



Earnings Management in the Post-SOX Era: Evidence from US Commercial Banks

MSc in Banking & Finance 2011-2012

Ioanna Baltira
Student ID: 1103110009

October 2012

Abstract

This study examines earnings management behavior by US-listed commercial banks during the Sarbanes-Oxley Act. We employ two different measures in order to study earnings management, the frequency of small reported net income, and the difference between discretionary securities gains and losses and loan loss provisions. We find that high-performance banks, well-capitalized banks and high-leveraged banks are to a great extent prone to earnings management. We also find that banks with high growth opportunities and banks audited by one of the Big-Four auditing companies do not engage in earnings management.

Acknowledgements

I would like to gratefully acknowledge the invaluable guidance and advice of my supervisor to this dissertation, Dr. Stergios Leventis. Also, an honorable mention goes to Dr. Cristos Grose, Dr. Apostolos Dasilas, and Dr. Fragiskos Archontakis for helping me resolve any problem arose.

Table of Contents

1. Introduction	6
2. Techniques and motivations for earnings management	11
2.1 Common earnings management techniques	11
2.2 Motivations for earnings management	12
3. Literature Review	14
4. Data & Methodology	19
4.1 Sample selection criteria	19
4.2 Model Specifications	19
4.3 Limitations	23
5. Empirical results	24
5.1 Sample statistics	24
5.2 Correlations	25
5.3 OLS regressions	26
5.4 Additional sensitivity analysis	28
6. Conclusions, Implications and Recommendations	30
References	32
Appendix	39

List of Tables

Table 1	24
Descriptive statistics of sample variables over the period 2003-2010.....	24
Table 2	25
Pearson correlations of sample variables over the period 2003-2010.	25
Table 3	26
OLS regressions of SPOS and earnings management over the period 2003-2010.....	26
Table 4	27
OLS regressions of SPOS and earnings management over the period 2003-2006, (2007-2010 excluded)	27
Table 5	28
OLS regressions of SPOS and earnings management for banks with assets under \$1 billion, over the period 2003-2010.....	28
Table 6	29
OLS regressions of SPOS and earnings management for banks with assets over \$1 billion, over the period 2003-2010.....	29

1. Introduction

The belief that financial managers manipulate accounting earnings is widely accepted by users of financial statements and is supported and documented by an extensive literature (Schipper [1989], Subramanyam [1996], Healy and Wahlen [1999]). Graham et al. [2005] and Roychowdhury [2006] classify two categories of earnings management: 1) real earnings management through changes in cash flows, 2) accruals management through changing in accounting policies. Many prior studies support that managers use discretionary accruals and accounting changes to manage earnings (DeAngelo [1986, 1988], McNichols and Wilson [1988], Liberty and Zimmerman [1986], Moses [1987], Elliot and Shaw [1989]). For example, Healy [1985] provides evidence that managers use accrual policies in order to benefit from their earnings-based bonus plans. However, distinguish earnings management from proper accrual accounting is not always so easy. The main goal of accrual accounting is to show to the viewers of a firm's financial reports the economic performance of the firm, during a period, via the use of basic accounting principles (Dechow and Skinner [2000]). Thus, to which point managers' accrual decisions become earnings management?

We provide some definitions of earnings management referred in prior academic and professional literature. Schipper [1989], and Healey and Wahlen [1999] state that earnings management is a purposeful alteration of an entity's reported economic performance by managers, with the intention to obtain some private gain by "misleading some stakeholders" or "influencing contractual outcomes" that depend on reported accounting numbers. A similar definition is found in Beidleman [1973], as well, who reports that earnings manipulation represents managers' attempts to use their reporting discretion to "intentionally dampen the fluctuations of their firms' earnings realizations". Turning to professional literature we can find a definition of earnings management that refer more to financial fraud: "earnings management is the intentional, deliberate, misstatement or omission of material facts, or accounting data, which is misleading and, when considered with all the information made available, would cause the reader to change or alter his or her judgment or decision" (National Association of Certified Fraud Examiners [1993]). According to Kirschenheiter and Melumad [2002] reported earnings have dual roles. The level of reported earnings gives investors an idea about the level of future cash flows. The variability of reported earnings reduces investors' confidence in the future permanent performance. These

two roles cause managers to manipulate earnings. The way banks manage earnings differs considerably within the banking sector. Collins et al. [1995], report that bank homogeneity is rejected consistently for earnings management. Beatty et al. [2002] find that relative to private banks, public banks are more likely to use loan loss provisions and realized security gains and losses to eliminate small earnings decreases. Shrieves and Dahl [2003] report that poorly capitalized banks use the security gains component of earnings for improving Tier 1 capital levels by offsetting rising levels of provisions, more than well capitalized banks. Finally, Leuz et al. [2003] state that earnings management is less pronounced in common law countries and Handorf and Zhu [2006] suggest that banks of different sizes may have different earnings management practices.

We estimate earnings management based on the frequency of small positive reported net income and on the difference between discretionary securities gains and losses and discretionary loan loss provisions. When banks use loan loss provisions properly, they are allowed to recognize an estimated loss on a loan when the loss becomes likely, before the amount of loss can be determined with precision and is actually charged off. That means banks can be realistic about dealing with credit problems early, when times are good, by develop a large stock of loan loss reserves. Later, when the loan losses become settled, the stock of reserves can absorb the losses without using capital, keeping the bank safe and able to continue extending credit. However, when provisioning, bank managers may use discretion in setting the appropriate provisioning levels. In some situations managers understate expected losses in order to improve reported net income in the current report. In other situations managers overstate losses in the current period when earnings are high so that they can understate losses in a later period when earnings are low (Benston and Wall [2005]). Thus, banks provision considerably more in good times when earnings are high and less in bad times when earnings are low (Kim and Santomero [1993], Laeven and Majnoni [2003], Bikker and Metzmakers [2004]). If actual losses exceed expected losses managers can draw from loan loss reserves, and if actual losses are lower than expected losses managers can contribute additional loan loss provisions to loan loss reserves, therefore they can smooth income. Loan loss provisions constitute an expense which increases the allowance for loan losses, and loan loss reserves is a contra asset to loans outstanding. Dugan [2009] states that bank managers might use

loan loss reserves to manage or smooth earnings over time, and in particular, to make unexpected losses look less bad to investors.

Earnings management is limited on the extent to which earnings must be reported in accordance with Generally Accepted Accounting Principles (GAAP). Statement on Auditing Standards (SAS) 69, *The Meaning of Present Fairly In Conformity with Generally Accepted Accounting Principles*, addresses the use of GAAP and fair presentation. It states that “an auditor should not express an unqualified audit opinion if the financial statements contain a material departure from GAAP unless, due to unusual circumstances, adherence to GAAP would make them misleading”. GAAP defines the limits within which reported earnings can deviate from economic earnings. Since managers are restricted from over-reporting earnings by GAAP, false disclosure practices are effectively eliminated. However, according to Sankar and Subramanyam [2001] GAAP allow managerial discretion, subject to certain restrictions, in determining financial reporting policies. This discretion makes earnings sensitive to manipulation. For example, sometimes companies buy stock in other companies. GAAP assume that investments of less than 20% of the stock of another company are passive investments and, therefore, there is no reason for the share of the investee’s net income to be included to the investment company’s financial statements. GAAP provide detailed rules on the reporting of passive investments and classifies them into two portfolio categories, each with different accounting treatment: 1) trading securities¹, 2) available for sale securities². Nevertheless, GAAP requirements for investments offer opportunities for earnings management. When additional earnings are needed, managers can sell a security that has an unrealized gain. On the other hand, when it seems useful to report lower earnings, managers can sell a security that has an unrealized loss. This gain or loss will be reported in operating earnings. Another way to manage earnings through securities gains and losses is the change of holding intent. Management can reclassify a security from trading security to available-for-sale security and vice versa and thus, any unrealized gain or loss on a security will move to or from the income statement. Finally, managers can write down

¹ Any changes in the market value of these securities, or actual gains or losses from sales, are reported in operating income.

² Any change in the market value is reported in “other comprehensive income components”, not in operating income. However, when these securities are sold, any gain or loss is reported in operating income.

securities that have an apparent decline in fair market value to the reduced value, regardless of their portfolio classification.

The purpose of this study is to examine earnings management in US commercial banks. We use a sample of 143 listed US commercial banks for a period of eight years, 2003-2010. The time period has been purposefully chosen to cover the years that followed the Sarbanes-Oxley Act (SOX), enacted in 2002. In the wake of the Enron, WorldCom, Adelphia etc. accounting scandals, regulators and policy makers have been alerted to corporate financial reporting practices and have promoted stronger corporate governance mechanisms to increase the quality of reported earnings (Vyas [2011]). The purpose of SOX, which constitutes a US federal law, is to increase the independence and role of a firm's outside auditors and board of directors, among others, in order to enhance the quality of financial reporting. Many prior studies provide evidence on a decrease in accounting earnings management after the implementation of SOX. Cohen et al. [2004] and Zhou [2008], document that firms engage in less earnings management after the passage of SOX. Lobo and Zhou [2006] also find that firms report lower discretionary accruals after the implementation of SOX. However, these studies take into consideration only non-financial firms. The research paper by Leventis and Dimitropoulos [2012] that examines the relationship between earnings management and corporate governance of commercial US banks in the post-SOX period, suggest that banking firms with efficient corporate governance are less prone to earnings management compared to the banks with weak governance.

We contribute to the literature on earnings management in several ways. First, following Leventis and Dimitropoulos [2012] we examine earnings manipulation in the US banking industry based on two different measures of earnings management, the frequency of reported small positive net income and the difference between discretionary securities gains and losses and discretionary loan loss provisions, excluding the aggregate measure of corporate governance. Second, we employ a larger sample period compared to Leventis and Dimitropoulos [2012], spanning from 2003 to 2010, which covers three years of the recent financial crisis. Since literature on the impact of the financial crisis in earnings management is very limited and focus only in European firms, (see Filip and Raffournier [2012], Berndt and Offenhammer [2010]), we provide up to date evidence on whether earnings management has been

affected by this crisis or not, by splitting our sample into two sub-samples and re-estimate our models only for the period 2003-2006. Our empirical findings suggest that earnings management behavior based on securities gains and losses and loan loss provisions did not change after the financial crisis, but they also reveal a higher frequency of small positive reported net income, measured by SPOS, during the same period. Third, we additionally analyze the effect of bank size on earnings manipulation by splitting our sample into large and small banks and re-estimating our two models for each sub-group separately. The results are the same with these of the overall sample.

Overall, our results show that banks with high earnings before taxes continue to manage earnings in the post-SOX era by both recording small positive net income and managing loan loss provisions and securities gains and losses. We also find that well-capitalized and high-leveraged firms are more prone to earnings management than their poor-capitalized, low-leveraged counterparts. On the other hand, results suggest that banks with high growth opportunities do not engage in earnings management at all, and that banks audited by one of the Big-Four auditors avoid manipulating earnings by reporting small positive net income.

The rest of the study is organized as follows: Section 2 presents the most common earnings management techniques and a theoretical overview of the motivations for earnings management. Section 3 discusses the relevant literature. Section 4 explains the sample selection criteria, the model specifications and the limitations of the study. Section 5 demonstrates the empirical results of the study and the robustness tests. Finally, the last section provides our conclusions, implications and recommendations for future research.

2. Techniques and motivations for earnings management

2.1 Common earnings management techniques

There is a wide range of earnings management techniques that managers can use to make the actual earnings figures match past projections. We briefly discuss the three most common of these techniques.

- *Cookie-Jar Reserve Techniques:* One of the GAAP-based accrual accounting requirements is that, during each accounting period, management must use estimates to project and record possible expenses that will be paid in the future as a result of events in the current fiscal year. Some types of expenses that are projected are bad debt write-offs, inventory write-downs and warranty costs. Under the cookie-jar technique, management will try to record more expenses in the current period. If actual expenses turn out to be lower than the estimated ones, the difference can be put into the cookie-jar and be used later in bad times when the company needs an earnings boost to meet predictions.
- *Big Bath Techniques:* In some occasions, companies must restructure debt or change and close down operations and subsidiaries. When this happens, expenses are unavoidable and are followed by a negative effect on the company's stock prices because it is associated with bad news about the company's competitiveness. GAAP permits management to record an estimated loss for the cost inherent in the implementation of these actions, which is usually recorded as a nonrecurring charge against income. However, under the Big Bath techniques, managers estimate higher losses to prevent another write-down and avoid possible earnings surprises in the future. This improves the company's image to the market by sending positive signals to investors and, thus, helps stock prices strongly rebound very quickly.
- *Big Bet on the Future Techniques:* When a company acquires another company GAAP require that the acquisition must be reported as a purchase by the acquirer. This leaves room for earnings management through Big Bet techniques in two ways. Firstly, the acquirer can write-off in-process research and development costs from the company acquired. When these costs are really incurred in the future, they will not have to be reported and feature

earnings will be higher than they would have been otherwise. Secondly, the acquirer can integrate the acquired company's earnings into corporate consolidated earnings and receive a boost in the current year's earnings.

2.2 Motivations for earnings management

The literature identifies various motivations for earnings management. The most common incentive, referred in many prior studies, is credibility, i.e. presenting a fairly constant profit over the years by reducing earnings variability. Bank managers may attempt to positively affect investors' perceptions of a bank by using earnings manipulation to send positive signals to the market about its profitability, risk and managerial performance (Barnea et al. [1976], Greenwald and Sinkey [1988], Fudenberg and Tirole, [1995]). Thus, managers, especially those of publicly traded banks, may strive to report a less variable income flow, which could be seen as a signal of good performance (Beatty and Harris [1999]).

Banking industry is highly monitored compared to other industries, whose capital adequacy ratio, liquidity ratio etc. are strictly regulated. According to (Shen and Chih [2005]), earnings manipulation is one of the management skills that banks adopt to avoid violating regulations. Scholes et al. [1990] suggest that incentives for earnings management may arise because regulators monitor banks based on earnings. Regulatory constraints on capital would give bank managers an incentive to manage earnings over time (Handorf and Zhu [2006], Wall and Koch [2000]). For example, Scholes et al [1990] hypothesize that banks choose to realize gains and defer losses to increase their regulatory capital.

In addition to meeting capital requirements, bank managers may potentially have several alternative motivations for earnings management. Rozycki [1997], reports that there may be tax incentives to manipulate earnings and Smith and Stultz [1985] suggest that income smoothing has been hypothesized to lower the present value of tax obligations. Before 1980 provisions were treated as a tax deductible item by the tax policy of the time. Bank managers may have exploited this situation to manage earnings by reducing tax liabilities in periods of high earnings and increasing them in periods of low earnings (Handorf and Zhu [2006]). Auditors may tolerate over-reserving in good years and under-reserving in bad times, as long as banks do not

materially misrepresent results (Naciri [2002]). Finally, according to Cortavarria et al. [2000] the fact that general provisions are tax deductible in most countries is itself an incentive to manage earnings through provisioning. Also, according to the same paper, if general provisions count as regulatory capital, the incentive is stronger, because a shift from regulatory Tier 1 capital to general provisions lowers the tax burden.

Other studies view earnings management as a means of managers to convey private information about future earnings (Ronen and Sadan [1981], Demski [1998], Scholes et al. [1990], Kirschenheiter and Melumad [2002]). For example, Sankar and Subramanyam [2001] demonstrate that managers, smooth earnings to smooth consumption and that by doing so, they reveal private information about future earnings. On the other hand, Goel and Thakor [2003] support that the motivation for earnings management is to discourage investors from acquiring private information that could then be used to trade against shareholders selling for liquidity reasons.

Furthermore, earnings management can be explained by managerial self-interest. Share offerings provide a direct incentive to manage earnings. When bank managers increase reported earnings, they improve the terms on which their banks' shares are sold, providing direct monetary benefits to themselves and their banks (Dechow and Skinner [2000]). Some compensation schemes and bonus targets of bank managers may also encourage earnings management (Lambert [1984], Healy [1985]). Moreover, bank managers may receive incumbency rents from staying with the bank, which encourages an earnings manipulation behavior to minimize the chance of being fired (Fudenberg and Tirole [1995], Arya et al. [1998]).

Finally, according to Trueman and Titman [1988] earnings management may be the result of perceived bankruptcy concerns. The allegation is that banks face a potential illiquidity problem and thus, are exposed to the risk of bankruptcy through widespread "bank runs" (Diamond and Dybvig [1983]).

3. Literature Review

Earnings management has been a topic of interest in the accounting literature for many years now. There is a wide range of empirical research on the use of discretionary accruals and accounting changes to manage earnings (DeAngelo [1986, 1988], Liberty and Zimmerman [1986], Moses [1987], Elliot and Shaw [1989]). But although evidence of earnings management can be found in almost every industry, it is generally accepted that the manipulation of earnings is more apparent in the banking industry (Greenawalt and Shinky [1988]). Shen and Chih [2005] studied earnings management of banks across 48 countries and concluded that bank earnings management exists for nearly all of their sample countries. Although, by using conventional measures they concluded that US banks show no sign of earnings management. Cornett et al. [2009] examined earnings management at the largest publicly traded bank holding companies in the US and found evidence of earnings smoothing. Shrieves and Dahl [2003] and Agarwal et al. [2007] examined the Japanese banking sector and concluded that Japanese banks utilized accounting discretion as a means of managing earnings during the period 1985-1999. Bhat [1996] found a significant association between poor financial health and banks engaging in excessive earnings management. By using statistical earnings management measures DeGeorge et al. [1999], also found evidence of earnings management.

An extensive prior literature exists on the relationship between earnings management and loan loss provisions (Liu and Ryan [1995], Collins et al. [1995], Beatty et al. [1995], Ahmed et al. [1999], Laeven and Majnoni [2003], Bikker and Metzmakers [2004], Perez et al. [2006]). Greenawalt and Shinky [1988], McNichols and Wilson [1988] and Wahlen [1994] have also examined the earnings management among financial institutions in the US, focusing on loan loss provisions as the discretionary element. Various studies include securities gains and losses as a discretionary component of income, as well (Moyer [1990], Scholes et al. [1990], Collins et al. [1995], Beatty et al. [1995], Perez et al. [2006]). The allegation is that loan loss provisions and securities gains and losses are used as means of earnings management by managers with the purpose of reporting increased or decreased income, depending on the occasion, to the external audiences.

Earnings management is not always so easy to study because earnings depend on both the firm's financial performance and the accounting system that measures it (Dechow et al. [2010]). Another problem could be that earnings and loan loss provisions may be positively related because of the optimal statistical forecasting with respect to loan losses and not because of the misleading discretionary provisioning that leads to income smoothing. Thus, sometimes, it is difficult to understand the difference between earnings management and prudent provisioning (Kim and Santomero [1993]). These could be some of the reasons why empirical evidence on the use of loan loss provisioning and securities gains and losses to manage earnings by banks is mixed. One more explanation for the conflicting empirical results could be the use of different sample periods (Handorf and Zhu [2006]).

There are studies that find a positive relation between loan loss provisions and earnings of banking firms, which is consistent with smoothing earnings via loan loss provisions (Greenawalt and Shinky [1988], Liu and Ryan [1995], Beatty et al. [1995], Beaver and Engel [1996], Liu et al. [1997], Kim and Kross [1998], Kanagaretnam et al. [2004], Hazera [2005], Leventis et al. [2011]). These findings are similar to these of many studies that examine earnings management in US banks and conclude that loan loss provisions are extensively used to manipulate reported earnings (Scheiner [1981], McNichols and Wilson [1988], Scholes et al. [1990], Wahlen [1994], Collins et al. [1995], Docking et al. [1997], Healy and Wahlen [1999], Lobo and Yang [2001]). Handford and Zhu [2006] find that average size US banks, generally overstate loan loss provisions during economic expansion, and vice versa. Yasuda et al. [2004] provide evidence that troubled banks engage in excessive management in profits by, among other strategies, adjusting for provisions for bad loans. By examining the earnings smoothing hypothesis in the post-SOX era DeBoskey and Jiang [2012] find positive relationship between earnings and loan loss provisions. The literature is extensive for non-US banks, as well (Shrieves and Dahl [2003] and Agarwal et al. [2007], among others). On the other hand by focusing on the impact of the 1990 change in capital adequacy regulations, Ahmed et al. [1999] find no significant evidence that banks have used loan loss provisions to manage earnings or to smooth income. The same conclusion has been reached by Wetmore and Brick [1994] too.

Securities gains and losses had been proved to be an additional element of earnings management in many prior researches (Moyer [1990], Scholes et al. [1990], Collins et al. [1995], Beatty et al. [1995, 2002], Anandarajan et al. [2003, 2007], Perez et al. [2006], Dechow et al. [2010]). Furthermore, there are studies finding that earnings manipulation can be achieved by the combination of loan loss provisions and securities gains and losses. Research findings of Agarwal et al. [2007] reveal that Japanese banks on average realized gains from securities in order to offset the negative impact of loan loss provisions and thereby engaged in income smoothing. Leventis and Dimitropoulos [2011] found that banks with bad governance use more earnings management through a mix of discretionary loan loss provisions and securities gains and losses than well-governed banks do. Moreover, Shrieves and Dahl [2003] suggest that loan loss provisions are positively related to nondiscretionary earnings, security gains are negatively related to non discretionary earnings and that these two strongly complement each other.

A considerable literature offer evidence on the relation between loan loss provisions and variability of reported earnings. The notion is that managers attempt to reduce earnings variability because earnings variability constitutes a key indicator of risk (Beaver et al. [1970]) as external interested parties of a firm's financial performance are uncertain about the stability of the earnings presented, in the future. Managers can achieve this reduction by raising loan loss provisions in periods of high operating income (Ma [1988], Greenawalt and Shinky [1988]). Healy [1985] suggests that managers may use discretion in ways that result in higher earnings variability in order to manipulate earnings, through various earnings management techniques, such as "Big Baths". According to Trueman and Titman [1988], income smoothing has been hypothesized to lower the firm's cost of capital by reducing variability in income. These studies are consistent with Leuz et al. [2003], Lang et al. [2003, 2006] and Ball and Shivakumar [2005, 2006], who assume that firms with less earnings smoothing exhibit more earnings variability. Moreover, there are several studies that use the frequency of small positive net income as a metric to provide evidence of managing towards positive earnings (Burgstahler and Dichev [1997], Degeorge et al. [1999], Leuz et al. [2003]). These studies try to identify the high frequency of small positive income by employing the indicator variable SPOS, the same variable we use in our study. More specifically, Burgstahler and Dichev [1997] and Degeorge et al. [1999]

report that small reported profits are more common than small reported losses, and that small increases in reported earnings are more common than small declines in reported earnings. They interpret their findings as evidence that managers manipulate earnings to avoid reporting losses and earnings declines.

Finally, accounting regulation, corporate governance and earnings management is the object of research in several prior studies. Dechow et al. [2010] define higher quality earnings as “providing more information about the features of a firm’s financial performance that are relevant to a specific decision maker”. The quality of reported earnings depends exclusively on the decisions of bank managers. Managers have access in internal information about the default risk inherent in a loan portfolio and, therefore, their judgment is necessary in estimating the loan loss provision. Investors and monitors can obtain all of management's information about the loan portfolio only after paying a prohibitively cost. Thus, bank managers can exercise discretion over loan loss provision (Beaver et al. [1989]). Cornett et al. [2009] examined the interactions between firm performance, corporate governance mechanisms, and earnings management and found that corporate governance is an important factor of earnings management in large US banks. More specifically, their results suggest that banks with high levels of income and capital record more loan losses and fewer security gains. They also found that some corporate governance mechanisms, such as board independence, limit earnings management, while others, such as CEO pay for performance, induce it. Leventis and Dimitropoulos [2011] suggest that banks with efficient corporate governance manipulate earnings less, when compared to their weak-governance counterparts. As far as accounting regulation is concerned, it is generally accepted that strong legal systems are associated with less earnings management (Burgstahler et al. [2006]). By examining the role of financial reporting in the Mexican banking system, Hazera et al. [2005], concluded that because of the weak accounting regulation, Mexican bank managers were able to delay the recognition of loan losses. Leventis et al. [2011] report that after the implementation of IFRS, earnings management through loan loss provisions, employed by risky banks has been considerably constrained. The same conclusion has been reached by Barth et al. [2008], as well. They suggest that firms applying IAS exhibit less earnings smoothing and less managing of earnings toward a target. Furthermore, according to

Cohen et al. [2004], the implementation of Sarbanes-Oxley Act has led to a decrease in earnings management behavior.

Overall, the vast majority of prior literature tends to support a positive relation between loan loss provisions and securities gains and losses with earnings management. Even though there is proof that the manipulation of earnings has decreased in the post SOX era, and that banks belong to a highly regulated industry, Generally Accepted Accounting Principles (GAAP) allow managerial discretion, subject to certain restrictions, in determining financial reporting policies and procedures (Sankar and Subramanyam [2001]). This discretion makes earnings susceptible to manipulation. We examine the relation between earnings management, loan loss provisions and securities gains and losses, among other factors, including the years that followed the SOX Act implementation and three years during the financial crisis. Following the prior literature we expect a positive relation between them.

4. Data & Methodology

4.1 Sample selection criteria

The dataset of our study consists of US-listed commercial banks for a sample period of eight years, 2003-2010. We have purposefully chosen this period to cover the years that followed the Sarbanes-Oxley Act of 2002 and three years after the financial crisis that began in 2007. We have extracted all bank financial statement and market data by Thomson Financial and Worldscope databases provided by Thomson One Reuters. The interaction of these two data files offered an initial sample of 576 commercial banks with 4584 bank year observations. We have excluded 433 commercial banks due to incomplete financial data. We have also manually collected the auditor data that are not available in Thomson Financial from the annual reports and proxy statements of the banks. This procedure yielded a final sample of 143 US-listed commercial banks with 1144 bank year observations. We have processed all data through e-views software.

4.2 Model Specifications

Following the work of Leventis and Dimitropoulos [2012] we use two measures in order to test for earnings management. Based on Burgstahler and Dichev [1997], our first measure recognizes the high frequency of small positive net income as an indication of earnings smoothing practices. The allegation is that, in many cases, firms prefer to report small positive earnings than negative earnings, through accounting discretion (Lang et al. [2003]). For this purpose, we estimate SPOS, an indicator variable that is equal to 1 if net income scaled by lagged total assets is between 0 and 0.01 and 0 otherwise (Burgstahler and Dichev [1997], Barth et al. [2008]). Our measure for earnings management is the residuals from the following logit regression model, where SPOS is imported as the dependent variable and controls for size, growth, leverage, audit, and capital adequacy as independent variables.

$$SPOS_{it} = b_0 + b_1 EBT_{it} + \gamma Control_{it} + \delta Year + e_{it} \quad (1)$$

Where:

EBT_{it} : Bank i 's earnings before taxes for period t , scaled by period t lagged total assets.

e_{it} : Bank i 's error term for period t .

Control Variables:

LNTA : Natural logarithm of year – end total assets.

PB : Ratio of price to book value of equity indicating growth opportunities.

DE : Ratio of end of year total debt to end of year total common equity.

AUDIT : Dummy variable, coded 1 if a bank is audited by KPMG, PwC, EY or Deloitte³, and 0 otherwise.

CAR : Ratio of beginning Tier 1 risk adjusted capital.

YEAR : Year indicators, indicating years from 2003 through 2010.

The use of control variables in our model is to capture the discretionary part of earnings management. The natural logarithm of total assets controls for the effects of bank size. The coefficient on the SIZE variable is expected to be negative because of the notion that the larger the bank the more exposed to monitoring from financial analysts and investors (DeBoskey and Jiang [2012]). Thus, a large bank will not risk its reputation for higher earnings. The price to book ratio controls for growth opportunities. Tucker and Zarowin [2006] suggest that because of the high analyst coverage large high-growth firms avoid to smooth earnings. Thus, we expect a negative coefficient on the PB variable. Leverage is an indicator of managerial action (Bliss and Flannery [2002]). Managers of high leveraged banks may choose to manipulate earnings in order to be consistent with regulatory requirements (Leventis and Dimitropoulos [2012]). So, a positive coefficient is expected on the DE variable that controls for leverage. We have also included the AUDIT dummy variable that controls for audit quality. Research on auditors as a determinant of earnings management suggests that higher audit quality provide greater transparency in the way that managers report earnings (Dechow et al. [2010]). Teoh and Wong [1993] limit this conclusion only for firms that are audited by the Big-Eight auditors. As a result we expect a negative coefficient on AUDIT. The last control variable is the capital position of the bank, CAR, on which we expect either a negative or a positive

³ PwC stands for PricewaterhouseCoopers, EY for Ernst & Young, and Deloitte for Deloitte Touche Tohmatsu.

coefficient. The implication is that, the 1990 change in bank capital adequacy regulations, which limits the use of loan loss provisions as regulatory capital, has altered banks' incentives to manage earnings through loan loss provisions. On the other hand, the new capital adequacy regime reduces the costs of earnings management, thus smoothing earnings via loan loss provisions is now less costly (Ahmed et al. [1999]). The year indicators have been used to capture time specific effects in our model.

Following Beatty et al. [2002] and Cornett et al. [2009], we construct our second measure of earnings management based on discretionary loan loss provisions (DLLP) and discretionary realized securities gains and losses (RSGL). Prior research has shown that bank managers are likely to manipulate earnings through loan loss provisions and realized securities gains and losses (Beatty et al. [1995], Ahmed et al. [1999]). They can report higher earnings, firstly, by understating loan loss provisions and secondly, by realizing more security gains or fewer security losses (Beatty et al. [2002]). We use the following regression model to estimate the discretionary part of loan loss provisions (DLLP):

$$LLP_{it} = b_0 + b_1 ALL_{it} + b_2 NPL_{it} + b_3 \ln TA_{it} + b_4 REL_{it} + b_5 CIL_{it} + b_6 ICL_{it} + e_{it}$$

Where:

- LLP_{it} : Bank i's loan – loss provision for period t, scaled by the period t total loans.
- ALL_{it} : Bank i's beginning balance of allowance for loan losses for period t, scaled by the period t total loans.
- NPL_{it} : Bank i's non – performing loans for period t, scaled by the period t total loans.
- $\ln TA_{it}$: Bank i's natural logarithm of total assets for period t.
- REL_{it} : Bank i's real – estate loans for period t, scaled by the period t total loans.
- CIL_{it} : Bank i's commercial and industrial loans for period t, scaled by the period t total loans.
- ICL_{it} : Bank i's installment and consumer loans for period t, scaled by the

period t total loans.

e_{it} : Error term, discretionary component of LLPs (DLLP).

Because our measure is standardized by total assets, we transform the error term and we define our measure of discretionary loan loss provisions as:

$$DLLP_{it} = (e_{it} * TL_{it})/TA_{it},$$

Where:

TL_{it} : Bank i's total loans for period t.

TA_{it} : Bank i's total assets for period t.

In order to calculate the discretionary part of realized security gains and losses we follow again Beatty et al. [2002] and Cornett et al. [2009] and we estimate the following regression model:

$$SECGL_{it} = b_0 + b_1 \ln TA_{it} + b_2 UNSECGL_{it} + e_{it} ,$$

Where:

$SECGL_{it}$: Bank i's realized security gains and losses for period t, scaled by the period t total loans.

$\ln TA_{it}$: Bank i's natural logarithm of total assets for period t.

$UNSECGL_{it}$: Bank i's unrealized security gains and losses for period t, scaled by the period t total loans.

e_{it} : Error term, discretionary component of RSGL.

Next, we define our measure for earnings management (EM_{it}) so as to reflect that the higher the levels of earnings management the higher the earnings and vice versa. Overstated loan loss provisions decrease earnings, while overstated realized security gains and losses increase earnings (Cornett et al. [2009]). Our measure for earnings management is defined as the difference between the discretionary part of loan loss provisions (DLLP) and the discretionary part of realized security gains and losses (DSGL):

$$EM_{it} = DSGL_{it} - DLLP_{it}$$

Finally, the earnings management variable (EM_{it}) is imported as the dependent variable in the following regression model, which has the same independent variables with model (1):

$$EM_{it} = b_0 + b_1 EBT_{it} + \gamma Control_{it} + \delta Year + e_{it} \quad (2)$$

We have also tested both our two models for endogeneity by using a version of the Hausman test (1978) proposed by Davidson and MacKinnon (1989). The results suggest no endogeneity, thus, our coefficients are not biased.

4.3 Limitations

We have extracted all bank financial statement and market data by one database, Thomson One Reuters. Their validity was not double-checked by using other databases, and generally, other sources of data. This could lead to inaccurate and invalid results. Additionally, the majority of the available US commercial banks filtered out of the initial sample due to lack of accounting data in order for the sample to include only banks with complete accounting and market data. This procedure resulted in a very small sample, which could limit the results of our research.

As far as the independent variables are concerned, we rely to a wide range of measures, given the difficulty of measuring earnings management, as earnings are likely to be sensitive to a variety of factor unattributable to the financial reporting system, such as the economic environment and incentives to adopt accounting regulations (Barth et al. [2008]), and, thus, our models are likely to be measured with considerable error. To the extent that our results are consistent across a range of measures, we can be partly assured that at least we capture the effects of accounting choices, although we cannot exclude other factors.

5. Empirical results

Table 1

Descriptive statistics of sample variables over the period 2003-2010.

Variables	Mean	Median	Std Dev	Maximum	Minimum
<i>Panel A: descriptive statistics of earnings and earnings management variables</i>					
EM	0.000	0.000	0.009	0.113	-0.069
EBT	0.011	0.014	0.015	0.048	-0.138
SPOS	0.387	0.000	0.487	1.000	0.000
DLLP	0.000	0.000	0.005	0.037	-0.036
DSECGL	0.000	0.000	0.005	0.118	-0.019
<i>Panel B: descriptive statistics of control variables</i>					
AUDIT	0.343	0.000	0.475	1.000	0.000
CAR	12.43	11.72	3.843	54.37	1.000
DE	1.421	1.474	16.04	45.43	-534.8
LNTA	7.343	6.854	1.793	14.63	4.494
PB	1.596	1.540	1.136	5.460	-24.73
<i>Panel C: descriptive statistics of variables used to get discretionary and nondiscretionary accruals</i>					
LLP	0.008	0.003	0.011	0.110	-0.005
ALL	0.013	0.011	0.007	0.080	0.001
NPL	0.017	0.008	0.024	0.295	0.000
REL	0.640	0.687	0.214	1.010	0.000
CIL	0.242	0.201	0.161	0.877	0.000
ICL	0.103	0.063	0.108	0.772	0.000
SECGL	0.001	0.000	0.005	0.120	-0.019
UNSECGL	-0.001	0.000	0.020	0.025	-0.598

Variable Definitions: EM, earnings management measure, defined as the difference between the discretionary component of securities gains and losses and the discretionary component of loan loss provisions; EBT, earnings before taxes scaled by lagged total assets; SPOS, indicator variable that is equal to 1 if net income scaled by lagged total assets is between 0 and 0.01, and 0 otherwise; DLLP, the discretionary part of loan loss provisions; DSECGL, the discretionary part of securities gains and losses; AUDIT, dummy variable that is equal to 1 if a bank is audited by KPMG, PwC, EY or Deloitte, and 0 otherwise; CAR, ratio of beginning Tier 1 risk adjusted capital; DE, ratio of end of year total debt to end of year total common equity; LNTA, natural logarithm of year-end total assets; PB, ratio of price to book value of equity indicating growth opportunities; LLP, loan loss provisions scaled by total loans; ALLP, beginning balance of allowance for loan losses scaled by total loans; NPL, non-performing loans scaled by total loans; REL, real-estate loans scaled by total loans; CIL, commercial and industrial loans scaled by total loans; ICL, installment and consumer loans scaled by total loans; SECGL, realized securities gains and losses scaled by total loans; UNSECGL, unrealized securities gains and losses scaled by total loans.

5.1 Sample statistics

Panels A, B, and C of Table 1 present the descriptive statistics of earnings management variables, control variables, and variables that has been used to get discretionary and nondiscretionary accruals, respectively. The earnings management (EM) has a mean and median of zero. The mean and median of the discretionary components of loan loss provisions (DLLP) and securities gains and losses

Table 2**Pearson correlations of sample variables over the period 2003-2010.**

Variables	EM	EBT	SPOS	AUDIT	CAR	DE	LNTA
EBT	0.350						
SPOS	0.020	0.159					
AUDIT	0.014	0.092	-0.098				
CAR	0.189	0.086	0.070	-0.110			
DE	-0.064	0.013	0.025	0.043	0.026		
LNTA	0.000	0.017	-0.050	0.032	-0.006	0.014	
PB	-0.021	0.465	-0.210	0.111	-0.011	0.675	0.010

Variable Definitions: EM, earnings management measure, defined as the difference between the discretionary component of securities gains and losses and the discretionary component of loan loss provisions; EBT, earnings before taxes scaled by lagged total assets; SPOS, indicator variable that is equal to 1 if net income scaled by lagged total assets is between 0 and 0.01, and 0 otherwise; AUDIT, dummy variable that is equal to 1 if a bank is audited by KPMG, PwC, EY or Deloitte, and 0 otherwise; CAR, ratio of beginning Tier 1 risk adjusted capital; DE, ratio of end of year total debt to end of year total common equity; LNTA, natural logarithm of year-end total assets; PB, ratio of price to book value of equity indicating growth opportunities.

(DSECGL) is zero, as well, by construction, suggesting that there are more banks reporting incoming-increasing loan loss provisions and decreasing securities gains and losses. The mean value of earnings before taxes (EBT) is 1.1% of total assets. The 38.7% of the total sample banks report small positive earnings (SPOS). The ratio of beginning Tier 1 risk adjusted capital (CAR) has a mean of 12.43 suggesting that, on average, banks in the sample are well capitalized. The minimum ratio of 1 suggests that there are some banks that are undercapitalized. Firm asset size (LNTA) has a mean of 7.34, indicating our sample banks are fairly large. Real-estate loans (REL) are the largest loan category of our sample, representing 64% of total assets.

5.2 Correlations

We also examine the Pearson correlations between earnings management and control variables. The results are presented in Table 2. Earnings management (EM) is correlated to SPOS (0.020) and significantly positively correlated with earnings before taxes (0.35). Furthermore, the explanatory variables of earnings management have been tested for multicollinearity via the Variance Inflation Factor.

Table 3
OLS regressions of SPOS and earnings management over the period 2003-2010.

Dependent variables	SPOS (Model 1)	EM (Model 2)
Independent variables		
C	2.456559 (1.46E-06)	0.004397 (2.80E-07)
EBT	6.476108 (1.020246)	0.237912 (5.303885)
AUDIT	-0.221357 (-1.554949)	0.000241 (0.512745)
CAR	0.030450 (1.763430)	0.000219 (3.225464)
DE	0.064902 (7.000182)	5.05E-05 (2.070237)
PB	-1.272588 (-8.454289)	-0.001623 (-3.332853)
LNTA	-0.042036 (-1.125644)	-4.62E-05 (-0.566617)
McFadden / Adjusted R-squared	0.104521	0.186937
LR / F-statistic	159.6271	19.77108

Notes: Z-statistic and t-statistic are in the parentheses of SPOS and EM, respectively. McFadden R-squared and LR statistic address to SPOS variable and Adjusted R-squared F-statistic address to EM variable. All of the coefficients have been tested in a 95% confidence interval.

$$SPOS_{it} = b_0 + b_1 EBT_{it} + \gamma Control_{it} + \delta Year + e_{it} \text{ (Regression model 1)}$$

$$EM_{it} = b_0 + b_1 EBT_{it} + \gamma Control_{it} + \delta Year + e_{it} \text{ (Regression model 2)}$$

Variable Definitions: SPOS, indicator variable that is equal to 1 if net income scaled by lagged total assets is between 0 and 0.01, and 0 otherwise; EM, earnings management measure, defined as the difference between the discretionary component of securities gains and losses and the discretionary component of loan loss provisions; EBT, earnings before taxes scaled by lagged total assets; AUDIT, dummy variable that is equal to 1 if a bank is audited by KPMG, PwC, EY or Deloitte, and 0 otherwise; CAR, ratio of beginning Tier 1 risk adjusted capital; DE, ratio of end of year total debt to end of year total common equity; LNTA, natural logarithm of year-end total assets; PB, ratio of price to book value of equity indicating growth opportunities.

5.3 OLS regressions

Table 3 presents regression results of the OLS regressions. Regression 1 uses the SPOS variable, the frequency of small positive earnings, as the dependent variable. Regression 2 uses earnings management (EM) as the dependent variable.

From regression 1 we can see that the coefficient of earnings before taxes is positive and statistical significant, suggesting that the higher the performance the higher the frequency of small positive net income reported. AUDIT variable are negatively and significantly associated with SPOS. This means that the banks audited by big-four auditors, report small positive net income less frequently than banks audited by other audit firms. The same holds for large banks (-0.042036 coefficient, and statistically significant) and banks with high growth opportunities (-1.272588, and highly statistically significant). This can be explained by the fact that high growth, large banks are more monitored than their low growth counterparts. These results are

Table 4**OLS regressions of SPOS and earnings management over the period 2003-2006, (2007-2010 excluded)**

Dependent variables	SPOS (Model 1)	EM (Model 2)
Independent variables		
C	11.65599 (4.721886)	-0.003630 (-3.386046)
EBT	-626.7064 (-4.915538)	0.096199 (3.709415)
AUDIT	-0.306581 (-0.947171)	0.000444 (1.894387)
CAR	-0.052732 (-1.380355)	0.000238 (3.581601)
DE	-0.342237 (-2.082374)	-9.86E-05 (-0.522466)
PB	-0.366916 (-1.225786)	-0.000335 (-1.703949)
LNTA	-0.134530 (-1.678689)	-4.66E-05 (-0.837067)
McFadden / Adjusted R-squared	0.577548	0.164204
LR / F-statistic	411.5057	13.42093

Notes: Z-statistic and t-statistic are in the parentheses of SPOS and EM, respectively. McFadden R-squared and LR statistic address to SPOS variable and Adjusted R-squared F-statistic address to EM variable. All of the coefficients have been tested in a 95% confidence interval.

$$SPOS_{it} = b_0 + b_1 EBT_{it} + \gamma Control_{it} + \delta Year + e_{it} \text{ (Regression model 1)}$$

$$EM_{it} = b_0 + b_1 EBT_{it} + \gamma Control_{it} + \delta Year + e_{it} \text{ (Regression model 2)}$$

Variable Definitions: SPOS, indicator variable that is equal to 1 if net income scaled by lagged total assets is between 0 and 0.01, and 0 otherwise; EM, earnings management measure, defined as the difference between the discretionary component of securities gains and losses and the discretionary component of loan loss provisions; EBT, earnings before taxes scaled by lagged total assets; AUDIT, dummy variable that is equal to 1 if a bank is audited by KPMG, PwC, EY or Deloitte, and 0 otherwise; CAR, ratio of beginning Tier 1 risk adjusted capital; DE, ratio of end of year total debt to end of year total common equity; LNTA, natural logarithm of year-end total assets; PB, ratio of price to book value of equity indicating growth opportunities.

consistent with many prior studies (Leventis and Dimitropoulos [2012], Cornett et al. [2009]). Finally, Tier 1 risk adjusted capital (CAR) and debt to equity ratio (DE) are statistically significant with positive coefficients (0.030450 and 0.064902) indicating that banks with high levels of capital and leverage are more prone to report small positive net income. All these findings are consistent with our expectations.

Regression 2 shows the relation between earnings management (EM), defined as the difference between discretionary securities gains and losses (DSECGL) and discretionary loan loss provisions (DLLP), earnings before taxes (EBT) and control variables. EBT has a positive (0.237912 coefficient) and statistically significant association (5.303885t-statistic) with earnings management indicating that banks with higher performance engage in higher earnings management through discretionary loan loss provisions and securities gains and losses. This result is consistent with Leventis and Dimitropoulos [2012] but inconsistent with Cornett et al. [2009]. As far as the control variables are concerned, the coefficient on CAR is 0.000219 and statistically

Table 5

OLS regressions of SPOS and earnings management for banks with assets under \$1 billion, over the period 2003-2010.

Dependent variables	SPOS (Model 1)	EM (Model 2)
Independent variables		
C	1.170200 (5.20E-07)	2.348545 (0.834143)
EBT	26.27538 (2.144736)	0.255077 (3.895728)
AUDIT	0.311461 (0.682101)	-1.64E-05 (-0.018286)
CAR	-0.042424 (-1.256158)	3.22E-06 (0.033717)
DE	0.149393 (1.816685)	7.83E-05 (2.132097)
PB	-1.799416 (-6.845821)	-0.002241 (-2.739556)
LNTA	0.036653 (0.720136)	2.76E-05(0.296780)
McFadden / Adjusted R-squared	0.123309	0.242199
LR / F-statistic	93.19901	13.22688

Notes: Z-statistic and t-statistic are in the parentheses of SPOS and EM, respectively. McFadden R-squared and LR statistic address to SPOS variable and Adjusted R-squared F-statistic address to EM variable. All of the coefficients have been tested in a 95% confidence interval.

$$SPOS_{it} = b_0 + b_1 EBT_{it} + \gamma Control_{it} + \delta Year + e_{it} \text{ (Regression model 1)}$$

$$EM_{it} = b_0 + b_1 EBT_{it} + \gamma Control_{it} + \delta Year + e_{it} \text{ (Regression model 2)}$$

Variable Definitions: SPOS, indicator variable that is equal to 1 if net income scaled by lagged total assets is between 0 and 0.01, and 0 otherwise; EM, earnings management measure, defined as the difference between the discretionary component of securities gains and losses and the discretionary component of loan loss provisions; EBT, earnings before taxes scaled by lagged total assets; AUDIT, dummy variable that is equal to 1 if a bank is audited by KPMG, PwC, EY or Deloitte, and 0 otherwise; CAR, ratio of beginning Tier 1 risk adjusted capital; DE, ratio of end of year total debt to end of year total common equity; LNTA, natural logarithm of year-end total assets; PB, ratio of price to book value of equity indicating growth opportunities.

significant unlike Cornett et al. [2009], indicating that well capitalized banks are more prone to earnings management. DE is positive related to EM but with a very small coefficient (0.0000505). Inconsistent with Cornett et al. [2009] PB has a negative coefficient (-0.001623) suggesting that when a bank's market value is high relative to its book value the bank is less likely to have high levels of earnings management. Finally, AUDIT and LNTA variables have no statistically significant coefficients.

5.4 Additional sensitivity analysis

We perform two additional tests to check the robustness of our results. First, we rerun both our regressions excluding the period 2007-2010. The reason is that 2007 was the start of the recent financial crisis and according to DeBoskey and Jiang [2012], including this period could possibly skew the outcome. Our results did not change for the earnings management regression, but did considerably change for the SPOS

Table 6

OLS regressions of SPOS and earnings management for banks with assets over \$1 billion, over the period 2003-2010.

Dependent variables	SPOS (Model 1)	EM (Model 2)
Independent variables		
C	-749.6172 (-1.068911)	2.216899 (0.530806)
EBT	2.299240 (0.298975)	0.225249 (3.540539)
AUDIT	-0.308425 (-1.580195)	0.000969 (1.729736)
CAR	0.051302 (2.314207)	0.000296 (3.635937)
DE	-0.008293 (-0.240990)	0.000358 (2.090924)
PB	-1.076765 (-5.415688)	-0.000819 (-1.267215)
LNTA	-0.140043 (-2.272246)	-0.000144 (-1.014706)
McFadden / Adjusted R-squared	0.123447	0.172561
LR / F-statistic	93.97366	10.48092

Notes: Z-statistic and t-statistic are in the parentheses of SPOS and EM, respectively. McFadden R-squared and LR statistic address to SPOS variable and Adjusted R-squared F-statistic address to EM variable. All of the coefficients have been tested in a 95% confidence interval.

$$SPOS_{it} = b_0 + b_1 EBT_{it} + \gamma Control_{it} + \delta Year + e_{it} \text{ (Regression model 1)}$$

$$EM_{it} = b_0 + b_1 EBT_{it} + \gamma Control_{it} + \delta Year + e_{it} \text{ (Regression model 2)}$$

Variable Definitions: SPOS, indicator variable that is equal to 1 if net income scaled by lagged total assets is between 0 and 0.01, and 0 otherwise; EM, earnings management measure, defined as the difference between the discretionary component of securities gains and losses and the discretionary component of loan loss provisions; EBT, earnings before taxes scaled by lagged total assets; AUDIT, dummy variable that is equal to 1 if a bank is audited by KPMG, PwC, EY or Deloitte, and 0 otherwise; CAR, ratio of beginning Tier 1 risk adjusted capital; DE, ratio of end of year total debt to end of year total common equity; LNTA, natural logarithm of year-end total assets; PB, ratio of price to book value of equity indicating growth opportunities.

regression. Earnings before taxes (EBT) as well as the control variables are all negatively related to SPOS. This difference can be explained by the fact that during the financial crisis many banks recorder large amounts of loan loss provisions to cover loan charge-offs (DeBoskey and Jiang [2012]), and engaged in aggressive earnings management through the reporting of small positive earnings in order to be proven reliable and solvent to the viewers of their financial reports.

Second, we examine whether our results differ between small and large banks. According to Greenawalt and Sinkey [1988] small banks engage to income smoothing to a greater extent than large banks. Therefore, we partition our sample into small banks and large banks, following the FDICIA Improvement Act of 2005 that classifies banks with assets exceeding \$1 billion as large banks, and repeat the tests for each sub-sample. The results for both sub-samples are similar to the overall sample.

6. Conclusions, Implications and Recommendations

For more than two decades academics and practitioners try to deal with the problem of earnings management. However, in the recent years, and more specifically, after the revelation of accounting fraud scandals by, until then, respectable firms, such as Enron, the attention on earnings management has been increased. The empirical research on the use of discretionary accruals to manage earnings is extensive (DeAngelo [1986, 1988], among others). Earnings management and the low quality of financial reporting was the reason for the passage of reforming acts, such as the SOX Act. Many prior researches provide evidence on a decline of earnings manipulation after the implementation of SOX (Cohen et al. [2004], Zhou [2008], Lobo and Zhou [2006]), but this researches focus mostly on non-financial firms. However, empirical evidence suggests that the banking industry is more prone to earnings management than other industries (Greenawalt and Shinky [1988]). Moreover, the literature on earnings management during the recent financial crisis is very limited and focuses on European firms (Filip and Raffournier [2012], Berndt and Offenhammer [2010]).

This study examines earnings management in US listed commercial banks for a sample period of 8 years, 2003-2008. The chosen period covers the years that followed the enactment of the SOX Act in 2002, and 3 years during the financial crisis that started in 2007. Our sample consists of 143 US listed commercial banks. The empirical findings suggest that banks continue to employ earnings management after the SOX enactment and during the financial crisis.

Overall, our results show that banks with high earnings before taxes continue to manage earnings in the post-SOX era by both recording small positive net income and managing loan loss provisions and securities gains and losses. We also find that well-capitalized and high-leveraged firms are more prone to earnings management than their poor-capitalized, low-leveraged counterparts. On the other hand, the results suggest that banks with high growth opportunities do not engage in earnings management at all, and that banks audited by one of the Big-Four auditing firms avoid manipulating earnings by reporting small positive net income.

These results are robust to our additional sensitivity tests related to the specification of the empirical models and the research design used in our study. The empirical findings of sensitivity analysis suggest that earnings management behavior based on

securities gains and losses and loan loss provisions did not change after the financial crisis, but they also reveal a higher frequency of small positive reported net income, measured by SPOS, during the same period. Furthermore, the findings indicate that the size factor does not affect earnings management in our sample.

Our contribution to the existing literature is that we demonstrate that earnings management still exists within the US banking sector in the post-SOX era and has increased during the financial crisis, mainly by high-performance banks. Investors, auditors and regulators must be aware of high reported earnings because they could be a result of earnings management through discretionary securities gains and losses and loan loss provisions, and small “fake” reported net income.

This study has been conducted under several limitations and, therefore, there are some recommendations that could be used in order to extent the present findings and improve its validity. Firstly, a larger sample of US listed commercial banks would enhance the credibility of the study. Secondly, profitability ratios, such as ROA, or other financial ratios could be used as control variables, in order for the models to better capture the performance of banks and the discretionary behavior. Additionally, the same two models could be used to examine earnings management in other countries, which have not yet been studied for earnings management, such as Greece. Finally, a larger sample period could be employed to cover several years before and after the passage of the SOX Act, in order to be a comparison of earnings management in the pre-SOX and post-SOX era.

References

- Agarwal, S., Chomsisengphet, S., Liu, C., & Rhee, S. G. (2007). Earnings management behaviors under different economic environments: Evidence from Japanese banks. *International Review of Economics and Finance* 16 , 429-443.
- Ahmed, A. S., Takeda, C., & Thomas, S. (1999). Bank loan loss provisions: A reexamination of capital management, earnings management and signaling effects. *Journal of Accounting and Economics* 28 , 1-25.
- Anandarajan, A., Hasan, I., & Lozano-Vivas, A. (2003). The role of loan loss provisions in earnings management, capital management and signaling: The Spanish experience. *Advances in International Accounting* 16 , 45-65.
- Arya, A., Glover, J., & Sunder, S. (1998). Earnings management and the revelation principle. *Review of Accounting Studies* 3 , 7-34.
- Ball, R., & Shivakumar, L. (2005). Earnings quality in UK private firms: Comparative loss recognition timeliness. *Journal of Accounting and Economics* 39 , 83-128.
- Ball, R., & Shivakumar, L. (2006). The role of accruals in asymmetrically timely gain and loss recognition. *Journal of Accounting Research* 44 , 207-242.
- Barnea, A., Ronen, J., & Sadan, S. (1976). Classificatory smoothing of income with extraordinary items. *Accounting Review* 51 , 110-122.
- Barth, M., Landsman, W., & Lang, M. (2008). International accounting standards and accounting quality . *Journal of Accounting Research* 46 , 467-498.
- Beatty, A., & Harris, D. (1999). The effects of taxes ,agency costs and information asymmetry on earnings management: A comparison of public and private firms. *Review of Accounting Studies* 4 , 299-326.
- Beatty, A., Chamberlain, S. L., & Magliolo, J. (1995). Managing financial reports of commercial banks: The influence of taxes, regulatory capital, and earnings. *Journal of Accounting Research* 33 , 231-261.
- Beatty, A., Ke, B., & Petroni, K. (2002). Earnings management to avoid earnings decline across publicly and privately held banks. *Accounting Review* 77 , 547-570.
- Beaver, W., & Engel, E. (1996). Discretionary behavior with respect to allowances for loan losses and the behavior of security prices. *Journal of Accounting and Economics* 22 , 177-206.
- Beaver, W., Eger, C., Ryan, S., & Wolfson, M. (1989). Financial reporting, supplemental disclosure, and bank share prices. *Journal of Accounting Research* 27 , 157-178.

- Beidleman, C. (1973). Income smoothing: The role of management. *Accounting Review* 48 , 653-667.
- Benston, G. J., & Wall, L. D. (2005). How should banks account for loan losses. *Journal of Accounting and Public Policy* 24 , 81–100.
- Berndt, T., & Offenhammer, C. (2010). Earnings management in the financial crisis 2007/2008: Evidence from German-speaking countries. *Research Paper* .
- Bhat, V. (1996). Banks and income smoothing: An empirical analysis. *Journal of Applied Financial Economics* 6 , 505-510.
- Bikker, J., & Metzmakers, P. (2005). Bank provisioning behaviour and procyclicality. *Journal of International Financial Markets, Institutions and Money* 15 , 141-157.
- Bliss, R.R., & Flannery, M.J. (2002). Market discipline in the governance of US bank holding companies: Monitoring versus Influencing. *European Finance Review* 6 , 361-396.
- Burgstahler, D., & Dichev, I. (1997). Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics* 24 , 99–126.
- Burgstahler, D., Hail, L., & Leuz, C. (2006). The importance of reporting incentives: Earnings management in European private and public firms. *Accounting Review* 81 , 983–1016.
- Cohen, D., Dey, A., & Lys, T. (2004). Trends in earnings management and informativeness of earnings announcements in the pre- and post-Sarbanes Oxley periods. *Working Paper. Northwestern University* .
- Collins, J. H., Shachelford, D. A., & Wahlen, J. M. (1995). Bank differences in the coordination of regulatory capital, earnings, and taxes. *Journal of Accounting Research* 33 , 263-291.
- Cornett, M., McNutt, J., & Tehranian, H. (2009). Corporate governance and earnings management at large US bank holding companies. *Journal of Corporate Finance* 15 , 412-430.
- Cortavarria, L., Dziobek, C., Kanaya, A., & Song, I. (2000). Loan review, provisionung, and macroeconomic linkages . *International Monetary Fund* , Working Paper WP/00/195.
- Davidson, R., & MacKinnon, J.G. (1989). Testing for consistency using artificial regressions. *Econometric Theory* 5 , 363–384.
- DeAngelo, L. (1986). Accounting numbers as market valuation substitutes: A study of management buyouts of public stockholders. *Accounting Review* 61 , 400-420.

- DeAngelo, L. (1988). Managerial competition, information costs, and corporate governance: The use of accounting performance measures in proxy contests. *Journal of Accounting and Economics* 10 , 3-36.
- DeBoskey, D. G., & Jiang, W. (2012). Earnings management and auditor specialization in the post-sox era: An examination of the banking industry. *Journal of Banking and Finance* 36 , 613-623.
- Dechow, P. M., & Skinner, D. J. (2000). Earnings management: Reconciling the views of accounting academics, practitioners, and regulators. *Accounting Horizons* 14 , 235-250.
- Dechow, P., Ge, W., & Schrand, C. (2010). Understanding earnings quality: A review of the proxies. *Journal of Accounting and Economics* 50 , 344–401.
- DeGeorge, F., Patel, J., & Zeckhauser, R. (1999). Earnings management to exceed thresholds. *Journal of Business* 72 .
- Demski, J. (1998). Performance measure manipulation. *Contemporary Accounting Research* 15 , 261–285.
- Diamond, D., & Dybvig, P. (1983). Bank runs, deposit insurance and liquidity. *Journal of Political Economy* , 401-419.
- Docking, D., Hirschey, M., & Jones, E. (1997). Information and contagion effects of bank loan-loss reserve announcement. *Journal of Financial Economics* 43 , 219-239.
- Dugan, J. C. (2009). Loan Loss Provisioning and Pro-cyclicality. *Remarks by John C. Dugan, Comptroller of the Currency before the Institute of International Bankers* .
- Elliot, J., & Shaw, W. (1989). Write-offs as accounting procedures to manage perceptions. *Journal of Accounting Research (supplement 1989)* , 91-119.
- National Association of Certified Fraud Examiners (1993). Cooking the books: What every accountant should know about fraud. No. 92-5401. Self-study workbook: 12.
- Filip, A., & Raffournier, B. (2012). The impact of the 2008-2009 financial crisis on earnings management: The European evidence. *Research Paper* .
- Fudenberg, D., & Tirole, J. (1995). A theory of income and dividend smoothing based on incumbency rents. *Journal of Political Economy* 103 , 75–93.
- Goel, A., & Thakor, A. (2003). Why do firms smooth earnings? *Journal of Business* 76 , 151–192.
- Graham, J., Harvey, C., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of Accounting and Economics* 40 , 3-73.

- Greenawalt, M., & Sinkey Jr., J. (1988). Bank loan-loss provisions and the income-smoothing hypotheses: An empirical analysis, 1976-84. *Journal of Financial Services Research 1* , 301–318.
- Handorf, W., & Zhu, L. (2006). US bank loan loss provisions, economic conditions, and regulatory guidance. *Journal of Applied Finance 16* .
- Hausman, J. (1978). Specification tests in econometrics. *Econometrica 46* , 1251-1271.
- Hazera, A. (2005). Bank earnings management in emerging market economies. *Advances in international Accounting 18* , 73-95.
- Healy, P. (1985). The effect of bonus schemes on accounting decisions . *Journal of Accounting and Economics 7* , 85-107.
- Healy, P., & Wahlen, J. (1999). A review of the earnings management literature and its implications for standard settings. *Accounting Horizons 13* , 365-383.
- Kanagaretnam, K., Lobo, G. J., & Yang, D.H. (2004). Joint tests of signaling and income smoothing through bank loan loss provisions. *Contemporary Accounting Research 21* , 843–84.
- Kim, D., & Santomero, A. (1993). Forecasting required loan loss reserves. *Journal of Economics and Business 45* , 315–329.
- Kim, D., & Santomero, A. (1988). Risk in banking and capital regulation. *Journal of Finance 35* , 1219–1233.
- Kim, M., & Kross, W. (1998). The impact of the 1989 change in bank capital standards on loan loss provisions and loan write-offs. *Journal of Accounting and Economics 25* , 69-100.
- Kirschenheiter, M., & Melumad, N. (2002). Can Big Bath and earnings smoothing co-exist as equilibrium financial reporting strategies? *Journal of Accounting Research 40* , 761-796.
- Laeven, L., & Majnoni, G. (2003). Loan loss provisioning and economic slowdowns: Too much, too late? *Journal of Financial Intermediation 12* , 178–197.
- Lambert, R. (1984). Income smoothing as rational equilibrium behavior. *Accounting Review 59* , 604-618.
- Lang, M., Raedy, J., & Wilson, W. (2006). Earnings management and cross listing: Are reconciled earnings comparable to US earnings? *Journal of Accounting Economics 42* , 255-283.

- Lang, M., Raedy, J., & Yetman, M. (2003). How representative are firms that are cross listed in the United States? An analysis of accounting quality. *Journal of Accounting Research* 41 , 363-386.
- Leuz, C., Nanda, D., & Wysocki, P. (2003). Earnings management and investor protection: An international comparison . *Journal of Financial Economics* 69 , 505-527.
- Leventis, S., & Dimitropoulos, P. (2012). The role of corporate governance in earnings management: Experience from US banks. *Journal of Applied Accounting* 13 , 161-177.
- Leventis, S., Dimitropoulos, P. E., & Anandarajan, A. (2011). Loan loss provisions, earnings mangement and capital management under IFRS: The case of EU commercial banks. *Journal of Financial Services Research* 40 , 103-122.
- Liberty, S., & Zimmerman, J. (1986). Labor union contract negotiations and accounting choises. *Accounting Review* 61 , 692-712.
- Liu, C.C., & Ryan, S. G. (1995). The effect of bank loan portfolio composition on the market reaction to and anticipation of loan loss provisions. *Journal of Accounting Research* 33 , 77-94.
- Liu, C.C., Ryan, S.G., & Wahlen, J.M. (1997). Differential valuation implications of loan loss provisions across banks and fiscal quarters. *Accounting Review* 72 , 133-146.
- Lobo, G., & Yang, D. (2001). Bank managers' heterogeneous decisions on discretionary loan-loss provisions. *Review of Quantitative Finance and Accounting* 16 , 223-250.
- Lobo, G., & Zhou, J. (2006). Did conservatism in financial reporting increase after the Sarbanes-Oxley Act? Initial evidence. *Accounting Horizons* 20 , 57-74.
- Ma, C. (1988). Loan loss reserve and income smoothing: The experience in the US banking industry. *Journal of Business Finance and Accounting* 15 , 487-497.
- McNichols, M., & Wilson, G. (1988). Evidence of earnings management from the provision for bad debts. *Journal of Accounting Research* 26, 1-31.
- Moses, O. (1987). Income smoothing and incentives: Empirical tests using accounting changes. *Accounting Review* 62, 358-377.
- Moyer, S. (1990). Capital adequacy ratio regulations and accounting choices in commercial banks. *Journal of Accounting and Economics* 13 , 123-154.
- Naciri, A. (2002). Earnings management from bank provisions for loan losses. *Centre de Reserche en Gestion* , Working Paper 04-2002, University of Quebec.

- Perez, D., Salas Fumas, V., & Saurina, J. (2006). Earnings and capital management in alternative loan loss provision regulatory regimes. *European Accounting Review* , 423-445.
- Ronen, J., & Sadan, S. (1981). Smoothing income numbers: Objectives and implications. *Reading, MA: Addison-Wesley* .
- Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting and Economics* 42 , 335-370.
- Rozycki, J. (1997). A tax motivation for smoothing earnings. *Quarterly Review of Economics and Finance* 37 , 563-578.
- Sankar, M. R., & Subramanyam, K. (2001). Reporting discretion and private information communication through earnings. *Journal of Accounting Research* 39 , 365-386.
- Scheiner, J. (1981). Income smoothing: An analysis in the banking industry. *Journal of Bank Research* 12 , 119-123.
- Schipper, K. (1989). Commentary on earnings management. *Accounting Horizons* 3 , 91-102.
- Scholes, M., Wilson, G., & Wolfson, M. (1990). Tax planning, regulatory capital planning and financial reporting strategy for commercial banks. *Review of Financial Studies* 3 , 625-650.
- Shen, C.H., & Chih, H.L. (2005). Investor protection, prospect theory, and earnings management: An international comparison of the banking industry. *Journal of Banking and Finance* 29 , 2675-2697.
- Shrieves, R. E., & Dahl, D. (2003). Discretionary accounting and the behavior of Japanese banks under financial duress. *Journal of Banking and Finance* 27 , 1219-1243.
- Smith, C., & Stultz, R. (1985). The determinants of firms' hedging policies . *Journal of Financial and Quantitative Analysis* 20 , 391-406.
- Subramanyam, K. (1996). The pricing of discretionary accruals . *Journal of Accounting and Economics* 22 , 249-282.
- Teoh, S., & Wong, T. (1993). Perceived auditor quality and the earnings response coefficient. *Accounting Review* 68 , 346-366.
- Trueman, B., & Titman, S. (1988). An explanation for accounting income smoothing. *Journal of Accounting Research* 26 , 127-139.
- Tucker, J. W., & Zarowin, P. A. (2006). Does income smoothing improve earnings informativeness? *Accounting Review* 81 , 251-270.

Vyas, D. (2011). The timeliness of write-downs by U.S. financial institutions during the financial crisis of 2007-2008. *Journal of Accounting Research* 49 , 823-860.

Wahlen, J. M. (1994). The nature of information in commercial bank loan loss disclosures. *Accounting Review* 69 , 455-478.

Wall, L. D., & Koch, T. W. (2000). Bank loan-loss accounting: A review of theoretical and empirical evidence. *Economic Review* 2 , 1-19.

Wetmore, J., & Brick, J. (1994). Loan loss provisions of commercial banks and adequate disclosure: A note. *Journal of Economics and Business* 46 , 299-305.

Yasuda, Y., Okuda, S., & Konishi, M. (2004). The relationship between bank risk and earnings management: Evidence from Japan. *Review of Quantitative Finance and Accounting* 22 , 233-48.

Zhou, J. (2008). Financial reporting after the Sarbanes-Oxley Act: Conservative or less earnings management? *Research in Accounting Regulation* 20 , 187-192.

Internet Citation

AICPA: American Institute of CPA's website:

Statements on Auditing Standards,

<http://www.aicpa.org/Research/Standards/AuditAttest/Pages/SAS.aspx> (accessed October 2012)

Appendix

Appendix A: Beatty et al. (2002) OLS regression models of loan loss provisions and securities gains and losses for a sample of US-listed commercial banks over the period 2003-2010.

Dependent variables	LLP	SECGL
Independent variables		
C	0.007105 (1.675178)	0.002536 (4.777190)
ALL	0.435567 (4.228278)	
NPL	0.191855 (4.245703)	
REL	-0.009504 (-2.489528)	
ICL	-0.007786 (-1.845823)	
CIL	-0.008591 (-2.058952)	
LNTA	0.000149 (1.223602)	-8.49E-05 (-0.601530)
UNSECGL		-0.001039 (-1.618456)
Adjusted R-squared	0.582566	0.023363
F-statistic	123.7046	4.038042
Notes: t-statistics are in the parentheses of LLP and SECGL. All of the coefficients have been tested in a 95% confidence interval.		
$LLP_{it} = b_0 + b_1 ALL_{it} + b_2 NPL_{it} + b_3 \ln TA_{it} + b_4 REL_{it} + b_5 CIL_{it} + b_6 ICL_{it} + e_{it}$ $SECGL_{it} = b_0 + b_1 \ln TA_{it} + b_2 UNSECGL_{it} + e_{it}$		
<p><i>Variable Definitions:</i> LLP, loan loss provisions scaled by total loans; ALLP, beginning balance of allowance for loan losses scaled by total loans; NPL, non-performing loans scaled by total loans; REL, real-estate loans scaled by total loans; CIL, commercial and industrial loans scaled by total loans; ICL, installment and consumer loans scaled by total loans; SECGL, realized securities gains and losses scaled by total loans; LNTA, natural logarithm of year-end total assets; PB, ratio of price to book value of equity indicating growth opportunities; UNSECGL, unrealized securities gains and losses scaled by total loans.</p>		