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Earnings Management under German GAAP versus IFRS

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ABSTRACT This paper addresses the question whether voluntary adoption of International Financial Reporting Standards (IFRS) is associated with lower earnings management. Ball *et al.* (Journal of Accounting and Economics, 36(1–3), pp. 235–270, 2003) argue that adopting high quality standards might be a necessary condition for high quality information, but not necessarily a sufficient one. In Germany, a code-law country with low investor protection rights, a relatively large number of companies have chosen to voluntarily adopt IFRS prior to 2005. We investigate whether German companies that have adopted IFRS engage significantly less in earnings management compared to German companies reporting under German generally accepted accounting principles (GAAP), while controlling for other differences in earnings management incentives. Our sample, consisting of German listed companies, contains 636 firm-year observations relating to the period 1999–2001. Our results suggest that IFRS-adopters do not present different earnings management behavior compared to companies reporting under German GAAP. These findings contribute to the current debate on whether high quality standards are sufficient and effective in countries with weak investor protection rights. They indicate that voluntary adopters of IFRS in Germany cannot be associated with lower earnings management.

1. Introduction

The International Accounting Standards (IAS), now renamed as International Financial Reporting Standards (IFRS), have been developed to harmonize corporate accounting practice and to answer the need for high quality standards to be adopted in the world's major capital markets.

Ball *et al.* (2003) argue that adopting high quality standards might be a necessary condition for high quality information, but not necessarily a sufficient one. This

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paper contributes to this debate by examining whether the adoption of high quality standards like IFRS is associated with high financial reporting quality. In particular, we question whether IFRS are sufficient to override managers' incentives to engage in earnings management and affect the quality of reported earnings.

Previous research provides evidence that the magnitude of earnings management is on average higher in code-law countries with low investor protection rights, compared to common-law countries with high investor protection rights (Leuz *et al.*, 2003). Hence, to assess whether firms that report under IFRS can be associated with higher earnings quality we focus on Germany, which is a code-law country with relatively low investor protection rights (La Porta *et al.*, 2000). Moreover, a relatively large number of German companies have already voluntarily chosen to adopt IFRS prior to 2005. This allows a comparison between companies that have adopted IFRS versus companies that report under domestic generally accepted accounting principles (GAAP).

The results of our research show that IFRS do not impose a significant constraint on earnings management, as measured by discretionary accruals. On the contrary, adopting IFRS seems to increase the magnitude of discretionary accruals. Our results further suggest that companies that have adopted IFRS engage more in earnings smoothing, although this effect is significantly reduced when the company has a Big 4 auditor. However, hidden reserves, which are allowed under German GAAP to manage earnings, are not entirely picked up by the traditional accruals measures. When hidden reserves are taken into consideration, our results show that IFRS-adopters do not present different earnings management behavior compared to companies reporting under German GAAP. Hence, our results indicate that adopters of IFRS cannot be associated with lower earnings management. This finding suggests that the adoption of high quality standards is not a sufficient condition for providing high quality information in code-law countries with low investor protection rights.

The remainder of this paper is organized as follows. In Section 2, we review the relevant literature and provide the theoretical background of the paper. Section 3 provides an overview of the German accounting system. In Section 4, we formulate the research hypotheses. Section 5 describes the research design. The results of the study are presented in Section 6. Finally, in Section 7, we summarize our results, discuss the implications and limitations of our analysis and give suggestions for further research.

2. Previous Literature

2.1. Adoption of International Accounting Standards

The International Accounting Standards Committee (IASC), which was established in 1973 and now renamed as the International Accounting Standards Board (IASB), aims to achieve uniformity in the accounting standards used by

businesses and other organizations for financial reporting around the world (IASB website). The benefits of the adoption of international accounting standards are considered to be the following. First, it should improve the ability of investors to make informed financial decisions and eliminate confusion arising from different measures of financial position and performance across countries, thereby leading to a reduced risk for investors and a lower cost of capital for companies. Second, it should lower costs arising from multiple reporting. Third, it should encourage international investment. Finally, it should lead to a more efficient allocation of savings worldwide (Street *et al.*, 1999).

The original International Accounting Standards were mostly descriptive in nature and contained many alternative treatments. Because of this flexibility and a continuing lack of comparability across countries, the standards came under heavy criticism in the late 1980s. In response to this criticism, the IASC started the Comparability Project in 1987. The revised standards, which became effective in 1995, substantially reduced the alternative treatments and increased the disclosure requirements (Nobes, 2002). In July 1995, the IASC and the International Organization of Securities Commission (IOSCO) agreed to a list of accounting issues that needed to be addressed for obtaining IOSCO's endorsement of the standards. The subsequent Core Standards Project led again to substantial revisions of IAS. In May 2000, the IASC received IOSCO's endorsement subject to 'reconciliation where necessary to address substantive outstanding issues at a national or regional level' (IOSCO Press Release, 17 May 2000). The Core Standards Project has brought a wider recognition to IAS around the world. For example, the European Parliament has issued a regulation (1606/2002/EC) requiring all EU listed companies to prepare consolidated financial statements based on International Accounting Standards by 2005. In a number of countries, including Austria, Belgium, France, Germany, Italy and Switzerland, companies were already permitted to prepare consolidated financial statements under IFRS (or US GAAP) prior to 2005.

Since German accounting standards and disclosure practices have been criticized in the investor community (Leuz and Verrechia, 2000), a relatively large number of German firms have adopted international accounting standards such as IFRS or US GAAP. This switch is thought to represent a substantial commitment to transparent financial reporting for the following two reasons. First, IFRS adoption itself might effectively enhance financial reporting quality. Second, firms which adopt IFRS or US GAAP might do so because they have higher incentives to report transparently, such as high financing needs. In this case, IFRS serves as a proxy for a credible commitment to higher quality accounting. A study conducted by Dumontier and Raffournier (1998) with Swiss data reveals that early adopters of IFRS 'are larger, more internationally diversified, less capital intensive and have a more diffuse ownership'. They argue that the decision to apply IFRS is primarily influenced by political costs and pressures from outside markets. Murphy (1999) also used Swiss data to study the determinants of the adoption of IFRS. She found that companies that adopt IFRS have a

higher percentage of foreign sales and a higher number of foreign exchange listings. El-Gazzar *et al.* (1999) found the same relationships using data from various countries. In addition, they concluded that being domiciled in an EU country and having a lower debt to equity ratio is positively associated with the adoption of IFRS. Other determinants of the adoption of international standards mentioned in the literature include a high profitability, the issuance of equity during the year of adoption, domestic GAAP differing significantly from IFRS or US GAAP and, related to the latter, being domiciled in a country with a bank-oriented financial system (Ashbaugh, 2001; Cuijpers and Buijink, 2003).

Not all companies that seek the international investment status that comes with the adoption of IFRS are, however, willing to fulfill all of the requirements and obligations involved. According to a study by Street and Gray (2002) there is a significant non-compliance with IFRS in 1998 company reports, especially in the case of IFRS disclosure requirements. With the revision of IAS 1, effective for financial statements covering periods beginning on or after 1 July 1998, financial statements are prohibited from noting compliance with International Accounting Standards 'unless they comply with all the requirements of each applicable Standard and each applicable Interpretation of the Standing Interpretations Committee'.

All companies included in our IFRS sample mention IFRS compliance in their financial statements after the revised IAS 1 became effective. Nevertheless, adopters of IFRS that appear to be fully compliant might as well be falsely signaling to be of high quality. Ball *et al.* (2000) argue that firms' incentives to comply with accounting standards depend on the penalties assessed for non-compliance. When costs of complying to IFRS are viewed to exceed the costs of non-compliance, substantial non-compliance will continue to be a problem. While the main objective of adopting IFRS is considered to be enhancing the quality of the information provided in the financial statements, Ball *et al.* (2003) further suggest that adopting high quality standards might be a necessary condition for high quality information but not a sufficient condition. If the adoption of IFRS cannot be associated with significantly higher financial reporting quality, IFRS adoption cannot serve as a signaling instrument for a credible commitment to higher quality accounting. This study addresses this issue empirically.

2.2. Earnings Management: Incentives and Constraints

One way of assessing the quality of reported earnings is examining to what extent earnings are managed, with the intention to 'either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers' (Healy and Wahlen, 1999). Incentives for earnings management, either through accounting decisions or structuring transactions, are ample. Managers may be inclined to manage earnings due to the existence of explicit and implicit contracts, the

firm's relation with capital markets, the need for external financing, the political and regulatory environment or several other specific circumstances (Vander Bauwhede, 2001).

A number of studies suggest that the quality of reported financial statement information is in large part determined by the underlying economic and institutional factors influencing managers' and auditors' incentives. According to Ball *et al.* (2000) the demand for accounting income differs systematically between common-law and code-law countries. In common-law countries, which are characterized by arm's length debt and equity markets, a diverse base of investors, high risk of litigation and strong investor protection, accounting information is designed to meet the needs of investors. In code-law countries, capital markets are less active. Investor protection is weak, litigation rates are lower and companies are more financed by banks, other financial institutions and the government, which results in less need for public disclosure. Accounting information is therefore designed more to meet other demands, including reduction in political costs and determination of income tax and dividend payments (Ball *et al.*, 2000; La Porta *et al.*, 2000). Leuz *et al.* (2003) show that earnings management is more prevalent in code-law countries compared to common-law countries. The benefits (e.g. enhanced liquidity) of engaging in earnings management appear to outweigh the costs (e.g. litigation) more in countries with weak investor protection rights. Firms which adopt IFRS, however, can be expected to have incentives to report investor-oriented information and thus engage significantly less in earnings management than non-adopters. On the other hand, low enforcement and low litigation risk might encourage low quality firms to falsely signal to be of high quality by adopting IFRS. This study addresses the question whether adoption of IFRS is associated with lower earnings management in Germany, which La Porta *et al.* (2000) classify as a country with low investor protection rights.

Accounting rules can limit a manager's ability to distort reported earnings. But the extent to which accounting rules influence reported earnings and curb earnings management depends on how well these rules are enforced (Leuz *et al.*, 2003). Apart from clear accounting standards, strong investor and creditor protection requires a statutory audit, monitoring by supervisors and effective sanctions (FEE, 2002).

A number of studies have shown that Big 4[1] auditors constitute a constraint on earnings management (DeFond and Jiambalvo, 1991, 1994; Becker *et al.*, 1998; Francis *et al.*, 1999; Gore *et al.*, 2001). However, the results of Maijoor and Vanstraelen (2002) and Francis and Wang (2003) document that the constraint constituted by a Big 4 auditor on earnings management is not uniform across countries. Street and Gray (2002) find support for the fact that being audited by a large audit firm is also positively associated with IFRS compliance, both in the case of disclosure requirements as in the case of measurement and presentation requirements. In this respect, we question whether adoption of IFRS by a company has a stronger effect on the quality of earnings of that company when audited by a Big 4 audit firm.

Firms with a foreign exchange listing are presumed to have greater incentives to report transparently because they are subject to restrictions imposed by different countries and are exposed to a higher litigation risk. Therefore, it can be expected that earnings quality is enhanced when listed on an international capital market (Ball *et al.*, 2000, 2003). For the same reason, compliance with IFRS can be expected to be larger with these companies compared to companies with only national sources of capital. The results of Street and Gray (2002) support this. They found a positive association between a US listing and/or a non-regional listing and compliance with IFRS disclosure requirements. In this respect, we question whether firms in code-law countries, like Germany, without a cross-listing on an international capital market could falsely signal to be of high quality, making it difficult for the capital market to distinguish between high or low transparency adopters of IFRS. If so, a more effective way of signaling high quality for firms in code-law countries would be to list in a high-transparent common-law country, exposing themselves to common-law penalties for low quality disclosure (Ball *et al.*, 2000, 2003). Hence, we question whether adoption of IFRS by a firm has a stronger effect on the quality of earnings of that firm when cross-listed on a well-developed capital market that is demanding in terms of information quality and transparency.

3. Overview of the German Accounting System

Germany can be classified as a code-law country with weak investor protection rights (La Porta *et al.*, 2000). A good overview of the German accounting system is provided by Harris *et al.* (1994), Ball *et al.* (2000) and Macharzina and Langer (2002). German firms have historically relied heavily on debt, usually from a few banks. Large ownership blocks by other corporations or individuals are common, with banks often owning shares and acting as trustees for the funds of small investors. The objectives of the German accounting system are to preserve equity, protect creditors and facilitate the computation of taxable income. Financial statements form the basis for tax accounts. Since expenses are only tax deductible if they are included in the commercial accounts, the influence of tax law largely determines accounting for individual company financial statements. Guenther and Young (2000) argue that in countries where there is a conformity between financial and tax accounting rules 'financial accounting information may differ from underlying economic activities because firms attempt to minimize taxable income'. Managers are given a large number of options regarding inclusion and valuation of items in the balance sheet and the opportunity to control net income. The 'true and fair' view concept is subordinated to compliance to individual provisions of law and the dominant principle of valuation is prudence. As a result, German accounting is in general rather conservative.[2] This tendency towards conservative reporting is reinforced by law, preventing management from retaining more than half of net income for the year, and strong labor unions, with substantial representations on

the supervisory boards, strengthening their demands when reported earnings are higher. However, while German accounting is widely presumed to be conservative because of the reduction of reported income during good years, German managers also tend to increase reported income in bad years. German firms can thus be expected to engage particularly in a specific form of earnings management, called earnings smoothing, to reduce the volatility of reported earnings. Earnings smoothing is facilitated through the allowed use of hidden reserves, which can be created by building up unjustified provisions, recognizing excessive depreciation of assets or setting aside certain profits in tax-free reserves.[3] This way, a company can build up hidden reserves, which are then charged against income, when profits are high and release them in periods of losses or low earnings (Haller, 1992; Dumontier and Raffournier, 1998).

As in other countries in continental Europe, more and more firms are looking for public equity financing. Hence, the ownership and financing of these companies is changing and investors are becoming a more important user group of financial reporting in Germany. However, potential investors consider the discretion in German standards, which allows firms to manage income using large 'silent reserves', and the influence of tax avoidance strategies as too large and criticize the lack of detailed disclosures designed to satisfy the information needs of investors and financial analysts (Leuz and Verrechia, 2000).

In response to pressures from German firms wanting to comply with international accounting standards, the German Parliament and Federal Council ratified the Law to Facilitate the Raising of Capital (KapAEG). This allows listed companies to prepare their consolidated financial statements in accordance with IFRS, US GAAP or German GAAP as of April 1998.

Companies choosing to adopt IFRS need to give up the creation of hidden reserves which makes earnings management more difficult. Moreover, IFRS require more disclosures (Ashbaugh, 1999; Leuz and Verrechia, 2000) and have fewer accounting choices (d'Arcy, 2000) than German GAAP leading to a reduction in information asymmetry. IFRS also appear to be closer to US GAAP than foreign GAAP (Harris and Muller, 1999). Hence, IFRS can be expected to enhance financial reporting quality and thus constraint earnings management if IFRS can be properly enforced. In addition, those companies with the highest incentives to provide investors with transparent information will adopt IFRS to signal high quality by committing themselves to higher disclosure requirements and more transparent accounting. However, lack of enforcement and litigation risk might induce some firms to falsely signal to be of high quality. In this paper, we question whether the adoption of IFRS effectively is associated with lower earnings management in a code-law country with weak investor protection.

4. Hypotheses Development

The main purpose of this paper is to examine whether adoption of high quality standards is associated with high financial reporting quality. In particular, it is

questioned whether companies that have voluntarily adopted IFRS engage significantly less in earnings management compared to companies reporting under domestic GAAP. Earnings management is measured by reported discretionary accruals and the correlation between operating cash flow and accruals. We hypothesize, in alternative form:

Hypothesis 1: Firms which have adopted IFRS engage significantly less in earnings management compared to companies reporting under German GAAP.

Financial reporting quality is dependent on both the quality of accounting standards and their implementation. Finding evidence supporting the null hypothesis could be caused by either low quality of IFRS or low enforcement, enabling low quality firms to falsely signal high quality.

Big 4 audit firms are assumed to provide higher audit quality than other audit firms, meaning that they should do a better job in the enforcement of financial reporting. Since previous research has shown that being audited by a Big 4 audit firm imposes a constraint on earnings management and enhances compliance with IFRS disclosure, measurement and presentation requirements, it can also be expected that adopting high quality standards has a larger effect on the reduction of earnings management when audited by a Big 4 firm. Big 4 audit firms are thus expected to reduce the probability that firms falsely signal to be of high quality. Hence, we hypothesize, in alternative form:

Hypothesis 2: Adoption of IFRS has a larger effect on the reduction of earnings management, when audited by a Big 4 audit firm compared to a non-Big 4 audit firm.

The probability that firms falsely signal to be of high quality is also reduced when firms rely on an international capital market. Because firms with a foreign exchange listing are presumed to have greater incentives to report transparently, the negative relationship between IFRS adoption and earnings management is expected to be larger when cross-listed on a well-developed international capital market. We consider NASDAQ, the New York Stock Exchange (NYSE) and the London Stock Exchange (LSE) as the most demanding stock exchanges in terms of information quality and transparency. This results in the following hypothesis, formulated in alternative form:

Hypothesis 3: Adoption of IFRS has a larger effect on the reduction of earnings management, when cross-listed on a well-developed international capital market: NASDAQ, NYSE or LSE.

5. Research Design

5.1. Sample

Data of German companies are collected using the August 2002 version of the Osiris database. Consistent with previous research, we exclude financial institutions (SIC 60–67) and utility companies (SIC 40–49). Financial institutions are excluded because of their specific accounting requirements, which differ substantially from those of industrial and commercial companies and which prevent them from freely selecting the accounting standards they apply. Utility companies (SIC 40–49) are excluded because of the high diversity within this category, which is a problem when estimating discretionary accruals per industry and year (Vander Bauwhede, 2001). Our sample comprises 636 firm-year observations, relating to the period 1999–2001. All companies in our sample are listed firms. Firm-year observations of which (1) financial statement data is not compliant to either German GAAP or IFRS, (2) the company has adopted IFRS for the first time,[4] (3) data of all variables is not available, (4) firm equity is negative or (5) total or discretionary accruals are above 100% of lagged total assets are excluded. Because the IASB list of companies complying to IFRS is incomplete, companies complying to either IFRS or German GAAP are identified by individually inspecting the financial statements of the companies included in our sample. As mentioned, with the revision of IAS 1, all companies that refer to the use of IFRS in their annual report, should be fully compliant since 1999.

5.2. Earnings Management Measures

5.2.1. The magnitude of absolute discretionary accruals

As a first measure of earnings management, we use the magnitude of absolute discretionary accruals. Since only total accruals are known, discretionary accruals have to be estimated. Several models have been developed for this purpose. A good overview is provided by Dechow *et al.* (1995), Healy and Wahlen (1999), Young (1999) and McNichols (2000). Discretionary accruals are defined as actual total reported accruals less expected normal accruals. We use the cross-sectional Jones model (Jones, 1991) to estimate discretionary accruals. Specifically, discretionary accruals are estimated as the residuals of the following regression equation:

$$\mathrm{ACC}_t = \alpha_{tk0}(1/A_{t-1}) + \alpha_{tk1}\Delta\mathrm{REV}_t + \alpha_{tk2}\mathrm{GPPE}_t + \mu_t$$

where:

ACC_t = accruals in year t, scaled by lagged total assets, where accruals equal the year-to-year change in non-cash current assets minus current liabilities (excluding short-term debt and income taxes payable) minus depreciation

A_{t-1} = total assets in year $t-1$ or lagged total assets
ΔREV_t = change in revenues in year t, scaled by lagged total assets
$GPPE_t$ = gross property, plant and equipment in year t, scaled by lagged total assets.

Firm-year observations with total accruals above 100% of lagged total assets are excluded. Since we lack sufficient observations to consider firm-specific coefficients, the regressions are performed using data from firms matched on year (t) and industry (k) in a similar way as DeFond and Jiambalvo (1994), requiring a minimum of six observations per regression.[5] This way, SIC 01–09 (agriculture, forestry and fishing) had to be excluded. The total number of observations in our estimation sample is 1,212. Table 1 presents the number of observations per industry and year in the estimation sample.

Because of missing values and exclusion of firm-year observations of which firm equity is negative or discretionary accruals are above 100% of lagged total assets, the number of observations in our research sample is further reduced to 636 firm-year observations, which is illustrated in Table 2.

5.2.2. The correlation between total reported accruals and operating cash flow
Besides discretionary accruals, we use a second measure of earnings management by examining the correlation between accruals and operating cash flow as a proxy for earnings smoothing (see Leuz *et al.*, 2003). A negative correlation between accruals and operating cash flow indicates the use of accruals to smooth the variability in operating cash flows. While a negative correlation between accruals and operating cash flow is inherent to accrual accounting, differences in the magnitudes of this correlation indicate, *ceteris paribus*, variation in the extent of earnings smoothing.[6]

5.3. Model Variables

The three independent variables of interest of this study are (1) whether the company has adopted IFRS or not (*IFRS*), (2) whether the company is audited by a Big 4 audit firm or not (*B4NB4*) and (3) whether the company has a listing on NASDAQ, the NYSE or the LSE (*UKUSLIST*). To examine the

Table 1. Number of observations by industry and year in estimation sample

US SIC codes	1999	2000	2001	Total
10–17 Mining and Construction	14	16	7	37
20–39 Manufacturing	278	299	139	716
50–59 Wholesale trade	39	35	16	90
70–89 Services	139	162	68	369
Total	470	512	230	1,212

Table 2. Number of observations by industry and year in final sample

US SIC codes	1999	2000	2001	Total
10–17 Mining and Construction	8	12	4	24
20–39 Manufacturing	173	176	72	421
50–59 Wholesale trade	24	25	11	60
70–89 Services	45	56	30	131
Total	250	269	117	636

effect of IFRS on the correlation between accruals and operating cash flow (*OPCF*), we include the interaction variable 'IFRS * OPCF'. To test whether having a Big 4 auditor or a cross-listing on a well-developed capital market influences the effect of IFRS on the magnitude of reported discretionary accruals, the interaction variables 'IFRS * B4NB4' and 'IFRS * UKUSLIST' are included in the regression analysis. To test whether increased enforcement influences the effect of IFRS on earnings smoothing, we include 'IFRS * OPCF * B4NB4' and 'IFRS * OPCF * UKUSLIST'.

To control for differences in earnings management incentives, we include the following variables. First, we include the natural logarithm of total assets (*LNASSETS*) to proxy for the size of a company, which itself is a proxy variable for political attention (Watts and Zimmerman, 1990). The political cost hypothesis states that larger firms are more likely to prefer downward earnings management, because the potential for government scrutiny increases as firms are larger and more profitable (Watts and Zimmerman, 1990; Young, 1999). The expected relationship between discretionary accruals and the natural logarithm of total assets is negative. Taking the absolute value of discretionary accruals as independent variable of our study results, however, in a negative expected sign for positive discretionary accruals and a positive expected sign for negative discretionary accruals.

Second, we include a leverage or gearing variable (*GEARING*), which can have an impact on earnings management in two directions. The debt–equity hypothesis predicts that highly leveraged firms are more likely to engage in upward earnings management to avoid debt covenant violations (Watts and Zimmerman, 1990; DeFond and Jiambalvo, 1994; Young, 1999). Alternatively, Becker *et al.* (1998) report that high leverage may induce income-decreasing earnings management in financially distressed firms in view of contractual renegotiations. When taking the absolute value of discretionary accruals, a positive sign is expected following the debt–equity hypothesis when discretionary accruals are positive and a negative sign is expected when discretionary accruals are negative. Following the contractual renegotiations hypothesis, the expected signs are just the opposite of the former.

Third, (the absolute value of) operating cash flow scaled by lagged total assets (*OPCF*) is included as a performance measure, since the estimated discretionary

accruals are too large for firms experiencing extreme financial performance. Dechow *et al.* (1995) and Young (1999) report that the matching principle results in a natural smoothing property of accounting accruals which causes negative (positive) non-discretionary accruals to occur in a period with extreme positive (negative) cash flows of which a part will be incorrectly attributed to income-decreasing (income-increasing) discretionary accruals. We include cash flow from operations to control for this potential misspecification. The expected relationship between operating cash flow and discretionary accruals is negative. Taking the absolute values of both these variables, results in a positive relationship. On the other hand, Dechow *et al.* (1995) and McNichols (2000) report that firms with abnormally high (low) earnings have positive (negative) shocks to earnings that include an accrual component and thus, firms with high (low) earnings tend to have high (low) cash flows and high (low) accruals. As a consequence, one is more likely to find a positive relationship for the most profitable firms. A positive sign is thus expected on this variable in both cases when considering absolute values.

Finally, we include industry dummies (*IND*) to control for industry effects on earnings management.

Hence, our empirical models look as follows:

$$\begin{aligned}|\mathrm{DACC}_t| = {} & \beta_0 + \beta_1\,\mathrm{IFRS}_t + \beta_2\,\mathrm{B4NB4}_t + \beta_3\,\mathrm{UKUSLIST}_t \\ & + \beta_4\,\mathrm{IFRS}_t{}^{*}\,\mathrm{B4NB4}_t + \beta_5\,\mathrm{IFRS}_t{}^{*}\,\mathrm{UKUSLIST}_t \\ & + \beta_6|\mathrm{OPCF}_t| + \beta_7\,\mathrm{LNASSETS}_t + \beta_8\,\mathrm{GEARING}_t \\ & + \beta_9\,\mathrm{IND} + \varepsilon_{1t} \qquad (A)\end{aligned}$$

$$\begin{aligned}\mathrm{ACC}_t = {} & \beta_0 + \beta_1\,\mathrm{IFRS}_t + \beta_2\,\mathrm{B4NB4}_t + \beta_3\,\mathrm{UKUSLIST}_t \\ & + \beta_4\,\mathrm{OPCF}_t + \beta_5\,\mathrm{IFRS}_t{}^{*}\mathrm{OPCF}_t + \beta_6\,\mathrm{IFRS}_t{}^{*}\,\mathrm{OPCF}_t{}^{*}\,\mathrm{B4NB4}_t \\ & + \beta_7\,\mathrm{IFRS}_t{}^{*}\,\mathrm{OPCF}_t{}^{*}\,\mathrm{UKUSLIST}_t + \beta_8\,\mathrm{LNASSETS}_t \\ & + \beta_9\,\mathrm{GEARING}_t + \beta_{10}\,\mathrm{IND} + \varepsilon_{2t} \qquad (B)\end{aligned}$$

where:

Dependent variables

$|\mathrm{DACC}_t|$ = absolute value of discretionary accruals in year t, scaled by lagged total assets

ACC_t = accruals in year t, scaled by lagged total assets.

Independent variables

IFRS_t = dummy variable (compliance to IFRS = 1, else = 0)

$\mathrm{B4NB4}_t$ = dummy variable (company has Big 4 auditor = 1, else = 0)

UKUSLIST_t = dummy variable (company listed on NASDAQ, NYSE or LSE = 1, else = 0)
OPCF_t = operating cash flow in year t, computed as operating income minus accruals, scaled by lagged total assets
LNASSETS_t = natural logarithm of total assets in year t
GEARING_t = ratio of long-term debt over common equity in year t
IND = vector of industry dummies (SIC 10–17: Mining and Construction; SIC 20–39: Manufacturing; SIC 50–59: Wholesale trade).

It is noted that SIC 70–89 (Services) is the industry of reference.

5.4. Test for Endogeneity of IFRS

Following prior literature (e.g. Leuz and Verrechia, 2000), we should be concerned that some (unobservable) variables that both affect earnings management and the decision to adopt IFRS have been omitted from the analysis, making IFRS an endogenous variable. To test whether IFRS is endogenous in our earnings management (EM) model, the extended regression version of the Hausman Specification Test is performed (Maddala, 2001, p. 498; Wooldridge, 2003, p. 506). In particular, we estimate a reduced form, where IFRS is explained by all the exogenous variables of the EM model and an additional variable, that is, the number of geographic segments a company is operating in, because of its importance in explaining accounting standards choice as shown in previous literature (e.g. Cuijpers and Buijink, 2003).[7] Since IFRS is a dichotomous variable, a logistic regression is performed (results not reported). Formally, our IFRS model looks as follows:

$$\begin{aligned}\text{IFRS}_t = {} & \pi_0 + \pi_1\,\text{B4NB4}_t + \pi_2\,\text{UKUSLIST}_t + \pi_3|\text{OPCF}_t| + \pi_4\,\text{LNASSETS}_t \\ & + \pi_5\,\text{GEARING}_t + \pi_6\,\text{IND} + \pi_7\,\text{NOGEOSEG}_t + \nu_t\end{aligned}$$

where:

NOGEOSEG_t = number of geographic segments the company is operating in and the other variables as previously specified.

Including the estimated residual ν_t as an additional regressor in the EM model allows us to test for the endogeneity of IFRS. If the coefficient on the estimated residual is significantly different from 0, the model suffers from an endogeneity bias. If this appears to be the case, we can control for the endogeneity of IFRS by performing a Two-Stage-Least-Squares (2SLS) analysis, using the fitted probabilities of the IFRS model as the instrumental variable (Maddala, 1983). However, the coefficient on the estimated residual does not appear to be significantly different from zero ($p = 0.310$) in our EM model, indicating that this

model does not suffer from an endogeneity bias caused by omitted variables influencing both earnings management and the choice to adopt IFRS. Hence, Ordinary Least Squares (OLS) estimates are preferred to 2SLS estimates.

6. Results

6.1. Descriptive Statistics

Table 3 shows that 23% of the companies in our sample adopted IFRS, 54% are being audited by a Big 4 audit firm and 2% have a listing on NASDAQ, NYSE or LSE. As presented in Table 4, 52% of the firms complying to domestic accounting standards are being audited by a Big 4 auditor, while 60% of the firms complying to IFRS have a Big 4 auditor. The proportion of firms having a NASDAQ, NYSE or LSE listing is also smaller in the non-IFRS sample (2%) compared with the IFRS sample (3%).

The descriptive statistics of the (discretionary) accruals, operating cash flows and earnings are presented in Table 5. Income-decreasing (discretionary) accruals seem to be reported more frequently than income-increasing (discretionary) accruals. Although the magnitude of the average income-decreasing (discretionary) accruals differs slightly from that of the income-increasing (discretionary) accruals, the difference is not significant.[8]

6.2. Univariate Results

The univariate results on discretionary acruals,[9] as presented in Table 6, suggest that IFRS-adopters report significantly higher absolute discretionary accruals than non-adopters. While IFRS-adopters report significantly higher income-decreasing discretionary accruals, there is no significant difference in the reporting of income-increasing discretionary accruals. For companies being audited by a Big 4 audit firm, IFRS adoption is not significantly associated with different reporting levels of discretionary accruals. When audited by a non-Big 4 audit firm, IFRS adoption is associated with higher levels of absolute discretionary accruals and income-decreasing discretionary accruals. Because of the small proportion of companies with a cross-listing on NASDAQ, NYSE or LSE, the same conclusions as for the total sample can be drawn for companies without such a cross-

Table 3. Percentage of observations using IFRS, having Big 4 auditor or having NASDAQ, NYSE or LSE listing

IFRS	23%
Big 4 auditor	54%
NASDAQ, NYSE or LSE listing	2%

Table 4. Number of observations by accounting standards, auditor and listing

	Big 4	Non-Big 4	Total
Domestic accounting standards			
NASDAQ, NYSE or LSE listing	8	0	8 (2%)
No NASDAQ, NYSE or LSE listing	249	233	482 (98%)
Total	257 (52%)	233 (48%)	490
IFRS			
NASDAQ, NYSE or LSE listing	2	3	5 (3%)
No NASDAQ, NYSE or LSE listing	85	56	141 (97%)
Total	87 (60%)	59 (40%)	146

listing. For companies cross-listed on NASDAQ, NYSE or LSE, the adoption of IFRS is not significantly associated with lower discretionary accruals.

Regarding the correlation between operating cash flows and accruals, Pearson correlation coefficients are presented in Table 7. While the coefficients appear to be significantly negative for both companies reporting under German GAAP as for companies reporting under IFRS, they appear to be slightly more negative for companies reporting under IFRS.

Table 5. Descriptive statistics of discretionary accruals, total accruals, operating cash flow and earnings

Pooled	*N*	|Mean|	Median	Min	Max	STD
|DACC|	636	0.0979	0.0600	0.0002	0.9766	0.1263
DACC < 0	341	0.0972	−0.0611	−0.9766	−0.0002	0.1276
DACC ≥ 0	295	0.0986	0.0595	0.0002	0.8842	0.1251
Difference						
t-test		$t = -0.144$				
(two-tailed significance)		(0.886)				
ACC	636	0.0500	−0.0594	−0.9609	0.8492	0.1668
ACC < 0	467	0.1140	−0.0874	−0.9609	−0.0008	0.1137
ACC ≥ 0	169	0.1267	0.0700	0.0003	0.8492	0.1626
Difference						
t-test		$t = -0.938$				
(two-tailed significance)		(0.349)				
OPCF	636	0.0984	0.1192	−2.2683	0.8478	0.2139
Earnings	636	0.0003	0.0242	−1.6697	0.7092	0.1565

Notes:
DACC = discretionary accruals scaled by lagged total assets
ACC = total accruals scaled by lagged total assets
OPCF = operating cash flow, computed as operating income minus accruals, scaled by lagged total assets
Earnings = net earnings or bottom-line reported income, scaled by lagged total assets.

Table 6. Univariate analysis on discretionary accruals

		No IFRS Mean (*N*)	IFRS Mean (*N*)	Difference *t*-statistic (two-tailed sign.)
Total sample	|DACC|	0.0903 (490)	0.1233 (146)	−2.276** (0.024)
	DACC < 0	−0.0866 (270)	−0.1376 (71)	2.224** (0.029)
	DACC ≥ 0	0.0948 (220)	0.1098 (75)	−0.896 (0.371)
Big 4	|DACC|	0.0932 (257)	0.1150 (87)	−1.166 (0.246)
	DACC < 0	−0.0960 (140)	−0.1271 (42)	1.008 (0.318)
	DACC ≥ 0	0.0868 (117)	0.1036 (45)	−0.723 (0.471)
Non-Big 4	|DACC|	0.0871 (233)	0.1357 (59)	−2.086** (0.041)
	DACC < 0	−0.0755 (130)	−0.1628 (29)	2.180** (0.037)
	DACC ≥ 0	0.1026 (103)	0.1114 (30)	−0.626 (0.533)
NASDAQ, NYSE or LSE listing	|DACC|	0.0607 (8)	0.0335 (5)	1.070 (0.308)
	DACC < 0	−0.0562 (6)	−0.0649 (2)	0.202 (0.847)
	DACC ≥ 0	0.0742 (2)	0.0125 (3)	2.564 (0.217)
No NASDAQ, NYSE or LSE listing	|DACC|	0.0908 (482)	0.1265 (141)	−2.396** (0.018)
	DACC < 0	−0.0898 (264)	−0.1432 (69)	2.229** (0.029)
	DACC ≥ 0	0.0950 (218)	0.1139 (72)	−1.103 (0.271)

*, **, ***Significantly different from zero at the $\alpha = 0.10$, 0.05 and 0.01 level, respectively (two-tailed).

Table 7. Univariate analysis on earnings smoothing

		No IFRS	IFRS
Total sample	Pearson correlation OPCF-ACC	−0.529***	−0.591***
	(*N*)	(490)	(146)
Big 4	Pearson correlation OPCF-ACC	−0.406***	−0.425***
	(*N*)	(257)	(87)
Non-Big 4	Pearson correlation OPCF-ACC	−0.655***	−0.749***
	(*N*)	(233)	(59)
NASDAQ, NYSE or LSE listing	Pearson correlation OPCF-ACC	−0.762**	−0.883**
	(*N*)	(8)	(5)
No NASDAQ, NYSE or LSE listing	Pearson correlation OPCF-ACC	−0.527***	−0.590***
	(*N*)	(482)	(141)

*, **, ***Significantly different from zero at the $\alpha =$ 0.10, 0.05 and 0.01 level, respectively (two-tailed).

6.3. Regression Results

Table 8 includes Pearson correlation coefficients and Variance Inflation Factors (VIFs). As can be seen, the risk of bias due to strong correlations among covariates is minimal.

6.3.1. Magnitude of the absolute value of discretionary accruals

Two regressions are performed to test our hypotheses. To test Hypothesis 1, the regression analysis is first performed without the interaction variables with IFRS. The results of this regression, presented in Panel A of Table 9 (1), indicate that companies that have adopted IFRS report significantly more discretionary accruals than companies reporting under German GAAP, which contradicts Hypothesis 1. To test Hypotheses 2 and 3, the interaction variables of interest 'IFRS * B4NB4' and 'IFRS * UKUSLIST' are included in the regression analysis. The results, presented in Panel A of Table 9 (2), show that increased enforcement does not significantly enhance the reduction of discretionary accruals with IFRS adoption. Neither having a Big 4 auditor nor having a cross-listing on the NASDAQ, NYSE or LSE appears to significantly reduce the level of reported discretionary accruals of companies complying to IFRS. Nor do they have a significant impact on the level of discretionary accruals for companies that have not adopted IFRS.

The regression results further demonstrate that all other control variables, except for the leverage or gearing variable, are significant.

6.3.2. Correlation between accruals and operating cash flow

In a similar way to testing our hypotheses using the magnitude of the absolute value of discretionary accruals as a measure for earnings management, we now examine the correlation between accruals and operating cash flow as a measure for earnings smoothing. To test Hypothesis 1, the regression analysis is first performed with only the interaction variable 'IFRS * OPCF'. The outcome of this regression is presented in Table 9, Panel B (1). The results demonstrate that for companies reporting under IFRS the correlation between operating cash flow and accruals is significantly negative. This finding suggests that firms reporting under IFRS engage significantly more in earnings smoothing than companies reporting under German GAAP, which is again the opposite of Hypothesis 1.

To test Hypotheses 2 and 3, the interaction variables of interest 'IFRS * OPCF * B4NB4' and 'IFRS * OPCF * UKUSLIST' are included in the regression analysis. As can be seen in Table 9, Panel B (2), adopting IFRS significantly encourages managers to engage in earnings smoothing when the company does not have a Big 4 auditor nor a cross-listing on the NASDAQ, NYSE or LSE. Having a Big 4 auditor appears to reduce the increase in earnings smoothing with the adoption of IFRS. Having a cross-listing on NASDAQ, NYSE or LSE has a reducing impact on earnings smoothing of companies complying to IFRS, but this relationship is not significant.

Table 8. Pearson correlation matrix and variation inflation factors

Variable	|DACC|	IFRS	B4NB4	UKUSLIST	OPCF	LNASSETS	GEARING	SIC1017	SIC2039	SIC50	IFRS * B4NB4	IFRS * UKUSLIST	VIFs
|DACC|	1												
IFRS	0.110**	1											2.591
B4NB4	0.007	0.060	1										1.391
UKUSLIST	−0.054	0.053	0.066	1									1.825
OPCF	0.537**	−0.026	0.005	−0.004	1								1.084
LNASSETS	−0.215**	0.045	0.266**	0.350**	−0.163**	1							1.454
GEARING	−0.021	−0.048	−0.067	−0.015	−0.024	−0.039	1						1.011
SIC1017	−0.079*	−0.069*	−0.033	−0.029	−0.087*	0.111**	−0.007	1					1.285
SIC2039	−0.241**	−0.163**	0.082*	0.103**	−0.101*	0.086*	0.031	−0.277**	1				1.766
SIC50	−0.031	−0.112**	−0.048	−0.047	−0.084*	0.184**	0.002	−0.064	−0.452**	1			1.643
IFRS * B4NB4	0.054	0.729**	0.367**	0.007	−0.038	0.137**	−0.030	−0.055	−0.093**	−0.097**	1		2.794
IFRS * UKUSLIST	−0.045	0.163**	−0.025	0.616**	−0.001	0.196**	−0.010	−0.018	0.064	−0.029	0.068	1	1.681

*, **Significantly different from zero at the $\alpha = 0.05$ and 0.01 level, respectively (two-tailed).

6.4. Sensitivity Analysis

The following sensitivity analyses were performed to check the robustness of our results. First, since voluntary adoption of IFRS is associated with firms that are larger, more profitable and have a lower leverage (Dumontier and Raffournier, 1998; El-Gazzar *et al.*, 1999; Ashbaugh, 2001; Cuijpers and Buijink, 2003), the control variables operating cash flow (*OPCF*), leverage or gearing (*GEARING*) and size (*LNASSETS*) might be picking up some of the effects of IFRS or vice versa. Therefore, the regression using the magnitude of discretionary accruals as dependent variable is also performed when including the interaction variables of IFRS with these control variables (results not reported). The coefficient on the interaction variable 'IFRS * |OPCF|' is significantly positive, while neither IFRS nor its other interactions have significant coefficients. This could suggest that IFRS-adopters engage more in earnings smoothing, which is confirmed by the results in Panel B of Table 9, using the correlation between accruals and operating cash flow as earnings management measure.

Second, discretionary accruals models, of which the Jones model is the most commonly used, have been criticized to estimate discretionary accruals with error (e.g. McNichols, 2000). Therefore, the regression analysis was also

Table 9. OLS regressions

	1		2	
Variables	Estimated coefficient	*t*-statistic	Estimated coefficient	*t*-statistic
Panel A: Magnitude of discretionary accruals				
$\lvert DACC_t\rvert = \beta_0 + \beta_1\ IFRS_t + \beta_2\ B4NB4_t + \beta_3\ UKUSLIST_t + \beta_4\ IFRS_t * B4NB4_t + \beta_5\ IFRS_t * UKUSLIST_t + \beta_6 \lvert OPCF_t\rvert + \beta_7\ LNASSETS_t + \beta_8\ GEARING_t + \beta_9\ IND + \varepsilon_{1t}$				
Intercept	0.160	4.943***	0.157	4.802***
$IFRS_t$	0.0213	2.143**	0.0327	2.110**
$B4NB4_t$	0.0104	1.222	0.0133	1.266
$UKUSLIST_t$	−0.0076	−0.244	0.0079	0.206
$IFRS_t * B4NB4_t$			−0.0157	−0.796
$IFRS_t * UKUSLIST_t$			−0.0469	−0.790
$\lvert OPCF_t\rvert$	0.377	14.548***	0.376	14.520***
$LNASSETS_t$	−0.0074	−2.712***	−0.0074	−2.669***
$GEARING_t$	−0.0000	−0.032	−0.0000	0.002
SIC 10–17	−0.0578	−2.399**	−0.0573	−2.378**
SIC 20–39	−0.0613	−5.408***	−0.0610	−5.358***
SIC 50–59	−0.0306	−1.727*	−0.003	−1.707*

(*continued*)

Table 9. Continued

	1		2	
Variables	Estimated coefficient	*t*-statistic	Estimated coefficient	*t*-statistic
N	636		636	
R^2 (adjusted)	0.347		0.347	
F	38.546***		31.612***	

Panel B: Earnings smoothing

$$ACC_t = \beta_0 + \beta_1\ IFRS_t + \beta_2\ B4NB4_t + \beta_3\ UKUSLIST_t + \beta_4\ OPCF_t + \beta_5\ IFRS_t\ ^*\ OPCF_t + \beta_6\ IFRS_t\ ^*\ OPCF_t\ ^*\ B4NB4_t + \beta_7\ IFRS_t\ ^*\ OPCF_t\ ^*\ UKUSLIST_t + \beta_8\ LNASSETS_t + \beta_9\ GEARING_t + \beta_{10}\ IND + \varepsilon_{3t}$$

Intercept	−0.142	−3.401***	−0.132	−3.193***
$IFRS_t$	0.0231	1.616	0.0184	1.280
$B4NB4_t$	−0.0192	−1.687*	−0.0220	−1.935*
$UKUSLIST_t$	−0.0399	−0.953	−0.0458	−0.931
$OPCF_t$	−0.405	−13.419***	−0.402	−13.416***
$IFRS_t$ * $OPCF_t$	−0.241	−4.052***	−0.407	−5.163***
$IFRS_t$ * $OPCF_t$ * $B4NB4_t$			0.322	3.173***
$IFRS_t$ * $OPCF_t$ * $UKUSLIST_t$			0.211	0.504
$LNASSETS_t$	0.0070	1.918*	0.0067	1.826*
$GEARING_t$	−0.0003	−0.565	−0.0003	−0.582
SIC 10–17	0.0770	2.423**	0.0721	2.279**
SIC 20–39	0.0701	4.593***	0.0665	4.366***
SIC 50–59	0.0537	2.289**	0.0496	2.123**
N	636		636	
R^2 (adjusted)	0.333		0.341	
F	32.647***		28.405***	

Notes:
*, **, ***Significantly different from zero at the $\alpha = 0.10$, 0.05 and 0.01 level, respectively (two-tailed).
$|DACC_t|$ = absolute value of discretionary accruals in year t, scaled by lagged total assets, where discretionary accruals are estimated using the cross-sectional Jones model and accruals equal the year-to-year change in non-cash current assets minus current liabilities (excluding short-term debt and income taxes payable) minus depreciation
ACC_t = reported accruals in year t, scaled by lagged total assets, where accruals equal the year-to-year change in non-cash current assets minus current liabilities (excluding short-term debt and income taxes payable) minus depreciation
$IFRS_t$ = dummy variable (compliance to IFRS = 1, else = 0)
$B4NB4_t$ = dummy variable (company has Big 4 auditor = 1, else = 0)
$UKUSLIST_t$ = dummy variable (company listed on NASDAQ, NYSE or LSE = 1, else = 0)
$OPCF_t$ = operating cash flow in year t scaled by lagged total assets
$LNASSETS_t$ = natural logarithm of total assets in year t
$GEARING_t$ = ratio of long-term debt over common equity in year t
IND = vector of industry dummies (SIC 10–17: Mining and Construction; SIC 20–39: Manufacturing; SIC 50–59: Wholesale trade).

performed using total accruals instead of discretionary accruals (results not reported). Overall, this gives qualitatively similar results.

Finally, the discretionary accruals used to measure earnings management in this study may not be entirely adequate to measure the total extent of earnings management in Germany. In particular, hidden reserves, which are allowed under German GAAP to manage earnings, are not entirely picked up by these accruals. Therefore, we also performed the analysis taking these hidden reserves[10] into account in our EM measure. To make sure to include all the possible ways to manage earnings, we included all long-term accruals, that is, the change in provisions, deferred revenues and other long-term non-interest bearing debt in addition to the working capital accruals and depreciation. The outcome of the regressions using this alternative measure is presented in Table 10. The results indicate that IFRS do not have a significant impact on the magnitude of these alternative discretionary accruals (Table 10, Panel A), nor on their correlation with operating cash flows (Table 10, Panel B). Given that the use of hidden reserves is forbidden by IFRS, IFRS-adopters appear to turn more to the use of (discretionary) accruals to manage and more specifically smooth their earnings. When including these hidden reserves in the accruals, there appears to be no significant difference in the magnitude of reported discretionary accruals or earnings smoothing behavior of IFRS-adopters, compared to companies reporting under German GAAP. Hence, adopters of IFRS cannot be associated with lower earnings management.

Table 10. OLS regressions with hidden reserves included in accruals

	1		2	
Variables	Estimated coefficient	*t*-statistic	Estimated coefficient	*t*-statistic
Panel A: Magnitude of discretionary accruals				
$\lvert ADACC_t\rvert = \beta_0 + \beta_1\ IFRS_t + \beta_2\ B4NB4_t + \beta_3\ UKUSLIST_t + \beta_4\ IFRS_t * B4NB4_t + \beta_5\ IFRS_t * UKUSLIST_t + \beta_6 \lvert OPCF_t\rvert + \beta_7\ LNASSETS_t + \beta_8\ GEARING_t + \beta_9\ IND + \varepsilon_{1t}$				
Intercept	0.169	5.060***	0.164	4.855***
$IFRS_t$	0.0012	0.114	0.0172	1.078
$B4NB4_t$	0.0063	0.719	0.0118	1.186
$UKUSLIST_t$	−0.0068	−0.211	−0.0007	−0.017
$IFRS_t * B4NB4_t$			−0.0263	−1.292
$IFRS_t * UKUSLIST_t$			−0.0270	−0.440
$\lvert OPCF_t\rvert$	0.324	12.103***	0.323	12.066***
$LNASSETS_t$	−0.0057	−2.021**	−0.0055	−1.937*
$GEARING_t$	−0.0002	−0.411	−0.0002	0.466
SIC 10–17	−0.0744	−2.991***	−0.0745	−2.992***
SIC 20–39	−0.0776	−6.621***	−0.0777	−6.604***
SIC 50–59	−0.553	−3.018***	−0.0556	−3.032***

(*continued*)

Table 10. Continued

	1		2	
Variables	Estimated coefficient	*t*-statistic	Estimated coefficient	*t*-statistic
N	636		636	
R^2 (adjusted)	0.296		0.296	
F	30.641***		25.231***	
Panel B: Earnings smoothing				
$AACC_t = \beta_0 + \beta_1\ IFRS_t + \beta_2\ B4NB4_t + \beta_3\ UKUSLIST_t + \beta_4\ OPCF_t + \beta_5\ IFRS_t * OPCF_t + \beta_6\ IFRS_t * OPCF_t * B4NB4_t + \beta_7\ IFRS_t * OPCF_t * UKUSLIST_t + \beta_8\ LNASSETS_t + \beta_9\ GEARING_t + \beta_{10}\ IND + \varepsilon_{3t}$				
Intercept	−0.0985	−2.227**	−0.0964	−2.170**
$IFRS_t$	0.0135	0.885	0.0110	0.713
$B4NB4_t$	−0.0227	−1.872*	−0.0230	−1.884*
$UKUSLIST_t$	−0.0017	−0.040	−0.0184	−0.348
$OPCF_t$	−0.359	−11.186***	−0.358	−11.135***
$IFRS_t * OPCF_t$	−0.0738	−1.168	−0.127	−1.499
$IFRS_t * OPCF_t * B4NB4_t$			0.0962	0.886
$IFRS_t * OPCF_t * UKUSLIST_t$			0.291	0.648
$LNASSETS_t$	0.0025	0.639	0.0025	0.628
$GEARING_t$	−0.0001	−0.193	−0.0001	−0.196
SIC 10–17	0.102	3.022***	0.1	2.954***
SIC 20–39	0.0803	4.948***	0.0788	4.832***
SIC 50–59	0.0793	3.181***	0.0775	3.098***
N	636		636	
R^2 (adjusted)	0.222		0.221	
F	19.089***		15.979***	

Notes:

*, **, ***Significantly different from zero at the $\alpha = 0.10, 0.05$ and 0.01 level, respectively (two-tailed).

$|ADACC_t|$ = absolute value of alternative discretionary accruals in year *t*, scaled by lagged total assets, where alternative discretionary accruals are estimated using the cross-sectional Jones model and alternative accruals equal the year-to-year change in non-cash current assets minus current liabilities (excluding short-term debt and income taxes payable) minus depreciation plus the year-to-year change in provisions, deferred revenues and other long-term non-interest bearing debt

$AACC_t$ = alternative accruals in year *t*, scaled by lagged total assets, where alternative accruals equal the year-to-year change in non-cash current assets minus current liabilities (excluding short-term debt and income taxes payable) minus depreciation plus the year-to-year change in provisions, deferred revenues and other long-term non-interest bearing debt

$IFRS_t$ = dummy variable (compliance to IFRS = 1, else = 0)

$B4NB4_t$ = dummy variable (company has Big 4 auditor = 1, else = 0)

$UKUSLIST_t$ = dummy variable (company listed on NASDAQ, NYSE or LSE = 1, else = 0)

$OPCF_t$ = operating cash flow in year *t* scaled by lagged total assets

$LNASSETS_t$ = natural logarithm of total assets in year *t*

$GEARING_t$ = ratio of long-term debt over common equity in year *t*

IND = vector of industry dummies (SIC 10–17: Mining and Construction; SIC 20–39: Manufacturing; SIC 50–59: Wholesale trade).

7. Conclusions

The purpose of this study was to examine whether adoption of IFRS is associated with lower earnings management. Ball *et al.* (2003) argue that adopting high quality standards might be a necessary condition for acquiring high quality information, but not necessarily a sufficient one. Our study is based on a sample of German companies. In Germany, a code-law country with low investor protection rights, a relatively large number of companies have chosen to voluntarily adopt IFRS prior to 2005. We investigate whether German companies that have adopted IFRS engage significantly less in earnings management compared to German companies reporting under domestic GAAP, while controlling for other differences in earnings management incentives and enforcement mechanisms.

The results of our study suggest that without the possibility of using hidden reserves to manage earnings, IFRS-adopters turn more to discretionary accruals to manage their earnings. Moreover, it appears that companies that have adopted IFRS engage more in earnings smoothing, but this increase in earnings smoothing with the adoption of IFRS is significantly reduced when the company has a Big 4 auditor. However, when hidden reserves are taken into consideration, IFRS-adopters do not present different earnings management behavior compared to companies reporting under German GAAP.

These findings contribute to the current debate on whether high quality standards are sufficient and effective in countries with weak investor protection rights. They indicate that in general, adopters of IFRS cannot be associated with lower earnings management. In this regard, the German New Market[11] or the high-tech and innovative segment of the Deutsche Börse, which was closed after the surfacing of several corporate scandals and an overall slump in high-tech stocks, provides an interesting example.

The results of this study are subject to the following limitations. First, although we have controlled for various earnings management incentives, it is acknowledged that there may be other incentives to manage earnings that have not been controlled for. Second, although we have largely succeeded in controlling for the allowed use of hidden reserves to manage earnings, we were unable to identify all of these hidden reserves. Finally, we only consider one aspect of earnings quality: the level of earnings management. Further research could benefit from examining the relationship between IFRS adoption and other aspects of earning quality, such as timeliness, earnings conservatism and value relevance. In addition, further research effort is warranted to distinguish between high and low transparency adopters of IFRS.

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Notes

[1]For convenience we use the term Big 4 auditor to identify the large international audit firm networks. Some of the studies we refer to were conducted before the mergers resulted into a reduction to four international audit networks.

[2]Conservatism is here referred to as pervasive conservatism or balance sheet conservatism and has to be distinguished from earnings conservatism or asymmetric timeliness. Pervasive conservatism refers to a consistent understatement of equity. Earnings conservatism refers to bad news being more timely reflected in earnings than good news.

[3]Tax-free reserves or 'special items with an equity element' are used for instance for realized capital gains on assets which are left to the company to purchase new assets in the near future. They are charged against income when created and treated as income when they are released. This special item can also be used for excessive depreciations, which have to be included in the commercial accounts and thus reduce commercial income in order for them to be tax deductible, but when reported as a 'special item with equity element' the depreciated asset can be represented in the balance sheet with its 'real commercial book value'. Companies are however not obliged to report tax induced higher depreciations this way. According to a 1987 study, less than one-quarter of the German companies actually do so (Haller, 1992).

[4]First time applications of IFRS could not have its full effect yet or result in substantial changes in the computations of earnings causing high abnormal accruals that would incorrectly be attributed to earnings management.

[5]Average adjusted R^2 is 30% and ranges from 0.2 to 77%.

[6]While most earnings management studies assume earnings are managed for opportunistic reasons, the exercised discretion can also be used to signal private information and thus reduce information asymmetry (e.g. Subramanyam, 1996). However, because accounting systems likely underreact to economic shocks, using accruals to signal firm performance results on average in a less negative (and in specific cases even positive) correlation with cash flows (Leuz *et al.*, 2003).

[7]This variable appears to be highly significant in the IFRS model ($p < 0.01$).

[8]Non-parametric tests (Wilcoxon Mann–Whitney test) yield the same result regarding the discretionary accruals but indicate a significant ($p = 0.046$ two-tailed) difference between the average total reported income-increasing and income-decreasing accruals.

[9]Non-parametric tests (Wilcoxon Mann–Whitney test) revealed qualitatively similar results.

[10]As mentioned earlier, these hidden reserves can be created by recognizing excessive depreciation of assets, building up unjustified provisions or setting aside certain profits in tax-free reserves. Depreciation is already accounted for in our previous accruals measure. After investigating some individual financial statements, it appeared that certain provisions were sometimes classified as other liabilities. Due to data limitations, all of the tax-free reserves or 'Sonderposten mit rücklageanteil' could not be filtered out because they were included in a larger category, comprising other reserves.

[11]Firms that were listed on the German New Market had to report under either IFRS or US GAAP.

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