Legislative Demands and Economic Realities: 
Company and Group Accounts Compared

by

Igor Goncharov*, Joerg R. Werner** and Jochen Zimmermann***

*Monopolies Commission
Adenauerallee 133, 53113 Bonn, Germany
igor.goncharov@monopolkommission.bund.de

**University of Bremen
Department of Accounting and Control
University of Bremen
Hochschulring 4, 28359 Bremen, Germany
jrwerner@uni-bremen.de

***University of Bremen
Department of Accounting and Control
University of Bremen
Hochschulring 4, 28359 Bremen, Germany.
jzimmermann@uni-bremen.de

Preliminary. Please do not cite.

This draft: 20.04.2006
Legislative Demands and Economic Realities: 
Company and Group Accounts Compared

ABSTRACT: In Germany, a holding company has to publish both company and group accounts. Since 1998, both sets of accounts were allowed to be prepared under different accounting frameworks. In our paper, we discuss the legal and implied economic objectives of both sets of accounts and empirically investigate whether there are any significant differences in their respective accounting properties. Our main hypothesis is that if company and group accounts serve different purposes, it follows that the properties of unconsolidated and consolidated accounting earnings must be different. We find that group accounts of holding companies are generally more informative to outside investors and increase the efficiency of debt contracting, whereas company accounts exhibit higher levels of financial and tax alignment. These differences become even more pronounced for companies preparing their consolidated financial statements within an international framework (IFRS or US GAAP). Although dividend payouts are statutory linked to single accounts, we find that company and group accounts have the same explanatory power for the dividend policy. Given that group accounts generally seem to outperform company accounts, the legislator’s decision to further require German GAAP for company accounts (instead of IFRS) does not only impose higher reporting costs but also does not make sense under an economic point of view.
Keywords: consolidation; earnings quality; international accounting standards.

Data Availability: Data are available from sources identified in the paper.
1 Introduction

German financial reporting has undergone significant changes during the past decade. Since 1998, accounts – and especially group accounts – have been subject to sweeping reforms. As of 1998, listed companies have been allowed to prepare group accounts following internationally accepted accounting standards such as (at that time) IAS or US GAAP. IAS/IFRS (subsequently referred to as IFRS) have become mandatory as of 2005 by European legislation.\(^1\) IFRS and US GAAP are rules that are prescribed by professional associations, not by the state, Germany’s sole standard setter before the reforms. Despite the reforms in group accounting, every company still has to prepare its single accounts\(^2\) in accordance with German GAAP, as the German legislator did not take up the option contained in IAS Regulation (EC) 1606/2002 that allowed national legislators to extend IFRS accounting to company accounts.

Comparing single and consolidated accounts of holding companies, we try to shed some light on the functions and the accounting properties of the respective closings. The use, the properties and the roles played by single accounts have been rarely addressed by financial accounting research. One of few examples is the study by Harris et al. (1994), which analyses the effect of consolidation on the value relevance of accounting earnings. Our paper contributes to this field of accounting research by demonstrating the properties of single accounts and linking them to the economic role of financial reporting. Besides answering questions on the uses of accounting, our paper also serves a clarifying role with regard to German accounting. International comparative research often includes German firms to a large extent due to the size of its economy and stock market regulations that require the application of internationally accepted accounting rules (such

---

\(^1\) Some firms, however, were adopting international accounting standards for consolidation purposes before 1998. We used the data from international group accounts as soon as it was available.

\(^2\) We use the terms single account, company account and unconsolidated account as synonyms for the German *Einzelabschluss*. Group accounts and consolidated accounts are used as synonyms for the German *Konzerabschluss*. 
as IFRS or US GAAP) to obtain a listing in more attractive and liquid segments of the stock markets (such as the Prime Standard of Deutsche Börse or the now defunct Neuer Markt). Recent examples where Germany accounts for a large share of an analysed sample are Ball et al. (2000), Barth et al. (2005) or Bradshaw/Miller (2005).³

Our main hypothesis is that if company and group accounts serve different purposes, it follows that measurable accounting properties must be different. If, in turn, different accounting properties can not be identified or if single accounts do not have higher quality at least in some respects, there is no economic justification for requiring holding companies to prepare single accounts under German GAAP.

The remainder of the paper is organised as follows. Chapter 2 will give a brief overview of the technical, institutional and legal background of company and group accounting in Germany. Chapter 3 will develop hypotheses for respective accounting characteristics. Chapter 4 will describe the sample and present some descriptive statistics. Chapter 5 tests the hypotheses developed. In chapter 6 we perform some additional analyses to test the robustness of our results to alternative hypotheses. Chapter 7 will close with recommendations for policy makers.

2 Legal and technical background

2.1 Company accounts

German financial reporting follows the regulations of the fourth and seventh EC directive on company and group accounting, with some national modifications which are due to its traditions

in company law. Even though financial accounting in Germany has seen significant changes during the past decade, it has to be noted that the most significant changes have been connected to group accounting. German firms have always been required to produce company accounts under German GAAP, laid down in the commercial code (Handelsgesetzbuch, HGB). Recently companies were allowed to use IFRS for single accounts. However, because of the supplementary nature of IFRS single accounts, companies are unlikely to use the international framework to prepare unconsolidated accounts (AKEU 2004).\footnote{Strictly speaking, German GAAP single accounts always have to be prepared and are relevant for all legal} Company accounts play an important role in many areas of company law. Their function is much more pronounced than, for instance, their US counterparts’. The law on joint stock companies (Aktiengesetz, AktG) regulates that it is company accounts that determine the amount of dividends available for distribution. Furthermore, bankruptcy procedures are based on company accounts. Company accounts also form the basis for tax reporting as they are the starting point for the (in)famous authoritative principle (Maßgeblichkeitsprinzip). This regulation in income and corporation tax law (Einkommensteuergesetz, EStG and Körperschaftsteuergesetz, KStG) takes the accounts of the legal entity to transform the reported results in applying special tax regulations to them.

### 2.2 Group accounts

The main objective of group accounts is to provide information about the economic (not the juridical) entity. Therefore, group accounting follows the fiction that the entities forming the group are one single company from an economic perspective. Group accounts are supposed to inform equity investors better than company accounts. They are required for joint stock companies and other companies with limited liability, and this requirement is extended to groups
of very large size by further disclosure regulation (Publizitätsgesetz, PublG). For group accounting, there are at least four relevant developments worth noting since 1998:

(1) Group accounts were legally permitted to be prepared under German GAAP or an accepted international framework (in practice IFRS and US GAAP). This applied to listed firms and those that used institutional debt markets in the business years from 1998 to 2004. Here, the German legislator completely withdrew from standard setting.

(2) Stock market operators did at times require firms to report under international standards to allow them to be listed in certain segments of the market. This was most famously the case for Deutsche Börse’s Neuer Markt, which was operative from 1997 and closed after a massive slump of stock prices and the subsequent erosion of investor confidence in 2003.

(3) In 1998, a professional and privately organized German standard setter was set up, the German Accounting Standards Board (GASB), who prescribes accounting standards (GAS) for group accounts (i.e., the legislator relinquished its unique role for German GAAP).

(4) From 2005, all listed German firms are required to prepare group accounts under IFRS, with some exceptions for firms that have been using US GAAP and that have been listed on US stock markets (like, for instance, DaimlerChrysler); these firms may continue using US GAAP until 2007.

It is worthwhile noting that accounting choices for group accounts are not predetermined by the choices made in the company accounts, and the authoritative principle is not applied to consolidated reports. Both facts decouple - at least legally - group accounting and accounting for tax purposes completely.

---

consequences, but it is possible to publish IFRS single accounts instead of German GAAP accounts for information purposes.
2.3 **Interrelation of company and group accounts**

In our paper, we are interested in different properties of accounting information in group accounts and the parent company’s single accounts. For reasons of clarity, we now briefly outline how these accounts are interrelated and especially outline the regulations that apply in Germany. The income statement structure of company accounts is legally defined in § 275 HGB, the structure of the balance sheet in § 266 HGB. In company accounts, investments in subsidiaries are recognized in the parent company’s balance sheet under the position “financial property” (and here, in more detail, under the position “shares in affiliated companies”). Those investments are initially recorded at historical cost. In subsequent periods, those investments may be impaired. Additionally, in some exceptional cases it is also possible to capitalize goodwill in the company accounts (under the position “intangible assets”) that can be amortized (a) over a maximum of four years with at least 25 percent per year or (b) over its useful life. However, the criteria to capitalize such goodwill are very restrictive and do not apply to many German firms.

In the income statement, all distributions (e.g., dividend payments) from subsidiaries to the parents are recognised in the financial result. Obviously, the operating income is not “affected” by these distributions. However, it should be noted that the recognition of a subsidiary’s distributions in the parent’s financial results may lag due to e.g. differing financial years.

In consolidated statements, all transactions within the group are eliminated. Hence, all assets and liabilities are recognized in one single balance sheet and all income and expenses in one single income statement as if they were generated by one single company. The process of consolidation
follows specific rules, which have also changed over the years. When a subsidiary is first consolidated, the investment in the company accounts will generally correspond to the value of the net assets in the consolidated accounts. In the following periods, gains from the investment are only incorporated into the company accounts when dividends are paid; undistributed earnings are not recognized. This effect is counterbalanced by the effect of goodwill amortization. Group accounts according to US GAAP, IFRS and GAS recognize the fair value of assets and a goodwill component. Under German GAAP, the goodwill component can be written off directly to reserves, be amortised over its useful life or discretionarily written off over four years. US GAAP and IFRS (until SFAS 141/142 and IFRS 3 came in force) required goodwill to be amortised. Losses, however, are recognized when a subsidiary’s value has permanently dropped below the initial acquisition cost. For transitory losses, companies can decide whether these losses are recognized in company accounts, which allows for a certain element of choice.

The discussion points to two sources of differences between company and group accounts. The first is connected to accounting for affiliated companies (and consolidation techniques); the second is the different use of accounting treatments not related to consolidation. As group accounts show consolidated revenues and expenses, operating income from group and single accounts differs. The difference between net income from single and group accounts may however be unaffected by accounting for affiliated companies, because the holding company can transfer the profits of subsidiaries, which are recognized as financial income in the holding company accounts.

5 The variety of rules applicable for consolidation and group accounting is a problem for empirical research in Germany. Though this problem has to be addressed, it cannot be solved completely. One solution is to compare only such companies that use the same sets of standards. This, however, significantly reduces sample sizes. Another possibility is to control for accounting standards chosen.
Accounting treatment differences arise either due to the application of different accounting frameworks (i.e. German GAAP for company accounts and e.g. IFRS for group accounts) or due to the influence of various reporting incentives which affect the application of accounting frameworks while preparing single and company accounts. At first glance, one may suppose that the reporting choices are generally exerted independently in company and group accounts. Then, single accounts are, for example, managed downwards to reduce tax and dividend payments. At the same time, group accounts might be managed to the opposite direction to attract new investors. However, there are a number of reasons suggesting that, in fact, accounting choices are exerted in a similar fashion in single and group accounts. Though company law links dividend payout decisions to unconsolidated closings, large gaps between consolidated and unconsolidated earnings may increase pressure for higher dividend payouts. Tax authorities may also question alternative accounting treatments in company and group accounts. Alternatively, the companies may simply use the same accounting treatments in company accounts and in group accounts because their accounting systems do not allow other actions or because it is too costly to do anything differently. Companies that have to report under an international accounting framework for group accounts may, for instance, use the same treatments for the group accounts as long as they are consistent with German GAAP. If there is a relationship between single and group accounts, two possibilities come into question:

(1) Consolidated earnings lead: The demand for high quality accounting information enhances reporting practices and the informativeness of group accounts (e.g., Ball et al., 2001). As group accounts are prepared by the same entity (management) as company accounts, the demand for high quality accounting information may also enhance the quality of unconsolidated statements.
Then, reporting choices in unconsolidated accounts might follow the choices made in consolidated accounts.6

(2) Unconsolidated earnings lead: One could alternatively argue that company accounts lower the quality of consolidated earnings. The authoritative principle, which links tax accounting to unconsolidated earnings, is likely to reduce the informativeness of company accounts. The same accounting treatments may then “flow” from unconsolidated into consolidated earnings, thus diminishing their quality. In this situation reporting choices in consolidated accounts will follow the choices made for single accounting purposes.

Although in the following discussion we try to discriminate between different reporting incentives which drive accounting decisions while preparing company and group accounts, we are not able to trace the effect of reporting incentives on the relationship between company and group accounts.

Accounting treatment differences are likely to affect both operating and net income. A holding company has much discretion over when and what part of affiliated companies' profits should be transferred to it. We treat these profit distributions as an accounting policy choice which may reduce the differences between company and group net income (both related to consolidation and due to alternative accounting treatments).

In the empirical part of the paper we use two measures of income – operating income and net income before extraordinary items and taxes. Operating income sheds some light on the differences related to consolidation and accounting treatments application. Net income, as the

---

6 The same accounting choices can not always be implemented in company and group accounts because of the very nature of these accounts or because of the different accounting frameworks implemented for reporting purposes. However, the companies have enough reporting discretion (including the amount of dividends of subsidiaries transferred to the holding company) that they may achieve the same affect on earnings through the use of other reporting choices.
bottom line figure, points to the role of accounting treatments, which are a function of reporting incentives. In general, the use of two measures of income makes it possible to provide more robust results.

3 Hypothesis development

3.1 Objectives of accounting

In our study, we analyze different properties of consolidated accounts and single closings of holding companies. Depending on a country’s institutional setup, accounting serves a number of roles such as informing shareholders, establishing dividends for distribution or helping solve agency conflicts between owners, managers and lenders (Watts 1977; Jensen/Meckling 1976). In many countries, these different roles and functions of accounting cannot easily be disentangled. International comparative research such as Ball et al. (2000), Ball et al. (2003) or Ball et al. (2005) therefore uses additional institutional variables to establish a primary role of accounting (e.g. the size of equity and debt markets) or to proxy for institutional substitutes (e.g. litigation propensity to protect shareholders). This approach may suffer from a serious omitted variable problem. Therefore, other researchers try to frame comparative research settings within one jurisdiction.

Germany does not follow the idea of “general purpose financial reporting” (FASB 1978, para. 30), which is fundamental to US accounting. While company accounts serve a lot of roles, especially in protecting debt-holders and being the legal base of dividend payments and taxation (at least indirectly), the only objective of group accounts is to be informative, especially for investors. To achieve the latter goal, the legislator allowed to prepare group accounts under international accepted accounting frameworks instead of German GAAP since 1998. Empirical
evidence shows that IFRS and US GAAP better cope with informing investors than German GAAP (Leuz/Verrecchia, 2000). However, it is not clear (and thus an empirical question) whether the rules for company accounts codified in the German commercial law (HGB) lead to completely uninformative information for security markets. It is also not clear whether German GAAP rules are better for at least some (e.g., contracting) purposes. If accounting rules for single and group accounts are, in fact, created to serve particular objectives, different properties of the respective accounting measures should be observable. If the institutional setup is efficient, properties of group accounts and of company accounts must display differential qualities.

In the next section we summarise different earnings quality metrics used in the previous research (e.g., Francis et al., 2004) and discuss their relation to the economic role of accounting information. We consider four areas in which accounting information may be used: (a) informativeness of earnings to outside investors, (b) efficiency in debt-contracting, (c) use in the dividend policy and (d) use of earnings for taxation purposes. Accounting quality metrics are generic proxies for these four areas of roles served by accounting information. Assessing the relative usefulness of consolidated versus unconsolidated accounts according to these four areas will shed some light on the economic role of company accounts. These areas are likely to be interdependent. For instance highly informative earnings are likely to be not only a desired tool for measuring the firm performance by outside investors, but may also increase efficiency of debt contracting. The use of earnings for tax purposes is likely to sacrifice their informativeness to outside investors. Although earnings quality metrics are expected to be highly correlated, using several proxies for each of the economic roles served by accounting information is likely to provide more robust results in respect of each of the areas of economic importance.
3.2 Empirical design and some predictions

3.2.1 Persistence and predictability of earnings

As the role of group accounts is to inform investors about future earnings prospects, group accounts should have superior informational qualities. Here, persistence and predictability of earnings are desired outcomes, because they increase the informativeness of earnings to outside investors. Earnings that are highly predictable and persistent can enter into valuation models without major adjustments (for e.g., non-recurring items). Both the theoretical as well as empirical literature show that persistent and/or predictable earnings increase the association of earnings and stock prices (e.g., Lipe, 1990; Kormendi/Lipe, 1987; Easton/Zmijewski, 1989). As group accounts are generally supposed to be more informative, we posit the following hypothesis:

H1: Group accounts are more informative about future earnings realizations and display higher predictability and persistence than company accounts.

Following e.g. Sloan (1996) we regress current earnings on the lagged earnings to assess earnings predictability and earnings persistence.

\[ X_{jt} = \alpha_0 + \alpha_1 X_{j,t-1} + \varepsilon_{jt} \]

\( X_{jt} \) is the respective company and group income.\(^7\) We use two measures for income: OPINC\(_{jt}\) which is operating income, and NI\(_{jt}\) which is net income before extraordinary items and taxes. In this specification the autoregressive coefficient on lagged earnings measures the extent to which earnings realizations persist in future earnings. The nearer the coefficient is to one, the higher is

---

\(^7\) Previous research used average assets as a scaling factor (e.g., Sloan 1996). As assets shown on the company and group balance sheets differ, we use average market value of equity to assure that our results are not driven by the choice of the scaling factor. We replicated our tests using average total assets from group accounts. So doing does not change our inferences. Because of the same reasons we used the lagged market value of equity for scaling purposes in several of the following tests.
the persistence of earnings. We measure predictability of earnings as the regression’s $R^2$ (higher values of $R^2$ indicate a higher predictive power of earnings) and compare company and group accounts.

### 3.2.2 Value relevance

We next consider the value relevance of company and group accounting earnings. We use value relevance to proxy for informativeness of earnings to outside investors. The idea behind the use of value relevance as earnings quality and informativeness metric is that the market participants base decisions to trade on information about future performance of an entity. Trading activities influence market capitalization. Not all information is used in the decision-making process: Only information that is relevant and reliable will influence the market value. The association between earnings and share prices exists only when earnings are reliable and relevant to the market (Barth et al., 2001). These two qualitative characteristics of financial information make it more useful to outside investors. High value relevance of earnings is an indicator of relevance and reliability of financial statements and is associated with high quality earnings. As tax and contracting purposes as well as debt-holder protection can be supposed to lower the earnings quality of company accounts, the following hypothesis can be formulated:

**H2:** Group accounts are more informative about future earnings realizations and display higher value relevance.

Following Francis/Schipper (1999) and Bushman et al. (2004), we regress market returns on accounting earnings to assess the explanatory power of the respective earnings constructs. We use the following returns specification:
In this regression, j and t stand for firm j and year t respectively. \( X_{jt} \) is the respective company and group income per share and \( \Delta X_{jt} \) stands for changes in income per share. We scale these variables by the lagged price per share. Again, we use two measures for income: \( \text{OPINC}_{jt} \) which is operating income, and \( \text{NI}_{jt} \) which is net income before extraordinary items and taxes. \( R_{jt} \) is the change in stock price for a year period ending six months after a balance sheet date. A six months period is used to assure that all accounting information is priced in case if the reaction period to consolidated and company accounts is different (Harris et al., 1994).

Two important parameters reveal the value relevance of earnings numbers: the regression’s \( R^2 \) and the coefficient on the earnings variable (often referred to as earnings response coefficient). Kothari (2001, 123-124) discusses the predicted value of earnings response coefficients in depth. Higher levels of the regression’s adjusted \( R^2 \) and a slope coefficient most consistent with its predicted value indicate greater extent of reliability and relevance of earnings. As empirically the values of earnings response coefficients consistently lie below their predicted values, we argue higher coefficients indicate earnings of higher quality.

### 3.2.3 Earnings management

We use the metrics based on the level of discretion in reported income and the level of income smoothing to operationalize the concept of earnings management. Discretion in earnings and earnings smoothing are both likely to reduce the informativeness of earnings to outside investors. Managers can hide true economic performance through earnings management and thus make earnings only a loose indicator for monitoring and valuation purposes. While there is some evidence from the US that companies may use income smoothing to communicate private
information and thus make earnings more informative (Subramanyam, 1996; Zarowin, 2002), earnings smoothing is typically regarded as detrimental to informativeness. Also, income smoothing compared in an international context was found to be correlated with weak investor protection (Leuz et al., 2003). Burgstahler et al. (2005) also find more income smoothing in European private companies (compared to public companies) - despite the fact that private firms tend to communicate information via private channels. In European countries, taxes and political costs (e.g., the pressure of trade unions) are likely to be the drivers of income smoothing.

Finding more income smoothing in either company or group accounts is likely to shed some more light on the discussion as to whether income smoothing is a desired element of financial reporting. Higher levels of income smoothing in group accounts may be due to both communication of private information to outside investors and managerial discretion. While the first reason is a desired feature of corporate reporting, the latter is not, as it is motivated by hiding true economic performance. Higher levels of income smoothing in company accounts are, however, unlikely to be driven by a desire to resolve information asymmetries but rather by the needs to pay out constant dividends (as dividends are statutory tied to unconsolidated earnings) or by tax concerns (similar notions can be found in Ball et al. (2000)).

Incentives for earnings management exist in both company and group accounts. The tax link makes company accounts a candidate especially for managing earnings downwards. As earnings management can be useful both for contracting and capital market information (to disclose private information), it is hard to predict in which accounts the level of earnings management is higher. Thus, we formulate the following empirical question:

Q1: Is there any empirical difference in the level and direction of earnings management in company and group accounts?
Germany is often considered a prime example for effects of taxation on accounting earnings. However, tax accounting is based on company accounts, and they, in turn, do not constrain accounting choice for group accounts. This means that there are no competing incentives with regards to tax management, as tax accounting is institutionally connected to company, not group accounts. From this follows the following hypothesis:

H3: Company accounts have a higher tax alignment than group accounts.

To detect earnings management, we employ several metrics based on operating and net income. All these metrics try to capture income smoothing and earnings discretion (as e.g., earnings management before IPO activities). To assess earnings management on the operating income level we use three proxies from Leuz et al. (2003). The first measure is the cross-sectional correlation between changes in operating accruals and changes in operating cash flows, \( \rho(\Delta ACC_{jt}; \Delta CFO_{jt}) \), which proxies for the presence of income smoothing. \( ACC_{jt} \) are operating accruals of firm \( j \) in year \( t \) computed as changes in working capital scaled by the lagged market value of equity. Working capital is defined as current non-cash assets less current non-financial liabilities from either company or group accounts. \( CFO_{jt} \) is cash flow from operations of firm \( j \) in year \( t \) obtained by subtracting \( ACC \) from the operating income (company or group accounts). Values of this measure closer to minus one indicate the presence of earnings management (Leuz et al., 2003).

The second measure also used to assess the extent of income smoothing in company and group accounts is the standard deviation of operating earnings per standard deviation of operating cash flows \( \sigma(OPINC_{jt})/\sigma(CFO_{jt}) \). Smaller values of this ratio indicate earnings management. To obtain this measure we first calculate the ratio of \( \sigma(OPINC_{jt}) \) to \( \sigma(CFO_{jt}) \) and then compute the median of the firm level ratios for the group and company accounts.
The third measure is the relative magnitude of operating accruals, measured as the ratio of absolute operating accruals to absolute operating cash flows $|\text{ACC}_{jt}|/|\text{CFO}_{jt}|$. In presence of earnings management the ratio of total accruals to cash flow from operations must be higher. To control for outliers we first calculate the firm-level median ratio and then calculate the median for the whole sample of firms for group and company accounts respectively.

We use the variance of absolute changes in net income scaled by the lagged value of market equity ($|\Delta\text{NI}_{jt}|/\text{MV}_{jt-1}$) to detect income smoothing in net income figures (see Burgstahler et al., 2005). To derive this proxy for income smoothing we first calculate the absolute values of scaled changes in net income before extraordinary items and taxes. Then we compute the firm level median of this variable. This allows estimation of the median of the firm-level ratios of changes in net income for each set of accounts.

Following prior research, we use two interrelated measures to detect discretion in consolidated and unconsolidated net income. Burgstahler/Dichev (1997) show that the presence of earnings management (here loss avoidance) causes discontinuities in the distribution of reported earnings scaled by the lagged market value of equity. The number of observations in the first negative interval of the distribution is underrepresented and in the first positive interval overrepresented. In some European countries such discontinuities may be (at least partly) explained by firms trying to reduce their income levels for tax purposes. Such behaviour will increase the number of observations in the first interval not from the left but from the right. Coppens/Peek (2005) show that the peak of the distribution in countries with high financial and tax alignment (e.g., Germany) lies in the first positive interval and that there is a discontinuity of the earnings level distribution immediately to the right of the peak.
To detect such behavior we use two measures. Following prior research (e.g., Leuz et al., 2003; Lang et al., 2003) we define small profits as reported income before extraordinary items and taxes scaled by the lagged market value of equity that fall into the range [0;0.01]. To assess the relative frequency of small earnings we divide the number of observations in this interval by the total number of net income observations. This measure shows the propensity to avoid small losses and large profits. Our second measure is the percentage of observations in the second positive interval. We derive this measure by dividing the number of net income (scaled by the lagged market value of equity) observations in the range (0.01;0.02] by the number of net income observations in the range [0;0.02]. This measure shows the propensity for tax management.

3.2.4 Timeliness of earnings/earnings conservatism

This section will discuss the timeliness of economic gain recognition, timeliness of economic losses recognition, overall timeliness of earnings, incremental timeliness of bad news (conditional conservatism) and unconditional conservatism together because their empirical metrics are the estimates from a single regression model.

A timely recognition of all elements of economic income in financial statements makes them more useful to investors and creditors (Ball/Shivakumar, 2005). Timely incorporation of economic income in accounting earnings is achieved through the timely recognition of economic gains and losses or in Basu’s (1997) terms of “good” and “bad” news. While the timely incorporation of both good and bad news is crucial for earnings quality, there is a higher demand

---

8 Alternatively, we deflated the number of small profits by the sum of the number of small profits and the number of small losses (i.e., observations of reported earnings scaled by lagged market value of equity falling into the range [-0.01;0]). Our inferences remain unchanged.
for and supply of timely information on economic losses. The asymmetry in recognizing good and bad news in income is referred to as conditional conservatism (Ball/Shivakumar, 2005). Unconditional conservatism is a tendency to report low book values of equity through e.g., delaying the recognition of revenue recognition or routinely over-expensing irrespective of economic performance (Ball/Shivakumar, 2005; Beaver/Ryan, 2005). Timeliness of good news recognition and the overall timeliness of earnings should make earnings a better measure of a firm’s economic performance, increasing informativeness of earnings to outside investors. As group accounts are expected to be more informative, we formulate the following hypothesis:

H4: Timeliness of good news recognition and the overall timeliness of earnings is more pronounced in the group accounts.

The timeliness of bad news and the incremental timeliness of bad news over good news (or conditional conservatism) also increase the informativeness of earnings to outside investors. Earnings that reflect bad news to a higher extent are a better measure of a firm's economic performance. They also increase the efficiency of compensation contracting and corporate governance (Ball/Shivakumar, 2005, p. 91). However, the role of timely loss recognition and conditional conservatism is even more pronounced in debt contracting. Both should increase the efficiency of debt contracting by transferring control to the debt holders more quickly as a result of debt covenant violations. Timely loss recognition and conditional conservatism should also limit dividend payouts, tax payments and management compensation and thus secure the claims of the debt holders. Ball et al. (2005) empirically show that timely loss recognition and conditional conservatism have their primary origin in the debt-markets. As conditional conservatism serves both information and contracting purposes, it is an empirical question whether it is higher in company accounts (which serve the purpose of capital maintenance) or in
group accounts. The legal framework ties the concept of capital maintenance to company accounts, as bankruptcy is determined for individual companies. Debt covenants are, however, mostly tied to group accounts. As it is therefore difficult to make clear predictions, we formulate the following empirical question:

Q2: Is there any significant difference between conditional conservatism in company and group accounts?

At first glance, company accounts should by their very nature be unconditionally more conservative than group accounts as they serve the purpose of capital maintenance for debt-holder protection. Thus, tax and dividend payments have to be restricted to protect the company’s capital. As there are no payments legally tied to group accounts, these accounts are likely to be unconditionally less conservative. Our hypothesis is as follows:

H5: Company accounts are unconditionally more conservative than group accounts.

The economic benefits of unconditional conservatism are however questionable. Contrary to conditional conservatism, Ball/Shivakumar (2005, p. 90-91) argue that unconditional conservatism is unlikely to increase the efficiency of debt contracting. In another paper Ball et al. (2005) suggest that political costs, managerial opportunism and tax management may be driving unconditional conservatism in Germany. Our tests will shed some light on this discussion. Managerial self-interest and political costs might affect consolidated earnings to a higher extent, as management performance is assessed through them and because consolidated earnings are more ‘visible’ in the political process. Finding company accounts more unconditionally conservative will then point to tax concerns as the major driver of unconditional conservatism.
Following Basu (1997) we estimate the following piecewise linear regression of accounting income on stock returns pooled for all firms. We run the regressions separately for company and group income.

\[ X_{jt} = \beta_0 + \beta_1 RD_{jt} + \beta_2 R_{jt} + \beta_3 RD_{jt} R_{jt} + \epsilon_{jt} \]

Here, \( j \) denotes the firm and \( t \) the year. \( R_{jt} \) is the fiscal-year stock return adjusted for its year’s median stock return for firm \( j \) in year \( t \). \( RD_{jt} \) is a dummy variable which takes the value of 1 if stock returns are negative (and zero otherwise). \( X_{jt} \) is either operating income or net income before extraordinary items and taxes. Both \( X_{jt} \) and \( R_{jt} \) are scaled by the lagged stock price. In this setup, the coefficient \( \beta_2 \) signals timeliness of gain recognition, and \( \beta_3 \) the incremental timeliness of loss recognition (i.e. conditional conservatism). The timeliness of bad news is captured by \( \beta_2 + \beta_3 \). The total timeliness of gain and loss recognition is the regression’s \( R^2 \). Following Ball et al. (2005) we define unconditional conservatism as \( \beta_0 + \beta_1 LF \), where \( LF \) is the frequency of losses in the regression with consolidated or unconsolidated earnings. As in the tests for the difference between consolidated and unconsolidated earnings the right-hand-side variables are the same, we compare simply the sum of coefficients \( \beta_0 + \beta_1 \) to measure the level of unconditional conservatism in each set of accounts.

3.2.5 Dividend policy

We use a partial adjustment model from Lintner (1956) to assess the role that company and group earnings play in dividend policy. Although recent empirical findings for the US show that the explanatory power of this model has declined through the years (Brav et al., 2005), there is some evidence from Germany that earnings are the primary determinant of the dividend policy. Pellens et al. (2003), for instance, find that consolidated earnings, lagged dividends and
unconsolidated earnings as the first, second and third most important determinants of German firms’ dividend policy. The authors show that consolidated earnings influence dividend policy to a higher extent than unconsolidated earnings. As dividend distributions are, however, legally connected to company accounts, we formulate the following empirical question:

Q3: Is there any significant difference between the role played by company and group earnings in the dividend policy?

Following Fama/Babiak (1968) we regress dividend changes on income and lagged dividends to assess the role of earnings in determining the dividend policy. Evidence from Pellens et al. (2003) justifies the use of the right-hand-side variables for Germany.

\[ \Delta \text{DIV}_{jt} = \alpha_0 + \alpha_1 X_{jt} + \alpha_2 \Delta \text{DIV}_{jt-1} + \varepsilon_{jt} \]

\( \Delta \text{DIV}_{jt} \) and \( \text{DIV}_{jt-1} \) are the dividend changes from year t-1 to year t and lagged dividends per share, respectively. \( X_{jt} \) is the respective (i.e. operating or net) income per share. We estimate this regression cross-sectionally for each set of firm accounts. The regressions’ \( R^2 \) indicates the extent to which earnings and lagged dividends explain changes in the dividend policy.

4 Sample description

Our primary source of data is Bureau van Dejk’s Amadeus Databank, which provides accounting information on both consolidated and company accounts of German firms. We use only firm-years for which both the company and the group accounts are available. We further require firms to be listed on one of the German stock exchanges to keep the sample homogeneous and to obtain data necessary to calculate the proxies for economic importance. We also delete all financial firms from our initial sample. We leave only firms with the necessary financial information from consolidated and unconsolidated statements for at least 4 years during the
period 1994 to 2004 to ensure that we can calculate all proxies based on differences in variables. The year 1994 is the first year for which financial information is available on Amadeus Databank.

The obtained list of firms from the Amadeus Databank is amended with the firms from the Bureau van Dejk’s Osiris Databank, which were selected on the same criteria. As both Amadeus and Osiris databanks provide only stock market information for the most recent years, we rely on Datastream for the firm-specific market data. As a result of this selection procedure our final sample consists of 210 non-financial German companies. As a starting point of our analysis we obtain as many as 1,035 firm-year accrual observations, from which 724 firm-year observations use German-GAAP and 311 use IFRS or US GAAP for consolidation purposes. Some firms were discretionary adopting international accounting standards for consolidation purposes before 1998. We used the data from international group accounts as soon as it was available. We winsorize the variables at the 1st and 99th percentiles as outlined below to control for outliers. Panel A of Table 1 provides descriptive statistics for the winsorized main variables used in the tests.

- Insert Table 1 about here -

Panel A of Table 1 shows the unscaled market values and total assets. Net income and operating income in Panel A of Table 1 are scaled by the outstanding number of shares. Not surprisingly, assets shown on the consolidated balance sheets are 52% higher (according to the mean) than the assets shown on the company accounts. Per share income numbers are also higher in consolidated income statements. The difference (according both to the mean and to the median) is more pronounced for operating income. The median difference in NI is 0.518 EUR per share opposed to 2.078 EUR per share for OPINC. The difference for OPINC is statistically more
pronounced (p<0.0001). This evidence is consistent with company net income being managed towards group net income through profit transfer agreements with subsidiaries.

Both net income and the operating income are highly correlated between the consolidated and unconsolidated accounts. The Spearman correlation coefficient equals 0.84 and 0.47 for NI and OPINC respectively. This high correlation levels preclude us from using simultaneously consolidated and company data as right-hand-side variables in a single regression model because of concerns with multicollinearity.

We further decompose our sample into two sub-samples based on the accounting framework used for group accounts. (Recall that the use of German GAAP is compulsory for company accounts.) The first sub-sample includes German GAAP firms, the second sub-sample consists of firms using IFRS or US GAAP for consolidation purposes. Panel B of Table 1 reports the medians of net income (scaled by the lagged market value of equity) for the respective sub-samples. The median net income from German GAAP group accounts equals 0.128. The difference between single and group net income for companies using German GAAP for consolidation purposes is statistically pronounced (p<0.0001). The median net income from IFRS or US GAAP group accounts equals 0.041. The difference to company accounts is here less pronounced than by German GAAP but still statistically significant (p<0.01).

To deal with outliers in the univariate analyses we use the median test and the Spearman (rank) correlation, which are not sensible to the presence of outliers. For the multivariate analysis, we winsorize all variables at the 1st and 99th percentiles to control for outliers. We further delete firm-year observations with missing consolidated or unconsolidated data due to winorizing to ensure that we run regressions for matched data of the same firms. Because of this procedure and the use of the lagged variables in some tests the number of observations used in each of the tests
differs. The minimum number of firm-year observations used in tests equals 909 (from which 643 observations use German GAAP and 266 observations use IFRS or US GAAP for consolidation purposes).

5 Empirical results
5.1 Persistence and predictability of earnings

We start our analysis by addressing two time-series properties of earnings – persistence and predictability – which are desired outcomes of financial reporting from the view point of outside investors. We first regress operating income on the lagged operating income separately for group and company accounts. We then replicate this procedure for the net income before extraordinary items and taxes. So doing sheds some light on the informativeness of earnings before and after consolidation on the operating income level and on the use of accounting treatments in company and group accounts to arrive at the net income figure.

Panel A of Table 2 provides regression results for the company and group accounts when operating income is used as the regressor. The autoregressive coefficient on lagged operating income is our measure of earnings persistence. This coefficient is relatively small and insignificant when the regression is run using the data from company accounts. When consolidated operating income is used in the model, the magnitude of the regression coefficient on the lagged operating income increases almost tenfold, equalling 0.273 (p<0.001). We use White-adjusted standard errors to account for heteroscedasticity. To allow for inter-model comparisons of the coefficients, we use the $\chi^2$-test to evaluate significance of the difference in regression coefficients. The difference in persistence of unconsolidated and consolidated operating income is significant on the 1% level.
The regressions’ R² indicate the extent of earnings predictability. The value of R² from the regression using unconsolidated operating income is below 2%, which is exceedingly small compared to the almost 20% explanatory power of consolidated data. We use the bootstrap method to compare the values of R². We base our tests on 1,000 bootstrap resamples of original data (consolidated or unconsolidated data) by sampling with replacement. Bootstrapping is a method that requires fewer assumptions than traditional methods (e.g., normality) and can be used throughout our analysis. We use the point estimates for the R² values from the original data and the bootstrapped standard errors to construct a Z-test. According to the Z-test the difference in predictive power of consolidated and unconsolidated data is significant on the 10% level or higher.

Our tests indicate that the consolidated operating income is more persistent and predictable, which makes it a more informative measure to outside investors compared to unconsolidated operating income. To further separate between the effect of consolidation and differences in accounting choices, we concentrate on net income numbers.

Panel B of Table 2 reports results of the analysis for consolidated and unconsolidated net income. Both persistence and predictability of net income are higher compared to operating income. The increase is much more pronounced for company accounts. The autoregressive coefficient and the regression’s R² increase from 0.028 to 0.405 and from 0.017 to 0.240, respectively. The differences in persistence and predictability of company and group accounts, in turn, become less pronounced. Although, consolidated earnings have higher persistence and predictive power compared to the unconsolidated earnings, this difference is not significant on
the conventional level. Taken together these two pieces of evidence indicate that the differences in persistence and predictability of operating income from group and company accounts are largely due to consolidation. Furthermore, companies increase persistence and predictability of unconsolidated earnings through the shifting of profits from subsidiaries to the parent company. However, this increase is not sufficient to make company accounts a more informative instrument for valuation and monitoring purposes to the outside investors.

5.2 Value relevance

We test the value relevance of earnings by regressing market returns on the levels and changes in earnings. We perform this regression for the data from company and group accounts. Table 3 reports results of the estimation. We first use operating income as the independent variable. The earnings response coefficient on unconsolidated operating income equals 0.084, which is slightly lower than the earnings response coefficient on consolidated operating income. The value relevance of accounting earnings captured by the regression's $R^2$ equals 0.027 for single accounts earnings. The $R^2$ for consolidated earnings is almost twice as high. However, the difference is not statistically significant on the conventional level.

- Insert Table 3 about here -

The values of the earnings response coefficients and regressions' $R^2$ increase in the regression specifications with net income (as shown in Panel B of Table 3). This increase is more pronounced for the regressions' $R^2$. The coefficients on net income in models using company and group data remain close to each other and equal 0.129 and 0.144 respectively. Again, the $\chi^2$-test

---

9 The technique to compare the $R^2$ between the models that cannot be used throughout our analysis is the Vuong test, which is designed to test the differences in explanatory power for the models with the same dependent variable.
shows that the difference is not statistically significant. The difference in the regressions $R^2$ is about 4 percentage points (or 66%), but not statistically pronounced.

We find that the value relevance of group accounts is generally higher than the value relevance of company accounts, but the evidence remains weak. Harris et al. (1994) also compare the value relevance of (full and domestic only) consolidated and unconsolidated accounts in Germany. They find that the value relevance (measured as regressions' $R^2$) of consolidated accounts is higher and that this difference is statistically significant. However, in footnote 42, Harris et al. (1994) caution that the tests are performed with non-matched data (i.e. different firm observations are used in the sub-samples of unconsolidated and consolidated data), which may explain the differences between our results and the results in their article.

5.3 Earnings management

For the analysis of income smoothing on the operating income level, we use two measures: (a) the correlation between accrual changes and cash flow changes and (b) the standard deviation of operating income divided by the standard deviation of cash flow from operations. Values for these proxies are computed both for company and consolidated accounts. Results of the estimation are shown in Panel A of Table 4. The Spearman correlation between changes in cash flows and accruals computed from the data in company accounts equals -0.862, which is much closer to minus one than the correlation coefficient for the group data (-0.807). The difference between the correlation coefficients is significant on the 1% level or higher. The standard deviation of operating income (controlling for the fluctuations in company performance) equals 0.316 and 0.476 for the data from company and group accounts respectively. A lower level of variation in unconsolidated operating income indicates higher income smoothing.
Panel B of Table 4 provides results of a test for net income smoothing. The median changes in net income before extraordinary items and taxes are smaller for company accounts (0.076) than for group accounts (0.094). This difference is significant on the 1% level or higher. Income smoothing is therefore more pronounced in company accounts both on the operating and the net income levels. As the main role of group accounts is to provide information to outside investors, it is unlikely that income smoothing (at least in the company accounts) is used to communicate private information. The statutory link between taxation/dividend payouts and company accounts points to tax management and dividend policy as the primary drivers of income smoothing.

The discretion in reported earnings, measured as the median ratio of operating accruals to cash flow from operations, is also more pronounced in company accounts. The Wilcoxon matched-pairs signed-ranks test indicates that the difference has a significance level of p<0.01. There are, however, differences in the "direction" of discretion in net income figures in company and group accounts. Panel B of Table 4 shows two tests based on the distribution of reported earnings. The tests indicate that the discontinuity to the left and to the right of the first positive interval is higher in the distribution of net income from company accounts. The percentage of observations in the first positive interval (i.e. % of small profits) indicates the propensity to avoid small losses and large profits. The numbers equal 4.34% for company and to 1.48% for group accounts. The difference between the numbers is statistically significant and reveals more discretion in company accounts. To further discriminate between the "loss avoidance" and "tax management" hypotheses, we concentrate on the percentages of observations in the second positive interval.

It could be however the case that the "nature" of income smoothing in company and group accounts is different. The level of income smoothing in group accounts may be at an optimum level, which is needed to communicate the private information. Excessive income smoothing in group accounts may then be used for the tax and dividend policy.
This test provides additional evidence on whether the difference in the number of small profits is due to income-increasing (i.e. loss avoidance) or income-decreasing (i.e. tax motivated) earnings management. The frequency of observations in the second positive interval is more than twice lower in company accounts (33.33% in company accounts compared to 67.65% in group accounts). Our tests indicate that earnings are managed downwards to a higher extent in company accounts to reduce the present value of taxes. This evidence is consistent with the higher financial and tax alignment in company accounts.

5.4 Timeliness of earnings/earnings conservatism

The analysis provided in this section should shed more light on the comparative economic role of company and group accounts in providing information to corporate outsiders, in debt contracting and in taxation. We use five different test statistics from the piecewise linear Basu regression to proxy for the economic roles. Timeliness of good news and the overall timeliness of earnings should increase the informativeness of financial reports to outside investors. Timeliness of bad news and the incremental timeliness of bad news (conditional conservatism) are important for debt contracting. In contrast, unconditional conservatism shows the extent of tax management in financial reports and thus points to the role of accounts in tax reporting.

We begin our discussion with the information content of consolidated and unconsolidated accounts. Table 5 reports the estimates of the Basu regression for company and group data. The coefficient on returns shows to which extent the good news are incorporated in financial statements. The regressions’ $R^2$ indicate the timeliness of good and bad news recognition. Panel A of Table 5 provides results for operating income as dependent variable. Both consolidated and unconsolidated operating income numbers incorporate good news, which is indicated by highly
significant coefficients on the market returns variables (as proxy for the economic income). According to the results, good news seems to be incorporated in group accounts to a higher extent. The coefficient on $R_{jt}$ in the regression specification with the group data is almost three times higher than the coefficient obtained using the company data. This difference is statistically significant ($p<0.01$). The overall timeliness of operating income captured by the regressions’ $R^2$ is also higher for the consolidated operating income. However, the difference is not significant on the conventional level.

The results of the estimation with net income as the dependent variable (see Panel B of Table 5) are qualitatively close to the results reported for operating income. Company accounts gain on the timeliness of good news recognition and the overall timeliness of earnings. Group accounts gain on the overall timeliness but lose on the timeliness of good news recognition. The difference in good news incorporation, although less pronounced, remains highly significant. The $R^2$ in the consolidated net income regression is higher but the difference turns out to be not statistically significant. Overall, these results indicate that consolidated income is a more useful figure to outside investors. Again, as in the analysis of persistence and predictability of earnings, the difference in informativeness becomes less pronounced for net income, suggesting that income shifting from subsidiaries to the parent company enhances the information content of company accounts. However, this increase does not make these accounts more informative than group accounts.

- Insert Table 5 about here -

We next move on to the role played by company and group accounts in debt contracting. As suggested by Ball et al. (2005), the timeliness of bad news recognition and conditional conservatism both have their primary role in increasing the efficiency of debt contracting. The
coefficient on the interaction term captures the incremental timeliness of bad news. The sum of coefficients on returns and the interaction term shows the extent to which bad news is incorporated in financial statements. Panel A of Table 5 reports the results for the specifications using operating income as the left-hand-side variable. For company data, the coefficient on the interaction term equals 0.169 and is significant on a 10% level; for group, the coefficient takes a value of 0.600 (p<0.001). The statistical significance of the coefficients indicates that both consolidated and unconsolidated operating income is conditionally conservative. The difference in coefficients is not only economically but also statistically significant ($\chi^2=7.23$, p<0.01). The difference in bad news recognition is even more pronounced ($\chi^2=17.86$, p<0.001).

As with the timeliness of good news, in the estimation with net income on the left hand side, consolidated figures lose and unconsolidated numbers gain on the (incremental) timeliness of bad news recognition. The coefficients on the interaction term are 0.335 and 0.498 for company and group accounts, respectively. The coefficients and the difference between the coefficients remain statistically significant. Bad news remains incorporated to a higher extent in group net income ($\chi^2=10.91$, p=0.001). Our results suggest that consolidated (net and operating) income is more efficient for debt contracting purposes.

The last statistic analysed in this section is the extent of unconditional conservatism, captured by the sum of the intercept and the coefficient on the dummy intercept ($RD_{jt}$). This statistic shows the average effect of other factors on accounting income after controlling for economic income. Table 5 reports results of the estimation. The difference in unconditional conservatism is highly pronounced: The test for a difference equals $\chi^2=23.31$ (p<0.001) and $\chi^2=10.42$ (p=0.001) for operating income and net income respectively. Previous research could not empirically disentangle the effects of managerial opportunism, political environment and taxation on the
extent of unconditional conservatism (Ball et al., 2005). The assessment of managerial
performance is linked to consolidated numbers. Anecdotal evidence suggests that the trade
unions use consolidated earnings to advocate their demands. As income (corporation) taxes are
linked to company accounts by the authoritative principle, our results point to taxation as the
major driver of unconditional conservatism. We conclude that tax concerns affect company
accounts to a higher extent than the group accounts.

5.5 Dividend policy

We use the Lintner (1956) framework to model the influence of unconsolidated and consolidated
income on a firm’s dividend policy. We regress dividend changes on net or operating income and
lagged dividends (see Fama/Babiak, 1968). We replicate this regression for the data from
company and group accounts. Comparing regressions’ $R^2$ from these model specifications allows
us to assess the role of unconsolidated and consolidated income numbers for the dividend policy
of German (holding) companies.

Panel A of Table 6 reports results of the regression with operating income and lagged dividends
as the right-hand-side variables. The coefficients on the model parameters and the values of $R^2$
are almost identical for the specification with consolidated and unconsolidated operating income.
The coefficient on operating income is positive and statistically significant. The coefficient on
lagged dividends is, as expected, negative and highly significant. Panel B of Table 6 reports
(qualitatively) equal results for the regression model with net income and lagged dividends as
independent variables.

- Insert Table 6 about here -
Both Panel A and Panel B report surprisingly high levels of $R^2$. The independent variables explain more than 95% of the changes in the dependent variable. We use several different model specifications (results are not tabulated) to address this issue and to test the robustness of our results. First, we replicate the original model dropping all firm-year observations with no dividend payout. The values of $R^2$ drop but remain high (around 90%). We next use all data but drop lagged dividends from the original model. So doing indicates that high $R^2$ values are almost completely driven by lagged dividends. Finally, we use the "levels" specification with current dividends as the dependent variable and income and lagged dividends as the right-hand-side variables. The $R^2$ values drop to 7% and 10% in the model specification with unconsolidated and consolidated net income, respectively. In all regression specifications we find that the explanatory power of consolidated income and unconsolidated income being close to each other and that the difference in explanatory power is not significant.

Our findings indicate that unconsolidated earnings do not outweigh consolidated earnings in determining the dividend payout decision. Pellens et al. (2003) found that managers of German listed companies regard net income in group accounts as the primary determinant of the dividend policy. Net income from single accounts ranks third (after consolidated income and lagged dividends). Our results are, however, not inconsistent with Pellens et al. (2003). Managers may decide on the basis of consolidated net income about the amount of dividend payout and then manage net income in single accounts to match the desired payout level. In this case, the values of $R^2$ from the regression specifications with consolidated and unconsolidated income will be also very close to each other.

6 Additional tests
6.1 Introductory remarks

In the previous sections, we found evidence that group accounts of holding companies have, according to common accounting properties’ measures, higher quality than single accounts. From an economical point of view, it is thus not clear why one should compel companies to prepare single accounts. Before discussing which conclusions policy makers can draw from our analysis, we first want to address two possible concerns against our findings that possibly would defend requiring single accounts prepared under German GAAP.

First, one may suspect that single accounts are (only) advantageous when a firm faces financial distress. Then, German GAAP single accounts could restrict payouts to protect from bankruptcy while it is not clear whether group accounts, especially when prepared under an international framework, will fulfil this task. Hence, we repeat parts of our analysis for companies facing different degrees of financial distress.

Second, we analyse whether the findings documented in the previous sections may be affected by the use of different accounting frameworks for group accounts.

6.2 Does financial distress affect the previous findings?

In firms with financial distress, company accounts might be more important for creditors and outside investors. We define financial distress as the probability that a company will go bankrupt in the following year. Using this measure and different probability cut-offs we divide our sample into companies with strong financial health and those that are financially distressed. We then replicate all the tests for the sub-sample of companies in financial difficulties. Finding different earnings attributes of group and single accounts of such companies may point to a special role company accounts play in years of financial distress.
We employ the measure of financial distress from Shumway (2001, Table 4b) (the same measure was also used by Butler et al., 2004):

\[
\text{DISTRESS} = \frac{1}{1 + \exp(7.811 + 6.307 \times \frac{\text{NIu}}{\text{TAu}} - 4.068 \times \frac{\text{TLu}}{\text{TAu}} + 0.158 \times \frac{\text{CAu}}{\text{CLu}} - 0.307 \times \ln(\text{Age}))}
\]

NIu is net income from company accounts. TAu are total assets from company accounts. TLu, CLu and CAu are total liabilities, current liabilities and current assets from company accounts respectively. Age is company age proxied by the number of observations the company has during our sample period.

Although the model in Shumway (2001) has been fitted with US data over an earlier period of time as our sample, this should not generally pose a problem for our tests. We use this measure not to predict the bankruptcy but to use it as a rough estimate of companies’ financial health.

We use three cut-off points to divide our sample. These are 0.50, 0.30 and 0.10, standing for the probability that the company will go bankrupt of 50, 30 and 10 per cent respectively. We separate the companies with at least one observation with the value of DISTRESS above the respective cut-off point during the sample period. We use then the firm-year observations with the critical value of DISTRESS as well as two surrounding years to form the sub-sample of financially distressed companies.

We replicate all the tests for net income with the sample of firms in financial distress (results are not tabulated). Most of the tests show no differences between the properties of single and consolidated earnings. Only the difference in the extent of earnings management is statistically significant pointing to more discretion in unconsolidated accounts. Generally, test results are weak. The coefficients in the tests of persistence, value relevance and timeliness are mostly not significant and have unexpected signs. These results can be explained by the small size of the
sub-sample of companies in financial distress. The second reason may be that the role of earnings (single and group accounts) decreases by financial distress as they do not provide information about the liquidation value contained in the balance sheet items. Barth et al. (1998) provide evidence that the importance of income statement diminishes and the role of the balance sheet increases as financial health decreases. We use the model from Barth et al. (1998) to test whether the balance sheet items in unconsolidated accounts provide more information about the liquidation value of the companies in financial distress. We run the regression of the share price on earnings and book value per share for the sub-sample of companies in financial distress. We then compare the coefficient on and the incremental explanatory power of the book value of equity from single and group accounts. The tests show that neither the coefficient on nor the incremental explanatory power of the book value of equity is significantly higher in unconsolidated accounts.

6.2 Is there an influence of accounting standards?

The findings documented in the previous sections may be affected by the use of different accounting frameworks for group accounts. To address such problems, we now divide our sample into two partitions according to the accounting regime used for group accounts. Because of the small number of US GAAP observations, we construct only one "international" sub-sample, which includes firms that prepare group accounts under IFRS or US GAAP. The "domestic" sub-sample includes firms that use German GAAP for consolidation purposes.

We only apply tests that compare the properties of consolidated and unconsolidated earnings in the respective sub-samples. We do not test whether the difference between single and group accounts for German GAAP firms is more pronounced than the difference between single and
group accounts for IFRS or US GAAP firms. Testing which difference turns out to be higher would ignore the differences in the composition of the two sub-samples. First, the companies in
the German GAAP and the “international GAAP” sub-samples are likely to have different
characteristics (as e.g., leverage, firm size, listing), which may affect the properties of earnings. Second, the companies choose whether they want to prepare their group accounts under the
national or an international framework and thus sample selection bias may be also an issue.

We replicate only the tests for net income performed in the previous sections. We do not test for
sub-sample differences in operating income properties because the amount and characteristics of
consolidated information is likely to vary systematically among the sub-samples, which may bias
our inferences. Test results are reported in Table 7. We start with the analysis of persistence and
predictability of earnings. The third column of Table 7 reports statistics for the difference in
persistence and predictability of single versus group income for the sub-sample of firms with
consolidated accounts under German GAAP. Group accounts have higher persistence and
predictability, but the difference is not significant. Results for the sub-sample of firms using an
international accounting framework for consolidation purposes (reported in the forth column)
show significant difference in persistence and predictability on the 1% and 10% level, respectively. Levels of persistence and predictability of consolidated net income prepared under
international accounting rules are significantly higher compared to unconsolidated “domestic”
earnings.

- Insert Table 7 about here -

Using “international” consolidated data in the value relevance regression reveals that the
earnings response coefficient is significantly higher than the coefficient on unconsolidated
“domestic” earnings (p<0.05). The same difference for German GAAP is not statistically
pronounced. We find no significant differences in the explanatory power of accounting data either in the German GAAP or in the “international GAAP” sub-sample. The $R^2$ for consolidated data is higher; however, this difference is not significant on the conventional level.

Panel C of Table 7 reports the results for earnings management. We find significant differences in earnings smoothing between company and group accounts in both sub-samples. The results for the discretion in reported earnings are comparable to the results reported in Table 4. Our tests provide evidence that the level of financial and tax alignment in company accounts is higher than in group accounts, regardless which accounting framework was chosen for consolidation purposes.

Timeliness and conditional conservatism are higher and unconditional conservatism is lower in group accounts, and it does not matter whether German GAAP or an international framework was used for consolidation purposes. The difference in the level of unconditional conservatism between the company and group accounts is statistically pronounced in both sub-samples. We find no statistically significant differences between the overall timeliness of earnings of company and group accounts in both sub-samples. The results reported in Panel D of Table 7 are, however, substantially different across the two sub-samples in respect to the recognition of bad and good news. “International” group accounts recognize a significantly higher proportion of bad news than “domestic” single accounts ($p<0.01$). The incremental recognition of bad news is also statistically more pronounced ($p<0.01$). The difference in bad news recognition is not significant but the difference in conditional conservatism is significant on the 10% level for the German GAAP sub-sample. German GAAP group accounts, however, recognize a sufficiently larger proportion of good news in accounting earnings than German GAAP single accounts ($p<0.01$).
Panel E of Table 7 reports results for the dividend policy regression. We obtained very high levels of $R^2$ in both sub-samples. Again, the difference in explanatory power of group data is slightly higher, but this difference is not statistically pronounced. Obviously, there are no differences resulting from the application of various accounting frameworks in group accounts.

We find that the use of different accounting standards for consolidation purposes does not seriously affect the inferences of the previous sections. Group accounts still perform generally better than the company accounts with respect to the information function and debt contracting. Company accounts show higher financial and tax alignment irrespective of the accounting framework used for consolidation purposes. German GAAP consolidated earnings qualitatively show at least the same properties as German GAAP single accounts. The difference between consolidated earnings prepared under IFRS or US GAAP and German GAAP unconsolidated earnings is mostly economically and statistically pronounced. Consolidated earnings prepared under an international framework better fulfil the requirements of financial accounting than single “domestic” accounts. This difference is either due to accounting standards *per se* or due to reporting incentives. “International” consolidated accounts may fade out the German GAAP single accounts in the eyes of the stakeholders. Therefore, the demand for German GAAP single accounts with IFRS or US GAAP consolidated companion accounts is likely to be lower.\(^{11}\)

7 Conclusions

\(^{11}\) SAP AG is one of the examples. SAP listed in Germany and the US uses US GAAP for consolidation purposes. Despite the high level of information disclosed yearly by the company, SAP does not publish company accounts in English. Only one-sheet-long presentation of balance sheet and income statement is shown in the English version of the annual report in 2004. The full version of single accounts is available in German. It seems that the demand for single accounts disclosure at least for the outside investors of SAP is lower.
In our paper, we analyse the economic role of company and group accounts in Germany. Since 1998, companies had the choice between German GAAP (GAS), IFRS and US GAAP standards for group accounting. Since 2005 – what is beyond our observation period – listed firms have to prepare group accounts in accordance with IFRS. However, company accounts (still) have to be prepared following German GAAP. We ask whether German GAAP single accounts better fulfil at least some functions of accounting compared to group accounts what would, in fact, justify their existence. To answer this question, we look at numerous earnings properties used in previous research. We find that, whatever accounting standards were chosen for group accounting, earnings quality is on average always higher in group accounts. Additional tests taking financial distress and the choice of group accounting standards into account show that the results are robust and that the increase in earnings quality is most evident when moving from German GAAP single accounts to IFRS or US GAAP group accounts. Qualitatively, the role of company accounts is only more pronounced in respect of the alignment of financial and tax accounts. In all other areas, group accounts either fulfil the different functions of accounting better, or equally well. Thus, company accounts are only interesting for tax purposes. Whether this is "informative" for any addressee of accounting must seriously be queried.

Overall, there does not seem to be any economic justification for requiring holding companies to prepare single accounts. We conclude that there is no particular need for single accounts prepared under German GAAP and that the role of single accounts in determining legal consequences is over-emphasised by law-makers: Group accounts either are better in fulfilling the roles of accounting or they perform equally well. In 2003, the AKEU\textsuperscript{12} published recommendations concerning the use of IFRS in single accounts. Even though the AKEU
suggests a broad use of IFRS it supports the idea of functionally separating general purpose accounting from accounting for tax, dividend payout and solvency test objectives. The idea of keeping special accounts for the latter purposes is due to Germany’s legal traditions in commercial and corporate law (and certainly the relatively short tradition of group accounting) that would make connecting legal consequences to group accounts a difficult and complex reformatory task. However, at least in the long run, our findings suggest that group accounts (or IFRS single accounts of companies not being subject to consolidation) could generally fulfil a vast range of purposes, including e.g. payout decisions, making them a (better) substitute for single accounts. Therefore, single accounts of consolidated companies need neither to be prepared nor to be published. Whether tax accounting has to be separated from financial accounting is, until now, an open question. Jacobs et al. (2005) show that the effective tax burden under IFRS would even grow slightly. Therefore, IFRS should not pose a problem for the national tax regulation as the tax payments will increase or, if the higher tax burden is not desired, could be offset by lower tax rates.

Our findings and implications for the law makers are generalizable for other European countries with similar institutional set up as Germany. In the short run, a complete abolishment of single accounts in such countries may pose institutional problems. As the use of different sets of standards for company and group accounting, in fact, causes higher reporting costs, letting firms prepare their accounts using different frameworks will lead to misallocation in the economy. The use of IFRS for single company accounts in Europe could be a cheap alternative to this problem. Regulators therefore should deliberate on the question why they did not opt for the choice in IAS

12 AKEU is the Financial Accounting Committee of the German Smalenbach-Gesellschaft für Betriebswirtschaft, the Germany’s leading management association.
Regulation (EC) 1606/2002 that allowed national legislators to extend IFRS accounting to company accounts. From an economic point of view, their decision seems not a good one.
References


Lintner, J. (1956): Distribution of Incomes of Corporations Among Dividends, Retained

Lipe, R. (1990): The Relation Between Stock Returns and Accounting Earnings Given


Van Tendeloo, B./Vanstraelen A. (2005): Earnings Management under German GAAP versus


Table 1: Descriptive statistics

Panel A: Descriptive statistics for the whole sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Q1</th>
<th>Median</th>
<th>Q3</th>
</tr>
</thead>
<tbody>
<tr>
<td>MV</td>
<td>2,003,621</td>
<td>10,400,000</td>
<td>21,145</td>
<td>64,560</td>
<td>267,694</td>
</tr>
<tr>
<td>TAU</td>
<td>78.352</td>
<td>131.635</td>
<td>11.095</td>
<td>25.249</td>
<td>69.786</td>
</tr>
<tr>
<td>TAC</td>
<td>118.937</td>
<td>194.022</td>
<td>16.322</td>
<td>38.485</td>
<td>110.694</td>
</tr>
<tr>
<td>NIU</td>
<td>4.163</td>
<td>9.820</td>
<td>0.092</td>
<td>1.174</td>
<td>3.743</td>
</tr>
<tr>
<td>NIC</td>
<td>5.957</td>
<td>14.019</td>
<td>0.075</td>
<td>1.692</td>
<td>4.774</td>
</tr>
<tr>
<td>OPINCu</td>
<td>2.103</td>
<td>8.788</td>
<td>-0.403</td>
<td>0.131</td>
<td>1.933</td>
</tr>
<tr>
<td>OPINCc</td>
<td>7.071</td>
<td>16.654</td>
<td>0.266</td>
<td>2.210</td>
<td>5.977</td>
</tr>
</tbody>
</table>

Panel B: Medians of net income for accounting standards sub-samples

<table>
<thead>
<tr>
<th></th>
<th>Sub-sample of firm-years with domestic single and domestic group accounts</th>
<th>Sub-sample of firm-years with domestic single and international group accounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIU</td>
<td>0.091</td>
<td>0.031</td>
</tr>
<tr>
<td>NIC</td>
<td>0.128</td>
<td>0.041</td>
</tr>
<tr>
<td>Difference (Z-test)</td>
<td>9.47***</td>
<td>2.61***</td>
</tr>
</tbody>
</table>

*, ** and *** indicate statistical significance at 10%, 5% and 1% respectively. MV is market value at the year end in thEUR, TAU and TAC are total assets in thEUR as shown in company and group accounts respectively. NIU is net income before extraordinary items and income taxes as shown in company accounts scaled by the number of shares outstanding in Panel A and by the lagged market value of equity in Panel B. NIC is net income before extraordinary items and income taxes as shown in group accounts scaled by the number of shares outstanding in Panel A and by the lagged market value of equity in Panel B. OPINCu and OPINCc is operating income per share as shown in company and group accounts respectively. Domestic single and group accounts are prepared using German GAAP. International group accounts are prepared using IFRS or US GAAP. The medians are compared using the Wilcoxon matched-pairs signed-ranks test (the values of the Z-test are shown in the last row of Panel B).
Table 2: Persistence and predictability of consolidated versus unconsolidated earnings

<table>
<thead>
<tr>
<th>Coefficients on model parameters</th>
<th>Economic role of test proxies</th>
<th>Company accounts</th>
<th>Consolidated accounts</th>
<th>Test for a difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>Economic role of test proxies</td>
<td>0.023</td>
<td>0.105</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.004)***</td>
<td>(0.009)***</td>
<td></td>
</tr>
<tr>
<td>OPINC(_{jt-1})</td>
<td>Earnings persistence/informativeness to outside investors</td>
<td>0.028</td>
<td>0.273</td>
<td>17.94***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.025)</td>
<td>(0.053)***</td>
<td></td>
</tr>
<tr>
<td>(R^2)</td>
<td>Predictability of earnings/informativeness to outside investors</td>
<td>0.017</td>
<td>0.193</td>
<td>1.82*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.083)</td>
<td>(0.050)***</td>
<td></td>
</tr>
</tbody>
</table>

**Panel A: Operating income**

<table>
<thead>
<tr>
<th>Intercept</th>
<th>Economic role of test proxies</th>
<th>Company accounts</th>
<th>Consolidated accounts</th>
<th>Test for a difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPINC(_{jt-1})</td>
<td>Earnings persistence/informativeness to outside investors</td>
<td>0.405</td>
<td>0.477</td>
<td>1.20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.068)***</td>
<td>(0.069)***</td>
<td></td>
</tr>
<tr>
<td>(R^2)</td>
<td>Predictability of earnings/informativeness to outside investors</td>
<td>0.240</td>
<td>0.325</td>
<td>1.06</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.051)***</td>
<td>(0.063)***</td>
<td></td>
</tr>
</tbody>
</table>

*, ** and *** indicate statistical significance at 10%, 5% and 1% respectively. Regression of income on lagged income. OPINC\(_{jt}\) is operating income scaled by the mean market value of equity. NI\(_{jt}\) is net income before extraordinary items and taxes scaled by the mean market value of equity. White-adjusted standard errors of coefficients are shown in parentheses. Coefficients are compared with the \(\chi^2\)-test. \(R^2\) are compared with the Z-test using bootstrapped standard errors shown in parentheses under the appropriate values of \(R^2\).
Table 3: Value relevance of consolidated versus unconsolidated earnings

<table>
<thead>
<tr>
<th>Coefficients on model parameters</th>
<th>Economic role of test proxies</th>
<th>Company accounts</th>
<th>Consolidated accounts</th>
<th>Test for a difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td></td>
<td>-0.030</td>
<td>-0.048</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.013)***</td>
<td>(0.014)***</td>
<td></td>
</tr>
<tr>
<td>OPINC&lt;sub&gt;j&lt;/sub&gt;</td>
<td>Earnings response coefficient/Informativeness to outside investors</td>
<td>0.084</td>
<td>0.106</td>
<td>0.37</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.037)***</td>
<td>(0.026)***</td>
<td></td>
</tr>
<tr>
<td>∆OPINC&lt;sub&gt;j&lt;/sub&gt;</td>
<td></td>
<td>0.211</td>
<td>0.115</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.066)***</td>
<td>(0.040)***</td>
<td></td>
</tr>
<tr>
<td>R&lt;sup&gt;2&lt;/sup&gt;</td>
<td>Value relevance/Informativeness to outside investors</td>
<td>0.027</td>
<td>0.050</td>
<td>1.07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.013)***</td>
<td>(0.016)***</td>
<td></td>
</tr>
</tbody>
</table>

Panel A: Operating income

Panel B: Net income

*, ** and *** indicate statistical significance at 10%, 5% and 1% respectively. Regression of market returns, measured over a year period ending six months after a balance sheet date, on NI<sub>j</sub> (OPINC<sub>j</sub>) and changes in NI<sub>j</sub> (changes in OPINC<sub>j</sub>). NI<sub>j</sub> (OPINC<sub>j</sub>) is net income before extraordinary items and taxes (operating income) per share scaled by the lagged price per share. White-adjusted standard errors of coefficients are shown in parentheses. Coefficients are compared with the χ<sup>2</sup>-test. R<sup>2</sup> are compared with the Z-test using bootstrapped standard errors shown in parentheses under the appropriate values of R<sup>2</sup>.
Table 4: Extent of earnings management in consolidated versus unconsolidated earnings

<table>
<thead>
<tr>
<th>Panel A: Operating income</th>
<th>Panel B: Net income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proxies</td>
<td>Economic role of test proxies</td>
</tr>
<tr>
<td>( \rho(\Delta ACC_{jt}, \Delta CFO_{jt}) )</td>
<td>Earnings smoothing/Informativeness to outside investors</td>
</tr>
<tr>
<td>( \sigma(OPINC_{jt})/\sigma(CFO_{jt}) )</td>
<td>Earnings smoothing/Informativeness to outside investors</td>
</tr>
<tr>
<td>(</td>
<td>ACC_{jt}</td>
</tr>
</tbody>
</table>

*, ** and *** indicate statistical significance at 10%, 5% and 1% respectively. \( \rho(\Delta ACC_{jt}, \Delta CFO_{jt}) \) is the Spearman correlation between changes in accruals (computed as changes in working capital scaled by the lagged market value of equity) and changes in cash flow from operations (computed as operating income less accruals scaled by the lagged market value of equity). The correlations are compared using the Z-test for correlation coefficients. \( \sigma(OPINC_{jt})/\sigma(CFO_{jt}) \) is the median of firm-level standard deviation of operating income divided by the standard deviation of cash flow from operations. The medians are compared using the Wilcoxon matched-pairs signed-ranks test. \( |ACC_{jt}|/|CFO_{jt}| \) is the median of the firm-level ratio of absolute values of accruals to the absolute values of cash flow from operations. The medians are

\[
\rho(\Delta ACC_{jt}, \Delta CFO_{jt}) = \text{Spearman correlation between changes in accruals and changes in cash flow from operations.}
\]

\[
\sigma(OPINC_{jt})/\sigma(CFO_{jt}) = \text{Median of firm-level standard deviation of operating income divided by the standard deviation of cash flow from operations.}
\]

\[
|ACC_{jt}|/|CFO_{jt}| = \text{Median of the firm-level ratio of absolute values of accruals to the absolute values of cash flow from operations.}
\]
compared using the Wilcoxon matched-pairs signed-ranks test. $|\Delta NI_{jt}|/MV_{jt}$ is the median of the firm-level ratio of changes in net income before extraordinary items and taxes and the lagged market value of equity. The medians are compared using the Wilcoxon matched-pairs signed-ranks test. The % of small profits is the number of net income (scaled by the lagged market value of equity) observations in the interval $[0;0.01]$ divided by the overall number of net income observations. Proportions are compared using Z-test for two proportions. The % of observations in the second positive interval is the number of net income (scaled by the lagged market value of equity) observations in the interval $(0.01;0.02]$ divided by the number of net income observations $[0;0.02]$. Proportions are compared using Z-test for two proportions.

Table 5: Timeliness of consolidated versus unconsolidated earnings

<table>
<thead>
<tr>
<th>Coefficients on model parameters</th>
<th>Economic role of test proxies</th>
<th>Company accounts</th>
<th>Consolidated accounts</th>
<th>Test for a difference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A: Operating income</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td></td>
<td>0.127 (0.047)**</td>
<td>0.539 (0.109)**</td>
<td></td>
</tr>
<tr>
<td>$R_{jt}$</td>
<td>Timeliness of good news/Informativeness to outside investors</td>
<td>0.100 (0.029)**</td>
<td>0.291 (0.066)**</td>
<td>9.02***</td>
</tr>
<tr>
<td>$RD_{jt}$</td>
<td></td>
<td>0.001 (0.062)</td>
<td>-0.027 (0.131)</td>
<td></td>
</tr>
<tr>
<td>$R_{jt} * RD_{jt}$</td>
<td>Conditional conservatism/Efficient debt contracting</td>
<td>0.169 (0.091)*</td>
<td>0.600 (0.148)**</td>
<td>7.23***</td>
</tr>
<tr>
<td>$R_{jt} + R_{jt} * RD_{jt}$</td>
<td>Timeliness of bad news/Efficient debt contracting</td>
<td></td>
<td></td>
<td>17.86***</td>
</tr>
<tr>
<td>Intercept + $RD_{jt}$</td>
<td>Unconditional conservatism/Tax management</td>
<td></td>
<td></td>
<td>23.31***</td>
</tr>
<tr>
<td>$R^2$</td>
<td>Overall timeliness/Informativeness to outside investors</td>
<td>0.077 (0.039)**</td>
<td>0.141 (0.051)**</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Panel B: Net income</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td></td>
<td>0.244 (0.047)**</td>
<td>0.313 (0.060)**</td>
<td></td>
</tr>
<tr>
<td>$R_{jt}$</td>
<td>Timeliness of good news/Informativeness to outside investors</td>
<td>0.157 (0.035)**</td>
<td>0.205 (0.045)**</td>
<td>7.97***</td>
</tr>
</tbody>
</table>
Table 6: Role of consolidated and unconsolidated earnings in the dividend policy

<table>
<thead>
<tr>
<th>Coefficients on model parameters</th>
<th>Economic role of test proxies</th>
<th>Company accounts</th>
<th>Consolidated accounts</th>
<th>Test for a difference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A: Operating income</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td></td>
<td>0.383</td>
<td>0.354</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.024)**</td>
<td>(0.023)**</td>
<td></td>
</tr>
<tr>
<td>OPINC&lt;sub&gt;jt&lt;/sub&gt;</td>
<td></td>
<td>0.011</td>
<td>0.010</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.005)**</td>
<td>(0.003)**</td>
<td></td>
</tr>
<tr>
<td>DIV&lt;sub&gt;jt-1&lt;/sub&gt;</td>
<td></td>
<td>-0.964</td>
<td>-0.966</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.031)**</td>
<td>(0.030)**</td>
<td></td>
</tr>
<tr>
<td><strong>R&lt;sup&gt;2&lt;/sup&gt;</strong></td>
<td>Determination of dividend policy</td>
<td>0.957</td>
<td>0.958</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.081)</td>
<td>(0.077)**</td>
<td></td>
</tr>
<tr>
<td><strong>Panel B: Net income</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intercept</td>
<td></td>
<td>0.362</td>
<td>0.346</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.023)**</td>
<td>(0.022)**</td>
<td></td>
</tr>
<tr>
<td>NI&lt;sub&gt;jt&lt;/sub&gt;</td>
<td></td>
<td>0.018</td>
<td>0.018</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.005)**</td>
<td>(0.004)**</td>
<td></td>
</tr>
<tr>
<td>DIV&lt;sub&gt;jt-1&lt;/sub&gt;</td>
<td></td>
<td>-0.964</td>
<td>-0.967</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.031)**</td>
<td>(0.029)**</td>
<td></td>
</tr>
</tbody>
</table>

*, ** and *** indicate statistical significance at 10%, 5% and 1% respectively. Piecewise linear regression of income on returns. Dependent variable is either operating income scaled by the lagged market value of equity (OPINC<sub>jt</sub>) or net income before extraordinary items and taxes scaled by the lagged market value of equity (NI<sub>jt</sub>). R<sub>jt</sub> is the fiscal-year stock return, adjusted for the year’s median return. RD<sub>jt</sub> is a dummy variable equaling one if R<sub>jt</sub> is negative and zero otherwise. White-adjusted standard errors of coefficients are shown in parentheses. Coefficients are compared with the \(\chi^2\)-test. R<sup>2</sup> are compared with the Z-test using bootstrapped standard errors shown in parentheses under the appropriate values of R<sup>2</sup>.
Determination of dividend policy

\[ R^2 \]

<table>
<thead>
<tr>
<th>Determination of dividend policy</th>
<th>0.956</th>
<th>0.957</th>
<th>0.01</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0.079)***</td>
<td>(0.077)***</td>
<td></td>
</tr>
</tbody>
</table>

*, ** and *** indicate statistical significance at 10%, 5% and 1% respectively. Regression of dividends changes per share on income per share and lagged dividends per share. OPINC\(_{jt}\) is operating income per share. NI\(_{jt}\) is net income before extraordinary items and taxes per share. DIV\(_{jt-1}\) is the lagged dividends per share. White-adjusted standard errors of coefficients are shown in parentheses. \( R^2 \) are compared with the Z-test using bootstrapped standard errors shown in parentheses under the appropriate values of \( R^2 \).

Table 7: Influence of accounting standards

<table>
<thead>
<tr>
<th>Proxies</th>
<th>Economic role of test proxies</th>
<th>Test for a difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Domestic single vs. domestic group</td>
</tr>
<tr>
<td>NI(_{jt-1})</td>
<td>Earnings persistence/Informativeness to outside investors</td>
<td>0.31</td>
</tr>
<tr>
<td>( R^2 )</td>
<td>Predictability of earnings/Informativeness to outside investors</td>
<td>0.52</td>
</tr>
</tbody>
</table>

**Panel A: Persistence and predictability**

**Panel B: Value relevance**

<table>
<thead>
<tr>
<th>Proxies</th>
<th>Economic role of test proxies</th>
<th>Test for a difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NI(_{jt})</td>
<td>Earnings response coefficient/Informativeness to outside investors</td>
<td>0.01</td>
</tr>
<tr>
<td>( R^2 )</td>
<td>Value relevance/Informativeness to outside investors</td>
<td>0.92</td>
</tr>
</tbody>
</table>
**Panel C: Earnings management**

| $|\Delta NI_{jt}|/MV_{jt}$ | Earnings smoothing/ Informativeness to outside investors | 2.25** | 2.40** |
|---|---|---|---|
| % of small losses | Discretion in earnings/ Tax management | -2.91*** | -2.50** |
| % of observations in the second positive interval | Discretion in earnings/ Tax management | 13.10*** | 8.84*** |

**Panel D: Timeliness and conservatism**

<table>
<thead>
<tr>
<th>$R_{jt}$</th>
<th>Timeliness of good news/ Informativeness to outside investors</th>
<th>7.91***</th>
<th>-0.07</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R_{jt} * RD_{jt}$</td>
<td>Conditional conservatism/ Efficient debt contracting</td>
<td>1.85</td>
<td>7.49***</td>
</tr>
<tr>
<td>$R_{jt} + R_{jt} * RD_{jt}$</td>
<td>Timeliness of bad news/ Efficient debt contracting</td>
<td>3.27*</td>
<td>7.66***</td>
</tr>
<tr>
<td>Intercept + $RD_{jt}$</td>
<td>Unconditional conservatism/ Tax management</td>
<td>6.41**</td>
<td>4.81**</td>
</tr>
<tr>
<td>$R^2$</td>
<td>Overall timeliness/ Informativeness to outside investors</td>
<td>0.44</td>
<td>1.21</td>
</tr>
</tbody>
</table>

**Panel E: Dividend policy**

| $R^2$ | Determination of dividend policy | 0.01 | 0.16 |

*, ** and *** indicate statistical significance at 10%, 5% and 1% respectively. Comparison of the difference between the properties of unconsolidated and consolidated net income (before extraordinary items and taxes) for the sub-sample of firms preparing group accounts using an international framework (IFRS or US GAAP) and the sub-sample of firms using German GAAP for consolidation purposes. Proxies and tests for a difference are explained in Tables 2 to 6.