Earnings Management in the Financial Crisis 2007/2008

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Abstract
We investigate the effect of the financial crisis on earnings management behavior in the German-origin banking sector during the financial crisis 2007/2008. Controlling for similar institutional settings and company differences, we use four different earnings management measures (discretionary loan loss provisions, small gains/great losses, market to book ratio and an aggregate ranking index) in accordance with prior literature and find an increase in earnings management behavior during the crisis. Using a relatively small data sample allows us to analyze earnings management on the individual company level and therefore we are able to reveal differences in the extent to which earnings management is performed among the observed firms. Earnings management is found to be used with balance sheet as well as income statement items and is substantiated with different proxies. Additionally we find that earnings management is driven by company size, the role of equity markets for firm financing and the fragmentation of shareholders. Overall, the results indicate a decrease in the informativeness of earnings for market participants during the financial crisis as substantial evidence for earnings management is found.

Keywords: Behavioral accounting, corporate governance, Switzerland

1. Introduction
The purpose of this paper is to investigate earnings management behavior in the German-origin banking sector during the financial crisis 2007/2008. Earnings management means a purposefully biased representation of true economic performance in accounting figures. Our analysis of a company’s economic performance focuses on earnings for several reasons. Earnings are of central interest to capital market participants and investment decisions rely on simple low-cost heuristics like earnings-based firm valuation methods (Burgstahler and Dichev, 1997: 122). Additionally, earnings or earnings equivalents determine the variable portion in many management remuneration contracts and thus play a vital role in enforcing an incentive-compatible alignment of goals in a principal-agent
setting. A presentation of biased earnings in terms of management’s interest conflicts with the “True and Fair” directive as requested by International Financial Reporting Standards (IFRS). For financial statement users it is therefore important to be able to detect earnings management practices and to filter its effects in order to comprehensively understand reported figures. The remainder of this article is organized as follows: Section 2 clarifies underlying concepts in the field of earnings management. Section 3 outlines measurement approaches of earnings management from an accounting-based perspective. In section 4 an empirical analysis of earnings management in the German-origin banking sector during the financial crisis 2007/2008 is presented. We develop our hypotheses, introduce the sample selection and present the key findings. In section 5 a conclusion of earnings management behavior is drawn.

2. Definition of Earnings Management

The idea of earnings management is the “alteration of a firm’s reported economic performance by insiders to either mislead some stakeholders or to influence contractual outcomes” (Leuz et al., 2003: 506). This earnings management definition focuses on an opposing insider-outsider perspective of firms, suggesting that incentives to misrepresent the true firm performance arise in part from a conflict of interests between a firm’s insiders and outsiders. Insiders such as controlling managers take advantage of information asymmetry at the expense of non-controlling outsiders, similarly to the classic principal-agent conflict. This behavior references to the contractual theory of earnings management and suggests that e.g. managers maximize compensation components linked to reported financial figures. The challenging issue with earnings management is that it “is inherently unobservable” (Lin et al., 2006: 922), giving rise to several indirect measurement methods established in past decades. The ‘counterpart’ concept of earnings management is earnings quality – as the other side of the same medal or the ‘inverse measure’ view (Baxter and Cotter, 2009: 272). Earnings quality forms the main dimension of accounting quality and refers to the “ability of reported earnings to reflect the company’s true earnings, as well as the usefulness of reported earnings to predict future earnings” (Bellovary et al., 2005: 1; Ball and Shivakumar, 2005). Even with the prudence principle of IFRS, the qualitative characteristics of neutrality or representational faithfulness forbid the discretionary overstatement of income or understatement of expenses, as this would lead to a contravention of important qualitative requirements. Practices beyond the conservatism principle (Watts, 2002) which undermine the reliability of accounting information should therefore be considered as earnings management practices. Its objectives may deviate from the idea of stakeholder information and investor protection and refer rather to managers’ own benefits (Lara et al., 2005). Earnings play a vital role in the resolution of information asymmetries and in the communication with outside parties (Watts and Zimmerman, 1986; Healy and Whalen, 1999). The degree of applied discretion crucially determines the explanatory power and quality of reported earnings. At best, discretion can
be used by corporate insiders to make reported earnings more informative in terms of the firm’s true economic performance, but it can also serve for less honorable, self-centered interests (Burgstahler et al., 2006). Thus, discretion is not always used in a way to obfuscate the underlying economic evidence and earnings management does not necessarily undermine the informativeness of financial reports.

Earnings management can be divided into two distinct methods: Real earnings management and accounting earnings management (Bartov, 1993; Cheng, 2004). Real earnings management refers to the arrangement of cases and considers actions like timing the sale of an asset, the manipulation of R&D expenditure or sale-and-lease-back constructions. Purely accounting-based earnings management in return means to bias true economic performance representation by accounting decisions in a formal or material manner. In our analysis we focus on the latter form of earnings management.

The reasons for earnings management are manifold and diverse, but can be clustered into categories (Abdelghany, 2005; Healy and Whalen, 1999). The first category focuses on market incentives, affecting a company’s stock price. Biasing reported earnings can help to achieve a higher price level of security issuances or raise IPO and M&A transaction values. Moreover, the intention to meet or beat analysts’ forecasts and to smooth earnings over a period of time represent other relevant management’s considerations for earnings management. Finally, the “above zero concept” (Burgstahler and Dichev, 1997: 122) which deals with small losses: With only a small discretionary impulse management can turn a small loss into a small gain and can prevent reporting a negative result. The second category derives from incentive contracts. Bonus payments in remuneration contracts are often linked to certain earnings figures. This linkage sets an incentive for management to improve reported numbers, bearing in mind that even in the case of a detection, undoing the earnings bias may be costly (Koenigsgruber, 2009). Finally, other benefits that arise from information asymmetries with the company’s stakeholders may explain earnings management, e.g. to reach or comply with certain credit covenants. In the case of a management change, “big bath accounting” (Levitt, 1998) also represents a commonly applied method to improve the new management’s starting position. Exercising earnings management also bears an important risk, as its detection deteriorates market’s perception and valuation of firms. Empirical studies show a severe impact on companies’ stock prices. Public criticism in press for misleading financial reporting results in an average drop in stock price of 8

3. Measuring Earnings Management

Since true economic performance is unobservable, the use of discretion and thus the informativeness of earnings are impossible to measure directly. In order to measure the extent to which management exploits discretion to veil the explanatory power of reported earnings, proxies for earnings management are applied. The following section describes possible forms of earnings management detection and measurement.
Generally, accruals form the most prevailing measurement approach for earnings management in literature (Baxter and Cotter, 2009; Dechow and Dichev, 2002; Dechow et al., 1995; Healy and Whalen, 1999). Discretionary accruals enable accountants to recognize bad news about future cash flows on an asymmetrically timely basis. Yet unrealized losses (e.g. allowances) reduce current earnings, but do not impact current cash flows, while unrealized gains affect neither earnings nor cash flows for the period. As the emphasis of this article lies on earnings management in the banking industry, loan loss provisions (LLP) are investigated. LLPs represent one of the largest accruals of commercial banks (Ahmed et al., 1999; Kanagaretnam et al., 2004). Since bank managers assess the level of future loan losses in the current period, a wide latitude for discretion is given. Bank management can increase LLPs in order to decrease net income and vice versa (Agarwal et al., 2007; Cornett et al., 2006; Jones et al., 2007). Focusing on insider’s discretion on reporting decisions, the degree of earnings smoothing, i.e. the reduction of the variability of reported earnings by deliberately altering the provisions, therefore indicates earnings management. Companies may thereby attain premium charges in capital markets (Kanagaretnam et al., 2004).

Accrual measures are commonly based on the cross-sectional Jones model (1991) estimating total discretionary accruals. A further differentiation of accruals does not substantially alter empirical findings (Teoh et al., 1998). Often the sign of accruals is also subordinate (Reynolds and Francis, 2000; Yang and Krishnan, 2005).

The disadvantage of accruals as proxies in measuring earnings management is that accruals and cash flows are contemporaneously negatively correlated which complicates direct testing (Dechow, 1994). This correlation issue is also valid for most of the commonly used earnings management measures and can be addressed by aggregating different proxies into one single index (Burgstahler et al., 2006; See also the ranking index in section 4, equation 5).

The concept of timeliness of loss recognition in financial statements dates back to the seminal works of Basu (1997). The reflection of good news and bad news in reported earnings differs fundamentally, as bad news are reflected more promptly in financial statements. For the measurement of earnings management the above zero concept is again applied as management might use discretion to prevent small losses and to report small gains instead. This small loss avoidance derives from the fact that firms with consecutive positive earnings are priced at a market premium. If these firms experience a decline in earnings, the premium falls substantially (Barth et al., 1999; DeAngelo et al., 1996). Hence, managers have an incentive to smooth earnings and to report a pattern of increasing earnings over time instead. Empirically, researchers have addressed this issue by investigating small loss avoidance in several industries and geographic regions (Basu, 1997; Beatty et al., 2002; Burgstahler and Dichev, 1997; Degeorge et al., 1999).

Market to book ratio (book to market ratio respectively) contains the ability to predict future book return on equity and plays a central role in the discounted residual income valuation model (Beaver and Ryan, 2000; Feltham and Ohlson, 1995). The underlying idea of this measurement approach is a change in per-
spective: Market view, expressed by the stock price value of equity, is put into relation with a possibly biased book value of equity. In case of an understatement (overstatement) of operating assets, a lower (higher) book to market ratio can be found ceteris paribus. Earnings management is indicated rather by the progression of this ratio than by its absolute value. Market to book value of equity can be used as a proxy for conservatism assuming that the difference between book and market value arises solely from discretionary assets like goodwill or R&D expenditure (Stober, 1994).

4. Earnings Management in the Financial Crisis

The recent crisis that started 2007 in subprime credits and has by now reached the real economy and employment market marks a major turning point in global economy. This event will probably lead to a series of insights, especially for the banking industry in order to avoid future shortcomings and to correct previous errors. Nevertheless, the use of earnings management may still be an instrument to influence earnings figures or to soften the impacts of the crisis in current financial statements. Therefore, an investigation of earnings management in the years 2005/2006 in comparison to 2007/2008 seems promising.

4.1. Hypotheses Development on Earnings Management in the Financial Crisis

By examining earnings management behavior during the financial crisis 2007/2008, two different directions of development can be argued for. First, the permanence, degree and extent of earnings management could have increased during the crisis. A possible explanation for this is that in difficult financial times, management will do everything (legal) to slow, delay or soften large write-offs on assets or write-ups on liabilities for the balance sheet and to minimize the impact on income statements. Following this argument, earnings management measures would increase and its effects should be visible in several components of the annual statement. Accordingly, earnings management measures focusing on both balance sheet items (accruals) and income statement effects (small gains) were conducted. On the other hand, the permanence, degree and extent of earnings management could also have decreased during the crisis. A possible explanation for this is that to perform earnings management, a company first needs to generate earnings that can be biased. In difficult financial times, sufficient earnings may simply not be available or the management may focus rather on liquidity management than on earnings management.

In favor of the first alternative, the hypotheses on earnings management during the financial crisis are the following: H1: Absolute discretionary accruals (loan loss provisions) as a financial buffer will decrease since this allows the management to artificially increase reported earnings. As lower volatility in earnings refers to more stable future development banks will decrease their discretionary loan loss provisions in order to retain market premiums. Moreover, we expect a negative sign of discretionary accruals since they correlate with a low pre-managed relative performance (Kanagaretnam et al., 2004).
H2: With the use of earnings management the number of small gains or great losses will increase since a single massive loss is more appealing to management than several successively small losses (big bath accounting) and small gains again refer to a premium market valuation.

H3: Market to book ratio will decrease since the overstatement of assets will be reversed by deprecations and impairments, but drop less quickly than market valuation.

All in all, an increase in earnings management behavior is expected to be used in order to slow, delay and soften the financial crisis impact on financial statement items.

4.2. Sample description of German-origin banks

This study focuses on publicly-traded companies in the Austrian, German and Swiss banking sector, mainly for three reasons: First, the financial sector is assumed to be most heavily affected by the financial crisis, as massive write-offs in this sector occurred before other sectors were involved. Earnings management might therefore play an important role in mitigating consequences. Second, prior studies showed that the institutional setting of a country influences earnings management practices and the role of earnings to solve information asymmetries (LaPorta et al., 1998; Bushman and Piotroski, 2006). The focus on one common institutional setting – the ‘German style’ characterized by an insider system with a civil code law (LAW) and the same financial reporting standards (GAAP) minimizes possible noise factors. The three countries are often clustered as similar (LaPorta et al., 1998: 1118). Moreover, we control for differences in outside investor rights (INVESTOR), legal enforcement (LEGAL), importance of equity market (EQUITY), ownership concentration (CONCENTRATION) and a general disclosure index (DISCLOSURE) following Leuz et al. (2003: 516). Third, only large, publicly-held banks are investigated as empirical studies found different roles of financial statements for privately-held companies, where e.g. relatively less weight is put on the informative value of reported earnings for corporate outsiders (Burgstahler et al., 2006). In total, seven publicly-traded banks with headquarters in German-speaking countries (AU, CH and GER) were identified and their balance sheets, income statements, cash flow statements and stock price charts extracted from Thomson One Banker for the subsequent years of 2004-2008 (see table 1, Panel C). Additional information was gathered by the Worldscope Database. This relatively small number of firm-year observations (28) enables us to have a closer look on the individual firm level and minimizes bias by omitted variables: We attain $R^2$s from 0.40 to 0.64. Moreover, using a matched sample of firms, other noise factors should be quite stable over time and there should be less need for further control beyond the institutional and company variables.

4.3. Measurement Results

Three accounting-based approaches and an aggregate ranking score are performed to measure earnings management during the financial crisis. These earnings management proxies have empirically proven as valid benchmarks (Wysocki,
The first measure is the accrual component of earnings management, as it forms the most prevailing approach in literature. Discretionary loan loss provisions as bank specific accruals were calculated in accordance with prior research by Kanagaretnam et al. (2004). Loan loss provisions consist of two components, a discretionary component (DLLP) and a nondiscretionary component (NDLLP). To estimate nondiscretionary LLP we use the following model:

\[ LLP_{it} = \beta_0 + \beta_1 \times NPL_{it-1} + \beta_2 \times \Delta NPL_{it} + \beta_3 \times \Delta LOAN_{it} + \varepsilon_{it} \] (1)

LLP\(_{it}\) are provisions for loan losses; NPL\(_{it-1}\) are nonperforming loans at the beginning of the period; \(\Delta NPL_{it}\) is the change in the value of nonperforming loans and \(\Delta LOAN_{it}\) is the change in the value of total loans. All variables are scaled by beginning total assets. The expected signs of the coefficients on these variables are as follows. Nonperforming loans are likely to positively affect provisions for loan losses. The level of nonperforming loans at the beginning of the period is likely to be positively correlated with the provisions for loan losses. With more nonperforming loans at the beginning of the year, we expect banks to increase the loan loss provisions. The sign of the change in total loans is also expected to be positive, since an increase in loans may c.p. result in an increase in the provisions for loan losses due to doubtful loans. In equation (1), the independent variables account for the nondiscretionary component of loan loss provisions (NDLLP). Therefore, the discretionary component (DLLP) as the variable of interest is given by the residual term. As expected, the coefficients of the three variables are all positive and significant at \(\alpha = 0.01\) (see table 2). The \(R^2\) of the model is 0.54. The lower (higher) the value of the accrual accounting measure, the more earnings management was presumably performed with a low (high) pre-managed firm performance, since it is suspected that bank management uses discretionary loan loss provisions to smooth earnings. To isolate the impact of the financial crisis on the earnings management behavior of banks, we calculate the DLLPs on a yearly basis. Since there is no official starting date of the financial crisis, we aggregate the yearly measures of 2005 with 2006 (definitively before the financial crisis) and 2007 with 2008 (definitively affected by the financial crisis), postulating that before 2007 no financial crisis effects were recognized in annual statements. Comparing 2005/2006 and 2007/2008 therefore allows us to analyze the crisis impact individually for each company. Using the estimated DLLPs of equation 1, we control for several cross-sectional differences. Besides the institutional control variables LAW, LEGAL, GAAP, INVESTOR, EQUITY, CONCENTRATION and DISCLOSURE we control for company-specific differences and the heterogeneity in firms’ business processes affecting earnings properties. Potential sources of variation in accruals are firm size (SIZE), performance (OCF), audit quality (AUDITOR) and firm ownership (OWNER). Firm size (SIZE) is measured as the logarithm of the book value of total assets in EUR thousands. We expect a negative sign of the coefficient, suggesting that larger firms exercise less earnings management. This might be due to better control mechanisms in larger companies. For performance control (OCF), we use cash flow from operating activities in EUR thousands and ex-
pect a negative correlation with earnings management for the same reason. We proxy audit quality by using a Big4 audit company binary. Finally, we measure firm ownership (OWNER) as the percentage of direct holdings by the single largest shareholder as provided in Worldscope. Firm ownership was empirically found to influence performance (Brouthers et al., 2007). We expect a negative sign for the coefficient since a large number of shareholders may exercise more subtle and diversified control activities than a small number of shareholders. All attributes of the company controls are calculated on firm-year level. See table 1 for descriptive details on the company (Panel A) and institutional (Panel B) control variables. The final regression then focuses on CRISIS that equals 1 if the firm year is in the financial crisis 2007/2008 and 0 otherwise.

\[ DLLP_{it} = \beta_0 + \beta_1 \times CRISIS + \beta_j \times CompanyControls + \beta_k \times InstitutionalControls + \epsilon_{it} \]  

(2)

The results of this measure (see table 3) show a decrease of absolute discretionary LLPs during the financial crisis. The average value of all banks increases from -0.21 to -0.16 (for results on company level see table 7). The negative values are expected since negative discretionary LLPs were expected with a low pre-managed performance and are consistent with our hypotheses for the financial crisis. Accordingly, we observe an increase in the level of earnings management as anticipated in H1, because CRISIS is positive and significant at \( \alpha = 0.1 \).

Looking at the company level, individual differences can be discovered. Some companies face a strong increase in earnings management, e.g. Commerzbank (+0.45) or Credit Suisse (+0.57), whereas UBS recognizes an decrease in this measurement (-1.17). Contrarily, one firm faces no clear direction and remains stable, namely Raiffeisen International Bank (+0.08). In conclusion, the financial crisis’s impact on the earnings management measure indicates more earnings management, with slight differences between the observed firms.

The second measure addresses loss recognition (LOSSES). As small gains are likely to lie within the bounds of insider’s reporting discretion, they reflect the extent to which loss reporting is avoided. Small gains or losses are defined in the range of ± 0.5

\[ LOSSES_{it} = \beta_0 + \beta_1 \times CRISIS + \beta_j \times CompanyControls + \beta_k \times InstitutionalControls + \epsilon_{it} \]  

(3)

For 2005/2006, only one small gain or great loss can be recognized in comparison to five in 2007/2008 suggesting an increase in the level of earnings management during the financial crisis. Unfortunately, CRISIS is only significant as a single variable and not with all control variables, but the sign is positive as expected in H2 (See table 4). On average, 0.86 small gains or great losses were reported in the last four years per company, but with differences among the firms. Commerzbank reported in the four subsequent years two small gains, suggesting more earnings smoothing than e.g. Raiffeisen International Bank, with only great gains during the same period. All in all, the financial crisis’s
impact on this earnings management measure indicates an increase in earnings management.
The third single measure is market to book ratio (M/B). Here, a change of perspective takes place. Now, market view represents the true economic performance of a company and accounting numbers reflect its representation in financial statements. The underlying theoretical idea is that the closer market and book value are, the better is the representation of economic performance. Small (high) ratios then indicate a higher (lower) level of earnings management, as an understatement (overstatement) of net assets leads to higher (lower) market to book ratio. Market value of equity is calculated by common shares outstanding multiplied by year-end closing stock price and is put into relation with the book value of equity as reported in the relevant financial statement.

\[
M/B_t = \beta_0 + \beta_1 \ast \text{CRISIS}_t + \beta_j \ast \text{CompanyControls}_t + \beta_k \ast \text{InstitutionalControls}_t + \epsilon_t
\]

Results in table 5 show a decline in the market to book ratio suggesting an increase in earnings management as expected in H3. This decline is existent on firm-year level with an average M/B ratio of 2.18 in 2005/2006 compared to 1.28 in 2007/2008. CRISIS is highly significant at \( \alpha = 0.01 \). Additionally, the significance of capital market structures (EQUITY) together with its positive sign suggests that more advanced capital markets minimize earnings management behavior of bank management and underline the importance of clear corporate governance structures.
The picture is also very consistent on company-level. All companies face a decline in the market to book ratio. The strongest decline is detected with Raiffeisen International Bank, its M/B ratio drops from 3.5 to 1.6, whereas Deutsche Postbank’s ratio instead decreases only from 1.8 to 1.3. The overall financial crisis’s impact on this earnings management measure therefore indicates more earnings management.
The issue with this measure is that stock prices rather incorporate future estimates and growth expectations than only reflect current economic performance. Market figures have fallen more quickly than accounting figures. The proxy itself may therefore be less powerful to discover earnings management in the financial crisis.

After the analysis of three different earnings management measures, one aggregate measure (RANK) is calculated in order to mitigate potential measurement errors. This overall summary score is based on a ranking in each measurement class because the single measures base on different units. A ranking can put together several measures into one, is moreover consistent with general perceived earnings informativeness and should thus behave in a plausible fashion (Burgstahler et al., 2006). Each of the three individual scores is ranked such that a higher (lower) score suggests a higher (lower) level of earnings management. The aggregate earnings management score is then computed by taking the average rank of the individual measures.
The results in table 6 show that CRISIS is positive and highly significant with \( \alpha = 0.01 \), suggesting an increase in the use of earnings management during the financial crisis. Moreover, SIZE, OWNER and EQUITY are significant, indicating that larger and more distributed firms in developed equity markets perform less earnings management. Looking at the earnings management ranking score, evident differences between companies can be found. Commerzbank is performing earnings management to the highest degree in this sample, both before (average rank 5.3) and during the crisis (average rank 5.7) and UBS to the lowest level (rank 2.0 and 3.3). Also, differences over time within companies become observable. Here, Deutsche Postbank can be mentioned, with the highest change in rank during the crisis from rank 2.3 to 4.7 – suggesting that the drop in the ranking results from an increased earnings management practice.

Regardless of all efforts to minimize bias effects in the study design, some limitations to the findings have to be stated. First of all, all findings are based on a relatively small data sample and therefore a generalization on the whole banking sector is not necessarily appropriate without further research. Omitted variable bias should not be the main issue since we use balanced panel data. A wrong functional form may be prevalent for control variables, but several forms (e.g. logarithm of total assets) were tested. Another issue might be sample selection bias, e.g. there might be some selection effects of large listed banks. Also further controls (like time trends analysis) might be necessary to foster the statistical basis. Finally, the specification of the proxies and its measurement in this study design may be arguable. Despite these limitations, there is substantial evidence that the major findings also hold with a modified sample and with further statistical tests.

5. Conclusion and Summary

Investigating the earnings management behavior and its development in the German-origin banking sector during the financial crisis 2007/2008 has shown several key findings. First, a preponderantly consistent picture of the banking sample was discovered over time with different earnings management proxies. The four measures loan loss provisions, small gains/great losses, market to book ratio and the ranking index indicated an increased use of earnings management by the bank management – presumably in order to mitigate financial crisis’s impact on accounting figures. In difficult financial times earnings management seems to be an useful method for management to slow, delay or soften the impact on financial statement items. Some distinctions were identified among the observed banks. As the sample selection and study design guarantee, differences in the findings are independent from the national background (institutional setting control). Accordingly, Commerzbank (GER) performed relatively more
earnings management than UBS (CH) or Raiffeisen International Bank (AU) and no country pattern within the institutional setting could be substantiated. Since EQUITY was significant, more advanced capital markets seem to minimize earnings management and underline the importance of clear corporate governance structures. Also SIZE was significant in some regressions indicating that regulators should take care of smaller companies in regard to earnings management practices and account for this issue, e.g. when developing specific accounting standards like IFRS for SME. Finally, there exists a strong indication that more distributed shareholdings (OWNER) reduce earnings management practices. These implications are helpful to raise regulators’ and auditors’ awareness for popular methods of earnings management and its detection in practice. The measurement of earnings management during the financial crisis has proven to be difficult, generally due to the absent direct observability of a company’s true economic performance. Some measurement approaches therefore may sometimes be imprecise or insufficiently differentiated. The interpretation of the results should therefore be done cautiously as the theoretical foundation of the financial crisis’s impacts are not well understood or even analyzed so far. Nevertheless, the measures indicate a financial crisis’s impact on earnings management practices of bank management. For one of the first research studies on earnings management and the financial crisis, the results seem interesting for regulators as well as the scientific community. Future research may enlarge the data sample to foster key findings and to further improve the explanatory power with more subtle empirical statistics. On the other hand, a small sample allowed us to have a closer look at individual firms. Researchers could address the theoretical and practical use of earnings management at special events (e.g. Lehman collapse) with more specific time data, e.g. quarterly reports, to more exactly identify the beginning of the financial crisis. Further research could also be applied to verify whether major changes in the corporate governance structures (e.g. management change), large takeovers or other influential events have taken place that substantially altered earnings management practices at that time. Moreover, further specifications of the accrual model and earnings smoothing measure could be applied. To deepen the understanding of earnings management practices during the global financial crisis, the examination in a larger international context may be promising to enrich the worldwide discussion on earnings management – ongoing since four decades of accounting research.
Appendix

<table>
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<th>Variable</th>
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<th>Std. Dev.</th>
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Table 1: Descriptive Analysis of Company Controls

Notes: LLP=Provisions for loan losses scaled by beginning total assets; NPL=Nonperforming loans at the beginning of the period scaled by beginning total assets; LOANS=Total loans at the beginning of the period; SIZE=Logarithm of total assets at the beginning of the period; OCF=Cash flow from operating activities; OWNER=Percentage of direct holdings by the single largest shareholder. All analyzed banks are audited by Big4 auditors; therefore AUDITOR is dropped.

<table>
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<th>Germany</th>
<th>Switzerland</th>
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<td>INVESTOR=IFRS</td>
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Table 2: Descriptive Analysis of Institutional Controls

Notes: LAW=Civil code law; GAAP=IFRS reporting entities; INVESTOR=Outside investor rights index created by LaPorta et al. (1998); LEGAL=Legal enforcement score by LaPorta et al. (1998) with efficiency of judicial system, rule of law and corruption index; EQUITY=Importance of equity market by LaPorta et al. (1997) with aggregate stock market capitalization held by minorities to gross national product, number of listed domestic firms relative to the population and the number of IPOs relative to the population; CONCENTRATION=Ownership concentration by LaPorta et al. (1998) with the percentage of common shares owned by the three largest shareholders in the ten largest privately owned non-financial firms; DISCLOSURE=Disclosure index measures the inclusion or omission of 90 items in 1990 annual reports. All variables are taken from Leuz et al. (2003).