anfangsbestand
60	..additions	60	..Zugänge
61	..appreciation/write-ups	61	..Zuschreibungen
62	..disposals	62	..Abgänge
63	..other changes	63	..Sonstige Veränderungen
64	...additions incl changes in scope of consolidation	64	...(dav. Zug. incl. Veränd. Kons.kreis)
65	..accumulated depreciation and write-ups	65	..Kumulierte Abschreibungen
66	...thereof depreciation during the year	66	...(dav. Geschäftsjahresabschreib.)
67	...thereof appreciation/write-ups under depreciation	67	...(dav. Zuschr. b. Abschr.)
68	..real estate, leasehold rights	68	..Grundstücke
69	...gross values at the beginning of the year	69	...Anfangsbestand
70	...additions	70	...Zugänge
71	...appreciation/write-ups	71	...Zuschreibungen
72	...disposals	72	...Abgänge
73	...other changes	73	...Sonstige Veränderungen
74	...additions incl changes in scope of consolidation	74	...(dav. Zug. incl. Veränd. Kons.kreis)
75	...accumulated depreciation and write-ups	75	...Kumulierte Abschreibungen
76	...thereof depreciation during the year	76	...(dav. Geschäftsjahresabschreib.)
77	...thereof appreciation/write-ups under depreciation	77	...(dav. Zuschr. b. Abschr.)
78	..technical equipment and machinery	78	..Technische Anlagen und Maschinen
79	...gross values at the beginning of the year	79	...Anfangsbestand
80	...additions	80	...Zugänge
81	...appreciation/write-ups	81	...Zuschreibungen
82	...disposals	82	...Abgänge
83	...other changes	83	...Sonstige Veränderungen
84	...additions incl changes in scope of consolidation	84	...(dav. Zug. incl. Veränd. Kons.kreis)
85	...accumulated depreciation and write-ups	85	...Kumulierte Abschreibungen
86	...thereof depreciation during the year	86	...(dav. Geschäftsjahresabschreib.)
87	...thereof appreciation/write-ups under depreciation	87	...(dav. Zuschr. b. Abschr.)
88	..other equipment, fixtures and office equipment	88	..And. Anlagen
89	...gross values at the beginning of the year	89	...Anfangsbestand
90	...additions	90	...Zugänge
91	...appreciation/write-ups	91	...Zuschreibungen
92	...disposals	92	...Abgänge
93	...other changes	93	...Sonstige Veränderungen
94	...additions incl changes in scope of consolidation	94	...(dav. Zug. incl. Veränd. Kons.kreis)
95	...accumulated depreciation and write-ups	95	...Kumulierte Abschreibungen
96	...thereof depreciation during the year	96	...(dav. Geschäftsjahresabschreib.)
97	...thereof appreciation/write-ups under depreciation	97	...(dav. Zuschr. b. Abschr.)
98	..advance payments and construction in progress	98	..Geleistete Anzahlungen/Anlagen im Bau
99	...gross values at the beginning of the year	99	...Anfangsbestand
100	...additions	100	...Zugänge
101	...appreciation/write-ups	101	...Zuschreibungen
102	...disposals	102	...Abgänge
103	...other changes	103	...Sonstige Veränderungen
104	...additions incl changes in scope of consolidation	104	...(dav. Zug. incl. Veränd. Kons.kreis)
105	...accumulated depreciation and write-ups	105	...Kumulierte Abschreibungen
106	...thereof depreciation during the year	106	...(dav. Geschäftsjahresabschreib.)
107	...thereof appreciation/write-ups under depreciation	107	...(dav. Zuschr. b. Abschr.)
108	..fixed assets leased to customers	108	..Vermietete Anlagegegenstände
109	...gross values at the beginning of the year	109	...Anfangsbestand
110	...additions	110	...Zugänge
111	...appreciation/write-ups	111	...Zuschreibungen
112	...disposals	112	...Abgänge
113	...other changes	113	...Sonstige Veränderungen
114	...additions incl changes in scope of consolidation	114	...(dav. Zug. incl. Veränd. Kons.kreis)
115	...accumulated depreciation and write-ups	115	...Kumulierte Abschreibungen
116	...thereof depreciation during the year	116	...(dav. Geschäftsjahresabschreib.)
117	...thereof appreciation/write-ups under depreciation	117	...(dav. Zuschr. b. Abschr.)
118	..financial assets	118	..Finanzanlagen
119	..thereof with a remaining term exceeding 1 year	119	..(davon mit Restlaufzeit über 1 Jahr)
120	..thereof to members of company boards	120	..(dav. an Mitgl. v. Gesellschaftsorg.)
121	..thereof to partners	121	..(davon an Gesellschafter)
122	...gross values at the beginning of the year	122	...Anfangsbestand

TABLE AI *continued:*

123	..additions	123	..Zugänge
124	..appreciation/write-ups	124	..Zuschreibungen
125	..disposals	125	..Abgänge
126	..other changes	126	..Sonstige Veränderungen
127	...additions incl changes in scope of consolidation	127	...(dav. Zug. incl. Veränd. Kons.kreis)
128	..accumulated depreciation and write-ups	128	..Kumulierte Abschreibungen
129	...thereof depreciation during the year	129	...(dav. Geschäftsjahresabschreib.)
130	...thereof appreciation/write-ups under depreciation	130	...(dav. Zuschr. b. Abschr.)
131	..shares in affiliated companies	131	..Anteile an verbunden Unternehmen
132	...gross values at the beginning of the year	132	...Anfangsbestand
133	...additions	133	...Zugänge
134	...appreciation/write-ups	134	...Zuschreibungen
135	...disposals	135	...Abgänge
136	...other changes	136	...Sonstige Veränderungen
137	...additions incl changes in scope of consolidation	137	...(dav. Zug. incl. Veränd. Kons.kreis)
138	...accumulated depreciation and write-ups	138	...Kumulierte Abschreibungen
139	...thereof depreciation during the year	139	...(dav. Geschäftsjahresabschreib.)
140	...thereof appreciation/write-ups under depreciation	140	...(dav. Zuschr. b. Abschr.)
141	..shares in associated companies	141	..Ant. an assoz. Untern.
142	...thereof goodwill from equity consolidation	142	...(dav. Untersch.Betrag aus Equ.-Kons.)
143	...gross values at the beginning of the year	143	...Anfangsbestand
144	...additions	144	...Zugänge
145	...appreciation/write-ups	145	...Zuschreibungen
146	...disposals	146	...Abgänge
147	...other changes	147	...Sonstige Veränderungen
148	...additions incl changes in scope of consolidation	148	...(dav. Zug. incl. Veränd. Kons.kreis)
149	...accumulated depreciation and write-ups	149	...Kumulierte Abschreibungen
150	...thereof depreciation during the year	150	...(dav. Geschäftsjahresabschreib.)
151	...thereof appreciation/write-ups under depreciation	151	...(dav. Zuschr. b. Abschr.)
152	..loans to affiliated companies	152	..Ausl. an verb. Untern.
153	...gross values at the beginning of the year	153	...Anfangsbestand
154	...additions	154	...Zugänge
155	...appreciation/write-ups	155	...Zuschreibungen/Aufzinsungen
156	...disposals	156	...Abgänge
157	...other changes	157	...Sonstige Veränderungen
158	...additions incl changes in scope of consolidation	158	...(dav. Zug. incl. Veränd. Kons.kreis)
159	...accumulated depreciation and write-ups	159	...Kumulierte Abschreibungen
160	...thereof depreciation during the year	160	...(dav. Gesch.j.abshr./Abzins.)
161	...thereof appreciation/write-ups under depreciation	161	...(dav. Zuschr. b. Abschr.)
162	..loans to associated companies	162	..Ausl. an assoz. Untern.
163	...gross values at the beginning of the year	163	...Anfangsbestand
164	...additions	164	...Zugänge
165	...appreciation/write-ups	165	...Zuschreibungen/Aufzinsungen
166	...disposals	166	...Abgänge
167	...other changes	167	...Sonstige Veränderungen
168	...additions incl changes in scope of consolidation	168	...(dav. Zug. incl. Veränd. Kons.kreis)
169	...accumulated depreciation and write-ups	169	...Kumulierte Abschreibungen
170	...thereof depreciation during the year	170	...(dav. Gesch.j.abshr./Abzins.)
171	...thereof appreciation/write-ups under depreciation	171	...(dav. Zuschr. b. Abschr.)
172	..other share investments	172	..Beteiligungen
173	...gross values at the beginning of the year	173	...Anfangsbestand
174	...additions	174	...Zugänge
175	...appreciation/write-ups	175	...Zuschreibungen
176	...disposals	176	...Abgänge
177	...other changes	177	...Sonstige Veränderungen
178	...additions incl changes in scope of consolidation	178	...(dav. Zug. incl. Veränd. Kons.kreis)
179	...accumulated depreciation and write-ups	179	...Kumulierte Abschreibungen
180	...thereof depreciation during the year	180	...(dav. Geschäftsjahresabschreib.)
181	...thereof appreciation/write-ups under depreciation	181	...(dav. Zuschr. b. Abschr.)
182	..loans to other share investments	182	..Ausleihungen an Beteiligungsunternehm.
183	...thereof with remaining term exceeding 1 year	183	...(dav. mit Restlaufzeit über 1 Jahr)
184	...gross values at the beginning of the year	184	...Anfangsbestand
185	...additions	185	...Zugänge
186	...appreciation/write-ups	186	...Zuschreibungen/Aufzinsungen
187	...disposals	187	...Abgänge

TABLE AI *continued:*

188 ...other changes	188 ...Sonstige Veränderungen
189 ...additions incl changes in scope of consolidation	189 ....(dav. Zug. incl. Veränd. Kons.kreis)
190 ...accumulated depreciation and write-ups	190 ...Kumulierte Abschreibungen
191 ....thereof depreciation during the year	191 ....(dav. Geschäftsjahresabschreib.)
192 ....thereof appreciation/write-ups under depreciation	192 ....(dav. Zuschr. b. Abschr.)
193 ..securities of fixed assets	193 ..Wertpapiere des Anlagevermögens
194 ...gross values at the beginning of the year	194 ...Anfangsbestand
195 ...additions	195 ...Zugänge
196 ...appreciation/write-ups	196 ...Zuschreibungen
197 ...disposals	197 ...Abgänge
198 ...other changes	198 ...Sonstige Veränderungen
199 ...additions incl changes in scope of consolidation	199 ....(dav. Zug. incl. Veränd. Kons.kreis)
200 ...accumulated depreciation and write-ups	200 ...Kumulierte Abschreibungen
201 ....thereof depreciation during the year	201 ....(dav. Geschäftsjahresabschreib.)
202 ....thereof appreciation/write-ups under depreciation	202 ....(dav. Zuschr. b. Abschr.)
203 ..other financial assets	203 ..Sonstige Finanzanlagen
204 ...thereof with remaining term exceeding 1 year	204 ...(dav. mit Restlaufzeit über 1 Jahr)
205 ...thereof to members of company boards	205 ...(dav. an Mitgl. v. Gesellsch.-Org.)
206 ...thereof to partners	206 ...(davon an Gesellschafter)
207 ...gross values at the beginning of the year	207 ...Anfangsbestand
208 ...additions	208 ...Zugänge
209 ...appreciation/write-ups	209 ...Zuschreibungen
210 ...disposals	210 ...Abgänge
211 ...other changes	211 ...Sonstige Veränderungen
212 ....additions incl changes in scope of consolidation	212 ....(dav. Zug. incl. Veränd. Kons.kreis)
213 ...accumulated depreciation and write-ups	213 ...Kumulierte Abschreibungen
214 ....thereof depreciation during the year	214 ....(dav. Geschäftsjahresabschreib.)
215 ....thereof appreciation/write-ups under depreciation	215 ....(dav. Zuschr. b. Abschr.)
216 items treated as fixed assets	216 Anlagevermögenähnliche Posten
217 ..leasing equipment and assets leased or rented out	217 ..Vermietvermögen
218 ..nuclear fuel	218 ..Kernbrennelemente
219 ..special items from companies of the mining industrie	219 ..Vorabraum
220 ..special assets	220 ..Sondervermögen
221 ..thereof to accounting in accordance with DMBilG 1990	221 ..(dav. Sonderbil. nach DMBilG)
222 current assets	222 Umlaufvermögen
223 ..current assets leased to customers	223 ..Vermietete Erzeugn. im Umlaufvermögen
224 ..fixed assets intended to be sold	224 ..Zum Verkauf best. Gegenstände des AV
225 ..inventories (net value)	225 ..Vorräte (gesamt)
226 ..inventories (gross value)	226 ..Vorräte (unspezifiziert)
227 ..raw material and supplies	227 ..Roh- /Hilfs-/Betriebsstoffe
228 ..work in process	228 ..Unfertige Erzeugnisse / Arbeiten
229 ..finished goods and merchandise	229 ..Fertige Erzeugnisse / Waren
230 ..goods and services not yet invoiced	230 ..Noch nicht abgerechnete Aufträge
231 ..goods and services not yet completed	231 ..In Ausführung befindliche Arbeiten
232 ..advance payments	232 ..Geleistete Anzahlungen
233 ...thereof with remaining term exceeding 1 year	233 ...(dav. mit Restlaufzeit über 1 Jahr)
234 ..payments received on account of orders	234 ..Erhaltene Anzahlungen auf Bestellung.
235 ...thereof with remaining term exceeding 1 year	235 ...(dav. mit Restlaufzeit über 1 Jahr)
236 ..other deductions (part pay't/provision etc)	236 ..Sonstige Abzüge (Abschlagszahl. u.ä.)
237 ...thereof with remaining term exceeding 1 year	237 ...(dav. mit Restlaufzeit über 1 Jahr)
238 ..receivables and other current assets	238 ..Forderungen und son. Vermögensgegenst.
239 ..thereof with remaining term exceeding 1 year	239 ..(davon mit Restlaufzeit über 1 Jahr)
240 ..thereof from affiliated companies	240 ..(davon an verbundene Unternehmen)
241 ..thereof from associated companies	241 ..(davon an assoziierte Unternehmen)
242 ..from other co's in which participations are held	242 ..(davon an Beteiligungsunternehmen)
243 ..value adjustments/over value adjustments set off direct	243 ..(dav. direkt abges. Wertberichtigung)
244 ..thereof from members of company board	244 ..(dav. ggü. Mitgl. v. Gesellsch.-Org.)
245 ..thereof to partners	245 ..(davon an Gesellschafter)
246 ..trade receivables	246 ..Ford. aus Lieferungen und Leistungen
247 ...thereof with remaining term exceeding 1 year	247 ...(dav. mit Restlaufzeit über 1 Jahr)
248 ..receivables from partially complete services	248 ..Ford. aus teilfertigen Leistungen
249 ...thereof with remaining term exceeding 1 year	249 ...(dav. mit Restlaufzeit über 1 Jahr)
250 ..receivables from goods/services not yet invoiced	250 ..Ford. aus noch nicht abger. Leistung.
251 ...thereof with remaining term exceeding 1 year	251 ...(dav. mit Restlaufzeit über 1 Jahr)
252 ..receivables from leasing and rental business	252 ..Ford. aus Vermietung und Verpachtung

TABLE AI *continued:*

253 ...thereof with remaining term exceeding 1 year	253 ...(dav. mit Restlaufzeit über 1 Jahr)
254 ..receiv. fr. contracts, prelim agreem., custmr/sodial serv's	254 ..Ford. aus Verträgen + Betreuung
255 ...thereof with remaining term exceeding 1 year	255 ...(dav. mit Restlaufzeit über 1 Jahr)
256 ..receivables from affiliated companies	256 ..Ford. an verb. Untern.
257 ...thereof with remaining term exceeding 1 year	257 ...(dav. Restl. >1 Jahr)
258 ...thereof trade receivables	258 ...(dav. aus Lief. + Leist.)
259 ..receivables from associated companies	259 ..Ford. an assoz. Untern.
260 ...thereof with remaining term exceeding 1 year	260 ...(dav. Restl. >1 Jahr)
261 ...thereof trade receivables	261 ...(dav. aus Lief. + Leist.)
262 ..receivables from other co's participations are held	262 ..Forderungen an Beteiligungen
263 ...thereof with remaining term exceeding 1 year	263 ...(dav. mit Restlaufzeit über 1 Jahr)
264 ...thereof trade receivables	264 ...(dav. aus Lieferungen + Leistungen)
265 ..receivables from co brd members	265 ..Ford. an Mitgl. v. Gesellsch.-Organen
266 ...thereof with remaining term exceeding 1 year	266 ...(dav. mit Restlaufzeit über 1 Jahr)
267 ..other receivables and other current assets	267 ..Son. Forderungen + Vermögensgegenst.
268 ...thereof with remaining term exceeding 1 year	268 ...(dav. mit Restlaufzeit über 1 Jahr)
269 ...contributions called-in/supplementary or contractual	269 ...(dav. eingeford. Einl./Nachschüsse)
270 ..payments received	270 ..Erhaltene Anzahlungen bei Forderungen
271 ...thereof with remaining term exceeding 1 year	271 ...(dav. mit Restlaufzeit über 1 Jahr)
272 ..other deductions (e.g. part pay'ts)	272 ..Sonstige Abzüge (Abschlagszahl. u.ä.)
273 ...thereof with remaining term exceeding 1 year	273 ...(dav. mit Restlaufzeit über 1 Jahr)
274 ..securities of current assets	274 ..Wertpapiere des Umlaufvermögens
275 ..shares in affiliated companies	275 ..Anteile an verbundenen Unternehmen
276 ...thereof shares in associated companies	276 ...(dav. Ant. an assoziierten Untern.)
277 ..own shares	277 ..Eigene Anteile
278 ..other securities	278 ..Sonstige Wertpapiere
279 ...thereof bonds	279 ...(davon Schuldscheine)
280 ..liquid funds	280 ..Liquide Mittel
281 ...thereof with remaining term exceeding 1 year	281 ..(davon mit Restlaufzeit über 1 Jahr)
282 ..cash in hand, central bank and postal giro balances	282 ..Kasse
283 ..cheques	283 ..Schecks
284 ..bank balances	284 ..Guthaben bei Kreditinstituten
285 ...thereof with remaining term exceeding 1 year	285 ...(dav. mit Restlaufzeit über 1 Jahr)
286 prepaid expenses	286 Rechnungsabgrenzungsposten (Aktiva)
287 ..thereof discounts in accordance with §250(3) HGB	287 ..(davon Disagio)
288 prepaid tax	288 Steuerabgrenzung
289 loss not covered by equity capital	289 Nicht d. Eigenkap. gedeckter Fehlbetr.
290 ..thereof loss of shareholders with unlimited liability	290 ..(dav. Verlustanteil pers. haft. Ges.)
291 total assets	291 Bilanzsumme (Aktiva)
292 ..contingent receivables	292 ..Eventualforderungen
293 LIABILITIES AND SHAREHOLDERS' EQUITY	293 P A S S I V A
294 equity (capital and reserves)	294 Eigenkapital
295 ..thereof special accounting in accord with DMBilG 1990	295 ..(dav. Sonderbil. nach DMBilG)
296 ..capital	296 ..Kapital
297 ..called-in capital	297 ..Eingefordertes Kapital
298 ...subscribed capital	298 ...Gezeichnetes Kapital
299 ...thereof value of ordinary share	299 ...(davon Nennwert Stammaktien)
300 ...thereof value of preference share	300 ...(davon Nennwert Vorzugsaktien)
301 ....thereof preferred shares	301 ...(davon Vorzüge)
302 ...non called-in capital	302 ...Nicht eingeford. aussteh. Einlagen
303 ..proprietary accounts of liable shareholders	303 ..Kapitalkonten haft. Gesellschafter
304 ..other capital	304 ..Andere Kapitalbestandteile
305 ...thereof profit-sharing certificates	305 ...(davon Genußscheine)
306 ...thereof capital share from remaining members	306 ...(dav. Gesch.Guth. verb. Mitgl.)
307 ...thereof capital share from retiring members	307 ...(dav. Gesch.guth. aussch. Mitgl.)
308 ...thereof capital share from cancelled shares	308 ...(dav. Gesch.Guth. gek. Gesch.Ant.)
309 ...thereof contributions of limited partners	309 ...(davon Kommanditeinlage)
310 ..general reserves	310 ..Offene Rücklagen
311 ...thereof set off direct as goodwill	311 ..(dav. direkt abges. Untersch.betr.)
312 ..capital reserves	312 ..Kapitalrücklagen
313 ...thereof set off direct as goodwill	313 ...(dav. direkt abges. Untersch.betr.)
314 ...additional pd-in capital from share issues etc.	314 ...Agio aus Wertpapieremissionen u.ä.
315 ...additional or supplementary contr. from shareholders	315 ...Zuzahl./Nachschüsse von Gesellsch.
316 ...funds derived from reductions in share capital etc.	316 ...Beträge aus Kapitalherabsetz. u.ä.
317 ..revenue reserves	317 ..Gewinnrücklagen

TABLE AI *continued:*

318	...thereof set off direct as goodwill	318	...(dav. direkt abges. Untersch.betr.)
319	...legal reserves	319	...Gesetzliche Rücklage
320	...uncommitted reserves	320	...Freie Rücklagen
321	....reserves for own shares	321	....Rücklage für eigene Anteile
322	.....thereof holdings in controlling or parent company	322	.....(dav. Ant. an herrsch. Untern.)
323	....statutory reserves	323	....Satzungsmäßige Rücklagen
324	....other revenue reserves	324	....Andere Gewinnrücklagen
325	.....equity part from re-instatement of original values	325	.....(dav. EK-Ant. v. Wertaufholung)
326	.....equity part of tax-deductible reserves	326	.....(dav. EK-Ant. abzugsf. Rückl.)
327	.....thereof reserves for repairs/replacements/rationalis.	327	.....(dav. Instandhaltungsrücklagen)
328	.....thereof contingency reserves	328	.....(davon Risikorücklagen)
329	.....thereof reserves for foundations/charities	329	.....(dav. Rücklagen für Stiftungen)
330	.....thereof set off direct as goodwill	330	.....(dav. als Goodwill dir. abges.)
331	..adjustment items from consolidation	331	..Unterschiedsbetrag aus Kapitalkonsolid.
332	..adjustment items for shares held by third parties	332	..Anteile anderer Gesellschafter
333	..thereof shares in profits	333	..(davon Gewinnanteile)
334	..thereof shares in losses	334	..(davon Verlustanteile)
335	..thereof shares in capital	335	..(davon Kapitalanteile)
336	..balance sheet result	336	..Bilanzergebnis
337	..net income/loss for the year	337	..Jahresüberschuß / -fehlbetrag
338	..net income/loss carried forward from the previous year	338	..Gewinn- / Verlustvortrag aus Vorjahr
339	..profit/loss	339	..Bilanzgewinn / -verlust
340	...net income/loss carried forward from the previous yr	340	...(dav. Gewinn-/Verlustvotr. a. Vj.)
341	..equity related funds	341	..Eigenkapitalähnliche Mittel
342	..special item with an equity portion	342	..Sonderposten mit Rücklageanteil
343	..taxation reserves	343	..Steuerrechtliche Rücklagen
344	...special items accord. to(sale of certain fixed assets)	344	...Sonderposten gemäß § 6b EStG
345	...special items acc. to sect. 35 EStR (replacem. of assets)	345	...Sonderposten gem. Abschnitt 35 EStR
346	...special items acc. with § 52(8) EStG (pension accruals)	346	...Sonderposten gemäß § 52 (5) EStG
347	...special items in accord with Investment Allowance Act	347	...Sonderposten gemäß InvZulG
348	...special items in accord with Developing Countries Act	348	...Sonderposten gemäß EntwLStG
349	...special items in accord with Foreign Investment Act	349	...Sonderposten gemäß AuslInvG
350	...other special items	350	...Sonstige Sonderposten
351	...special items in accord with foreign legal provisions	351	...Sonderposten nach ausländ. Recht
352	..special depreciation in accordance with taxation law	352	..Steuerrechtliche Sonderabschreibungen
353	...thereof value adjustments of fixed assets	353	...(dav. Wertberichtigungen zum AV)
354	...thereof value adjustments of land and buildings	354	...(dav. Wb. a. Grundstücke/Gebäude)
355	...value adjustments of current assets/import deductions	355	...(dav. Wertberichtigungen zum UV)
356	..grants	356	..Zuschüsse
357	..thereof declared tax-free	357	..(davon als steuerfrei bezeichnet)
358	..investment grants	358	..Investitionszuschüsse
359	..grants to cover building costs	359	..Baukostenzuschüsse/Anschlußbeiträge
360	..grants on earnings	360	..Ertragszuschüsse
361	..other mixed grants	361	..Sonstige (gemischte) Zuschüsse
362	..outside/borrowed capital	362	..Fremdkapital
363	..provisions	363	..Rückstellungen
364	..thereof long-term	364	..(dav. längerfristig)
365	..thereof special accounting in accord with DMBilG 1990	365	..(dav. Sonderbil. n. DMBilG)
366	..adjustment items from consolidation	366	..(dav. Untbetr. a. d. Kons.)
367	..provision for pensions and similar commitments	367	..Pensionsrückstellungen
368	...deficit arising from non-allocation	368	...(Fehlbetrag aus unterl. Zuführung)
369	..other provisions	369	..Andere Rückstellungen
370	...provisions for taxation	370	...Steuerrückstellungen
371	....thereof for deferred taxes	371	....(davon latente Steuern)
372	...other provisions	372	...Sonstige Rückstellungen
373	....provisions to cover guarantee claims	373	....Gewährleistungsrückstellungen
374	....provisions to cover repairs	374	....Instandhaltungsrückstellungen
375	....provisions to cover removal of waste materials	375	....Abraumbeseitigungsrückstellungen
376	...all other provisions	376	...Restliche Rückstellungen
377	..liabilities	377	..Verbindlichkeiten
378	..thereof short-term	378	..(davon kurzfristig)
379	..thereof long-term	379	..(davon langfristig)
380	..thereof secured by mortgages and similar rights	380	..(dav. d. Pfandr. u.ä. ges.)
381	..secured by mortgages on real estate & similar rights	381	..(durch Grundpfandrechte gesichert)
382	..thereof to members of company boards	382	..(dav. ggü. Mitgl. v. Gesellsch.-Org.)

TABLE AI *continued*:

383	...thereof to partners	383	..(dav. geg. Gesellschaftern)
384	..contributions of dormant partners	384	..Einlagen stiller Gesellschafter
385	...thereof with a remaining term of up to 1 year	385	...(dav. vor Abl. eines Jahres fällig)
386	...thereof with a remaining term of more than 5 years	386	...(dav. Restlaufzeit über 5 Jahre)
387	...thereof secured by mortgages and similar rights	387	...(dav. d. Pfandr. u.ä. ges.)
388	...secured by mortgages on real estate & similar rights	388	...(durch Grundpfandrechte gesichert)
389	..loans granted by shareholders	389	..Gesellschafterdarlehen
390	...thereof with a remaining term of up to 1 year	390	...(dav. vor Abl. eines Jahres fällig)
391	...thereof with a remaining term of more than 5 years	391	...(dav. Restlaufzeit über 5 Jahre)
392	...thereof secured by mortgages and similar rights	392	...(dav. d. Pfandr. u.ä. ges.)
393	...secured by mortgages on real estate & similar rights	393	...(durch Grundpfandrechte gesichert)
394	..loans, bonds, obligations	394	..Anleihen / Schuldverschreibungen
395	...thereof with a remaining term of up to 1 year	395	...(dav. vor Abl. eines Jahres fällig)
396	...thereof with a remaining term of more than 5 years	396	...(dav. Restlaufzeit über 5 Jahre)
397	...thereof secured by mortgages and similar rights	397	...(dav. d. Pfandr. u.ä. ges.)
398	...secured by mortgages on real estate & similar rights	398	...(durch Grundpfandrechte gesichert)
399	...thereof convertible	399	...(davon konvertibel)
400	...therof profit-sharing certificates	400	...(davon Genußscheine)
401	..loans, mortgages	401	..Darlehen / Hypotheken / Schuldscheine
402	...thereof with a remaining term of up to 1 year	402	...(dav. vor Abl. eines Jahres fällig)
403	...thereof with a remaining term of more than 5 years	403	...(dav. Restlaufzeit über 5 Jahre)
404	...thereof secured by mortgages and similar rights	404	...(dav. d. Pfandr. u.ä. ges.)
405	...secured by mortgages on real estate & similar rights	405	...(durch Grundpfandrechte gesichert)
406	..liabilities to banks	406	..Verbindlichkeiten ggü. Kreditinstit.
407	...thereof with a remaining term of up to 1 year	407	...(dav. vor Abl. eines Jahres fällig)
408	...thereof with a remaining term of more than 5 years	408	...(dav. Restlaufzeit über 5 Jahre)
409	...thereof secured by mortgages and similar rights	409	...(dav. d. Pfandr. u.ä. ges.)
410	...secured by mortgages on real estate & similar rights	410	...(durch Grundpfandrechte gesichert)
411	..payments received on account of orders	411	..Erhaltene Anzahlungen auf Bestellung.
412	...thereof with a remaining term up to 1 year	412	...(dav. vor Abl. eines Jahres fällig)
413	...thereof with a remaining term of more than 5 years	413	...(dav. Restlaufzeit über 5 Jahre)
414	...thereof secured by mortgages and similar rights	414	...(dav. d. Pfandr. u.ä. ges.)
415	...secured by mortgages on real estate & similar rights	415	...(durch Grundpfandrechte gesichert)
416	..trade liabilities	416	..Verblk. aus Lieferungen + Leistungen
417	...thereof with a remaining term up to 1 year	417	...(dav. vor Abl. eines Jahres fällig)
418	...thereof with a remaining term of more than 5 years	418	...(dav. Restlaufzeit über 5 Jahre)
419	...thereof secured by mortgages and similar rights	419	...(dav. d. Pfandr. u.ä. ges.)
420	...secured by mortgages on real estate & similar rights	420	...(durch Grundpfandrechte gesichert)
421	..liabilities on bills accepted and drawn	421	..Wechselverbindlichkeiten
422	...thereof with a remaining term up to 1 year	422	...(dav. vor Abl. eines Jahres fällig)
423	...thereof with a remaining term of more than 5 years	423	...(dav. Restlaufzeit über 5 Jahre)
424	...thereof secured by mortgages and similar rights	424	...(dav. d. Pfandr. u.ä. ges.)
425	...secured by mortgages on real estate & similar rights	425	...(durch Grundpfandrechte gesichert)
426	..liabilities to affiliated companies	426	..Verbindlk. ggü. verbundenen Unterneh.
427	...thereof with a remaining term up to 1 year	427	...(dav. vor Abl. eines Jahres fällig)
428	...thereof with a remaining term of more than 5 years	428	...(dav. Restlaufzeit über 5 Jahre)
429	...thereof secured by mortgages and similar rights	429	...(dav. d. Pfandr. u.ä. ges.)
430	...secured by mortgages on real estate & similar rights	430	...(durch Grundpfandrechte gesichert)
431	...thereof trade liabilities	431	...(dav. aus Lieferungen + Leistungen)
432	..liabilities to associated companies	432	..Verbindlk. ggü. assoziierten Untern.
433	...thereof with a remaining term up to 1 year	433	...(dav. vor Abl. eines Jahres fällig)
434	...thereof with a remaining term of more than 5 years	434	...(dav. Restlaufzeit über 5 Jahre)
435	...thereof secured by mortgages and similar rights	435	...(dav. d. Pfandr. u.ä. ges.)
436	...secured by mortgages on real estate & similar rights	436	...(durch Grundpfandrechte gesichert)
437	...thereof trade liabilities	437	...(dav. aus Lieferungen + Leistungen)
438	..liabilities to companies in which participations are held	438	..Verbindlichkeiten ggü. Beteiligungen
439	...thereof with a remaining term up to 1 year	439	...(dav. vor Abl. eines Jahres fällig)
440	...thereof with a remaining term of more than 5 years	440	...(dav. Restlaufzeit über 5 Jahre)
441	...thereof secured by mortgages and similar rights	441	...(dav. d. Pfandr. u.ä. ges.)
442	...secured by mortgages on real estate & similar rights	442	...(durch Grundpfandrechte gesichert)
443	...thereof trade liabilities	443	...(dav. aus Lieferungen + Leistungen)
444	..other liabilities	444	..Sonstige Verbindlichkeiten
445	...thereof with a remaining term up to 1 year	445	...(dav. vor Abl. eines Jahres fällig)
446	...thereof with a remaining term of more than 5 years	446	...(dav. Restlaufzeit über 5 Jahre)
447	...thereof secured by mortgages and similar rights	447	...(dav. d. Pfandr. u.ä. ges.)

TABLE AI *continued:*

448 ...secured by mortgages on real estate & similar rights	448 ... (durch Grundpfandrechte gesichert)
449 ...liabilities for taxation	449 ...Verbindlichkeiten aus Steuern
450 ...thereof with a remaining term up to 1 year	450 ... (dav. vor Abl. eines Jahr. fäll.)
451 ...thereof with a remaining term of more than 5 years	451 ... (dav. Restlaufzeit über 5 Jahre)
452 ...thereof secured by mortgages and similar rights	452 ... (dav. d. Pfandr. u.ä. ges.)
453 ...secured by mortgages on real estate & similar rights	453 ... (durch Grundpfandrechte gesich.)
454 ...liabilities relating to social security	454 ...Vblk. im Rahmen der soz. Sicherheit
455 ...thereof with a remaining term up to 1 year	455 ... (dav. vor Abl. eines Jahr. fäll.)
456 ...thereof with a remaining term of more than 5 years	456 ... (dav. Restlaufzeit über 5 Jahre)
457 ...thereof secured by mortgages and similar rights	457 ... (dav. d. Pfandr. u.ä. ges.)
458 ...secured by mortgages on real estate & similar rights	458 ... (durch Grundpfandrechte gesich.)
459 ...other liabilities	459 ...Restliche Verbindlichkeiten
460 ...thereof with a remaining term up to 1 year	460 ... (dav. vor Abl. eines Jahr. fäll.)
461 ...thereof with a remaining term of more than 5 years	461 ... (dav. Restlaufzeit über 5 Jahre)
462 ...thereof secured by mortgages and similar rights	462 ... (dav. d. Pfandr. u.ä. ges.)
463 ...secured by mortgages on real estate & similar rights	463 ... (durch Grundpfandrechte gesich.)
464 deferred income	464 Rechnungsabgrenzungsposten (Passiva)
465 total equity and liabilities	465 Bilanzsumme (Passiva)
466 ..contingent liabilities and other obligations	466 ..Eventualverbindlichkeiten
467 ..contingent liabilities	467 ..Haftungsverhältnisse
468 ...thereof to affiliated companies	468 ... (dav. ggü. verbundenen Unternehmen)
469 ...contingent liabilities on discounted bills of exchange	469 ... (dav. aus Wechselindossamenten)
470 ...contingent liabilities from guarantees & indemnity	470 ... (davon Verblk. aus Bürgschaften)
471 ...thereof contingent liabilities arising from warranties	471 ... (dav. Verblk. aus Gewährleistungen)
472 ...contingent liabilit. fr. securit. arrang. f. cust. liabilit.	472 ... (dav. Sich. -Best. f. fremde Vblk.)
473 ..other financial obligations	473 ..Sonstige finanzielle Verpflichtungen
474 ...thereof to affiliated companies	474 ... (dav. ggü. verbundenen Unternehmen)
475 ...thereof liabilities from leasing and rental agreements	475 ... (dav. aus Miet-/Leasingverträgen)
476 ...thereof short-term	476 ... (dav. kurzfristig)
477 ...thereof medium-term	477 ... (dav. mittelfristig)
478 ...thereof long-term	478 ... (dav. langfristig)
479 ...thereof actual value	479 ... (dav. Barwert)
480 ...commitments from investments	480 ... (dav. Bestellobligo für Sachanl.)
481 PROFIT AND LOSS ACCOUNT	481 G + V
482 ..sales revenue/turnover	482 ..Umsatz / Außenumsatz / Erlöse (netto)
483 ..excise duties were deducted from sales in the amount of	483 ..n. Abz. abges. Verbr.St.
484 ..equalisation levies accord. to the 3rd Coal Power Act	484 ..n. Abz. abges. Ausgl.Abgabe
485 ..inc/dec in inven. of finished products/work in progress	485 ..Bestandsveränderungen
486 ..own work capitalized	486 ..Aktivierte Eigenleistungen
487 ..other operating income	487 ..Sonstige betriebliche Erträge
488 ..thereof special and not planned	488 .. (dav. als außerordentlich bezeichnet)
489 ..thereof expenses not related to the according period	489 .. (dav. periodenfremd)
490 ..income from disposal of fixed assets and write-ups	490 ..Ertr. aus Anlageabgängen/Zuschreib.
491 ..income from release of accruals	491 ..Erträge aus Rückstellungsaufösungen
492 ..income from liquidation of special items	492 ..Ertr. aus der Sopo-Auflösung
493 ...in accord with °6b EStG (sale of certain fixed assets)	493 ... (davon gemäß § 6b EStG)
494 ...in accord with °52 EStG (provisions for pensions)	494 ... (davon gemäß § 52 (5) EStG)
495 ...thereof in accordance with foreign legal law	495 ... (dav. gem. ausl. Rechtsvorschr.)
496 ..other income	496 ..Sonstige Erträge
497 ..cost of materials	497 ..Materialaufwand
498 ..cost of raw materials and supplies + of purchased goods	498 ..Roh-/Hilfs-/Betriebsstoffe/bez. Waren
499 ..cost of purchased services	499 ..Bezogene Leistungen
500 gross result	500 Rohergebnis (Gesamtkostenverfahren)
501 ..personnel expenses	501 ..Personalaufwand
502 ..wages and salaries	502 ..Löhne und Gehälter
503 ..social security contributions/exp for pensions	503 ..Soz.Abgaben/Altersvers./Unterstützung
504 ...thereof compulsory social security contributions	504 ... (davon gesetzlicher Sozialaufwand)
505 ...thereof expenses for pensions	505 ... (davon Altersversorgung)
506 ...thereof expenses for other employee benefits	506 ... (davon Unterstützung)
507 ..depreciation	507 ..Abschreibungen
508 ..extraordinary & special depreciation & right-offs	508 .. (dav. Sonderabschreibungen)
509 ..write-downs, depreciation of value adjustments	509 ..Abschr. auf SA/IV/Ingangs. G-Betrieb
510 ...extraordinary/special depreciation & right-offs	510 ... (dav. Sonderabschreibungen)
511 ..depreciation on current assets	511 ..Abschr. auf UV
512 ..special depreciation on current assets	512 ..Sonderabschreibungen auf UV

TABLE AI *continued:*

513	..other operating expenses	513	..Sonstige betriebliche Aufwendungen
514	..thereof special and not planned	514	..(dav. als außerordentlich bezeichnet)
515	..thereof expenses not related to the according period	515	..(dav. periodenfremd)
516	..loss from value or disposals of current assets	516	..Verluste aus Wertmind./Abgängen im UV
517	..losses from value or disposals of fixed assets	517	..Verluste aus Wertmind./Abgängen im AV
518	..allocations to special items with reserve character	518	..Einstell. in Sopo mit Rücklageanteil
519	...in accord with ^o 6b EStG (sale of certain fixed assets)	519	...(davon gemäß § 6b EStG)
520	...in accord with ^o 52 EStG (provisions for pensions)	520	...(davon gemäß § 52 (5) EStG)
521	...thereof in accordance with foreign legal law	521	...(dav. gem. ausl. Rechtsvorschrift.)
522	..other expenses	522	..Sonstige Aufwendungen
523	operating expenses of the original business	523	Betriebsaufwend. des gewöhnl. Geschäfts
524	..results from direct investments	524	..Beteiligungsergebnis
525	..income from participation interest	525	..Erträge aus Beteiligungen
526	...thereof from co-operation tax credit	526	...(dav. aus Kö-Steuer-Anrechnung)
527	...thereof from affiliated companies	527	...(davon aus verbundenen Unternehmen)
528	...thereof from associated companies	528	...(dav. aus assoziierten Unternehmen)
529	..income from profit-pooling/transfer agreements	529	..Erträge aus Gewinnabführungsverträgen
530	...thereof transfer to cover taxes by parent company	530	...(dav. Abführung f. übern. Steuern)
531	...thereof from affiliated companies	531	...(davon aus verbundenen Unternehmen)
532	...thereof from associated companies	532	...(dav. aus assoziierten Unternehmen)
533	..expenses from assumption of loss	533	..Aufwendungen aus Verlustübernahme
534	...thereof from affiliated companies	534	...(davon für verbundene Unternehmen)
535	...thereof from associated companies	535	...(davon für assoziierte Unternehmen)
536	..net interest income/loss	536	..Zinsergebnis
537	..interest and similar income	537	..Zinsen und ähnliche Erträge
538	...thereof from affiliated companies	538	...(davon aus verbundenen Unternehmen)
539	...thereof from associated companies	539	...(dav. aus assoziierten Unternehmen)
540	..income from financial assets	540	..Erträge aus Finanzanlagen
541	...thereof from affiliated companies	541	...(davon aus verbundenen Unternehmen)
542	...thereof from associated companies	542	...(dav. aus assoziierten Unternehmen)
543	..interest and similar expenses	543	..Zinsen und ähnliche Aufwendungen
544	...thereof to affiliated companies	544	...(davon an verbundene Unternehmen)
545	...thereof to associated companies	545	...(davon an assoziierte Unternehmen)
546	..other financial result	546	..Übriges Finanzergebnis
547	..write-downs of financial assets and securities	547	..Abschreib. auf FA / Wertpap. des UV
548	...thereof special and not planned	548	...(dav. als außerordentl. bezeichnet)
549	...thereof write-downs from financial assets	549	...(dav. Abschreibungen auf FA)
550	...thereof write-downs from securities of current assets	550	...(davon Abschreibungen auf Wertpap.)
551	..other financial income	551	..Sonstige Finanzerträge
552	..other financial expenses	552	..Sonstige Finanzaufwendungen
553	financial results of ordinary business	553	Finanzergebnis d. gewöhnlichen Geschäfts
554	results from ordinary activities	554	Ergebnis der gewöhnl. Geschäftstätigkeit
555	..extraordinary income	555	..Außerordentliche Erträge
556	..extraordinary expenses	556	..Außerordentliche Aufwendungen
557	extraordinary result	557	Außerordentliches Ergebnis
558	..income taxes	558	..EE - Steuern / Steuererstattungen
559	...thereof corporation tax	559	...(davon Körperschaftsteuern)
560	...thereof trade profit tax	560	...(davon Gewerbebeertragsteuern)
561	..other taxes	561	..Sonstige Steuern / Steuererstattungen
562	...thereof property tax	562	...(davon Vermögensteuern)
563	...thereof trade capital tax	563	...(davon Gewerbesteuerkapitalsteuern)
564	..offsetting of taxation	564	..Steuerverrechnungen
565	total taxes	565	Ausgewies. Steuern / Steuererstattungen
566	..compensation payments/equilization payments	566	..Ausschüttungen / Ausgleichszahlungen
567	...thereof other changes	567	...davon sonstige Veränderungen
568	..income transferred from profit-pooling/transfer agreemts	568	..Gewinnabführung aufgrund von Verträgen
569	..income from transfer of losses	569	..Erträge aus Verlustübernahmen
570	offsetting of results before net income/loss for the year	570	Ergebnisverrechnungen vor Jahresergebnis
571	net income/loss for the year	571	Jahresüberschuß / -fehlbetrag
572	..net income/loss carried forward from the previous year	572	..Ergebnisvortrag aus Vorjahr
573	..changes to reserves	573	..Rücklagenveränderung
574	...changes to revenue reserves	574	...Veränderung der Gewinnrücklagen
575	...additions to revenue reserves	575	...Einstellung in Gewinnrücklagen
576	...withdrawals from revenue reserves	576	...Auflösung von Gewinnrücklagen
577	..changes to capital reserves	577	..Veränderung der Kapitalrücklagen

TABLE AI *continued:*

578 ...additions to capital reserves	578 ...Einstellung in Kapitalrücklagen
579 ...withdrawals from capital reserves	579 ...Auflösung von Kapitalrücklagen
580 .profit and loss to minority interests	580 .Anteile Dritter
581 ..thereof shares in profit	581 ..(davon Gewinnanteile)
582 ..thereof shares in losses	582 ..(davon Verlustanteile)
583 .other changes	583 .Sonstige Veränderungen
584 changes before profit/loss	584 Veränderungen vor Bilanzgewinnausweis
585 profit/loss	585 Bilanzgewinn / -verlust
586 .dividends	586 .Dividende / Ausschüttungen
587 .changes to reserves pursuant to shareholder's resolution	587 .Rücklagenveränderungen nach HV-Beschluß
588 ..changes to revenue reserves	588 ..Veränderung der Gewinnrücklagen
589 ...additions to revenue reserves	589 ...Einstellung in Gewinnrücklagen
590 ...withdrawals from revenue reserves	590 ...Auflösung von Gewinnrücklagen
591 ..changes to capital reserves	591 ..Veränderung der Kapitalrücklagen
592 ...additions to capital reserves	592 ...Einstellung in Kapitalrücklagen
593 ...withdrawals from capital reserves	593 ...Auflösung von Kapitalrücklagen
594 .other changes	594 .Sonstige Veränderungen
595 .profit/loss carried forward to the following year	595 .Ergebnisvortrag in das neue Jahr
596 .divi. from parent co (only shown in consolid. statement)	596 .Dividende der Mutterges. bei Konzern
597 sales revenue/turnover	597 Umsatzerlöse
598 income from participating interest	598 Erträge aus Beteiligungen
599 staff expenses	599 Personalaufwand
600 .wages and salaries	600 .Löhne und Gehälter
601 .social security contributions & exp for pensions	601 .Soz.Abg./Altersversorg./Unterstützung
602 ..thereof compulsory social security contributions	602 ..(davon Gesetzlicher Sozialaufwand)
603 ..thereof expenses for pensions	603 ..(davon Altersversorgung)
604 ..thereof expenses fot other employee benefits	604 ..(davon Unterstützung)

Table AII
Calculation of DCA and IS coefficients

To illustrate the calculation of DCA and IS, we list each component of formula (1), (2) and (3) (for the calculation of the DCA coefficient) and formula (4) (for the calculation of the IS coefficient). *Row* is associated with the position of the relevant item in the specimen balance sheet and profit and loss statement in the Appendix, Table AI.

Panel A: Calculation of DCA

Item	Row	Formula
Current Accruals (CA) = Δ accounts receivable + Δ inventory + Δ other current assets - [Δ accounts payable+ Δ tax payable + Δ other current liabilities]		(2)
Accounts receivable + Other current assets	238	(2)
Inventory	225	(2)
Accounts Payable	407+412+417+422+427	(2)
Tax payable	449	(2)
Other current liabilities	433+439+445+455+460	(2)
Trade receivables	246	(3)
Sales	482	(3)
Total assets	291	(3)

Panel B: Calculation of IS

Item	Row	Formula
Operating Income (OI) = gross result – operating expenses		(4)
Gross result	500	(4)
Operating expenses	523	(4)
Operating Cash Flow = Operating Income (OI) + Depreciation - Current Accruals (CA)		(4)
Depreciation	15	(4)