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Auditor Reputation and Earnings Management: International Evidence from the Banking Industry

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Abstract

We examine the relation between auditor reputation and earnings management in banks using a sample of banks from 29 countries. In particular, we examine the implications of two aspects of auditor reputation, auditor type and auditor industry specialization, for earnings management in banks. We find that both auditor type and auditor industry specialization moderate benchmark-beating (loss-avoidance and just-meeting-or-beating prior year's earnings) behavior in banks. However, we find that once auditor type and auditor industry specialization are included in the same tests, only auditor industry specialization has a significant impact on constraining benchmark-beating behavior. In tests related to income-increasing abnormal loan loss provisions, we find in separate tests that both auditor type and auditor expertise constrain income-increasing earnings management. Again, in joint tests, only auditor industry expertise has a significant impact on constraining income-increasing earnings management.

Key words: *Auditor reputation; Auditor expertise; Earnings Management; Earnings Benchmarks; Loan loss provisions*

JEL classification: G14, G21, M41 and M42.

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I. Introduction

We examine the effect of auditor reputation on bank earnings management using an international sample of banks. Banks operate in a highly regulated environment in that they are monitored by Central Banks and other regulatory agencies (such as deposit insurance corporations). Consequently, auditor reputation may not be as important in constraining income-increasing earnings management in banks. On the contrary, if our finding establishes a negative association between auditor reputation and income-increasing earnings management, then auditor reputation likely is even more relevant for firms in other industries that are not subject to such direct regulatory scrutiny. To our knowledge no other study has examined how auditor reputation is related to earnings management in the international or the US banking industry.

Our main prediction is that auditor reputation (auditor type and auditor industry specialization) is negatively related to earnings management in banks even after controlling for some previously identified international institutional factors and bank monitoring factors. Whereas evidence of a negative relation between auditor reputation and earnings management may not be surprising for US banks because, in a high-litigation environment such as the US, high-reputation auditors have an incentive to maintain a high level of earnings quality to protect their reputation and legal exposure (Francis and Wang 2008), whether such a relation exists across different legal and institutional environments clearly is of interest. We are able to address this issue by analyzing an international sample of banks.

Prior research in banking has examined the relation between international institutional factors and bank monitoring variables and earnings management (Shen and Chih 2005; Fonseca and Gonzalez 2008). Shen and Chih (2005) using earnings benchmark tests document that most banks manage their earnings. They also show that stronger investor protection and greater transparency in accounting disclosure reduce banks' incentive to manage earnings. Fonseca and Gonzalez (2008), focus on factors influencing income smoothing through loan loss provisions, the major bank accrual. They find that income smoothing is lower in jurisdictions with greater bank regulation and supervision. Interestingly, neither of these papers addresses the impact of auditing, an important external monitoring mechanism, on earnings management or income smoothing.

Becker et al. (1998) and Francis et al. (1999) report lower earnings management in industrial firms for clients of Big 5 auditors. Krishnan (2003) finds that firms audited by industry specialists report lower discretionary accruals, a commonly used proxy for earnings management in industrial firms. And, Francis and Wang (2008), using an international sample, report that earnings quality is higher for firms that use Big 4 auditors, but their result holds only for regimes with strong investor protection. A notable deficiency of these studies is that they exclude firms in banking and financial services.

In addition, auditing banks is more complex than auditing industrial firms. In its May 2006 report on large firm Public Company Accounting Oversight Board (PCAOB) inspection deficiency analysis, the American Institute of Certified Public Accountants' (AICPA 2006) Center for Public Company Audit Firms finds that banks' loan loss allowance ranks number one among the various deficiencies found by inspectors. This

indicates that auditing the loan loss allowance and the related loan loss provision are challenging tasks for auditors in general. High-reputation auditors have incentives to provide high-quality audits to avoid jeopardizing their reputation capital. Thus, auditor reputation is potentially important in assessing the adequacy of loan losses and mitigating earnings management incentives of bank managers.

This study extends the research on benefits of auditor reputation to the banking industry. Specifically, it examines two aspects of auditor reputation. First, this study investigates the implications of auditor type (Big 5 *vs.* non-Big 5 auditors) for constraining income-increasing earnings management in banks. A large body of empirical research documents that higher audit quality is associated with Big 5 auditors.[1] Relative to non-Big 5 auditors, Big 5 auditors have greater expertise, resources, and more importantly, market-based incentives (e.g., mitigating the risk of litigation and protecting their reputation capital) to constrain the tendency of their audit clients to engage in aggressive reporting. Consequently, we predict that earnings management will be lower for banks audited by Big 5 auditors.

Second, this study examines the effect of auditor industry specialization on reducing earnings management in banks. Auditors who are specialists in the banking industry can better assess the adequacy of the loan loss provisions than non-specialist auditors. Prior research documents that auditor industry specialization enhances financial reporting quality and mitigates fraudulent financial reporting (Johnson et al. 1991; Carcello and Nagy 2004; Krishnan 2003 and 2005). We measure auditor industry

[1] We refer to the high-reputation, brand-name auditors as Big 5 (in fact Big 6, during the period 1993–1997, the Big 5 after the merger between Coopers and Lybrand and Price Waterhouse in 1998, and currently Big 4 after the demise of Arthur Andersen in 2002.) auditors throughout the paper for simplicity.

specialization/expertise by an auditor's industry market share.[2]

We employ three traditional proxies of earnings management, managing earnings to avoid losses, managing earnings to just-meet-or-beat the prior year's earnings benchmark and an accrual-based proxy (based on abnormal loan loss provisions), to test the extent of income-increasing earnings management through bank loan loss provisions. By using three different tests (accruals- and non-accruals-based tests), we strengthen the validity and robustness of our results. Our loss-avoidance/just-meeting-or-beating prior year's earnings tests closely resemble the methodology used by Beatty et al. (2002) and Altamuro and Beatty (2009). Our proxy for abnormal loan loss provisions is based on prior banking research on loan loss provisions (Wahlen 1994; Kanagaretnam et al. 2004).

We use an international bank sample from the *BankScope* database representing 29 countries over the period 1993 to 2006 to test our hypotheses. We find in separate tests that both auditor type and auditor expertise moderate benchmark-beating (loss-avoidance and just-meeting-or-beating prior year's earnings) behavior in banks. However, we find that once auditor type and industry expertise are included in the same tests, only auditor industry expertise has a significant impact on constraining benchmark-beating behavior. In tests related to income-increasing abnormal loan loss provisions, we find in separate tests that both auditor type and auditor expertise constrain income-increasing earnings management. Again, in joint tests, only auditor industry expertise has a significant impact on constraining income-increasing earnings management. Overall we find that audit specialists constrain income-increasing earnings management in banks. Our results are robust to several sensitivity tests including alternate classification of audit specialists, controlling for self-selection, and different bin widths for benchmark tests.

[2] In our discussions, we use auditor industry specialization and industry expertise interchangeably.

Our results contribute to the literature in several ways. First, our results extend prior research on the relation between auditor reputation and earnings management to the banking industry. Our study identifies how auditor reputation is related to earnings management in banks around the world. Second, in an international banking setting, our study can be seen as identifying an important external monitoring factor that constrains earnings management.

The rest of this paper is organized as follows. The next section develops the hypotheses. Section three explains the empirical models used for tests of earnings management. Section four describes the sample selection process. Section five discusses the results and section six concludes the study.

2. Hypotheses

Using economic theory, DeAngelo (1981) argues that auditor size is a proxy for auditor reputation and audit quality. She reasons that brand-name auditors (i.e., Big 5 auditors) are better able to detect material misstatements in financial statements and more willing to report what they find than are other auditors (i.e., non-Big 5 auditors). Higher expertise is associated with Big 5 auditors because they not only have more resources but also devote more resources to specialized staff training, peer reviews, and investment in information technology than non-Big 5 auditors (Dopuch and Simunic 1982; Craswell et al. 1995). Similarly, higher independence is associated with Big 5 auditors because they have higher reputation capital at stake relative to non-Big 5 auditors. Loss of reputation, as Arthur Andersen learned the hard way, could put a Big 5 auditor out of business (Huang and Li 2009). Litigation risk also motivates Big 5 auditors to remain independent. In the wake of the Enron-Andersen scandal PricewaterhouseCoopers, Deloitte & Touche,

and Ernst & Young have resigned from more than 1,200 clients to mitigate the risk of litigation (Hindo 2003). In short, a higher audit quality is associated with the Big 5 auditors.

There is a large body of empirical research that documents that higher audit quality is associated with Big 5 auditors for industrial firms. Teoh and Wong (1993) observe higher earnings response coefficients for clients of Big 5 auditors relative to clients of non-Big 5 auditors, consistent with the notion that investors perceive earnings to be of higher quality when the auditor is a brand-name auditor. Becker et al. (1998) and Francis et al. (1999) report lower earnings management in industrial firms for clients of Big 5 auditors. Additionally, Basu et al. (2000) find higher levels of financial reporting conservatism (i.e., more timely recognition of bad news) for clients of Big 5 auditors. Although empirical evidence on auditor reputation and audit quality in the banking industry is limited, the economic incentives faced by the Big 5 auditors of banks are similar to those of other industries. i.e., preserving reputation capital and mitigating the risk of litigation.[3] In addition, auditor type may be of higher importance for industries such as banking, where information uncertainty is higher relative to industrial firms due to the greater complexity of banking operations and difficulty of assessing risk on the large portfolio of loans (Autore et al. 2009).

The above arguments suggest that earnings management in banks will be lower when the auditor is a Big 5 auditor. However, because banks operate in a highly regulated environment in that they are monitored by the Central Banks and other regulatory agencies (such as deposit insurance corporations), auditor reputation may not be as

[3] Kanagaretnam et al. (2009) is an exception. They find a significant, positive association between the discretionary component of LLP and stock returns for banks audited by Big 5 auditors.

important in constraining income-increasing earnings management relative to industrial firms. Given this, we present our hypothesis in null form:

Hypothesis 1: Earnings management in banks is unrelated to whether the auditor is a Big 5 auditor.

Our second hypothesis relates to the linkage between auditor specialization in the banking industry and its impact on limiting earnings management behavior. While classifying auditors as Big 5 and non-Big 5 separates them in terms of reputation, it ignores an auditor's expertise in a given industry which may be an even more critical dimension of auditor reputation. Although a Big 5 auditor may serve clients in multiple industries, the auditor may not have a competitive advantage in all industries because developing a competitive advantage is very costly or not feasible due to a variety of reasons, including first-mover advantage enjoyed by other auditors, lack of economies of scale, limited human capital with industry expertise, and constrained economic resources. As a result, each of the Big 5 auditors or national auditors tends to dominate a select few industries from among the industries in their portfolio of clients.

Several studies have examined the benefits of auditor industry specialization or expertise on audit effectiveness. For example, Bedard and Biggs (1991) document that an auditor with experience in the manufacturing industries is better able to detect errors in a manufacturing client's data than an auditor without manufacturing experience. Similarly, Wright and Wright (1997) find that significant experience in the retailing industry contributes to increased detection of errors of clients in the retail industry. Other benefits of auditor industry specialization identified in prior research include mitigation of financial fraud (Johnson et al. 1991; Carcello and Nagy 2004), reporting of lower

discretionary accruals, a commonly used proxy for earnings management in industrial firms (Krishnan 2003), and greater asymmetric timeliness of earnings which is a fundamental characteristic of conservative financial reporting (Krishnan 2005).

While the above evidence indicates that the ability to detect material misstatements in financial statements is associated with auditor industry specialization, there also is evidence that specialist auditors attempt to protect their reputation capital through increased compliance with generally accepted auditing standards relative to non-specialist auditors (O'Keefe et al. 1994). In the banking industry, Kanagaretnam et al (2009) find that once auditor type and industry expertise are separated, only auditor industry expertise has a significant impact on valuation of discretionary LLP. In summary, the collective evidence supports the notion that there are benefits to auditor industry specialization in terms of enhanced audit effectiveness and credibility of financial statements. However, as discussed earlier, the benefits of audit specialists may not be as pronounced in banking as in industrial firms because the banking industry is highly regulated. Accordingly, we present the following hypothesis stated in null form:

Hypothesis 2: Earnings management in banks is unrelated to whether the auditor is a specialist in the banking industry.

3. Measures of Earnings Management

Our general hypothesis is that auditor reputation (auditor type and auditor specialization) constrains bank earnings managements. We employ three traditional proxies of earnings management; managing earnings for loss-avoidance, managing earnings for just-meeting-or-beating prior year's earnings and an accruals-based proxy, to test the extent of income-increasing earnings management through the bank's loan loss

provisions. By using three different tests (accruals- and non-accruals based) we strengthen the validity/robustness of our results. Our loss-avoidance/just-meeting-or-beating prior year's earnings test closely resembles the methodology used by Beatty et al. (2002) and Altamuro and Beatty (2009). Our proxy for abnormal loan loss provisions is based on prior banking research on loan loss provisions (Wahlen 1994; Kanagaretnam et al. 2004).

3.1 Managing earnings for loss-avoidance or to just-meet-or-beat prior year's earnings

Beatty et al. (2002) and Altamuro and Beatty (2009) report that bank managers have incentives to manage earnings for benchmark-beating behavior. We examine how auditor reputation (auditor type and auditor specialization) constrains this incentive. We focus on two earnings benchmarks: loss-avoidance (*LOSS_AVOID*) and just-meeting-or-beating prior year's earnings (*JMBE*).[4] We include all available additional control variables (size, growth, loans, leverage, change in cash flow, and loan loss allowance) to be consistent with the above literature. We also include additional controls for country-specific variables (law enforcement index and financial system in the country), and bank-specific monitoring variables (regulatory restrictions on entry into banking, official supervisory power index, and private monitoring index), and estimate the following logit model:

$$\begin{aligned} BENCHMARK_t = {} & \alpha_0 + \alpha_1 BIG5 + \alpha_2 SPEC + \alpha_3 SIZE_t + \alpha_4 GROWTH_t + \alpha_5 LOANS_t \\ & + \alpha_6 LEV_t + \alpha_7 \Delta CASH\_FLOW_t + \alpha_8 ALLOW_t + \alpha_9 LAW\_ENF \\ & + \alpha_{10} BANK + \alpha_{11} BANKREG + \alpha_{12} OFFICIAL + \alpha_{13} MONITOR \end{aligned}$$

[4] A recent survey of managers by Graham et al. (2005) finds that just-meeting-or-beating prior period's earnings is one of the most important benchmarks for corporate managers. In addition, Burgstahler and Dichev (1997) and Degeorge et al. (1999) provide empirical evidence indicating that loss-avoidance is also an important benchmark for managers.

+ <Year Controls> + e (1)

Where:

BENCHMARK	=	earnings benchmark indicators (LOSS_AVOID or JMBE), defined as follows: LOSS_AVOID is an indicator variable taking the value one if the bank has a small ROA (income before taxes scaled by total assets) in the interval between 0 and 0.002, and JMBE is an indicator variable taking the value one if the bank has a change in ROA (income before taxes scaled by total assets) from year t-1 to year t in the interval between 0 and 0.0005, zero otherwise;
BIG5	=	an indicator variable that equals 1 if the auditor is a Big 5 auditor and 0 otherwise;
SPEC	=	an indicator variable that equals 1 if the auditor is a market leader in the banking industry for that particular country and 0 otherwise;
$SIZE_t$	=	log of total assets at the end of the year;
$GROWTH_t$	=	the growth in total assets from the beginning to the end of year t;
$LOANS_t$	=	total loans scaled by total assets at the beginning of year t;
LEV_t	=	total equity divided by total assets at beginning of year t;
$\Delta CASH\_FLOW_t$	=	change in cash flows (income before taxes and loan loss provisions) from the beginning to the end of year t scaled by total assets at the beginning of year t;
$ALLOW_t$	=	allowance for loan losses at the end of year t, scaled by total assets at beginning of year t;
LAW_ENF	=	investor protection, proxied by the law enforcement index. This index is the mean score of three legal enforcement variables reported in La Porta et al. (1998), and used in Leuz, et al. (2003);
BANK	=	a bank system dummy, which equals 1 for countries whose financial system is bank-dominated and 0 for countries whose financial system is market-oriented, as per the classification of Demirguc-Kunt and Levine (1999);
BANKREG	=	a measure of regulatory restrictions on entry into banking from Barth et al. (2001);
OFFICIAL	=	the official supervisory power index from Barth et al. (2001); and
MONITOR	=	the private monitoring index from Barth et al. (2001).

The coefficients of interest are the coefficients on the two auditor reputation proxies: *BIG5* and *SPEC*. *BIG5* is an indicator variable that equals 1 if the auditor is a Big 5 auditor and 0 otherwise. Auditor industry specialization/expertise is typically

measured by an auditor's industry market share (e.g., Balsam et al. 2003; Krishnan 2003) in each country. We calculate an auditor's market share based on banks' total assets in each country. An auditor is considered a specialist if it has the largest market share in the banking industry for that particular country.[5] Since higher auditor reputation will reduce earnings management for loss-avoidance/just-meeting-or-beating prior year's earnings, we expect the coefficients on *BIG5* and *SPEC* to be negative. On the other hand, if auditor reputation is not important in a highly regulated industry such as banking, the coefficients on *BIG5* and *SPEC* will not be significantly different from zero.

We include the two country-specific variables, *LAW_ENF* and *BANK*, as control variables in all our regressions but do not offer directional predictions on the coefficients of these variables. We use the Law Enforcement Index (*LAW_ENF*) to proxy for investor protection.[6] Leuz et al. (2003) find that *LAW_ENF* is negatively associated with earnings management. Prior studies (e.g., Kwok and Tadesse 2006; Purda 2008) indicate that a firm's perceived risk (and the associated earnings quality due to earnings management) is influenced by whether the financial system in the country is bank- or market-based (*BANK*).

As suggested by Fonseca and Gonzalez (2008), bank regulation and bank supervision may also affect the extent of earnings management. We use the measure of regulatory restrictions on entry to banking (*BANKREG*), the official supervisory power

[5] For each country, we identify the audit specialist for three distinct periods spanning our sample years. These three periods are: 1) during the period 1993–1997, before the merger between Coopers and Lybrand and Price Waterhouse in 1998, 2) 1998-2001 after the merger, and 3) 2002-2006 after the demise of Arthur Andersen in 2002. This approach is consistent with Neal and Riley (2004) and Kwon et al. (2007).

[6] This index is the mean score of three legal enforcement variables reported in La Porta et al. (1998). The three variables are (1) the mean for 1980-1983 of a variable provided by Business International Corp., capturing the efficiency and integrity of the judicial system; (2) the mean for 1982-1995 of a rule of law variable obtained from International Country Risk; and (3) the mean for 1982-1995 of a corruption variable that assesses the corruption in government, obtained from International Country Risk.

index (*OFFICAL*), and the private monitoring index (*MONITOR*) developed by Barth et al. (2001) to proxy for bank regulation.[7] Since these variables are included as controls, we do not offer directional predictions on their coefficients.

3.2 Income-increasing abnormal loan loss provisions

We use a two-stage approach to examine the relation between auditor reputation and income-increasing earnings management through LLP. We first estimate the normal or nondiscretionary component of LLP by regressing LLP on beginning loan loss allowance, net loan charge-offs, change in total loans outstanding, total loans outstanding, nonperforming loans, loan categories, and controls for period and country effects using the following model:[8]

$$LLP = \lambda_0 + \lambda_1 BEGLLA + \lambda_2 LCO + \lambda_3 CHLOANS + \lambda_4 LOANS + \lambda_5 NPL + \lambda_6 DNPL + <LOAN\ CATEGORIES> + <YEAR\ CONTROLS> + <COUNTRY\ CONTROLS> + e \quad (2)$$

Where:

LLP	=	provisions for loan losses deflated by beginning total assets;
BEGLLA	=	beginning loan loss allowance deflated by beginning total assets;
LCO	=	net loan charge-offs deflated by beginning total assets;
CHLOANS	=	change in total loans outstanding deflated by beginning total assets;
LOANS	=	total loans outstanding deflated by beginning total assets;
NPL	=	nonperforming loans deflated by beginning total assets;
DNPL	=	an indicator variable that equals 1 if the value for NPL is missing and 0 otherwise[9]; and

[7] *BANKREG* ranges from 0 to 8, with higher values indicate more restrictions on entry into banking. *OFFICAL* ranges from 0 to 14; it captures the power of supervisors to take prompt corrective action, to restructure and reorganize troubled banks, and to declare a troubled bank insolvent. *MOINTOR* ranges from 0 to 7; it measures the extent of monitoring by outsiders such as international rating agencies, etc. Higher values of *OFFICIAL* and *MONITOR* indicate greater power of supervisors and greater private oversight.

[8] These variables have also been used in several prior studies (e.g., Wahlen 1994; Kanagaretnam et al. 2004; Adams et al. 2009) to estimate the normal component of LLP.

[9] Since a large number of NPL data is missing, we use the 'modified zero-order regression' method suggested by Maddala (1977) and Greene (2003) which substitutes a zero for missing values and adds an indicator variable coded one if the corresponding variable is missing.

LOAN CATEGORIES = loans to municipalities/government (*MUN*), mortgages (*MORT*), hire-purchase/lease (*LEASE*), other loans (*OTH*), loans to group companies/associates (*GRP*), loans to other corporate (*OCORP*) and loans to banks (*BK*) all deflated by beginning total assets.

The residuals from equation (2) are the abnormal or discretionary component of LLP, referred to as *ALLP*.

In the second stage, we test the association between proxies for auditor reputation and the absolute value of negative (income-increasing) *ALLP*. Negative *ALLP* are of particular interest because of their positive impact on reported earnings. We control for the following factors that prior research has documented to be associated with abnormal accruals (Ashbaugh et al. 2003): firm size, asset growth, level of past accruals, and performance. We use log of assets to measure size and prior period's LLP to proxy for level of past accruals. We represent performance by earnings before LLP. Our model is as follows:

$$ALLP = \delta_0 + \delta_1 BIG5 + \delta_2 SPEC + \delta_3 SIZE + \delta_4 GROWTH + \delta_5 PASTLLP + \delta_6 EBTP + \delta_7 LAW\_ENF + \delta_8 BANK + \delta_9 BANKREG + \delta_{10} OFFICIAL + \delta_{11} MONITOR + <YEAR\ CONTROLS> + \varepsilon \quad (3)$$

Where:

ALLP = absolute value of negative abnormal loan loss provisions;

PASTLLP = prior year's LLP divided by total assets at the beginning of the year;

EBTP = earnings before taxes and loan loss provisions divided by total assets at the beginning of the year;

And all other variables are as previously defined.

The coefficients of interest in equation (3) are the coefficients on *BIG5* and *SPEC*. A negative coefficient for both is consistent with our prediction of auditor reputation constraining income increasing earnings management. As previously discussed, if auditor reputation is not important in a highly regulated industry such as banking, the coefficients on *BIG5* and *SPEC* will not significantly differ from zero.

4. Data Description

We obtain financial data for the international (non-US) banks for the period 1993-2006 from the *BankScope* database. We select sample countries from the 48 countries listed in La Porta et al. (1998). We drop 9 countries (Ireland, Kenya, Pakistan, Sri Lanka, Zimbabwe, Ecuador, Indonesia, Jordan, and Venezuela) for which La Porta et al. (1998) do not report legal enforcement variables needed to compute the law enforcement index (*LAW_ENF*). We delete another 10 countries (Argentina, Belgium, Denmark, Egypt, Finland, Malaysia, Nigeria, Sweden, Switzerland, and Uruguay) due to missing bank-specific information (such as loan charge offs, loan loss provisions, loan loss allowance, etc). We retain the remaining 29 countries in our study. These include Australia, Austria, Brazil, Canada, Chile, Columbia, France, Germany, Greece, Hong Kong, India, Israel, Italy, Japan, Korea, Mexico, Netherlands, New Zealand, Norway, Peru, Philippines, Portugal, Singapore, South Africa, Spain, Taiwan, Thailand, Turkey, and the United Kingdom.

We present the sample distribution by year and by country in Panel A and Panel B of Table 1, respectively. There are 6,072 and 4,232 bank-years for the earnings benchmark and abnormal loan loss provisions tests, respectively.[10] The sample for the benchmark tests is larger than the sample for the abnormal loan loss provisions test because of the less stringent data requirements. In Panel A, the number of bank-years generally grows over time because of the increasing coverage of banks in *Bankscope*.

In Panel B, there is significant variation in the number of bank-year

[10] We delete each of the continuous control variables used in equations (1) to (3) at the top and bottom one percent to remove extreme values.

observations across countries due to differences in capital market development, country size, and the availability of complete financial accounting data. Except for the United Kingdom, most countries constitute less than ten percent of the total bank-years individually. In the subsequent sensitivity analysis, we find that our results are robust after excluding banks from the United Kingdom. In Panel C, we present the country-level institutional variables. These institutional variables are used as controls in our regression analysis.

[Insert Table 1 here]

5. Empirical Results

The residuals from the regression models may be serially and/or cross-sectionally correlated. We therefore use OLS/logistic regressions with clustered robust errors to account for both serial and cross-sectional correlations (Rogers 1993; Williams 2000; Petersen 2009). For all tests, we report Wald or t-statistics based on clustered standard errors after correcting for both serial and cross-sectional correlations in the residuals.[11]

5.1 Loss-avoidance and just-meeting-or-beating prior year's earnings tests

We report the results of the earnings benchmark tests in Table 2. Panel A presents the descriptive statistics of variables used in equation (1). On average, 6% of our sample banks report a small profit (i.e., they just avoided reporting a loss) and 7% of our sample banks report a small increase in earnings over the prior year (i.e., they just-meet-or-beat prior year's earnings). 74% (26%) of the banks are audited by Big 5 and audit specialists.

[11] Petersen (2009) suggests that, in the presence of cross-sectional and time-series dependence, one dependence effect can be addressed parametrically (e.g., including time dummies for cross-sectional dependence) and then standard errors clustered on the other dependence effect (e.g., clustering by firms for time-series dependence) can be estimated. As we have more firm than year observations, we use year dummies and cluster by firms because a larger number of clusters leads to standard errors that are less biased.

Panel B shows the correlations among the bank-specific variables used in the regression. Consistent with the argument that auditor reputation reduces earnings management, there is a negative correlation between banks audited by Big 5 and specialist auditors and loss-avoidance. However, there is a positive correlation between banks audited by Big 5 and specialist auditors and just-meeting-or-beating prior year's earnings. While these univariate results are interesting, they do not control for all other factors likely to affect the extent of earnings management. Hence, we rely on the multivariate analysis for making inferences.

[Insert Table 2 here]

We report the estimation results of the logistic regressions for the loss-avoidance and just-meeting-or-beating beating prior year's earnings tests in Table 3. A negative sign for α_1 and α_2, the coefficients for *BIG5* and *SPEC*, will indicate that banks are less likely to manage earnings to avoid losses or just-meet-or-beat prior year's earnings when audited by high-reputation auditors. The first three columns provide the results for the loss-avoidance tests. In model (1), auditor reputation is proxied by whether or not the auditor is a Big 5 auditor. In model (2), auditor reputation is proxied by whether the auditor is a specialist in the banking industry for a particular country. In model (3), we include both proxies for auditor reputation. In model (1), consistent with hypothesis 1, we find a negative and significant (at the 10% level) coefficient for *BIG5.* And, consistent with hypothesis 2, we obtain a negative and significant (at the 1% level) coefficient estimate for *SPEC* in model (2). These results support our main argument that high-reputation auditors constrain banks from managing earnings to avoid reporting losses. When we include both measures of auditor reputation in model (3), only *SPEC* maintains

its significance level at 1%, suggesting that auditor industry specialization is more critical in limiting earnings management than auditor type.[12]

The next three columns provide the results of the just-meeting-or-beating prior year's earnings tests. In model (1), we find that the coefficient for *BIG5* is negative and significant at the 10% level. In model (2), the coefficient of *SPEC* is negative and significant at the 1% level. In model (3), where we include both dimensions of auditor reputation, the coefficient of *SPEC* is negative and significant at the 10% level whereas the coefficient of *BIG5* is not significant.[13] These results suggest that banks audited by specialists (but not Big 5) are less likely to manage earnings to meet or beat prior years' earnings.

Taken together, our results for the earnings benchmark tests indicate high reputation auditors, particularly auditors who are industry specialists, help to constrain earnings management undertaken by banks.

[Insert Table 3 here]

5.2 Income-increasing abnormal loan loss provisions test

We report the results for the abnormal loan loss provisions tests in Tables 4, 5 and 6. We use a two-stage approach to investigate the effect of auditor reputation on abnormal loan loss provisions. The sample size for the first stage regression is 7,680

[12] *LAW_ENF* has significant negative association with *LOSS_AVIOD*. This is consistent with Leuz et al. (2003), who find *LAW_ENF* to negatively related to earnings management in industrial firms. *BANK* has significant positive association with *LOSS_AVIOD*. This is consistent with bank-based financial systems having higher earnings management relative to market-based financial systems. Fonseca and Gonzalez (2008) suggest that bank regulation and bank supervision may reduce the extent of earnings management. Since losses may induce closer scrutiny by regulators, an alternate prediction is that the higher bank regulation and bank supervision may increase the incentives for loss-avoidance. Consistent with the alternate prediction, *BANKREG*, *OFFICAL*, and *MONITOR* are positively related to *LOSS_AVIOD*.

[13] Consistent with Leuz et al. (2003), *LAW_ENF* has significant negative association with *JMBE*. As before, *BANK* has significant positive association with *JMBE*. Consistent with Fonseca and Gonzalez (2008), *BANKREG* has strong negative association with JMBE. As before, *OFFICIAL* is positively related to *JMBE*.

bank-years with all data available to estimate abnormal LLP. The sample for our second stage is reduced to 4,232 bank-years due to missing auditor information in the *BankScope* database. Panel A of Table 4 reports the results of the first-stage regression for estimating abnormal LLP. Consistent with prior studies (e.g., Kanagaretnam et al. 2009), *BEGLLA* is negatively associated with *LLP* since a higher initial loan loss allowance will require a lower *LLP* in the current period. As expected, *LCO*, *LOANS* and *NPL* are positively associated with *LLP*, consistent with the evidence reported in Kanagaretnam et al. (2004). The residuals from equation (2) represent the abnormal component of LLP. Panels B and C of Table 4 present descriptive statistics and correlation coefficients for bank-level variables used in estimating equation (3). Consistent with our expectation, auditor reputation (*BIG5* and *SPEC*) is negatively correlated with our measure of earnings management, *ALLP*.

[Insert Table 4 here]

We are primarily interested in how auditor reputation may affect income-increasing earnings management and hence we report in Table 5 the regression results for the 2,442 bank-years with absolute value of negative (income-increasing) *ALLP* values. For completeness, we also discuss the untabulated results for the 1,790 bank-years with positive (income-decreasing) *ALLP* values. Of interest are the coefficients δ_1 and δ_2 on *BIG5* and *SPEC*. A negative sign for δ_1 and δ_2 suggests less income-increasing earnings management when auditor reputation is high. Recall that we are using absolute values, so that smaller values of absolute, negative *ALLP* indicate less income-increasing earnings management. Consistent with expectations, in model (1), where auditor reputation is measured by *BIG5*, the coefficient δ_1 is negative and significant at the 10% level. In

model (2), where auditor reputation is measured by *SPEC*, the coefficient δ_2 is negative and significant at the 1% level. In model (3) where we include both measures of auditor reputation in the model, the coefficient for *BIG5* is negative but no longer significant at conventional levels and the coefficient for *SPEC* is negative and significant at the 1% level.[14] These results support our contention that high-reputation auditors constrain income-increasing earnings management by banks.

[Insert Table 5 here]

In untabulated results, we find no relation between our measures of auditor reputation and income-decreasing earnings management by banks. Specifically, in model (1), *BIG5* is not reliably associated with *ALLP* (t=0.05, p=0.96) and in model (2), *SPEC* is also not reliably associated with *ALLP* (t=0.95, p=0.34). In the third model that includes both measures of auditor reputation, the coefficients for both *BIG5* and *SPEC* are also insignificant (t=-0.13, p=0.90 and t=0.95, p=0.34, respectively).

Based on our research design, the most likely area to find earnings management is in the area of loss-avoidance or just-meeting-or-beating the prior year results. This is also when the reputation of the audit firm on the income-increasing abnormal loan loss provision (ALLP) would be expected to be the greatest.[15] To test this conjecture, we add *LOSS_AVOID* and *JMBE* and their interactions with *BIG5* and *SPEC* to model (3). In Table 6, we report the regression results for this expanded model (3). Addition of these variables does not alter our main results on the effects of *BIG5* and *SPEC* in reducing the income-increasing ALLP reported in Table 5. More interestingly, the sum of the

[14] Consistent with prior research, *LAW_ENF* has significant negative association with absolute value of negative (income-increasing) ALLP. Consistent with Fonseca and Gonzalez (2008), *OFFICIAL* and *MONITOR* are negatively related to income-increasing ALLP. However, *BANK* has strong negative association with income-increasing ALLP.

[15] We thank an anonymous referee for bringing this important issue to our attention.

coefficients of *BIG5* and *BIG5*JBME*, *SPEC* and *SPEC*LOSS_AVOID*, and *SPEC* and *SPEC* JBME*, are all negative and significant at the 5% level or better. This is consistent with our conjecture that the influence of auditor reputation will be greatest in constraining income-increasing earnings management through ALLP when banks have incentives for benchmark beating.

[Insert Table 6 here]

5.3 Sensitivity checks

In the main analysis, we define the industry market leader for each country as the specialist auditor. We use the Neal and Riley (2004) criteria, which allow more than one auditor to be a specialist in the banking industry, as an alternative definition. Specifically, we define auditors with a large industry market share (based on bank assets) as the specialist (*SPEC1*) for each country. We consider an auditor to have a large market share if the auditor has at least a 20% share of the industry for the 1993-1997 period, a 24% share of the industry for the 1998-2001 period, and a 30% share of the industry for the 2002-2005 period.[16] For the loss-avoidance test, in model (2), the coefficient for *SPEC1* is negative and significant (Wald=8.64, p<0.01). In model (3), the coefficient for *BIG5* is insignificant but the coefficient for *SPEC1* is negative and significant (Wald=5.68, p=0.01). For the just-meeting-or-beating prior year's earnings test, the coefficient for *SPEC1* is negative and significant (Wald=6.25, p=0.01) in model (2). In model (3), the coefficient for *BIG5* is insignificant but the coefficient for *SPEC1* is negative and

[16] Following Neal and Riley (2004), we employ a cutoff for ''large'' market shares of (1/N)*1.2, where N is the number of big international audit firms. The largest firms are the Big 6, during the period 1993–1997, the Big 5 after the merger between Coopers and Lybrand and Price Waterhouse in 1998, and the Big 4 after the demise of Arthur Andersen in 2002. This measure includes all firms that cross the 20%/24%/30% thresholds and is denoted as *SPEC1*.

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significant (Wald=3.52, p=0.06). Overall, our results are robust to this alternative definition of auditor specialization.

Second, we conduct a sub-sample analysis using only US banks. As discussed earlier, we omit US banks because they operate in a highly litigious environment that likely differs from the environment in other countries. Because US banks were generally very profitable during our sample period, we have very few observations in the bin width for the loss-avoidance and just-meeting-or-beating prior year's earnings tests. In tests related to absolute value of income-increasing abnormal loan loss provisions, we find in separate tests that both auditor type and auditor expertise are negatively related to income-increasing earnings management.

Third, we control for potential endogeneity of auditor choice and banks' earnings management. Banks with high earnings quality may systematically choose high-reputation auditors and high- reputation auditors may likewise prefer to audit banks with higher earning quality. We employ the Heckman (1979) two-stage procedure to address this concern.[17] We first estimate a probit model of auditor choice (Big 5 *vs.* non-Big 5) to derive the Inverse Mills Ratio (IMR). We are not aware of a model of auditor choice for banks. Therefore, we develop the following model that relates auditor choice to bank performance, size, and risk:[18]

$$BIG5 = \alpha_0 + \alpha_1 ROA + \alpha_2 ROA*LOSS + \alpha_3 LnLOAN + \alpha_4 CHLOAN + \alpha_5 TCAPITAL + \alpha_6 LOANRATIO + \alpha_7 NPLRATIO + \varepsilon \quad (4)$$

[17] Francis and Lennox (2008) discuss the problems with operationalizing the Heckman (1979) two-stage procedure in an accounting context. Following their suggestion, we exclude several variables that appear in the first stage model (for example *LnLOAN* and *NPLRATIO*) from our second stage model. We also check for multicollinearity when including *IMR* in the second stage. The variance inflation factors do not indicate problems with multicollinearity.

[18] The sample size reduced due to missing information for capital ratio and non-performing loans.

Where:

BIG5	=	an indicator variable that equals 1 for Big 5 clients and 0 for non-Big 5 clients;
ROA	=	net income over lagged total assets;
LOSS	=	an indicator variable that equals 1 the firm has a loss and 0 otherwise;
LnLOAN	=	natural log of total loans outstanding;
CHLOAN	=	change in total loans outstanding, scaled by beginning assets;
TCAPITAL	=	risk adjusted total capital ratio (at the year-end);
LOANRATIO	=	total loans outstanding divided by total assets; and
NPLRATIO	=	nonperforming loans divided by total loans.

ROA captures performance and is expected to be positive. By including *ROA*LOSS* in the model, we allow the coefficient on ROA to differ across profit and loss firms. *LnLOAN* is a proxy for bank size. Since larger banks may prefer Big 5 auditors, we predict a positive coefficient for *LnLOAN*. We use several measures of risk, including *CHLOAN, TCAPITAL, NPLRATIO* and *LOANRATIO*. We predict positive coefficients for *CHLOAN, LOANRATIO,* and *NPLRATIO* as banks with greater actual or perceived risks may opt for a Big 5 auditor to enhance the credibility of their financial reports.

The (untabulated) results for our first-stage regression indicate that *ROA*, *LnLOAN*, *CHLOAN*, *LOANRATIO*, *NPLRATIO,* and *TCAPITAL* are positively and significantly associated with *BIG5* while *ROA*LOSS* is negatively and significantly associated with *BIG5*.

We then re-estimate equations (1) and (3) with *IMR* as an additional independent variable in the second stage. In the second stage the coefficient for *IMR* in all our models is significant at the 1% level suggesting that self-selection may be a problem in our analysis. Despite the inclusion of *IMR* in the regression model, the results of the second-stage regression are similar to those reported in Tables 3 and 5. Specifically, for the loss-avoidance test, the coefficient for *SPEC* is negative and significant (Wald=2.84, p=0.09)

while the coefficient for *BIG5* is insignificant (Wald=0.04, p=0.84). For the just-meeting-or-beating prior year's earnings test, the coefficient for *SPEC* is negative and significant (Wald=3.28, p=0.07) while the coefficient for *BIG5* is insignificant (Wald=0.34, p=0.56). For the abnormal loan loss provisions test, the coefficient for *BIG5* is negative and significant (t=-2.74, p<0.01), however, *SPEC* loses its insignificance (t=-0.07, p=0.94).

Our fourth sensitivity test is related to the banks audited by Arthur Andersen. We re-estimate the models after excluding former Andersen clients (194 bank-year observations for the benchmark tests, and 62 bank-year observations for the abnormal loan loss provision test). Overall, our results are robust to the exclusion of these former Andersen clients. We also find that there is no difference in earnings management between Andersen and Non-Andersen Big N clients. This is consistent with Cahan and Zhang (2006) who find no significant differences between the U.S. clients of Andersen and those of the other Big-N auditors in terms of unadjusted and performance-adjusted abnormal accruals.

As our fifth robustness check, we run additional tests by removing the country level institutional variables and replace them with fixed effects for each country. Except for the JMBE test, our results are similar to those reported in the paper. We summarize the results here. For the loss-avoidance test, the coefficient estimate for *BIG5* is 0.031 (Wald=0.02, p=0.88) and *SPEC* is -1.933 (Wald=15.42, p<0.01). For the JMBE test, the coefficient estimate for *BIG5* is -0.070 (Wald=0.13, p=0.72) and *SPEC* is 0.478 (Wald=1.41, p=0.23). For the ALLP test, the coefficient estimate for *BIG5* is -0.046 (t=-1.73, p=0.08) and *SPEC* is -0.049 (t=-2.52, p=0.01).

Finally, because banks from the United Kingdom constitute a large portion of the

total sample for our tests, we examine whether exclusion of banks from the U.K. affects our main results. We find that the results remain qualitatively unchanged when we exclude these banks from the analysis.

6. Summary and Conclusions

Given the importance of banking to national and global economies, there is surprisingly little evidence on the implications of auditing for banks' earnings quality. Banks are very different from industrial firms, and given the recent, heightened concern with the quality of banks' reported earnings following the meltdown in this sector, a study of the effect of auditor reputation on earnings management in the banking industry is of considerable interest to regulators and investors.

We examine the relation between auditor reputation and earnings management in banks using a sample of banks from 29 countries. We hypothesize that high-reputation auditors will constrain income-increasing earnings management in banks. In particular, we examine the implications of two aspects of auditor reputation, auditor type (Big 5 *vs.* non-Big 5 auditors) and auditor industry specialization for earnings management in banks.

We find in separate tests that both auditor type and auditor expertise constrain earnings benchmark-beating (loss-avoidance and just-meeting-or-beating prior year's earnings) behavior in banks. However, we find that once auditor type and industry expertise are included in the same tests, only auditor industry expertise has a significant impact on constraining benchmark-beating behavior. In tests related to income-increasing abnormal loan loss provisions, we find in separate tests that both auditor type and auditor expertise constrain income-increasing earnings management.

Again, in joint tests, only auditor industry expertise has a significant impact on constraining income-increasing earnings management.

Our results show that even in a highly regulated industry such as banking, auditor reputation has an important role in constraining income-increasing earnings management. Moreover, in an international banking setting, our study can be regarded as documenting an important external monitoring mechanism in addition to previously identified international institutional factors and bank monitoring factors that constrains earnings management in banks.

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Table 1
Distribution of bank-year observations by year and country

Panel A: Distribution of bank-year observations by year				
	Earnings Benchmark		Abnormal LLP	
Year	N	Percent	N	Percent
1993	79	1.30	34	0.80
1994	124	2.04	66	1.56
1995	180	2.96	104	2.46
1996	222	3.66	125	2.95
1997	233	3.84	128	3.02
1998	344	5.67	249	5.88
1999	381	6.27	304	7.18
2000	597	9.83	456	10.78
2001	652	10.74	550	13.00
2002	673	11.08	548	12.95
2003	696	11.46	536	12.67
2004	604	9.95	435	10.28
2005	664	10.94	387	9.14
2006	623	10.26	310	7.33
Total	*6072*	*100.00*	*4232*	*100.00*

Table 1 (continued)

Panel B: Distribution of bank-year observations by country				
	Earnings Benchmark		Abnormal LLP	
Country	N	Percent	N	Percent
Australia	312	5.14	219	5.17
Austria	39	0.64	14	0.33
Brazil	537	8.84	535	12.64
Canada	48	0.79	48	1.13
Chile	146	2.40	19	0.45
Colombia	85	1.40	20	0.47
France	213	3.51	8	0.19
Germany	72	1.19	43	1.02
Greece	106	1.75	14	0.33
Hong Kong	409	6.74	364	8.60
India	201	3.31	96	2.27
Israel	104	1.71	89	2.10
Italy	161	2.65	10	0.24
Japan	354	5.83	404	9.55
Korea, South	201	3.31	95	2.24
Mexico	92	1.52	39	0.92
Netherlands	61	1.00	19	0.45
New Zealand	55	0.91	52	1.23
Norway	348	5.73	152	3.59
Peru	7	0.12	28	0.66
Philippines	104	1.71	128	3.02
Portugal	246	4.05	132	3.12
Singapore	55	0.91	66	1.56
South Africa	164	2.70	182	4.30
Spain	220	3.62	145	3.43
Taiwan	304	5.01	196	4.63
Thailand	71	1.17	146	3.45
Turkey	192	3.16	99	2.34
United Kingdom	1165	19.19	870	20.56
Total	*6072*	*100.00*	*4232*	*100.00*

Table 1 (continued)

Panel C: Country-level institutional variables

Country	LAW_ENF	BANK	BANKREG	OFFICIAL	MONITOR
Australia	9.51	0	8	12	6
Austria	9.36	1	8	14	2
Brazil	6.13	0	8	15	4
Canada	9.75	0	8	7	5
Chile	6.52	0	3	11	3
Colombia	4.78	1	8	13	3
France	8.68	1	6	8	4
Germany	9.05	1	4	11	4
Greece	6.82	1	8	10	4
Hong Kong	8.91	0	6	11	5
India	5.58	1	6	9	3
Israel	7.72	1	6	8	5
Italy	7.07	1	8	6	4
Japan	9.17	1	6	13	4
Korea, South	5.55	0	7	10	5
Mexico	5.37	0	8	10	2
Netherlands	10	0	8	8	4
New Zealand	100	1	6	9	6
Norway	10	1	8	9	5
Peru	4.65	0	8	14	3
Philippines	3.47	0	7	12	4
Portugal	7.19	1	7	13	4
Singapore	8.93	0	7	3	5
South Africa	6.45	0	8	4	5
Spain	7.14	1	8	10	4
Taiwan	7.4	1	8	9	5
Thailand	4.89	0	8	11	4
Turkey	4.79	0	7	11	4
United Kingdom	9.22	0	8	12	5

The sample period is from fiscal years 1993-2006, and the sample consists of banks in *Bankscope* from 29 countries. Definitions of the institutional variables are as follows: *BANK* is a bank system dummy, which equals 1 for countries whose financial system is bank-dominated and 0 for countries whose financial system is market-oriented, as per the classification of Demirguc-Kunt and Levine (1999); LAW_ENF is the law enforcement index. The index is the mean score of three legal enforcement variables reported in La Porta et al. (1998), and used in Leuz et al. (2003). The three variables are (1) the mean for 1980–1983 of a variable provided by Business International Corp., capturing the efficiency and integrity of the judicial system; (2) the mean for 1982–1995 of a rule of law variable obtained from International Country Risk; and (3) the mean for 1982–1995 of a corruption variable that assesses the corruption in government, obtained from International Country Risk; *BANKREG* is a measure of regulatory restrictions on entry into banking; *OFFICIAL* is the official supervisory power index; *MONITOR* is the private monitoring index.

Table 2
Descriptive statistics and correlations for Earnings Benchmark Test

Panel A: Descriptive Statistics

	Mean	Median	Q1	Q3	Std_dev
LOSS_AVOID	0.059	0.000	0.000	0.000	0.235
JMBE	0.067	0.000	0.000	0.000	0.250
BIG5	0.739	1.000	0.000	1.000	0.439
SPEC	0.260	0.000	1.000	1.000	0.439
SIZE	8.149	8.179	6.579	9.583	2.134
GROWTH	0.145	0.096	0.020	0.192	0.319
LOANS	0.631	0.652	0.426	0.842	0.300
LEV	0.109	0.075	0.053	0.118	0.112
ΔCASH_FLOW	0.003	0.001	-0.001	0.005	0.028
ALLOW	0.010	0.010	0.004	0.015	0.007

Panel B: Correlations

	LOSS_AVOID	JMBE	BIG5	SPEC	SIZE	GROWTH	LOANS	LEV	ΔCASH_FLOW	ALLOW
LOSS_AVOID	1.000	0.062*	-0.089*	-0.148*	0.072*	-0.085*	-0.052*	-0.150*	-0.085*	0.003
JMBE		1.000	0.009	0.002	0.015	-0.027*	0.059*	-0.099*	-0.080*	-0.083*
BIG5			1.000	0.575*	-0.038*	0.002	-0.002	0.092*	-0.011	-0.169*
SPEC				1.000	-0.217*	0.108*	0.023	0.187*	0.025	-0.137*
SIZE					1.000	-0.009	0.030*	-0.583*	-0.010	0.053*
GROWTH						1.000	0.315*	-0.046*	0.253*	0.029*
LOANS							1.000	-0.136*	0.062*	0.143*
LEV								1.000	0.060*	0.127*
ΔCASH_FLOW									1.000	0.095*
ALLOW										1.000

Definitions for the firm-specific variables are as follow:
LOSS_AVOID is an indicator variable taking the value one if the bank has a small ROA (income before taxes scaled by total assets) in the interval between 0 and 0.002; *JMBE* is an indicator variable taking the value one if the bank has a change in ROA (income before taxes scaled by total assets) from year t-1 to year t in the interval between 0 and 0.0005, zero otherwise; *BIG5* is an indicator variable that equals 1 if the auditor is a Big 5 auditor and 0 otherwise; *SPEC* is an indicator variable that equals 1 if the auditor is a market leader in the industry and 0 otherwise; *SIZE* is the log of total assets at the beginning of year t; *GROWTH* is the growth in total assets from the beginning to the end of year t; *LOANS* is total loans scaled by total assets at the beginning of year t; *LEV* is total equity divided by total assets at beginning of year t; *ΔCASH_FLOW* is the change in cash flows (income before taxes and before loan loss provisions) from the beginning to the end of year t scaled by total assets at the beginning of year t; and *ALLOW* is the allowance for loan losses at the end of year t, scaled by total assets at beginning of year t. The definitions for the institutional variables are provided in the footnotes of Table 1. '*' denotes significance at 5% levels (two-tailed).

Table 3
Regression Results for the Loss-Avoidance and
Just-Meet-or-Beat Prior Year's Earnings Benchmark Tests

		Loss-avoidance Test			Just-Meeting-or-Beating Prior Year's Earnings		
Variable	Coef.	Model (1)	Model (2)	Model (3)	Model (1)	Model (2)	Model (3)
Intercept	α_0	-3.929 (10.24)***	-3.268 (7.24)***	-3.289 (7.35)***	-1.598 (2.67)*	-1.376 (1.99)	-1.376 (2.00)
BIG5	**α_1**	**-0.289** **(2.82)***		**-0.075** **(0.14)**	**-0.265** **(2.85)***		**-0.084** **(0.19)**
SPEC	**α_2**		**-0.661** **(8.78)*****	**-0.619** **(5.79)*****		**-0.483** **(6.36)*****	**-0.436** **(3.59)***
SIZE	α_3	-0.019 (0.23)	-0.036 (0.82)	-0.034 (0.72)	-0.085 (5.62)**	-0.096 (7.05)***	-0.094 (6.71)***
GROWTH	α_4	-0.305 (0.95)	-0.271 (0.74)	-0.269 (0.73)	-1.191 (20.21)***	-1.164 (18.97)***	-1.167 (18.91)***
LOANS	α_5	-1.506 (18.69)***	-1.425 (17.00)***	-1.434 (17.29)***	0.992 (14.57)***	1.046 (16.26)***	1.042 (16.17)***
LEV	α_6	-8.886 (14.23)***	-8.885 (14.24)***	-8.828 (14.22)***	-7.125 (28.30)***	-7.070 (28.22)***	-7.047 (28.26)***
ΔCASH_FLOW	α_7	-1.896 (0.33)	-1.869 (0.28)	-1.877 (0.29)	-5.293 (14.83)***	-5.482 (15.06)***	-5.492 (15.10)***
ALLOW	α_8	-0.505 (0.01)	-0.174 (0.01)	-0.452 (0.01)	-37.059 (12.09)***	-36.464 (11.70)***	-36.629 (11.68)***
LAW_ENF	α_9	-0.022 (9.54)***	-0.021 (7.44)***	-0.022 (7.74)***	-0.016 (5.69)**	-0.015 (5.17)**	-0.015 (5.25)**
BANK	α_{10}	0.938 (12.96)***	0.734 (6.69)***	0.742 (6.93)***	0.432 (6.53)***	0.375 (4.38)**	0.376 (4.42)**
BANKREG	α_{11}	0.108 (11.65)***	0.075 (4.43)**	0.073 (4.28)**	-0.171 (38.92)***	-0.188 (38.46)***	-0.189 (40.19)***
OFFICAL	α_{12}	0.054 (1.99)	0.079 (3.10)*	0.078 (3.03)*	0.130 (15.62)***	0.145 (14.94)***	0.144 (14.77)***
MONTIOR	α_{13}	0.379 (4.61)**	0.338 (3.31)*	0.348 (3.60)*	-0.049 (0.22)	-0.054 (0.23)	-0.049 (0.18)
Year Controls		YES	YES	YES	YES	YES	YES
N		6072	6072	6072	6072	6072	6072
Likelihood ratio		313.87***	323.92***	324.15***	220.71***	225.69***	225.95***

The regression model is:

$$BENCHMARK = \alpha_0 + \alpha_1 BIG5 + \alpha_2 SPEC + \alpha_3 SIZE_t + \alpha_4 GROWTH + \alpha_5 LOANS_t + \alpha_6 LEV_t + \alpha_7 \Delta CASH\_FLOW_t + \alpha_8 ALLOW_t + \alpha_9 LAW\_ENF + \alpha_{10} BANK + \alpha_{11} BANKREG + \alpha_{12} OFFICIAL + \alpha_{13} MONITOR + <Year\ Controls> + e$$

where *BENCHMARK* is defined as *LOSS_AVOID* or *JMBE*. The definitions of the variables are in footnotes of Table 1 and 2. We run the logistic regression clustered by firm, and with year dummies. To conserve space, we do not report the coefficient estimates for the year dummies. For each variable, we report the regression coefficient, followed by the Wald statistic in parentheses. '*', '**', and '***' denote significance at 10%, 5%, and 1% levels (two-tailed), respectively.

Table 4
Stage-one regression in Estimating Abnormal Loan Loss Provisions, descriptive statistics and correlations for Abnormal Loan Loss Provisions Test

Panel A: Stage one regression for estimating ALLP

Variable	Coef.	Estimate
Intercept	λ_0	-0.001
		(-0.54)
BEGLLA	λ_1	-0.009
		(-3.69)***
LCO	λ_2	0.022
		(5.68)***
CHLOANS	λ_3	-0.006
		(-6.64)***
LOANS	λ_4	0.010
		(15.03)***
NPL	λ_5	0.077
		(2.51)***
DNPL	λ_6	0.008
		(0.98)
MUN	λ_7	-0.007
		(-1.49)
MORT	λ_8	-0.006
		(-8.65)***
LEASE	λ_9	-0.004
		(-2.72)***
OTH	λ_{10}	-0.001
		(-1.34)
GRP	λ_{11}	-0.019
		(-6.04)***
OCORP	λ_{12}	-0.037
		(-0.43)
BK	λ_{13}	-0.013
		(-0.23)
Year Dummies		YES
Country Dummies		YES
N		7680
Adjusted R-square		9.58

Table 4 (continued)

Panel B: Descriptive Statistics

	Mean	Median	Q1	Q3	Std Dev
ALLP	-0.001	0.001	-0.002	0.003	0.007
BIG5	0.743	1.000	0.000	1.000	0.437
SPEC	0.188	0.000	0.000	0.000	0.390
SIZE	8.345	8.502	6.845	9.822	2.131
GROWTH	0.130	0.081	0.012	0.176	0.301
PASTLLP	0.006	0.003	0.001	0.008	0.013
EBTP	0.021	0.015	0.008	0.026	0.028

Panel C: Correlations

	ALLP	BIG5	SPEC	SIZE	GROWTH	PASTLLP	EBTP
ALLP	1.000	-0.085*	-0.047*	0.008	0.030*	-0.362*	-0.182*
BIG5		1.000	0.282*	-0.090*	0.083*	-0.161*	0.134*
SPEC			1.000	0.028	0.020	-0.094*	-0.003
SIZE				1.000	0.018	0.049*	-0.172*
GROWTH					1.000	-0.020	0.323*
PASTLLP						1.000	0.257*
EBTP							1.000

In Panel A, we report the results for the stage one regression model as follows:

$$LLP_{it} = \lambda_0 + \lambda_1 BEGLLA + \lambda_2 LCO + \lambda_3 CHLOANS + \lambda_4 LOANS + \lambda_5 NPL + \lambda_6 DNPL + <LOAN\ CATEGORIES> + <YEAR\ CONTROLS> + <COUNTRY\ CONTROLS> + e_{it}$$

where *LLP* is the provisions for loan losses; *BEGLLA* is the beginning loan loss allowance; *LCO* is net loan charge-offs; *CHLOANS* is the change in total loans outstanding; *LOANS* is total loans outstanding; *NPL* is the non-performing loans; and *DNPL* is a dummy variable, equals 1 if *NPL* is missing, and 0 otherwise. These variables are deflated by beginning total assets. *LOAN CATEGORIES* is an indicator variable for different type of loans. They are defined as: Loans to Municipalities / Government (*MUN*); Mortgages (*MORT*), HP / Lease (*LEASE*), Other Loans (*OTH*), Loans to Group companies / Associates (*GRP*), Loans to Other Corporate (*OCORP*), Loans to Banks (*BK*).

In Panels B and C, we report the descriptive statistics and correlations among variables used in the loan loss provisions test. *ALLP* is the absolute value of negative residuals estimated from stage-one regression above. *BIG5* is an indicator variable that equals 1 if the auditor is a Big 5 auditor and 0 otherwise; *SPEC* is an indicator variable that equals 1 if the auditor is a market leader in the industry and 0 otherwise; *SIZE* is the log of total assets at the beginning of year t; *GROWTH* is the growth in total assets from the beginning to the end of year t; *PASTLLP* is prior year's LLP divided by total assets at the beginning of the year; *EBTP* is net income before taxes and loan loss provisions divided by total assets at the beginning of the year. The definitions for the institutional variables are provided in the footnotes of Table 1. '*' denotes significance at 5% levels (two-tailed).

Table 5
Association between Absolute Value of Income-increasing ALLP and Auditor Reputation

Variable	Coef.	Model (1)	Model (2)	Model (3)
Intercept	δ_0	0.984 (7.31)***	0.992 (7.40)***	0.973 (7.22)***
BIG5	**δ_1**	**-0.038** **(-1.81)***		**-0.026** **(-1.24)**
SPEC	**δ_2**		**-0.065** **(-3.07)*****	**-0.060** **(-2.80)*****
SIZE	δ_3	-0.022 (-4.52)***	-0.021 (-4.43)***	-0.021 (-4.35)***
GROWTH	δ_4	0.054 (2.06)**	0.056 (2.16)**	0.055 (2.11)**
PASTLLP	δ_5	-1.143 (-1.40)	-1.078 (-1.33)	-1.142 (-1.41)
EBTP	δ_6	0.140 (0.39)	0.047 (0.13)	0.081 (0.23)
LAW_ENF	δ_7	-0.001 (-2.06)**	-0.002 (-2.44)**	-0.002 (-2.26)**
BANK	δ_8	-0.066 (-3.01)***	-0.066 (-3.06)***	-0.072 (-3.29)***
BANKREG	δ_9	-0.001 (-0.08)	-0.005 (-0.53)	-0.003 (-0.26)
OFFICAL	δ_{10}	-0.011 (-3.16)***	-0.011 (-3.13)***	-0.011 (-3.16)***
MONTIOR	δ_{11}	-0.057 (-3.76)***	-0.056 (-3.66)***	-0.053 (-3.47)***
Year Controls		YES	YES	YES
N		2407	2407	2407
Adj. R square		7.45	7.93	8.01

The table reports the results for the stage-two regression model as follows:

$$ALLP = \delta_0 + \delta_1 BIG5 + \delta_2 SPEC + \delta_3 SIZE + \delta_4 GROWTH + \delta_5 PASTLLP + \delta_6 EBTP + \delta_7 LAW\_ENF + \delta_8 BANK + \delta_9 BANKREG + \delta_{10} OFFICIAL + \delta_{11} MONITOR + <YEAR\ CONTROLS> + \varepsilon$$

The dependent variable is the absolute values of the negative (income-increasing) abnormal loan loss provisions. The definitions for the variables are provided in footnotes of Table 4. The definitions of the institutional variables are provided in the footnotes of Table 1. We run the regression clustered by firm, and with year dummies. For ease of presentation, the coefficient estimate is multiplied by 100. To conserve space, we do not report the coefficient estimates for the year dummies. For each variable, we report the regression coefficient, followed by the t statistic in parentheses. '*', '**', and '***' denote significance at 10%, 5%, and 5 % levels, two-tailed, respectively.

Table 6
Association between Absolute Value of Income-increasing ALLP, Loss-avoidance, and Just-Meet-or-Beat Prior Year's Earnings, and Auditor Reputation

Variable	Coef.	Model (1)	Model (2)	Model (3)
Intercept	δ_0	0.963 (8.06)***	0.983 (8.14)***	0.965 (8.07)***
BIG5	**δ_1**	**-0.039** **(-1.79)***		**-0.028** **(-1.30)**
SPEC	**δ_2**		**-0.057** **(-2.57)*****	**-0.052** **(-2.30)****
SIZE	δ_3	-0.022 (-4.65)***	-0.022 (-4.55)***	-0.022 (-4.47)***
GROWTH	δ_4	0.055 (2.10)**	0.056 (2.18)**	0.055 (2.12)**
PASTLLP	δ_5	-1.267 (-1.57)	-1.192 (-1.50)	-1.272 (-1.59)
EBTP	δ_6	0.119 (0.33)	0.032 (0.09)	0.066 (0.19)
LAW_ENF	δ_7	-0.001 (-1.90)*	-0.002 (-2.32)**	-0.001 (-2.10)**
BANK	δ_8	-0.067 (-3.04)***	-0.066 (-3.03)***	-0.072 (-3.28)***
BANKREG	δ_9	0.001 (0.03)	-0.005 (-0.49)	-0.002 (-0.17)
OFFICAL	δ_{10}	-0.010 (-3.04)***	-0.010 (-3.08)***	-0.010 (-3.05)***
MONTIOR	δ_{11}	-0.056 (-3.73)***	-0.056 (-3.66)***	-0.053 (-3.49)***
LOSS_AVOID	δ_{12}	-0.028 (-0.80)	0.020 (0.66)	-0.028 (-0.81)
JMBE	δ_{13}	0.014 (0.42)	-0.045 (-2.13)**	0.013 (0.42)
BIG5*LOSS_AVOID	**δ_{14}**	**0.075** **(1.41)**		**0.093** **(1.60)**
BIG5*JBME	**δ_{15}**	**-0.097** **(-2.55)*****		**-0.091** **(-2.18)****
SPEC*LOSS_AVOID	**δ_{16}**		**-0.122** **(-2.65)*****	**-0.161** **(-2.75)*****
SPEC*JBME	**δ_{17}**		**-0.038** **(-1.11)**	**-0.008** **(-0.20)**
Year Controls		YES	YES	YES
N		2407	2407	2407
Adj. R square		7.76	8.01	8.26

The table reports the results for the stage-two regression model as follows:

$$ALLP = \delta_0 + \delta_1 BIG5 + \delta_2 SPEC + \delta_3 SIZE + \delta_4 GROWTH + \delta_5 PASTLLP + \delta_6 EBTP + \delta_7 LAW\_ENF + \delta_8 BANK + \delta_9 BANKREG + \delta_{10} OFFICIAL + \delta_{11} MONITOR + \delta_{12} LOSS\_AVOID + \delta_{13} JMBE + \delta_{14} BIG5*LOSS\_AVOID + \delta_{15} BIG5*JMBE + \delta_{16} SPEC*LOSS\_AVOID + \delta_{17} SPEC*JMBE + <YEAR CONTROLS> + \varepsilon$$

The definitions for the variables are provided in footnotes of Table 4. The definitions of the institutional variables are provided in the footnotes of Table 1. We run the regression clustered by firm, and with year dummies. For ease of presentation, the coefficient estimate is multiplied by 100. To conserve space, we do not report the coefficient estimates for the year dummies. For each variable, we report the regression coefficient, followed by the t statistic in parentheses. '*', '**', and '***' denote significance at 10%, 5%, and 1% levels, two-tailed, respectively.