

BANK EARNINGS MANAGEMENT

Costs, Drivers and Remedies

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List of Essential Symbols

a_{1p}, a_{2p}, a_{3p}	regression coefficients
ACC	bank accruals
α_0	regression constant
$\alpha_1, \alpha_{2,c}$	regression coefficients
b_1, b_2	regression constants
β_0	regression constant
$\beta_1, \beta_{2,c}$	regression coefficients
c	control variable index
c_1, c_2, c_3	mean of the return series $r_{j,t}$, $r_{w,t}$ and $r_{jfx,t}$, respectively
$CORR$	correlation
d_{1p}, d_{2p}, d_{3p}	regression coefficients
δ_0	regression constant
$\delta_1, \delta_2, \delta_3, \delta_{4,c}$	regression coefficients
ΔACC	change in bank accruals
ΔCF	change in bank operating cash flows
e_1, e_2	regression constants
$EXPL$	extraordinary profits and losses
$\epsilon_{j,t}$	residual error term of the international capital asset pricing model
$\varepsilon_{j,t-p}$	innovation in monthly return of the bank index of country j at time $t - p$, i.e. fluctuations of $r_{j,t}$ around the mean c_1
$\varepsilon_{jfx,t-p}$	innovation in monthly depreciation of the j^{th} foreign currency with respect to the dollar at time $t - p$, i.e. fluctuations of $r_{jfx,t}$ around the mean c_3
$\varepsilon_{w,t-p}$	innovation in monthly return of the bank index of the world at time $t - p$, i.e. fluctuations of $r_{w,t}$ around the mean c_2
g	current dividend growth rate
$GLSS$	gains and losses on sales of securities

γ_0	regression constant
$\gamma_1, \gamma_{2,c}$	regression coefficients
$h_{j,t}$	conditional variance of the monthly return of the bank index of country j at time t
$h_{jfx,t}$	conditional variance of the monthly depreciation of the j^{th} foreign currency with respect to the dollar at time t
$h_{j,jfx,t}$	conditional covariance of the monthly return of the bank index of country j with the monthly depreciation of the j^{th} foreign currency with respect to the dollar at time t
$h_{j,w,t}$	conditional covariance of the monthly return of the bank index of country j with the monthly return of the world index at time t
$h_{w,t}$	conditional variance of the monthly return of the bank index of the world at time t
j	country index
k	earnings management variable index
λ_0	regression constant
λ_{cov}	price of covariance risk, i.e. excess return per unit of conditional covariance between the dollar monthly return of the bank index of country j at time t and the dollar monthly return of the bank index of the world at time t
λ_{var}	price of own country variance risk, i.e. excess return per unit of conditional variance of the dollar monthly return of the bank index of country j at time t
$MCap$	dollar stock market capitalization at the end of the month
$NCEX$	non-cash expenses
$NCREV$	non-cash revenues
p	number of time lags of the DCC Multivariate GARCH model
$\psi_{j,t}$	residual error term
$\phi_{j,t}$	a measure of the level of integration of country j at time t
$r_{f,t}$	monthly return of the one-month US T-Bill at time t
$r_{j,t}$	dollar monthly return of the bank index of country j at time t
$r_{jfx,t}$	monthly depreciation of the j^{th} foreign currency with respect to the dollar at time t
$r_{w,t}$	dollar monthly return of the bank index of the world at time t
S_1, S_2	unconditional correlation matrices of the epsilons
SL	number of banks with small losses

SP	number of banks with small profits
t	time index
TA_{t-1}	lagged total assets
TV	dollar trade per month of bank stocks
$\nu_{j,t}$	residual error term
$v_{j,t}$	residual error term
$\vartheta_{j,t}$	residual error term
y	current dividend yield

Chapter 1

Introduction

Fueled by the heightened interest in the banking sector in the wake of the financial crisis and the global economic recession that ensued, this study takes a closer look at the topic of bank earnings management. Earnings are a vital predictor of bank health that impact the assessment of both, bank value and risk. If bank earnings are managed, unsafe conditions can be concealed and regulators' ability to take timely corrective action compromised (Gunther and Moore, 2003). What is worse, it has been documented that the tools used to manipulate bank earnings can compromise sound risk management (GAO, 1994). As such, it is not surprising that drastic sanctions are regularly imposed on banks for manipulating their earnings. Still, to date no one has tried to make the costs of bank earnings more explicit, nor has much research been devoted to identifying factors that may limit it. Our study sets out to fill these research gaps by addressing two main research questions.

The first question asks whether bank earnings management has a negative impact on equity markets around the world. To answer this question, we examine the link between bank earnings management and cost of equity and trading volume, using a comprehensive sample of 22,217 banks from 50 countries over the period 1990-2006. The extent of bank earnings management in a country is measured using three distributional properties of accounting earnings that suggest poor correspondence between observable accounting earnings and unobservable economic earnings: loss avoidance, income smoothing and earnings aggressiveness. A time-series measure for each of these three dimensions of bank earnings management per country is developed and then combined to obtain a panel data set of overall bank earnings management. The study then examines whether and to what extent these measures of bank earnings management are related to the costs banks incur to raise equity and the amount of shareholder trading

of bank stocks. The results show that investors punish banks for manipulating their earnings. While the results for our individual measures of bank earnings management differ, our measure of overall earnings management is associated with a significantly higher cost of equity for banks and lower trading volume. The effects are generally larger than those observed for nonfinancial firms in prior studies.

Our second research question asks whether differences in bank earnings management across countries can be linked to differences in the prevailing institutional and regulatory framework. More specifically, we examine if and to what degree our measures of bank earnings management are related to the restrictiveness of bank regulations and the degree of official and private supervision in a country. Using a broad sample comprising 21,895 banks from 47 countries over the period 1990-2006, this study confirms that the institutional and regulatory environment plays a substantial role in explaining differences in bank earnings management across countries. Our measure of overall bank earnings management is not only a decreasing function of the breadth of activities permitted to bank managers, it is also significantly reduced by official and private supervision, with the latter type of oversight being a particularly effective tool to combat bank earnings management. The findings for our individual earnings management measures are broadly in line with those of our overall measure. We also find that apart from the regulatory and institutional framework, two other country-level characteristics, namely financial structure and development, are significantly related to the pervasiveness of bank earnings management across countries. In an explorative ownership analysis, we further test whether the propensity for bank earnings management is also dependent upon ownership form and show that ownership indeed matters. While listing status is unrelated to systematic differences in bank earnings management across countries, cooperative banks on average appear to be more prone to earnings management than commercial banks.

Our study makes several contributions to the literature. First, it extends prior work on the relation between the quality of accounting information and firms' cost of capital and market liquidity to financial institutions. This is important because the costs banks incur to raise capital affect the terms and conditions at which they extend credit to society, which in turn affect economic growth and prosperity. Likewise market liquidity has been shown to be positively and significantly related to economic growth, capital accumulation and productivity growth (Levine and Zervos, 1998). Second, prior research has shown that bank earnings management is a pervasive, global phenomenon (e.g. Shen and Chih, 2005; Fonseca and González, 2008), yet to date no one has tried to assess its direct costs and implications for financial markets and the economy at large.

Our study thus adds a new dimension to existing research on bank earnings management that previously has been restricted to proving whether earnings management by banks exists and which tools are used for it. Third, we complement and extend recent work on the role of the regulatory and institutional environment in explaining bank earnings management with the aim of identifying factors that could form the basis for a regulatory response to the problem. Fourth, we delve deeper into the role of ownership structure as a driving force behind bank earnings management, a promising but to date neglected explanatory factor, and try to explore whether certain ownership structures are particularly conducive to bank earnings management. Finally, we add to the emerging stream of international literature on bank earnings management, a research topic that in the past has had a strong national focus on the United States.

This dissertation is organized as follows. A review of the relevant literature is provided in Chapter 2. The first and second research questions are addressed in Chapters 3 and 4, respectively. Chapter 5 summarizes and concludes.

Chapter 2

The State of Research

2.1 Introduction

“The principal role of financial reporting [is] to furnish the investor and lender with information useful to assess the prospective risk and returns associated with an investment.” (pp. 3-4, FASB, 1976) “The primary focus of financial reporting is information about an enterprise’s performance provided by measures of earnings and its components. Investors, creditors, and others who are concerned with assessing the prospects for enterprise net cash inflows are especially interested in that information. Their interest in an enterprise’s future cash flows and its ability to generate favorable cash flows leads primarily to an interest in information about its earnings [...]” (sec. 43, FASB, 1978)

The preceding quotes emphasize the importance of earnings, which are widely believed to be the premier information item provided in financial statements. Earnings are not only a vital input to most valuation models, management decisions and their compensation are often stated in terms of earnings objectives and financial analysts also express their beliefs about future outcomes of securities in the form of earnings (Lev, 1989). In fact, investors pay so much attention to earnings numbers that a whole industry has sprung up to meet the demand. Firms, such as I/B/E/S and First Call, specialize in gathering analysts’ individual earnings forecasts to derive from them a consensus forecast (Collingwood, 2001). Because earnings are so important, their quality is of the essence.

Earnings management, according to Healy and Wahlen (p. 368, 1999) defined as: “the use [of] judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers”, leads to low earnings quality. When earnings are managed, they no longer reflect the underlying financial performance of firms, but rather management desires. The resulting damage can be widespread with a sometimes devastating ripple effect. According to the National Commission on Fraudulent Financial Reporting (1987), those affected may range from the immediate victims, the company’s stockholders and creditors, to the more remote, those harmed when investor confidence in the stock market is shaken. Between those two extremes, many others may be affected. In the case of banks, earnings management can be even more problematic. According to Arthur Levitt (p. 5, 1999), former chairman of the United States Securities and Exchange Commission, “the distortion of earnings may mislead a bank’s board of directors and regulators about the actual level of safety and soundness of the bank. Unsafe conditions at the institution could be camouflaged. As a result, needed corrective measures or intervention may be postponed, resulting in harm to the particular financial institution and possibly the system as a whole.” The recent financial crisis serves as a painful reminder of what can happen when investors and regulators do not have a comprehensive and reliable picture of the financial condition and performance of banks and how problems originating at one institution can quickly be transmitted elsewhere. As such, it is particularly troublesome that the number and size of earnings related restatements is constantly on the rise, accounting for the bulk of the USD 100 billion in losses in market capitalization related to financial statement restatements in the United States over the period from January 1997 to March 2002 (GAO, 2002).

The high incidence and the drastic consequences that cases of earnings management can entail explain why studies on earnings management have long become a center pillar of financial research. Few other topics situated in the interface between finance and accounting have triggered an equally high and constant interest over time, let alone culminated in a similar plethora of theories and models. While the literature on earnings management in general is abundant, research carried out in the banking context is still limited. This motivates us to provide a comprehensive review of the academic evidence on bank earnings management in this chapter, aimed at identifying fruitful areas for future research and setting the stage for our later analyses. Our review covers the motivations and means for bank earnings management first (in Section 2.2) and the firm- and country-level drivers later (in Section 2.3), showing the evolution of

research over time. Finally, we provide a summary and pinpoint directions for future studies in Section 2.4.

2.2 Motivations and Means

Academic interest in bank earnings management sparked in the late 1980s. Table 1 provides a summary of the studies on the topic to date. Over the years, many studies have investigated whether bank managers use their discretion to manage reported earnings, in the pursuit of identifying the underlying motives and the tools used to manage earnings. With regard to motivations, the studies can broadly be categorized into those focusing on earnings management to smooth income, those concentrating on a form of benchmark beating, and those focusing on earnings maximization, mostly dubbed earnings aggressiveness by the literature.

Research on income smoothing at banks has attracted by far the most attention. The studies can be grouped based on the tools used to manage earnings. The bulk of these studies focus on the use of loan loss provisions for earnings management. Others look at banks' realizations of securities gains and losses and others consider several tools at the same time.

Among the studies analyzing income smoothing by means of loan loss provisions the vast majority confirm the income smoothing hypothesis that predicts a positive relation between the level of provisions and bank earnings (Anandarajan, Hasan and Lozano-Vivas, 2003; Anandarajan, Hasan and McCarthy, 2007; Bhat, 1996; Bikker and Metzmakers, 2005; Chang, Shen and Fang, 2008; Fonseca and González, 2008; Greenawalt and Sinkey, 1988; Kanagaretnam, Lobo and Mathieu, 2003; Kanagaretnam, Lobo and Mathieu, 2004; Kanagaretnam, Lobo and Yang, 2004; Lobo and Yang, 2001; Pérez, Salas and Saurina, 2006; Yunxia, 2007). The study by Greenawalt and Sinkey (1988) marks the first contribution to this stream of the literature. For a sample of 106 large American bank holding companies, they not only produce evidence of income smoothing behavior over their test period, but also conclude that bank capital policy may have implicitly encouraged this behavior. Several years thereafter this finding is confirmed by Bhat (1996) and Lobo and Yang (2001), albeit for later and longer time periods. Further evidence generated within the United States includes Kanagaretnam, Lobo and Mathieu (2003). The paper examines whether managers faced with job security concerns use loan loss provisions for income smoothing. The results provide an affirmative response to this research question. More specifically, in banks with good (poor) current performance and expected poor (good) future performance, managers

Table 2.1
Summary of the Findings on Bank Earnings Management

This table reports a summary of the studies on bank earnings management. Column 1 reports the authors and column 2 the publication year. Columns 3 and 4 present the sample country and period, respectively. Column 5 lists the number of banks studied, followed by the motivation for earnings management in column 6. Column 7 presents the tools used to manipulate earnings: loan loss provisions (LLPs), loan charge-offs (LCOs), security gains and losses (SGLs), or other (Other). The last column reports whether evidence for earnings management is found (Yes), not found (No), or mixed (Mixed).

Authors	Year	Country	Period	Banks	Motivation	Tools	Findings
Greenawalt and Sinkey	1988	US	76Y-84Y	106	income smoothing	LLPs	Yes
Ma	1988	US	80Y-84Y	45	income smoothing	LLPs,LCOs	Yes
Barth, Beaver and Wolfson	1990	US	68Y-87Y	150	income smoothing	SGLs	Yes
Moyer	1990	US	81Y-86Y	160	income smoothing	LLPs,LCOs,SGLs	No
Scholes, Wilson and Wolfson	1990	US	81Y-86Y	-	income smoothing	LLPs,SGLs	Yes
Warfield and Linsmeier	1992	US	80Y-85Y	47	income smoothing	SGLs	Yes
Wetmore and Brick	1994	US	86Y-90Y	82	income smoothing	LLPs	No
Beatty, Chamberlain and Magliolo	1995	US	85Y-89Y	148	income smoothing	LLPs,Other	Mixed
Collins, Shackelford and Wahlen	1995	US	71Y-91Y	132	income smoothing	LLPs,SGLs	Mixed
Bhat	1996	US	81Y-91Y	148	income smoothing	LLPs	Yes
Chen and Daley	1996	Canada	77Y-87Y	11	income smoothing	LLPs	No
Beatty and Harris	1998	US	91Y-92Y	-	income smoothing	SGLs	Yes
Robb	1998	US	86Y-91Y	149	benchmark beating	LLPs	Yes
Ahmed, Takeda and Thomas	1999	US	86Y-95Y	113	income smoothing	LLPs	No
Niswander and Swanson	2000	US	87Y-88Y	11,620	income smoothing	LLPs,SGLs	Yes
Beatty and Harris	2001	US	91Y-92Y	248	income smoothing	SGLs	Yes
Lobo and Yang	2001	US	81Y-96Y	50	income smoothing	LLPs	Yes
Beatty, Ke and Petroni	2002	US	88Y-98Y	1,867	benchmark beating	LLPs,SGLs	Yes
Anandarajan, Hasan and Lozano-Vivas	2003	Spain	86Y-95Y	-	income smoothing	LLPs	Yes
Gunther and Moore	2003	US	96Y-98Y	-	earnings aggressiveness	LLPs	Yes
Kangaretnam, Lobo and Mathieu	2003	US	87Y-00Y	-	income smoothing	LLPs	Yes
Schrand and Wong	2003	US	93Y-98Y	235	benchmark beating	Other	Yes
Shrieves and Dahl	2003	Japan	89Y-96Y	79	income smoothing	LLPs,SGLs	Yes
Gray	2004	US	92Y-03Y	-	-	Other	Yes
Hasan and Wall	2004	22 countries	93Y-00Y	-	income smoothing	Other	Yes

Table 2.1 (continued)

Authors	Year	Country	Period	Banks	Motivation	Tools	Findings
Kangaretnam, Lobo and Mathieu	2004	US	92Y-01Y	-	income smoothing	LLPs	Yes
Kangaretnam, Lobo and Yang	2004	US	80Y-97Y	105	income smoothing	LLPs	Yes
Yasuda, Okuda and Konishi	2004	Japan	90Y-99Y	48	-	Other	Yes
Bikker and Metzmakers	2005	29 OECD countries	91Y-01Y	-	income smoothing	LLPs	Yes
Hazera	2005	Mexico	98Y-00Y	3	earnings aggressiveness	LLPs	Yes
Karaoglu	2005	US	97Y-00Y	249	several motives	SGLs,Other	Yes
Shen and Chih	2005	48 countries	93Y-99Y	47,154	benchmark beating	-	Yes
Liu and Ryan	2006	US	91Y-00Y	329	income smoothing	LLPs,LCOs	Yes
Pérez, Salas and Saurina	2006	Spain	86Y-02Y	142	income smoothing	LLPs	Yes
Agarwal, Chomsisengphet and Rhee	2007	Japan	85Y-99Y	78	income smoothing	LLPs,SGLs	Yes
Anandarajan, Hasan and McCarthy	2007	Australia	91Y-01Y	50	income smoothing	LLPs	Yes
Yunxia	2007	US	00Y-05Y	-	income smoothing	LLPs	Yes
Chang, Shen and Fang	2008	Taiwan	99Y-04Y	33	income smoothing	LLPs	Yes
Fonseca and González	2008	40 countries	95Y-02Y	1213	income smoothing	LLPs	Yes
Adams, Carrow and Perry	2009	US	92Y-03Y	361	maximizing IPO returns	LLPs,Other	Yes
Cornett, McNutt and Tehranian	2009	US	94Y-02Y	100	earnings aggressiveness	LLPs,SGLs	Yes

save income for (borrow income from) the future by reducing (increasing) current income through loan loss provisions. The researchers later corroborate these findings using a different methodology and in addition show that bank managers' decisions to reduce earnings variability also depend on the availability of alternative smoothing devices (Kanagaretnam, Lobo and Mathieu, 2004). In a slightly different team, Kanagaretnam, Lobo and Yang (2004) produce further evidence consistent with the use of loan loss provisions for income smoothing, particularly when premanaged earnings are extreme. They also document that the intensity of smoothing is not uniform across their sample. In addition to being a function of the incentive to smooth, it is also a function of the incentive to signal. Finally, for a broad sample of banks from the United States, Yunxia's (2007) results also exhibit the positive relationship between loan loss provisions and earnings before loan loss provisions suggestive of income smoothing.

The more concurrent evidence on the use of loan loss provisions to smooth reported earnings has primarily been generated outside the United States. Anandarajan, Hasan and Lozano-Vivas (2003) conduct the first study of bank earnings management beyond the bounds of the North American continent. They show that after the implementation of capital adequacy regulations in the Spanish depository industry, banks became more aggressive earnings managers. Pérez, Salas and Saurina (2006) lend support to these findings by further confirming income smoothing by banks in Spain. Anandarajan, Hasan and McCarthy (2007) and Chang, Shen and Fang (2008) obtain similar evidence for samples of Australian and Taiwanese banks, respectively, producing additional international evidence of income smoothing through loan loss provisions. One of the first truly international studies was conducted by Bikker and Metzmakers (2005). They analyze income smoothing by means of loan loss provisions in 29 OECD countries and report that provisions generally rise in times when earnings are higher. However, the results suggest substantial differences in provisioning behavior across countries, especially between the United States and Europe. The researchers attribute these differences to the diverging legal, regulatory and institutional frameworks. Fonseca and González (2008) also add to this literature by showing that loan loss provisions are significantly positively related to bank earnings in 13 countries, with the incidence of earnings management being higher in lesser developed countries. Affirmative evidence of bank income smoothing has also been generated by Hasan and Wall (2004) for a sample comprising banks from 22 countries, even though they focus on the loan loss allowance account instead of loan loss provisions.

Only three studies observe a relation between earnings and loan loss provisions opposite to that expected under the income smoothing hypothesis. One of these studies

looks at Canadian banks (Chen and Daley, 1996), while the remaining two focus on American banks (Ahmed, Takeda and Thomas, 1999; Wetmore and Brick, 1994).

Several studies investigate income smoothing by means of securities gains and losses. Even though these studies cover different time periods, they all conclude that securities gains and losses are used to manage earnings. Barth, Beaver and Wolfson (1990) first contributed to this literature. They examine whether stock price multiples differ across earnings components in the banking industry and demonstrate that while earnings before securities gains and losses play an important role in explaining bank stock prices, realized securities gains and losses do not. Investors apparently perceive that reported securities gains and losses, which are shown to behave in a manner consistent with smoothing earnings, are timed by bank managers to offset losses and gains in other earnings. Warfield and Linsmeier (1992) conduct a similar analysis and extend the findings of Barth, Beaver and Wolfson (1990) by showing that there is a marked increase in the use of security gains and losses to smooth earnings towards the fiscal year end. Beatty and Harris (1998; 2001) provide further evidence suggesting that earnings influence the realization of investment security gains and losses at both the individual bank and group level in the United States, thus confirming earnings management.

Niswander and Swanson (2000) were among the first researchers to consider several tools for earnings management at the same time. They model each of four accounting choices (loan loss provisions, loan charge-offs, securities gains and losses and dividends) as a system of simultaneous equations to investigate how their discretionary portion is influenced by the level of earnings, capital and taxes. Shrieves and Dahl (2003) and Agarwal, Chomsisengphet, Liu and Rhee (2007) adopt the same methodological approach, but focus on loans instead of loan charge-offs and on Japanese instead of American banks. All three studies conclude that banks use both, loan loss provisions and securities gains and losses, to smooth their income. While not necessarily in a simultaneous equations framework, several other studies consider multiple tools for income smoothing. For instance, Ma (1988) performs a regression analysis and demonstrates that managers utilize loan loss provisions and loan charge-offs to smooth reported earnings, leading him to the conclusion that the practice of declaring provisions for loan losses, does not fully serve the original intention of reflecting the actual quality of banks' loan portfolios. Scholes, Wilson and Wolfson (1990) find a positive relation between securities gains and losses and loan loss provisions, consistent with the argument that the former are chosen strategically to smooth reported earnings by offsetting the income effect of the latter. Moyer (1990) examines whether managers of politically sensitive banks adjust earnings downward, when revenue is unusually high,

by the joint interplay of loan loss provisions, loan charge-offs and securities gains and losses in order to avoid costly political scrutiny, but finds no evidence for this conjecture. However, the estimation results indicate that the models may be poorly specified, potentially causing the results to be biased. Beatty, Chamberlain and Magliolo's (1995) results indicate that both pension settlement gains and gains from miscellaneous asset sales are used to manage earnings. However, they find virtually no evidence that loan loss provisions are used for earnings management. These findings stand in contrast to those of Collins, Shackelford and Wahlen (1995), who show that the banks sampled engage in earnings management by means of loan loss provisions, but do not employ securities gains and losses for this purpose. More recently, Liu and Ryan (2006) show that during a period of bust banks delayed loan loss provisions, while they accelerated them in the subsequent period of boom, making this behavior less apparent by also accelerating loan charge-offs. Karaoglu (2005) further shows that banks smooth their income by cherry-picking loans and biasing the reported gains or losses from loan sales or securitizations.

Research on benchmark beating was initiated by Robb (1998). The study examines the effect of analysts' forecasts on earnings management in financial institutions. It documents that bank managers make greater use of earnings manipulations when analysts have reached a consensus in their earnings predictions. Banks below the market's expectations employ income-increasing discretionary accruals when the dispersion in analysts' forecasts is low, while banks above the market's expectations employ income-decreasing discretionary accruals only when the market lacks consensus. Schrand and Wong (2003) contribute to the same stream of literature by showing that banks adjust their valuation allowance associated with deferred tax assets in order to offset the deviations of the banks' unadjusted earnings from the consensus analyst forecast and average historical earnings per share. Building on this finding, Karaoglu (2005) demonstrates that banks not only adjust their valuation allowances to meet analyst forecasts, but also engage in loan sales and securitizations to make up for any shortfall from the consensus forecast, thus alleviating capital market pressures. Focusing on a different form of benchmark beating, namely the avoidance of losses and negative earnings trends, Beatty, Ke and Petroni (2002) analyze whether the lower than expected incidence of small earnings decreases reported by public banks in the United States is attributable to earnings management or simply a reflection of the underlying distribution of earnings changes. By means of a series of tests they confirm that the asymmetric earnings distribution is in fact due to earnings management and show that relative to private banks, public banks not only report fewer small earnings declines,

but also longer strings of consecutive earnings increases. In a more recent international comparison of the banking industry, Shen and Chih (2005) shed additional light on the topic and provide evidence that banks all over the world manage their earnings to avoid losses and negative earnings trends.

To our knowledge only three studies have focused on earnings aggressiveness at banks. Using a unique set of banking data containing both originally reported and subsequently revised financial variables, Gunther and Moore (2003) confirm that banks overstate their earnings. Their results further indicate that the worse a bank's financial condition, the more likely it is for originally reported data to understate financial losses. However, substantial accounting misstatements can occur well outside severe business circumstances. In a study of bank earnings management in the emerging market of Mexico, Hazera (2005) shows that in the late 1990s banks took advantage of weaknesses in financial reporting standards to delay the recognition of loan losses, thus boosting reported earnings. Cornett, McNutt and Tehranian (2009) further demonstrate that managers use their discretion regarding loan loss provisions to manage earnings upwards.

Adams, Carow and Perry (2009) pioneer the field of earnings management in the context of initial public offerings (IPOs) for the depository industry. They show that in a demutualizing thrift, where contrary to regular IPOs insiders are net buyers of shares, managers benefit at the conversion from reduced pre-IPO earnings and book equity resulting from earnings management.

2.3 Firm- and Country-level Drivers

While the motivations and means for earnings management may differ, early studies generated abundant evidence that earnings management at banks in one form or another does take place. This has led to the emergence of a promising new field of research that pursues the goal of identifying factors that may limit earnings management at banks by determining the drivers of the variation of earnings management across banks and countries.

On a firm-level, characteristics such as bank size, risk, growth, financial condition and non-audit fee level and variability have been linked to earnings management (Bhat, 1996; Collins, Shackelford and Wahlen, 1995; Kanagaretnam, Lobo and Mathieu, 2003; Gray, 2004; Yunxia, 2007). Collins, Shackelford and Wahlen (1995) were among the first to contribute to this literature by presenting evidence that, despite their common production functions, banks vary in their ability and/or willingness to

respond to earnings management incentives, primarily based on differences in their size and profitability. In line with this, Bhat (1996) finds that small banks with high risk and poor financial condition, in other words banks with a strong incentive to improve their outer risk perception among investors, are more prone to smooth their earnings. Kanagaretnam, Lobo and Mathieu (2003) also identify the need for external financing as an important variable in explaining cross-sectional differences in income smoothing. By running a two-stage regression for all bank holding companies in the United States over USD 150 million in assets from 1992 to 2003, Gray (2004) renders further support to the conjecture that bank size matters. Not only does he confirm that larger banks with a greater exposure to financial markets engage in earnings management more actively, he also finds that regulatory sanctions against banks for manipulating their earnings do not deter others from engaging in this behavior, nor do added disclosure requirements. More recently, Yunxia (2007) shows that a high level of non-audit services purchased from an incumbent auditor encourages banks to exercise more discretion on earnings, while low variability of non-audit fees suppresses manipulation actions.

Researchers have also started to capitalize on the importance of ownership in relation to earnings management at banks. Several studies have looked at differences in the earnings management practices of private versus public banks (Anandarajan, Hasan and McCarthy, 2007; Beatty, Ke and Petroni, 2002; Beatty and Harris, 1998; Fonseca and González, 2008; Niswander and Swanson, 2000). Beatty and Harris (1998) compare public and private banks' realizations of securities gains and losses to determine how their earnings management differs and find that public banks consistently engage in more earnings management than private banks. Niswander and Swanson (2000) come to a more differentiated conclusion. They show that public banks below the regulatory capital threshold produce more conservative earnings figures than their private counterparts, a finding they attribute to the greater potential legal liability to external auditors from the failure of a public bank. In contrast, when above the regulatory capital threshold, public banks engage in earnings management more aggressively compared to private banks, probably due to greater pressure to meet expected earnings levels. Over the 10-year period from 1988 to 1998, Beatty, Ke and Petroni (2002) further show that relative to private banks, public banks report fewer small earnings declines, are more likely to use loan loss provisions and realizations of securities gains and losses to eliminate small earnings decreases, and report longer strings of consecutive earnings increases. Anandarajan, Hasan and McCarthy (2007) extend the academic evidence on bank earnings management to Australian banks and demonstrate that earnings influence loan loss provisions more so at public than at private banks. The latter finding has

been confirmed by Fonseca and González (2008), who show that banks that are publicly traded are more prone to income smoothing by means of loan loss provisions for a broad sample comprising banks from 40 countries. Very recently, Cornett, McNutt and Tehrani (2009) analyze the interactions between firm performance, corporate governance mechanisms and earnings management and show that CEO and director ownership affects the incidence of earnings management at banks. More specifically, they find the fraction of shares owned by the bank's CEO and directors, the existence of CEO/chair duality and the CEO's pay-for-performance sensitivity to be positively associated with bank earnings management. However, a board composed of more independent outside directors leads to fewer manipulations. Therefore, they conclude that while bank managers appear to use their discretion to increase earnings and, subsequently, their own personal wealth, corporate governance mechanisms can be incorporated to effectively constrain earnings management.

Shen and Chih (2005) extend the analysis from the firm- to the country-level. They find that reported earnings of banks in more than two-thirds of the 48 countries sampled are managed to avoid losses, resulting in earnings distributions with unusually low frequencies of small losses and unusually high frequencies of small profits. Further tests show that this behavior conforms to prospect theory. Prospect theory suggests that individuals evaluate alternatives with respect to specific reference points and experience the largest gain in utility, and hence also the largest incentives to manage earnings, when moving from the loss to the gain domain relative to the reference point, here zero earnings levels (Kahnemann and Tversky, 1979). Despite the fact that the avoidance of negative earnings levels and trends at banks per se appears to be a global phenomenon, its actual extent differs markedly across countries. In an effort to explain why, Shen and Chih (2005) identify the degree of investor protection and transparency in accounting disclosure as important explanatory factors. Fonseca and González (2008) analyze the cross-country determinants of income smoothing by managing loan loss provisions. Their results reveal that the propensity for income smoothing is not stable across countries. They find that there is less bank income smoothing not only with the strength of investor protection, but also with the extent of accounting disclosure, restrictions on bank activities, and official and private supervision, while there is more income smoothing with the development of a country's financial system.

2.4 Conclusion and Directions for Future Work

In summary, existing research on bank earnings management is still quite limited. Most of the contributions to date have been restricted to proving whether bank earnings management exists and to identifying the underlying motivations and tools used for it. The vast majority of these studies have found compelling evidence that earnings management at banks does take place. Income smoothing has by far been the primary motive analyzed and most studies have focused on loan loss provisions as a discretionary component of income. In the recent past, researchers have shifted their focus away from merely confirming bank earnings management to determining the drivers of the variation of earnings management across firms and countries. Apart from the broadening research objective, studies on bank earnings management have also evolved in terms of country coverage and sample size. Early contributions to the literature were almost exclusively focused on a rather small number of banks from the United States. Only recently have academics started to look at larger samples and to embrace other countries in their analyses, partly made possible by the advent and constant improvement of commercial databases, such as BankScope.

This creates a menu of opportunities for future research. To start with, despite the fact that the popular press has long condemned bank earnings management as being harmful, the academic world still owes us the proof in the form of studies dedicated to analyzing its adverse effects. Besides this, very recently the literature has started with the identification of factors that may limit bank earnings management. In order to help us better understand and tackle the problem, future studies should aim at further identifying and analyzing institutional factors and regulations specific to banks that may help explain why the level of bank earnings management differs so markedly across countries. The findings could form the foundation for a regulatory response to bank earnings management and would most likely add to the still limited international evidence on the topic. Another avenue for future research is to further analyze which role ownership structure plays in explaining differences in earnings management across banks. It would be interesting to see whether specific ownership groups are more conducive to certain forms of bank earnings management. The following two chapters contribute to help fill these research gaps by conducting a global analysis of some of the costs of bank earnings management in Chapter 3 and the role of institutions, regulations and ownership structure as explanatory and mitigating factors in Chapter 4.

Chapter 3

The Costs of Bank Earnings Management

3.1 Introduction

In the past, we have been confronted with a non-recessing wave of corporate scandals, where managers were accused of having engaged in earnings management. The American Securities and Exchange Commission (SEC) responded by launching a campaign to combat earnings management in the fall of 1998. While not specifically targeted at financial institutions, several banks quickly became the focal point of attention, among them SunTrust Bank, whose managers were forced to make huge restatements to prior years' financial statements (Wall and Koch, 2000). Ever since then drastic sanctions have been imposed on managers for manipulating bank earnings (Karpoff, Lee and Martin, 2008a),¹ on the premise that it impacts the assessment of value and risk of the banks. Still, to date no one has tried to make the costs of bank earnings management explicit. This chapter addresses this research gap.

Leuz, Nanda and Wysocki (2003) argue that managers and controlling owners manage reported earnings to mask true firm performance and to conceal their private control benefits. By weakening the link between accounting performance and true economic performance, earnings management increases information asymmetries between corporate insiders and outsiders. For a sample of industrial firms, Bhattacharya, Daouk and

¹Karpoff, Lee and Martin (2008a) track the fortunes of 2,206 individuals identified as responsible parties for SEC enforcement actions for financial misrepresentation. They find that 93% lose their jobs by the end of the regulatory enforcement period, with most of them being explicitly fired. Culpable managers also bear substantial financial losses through restrictions on their future employment, their shareholdings in the firm, and SEC fines. A sizeable minority (28%) face criminal charges and penalties, including jail sentences that average 4.3 years.

Welker (2003) show that this information asymmetry, which they call “earnings opacity”, has an impact on equity markets around the world. More specifically, they find that an increase in the level of earnings opacity in a country creates informational risk for investors that leads to a significant increase in the return shareholders demand for holding equity in that country and a significant decrease in the level of trading. We ask whether there is a commensurate effect for financial institutions and argue that there are reasons to believe why this effect could be even stronger for banks.

Following Leuz, Nanda and Wysocki (2003) and Bhattacharya, Daouk and Welker (2003), we first measure the extent of bank earnings management in a country using three distributional properties of accounting earnings that suggest poor correspondence between observable accounting earnings and unobservable economic earnings: loss avoidance, income smoothing and earnings aggressiveness. We develop a time-series measure for each of these three dimensions of bank earnings management per country and then combine them to obtain a panel data set of overall bank earnings management. Next, we examine whether and to what extent our bank earnings management measures in a country are related to the return shareholders demand for holding bank stocks in that country (bank cost of equity) and the amount of shareholder trading of bank stocks in that country. Bank cost of equity is determined using two approaches. The first uses a form of the Gordon Growth model based on dividend yields, the second uses an international asset pricing factor model. Trading volume of bank stocks is measured by market turnover of bank stocks.

Using a broad sample comprising 22,217 banks from 50 countries over the period 1990-2006, this study generally confirms that investors seem to respond to bank earnings management by demanding a higher return for holding bank stocks and by trading less in these stocks. The results are both statistically and economically significant. While the results for our individual measures of bank earnings management differ, an increase in our measure of overall earnings management from the 25th percentile rank to the 75th percentile rank is associated with an increase in bank cost of equity by as much as 17.5 percent and a decrease in trading volume by as much as 4.9 percent. The financial impact of bank earnings management on bank cost of equity is much larger than the effect documented in Bhattacharya, Daouk and Welker (2003) for nonfinancial firms. The results for trading, on the other hand, are comparable in magnitude.

Our study makes several contributions to the literature. First, it extends prior work on the relation between the quality of accounting information and firms’ cost of capital and market liquidity to financial institutions. This is important because the costs banks incur to raise capital affects the terms and conditions at which they extend credit to

society, which in turn affects economic growth and prosperity. Likewise market liquidity has been shown to be positively and significantly related to economic growth, capital accumulation and productivity growth (Levine and Zervos, 1998).

Second, prior research has shown that bank earnings management is a pervasive, global phenomenon (e.g. Shen and Chih, 2005; Fonseca and González, 2008), yet to date no one has tried to assess its direct costs and implications for financial markets and the economy at large. Our study thus adds a new dimension to existing research on bank earnings management that previously has been restricted to proving whether earnings management by banks exists and which tools are used for it.

Third, prior research on bank earnings management has mostly been confined to the United States.² Our study therefore also contributes to the international literature on bank earnings management by conducting a cross-country analysis, including developed, developing and transition economies.

The remainder of the chapter is structured as follows. Section 3.2 develops testable hypotheses on how earnings management at banks is related to their cost of equity and the liquidity of their stocks. The methodology is discussed in Section 3.3. Section 3.4 describes the data and provides descriptive statistics. The empirical tests and their results are presented in Section 3.5. Finally, Section 3.6 summarizes and concludes.

3.2 Hypotheses

Earnings management leads to a divergence between the observable accounting performance and the unobservable true economic performance of a firm. Bhattacharya, Daouk and Welker (2003) argue that this divergence renders reported earnings more opaque to corporate outsiders. Reported figures are less informative and reliable and hence qualitatively inferior.³

Bushman and Smith (2001) identify three channels by which the quality of accounting earnings may affect financial markets. First, more reliable accounting information helps investors distinguish good investments from bad investments, partly because better accounting information allows them to predict security returns with more certainty

²Recent exceptions include Anandarajan, Hasan and McCarthy (2007) and Pérez, Salas and Saurina (2006) who look at Australian and Spanish banks, respectively. Shrieves and Dahl (2003), Yasuda, Okuda and Konishi (2004) and Agarwal, Chomsisengphet, Liu and Rhee (2007) analyze Japanese banks and Shen and Chih (2005) and Fonseca and González (2008) work with international bank samples.

³A recent study by Hutton, Marcus and Tehranian (2009) renders support to this conjecture by showing that firms with higher levels of earnings opacity are more frequently required to amend the information they have provided to investors.

(Lev, 1989). Because investors' perceived estimation risk is lower, they require a lower rate of return (Barry and Brown, 1985; Coles, Loewenstein and Suay, 1995), leading to a reduced cost of equity for the firm.⁴ This is vital in the banking sector that per se is characterized by high estimation risk.⁵

Second, financial accounting information serves an important governance role. As a direct input into corporate control mechanisms, financial accounting information helps differentiate between good and bad managers and reduces the out-of-pocket monitoring costs borne by investors (Lombardo and Pagano, 2002). This is particularly important in banking, where the transparency of information is integrally related to accountability in that it can provide government supervisors, bank owners, creditors, and other market participants sufficient information and incentive to assess a bank's management (Kern, 2006). By mitigating agency problems and the associated costs, better accounting information reduces the risk premium demanded by investors and thus the firm's cost of equity.

Third, earnings management increases information asymmetries between corporate insiders and outsiders. This creates an adverse selection problem for liquidity providers trading with insiders.⁶ Liquidity providers cannot be certain that transactions occur at a fair price. They will respond by decreasing their buy price and increasing their sell price, raising bid-ask spreads and hence transaction costs. As a result, investors would require an even higher return on equity and would trade less often (Amihud and Haim, 1989; Diamond and Verrecchia, 1991; Leuz and Verrecchia, 2000; Easley and O'Hara, 2004; Hughes, Liu and Liu, 2007). The latter effect is expected to be particularly strong for banks. The reason is that due to the complexity of the banking business, information asymmetries between investors and insiders may be larger in this sector compared to others (de Andres and Vallelado, 2008; Santos, 2004; Morgan, 2002).

It is therefore hypothesized that:

H1 = Bank earnings management is positively related to the cost of equity of banks;

H2 = Bank earnings management is negatively related to the amount of trading of bank stocks.

⁴The same mechanisms apply for seasoned equity offerings for which Lee and Masulis (2009) show that high accounting quality, by reducing uncertainty about a firm's financial condition for outside investors, raises the demand for a firm's new equity, thereby lowering underwriting costs and risks.

⁵In line with this, Santos (2004) finds that US rating agencies disagree more often on the ratings they assign to bonds issued by banks compared to those issued by non-financial firms.

⁶See Myers and Majluf (1984) and Glosten and Milgrom (1985) for a formal discussion on why this should happen.

As in Bhattacharya, Daouk and Welker (2003), several assumptions underly the above hypotheses. First, our earnings management measures actually result in more opaque and less informative earnings. Second, we implicitly assume that markets are efficient in the sense that investors are able to detect the level of earnings opacity, but cannot “see through it”. Third, the informational asymmetry caused by earnings management is not completely resolved through some other communication mechanism. Fourth, the informational risk associated with earnings management is an important factor that is priced.⁷

3.3 Methodology

3.3.1 Empirical model

To estimate the effect of earnings management on bank cost of equity and trading volume of bank stocks, we follow Bhattacharya, Daouk and Welker (2003) and estimate three panel regression models with country fixed effects that are corrected for country-specific heteroscedasticity and country-specific autocorrelation using monthly data. The regression models take the following form:

$$Cost\ of\ equity_{1,j,t} = \alpha_{0,j} + \alpha_1 EarningsMgt_{k,j,t-1} + \sum_{c=1}^2 \alpha_{2,c} Control_{c,j,t} + \nu_{j,t} \quad (3.1)$$

$$Cost\ of\ equity_{2,j,t} = \beta_{0,j} + \beta_1 EarningsMgt_{k,j,t-1} + \sum_{c=1}^4 \beta_{2,c} Control_{c,j,t} + v_{j,t} \quad (3.2)$$

$$Trade_{j,t} = \gamma_{0,j} + \gamma_1 EarningsMgt_{k,j,t-1} + \sum_{c=1}^2 \gamma_{2,c} Control_{c,j,t} + \vartheta_{j,t} \quad (3.3)$$

where the dependent variable is our first and second measure of bank cost of equity in models (3.1) and (3.2), respectively, and a measure of trading volume of bank stocks in model (3.3) for country $j \in \{1, \dots, 50\}$ at time $t \in \{1, \dots, 204\}$. The independent variable in all three models is a measure of bank earnings management $k \in \{1, 2, 3, 4\}$ for country j at time $t - 1$. In models (3.1) and (3.3), we control for the two variables insider trading enforcement and GDP growth. In model (3.2), we additionally control for liquidity and foreign exchange risk.

⁷Bhattacharya, Daouk and Welker (2003) test these assumptions in the second part of their paper and conclude that they are reasonable.

In all three models, we control for country fixed effects to account for missing explanatory variables. By allowing each country to have a different intercept term in the regressions, this method allows for the possibility that the dependent variable is impacted by a country-specific factor not captured by the independent variables, as long as this factor remains constant over time. Running country fixed effects regressions also helps alienate endogeneity concerns. As pointed out by Himmelberg, Hubbard and Palia (1999) and Bhattacharya, Daouk and Welker (2003), panel regressions with fixed effects avoid the potential bias caused by endogeneity, as long as the unobserved source of endogeneity is constant over time. In case the unobserved source of endogeneity does change over time, another feature of our research design mitigates the potential endogeneity bias. As in Bhattacharya, Daouk and Welker (2003), all our earnings management measures are lagged by one year. This research design implicitly assumes that investors observe earnings opacity after the fact and their expectation of earnings management this year is based on their observation of last year's earnings opacity. For our results to suffer from endogeneity bias, the unobserved factor that could impact both our earnings management and equity market measures would have to affect reported earnings in period $t - 1$, while the equity market impact would be observed in period t . Because accounting changes usually lag equity market changes, this is highly unlikely. By correcting for country-specific heteroscedasticity and autocorrelation, our study accounts for the fact that different countries exhibit different levels of variance and autocorrelation in their variables, respectively.

3.3.2 Stock market measures

Measuring cost of equity

The cost of equity of banks in a particular country is defined as the return shareholders require for holding bank shares in that country. Two approaches are employed for estimating cost of equity, adopting the basic methodology of Bhattacharya, Daouk and Welker (2003) and Bhattacharya and Daouk (2002), but adjusting it for the banking context.

The first approach consists of calculating the cost of equity based on a form of the Gordon Growth model as:

$$\text{Cost of equity} = y \times (1 + g) + g \quad (3.4)$$

where:

y = current dividend yield;
 g = current dividend growth rate.

The second approach consists of calculating the cost of equity based on a simplified version of Bekaert and Harvey (1995) as an international capital asset pricing model that allows for partial integration of a country to the world equity markets. In this model a country can evolve from a segmented developing country to a developed country that is integrated to world equity markets. In the former risk is measured by the variance of return of the country's stock market, in the latter risk is measured by the sensitivity of a country's equity returns to movements in the world market portfolio. The test equation for this international capital asset pricing model, which we estimate using linear least squares, takes the following form:

$$r_{j,t} - r_{f,t} = \lambda_0 + \phi_{j,t}\lambda_{cov}h_{j,w,t} + (1 - \phi_{j,t})\lambda_{var}h_{j,t} + \epsilon_{j,t} \quad (3.5)$$

where:

$r_{j,t}$ = the dollar monthly return of the bank index of country j at time t ;
 $r_{f,t}$ = the monthly return of the one-month US T-Bill at time t ;
 λ_0 = the regression constant that would be estimated;
 $\phi_{j,t}$ = a measure of the level of integration of country j at time t , $0 < \phi_{j,t} < 1$;
 λ_{cov} = the price of covariance risk that is estimated (the first regression coefficient), i.e. excess return per unit of conditional covariance between the dollar monthly return of the bank index of country j at time t and the dollar monthly return of the bank index of the world at time t , $(r_{j,t} - r_{f,t})/h_{j,w,t}$;
 $h_{j,w,t}$ = the conditional covariance of the monthly return of the bank index of country j with the monthly return of the world index at time t ;
 λ_{var} = the price of own country variance risk that is estimated (the second regression coefficient), i.e. excess return per unit of conditional variance of the dollar monthly return of the bank index of country j at time t , $(r_{j,t} - r_{f,t})/h_{j,t}$;
 $h_{j,t}$ = the conditional variance of the monthly return of the bank index of country j at time t ; and
 $\epsilon_{j,t}$ = the residual error term.

The residual, $\epsilon_{j,t}$, from equation (3.5) is the estimate of the cost of equity. The conditional covariance $h_{j,w,t}$ and conditional variance $h_{j,t}$, the independent variables in equation (3.5), are separately estimated pair-wise for each country j and world

pair using the following Dynamic Conditional Correlation (DCC) Multivariate GARCH (3,0) model, introduced in Engle (2002). This model is a more advanced multivariate GARCH model than the one used in Bhattacharya, Daouk and Welker (2003) and Bhattacharya and Daouk (2002). It accounts for recent econometric developments that have shown this model to be superior⁸:

$$\begin{aligned}
r_{j,t} &= c_1 + \varepsilon_{j,t} \\
r_{w,t} &= c_2 + \varepsilon_{w,t} \\
h_{j,t} &= b_1 + \sum_{p=1}^3 a_{1p} \varepsilon_{j,t-p}^2 \\
h_{w,t} &= b_2 + \sum_{p=1}^3 a_{2p} \varepsilon_{w,t-p}^2 \\
h_{j,w,t} &= (1 - \sum_{p=1}^3 a_{3p}) S_1 + \sum_{p=1}^3 a_{3p} \varepsilon_{j,t-p} \varepsilon_{w,t-p} \\
\varepsilon_{j,t}, \varepsilon_{w,t} &\sim N \left(\begin{bmatrix} 0 \\ 0 \end{bmatrix}, \begin{bmatrix} h_{j,t} & h_{j,w,t} \\ h_{j,w,t} & h_{w,t} \end{bmatrix} \right)
\end{aligned} \tag{3.6}$$

where:

- $r_{w,t}$ = the dollar monthly return of the bank index of the world at time t ;
- c_1, c_2 = the mean of the return series $r_{j,t}$ and $r_{w,t}$, respectively;
- $\varepsilon_{j,t-p}$ = the innovation in monthly return of the bank index of country j at time $t-p$, $p \in \{0, 1, 2, 3\}$, i.e. fluctuations of $r_{j,t}$ around the mean c_1 ;
- $\varepsilon_{w,t-p}$ = the innovation in monthly return of the bank index of the world at time $t-p$, $p \in \{0, 1, 2, 3\}$, i.e. fluctuations of $r_{w,t}$ around the mean c_2 ;
- $h_{w,t}$ = the conditional variance of the monthly return of the bank index of the world at time t ;
- b_1, b_2 = regression constants;
- a_{1p}, a_{2p}, a_{3p} = regression coefficients; and
- S_1 = the unconditional correlation matrix of the epsilons.

Equation (3.6) is estimated using maximum likelihood. The remaining independent variable from equation (3.5), the level of integration of country j at time t , $\phi_{j,t}$, is

⁸See Bauwens, Laurent and Rombouts (2006) for a recent survey on the most important developments in multivariate GARCH-type modeling and Engle (2002) for a performance comparison of different GARCH models.

defined according to Bekaert and Harvey (1995) as:

$$\phi_{j,t} = \frac{\exp\left(\sum_{p=1}^3 a_{1p} \left(\frac{\text{exports}_{j,t} + \text{imports}_{j,t}}{\text{gdp}_{j,t}}\right)\right)}{1 + \exp\left(\sum_{p=1}^3 a_{1p} \left(\frac{\text{exports}_{j,t} + \text{imports}_{j,t}}{\text{gdp}_{j,t}}\right)\right)} \quad (3.7)$$

Based on this definition, $\phi_{j,t}$ is a function of the ratio of the sum of exports and imports to gross domestic product. It can assume values between 0 and 1. A value of 0 implies that the country is not integrated with world equity markets. Its equity is therefore only exposed to local risk, measured by own variance. A value of 1 suggests that the country is fully integrated with world equity markets. In this case the country's equity is only exposed to global risk, measured by covariance with the world factor. Bekaert and Harvey (1997) confirm empirically that a higher level of $\phi_{j,t}$ is associated with increased importance of the world factor relative to local risk factors.

Measuring trading volume

Standardized trading volume of bank stocks is measured by market turnover of bank stocks and is calculated as the natural logarithm of dollar trade per month of bank stocks (TV) scaled by dollar stock market capitalization at the end of the month ($MCap$). The natural logarithm is taken to mitigate the effect of outliers, since the denominator tends to be small in some countries. This yields:

$$\text{Standardized trading volume} = \ln\left(\frac{TV}{MCap}\right)_{jt} \quad (3.8)$$

3.3.3 Earnings management measures

As in Leuz, Nanda and Wysocki (2003) and Bhattacharya, Daouk and Welker (2003), we consider three dimensions along which insiders can exercise their discretion to manage reported earnings, namely loss avoidance, income smoothing and earnings aggressiveness.

Measuring loss avoidance

Shen and Chih (2005) show that the phenomenon of loss avoidance among bank managers is prevalent across countries and more pronounced for banks than for non-financial institutions. According to Burgstahler and Dichev (1997) and Degeorge, Patel

and Zeckhauser (1999), transaction-cost theory and prospect theory help explain why managers try to avoid losses. Transaction-cost theory suggests that the limited resources of a firm's stakeholders do not allow them to process all available information, inducing them to determine the terms of transactions with the firm based on simple heuristic cutoffs, such as zero earnings levels. Similarly, prospect theory postulates that individuals evaluate alternatives with respect to specific reference points (Kahnemann and Tversky, 1979). Their value functions appear to be concave in gains and convex in losses, suggesting that for a given increase in wealth, the corresponding increase in value is greatest when moving from the loss to the gain domain relative to the reference point. DeGeorge, Patel and Zeckhauser (1999) posit that if the behavior of corporate insiders and outsiders conforms to prospect theory, then executives will also have a reward schedule related to certain reference points and will manage earnings in response. Based on the findings of Shen and Chih (2005), bank managers indeed appear to manage earnings in order to exceed the threshold zero earnings, in line with the predictions of prospect theory. This renders reported earnings less informative of the true economic performance of the bank. Figure 3.1a visualizes the effect loss avoidance has on the earnings distribution. The dark (light) shaded area represents economic (accounting) earnings before (after) management.

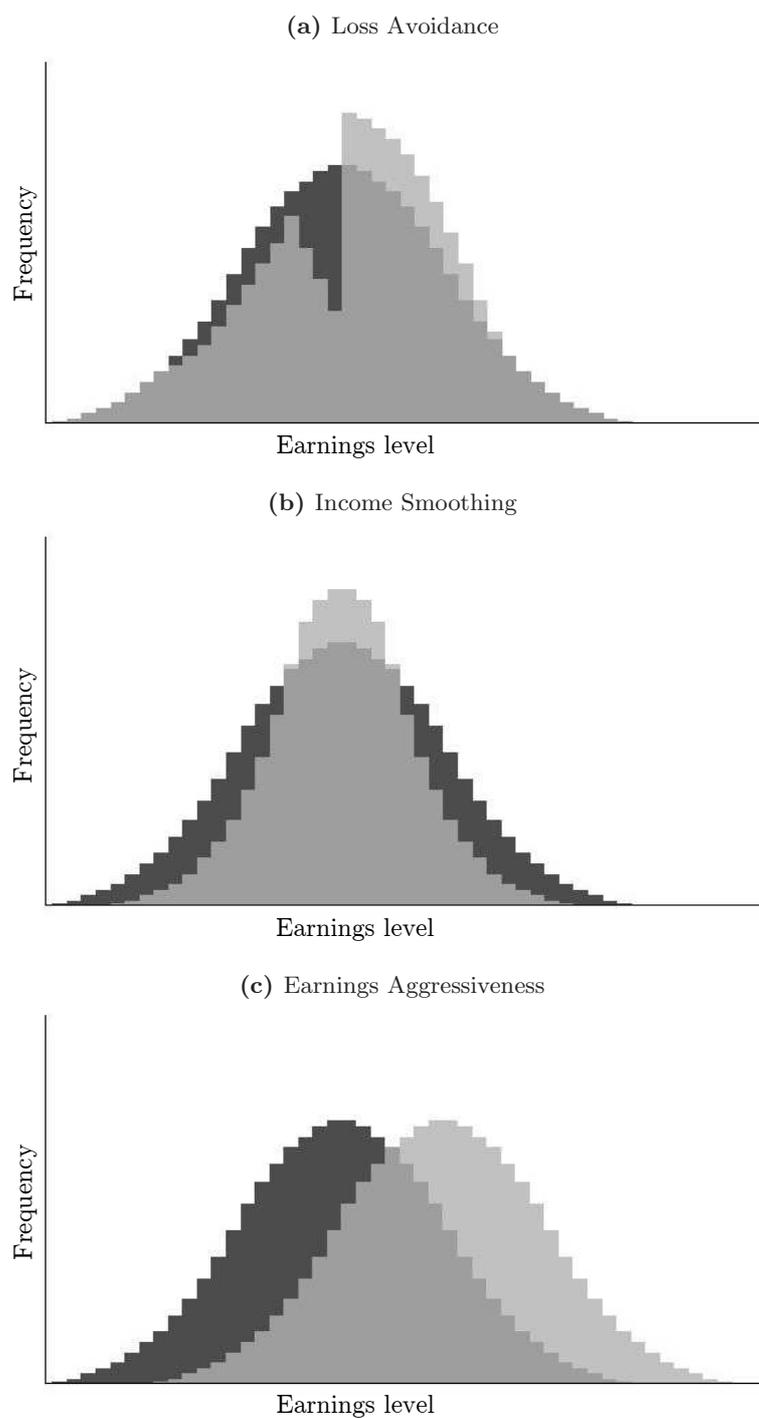
Following Bhattacharya, Daouk and Welker (2003), loss avoidance is computed as the ratio of banks with small profits (SP) minus banks with small losses (SL) divided by their sum for country j , year t :

$$Loss\ avoidance = \left(\frac{SP - SL}{SP + SL} \right)_{jt} \quad (3.9)$$

Banks with small profits (losses) are defined as banks with net income scaled by lagged total assets larger or equal to zero (smaller than zero), but smaller (larger) than a z-score of 0.1254 (-0.1254) times the standard deviation of the distribution. The z-scores are chosen so that under the assumption of a normal distribution, small profits and small losses together make up the difference between the 55th and the 45th percentile of the earnings distribution. Small profits (losses) accounting for the 5 percent of the earnings distribution lying directly to the right (left) of the mean, assumed to lie at zero. This approach differs from the one originally introduced by Burgstahler and Dichev (1997) and followed by Bhattacharya, Daouk and Welker (2003) and Leuz, Nanda and Wysocki (2003), among others. They define firms with small profits (losses) as firms with net income scaled by lagged total assets between 0 and 1 percent (between 0 and

Figure 3.1: The Effect of Earnings Management on the Earnings Distribution

This figure visualizes the effect loss avoidance, income smoothing and earnings aggressiveness have on the earnings distribution in panel (a), (b) and (c), respectively. The dark (light) shaded area represents economic (accounting) earnings before (after) management.



-1 percent) of the earnings distribution. Unlike the latter approach, ours accounts for the fact that the average profitability and dispersion of the earnings distribution may differ across countries and adjusts the size of the small profit (loss) interval accordingly. This is particularly important when studying banks that are subject to very different regulatory frameworks across countries that may affect their profitability and profit dispersion. A higher ratio of banks with small profits minus banks with small losses divided by their sum suggests more loss avoidance. The ratio is ranked into deciles across years and countries to obtain the loss avoidance time-series variable per country, so that a higher rank implies more earnings management.⁹

Measuring income smoothing

Income smoothing refers to the reduction of fluctuations of reported earnings over time. Bank managers have many incentives to smooth earnings, explaining why this practice is common in many countries around the world (Fonseca and González, 2008). The motivation to smooth earnings may stem from the desire to diffuse bankruptcy concerns and to improve the general risk perception of the bank among investors, regulators and supervisors. A smoother income stream is also associated with more stock price stability and may help managers maintain a steady compensation scheme. Other frequently cited reasons include the desire of low-quality management to project an image of high-quality management, the reduction of long-term tax liabilities and the ability to maintain a constant payout policy (Bhat, 1996). Regardless of the motive behind income smoothing, if earnings fail to depict the true swings in underlying firm performance, they are less informative to corporate outsiders and hence more opaque and qualitatively inferior, consistent with the view expressed in Bhattacharya, Daouk and Welker (2003) and Leuz, Nanda and Wysocki (2003) and the findings of Bushman and Williams (2007)¹⁰. Figure 3.1b shows the effect income smoothing has on the earnings distribution. The dark (light) shaded area represents economic (accounting) earnings before (after) management.

As in Leuz, Nanda and Wysocki (2003) and Bhattacharya, Daouk and Welker (2003), the extent of income smoothing is measured as the cross-sectional correlation between the change in bank accruals (ΔACC) and the change in bank operating cash flows

⁹For example, a rank of 5 for Argentina in 1999 on the loss avoidance dimension suggests that in that particular year Argentina was in the fifth decile of the distribution of all loss avoidance measures across all countries and across all years.

¹⁰Bushman and Williams (2007) show that smoothed earnings are less effective in facilitating the ability of outside investors and regulators to monitor and discipline bank risk-taking and hence less informative.

(ΔCF), both scaled by lagged total assets (TA_{t-1}), for country j , year t :

$$\text{Income smoothing} = \text{CORR} \left(\frac{\Delta ACC}{TA_{t-1}}; \frac{\Delta CF}{TA_{t-1}} \right)_{jt} \quad (3.10)$$

Similar to Yasuda, Okuda and Konishi (2004), the accrual component is calculated as:

$$ACC = EXPL + GLSS + NCREV - NCEX \quad (3.11)$$

where $EXPL$ are extraordinary profits and losses, $GLSS$ are gains and losses on sales of securities, $NCREV$ are non-cash revenues and $NCEX$ are non-cash expenses.¹¹ Cash flows from operations are obtained indirectly by subtracting the accrual component from operating earnings. A negative correlation between accruals and operating cash flows is expected as a natural result of the accrual accounting process. However, the more negative the correlation, the more likely it is that managers employ their discretion regarding accruals to smooth earnings. The correlation is ranked into deciles across years and countries to derive the income smoothing time-series variable per country, so that a higher rank implies more earnings management.

Measuring earnings aggressiveness

Earnings aggressiveness is the tendency to delay the recognition of losses and speed the recognition of gains in order to maximize reported earnings at any given point in time. It has been argued that the opposite of earnings aggressiveness, earnings conservatism, is associated with more informative earnings, because it provides information that managers may want to withhold (Ball, Kothari and Robin, 2000). For example, managers may wish to suppress economic losses, because they provide quick feedback about bad managerial investment decisions and strategies. Since managers have incentives to suppress economic losses, but to disclose economic gains, Bhattacharya, Daouk and Welker (2003) argue that aggressive earnings are more likely to reflect biased and optimistic reporting on the part of management, adding noise to reported earnings. Figure 3.1c demonstrates the effect earnings aggressiveness has on the earnings distribution. The dark (light) shaded area represents economic (accounting) earnings before (after) management.

¹¹Unlike Yasuda, Okuda and Konishi (2004), we do not include the change in working capital in our definition of accruals. The reason behind this is twofold. First, the magnitude of current accruals is small compared to non-current accruals (Thomas and Zhang, 2000). Second, the change in working capital can only be measured with substantial error, due to lack of a clear definition for banks on an international level.

In line with Leuz, Nanda and Wysocki (2003) and Bhattacharya, Daouk and Welker (2003), our measure of earnings aggressiveness is equal to the median level of bank accruals scaled by lagged total assets for country j , year t :

$$\text{Earnings aggressiveness} = \text{MEDIAN} \left(\frac{ACC}{TA_{t-1}} \right)_{jt} \quad (3.12)$$

Accruals are calculated as in equation (3.11). The higher the median observation of scaled accruals is, the higher the level of earnings aggressiveness. The intuition behind this is as follows: since earnings are the sum of cash flows and accruals, we would expect accruals to rise, if managers try to maximize earnings while cash flow realizations remain unchanged. The medians are ranked into deciles across years and countries to obtain the earnings aggressiveness time-series variable per country, so that a higher rank implies more earnings management.

Overall earnings management measure

The aggregate earnings management measure for country j , year t , is simply the average country ranking across the three individual dimensions of earnings management for that year. All results are reported for each separate dimension of earnings management, as well as for the aggregate measure.

3.3.4 Controls

In line with Bhattacharya, Daouk and Welker (2003), we control for insider trading enforcement and GDP growth in all our regressions, two factors that have been shown to affect cost of equity and trading volume. Insider trading enforcement is an indicator variable that changes from 0 to 1 in the year after the first enforcement of insider trading laws. GDP growth is the percentage change in gross domestic product over two consecutive years. In our international asset pricing factor model, we also control for the impact of liquidity risk and foreign exchange risk on the cost of equity, as in Bhattacharya, Daouk and Welker (2003). Liquidity risk is defined as our measure of trading volume. Foreign exchange risk, $h_{j,jfx,t}$, is the conditional covariance of the return of the bank index with the depreciation of the j^{th} foreign currency with respect to the dollar at time t , the return a US investor would get if he held the foreign currency. It is estimated from the DCC Multivariate GARCH (3,0) model presented in equation (3.6). The only difference is that we replace the world portfolio (w) by the foreign exchange portfolio (jfx):

$$\begin{aligned}
r_{j,t} &= c_1 + \varepsilon_{j,t} \\
r_{jfx,t} &= c_3 + \varepsilon_{jfx,t} \\
h_{j,t} &= e_1 + \sum_{p=1}^3 d_{1p} \varepsilon_{j,t-p}^2 \\
h_{jfx,t} &= e_2 + \sum_{p=1}^3 d_{2p} \varepsilon_{jfx,t-p}^2 \\
h_{j,jfx,t} &= (1 - \sum_{p=1}^3 d_{3p}) S_2 + \sum_{p=1}^3 d_{3p} \varepsilon_{j,t-p} \varepsilon_{jfx,t-p} \\
\varepsilon_{j,t}, \varepsilon_{jfx,t} &\sim N \left(\begin{bmatrix} 0 \\ 0 \end{bmatrix}, \begin{bmatrix} h_{j,t} & h_{j,jfx,t} \\ h_{j,jfx,t} & h_{jfx,t} \end{bmatrix} \right)
\end{aligned} \tag{3.13}$$

where:

- $r_{jfx,t}$ = the monthly depreciation of the j^{th} foreign currency with respect to the dollar at time t ;
- c_1, c_3 = the mean of the return series $r_{j,t}$ and $r_{jfx,t}$, respectively;
- $\varepsilon_{j,t-p}$ = the innovation in monthly return of the bank index of country j at time $t-p$, $p \in \{0, 1, 2, 3\}$, i.e. fluctuations of $r_{j,t}$ around the mean c_1 ;
- $\varepsilon_{jfx,t-p}$ = the innovation in monthly depreciation of the j^{th} foreign currency with respect to the dollar at time $t-p$, $p \in \{0, 1, 2, 3\}$, i.e. fluctuations of $r_{jfx,t}$ around the mean c_3 ;
- e_1, e_2 = regression constants;
- $h_{jfx,t}$ = the conditional variance of the monthly depreciation of the j^{th} foreign currency with respect to the dollar at time t ;
- $h_{j,jfx,t}$ = the conditional covariance of the monthly return of the bank index of country j with the monthly depreciation of the j^{th} foreign currency with respect to the dollar at time t ;
- d_{1p}, d_{2p}, d_{3p} = regression coefficients; and
- S_2 = the unconditional correlation matrix of the epsilons.

Unlike Bhattacharya, Daouk and Welker (2003), we do not include a dummy variable in any of our regressions that changes from 0 to 1 on the date stock markets are liberalized. The reason is that we run fixed effects regressions and since the stock markets of all our sample countries were liberalized prior to the start of our sample

period, the inclusion of a liberalization dummy that does not change during the sample period would have no effect on our results.

3.4 Data and Descriptives

3.4.1 Data

Data on monthly indices of bank stocks required for the calculation of our cost of equity and trading measures is obtained from the vendor Datastream. If available, we use the Datastream-constructed value-weighted bank indices, otherwise we construct the indices ourselves. From these indices we derive data on monthly index returns, dividends, trading volume and market capitalization for individual countries and for the world. Data on monthly exports and imports and data on the level of GDP needed for the estimation of our international capital asset pricing model are from the International Financial Statistics provided by the International Monetary Fund and from the World Development Indicators provided by the World Bank, respectively. The monthly return of the one-month US T-Bill is from the United States Federal Reserve Statistical Releases.

Our earnings management measures are calculated using data from the BankScope database. We include countries in our analysis that have data for more than three years and have more than 20 banks per year. Because the measures are computed on a yearly basis, we assume them to stay constant throughout the year in our monthly regressions, as in Bhattacharya, Daouk and Welker (2003). In the calculation of our earnings management measures for year t , we include observations with fiscal years ending between July 1 of year t and June 30 of year $t + 1$. For example, our earnings management measures for year 1999 are based on observations with fiscal years ending between July 1, 1999 and June 30, 2000.

Regarding our control variables, monthly data on exchange rates needed for the estimation of our foreign exchange factor is obtained from Datastream. Data on GDP growth rates is from the World Development Indicators provided by the World Bank. The insider trading enforcement dates are from Bhattacharya and Daouk (2002).

The final sample covers 50 countries over the period 1990-2006 using yearly data from 22,217 financial institutions. We lose the year 1989, because the calculation of the change in accruals and cash flows requires data from period $t - 1$. Table 3.1 presents a profile of our bank sample data.

Table 3.1
Bank Sample Data

This table reports descriptive statistics on the composition of our BankScope sample for each country. Column 2 presents the sample period available. Columns 3 and 4 report the number of available banks and bank-years, respectively. Columns 5 to 10 provide the distribution of available banks for each country in 2005 across the following bank types in percentage points: bank holding companies, commercial banks, cooperative banks, investment banks, savings banks and other banks.

	Sample period	No. of banks	No. of bank-years	Bank Type					
				Holding	Commercial	Cooperative	Investment	Savings	Other
Argentina	92Y-06Y	96	1,542	1.0	77.1	4.2	2.1	2.1	13.5
Australia	90Y-06Y	122	1,652	1.6	41.0	0.0	22.1	0.0	35.2
Austria	91Y-06Y	313	2,998	2.9	26.5	37.1	2.6	21.4	9.6
Belgium	90Y-06Y	122	1,822	9.0	36.9	5.7	9.0	11.5	27.9
Brazil	92Y-06Y	186	2,617	3.2	76.3	1.1	8.1	0.0	11.3
Bulgaria	97Y-06Y	33	292	0.0	84.8	3.0	3.0	3.0	6.1
Canada	92Y-06Y	93	980	8.6	43.0	2.2	12.9	1.1	32.3
Chile	92Y-06Y	46	616	2.2	84.8	0.0	2.2	0.0	10.9
China	92Y-06Y	115	928	0.0	87.8	6.1	2.6	0.0	3.5
Colombia	92Y-06Y	35	602	0.0	65.7	0.0	8.6	0.0	25.7
Cyprus	96Y-06Y	27	300	11.1	55.6	7.4	11.1	3.7	11.1
Czech Republic	93Y-06Y	42	494	0.0	64.3	7.1	4.8	0.0	23.8
Denmark	91Y-06Y	146	1,986	2.7	52.7	0.7	2.1	27.4	14.4
Finland	94Y-06Y	34	344	5.9	41.2	2.9	14.7	5.9	29.4
France	90Y-06Y	583	8,615	0.7	41.3	22.6	4.1	6.2	25.0
Germany	90Y-06Y	1,918	26,764	0.6	10.8	56.6	1.5	24.1	6.3
Greece	92Y-06Y	41	538	2.4	82.9	2.4	2.4	2.4	7.3
Hong Kong	90Y-06Y	131	2,006	8.4	42.0	0.0	29.0	0.0	20.6
Hungary	93Y-06Y	54	616	0.0	66.7	1.9	5.6	0.0	25.9
India	91Y-06Y	112	1,394	0.0	66.1	4.5	10.7	0.0	18.8
Indonesia	92Y-06Y	76	1,057	1.3	85.5	0.0	6.6	0.0	6.6
Ireland	93Y-06Y	85	935	2.4	58.8	0.0	18.8	0.0	20.0
Israel	93Y-06Y	21	372	0.0	85.7	0.0	0.0	0.0	14.3
Italy	90Y-06Y	1,336	10,592	1.3	16.9	69.3	1.2	5.5	5.8
Japan	90Y-06Y	878	10,201	3.8	29.0	54.3	5.9	0.1	6.8

Table 3.1 (continued)

	Sample period	No. of banks	No. of bank-years	Bank Type					
				Holding	Commercial	Cooperative	Investment	Savings	Other
Korea	92Y-06Y	78	993	9.0	39.7	1.3	35.9	5.1	9.0
Luxembourg	90Y-06Y	120	2,075	5.8	74.2	2.5	10.8	0.8	5.8
Malaysia	94Y-06Y	136	1,549	18.4	38.2	1.5	22.1	0.0	19.9
Mexico	94Y-06Y	63	752	19.0	49.2	0.0	3.2	1.6	27.0
Netherlands	90Y-06Y	119	1,559	18.5	48.7	1.7	16.0	0.0	15.1
Norway	91Y-06Y	173	1,356	2.3	9.8	0.0	4.0	72.8	11.0
Pakistan	93Y-06Y	58	533	0.0	65.5	0.0	19.0	0.0	15.5
Peru	93Y-06Y	31	428	0.0	61.3	3.2	9.7	0.0	25.8
Philippines	92Y-06Y	82	776	1.2	61.0	0.0	13.4	15.9	8.5
Poland	93Y-06Y	65	728	1.5	81.5	3.1	4.6	3.1	6.2
Portugal	91Y-06Y	71	925	19.7	29.6	2.8	25.4	8.5	14.1
Romania	98Y-06Y	39	320	0.0	69.2	5.1	0.0	5.1	20.5
Russia	93Y-06Y	896	3,974	0.1	96.0	0.0	1.9	0.2	1.8
Singapore	90Y-06Y	66	1,059	15.2	34.8	0.0	28.8	0.0	21.2
Slovenia	95Y-06Y	37	341	0.0	78.4	13.5	2.7	0.0	5.4
South Africa	91Y-06Y	62	1,102	27.4	40.3	0.0	22.6	0.0	9.7
Spain	90Y-06Y	296	3,838	0.3	33.4	27.4	2.7	30.7	5.4
Sri Lanka	98Y-06Y	32	230	0.0	65.6	0.0	15.6	3.1	15.6
Sweden	92Y-06Y	155	1,304	3.9	16.8	0.0	9.0	49.7	20.6
Switzerland	90Y-06Y	588	6,977	4.6	33.2	1.5	13.1	38.3	9.4
Thailand	92Y-06Y	62	741	0.0	53.2	0.0	38.7	1.6	6.5
Turkey	92Y-06Y	112	997	2.7	50.0	1.8	11.6	0.0	33.9
United Kingdom	90Y-06Y	598	7,285	6.4	31.1	0.0	30.1	0.8	31.6
United States	92Y-06Y	11,588	96,724	22.2	68.8	0.1	1.0	7.4	0.6
Venezuela	95Y-06Y	45	589	2.2	73.3	0.0	8.9	6.7	8.9
All countries	90Y-06Y	22,217	217,418	13.0	54.3	13.0	4.2	9.5	6.0

3.4.2 Descriptives

Table 3.2 presents a profile of the final sample. Columns 2 through 4 contain the average of the raw earnings management measures across the available years for each country. Our measure of loss avoidance is presented in column 2. While the phenomenon of loss avoidance seems to be prevalent in all our sample countries, it is most pronounced in Sri Lanka and least pronounced in Argentina. Except for Venezuela, the average cross-sectional correlation across time between the change in accruals and the change in operating cash flows, reported in column 3, is negative in all countries, albeit to varying degrees. In general, income smoothing appears to be more pervasive across banks from the developing world, which may have more incentives to hide risks by smoothing their income stream. Column 4 provides our measure of earnings aggressiveness. In line with Bhattacharya, Daouk and Welker (2003) and Leuz, Nanda and Wysocki (2003), average accruals divided by lagged total assets are mostly negative. Only Brazil, Bulgaria, Ireland and Luxembourg have positive accruals. This is not surprising in the banking context, where a large fraction of overall accruals is attributable to provisions, which by their nature lead to negative accruals.

Column 5 presents market price of risk across countries, calculated as the mean monthly excess market return divided by the standard deviation of the monthly return. Excess market return is defined as the dollar monthly return of the bank index of a country minus the monthly return of the one-month US T-Bill. Market price of risk is highest in Bulgaria and lowest in Japan. Japan is one of three countries characterized by a negative market price of risk, which is driven by negative mean monthly returns of Japanese banks over the sample period. Standardized trading volume, defined as the natural logarithm of dollar trade per month of bank stocks scaled by dollar stock market capitalization at the end of the month, reported in column 6, also exhibits wide variation across countries.

Our countries also differ significantly with regard to GDP growth, reported in column 7. Russia is the only country in our sample characterized by negative GDP growth over the sample period. This stands in sharp contrast to China that realized an average GDP growth rate of 9.87 percent over the same period. Insider trading laws were first enforced in the United States in 1961. Overall, only a handful of our sample countries experienced enforcement prior to the 1990s and several countries have not yet undergone enforcement actions at all, as can be seen in column 8.

Table 3.3 provides a matrix of Pearson correlations reporting the direction and strength of the pair-wise variable relationships. The correlation coefficients reveal that our measure of income smoothing is positively related to loss avoidance, but negatively

Table 3.2
Descriptive Statistics

This table reports the mean values of variables used in this study for each country over the sample period from 1990 to 2006. Loss avoidance is the ratio of banks with small profits minus banks with small losses divided by their sum per country per year. This ratio is averaged across time to obtain the loss avoidance variable per country. A higher ratio suggests more loss avoidance. Banks with small profits (losses) are defined as banks with net income scaled by lagged total assets larger or equal to zero (smaller than zero), but smaller (larger) than a z-score of 0.1254 (-0.1254) times the standard deviation of the earnings distribution. Income smoothing is measured as the cross-sectional correlation between the change in bank accruals and the change in bank operating cash flows, both scaled by lagged total assets, per country per year. The correlation is averaged across time to derive the income smoothing variable per country. Income smoothing is more pervasive, the more negative the correlation is. Earnings aggressiveness is measured by the median level of bank accruals scaled by lagged total assets per country per year. The medians are averaged across time to obtain the earnings aggressiveness variable per country. The higher the median observation of scaled accruals is, the higher the level of earnings aggressiveness. Market price of risk is the mean monthly excess return divided by the standard deviation of the monthly return, where excess return is defined as the dollar monthly return of the bank index of a country minus the monthly return of the one-month US T-Bill. Standardized trading volume is the natural logarithm of dollar trade per month in bank stocks scaled by dollar stock market capitalization at the end of the month averaged across the sample period. Real percentage GDP growth is the average yearly GDP growth rate over the sample period. Insider trading enforcement is the date at which insider trading laws were first enforced, if at all. A "No" indicates no enforcement until now.

	Loss avoidance	Income smoothing	Earnings aggressiveness	Market price of risk	Stand. trading volume	Real % GDP growth	Insider trading enforcement
Argentina	0.584	-0.745	-0.075	0.074	-4.16	3.80	1995
Australia	0.727	-0.422	-0.005	0.111	-3.06	3.29	1996
Austria	0.945	-0.438	-0.004	0.102	-4.38	2.40	No
Belgium	0.814	-0.121	-0.002	0.108	-4.00	2.09	1994
Brazil	0.729	-0.510	0.003	0.101	-4.11	2.30	1978
Bulgaria	0.893	-0.414	0.036	0.378	-5.53	0.46	No
Canada	0.593	-0.302	-0.007	0.136	-3.05	2.65	1976
Chile	0.917	-0.536	-0.017	0.108	-5.52	5.51	1996
China	0.924	-0.843	-0.010	0.145	-2.93	9.87	No
Colombia	0.857	-0.783	-0.051	0.040	-5.43	3.42	No
Cyprus	0.622	-0.540	-0.004	0.121	-4.74	4.09	No
Czech Republic	0.836	-0.516	-0.007	0.049	-3.46	1.82	1993
Denmark	0.981	-0.441	-0.010	0.136	-3.88	2.22	1996
Finland	0.893	-0.477	-0.005	0.060	-4.92	2.24	1993
France	0.788	-0.214	-0.003	0.112	-2.80	1.94	1975
Germany	0.962	-0.534	-0.003	0.047	-3.41	1.89	1995
Greece	0.913	-0.454	-0.011	0.125	-3.65	2.92	1996
Hong Kong	0.800	-0.522	-0.004	0.159	-3.54	4.22	1994
Hungary	0.726	-0.599	-0.026	0.218	-2.90	1.82	1995
India	0.984	-0.599	-0.017	0.139	-3.27	6.17	1998
Indonesia	0.874	-0.479	-0.004	-0.023	-4.23	4.85	1996
Ireland	0.884	-0.172	0.000	0.152	-2.99	6.61	No
Israel	0.832	-0.478	-0.012	0.071	-4.55	4.70	1989
Italy	0.845	-0.567	-0.003	0.049	-3.36	1.42	1996
Japan	0.942	-0.686	-0.005	-0.046	-4.27	1.57	1990
Korea	0.856	-0.587	-0.016	-0.027	-2.56	5.82	1988
Luxembourg	0.912	-0.373	0.002	0.245	-6.65	4.75	No

Table 3.2 (continued)

	Loss avoidance	Income smoothing	Earnings aggressiveness	Market price of risk	Stand. Trading volume	Real % GDP growth	Insider trading enforcement
Malaysia	0.678	-0.431	-0.006	0.087	-4.08	6.53	1996
Mexico	0.612	-0.723	-0.013	0.138	-3.02	3.20	No
Netherlands	0.912	-0.260	-0.001	0.102	-2.55	2.65	1994
Norway	0.749	-0.496	-0.014	0.110	-3.26	3.10	1990
Pakistan	0.782	-0.518	-0.013	0.146	-1.68	4.43	No
Peru	0.819	-0.671	-0.039	0.047	-5.96	3.78	1994
Philippines	0.949	-0.502	-0.024	0.062	-4.91	3.63	No
Poland	0.909	-0.608	-0.028	0.097	-3.88	3.78	1993
Portugal	0.898	-0.561	-0.006	0.050	-3.91	2.28	No
Romania	0.622	-0.717	-0.048	0.078	-4.60	0.93	No
Russia	0.907	-0.735	-0.037	0.229	-6.01	-0.05	No
Singapore	0.715	-0.363	-0.001	0.094	-4.46	6.78	1978
Slovenia	0.933	-0.603	-0.024	0.122	-6.41	2.72	1998
South Africa	0.858	-0.356	-0.008	0.126	-4.60	2.52	No
Spain	0.954	-0.480	-0.006	0.082	-3.01	3.07	1998
Sri Lanka	1.000	-0.561	-0.023	0.115	-2.45	5.08	1996
Sweden	0.766	-0.421	-0.002	0.099	-3.11	2.25	1990
Switzerland	0.950	-0.430	-0.004	0.104	-2.99	1.42	1995
Thailand	0.840	-0.677	-0.028	0.048	-3.24	5.18	1993
Turkey	0.782	-0.593	-0.050	0.102	-3.12	4.53	1996
United Kingdom	0.859	-0.057	-0.001	0.146	-2.81	2.38	1981
United States	0.704	-0.319	-0.010	0.130	-2.83	2.91	1961
Venezuela	0.912	0.134	-0.002	0.012	-5.59	3.18	No
All countries	0.836	-0.480	-0.012	0.104	-3.79	3.42	No

related to earnings aggressiveness. The latter relation may indicate that these two forms of earnings management may be substitutes for each other. Not surprisingly, all three forms of earnings management are positively and significantly related to overall earnings management. The results for our cost of equity measures are mixed. While loss avoidance and income smoothing appear to raise our first cost of equity measure, earnings aggressiveness appears to lower it. Income smoothing is also negatively correlated with our second cost of equity measure. The trading volume results exhibit a similar pattern. Loss avoidance and income smoothing are negatively related to trade, while earnings aggressiveness is positively related to trade. The results for Spearman correlations are qualitatively the same and are hence not reported.

Table 3.3
Pearson Correlations

This table reports a matrix of Pearson correlations based on monthly data from 1990 to 2006 for the 50 sample countries. Significant correlations at the 1(5) percent level are marked with ******(*****). Loss avoidance is the ratio of banks with small profits minus banks with small losses divided by their sum per country per year. This ratio is ranked into deciles across years and countries to obtain the loss avoidance time-series variable per country. Banks with small profits (losses) are defined as banks with net income scaled by lagged total assets larger or equal to zero (smaller than zero), but smaller (larger) than a z-score of 0.1254 (-0.1254) times the standard deviation of the earnings distribution. Income smoothing is measured as the cross-sectional correlation between the change in bank accruals and the change in bank operating cash flows, both scaled by lagged total assets, per country per year. The correlation is ranked into deciles across years and countries to derive the income smoothing time-series variable per country. Earnings aggressiveness is measured by the median level of bank accruals scaled by lagged total assets per country per year. The medians are ranked into deciles across years and countries to obtain the earnings aggressiveness time-series variable per country. Overall earnings management is calculated as the average of the loss avoidance, income smoothing and earnings aggressiveness time-series variables per country. The first measure of cost of equity is the sum of the dividend yield forecast and the growth rate of dividends. The second measure of cost of equity is the residual from the risk adjustment model. Standardized trading volume is the natural logarithm of dollar trade per month in bank stocks scaled by dollar stock market capitalization at the end of the month.

	Correlations						
	1	2	3	4	5	6	7
1. Loss avoidance							
2. Income smoothing	0.031**						
3. Earnings aggressiveness	0.016	-0.339**					
4. Overall earnings management	0.510**	0.526**	0.486**				
5. Cost of equity 1	0.056**	0.024*	-0.059**	0.002			
6. Cost of equity 2	-0.008	-0.025*	0.016	-0.013	0.014		
7. Standardized trading volume	-0.085**	-0.051**	0.134**	0.013	0.004	0.032**	

3.5 Results

3.5.1 Cost of equity

Using dividend yields

To estimate the effect of earnings management on the cost of equity of banks, measured using dividend yields, we run four panel regressions with country fixed effects corrected for country-specific heteroscedasticity, autocorrelation and outliers of the dependent variable. The regression results are reported in Table 3.4. Columns 2-5 present the results of separate regressions for each of our earnings management measures: loss avoidance, income smoothing, earnings aggressiveness and overall earnings management. The regressions use monthly data from February 1990 to December 2006 for the 48 countries for which dividend yield data is available.

The results confirm our first hypothesis. Earnings management is positively and significantly related to the costs banks incur to raise equity. The associations are not only statistically very significant, but also economically. An increase in overall earnings management from the 25th percentile rank to the 75th percentile rank is associated with a 17.5 percent higher cost of equity.¹² This increase is more than 6 times larger than the one documented in Bhattacharya, Daouk and Welker (2003) for nonfinancial firms. The effect for loss avoidance and earnings aggressiveness is a 18.6 percent and 145.0 percent rise in bank cost of equity, respectively.¹³ Earnings aggressiveness therefore appears to be the primary driver of the positive relation between overall earnings management and bank cost of equity, measured using dividend yields, in line with the findings of Bhattacharya, Daouk and Welker (2003). The relation between income smoothing and cost of equity is also significant, but negative. This could suggest that investors do not regard this particular form of bank earnings management as detrimental. One potential reason is that corporate hedging activities, which by themselves are regarded as beneficial, may also contribute to the reduction of fluctuations in the income stream. Investors could therefore perceive banks with a smooth income stream as less risky and hence demand a lower rate of return for their investment, regardless of how the smooth income stream is achieved. An alternative explanation is provided by Tucker and Zarowin (2006), Kanagaretnam, Lobo and Mathieu (2004) and Sankar and Subramanyam (2001), who show that under certain circumstances income smoothing may be

¹²This is computed as 0.014 (per month) \times 12 months \times (5.667 (rank of the 75th percentile) - 4.622 (rank of the 25th percentile)).

¹³This is computed as 0.011 (per month) \times 12 months \times (5.286 (rank of the 75th percentile) - 3.875 (rank of the 25th percentile)) for loss avoidance and 0.030 (per month) \times 12 months \times (7.294 (rank of the 75th percentile) - 3.267 (rank of the 25th percentile)) for earnings aggressiveness.

Table 3.4
Effect of Earnings Management on the Cost of Equity
(Using Dividend Yields)

This table reports the coefficient estimates of panel regressions with country fixed effects based on monthly data from 1990:02 through 2006:12 for 48 countries. The dependent variable is our first measure of cost of equity, defined as the sum of the dividend yield forecast and the growth rate of dividends. The independent variables are our earnings management measures and two control variables. The earnings management measures are rank variables, with a higher rank implying more earnings management. The coding is as follows. Loss avoidance is the ratio of banks with small profits minus banks with small losses divided by their sum per country per year. This ratio is ranked into deciles across years and countries to obtain the loss avoidance time-series variable per country. Banks with small profits (losses) are defined as banks with net income scaled by lagged total assets larger or equal to zero (smaller than zero), but smaller (larger) than a z-score of 0.1254 (-0.1254) times the standard deviation of the earnings distribution. Income smoothing is measured as the cross-sectional correlation between the change in bank accruals and the change in bank operating cash flows, both scaled by lagged total assets, per country per year. The correlation is ranked into deciles across years and countries to derive the income smoothing time-series variable per country. Earnings aggressiveness is measured by the median level of bank accruals scaled by lagged total assets per country per year. The medians are ranked into deciles across years and countries to obtain the earnings aggressiveness time-series variable per country. Overall earnings management is calculated as the average of the loss avoidance, income smoothing and earnings aggressiveness time-series variables per country. The first control variable, insider trading enforcement, is an indicator variable that changes from 0 to 1 in the year after the first enforcement of insider trading laws. The second control variable, GDP growth, is the percentage change in gross domestic product over two consecutive years. The results are corrected for country-specific heteroscedasticity and country-specific autocorrelation. P-values are in brackets.

Independent variables	(1)	(2)	(3)	(4)
Loss avoidance	0.011 (0.000)			
Income smoothing		-0.004 (0.003)		
Earnings aggressiveness			0.030 (0.000)	
Overall earnings management				0.014 (0.000)
Insider trading enforcement	0.028 (0.014)	0.024 (0.039)	0.004 (0.744)	0.026 (0.027)
GDP growth	0.021 (0.000)	0.021 (0.000)	0.018 (0.000)	0.021 (0.000)
Adjusted R ²	0.16	0.15	0.17	0.16
F-statistic	27.23	27.05	29.53	26.94
N	6993	7114	7150	6969

used to reveal private information, increasing and not decreasing earnings informativeness. Among our control variables, the enforcement of insider trading laws causes our cost of equity measure to increase significantly in three out of four regressions, which is counterintuitive. Finally, GDP growth is positively related to the cost of raising equity.

Using an international asset pricing factor model

To further assess the relation between earnings management and the cost of equity of banks, we repeat the above analysis using a different measure of cost of equity derived from an international asset pricing factor model instead of dividend yields. For this purpose, we first estimate equation (3.5). The estimation reveals that covariance risk, λ_{cov} , and variance risk, λ_{var} , are both positively priced, with a coefficient of 2.5 significant at the 6 percent level and a coefficient of 1.9 significant at the 1 percent level, respectively. Next, we run separate regressions of each of our earnings management measures on the residual from equation (3.5), which is used as our proxy for cost of equity. The results are reported in Table 3.5, columns 2-5. The regressions use monthly data for all 50 sample countries over the period from February 1990 to December 2006 and control for the enforcement of insider trading laws, GDP growth, as well as foreign exchange and liquidity risk.

Based on the results, two of our four earnings management measures are significantly related to bank cost of equity. The coefficient on earnings aggressiveness is positive and significant at the 5 percent level. If the banks of a country move from the 25th percentile rank to the 75th percentile rank on the earnings aggressiveness dimension, they will experience a 14.5 percent increase in their cost of equity.¹⁴ Income smoothing is again negatively related to the cost of equity of banks. An increase in income smoothing from the 25th percentile rank to the 75th percentile rank is associated with a 2.7 percent decrease in bank cost of equity.¹⁵ Our findings stand in stark contrast to those of Bhattacharya, Daouk and Welker (2003), who find that earnings aggressiveness and income smoothing have no significant effect on the costs of raising equity for nonfinancial firms. This shows that the process determining the cost of equity is different for banks and nonfinancial firms. Nevertheless, the findings from the regressions should be interpreted with care. All the variables used in equation (3.5) to generate our proxy for cost of equity are estimates from other models. This introduces estimation error, which can bias the results, and could partly explain why the regression fit for this model is so

¹⁴This is computed as 0.003 (per month) \times 12 months \times (7.294 (rank of the 75th percentile) - 3.267 (rank of the 25th percentile)).

¹⁵This is computed as -0.001 (per month) \times 12 months \times (6.667 (rank of the 75th percentile) - 4.412 (rank of the 25th percentile)).

Table 3.5
Effect of Earnings Management on the Cost of Equity
(Using an International Asset Pricing Factor Model)

This table reports the coefficient estimates of panel regressions with country fixed effects based on monthly data from 1990:02 through 2006:12 for 50 countries. The dependent variable is the residual from the risk adjustment model. The independent variables are our earnings management measures and several controls. The earnings management measures are rank variables, a higher rank implying more earnings management. The coding is as follows. Loss avoidance is the ratio of banks with small profits minus banks with small losses divided by their sum per country per year. Income smoothing is measured as the cross-sectional correlation between the change in bank accruals and the change in bank operating cash flows, both scaled by lagged total assets, per country per year. Earnings aggressiveness is measured by the median level of bank accruals scaled by lagged total assets per country per year. All three measures are ranked into deciles across years and countries to obtain the time-series earnings management variables per country. Overall earnings management is calculated as the average of the loss avoidance, income smoothing and earnings aggressiveness time-series variables per country. Foreign exchange risk, $h_{j,jfx,t}$, is the conditional covariance of the return of the bank index of country j with the depreciation of the j th foreign currency with respect to the dollar at time t . Liquidity is the natural logarithm of dollar trade per month in bank stocks scaled by dollar stock market capitalization at the end of the month. Insider trading enforcement is an indicator variable that changes from 0 to 1 in the year after the first enforcement of insider trading laws. GDP growth is the percentage change in gross domestic product over two consecutive years. The results are corrected for country-specific heteroscedasticity and country-specific autocorrelation. P-values are in brackets.

Independent variables	(1)	(2)	(3)	(4)
Loss avoidance	0.000 (0.994)			
Income smoothing		-0.001 (0.005)		
Earnings aggressiveness			0.003 (0.002)	
Overall earnings management				-0.001 (0.247)
Foreign exchange risk	-0.027 (0.779)	-0.024 (0.780)	-0.023 (0.806)	-0.027 (0.779)
Liquidity	0.004 (0.000)	0.003 (0.004)	0.003 (0.004)	0.004 (0.000)
Insider trading enforcement	0.017 (0.000)	0.015 (0.000)	0.014 (0.001)	0.017 (0.000)
GDP growth	0.001 (0.115)	0.001 (0.212)	0.000 (0.413)	0.001 (0.114)
Adjusted R ²	0.01	0.01	0.01	0.01
F-statistic	1.86	1.91	1.94	1.89
N	7310	7444	7480	7286

low. The control for foreign exchange risk is insignificant, but our measure of liquidity risk is positively priced. The enforcement of insider trading laws is associated with a higher cost of equity, as before, while the effect of GDP growth on cost of equity is insignificant.

3.5.2 Trading volume

The results of regressing our earnings management measures on the amount of trading of bank stocks are presented in Table 3.6. Again, we run separate country fixed effects regressions for each of our earnings management measures and correct them for country-specific heteroscedasticity, autocorrelation and outliers of the dependent variable. The results are reported in columns 2-5. The regressions use monthly data from February 1990 to December 2006 for our 50 sample countries.

The results show that overall bank earnings management is negatively related to the volume of trading of bank stocks, lending support to our second hypothesis. If a country ascends from the 25th percentile rank to the 75th percentile rank on the overall earnings management variable, it will experience a reduction in annual trade of bank stocks of 4.9 percent.¹⁶ The effect for loss avoidance and income smoothing is a reduction in annual trade of 2.5 and 5.5 percent, respectively.¹⁷ Contrary to our hypothesis, earnings aggressiveness seems to be negatively related to trading volume. In general, the results of our trading regressions are comparable in direction and magnitude to those of Bhattacharya, Daouk and Welker (2003) for nonfinancial firms. The only marked difference is that the significance of our overall earnings management measure appears to be driven by all three dimensions of earnings management, while theirs is driven by earnings aggressiveness and income smoothing, only. The enforcement of insider trading laws is highly significant and has the expected positive sign. GDP growth is positively related to trading volume.

3.5.3 Robustness tests

Our results are subjected to a series of robustness tests. First, we rerun all regressions using contemporaneous measures of earnings management instead of the lagged values. All the results remain qualitatively unchanged.

¹⁶This is computed as $1 - \exp[-0.048 \times (5.667 (\text{rank of the } 75^{\text{th}} \text{ percentile}) - 4.622 (\text{rank of the } 25^{\text{th}} \text{ percentile}))]$.

¹⁷This is computed as $1 - \exp[-0.018 \times (5.286 (\text{rank of the } 75^{\text{th}} \text{ percentile}) - 3.875 (\text{rank of the } 25^{\text{th}} \text{ percentile}))]$ for loss avoidance and $1 - \exp[-0.025 \times (6.667 (\text{rank of the } 75^{\text{th}} \text{ percentile}) - 4.412 (\text{rank of the } 25^{\text{th}} \text{ percentile}))]$ for income smoothing.

Table 3.6
Effect of Earnings Management on Trade

This table reports the coefficient estimates of panel regressions with country fixed effects based on monthly data from 1990:02 through 2006:12 for 50 countries. The dependent variable is our measure of standardized trade, defined as the natural logarithm of dollar trade per month in bank stocks scaled by dollar stock market capitalization at the end of the month. The independent variables are our earnings management measures and two control variables. The earnings management measures are rank variables, with a higher rank implying more earnings management. The coding is as follows. Loss avoidance is the ratio of banks with small profits minus banks with small losses divided by their sum per country per year. This ratio is ranked into deciles across years and countries to obtain the loss avoidance time-series variable per country. Banks with small profits (losses) are defined as banks with net income scaled by lagged total assets larger or equal to zero (smaller than zero), but smaller (larger) than a z-score of 0.1254 (-0.1254) times the standard deviation of the earnings distribution. Income smoothing is measured as the cross-sectional correlation between the change in bank accruals and the change in bank operating cash flows, both scaled by lagged total assets, per country per year. The correlation is ranked into deciles across years and countries to derive the income smoothing time-series variable per country. Earnings aggressiveness is measured by the median level of bank accruals scaled by lagged total assets per country per year. The medians are ranked into deciles across years and countries to obtain the earnings aggressiveness time-series variable per country. Overall earnings management is calculated as the average of the loss avoidance, income smoothing and earnings aggressiveness time-series variables per country. The first control variable, insider trading enforcement, is an indicator variable that changes from 0 to 1 in the year after the first enforcement of insider trading laws. The second control variable, GDP growth, is the percentage change in gross domestic product over two consecutive years. The results are corrected for country-specific heteroscedasticity and country-specific autocorrelation. P-values are in brackets.

Independent variables	(1)	(2)	(3)	(4)
Loss avoidance	-0.018 (0.022)			
Income smoothing		-0.025 (0.000)		
Earnings aggressiveness			0.039 (0.002)	
Overall earnings management				-0.048 (0.000)
Insider trading enforcement	0.452 (0.000)	0.457 (0.000)	0.440 (0.000)	0.455 (0.000)
GDP growth	0.018 (0.000)	0.017 (0.000)	0.015 (0.002)	0.018 (0.000)
Adjusted R ²	0.47	0.47	0.47	0.47
F-statistic	134.34	137.21	137.25	134.38
N	7714	7854	7890	7690

Second, we rank all raw earnings management measures into quintiles instead of deciles to obtain their rank values and then repeat our analysis. Again, the results are qualitatively unchanged.

Third, to further allay concerns over endogeneity, we estimate three Vector Auto Regression (VAR) models that explicitly model earnings management, the cost of equity and trade as endogenously determined dependent variables. In these models the endogenous variables are modeled as linear functions of lagged endogenous variables and all exogenous variables in the system. The equation system of the VAR model is estimated jointly. The estimation results show that endogeneity does not significantly distort our findings. Our cost of equity measure based on the international asset pricing factor model has no significant effect on bank earnings management, regardless of which dimension of earnings management we use. The same holds true for our cost of equity measure based on dividend yields. We do, however, find some endogeneity in our trading model. Here, trading volume appears to be negatively related to loss avoidance and positively related to earnings aggressiveness.

3.6 Conclusion

This chapter examines the link between bank earnings management and cost of equity and trading volume, using a broad sample comprising 22,217 banks from 50 countries over the period 1990-2006. The extent of bank earnings management in a country is measured using three distributional properties of accounting earnings that suggest poor correspondence between observable accounting earnings and unobservable economic earnings: loss avoidance, income smoothing and earnings aggressiveness. A time-series measure for each of these three dimensions of bank earnings management per country is developed and then combined to obtain a panel data set of overall bank earnings management. The chapter then examines whether and to what extent these measures of bank earnings management are related to the costs banks incur to raise equity and the amount of shareholder trading of bank stocks. Bank cost of equity is determined using two approaches. The first uses a form of the Gordon Growth model based on dividend yields, the second uses an international asset pricing factor model. Trading volume of bank stocks is measured by market turnover of bank stocks.

The results of this chapter show that investors punish banks for manipulating their earnings. While the results for our individual measures of bank earnings management differ, an increase in our measure of overall earnings management from the 25th percentile rank to the 75th percentile rank is associated with an increase in bank cost of

equity by as much as 17.5 percent and a decrease in trading volume by as much as 4.9 percent. As expected, these effects are generally larger than those documented for nonfinancial firms in prior studies.

Our findings have important implications for banks. The positive relation between earnings management and bank cost of equity confirms that high earnings quality is vital for banks trying to improve their access to equity capital. We thus furnish an affirmative response to the question recently raised by Karpoff, Lee and Martin (2008b), whether financial misrepresentation leads to higher financing costs for the firms involved. Our findings are also valuable for policy makers and legislators. Bank earnings management hampers the development of arm's length financial markets and adversely affects bank cost of equity and trading volume of bank stocks. This is important because the costs banks incur to raise capital affect the terms and conditions at which they extend credit to society, which in turn affect economic growth and prosperity. Likewise market liquidity has been shown to be positively and significantly related to economic growth, capital accumulation and productivity growth (Levine and Zervos, 1998). Earnings management therefore entails a real cost to society that goes beyond the distortion of hiring and investment decisions recently documented by Kedia and Philippon (2009) and the higher probability of stock price crash risk found in Hutton, Marcus and Tehranian (2009). This not only justifies the drastic sanctions that are regularly imposed on banks when earnings manipulations are uncovered, but also warns regulators to take bank earnings management serious and to identify factors that may limit it. The next chapter is devoted to the identification of some of these factors.

Chapter 4

Mitigating Bank Earnings Management

4.1 Introduction

Corporate scandals, where bank managers are accused of earnings manipulations, have become commonplace in the financial press. This is troubling because earnings management at banks is arguably even more problematic than at other firms. Banks play a central role in financial intermediation and are essential to economic growth and stability (Levine and Zervos, 1998). As such, they represent a real systemic threat and managerial actions can have implications far beyond the institution, as visualized by the current global recession that originated in the banking sector. If bank earnings are managed, unsafe conditions can be concealed and regulators' ability to take timely corrective action compromised (Gunther and Moore, 2003). What is worse, the tools used to manipulate bank earnings can compromise sound risk management,¹ a fact that is particularly problematic because bank owners enjoy the upside from risk-taking but are largely protected from the downside by limited liability, giving them a particularly strong incentive to take on risk and conceal it by managing earnings. As such, it is surprising that to date much research has been devoted to proving whether bank earnings

¹The literature on bank earnings management has shown that loan loss provisions are a common tool to manipulate bank earnings, leaving banks with inadequate reserves to cover loan losses when necessary. This is troublesome, because the inadequacy of reserves has been identified as the major cause of many past bank failures (GAO, 1994).

management exists and which tools are used for it,² but very little to identifying the drivers and factors that may limit it. This chapter aims to address this research gap.

It has been shown that the degree of bank earnings management differs substantially across countries (Fonseca and González, 2008; Shen and Chih, 2005). Fonseca and González (2008) provide some insights that the regulatory and institutional framework plays a role in explaining such cross-country differences for one particular form of bank earnings management, namely income smoothing. We ask whether their findings extend to other and more general forms of earnings management and test whether the extent of bank earnings management depends on the restrictiveness of bank regulations and the degree of official and private supervision.

Prior research has also suggested that ownership structure could affect the incentives to misrepresent firm performance through earnings management by affecting the penalty for reporting poor earnings and the incentives to avoid doing so (Beaver, McNichols and Nelson, 2003; Collins, Shackelford and Wahlen, 1995; Smith, 1993). Fonseca and González (2008) again furnish some empirical support for this conjecture by showing that listing status influences banks' propensity for income smoothing. We again ask whether this finding also holds for other and more general forms of earnings management. In addition, we also test whether the pervasiveness of bank earnings management differs across commercial and cooperative banks, whose incentives to obfuscate bank performance also differ.

Following Leuz, Nanda and Wysocki (2003) and Bhattacharya, Daouk and Welker (2003), we consider three dimensions along which insiders can exercise their discretion to manage reported earnings: loss avoidance, income smoothing and earnings aggressiveness. We develop a measure for each of these three dimensions of bank earnings management per country and then combine them to obtain a measure of overall bank earnings management. We then examine whether and to what extent our bank earnings management measures are related to the restrictiveness of bank regulations and the degree of official and private supervision of a country. Next, we test whether our earnings management measures differ significantly depending upon ownership form.

Using a broad sample comprising 21,895 banks from 47 countries over the period 1990-2006, this study confirms that the institutional and regulatory environment plays a substantial role in explaining differences in bank earnings management across countries. As hypothesized, overall earnings management decreases in regulatory restrictiveness, which limits insiders ability to engage in earnings management by curtailing

²Recent studies include Agarwal, Chomsisengphet, Liu and Rhee (2007), Anandarajan, Hasan and McCarthy (2007), Beatty, Ke and Petroni (2002), Liu and Ryan (2006), Schrand and Wong (2003) and Shrieves and Dahl (2003).

the means they have at their disposal to manipulate earnings. Official supervision has a similar restraining effect on overall earnings management. Supervision by authorities reduces the incentives to engage in earnings management by raising the risks and costs of detection. The biggest contribution to a reduction in overall earnings management, however, stems from private monitoring. The findings for our individual earnings management measures are broadly in line with those of our overall measure, except for income smoothing, for which we find that more stringent bank regulations are associated with more and not less earnings management. While the institutional factors analyzed explain a large fraction of the cross-country differences in bank earnings management, other country-level factors, such as financial structure and development, also play a role. This study further shows that ownership form matters. While listing status is unrelated to systematic differences in bank earnings management across countries, cooperative banks on average appear to be more prone to earnings management than commercial banks.

Our contribution to the literature is threefold. First, we complement and extend recent work on the role of the regulatory and institutional environment in explaining bank earnings management with the aim of identifying factors that could form the basis for a regulatory response to the problem.

Second, we delve deeper into the role of ownership structure as a driving force behind bank earnings management, a promising but to date neglected explanatory factor, and try to explore whether certain ownership structures are particularly conducive to bank earnings management.

Finally, we add to the emerging stream of international literature on bank earnings management, a research topic that in the past has had a strong national focus on the United States.

The rest of the chapter is organized as follows. Section 4.2 describes our research hypotheses. The methodology is discussed in Section 4.3. Section 4.4 is devoted to presenting the data and descriptive statistics. Section 4.5 discusses the empirical tests and their results. Finally, Section 4.6 summarizes and concludes the study.

4.2 Hypotheses

The reasons why managers engage in earnings management are manifold. Prominent among them is the desire to increase their compensation, to influence stock market perceptions to their advantage and to avoid regulatory intervention, often leading to management layoffs (Healy and Wahlen, 1999). It has also been argued that earnings

are managed to conceal firm performance from outsiders in order to protect private control benefits (Leuz, Nanda and Wysocki, 2003). These reasons suggest that earnings management is an act of managerial self-dealing and as such is an agency problem arising from the separation of ownership and control.

The extent to which managers are able to engage in earnings management is a function of both the means that they have at their disposal and their incentives to do so. In the banking context, means and incentives depend on the external governance of banks, or more specifically, the extent of bank regulation and supervision. The prevalent country regulation sets the framework for the means managers have at their disposal to manage earnings by defining the rules that govern the behavior of banks. The more restrictive these rules are, the fewer the opportunities to engage in earnings management. On the other hand, the extent of official and private supervision, both meant to ensure that banks comply with regulations, define the incentives to manage earnings by determining the risks and costs of detection.

It is therefore hypothesized that:

H1 = Bank earnings management is decreasing in the restrictiveness of regulations;

H2 = Bank earnings management is decreasing in the degree of official supervision;

H3 = Bank earnings management is decreasing in the extent of private supervision.

4.3 Methodology

4.3.1 Empirical model

To estimate the effect of the institutional and regulatory environment on earnings management, we estimate least squares panel regressions with period fixed-effects using yearly data of the following form:

$$\begin{aligned} EarningsMgt_{k,j,t} = & \delta_{0,t} + \delta_1 RegRest_j + \delta_2 OffSup_j + \delta_3 PrivSup_j \\ & + \sum_{c=1}^2 \delta_{4,c} Control_{c,j,t} + \psi_{j,t} \end{aligned} \quad (4.1)$$

where the dependent variable is a measure $k \in \{1, 2, 3, 4\}$ of bank earnings management for country $j \in \{1, \dots, 47\}$ at time $t \in \{1, \dots, 17\}$. The independent variables are our measures for regulatory restrictiveness and the degree of official and private supervision for country j . We control for financial structure and development in all regressions.

The standard errors and covariances are weighted using White's (1980) method to control for heteroscedasticity, thus accounting for the fact that different countries exhibit different levels of variance in their variables. We also include period fixed effects in our regressions to allow for the possibility that the dependent variable is impacted by a time-specific factor.

4.3.2 Earnings management measures

We follow Healy and Palepu (2001) and Leuz, Nanda and Wysocki (2003) and define earnings management as the alteration of firms' reported economic performance by insiders to either mislead some stakeholders or to influence contractual outcomes. As in Leuz, Nanda and Wysocki (2003) and Bhattacharya, Daouk and Welker (2003), we consider three dimensions along which insiders can exercise their discretion to manage reported earnings, namely loss avoidance, income smoothing and earnings aggressiveness.

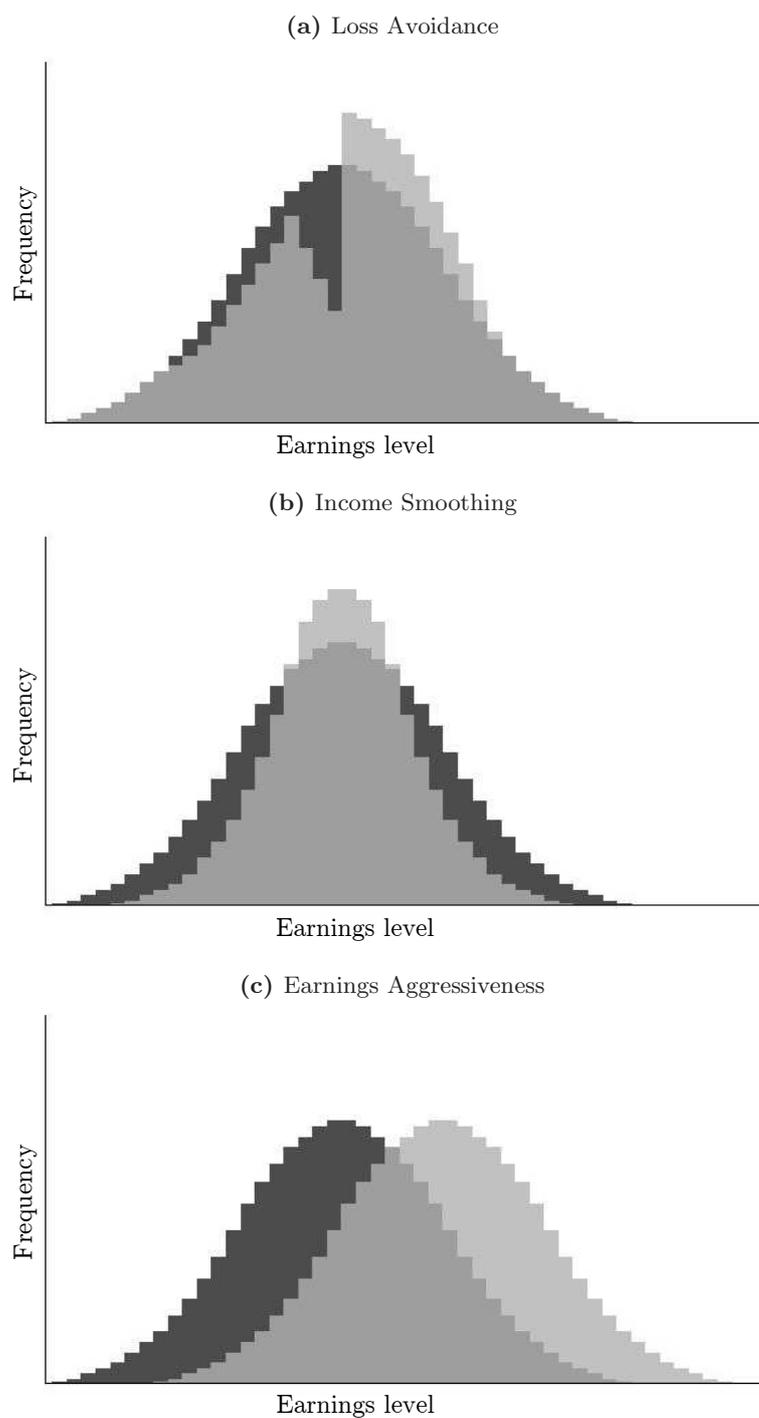
Measuring loss avoidance

Reported earnings are often managed to avoid losses, resulting in earnings distributions with unusually low frequencies of small losses and unusually high frequencies of small profits. Shen and Chih (2005) not only show that the phenomenon of loss avoidance is of a global nature and more pervasive across banks compared to non-financial institutions, they also demonstrate that prospect theory provides an explanation for the observed behavior. Prospect theory suggests that individuals evaluate alternatives with respect to specific reference points and experience the largest gain in utility, and hence also the largest incentives to manage earnings, when moving from the loss to the gain domain relative to the reference point, here zero earnings levels (Kahnemann and Tversky, 1979). As an alternative explanation Burgstahler and Dichev (1997) propose that managers opportunistically avoid reporting losses to decrease the costs imposed in transactions with stakeholders, assuming that stakeholder decisions are often based on heuristic cutoffs at zero levels of earnings. In any case, loss avoidance renders reported earnings less informative of the true economic performance of the bank. Figure 4.1a visualizes the effect loss avoidance has on the earnings distribution. The dark (light) shaded area represents economic (accounting) earnings before (after) management.

Following Bhattacharya, Daouk and Welker (2003), loss avoidance is computed as the ratio of banks with small profits (SP) minus banks with small losses (SL) divided

Figure 4.1: The Effect of Earnings Management on the Earnings Distribution

This figure visualizes the effect loss avoidance, income smoothing and earnings aggressiveness have on the earnings distribution in panel (a), (b) and (c), respectively. The dark (light) shaded area represents economic (accounting) earnings before (after) management.



by their sum for country j , year t :

$$Loss\ avoidance = \left(\frac{SP - SL}{SP + SL} \right)_{jt} \quad (4.2)$$

Banks with small profits (losses) are defined as banks with net income scaled by lagged total assets larger or equal to zero (smaller than zero), but smaller (larger) than a z-score of 0.1254 (-0.1254) times the standard deviation of the distribution. The z-scores are chosen so that under the assumption of a normal distribution, small profits and small losses together make up the difference between the 55th and the 45th percentile of the earnings distribution. Small profits (losses) accounting for the 5 percent of the earnings distribution lying directly to the right (left) of the mean, assumed to lie at zero. This approach differs from the one originally introduced by Burgstahler and Dichev (1997) and followed by Bhattacharya, Daouk and Welker (2003) and Leuz, Nanda and Wysocki (2003), among others. They define firms with small profits (losses) as firms with net income scaled by lagged total assets between 0 and 1 percent (between 0 and -1 percent) of the earnings distribution. Unlike the latter approach, ours accounts for the fact that the average profitability and dispersion of the earnings distribution may differ across countries and adjusts the size of the small profit (loss) interval accordingly. A higher ratio of banks with small profits minus banks with small losses divided by their sum suggests more loss avoidance. The ratio is ranked into deciles across years and countries to obtain the loss avoidance time-series variable per country, so that a higher rank implies more earnings management.³

Measuring income smoothing

Income smoothing refers to the reduction of fluctuations of reported earnings over time. The motives behind income smoothing at banks are manifold, explaining the prevalence of this practice in many countries around the world (Fonseca and González, 2008). Frequently cited reasons include the desire to diffuse bankruptcy concerns and to improve the general risk perception of the bank among investors, regulators and supervisors. Enhancing stock price stability and maintaining a steady compensation scheme are other common objectives, together with the aim of low-quality management to project an image of high-quality management, the reduction of long-term tax

³For example, a rank of 5 for Argentina in 1999 on the loss avoidance dimension suggests that in that particular year Argentina was in the fifth decile of the distribution of all loss avoidance measures across all countries and across all years.

liabilities and the ability to maintain a constant payout policy (Bhat, 1996). Regardless of the motive behind income smoothing, if earnings fail to depict the true swings in underlying firm performance, they are less informative to corporate outsiders and hence more opaque and qualitatively inferior, consistent with the view expressed in Bhattacharya, Daouk and Welker (2003) and Leuz, Nanda and Wysocki (2003) and the findings of Bushman and Williams (2007)⁴. Figure 4.1b shows the effect income smoothing has on the earnings distribution. The dark (light) shaded area represents economic (accounting) earnings before (after) management.

As in Leuz, Nanda and Wysocki (2003) and Bhattacharya, Daouk and Welker (2003), the extent of income smoothing is measured as the cross-sectional correlation between the change in bank accruals (ΔACC) and the change in bank operating cash flows (ΔCF), both scaled by lagged total assets (TA_{t-1}), for country j , year t :

$$Income\ smoothing = CORR\left(\frac{\Delta ACC}{TA_{t-1}}; \frac{\Delta CF}{TA_{t-1}}\right)_{jt} \quad (4.3)$$

Similar to Yasuda, Okuda and Konishi (2004), the accrual component is calculated as:

$$ACC = EXPL + GLSS + NCREV - NCEX \quad (4.4)$$

where $EXPL$ are extraordinary profits and losses, $GLSS$ are gains and losses on sales of securities, $NCREV$ are non-cash revenues and $NCEX$ are non-cash expenses.⁵ Cash flows from operations are obtained indirectly by subtracting the accrual component from operating earnings. A negative correlation between accruals and operating cash flows is expected as a natural result of the accrual accounting process. However, the more negative the correlation, the more likely it is that managers employ their discretion regarding accruals to smooth earnings. The correlation is ranked into deciles across years and countries to derive the income smoothing time-series variable per country, so that a higher rank implies more earnings management.

⁴Bushman and Williams (2007) show that smoothed earnings are less effective in facilitating the ability of outside investors and regulators to monitor and discipline bank risk-taking and hence less informative.

⁵Unlike Yasuda, Okuda and Konishi (2004), we do not include the change in working capital in our definition of accruals. The reason behind this is twofold. First, the magnitude of current accruals is small compared to non-current accruals (Thomas and Zhang, 2000). Second, the change in working capital can only be measured with substantial error, due to lack of a clear definition for banks on an international level.

Measuring earnings aggressiveness

Earnings aggressiveness is the tendency to delay the recognition of losses and speed the recognition of gains in order to maximize reported earnings at any given point in time. Ball, Kothari and Robin (2000) argue that earnings conservatism, the opposite of earnings aggressiveness, is associated with more informative earnings, because it provides information that managers may want to withhold. For instance, managers may have incentives to suppress economic losses that could serve as a feedback device about bad managerial investment decisions and strategies. Since managers may wish to suppress economic losses, but to disclose economic gains, Bhattacharya, Daouk and Welker (2003) argue that aggressive earnings are more likely to reflect biased and optimistic reporting on the part of management, adding noise to reported earnings. Figure 4.1c demonstrates the effect earnings aggressiveness has on the earnings distribution. The dark (light) shaded area represents economic (accounting) earnings before (after) management.

In line with Leuz, Nanda and Wysocki (2003) and Bhattacharya, Daouk and Welker (2003), our measure of earnings aggressiveness is equal to the median level of bank accruals scaled by lagged total assets for country j , year t :

$$\text{Earnings aggressiveness} = \text{MEDIAN} \left(\frac{ACC}{TA_{t-1}} \right)_{jt} \quad (4.5)$$

Accruals are calculated as in equation (4.4). The higher the median observation of scaled accruals is, the higher the level of earnings aggressiveness. The intuition behind this is as follows: since earnings are the sum of cash flows and accruals, we would expect accruals to rise, if managers try to maximize earnings while cash flow realizations remain unchanged. The medians are ranked into deciles across years and countries to obtain the earnings aggressiveness time-series variable per country, so that a higher rank implies more earnings management.

Overall earnings management measure

The aggregate earnings management measure for country j , year t , is simply the average country ranking across the three individual dimensions of earnings management for that year. All results are reported for each separate dimension of earnings management, as well as for the aggregate measure.

4.3.3 Institutional measures

We consider three aspects of the institutional environment that could influence managers' propensity to manipulate bank earnings, namely regulatory restrictiveness and the degree of official and private bank oversight. The exact computation of these three variables is detailed in Table 4.1. In brief, they are described here.

Regulatory restrictiveness is the measure of overall activities restrictiveness from Barth, Caprio and Levine (2006). It measures the degree to which the national regulatory authorities in countries allow banks to engage in securities, insurance and real estate activities, three fee-based, rather than more traditional interest spread-based, activities. The measure ranges from 3 to 12, higher values indicating more restrictiveness.

Official supervision is the measure of official supervisory power from Barth, Caprio and Levine (2006). It measures the extent to which supervisory authorities have the power to take actions to prevent and correct problems in banks. Aspects covered include, but are not limited to, the right to contact and to be contacted by auditors if problems occur without prior approval of the bank, the authority to take legal action against external auditors for negligence and the right to interfere in managerial compensation. The measure ranges from 0 to 14, higher values implying greater power.

Private supervision is the private monitoring index from Barth, Caprio and Levine (2006). It measures the intensity of oversight from parties other than the official supervisory authorities and covers such aspects as audit requirements, the extent to which banks have to be rated by international and domestic rating agencies, whether and to what degree depositors are protected by an explicit deposit insurance scheme and the restrictiveness of bank accounting. The index ranges from 0 to 12, higher values indicating more private monitoring.

4.3.4 Controls

We control for financial structure and development in all our regressions, two factors that have been shown to affect bank earnings management behavior across countries (Fonseca and González, 2008). Financial structure measures the comparative importance of stock markets and banks in a country. It is defined according to Fonseca and González (2008) as the first principal component of the following two variables: the natural logarithm of the ratio of stock market value traded to bank credit and the natural logarithm of the ratio of stock market capitalization to bank credit. Higher values indicate more market-oriented financial systems. Financial development measures the

Table 4.1
Quantification of Institutional Measures

This table presents the quantification of the three institutional measures from Barth, Caprio and Levine (2006) used in this study, namely bank activities restrictiveness, official supervisory power and private monitoring. For each measure, the table reports its definition, the underlying questions from the banking survey of Barth, Caprio and Levine (2006) which were posed to national bank regulators and supervisors, and how the answers to the questions are coded to quantify the measure.

Bank activities restrictiveness

Definition:	The extent to which banks may engage in the non-traditional and fee-based securities, insurance and real estate activities.
Questions asked:	<ol style="list-style-type: none"> 1. What is the level of regulatory restrictiveness for bank participation in securities activities (the ability of banks to engage in the business of securities underwriting, brokering, dealing, and all aspects of the mutual fund industry)? 2. What is the level of regulatory restrictiveness for bank participation in insurance activities (the ability of banks to engage in insurance underwriting and selling)? 3. What is the level of regulatory restrictiveness for bank participation in real estate activities (the ability of banks to engage in real estate investment, development, and management)?
Quantification:	1+2+3. For each of questions 1, 2 and 3: Unrestricted=1=full range of activities can be conducted directly in the bank; Permitted=2=full range of activities can be conducted, but some or all must be conducted in subsidiaries; Restricted=3=less than full range of activities can be conducted in the bank or subsidiaries; and Prohibited=4=the activity cannot be conducted in either the bank or subsidiaries. The measure of bank activities restrictiveness ranges from 3 to 12, higher values indicating greater restrictiveness.

Official supervisory power

Definition:	The degree to which supervisory bodies have the authority to take specific actions to prevent and correct problems in banks.
Questions asked:	<ol style="list-style-type: none"> 1. Does the supervisory agency have the right to meet with external auditors to discuss their report without the approval of the bank? 2. Are auditors required by law to communicate directly to the supervisory agency any presumed involvement of bank directors or senior managers in illicit activities, fraud, or insider abuse? 3. Can supervisors take legal action against external auditors for negligence? 4. Can the supervisory authority force a bank to change its internal organizational structure? 5. Are off-balance sheet items disclosed to supervisors? 6. Can the supervisory agency order the bank's directors or management to constitute provisions to cover actual or potential losses? 7. Can the supervisory agency suspend the directors' decision to distribute: 7.1 Dividends?; 7.2 Bonuses?; 7.3 Management fees? 8. Who can legally declare - such that this declaration supersedes some of the rights of shareholders - that a bank is insolvent: 8.1 Bank supervisors?; 8.2 Court?; 8.3 Deposit insurance agency?; 8.4 Bank restructuring or asset management agency?; 8.5 Other? 9. According to the banking law, who has authority to intervene - that is, suspend some or all ownership rights - in a problem bank: 9.1 Bank supervisors?; 9.2 Court?; 9.3 Deposit insurance agency?; 9.4 Bank restructuring or asset management agency?; 9.5 Other?

Table 4.1 (continued)

Official supervisory power (continued)	
Questions asked:	<p>10. Regarding bank restructuring and reorganization, can the supervisory agency or any other government agency supersede shareholder rights: 10.1 Bank supervisors?; 10.2 Court?; 10.3 Deposit insurance agency?; 10.4 Bank restructuring or asset management agency?; 10.5 Other?</p> <p>11. Regarding bank restructuring and reorganization, can the supervisory agency or any other government agency remove and replace management: 11.1 Bank supervisors?; 11.2 Court?; 11.3 Deposit insurance agency?; 11.4 Bank restructuring or asset management agency?; 11.5 Other?</p> <p>12. Regarding bank restructuring and reorganization, can the supervisory agency or any other government agency remove and replace directors: 12.1 Bank supervisors?; 12.2 Court?; 12.3 Deposit insurance agency?; 12.4 Bank restructuring or asset management agency?; 12.5 Other?</p>
Quantification:	<p>$1+2+3+4+5+6+7.1+7.2+7.3+8+9+10+11+12$. For questions 1, 2, 3, 4, 5, 6, 7.1, 7.2 and 7.3: Yes=1; No=0. For questions 8, 9, 10, 11 and 12: Bank supervisors=1; Deposit insurance agency=0.5; Bank restructuring or asset management agency=0.5; 0 otherwise. The measure of official supervisory power ranges from 0 to 14, higher values indicating greater power.</p>
Private monitoring index	
Definition:	The intensity of oversight from parties other than the official supervisory authorities.
Questions asked:	<p>1. Is an external audit a compulsory obligation for banks?</p> <p>2. Are auditors licensed or certified?</p> <p>3. What percentage of the top ten banks are rated by international credit rating agencies (e.g. Moody's, Standard and Poor)?</p> <p>4. How many of the top ten banks are rated by domestic credit rating agencies?</p> <p>5. Is there an explicit deposit insurance protection scheme (5.1) and were depositors wholly compensated (to the extent of legal protection) the last time a bank failed (5.2)?</p> <p>6. Does accrued, though unpaid interest/principal enter the income statement while the loan is still nonperforming</p> <p>7. Does accrued, though unpaid interest/principal enter the income statement while the loan is still performing</p> <p>8. Are financial institutions required to produce consolidated accounts covering all bank and any nonbank financial subsidiaries?</p> <p>9. Are bank directors legally liable if information disclosed is erroneous or misleading?</p> <p>10. Is subordinated debt allowable or required as part of capital?</p> <p>11. Are off-balance sheet items disclosed to the public?</p> <p>12. Must banks disclose their risk management procedures to the public?</p> <p>13. Are bank regulators/supervisors required to make public formal enforcement actions, which include cease and desist orders and written agreements between a bank regulatory/supervisory body and a banking organization?</p>
Quantification:	<p>$(1 \times 2)+3+4+5+6+7+8+9$. For questions 1, 2, 7, 8, 9, 10, 11, 12 and 13: Yes=1; No=0. For questions 3 and 4: 100%=1; otherwise 0. For question 5: if either or both subquestions can be answered with No, then 1; otherwise 0. For question 6: Yes=0; No=1. The private monitoring index ranges from 0 to 12, higher values indicating more private oversight.</p>

overall activity and size of financial intermediaries and markets. We again define it analogously to Fonseca and González (2008) as the first principal component of: the natural logarithm of the product of stock market value traded and bank credit and the natural logarithm of the sum of stock market capitalization and bank credit. Higher values indicate more developed financial systems.

The directional prediction for both variables is unclear. On the one hand, the greater number of users of financial statements in more market-oriented and more developed financial systems raises the importance of accounting figures and hence also managerial incentives to influence these numbers. On the other hand, if market-orientation and financial development are two endogenous variables increasing in higher quality institutional environments, then we would expect them to be negatively related to earnings management, in line with our regulatory and institutional measures described in the preceding section.

4.4 Data and Descriptives

4.4.1 Data

The data needed for the calculation of our earnings management measures is from the BankScope database. Only countries that have data for more than three years and have more than 20 banks per year are included in our analysis. In the calculation of our earnings management measures for year t , we include observations with fiscal years ending between July 1 of year t and June 30 of year $t + 1$. For example, our earnings management measures for the year 1999 are based on observations with fiscal years ending between July 1, 1999 and June 30, 2000.

Our measures of regulatory restrictiveness and the degree of official and private supervision are all from Barth, Caprio and Levine (2006).

The data required for the computation of our financial structure and development controls is from the Beck, Demirgüç-Kunt and Levine (2000) database on financial structure and development provided by the World Bank and last updated in 2009.

Our final sample covers 47 countries over the period 1990-2006, making use of data from 21,895 financial institutions. The year 1989 is lost, because the calculation of the change in accruals and cash flows requires data from period $t - 1$.

Table 4.2
Descriptive Statistics

This table reports the values of variables used in this study for each of the 47 sample countries over the sample period from 1990 to 2006. No. of banks reports the number of banks available per country. Loss avoidance is the ratio of banks with small profits minus banks with small losses divided by their sum per country per year. This ratio is averaged across time to obtain the loss avoidance variable per country. A higher ratio suggests more loss avoidance. Banks with small profits (losses) are defined as banks with net income scaled by lagged total assets larger or equal to zero (smaller than zero), but smaller (larger) than a z-score of 0.1254 (-0.1254) times the standard deviation of the earnings distribution. Income smoothing is measured as the cross-sectional correlation between the change in bank accruals and the change in bank operating cash flows, both scaled by lagged total assets, per country per year. The correlation is averaged across time to derive the income smoothing variable per country. Income smoothing is more pervasive, the more negative the correlation is. Earnings aggressiveness is measured by the median level of bank accruals scaled by lagged total assets per country per year. The medians are averaged across time to obtain the earnings aggressiveness variable per country. The higher the median observation of scaled accruals is, the higher the level of earnings aggressiveness. Regulatory restrictiveness is the measure of overall activities restrictiveness from Barth, Caprio and Levine (2006). It ranges from 3 to 12, with higher values indicating more restrictiveness. Official supervision is the measure of official supervisory power from Barth, Caprio and Levine (2006). It ranges from 0 to 14, with higher values implying greater power. Private supervision is the private monitoring index from Barth, Caprio and Levine (2006). It ranges from 0 to 12, with higher values indicating more private monitoring. Countries are defined as financially developing (developed), if they belong to the lower (upper) tercile of the distribution of the financial development variable across countries. Countries are defined as bank-oriented (market-oriented), if they belong to the lower (upper) tercile of the distribution of the financial structure variable across countries.

	No. of banks	Loss avoidance	Income smoothing	Earnings aggres- siveness	Regulatory restric- tiveness	Official super- vision	Private super- vision
Argentina	96	0.584	-0.745	-0.075	8	8	9
Australia	122	0.727	-0.422	-0.005	9	10	na
Austria	313	0.945	-0.438	-0.004	5	13	6
Belgium	122	0.814	-0.121	-0.002	7	10	7
Brazil	186	0.729	-0.510	0.003	7	13	9
Bulgaria	33	0.893	-0.414	0.036	7	11	7
Canada	93	0.593	-0.302	-0.007	5	10	11
Chile	46	0.917	-0.536	-0.017	9	11	8
Colombia	35	0.857	-0.783	-0.051	10	13	na
Cyprus	27	0.622	-0.540	-0.004	8	8	na
Czech Republic	42	0.836	-0.516	-0.007	9	8	9
Denmark	146	0.981	-0.441	-0.010	7	9	9
Finland	34	0.893	-0.477	-0.005	6	6	9
France	583	0.788	-0.214	-0.003	4	7	na
Germany	1,918	0.962	-0.534	-0.003	5	9	na
Greece	41	0.913	-0.454	-0.011	8	12	7
Hungary	54	0.726	-0.599	-0.026	8	14	9
India	112	0.984	-0.599	-0.017	9	10	7
Ireland	85	0.884	-0.172	0.000	5	11	9
Israel	21	0.832	-0.478	-0.012	10	7	9
Italy	1,336	0.845	-0.567	-0.003	8	7	8
Japan	878	0.942	-0.686	-0.005	8	12	9
Korea	78	0.856	-0.587	-0.016	9	12	10
Luxembourg	120	0.912	-0.373	0.002	3	13	8
Malaysia	136	0.678	-0.431	-0.006	8	11	9

Table 4.2 (continued)

	No. of banks	Loss avoidance	Income smoothing	Earnings aggres- siveness	Regulatory restric- tiveness	Official super- vision	Private super- vision
Mexico	63	0.612	-0.723	-0.013	7	na	na
Netherlands	119	0.912	-0.260	-0.001	5	5	8
Norway	173	0.749	-0.496	-0.014	5	9	na
Pakistan	58	0.782	-0.518	-0.013	9	13	7
Peru	31	0.819	-0.671	-0.039	5	12	8
Philippines	82	0.949	-0.502	-0.024	5	11	8
Poland	65	0.909	-0.608	-0.028	6	8	9
Portugal	71	0.898	-0.561	-0.006	7	14	6
Romania	39	0.622	-0.717	-0.048	9	9	na
Russia	896	0.907	-0.735	-0.037	6	10	na
Singapore	66	0.715	-0.363	-0.001	6	13	10
Slovenia	37	0.933	-0.603	-0.024	8	12	8
South Africa	62	0.858	-0.356	-0.008	6	6	9
Spain	296	0.954	-0.480	-0.006	5	9	na
Sri Lanka	32	1.000	-0.561	-0.023	9	7	8
Sweden	155	0.766	-0.421	-0.002	7	8	7
Switzerland	588	0.950	-0.430	-0.004	5	14	na
Thailand	62	0.840	-0.677	-0.028	9	10	8
Turkey	112	0.782	-0.593	-0.050	6	14	8
United Kingdom	598	0.859	-0.057	-0.001	4	11	na
United States	11,588	0.704	-0.319	-0.010	8	13	10
Venezuela	45	0.912	0.134	-0.002	6	11	6
Fin. developing	1,864	0.814	-0.572	-0.026	7	11	8
Fin. developed	16,839	0.815	-0.393	-0.006	6	10	9
Bank-oriented	3,380	0.849	-0.496	-0.013	7	11	8
Market-oriented	14,892	0.818	-0.457	-0.009	7	11	9
All countries	21,895	0.836	-0.480	-0.012	7	10	8

4.4.2 Descriptives

Table 4.2 presents a profile of the final sample. Column 2 contains the number of banks available for the calculation of our earnings management measures. The raw earnings management measures themselves are reported in columns 3 through 5. The phenomenon of loss avoidance is very pervasive across banks from all sample countries. On average, for every bank reporting a small loss, there are more than ten banks reporting a small profit. Our measure of income smoothing, reported in column 4, exhibits more variation across countries. Particularly in the developing world, where managers may have more incentives to improve the outer risk perception of banks, income smoothing is widespread, as indicated by the highly negative correlations. This stands in contrast to earnings aggressiveness, presented in column 5, which appears to be more pronounced across banks from the developed world. Financial structure also

Table 4.3
Pearson Correlations

This table reports a matrix of Pearson correlations based on country-level data from 1990 to 2006 for the 47 sample countries. Significant correlations at the 1(5) percent level are marked with **(*). Loss avoidance is the ratio of banks with small profits minus banks with small losses divided by their sum per country per year. This ratio is ranked into deciles across years and countries to obtain the loss avoidance time-series variable per country, so that a higher rank implies more earnings management. Banks with small profits (losses) are defined as banks with net income scaled by lagged total assets larger or equal to zero (smaller than zero), but smaller (larger) than a z-score of 0.1254 (-0.1254) times the standard deviation of the earnings distribution. Income smoothing is measured as the cross-sectional correlation between the change in bank accruals and the change in bank operating cash flows, both scaled by lagged total assets, per country per year. The correlation is ranked into deciles across years and countries to derive the income smoothing time-series variable per country, so that a higher rank implies more earnings management. Earnings aggressiveness is measured by the median level of bank accruals scaled by lagged total assets per country per year. The medians are ranked into deciles across years and countries to obtain the earnings aggressiveness time-series variable per country, so that a higher rank implies more earnings management. Overall earnings management is calculated as the average of the loss avoidance, income smoothing and earnings aggressiveness times-series variables per country. Regulatory restrictiveness is the measure of overall activities restrictiveness from Barth, Caprio and Levine (2006). Official supervision is the measure of official supervisory power from Barth, Caprio and Levine (2006). Private supervision is the private monitoring index from Barth, Caprio and Levine (2006).

	Correlations						
	1	2	3	4	5	6	7
1. Loss avoidance							
2. Income smoothing	0.031						
3. Earnings aggressiveness	0.016	-0.339**					
4. Overall earnings management	0.510**	0.526**	0.486**				
5. Regulatory restrictiveness	-0.069	0.143**	-0.394**	-0.221**			
6. Official supervision	-0.002	-0.005	-0.121**	-0.096*	-0.009		
7. Private supervision	-0.213**	0.055	-0.056	-0.107*	0.034	-0.143**	

appears to affect earnings management, although to a lesser extent than financial development, with more market-oriented countries being characterized by slightly lower levels of loss avoidance and income smoothing, but more earnings aggressiveness. Overall, these marked differences in bank earnings management across countries underline the importance of studying national conditions that may affect the incentives of bank managers to engage in earnings management.

Columns 6 through 8 provide a snapshot of the regulatory and institutional environment in the sample countries. There is a discernible trend towards less regulatory restrictiveness and official bank supervision in financially developed countries, but more private oversight. The latter factor is also higher in more market-oriented countries. While the degree of official and private monitoring, reported in columns 7 and 8, respectively, are both high on average, the former is much more variable than the latter.

Table 4.3 contains the Pearson correlations between our variables of interest. Our measures of loss avoidance and earnings aggressiveness are both positively and significantly related to overall earnings management. In line with our hypotheses, all three measures are reduced by more restrictive regulations and a higher degree of official and private supervision. Interestingly, income smoothing, which is also positively related to overall earnings management, is increasing and not decreasing in the degree of regulatory restrictiveness, differentiating it from the other types of bank earnings management. Except for a negative correlation between income smoothing and earnings aggressiveness, none of our individual earnings management measures are significantly associated with each other, confirming that they measure different concepts. The correlation coefficients further reveal that official and private supervision are significantly negatively related to each other, indicating that these two types of oversight may be substitutes for each other.

4.5 Results

4.5.1 Loss avoidance

We run four panel regressions with period fixed effects to estimate the effect of regulatory restrictiveness and official and private supervision on loss avoidance. The results are reported in Table 4.4. The effect of each institutional variable on loss avoidance is first assessed separately and then jointly. All our regressions control for financial structure and development and are corrected for country-specific autocorrelation and heteroscedasticity.

Table 4.4
Effect of Regulation and Supervision on Loss Avoidance

This table reports the coefficient estimates of panel regressions with period fixed effects based on yearly data from 1990 through 2006 for our sample countries. The dependent variable is our measure of loss avoidance. Loss avoidance is the ratio of banks with small profits minus banks with small losses divided by their sum per country per year. This ratio is ranked into deciles across years and countries to obtain the loss avoidance time-series variable per country, so that a higher rank implies more earnings management. Banks with small profits (losses) are defined as banks with net income scaled by lagged total assets larger or equal to zero (smaller than zero), but smaller (larger) than a z-score of 0.1254 (-0.1254) times the standard deviation of the earnings distribution. The independent variables are our measures of bank regulation and supervision and two control variables. Regulatory restrictiveness is the measure of overall activities restrictiveness from Barth, Caprio and Levine (2006). Official supervision is the measure of official supervisory power from Barth, Caprio and Levine (2006). Private supervision is the private monitoring index from Barth, Caprio and Levine (2006). The first control variable, financial structure, is the first principal component of the following two variables: the natural logarithm of the ratio of value traded to bank credit and the natural logarithm of the ratio of market capitalization to bank credit. The second control variable, financial development, is the first principal component of the following two variables: the natural logarithm of the product of value traded and bank credit and the natural logarithm of the sum of market capitalization and bank credit. The results are corrected for country-specific heteroscedasticity and country-specific autocorrelation. P-values are in brackets.

Independent variables	(1)	(2)	(3)	(4)
Regulatory restrictiveness	-0.072 (0.088)			-0.005 (0.916)
Official supervision		-0.014 (0.629)		-0.068 (0.024)
Private supervision			-0.278 (0.000)	-0.290 (0.000)
Financial structure	-0.161 (0.005)	-0.135 (0.017)	-0.194 (0.003)	-0.197 (0.002)
Financial development	0.016 (0.585)	0.003 (0.929)	0.030 (0.416)	0.024 (0.536)
Adjusted R ²	0.05	0.04	0.09	0.10
F-statistic	2.67	2.44	3.56	3.45
N	632	619	470	470

The results lend support to our hypotheses. Our first regression reveals that the incidence of loss avoidance is decreasing in the breadth of activities permitted to bank managers. Further, both official and private supervision, on their own, are negatively related to loss avoidance, but only the latter relation is significant. In our final joint regression, all coefficient estimates are negative, in line with expectations. A significant reduction in loss avoidance, however, can only be achieved with official and private oversight. Overall, private monitoring is the most effective measure to reduce loss avoidance, as visualized by the high coefficient estimates and the consistently high significance levels.

Our control for financial structure is significantly negatively related to loss avoidance in all four regressions. This suggests that market-orientation is an endogenous variable that increases in higher quality institutional environments, which lower the incidence of loss avoidance as demonstrated above. Financial development, on the other hand, is positively related to loss avoidance, even though the associations are not significant. This is consistent with financial development being associated with more external users of financial statements, thus raising the importance of accounting numbers and hence also managerial incentives to influence them.

4.5.2 Income smoothing

The results of regressing our income smoothing measure on our three regulatory and institutional variables are presented in Table 4.5. Again, we first include our explanatory factors separately and then jointly in the regressions. As before, we control for financial structure and development and correct our regressions for country-specific autocorrelation and heteroscedasticity.

The results show that of our institutional measures only regulatory restrictiveness is significantly related to income smoothing in the separate and joint regressions. However, corroborating our univariate results, the relation is positive not negative. While this is contrary to our hypothesis, it is in line with the findings in chapter 3, which suggest that investors do not regard this particular form of bank earnings management as detrimental. As a potential reason it is mentioned that corporate hedging activities, which by themselves are regarded as beneficial, may also contribute to the reduction of fluctuations in the income stream. Banks with a smooth income stream could therefore be perceived as less risky, regardless of how the smooth income stream is achieved. The positive association between our institutional measure and income smoothing also corroborates the results of Tucker and Zarowin (2006), Kanagaretnam, Lobo and Mathieu (2004) and Sankar and Subramanyam (2001), who find that under

Table 4.5
Effect of Regulation and Supervision on Income Smoothing

This table reports the coefficient estimates of panel regressions with period fixed effects based on yearly data from 1990 through 2006 for our sample countries. The dependent variable is our measure of income smoothing. Income smoothing is measured as the cross-sectional correlation between the change in bank accruals and the change in bank operating cash flows, both scaled by lagged total assets, per country per year. The correlation is ranked into deciles across years and countries to derive the income smoothing time-series variable per country, so that a higher rank implies more earnings management. The independent variables are our measures of bank regulation and supervision and two control variables. Regulatory restrictiveness is the measure of overall activities restrictiveness from Barth, Caprio and Levine (2006). Official supervision is the measure of official supervisory power from Barth, Caprio and Levine (2006). Private supervision is the private monitoring index from Barth, Caprio and Levine (2006). The first control variable, financial structure, is the first principal component of the following two variables: the natural logarithm of the ratio of value traded to bank credit and the natural logarithm of the ratio of market capitalization to bank credit. The second control variable, financial development, is the first principal component of the following two variables: the natural logarithm of the product of value traded and bank credit and the natural logarithm of the sum of market capitalization and bank credit. The results are corrected for country-specific heteroscedasticity and country-specific autocorrelation. P-values are in brackets.

Independent variables	(1)	(2)	(3)	(4)
Regulatory restrictiveness	0.141 (0.030)			0.190 (0.007)
Official supervision		-0.016 (0.720)		-0.006 (0.898)
Private supervision			0.152 (0.178)	0.154 (0.143)
Financial structure	0.102 (0.238)	0.097 (0.271)	0.208 (0.029)	0.182 (0.058)
Financial development	-0.128 (0.006)	-0.135 (0.004)	-0.129 (0.020)	-0.127 (0.021)
Adjusted R ²	0.06	0.06	0.05	0.06
F-statistic	3.29	3.00	2.40	2.49
N	646	633	481	481

certain circumstances income smoothing may increase and not decrease earnings informativeness. In this case, regulatory bodies would try to promote and not deter banks from smoothing their income stream, explaining the positive association.

In all four regressions, the association between financial structure and income smoothing is positive, while the relation between financial development and income smoothing is negative. Compared to the loss avoidance results, our control variables therefore have the opposite signs, in line with the findings for our institutional measure.

4.5.3 Earnings aggressiveness

To estimate the effect of regulatory restrictiveness and official and private supervision on earnings aggressiveness, we again run four panel regressions with period fixed effects corrected for country-specific heteroscedasticity and autocorrelation. Table 4.6 presents the results of separate and joint regressions for each of our institutional factors. In all regressions, we control for financial structure and development.

The results furnish strong support for our hypotheses. Our three institutional factors all contribute to a significant reduction in earnings aggressiveness, in the individual and joint regressions. Of the three institutional measures, more restrictive regulations and a high level of private oversight appear to be particularly effective in the reduction of earnings aggressiveness among banks, as indicated by the high coefficient estimates. Among our three individual earnings management measures, the explanatory power of our institutional factors is highest for earnings aggressiveness, visualized by the consistently high regression fits.

Financial structure is negatively and financial development positively related to earnings aggressiveness in all four regressions, corroborating the results for our loss avoidance measure. All the associations are significant at the 1 percent level.

4.5.4 Overall earnings management

Finally, we estimate four panel regressions with period fixed effects to assess how our measure of overall earnings management is related to our regulatory and institutional factors. We follow the same procedure as before and include our institutional variables first separately and then jointly in the regressions. We control for financial structure and development and correct our regressions for country-specific autocorrelation and heteroscedasticity. The results are reported in Table 4.7.

Once again, the results confirm our hypotheses. Overall earnings management is a decreasing function of the breadth of activities permitted to bank managers and the

Table 4.6
Effect of Regulation and Supervision on Earnings Aggressiveness

This table reports the coefficient estimates of panel regressions with period fixed effects based on yearly data from 1990 through 2006 for our sample countries. The dependent variable is our measure of earnings aggressiveness. Earnings aggressiveness is measured by the median level of bank accruals scaled by lagged total assets per country per year. The medians are ranked into deciles across years and countries to obtain the earnings aggressiveness time-series variable per country, so that a higher rank implies more earnings management. The independent variables are our measures of bank regulation and supervision and two control variables. Regulatory restrictiveness is the measure of overall activities restrictiveness from Barth, Caprio and Levine (2006). Official supervision is the measure of official supervisory power from Barth, Caprio and Levine (2006). Private supervision is the private monitoring index from Barth, Caprio and Levine (2006). The first control variable, financial structure, is the first principal component of the following two variables: the natural logarithm of the ratio of value traded to bank credit and the natural logarithm of the ratio of market capitalization to bank credit. The second control variable, financial development, is the first principal component of the following two variables: the natural logarithm of the product of value traded and bank credit and the natural logarithm of the sum of market capitalization and bank credit. The results are corrected for country-specific heteroscedasticity and country-specific autocorrelation. P-values are in brackets.

Independent variables	(1)	(2)	(3)	(4)
Regulatory restrictiveness	-0.449 (0.000)			-0.544 (0.000)
Official supervision		-0.090 (0.022)		-0.110 (0.003)
Private supervision			-0.384 (0.000)	-0.410 (0.000)
Financial structure	-0.413 (0.000)	-0.463 (0.000)	-0.491 (0.000)	-0.423 (0.000)
Financial development	0.512 (0.000)	0.579 (0.000)	0.533 (0.000)	0.518 (0.000)
Adjusted R ²	0.34	0.27	0.20	0.30
F-statistic	18.43	13.52	7.21	10.77
N	646	633	481	481

Table 4.7

Effect of Regulation and Supervision on Overall Earnings Management

This table reports the coefficient estimates of panel regressions with period fixed effects based on yearly data from 1990 through 2006 for our sample countries. The dependent variable is our measure of overall earnings management. Overall earnings management is calculated as the average of the loss avoidance, income smoothing and earnings aggressiveness time-series variables per country. A higher value suggests more earnings management. The independent variables are our measures of bank regulation and supervision and two control variables. Regulatory restrictiveness is the measure of overall activities restrictiveness from Barth, Caprio and Levine (2006). Official supervision is the measure of official supervisory power from Barth, Caprio and Levine (2006). Private supervision is the private monitoring index from Barth, Caprio and Levine (2006). The first control variable, financial structure, is the first principal component of the following two variables: the natural logarithm of the ratio of value traded to bank credit and the natural logarithm of the ratio of market capitalization to bank credit. The second control variable, financial development, is the first principal component of the following two variables: the natural logarithm of the product of value traded and bank credit and the natural logarithm of the sum of market capitalization and bank credit. The results are corrected for country-specific heteroscedasticity and country-specific autocorrelation. P-values are in brackets.

Independent variables	(1)	(2)	(3)	(4)
Regulatory restrictiveness	-0.131 (0.000)			-0.125 (0.000)
Official supervision		-0.041 (0.038)		-0.061 (0.004)
Private supervision			-0.169 (0.001)	-0.182 (0.000)
Financial structure	-0.151 (0.000)	-0.163 (0.000)	-0.153 (0.000)	-0.136 (0.001)
Financial development	0.131 (0.000)	0.147 (0.000)	0.141 (0.000)	0.133 (0.000)
Adjusted R ²	0.15	0.13	0.12	0.16
F-statistic	7.05	5.82	4.45	5.20
N	632	619	470	470

degree of official and private supervision. The associations are all highly significant. Based on the coefficient estimates, private monitoring again appears to be the most effective tool to combat bank earnings management, followed by more restrictive regulations.

Among our control variables, financial structure is significantly negatively and financial development significantly positively related to overall earnings management, consistent with previous results.

4.5.5 Explorative ownership analysis

It has been suggested that ownership structure could affect the incentives to misrepresent firm performance through earnings management. Differences in ownership structure contribute to bank heterogeneity in earnings concerns by influencing the penalty for reporting poor earnings and the incentives to avoid doing so (Beaver, McNichols and Nelson, 2003; Collins, Shackelford and Wahlen, 1995; Smith, 1993).

An in-depth ownership analysis would require detailed information on ownership and bank earnings management on a firm-level. Because our distribution-based earnings management measures can only be computed on a country-level, this information is unavailable. Nevertheless, we can conduct an explorative assessment of how certain ownership characteristics of banks are related to their earnings management by forming ownership subsamples on a country-level and comparing how these subsamples differ in means and medians regarding our earnings management measures. In particular, we are interested in differences between public and private banks and differences between commercial and cooperative banks. The needed ownership information comes from the BankScope database.

Due to their public exposure, the earnings figures of listed banks have a greater signaling effect compared to private banks (Beatty, Ke and Petroni, 2002; Shen and Chih, 2005), raising the managerial motivation to reduce the likelihood of outside intervention by managing the level and variability of reported earnings. Beatty, Ke and Petroni (2002) also suggest that the diffuse ownership typical of public banks raises monitoring costs and increases the likelihood that shareholders rely on simple earnings-based heuristics in evaluating bank performance compared to their private counterparts. Finally, private banks have a greater proportion of long-run investors than public banks (Beatty and Harris, 1998) and therefore less incentives to manage short-term earnings. We therefore expect bank earnings management to be more pronounced in public compared to private banks. To test this conjecture, we compute our earnings management measures for the separate populations of listed and unlisted banks on a country-level

Table 4.8
Explorative Ownership Analysis

This table reports the results of tests on how ownership subsamples differ in means and medians regarding our earnings management rank measures. The tests are conducted for 81 countries over the period 1990-2006. Panel A compares the ownership subsamples of listed versus unlisted banks, whereas Panel B compares commercial to cooperative banks. The second and third columns of this table report the means of the respective ownership group for our four earnings management rank measures. N is in brackets. The fourth column reports the p-values of parametric t-tests, measuring the significance of the difference in means between the two ownership groups. If the difference is significant, the means are reported in bold print. The fifth column reports the p-values of non-parametric Mann-Whitney (MV) tests, measuring the significance of the difference in medians between the two groups.

Panel A	Ownership Subsamples		t-test	MV-test
	Listed	Unlisted		
Loss avoidance	5.5 (74)	4.9 (81)	0.198	0.120
Income smoothing	5.1 (76)	5.9 (81)	0.107	0.106
Earnings aggressiveness	5.5 (77)	5.4 (81)	0.937	0.921
Overall earnings management	5.3 (74)	5.4 (81)	0.728	0.778

Panel B	Ownership Subsamples		t-test	MV-test
	Commercial	Cooperative		
Loss avoidance	4.7 (81)	6.4 (31)	0.001	0.000
Income smoothing	5.9 (81)	4.6 (37)	0.008	0.022
Earnings aggressiveness	5.2 (81)	6.1 (37)	0.108	0.109
Overall earnings management	5.3 (81)	5.8 (31)	0.065	0.085

and then run parametric t-tests to analyze whether there are significant differences in the mean level of earnings management between the two ownership subsamples. For robustness, we also conduct nonparametric Mann-Whitney tests. This test is similar in nature to the t-test, but focuses on a measure of the median rather than the mean, making it more appropriate in case the ownership subsamples are not normally distributed. The results of these tests are reported in Table 4.8, Panel A. They show that there are no significant differences in the earnings management behavior of public versus private banks. While listing status may be related to cross-sectional variation in bank earnings management *within* a country, as evidenced by Fonseca and González (2008), it does not appear to be a primary determinant of systematic differences in bank earnings management *across* countries.

Cooperative banks differ from commercial banks in terms of their organization, goals and governance. While the former are owned and controlled by their members and seek to provide the best possible products and services to them, the latter are typically owned by stockholders and controlled by managers external to the bank that aim at maximizing profit.⁶ On the one hand, the strong focus on profits inherent to commercial banks could lead to the supposition that earnings management is more pervasive in these banks. On the other hand, in a cooperative a significant part of the yearly profit is allocated to constitute reserves, forming an ownerless endowment. As Fonteyne (2007) points out, this endowment not only reduces members' incentives to exert effective oversight over management, it also increases the need for such oversight, since managers may use it as a tool for empire-building. Because managers enjoy greater private control benefits and hence have more to conceal from outsiders, they have stronger incentives to obfuscate firm performance (Leuz, Nanda and Wysocki, 2003). Managerial monitoring in cooperative banks is further hampered by collective action problems that are more daunting than in investor-owned companies, the absence or reduced impact of market signals, the lack of a takeover threat and in many cases lower disclosure of information (Beaver, McNichols and Nelson, 2003; Fonteyne, 2007; Hesse and Cihak, 2007). Whether earnings management is more pronounced in commercial or cooperative banks is therefore an empirical question. To generate evidence on this issue, we again conduct parametric t-tests and nonparametric Mann-Whitney tests, the results of which are reported in Table 4.8, Panel B. The results indicate that cooperatives are characterized by significantly higher levels of overall earnings management compared to their commercial counterparts. A cooperative organization is also more

⁶Some cooperative banks have shares listed on public stock markets, transferring ownership partly to non-members, thus diluting member control.

conductive to loss avoidance and earnings aggressiveness, although only the former difference is significant, but less conducive to income smoothing. The latter finding is in line with Hesse and Cihak (2007), who find that cooperative banks' returns are less volatile, dampening incentives to smooth their income stream.

4.5.6 Discussion of results

The results of this study provide strong support for our hypotheses. Regulatory restrictiveness is associated with a significant reduction in overall earnings management by reducing the means that managers have at their disposal to manipulate earnings. Overall earnings management is also a decreasing function of the extent of official supervision, which reduces the incentives to engage in earnings management by raising the risks and costs of detection. The biggest contribution to a reduction in overall earnings management, however, stems from private monitoring, underlining the importance of strengthening both, supervision by authorities and market discipline, as envisaged in the new Basel Accord. This finding is complementary to Barth, Caprio and Levine (2004; 2006) and Beck, Demirgüç-Kunt and Levine (2006), who find that an approach to bank supervision and regulation that stresses private monitoring tends to boost bank development, increase bank efficiency, improve the corporate governance of banks and reduce corruption in bank lending more effectively than an approach based on direct, official oversight of and restrictions on banks.

Our findings for our individual earnings management measures corroborate those of our overall measure, except for income smoothing. Here we find that more stringent bank regulations are associated with an increase not a decrease in the extent to which banks smooth their income. This finding stands in stark contrast to that of Fonseca and González (2008), who find that stricter regulations on bank activities reduce income smoothing by means of loan loss provisions, although they stress the limited economic significance of this result.

Overall, the institutional factors analyzed seem to explain a significant portion of different forms of bank earnings management. Nevertheless, other country-level factors, prominent among them the degree of financial structure and development, also play a role. Except for our income smoothing regressions, financial structure is always positively and financial development always negatively related to our earnings management measures. This is consistent with market-orientation being an endogenous variable increasing in higher quality institutional environments that lower the incidence of earnings management, as our results demonstrate. It is also consistent with financial development being associated with more external users of financial statements, thus

raising the importance of accounting numbers and hence also managerial incentives to influence these figures.

Finally, in an explorative analysis, this study shows that ownership affects the incentives to misrepresent firm performance through earnings management. While listing status appears to be unrelated to systematic differences in bank earnings management across countries, cooperative banks, where managers enjoy greater private control benefits and where managerial monitoring is complicated, on average conduct more earnings management than commercial banks.

4.6 Conclusion

In this chapter, we examine whether cross-country differences in the institutional and regulatory framework can explain differences in the earnings management behavior of banks across borders. Using a broad sample of 21,895 banks from 47 countries over the period 1990-2006, we consider three dimensions along which insiders can exercise their discretion to manage reported earnings: loss avoidance, income smoothing and earnings aggressiveness. We develop a measure for each of these three dimensions of bank earnings management per country and then combine them to obtain a measure of overall bank earnings management. We then examine whether and to what extent our measures of bank earnings management are related to the restrictiveness of bank regulations and the degree of official and private supervision prevalent in a country. Next, we test whether our earnings management measures differ significantly depending upon ownership form.

The results lend strong support to our hypotheses. Our measure of overall bank earnings management is not only a decreasing function of the breadth of activities permitted to bank managers, it is also significantly reduced by official and private supervision, with the latter type of oversight being a particularly effective tool to combat bank earnings management. The findings for our individual earnings management measures are broadly in line with those of our overall measure, except for income smoothing, for which we find that more stringent bank regulations are associated with more and not less earnings management. We also find that apart from the regulatory and institutional framework, two other country-level characteristics, namely financial structure and development, are significantly related to the pervasiveness of bank earnings management across countries. This study further shows that ownership form matters. While listing status is unrelated to systematic differences in bank earnings management across coun-

tries, cooperative banks on average appear to be more prone to earnings management than commercial banks.

The findings of this chapter have important implications for policy makers and legislators. Chapter 3 shows that bank earnings management entails a real economic cost to society by adversely affecting the liquidity of bank stocks and the costs banks incur to raise equity capital, which in turn affect the terms and conditions at which they extend credit to society. We build on the findings of Chapter 3 and demonstrate that the right regulatory and institutional environment can help remedy the situation. With the right mix of regulatory restrictions and official and private supervision, one can help curtail both managerial means and incentives for earnings manipulations. Our results also stress the importance of relying on market forces in addition to the more traditional supervisory bodies to guarantee effective bank oversight, a fact accounted for by the third pillar of the new Basel Accord. This complements the findings of Barth, Caprio and Levine (2006), who show that empowering private monitoring of banks improves their operation.

Chapter 5

Conclusion

This study addresses two main research questions. First, it examines whether bank earnings management has a negative impact on equity markets around the world, by adversely affecting the costs banks incur to raise equity and the amount of shareholder trading of bank stocks. Second, it tests whether differences in bank earnings management across countries can be linked to differences in the prevailing institutional and regulatory framework. More specifically, we analyze if and to what degree our measures of bank earnings management are related to the restrictiveness of bank regulations and the degree of official and private supervision prevalent in a country. In addition, the role of ownership as a driving force behind bank earnings management is assessed.

The first research question is answered, using a broad sample comprising 22,217 banks from 50 countries over the period 1990-2006. The extent of bank earnings management in a country is measured using three distributional properties of accounting earnings that suggest poor correspondence between observable accounting earnings and unobservable economic earnings: loss avoidance, income smoothing and earnings aggressiveness. A time-series measure for each of these three dimensions of bank earnings management per country is developed and then combined to obtain a panel data set of overall bank earnings management. The study then examines whether and to what extent these measures of bank earnings management are related to the return shareholders demand for holding bank stocks and the amount of shareholder trading of bank stocks. The results of this analysis confirm that investors punish banks for manipulating their earnings. While the results for our individual measures of bank earnings management differ, our measure of overall earnings management is associated with a significantly higher cost of equity for banks and lower trading volume. As expected,

these effects are generally larger than those documented for nonfinancial firms in prior studies.

Using our previously developed measures of bank earnings management and a comprehensive sample of 21,895 banks from 47 countries over the period 1990-2006, we then proceed to answering our second research question. Once again, we furnish strong support for our hypotheses. Our measure of overall earnings management is decreasing in the restrictiveness of bank regulations and the extent of official supervision. The biggest contribution to a reduction in overall earnings management, however, stems from private monitoring. The findings for our individual earnings management measures broadly corroborate those of our overall measure. While the institutional factors analyzed explain a large fraction of the cross-country differences in bank earnings management, other country-level factors, such as financial structure and development, also play a role. An explorative ownership analysis further reveals that the propensity for bank earnings management is also dependent upon ownership form. While listing status is shown to be unrelated to systematic differences in bank earnings management across countries, cooperative banks on average appear to be more prone to earnings management than commercial banks.

Our findings have important implications for banks. The positive relation between earnings management and bank cost of equity confirms that high earnings quality is vital for banks trying to improve their access to equity capital. We thus furnish an affirmative response to the question recently raised by Karpoff, Lee and Martin (2008b), whether financial misrepresentation leads to higher financing costs for the firms involved. Our findings are also valuable for policy makers and legislators. Bank earnings management hampers the development of arm's length financial markets and adversely affects bank cost of equity and trading volume of bank stocks. This is important because the costs banks incur to raise capital affect the terms and conditions at which they extend credit to society, which in turn affect economic growth and prosperity. Likewise market liquidity has been shown to be positively and significantly related to economic growth, capital accumulation and productivity growth (Levine and Zervos, 1998). Earnings management therefore entails a real cost to society that goes beyond the distortion of hiring and investment decisions recently documented by Kedia and Philippon (2009) and the higher probability of stock price crash risk found in Hutton, Marcus and Tehranian (2009). This not only justifies the drastic sanctions that are regularly imposed on banks when earnings manipulations are uncovered, but also warns regulators to take bank earnings management serious and to identify factors that may limit it. In this regard, the findings for our second research question are

valuable, since they show that the right regulatory and institutional environment can help remedy the situation. With the right mix of regulatory restrictions and official and private supervision, one can help curtail both managerial means and incentives for earnings manipulations. Our results also stress the importance of relying on market forces in addition to the more traditional supervisory bodies to guarantee effective bank oversight, a fact accounted for by the third pillar of the new Basel Accord. This complements the findings of Barth, Caprio and Levine (2006), who show that empowering private monitoring of banks improves their operation.

More research is warranted to help us better understand and tackle the problem of bank earnings management. Future researchers could analyze whether foreign banks, originating from countries with more favorable institutional frameworks, can import the earnings management reducing effect of their home country regulations to their host countries. Another avenue for future research would be to develop more refined measures of bank earnings management on a country- and firm-level, providing the foundation needed for an in-depth ownership analysis.

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