

Do Internal Control Reforms Improve Earnings Quality?

Jennifer Altamuro*

altamuro.1@osu.edu, 614-688-8679

Fisher College of Business
The Ohio State University
448 Fisher Hall
2100 Neil Avenue
Columbus, OH 43210

Anne Beatty

beatty.86@osu.edu, 614-292-5418

Fisher College of Business
The Ohio State University
442 Fisher Hall
2100 Neil Avenue
Columbus, OH 43210

May 1, 2007

*Corresponding author. Beatty thanks Deloitte & Touche, for financial support. We would like to thank Rick Johnston, Doug Schroeder, Rick Young, Arnie Wright, Pete Wilson, Helen Zhang and seminar participants at Boston College, University of Houston, London Business School, Michigan State, and Ohio State University for their helpful comments and suggestions.

Abstract

The architects of the Sarbanes Oxley Act (SOX) anticipated that requirements for managers and auditors to attest to the adequacy of internal control systems would improve the quality of reported earnings numbers. Despite several years of experience with this regulation, the effectiveness of the reforms in improving financial reporting quality is still being questioned. The proto-type for this regulation was the internal control reform mandated by the Federal Depository Insurance Corporation Improvement Act (FDICIA) for banks during the early 1990s. We study the effects of FDICIA to investigate the relationship between earnings characteristics and mandated internal control reforms. Using a difference-in-differences design approach, we examine the impact of internal control mandates on earnings persistence, earnings' ability to predict future cash flows, and the earnings response coefficient. We also investigate whether perceived improvements in earnings quality are driven by enhancements in internal controls, or by earnings management. Our results suggest that FDICIA-mandated internal control reforms led to improvements in each of these earnings characteristics for banks affected by the regulation relative to unaffected banks during the same period. These results should be appealing to regulators, practitioners and academics who are interested in anticipating the future effects of the Sarbanes-Oxley reforms on the quality of earnings reports.

1. Introduction

The architects of the Sarbanes Oxley Act (SOX) anticipated that requirements for managers and auditors to attest to the adequacy of internal control systems would improve the quality of reported earnings numbers. Despite several years of experience with this regulation, the effectiveness of the reforms in improving financial reporting quality is being called into question. In a, October, 2006 speech to the National Association of State Boards of Accountancy, Charles D. Niemeier, a Public Company Accounting Oversight Board (PCAOB) member, states that “Although U.S. companies have been required to have internal controls over their accounting since Congress enacted the Foreign Corrupt Practices Act of 1977, by the 1990s many corporations had still failed to establish or maintain effective controls ... that would ensure integrity in the preparation of the overall financial statements. ... This lack of internal controls allowed senior corporate managers to manipulate official reported financial results to look better than they were.”

The internal control reforms required by SOX were designed to produce more reliable financial reporting. However, many practitioners and regulators are skeptical about the ability of these reforms to generate higher quality financial reports. Moody’s (2006) argue that the disclosure of SOX internal control deficiencies provides a lagging rather than leading indicator of financial reporting problems. While Niemeier (2006) argues that these reforms “have produced real and measurable benefits,” he does acknowledge that to be most effective the internal control reports should “identify the risk before the controls actual[ly] fail.” To address these concerns, and whether the guidance provided to auditors for implementing SOX is appropriate, the SEC and

PCAOB held hearings in April, 2007 to consider the appropriate application of Section 404 for small businesses (< \$75 million market cap), and to reconsider the auditing standards [AS 2] that govern internal control audits. As part of these deliberations, previous experiments with internal control reforms are being examined and scrutinized. Specifically, Niemeier (2006) points out that “in the early 1990s, Congress attempted to bolster controls in the banking sector at least, by requiring in the FDIC Improvement Act of 1991 (FDICIA) that certain financial institutions provide banking regulators with assessments of, and auditor attestations on, their internal controls.” However, he argues that FDICIA reforms were ineffective because FDICIA included little guidance on how auditors should evaluate the accuracy of bank’s assessments of their internal controls. In contrast, SEC Chairman Cox (2007) argues that proper implementation of the SOX internal control reforms will require “a more streamlined approach that focuses on material risks – but that still provides for effective and meaningful internal control audits to protect investors.” Cox (2007) notes that while FDICIA was a “clear antecedent” to the SOX internal control reforms, “the banking regulators did not adopt a prescriptive standard to implement the statute’s internal control section.” Finally, while defending the internal control provisions of Section 404, Cox (2007) contends that we have evidence that SOX is working because other countries have adopted internal control reforms. However, the implementation associated with these international reforms more closely resembles the FDICIA mandate than the SOX reforms.

The relatively short time horizon since implementation of the SOX internal control reforms combined with confounding macro-economic events during the SOX implementation period make it difficult to discern the impact of SOX reforms on earnings

quality. The purpose of this study is to examine the effects of FDICA, a similar, yet less prescriptive, internal control mandate in the banking industry, on several earnings quality characteristics, and provide insights about the anticipated effects of SOX reforms on the quality of earnings reports for other U.S. publicly-traded firms.

Effective in 1993, FDICIA required “insured depository institutions”¹ with assets in excess of \$500 million to provide a formal report regarding the adequacy of their internal control systems, and provide notification of any potential control weaknesses. Although FDICIA has been in effect for more than a decade, little systematic evidence exists about the effectiveness of this regulation in improving the quality of financial reporting in the banking industry. We have chosen this setting to examine the effects of a regime shift in internal control reporting on the characteristics of reported earnings in the U.S. banking industry for a sample of 16,191 publicly-traded and privately-owned U.S. bank-years with available data from the Fed Form Y9-C Regulatory Filing database during 1986-2001 and for a sample of 4,401 bank-years with available data on the CRSP/COMPUSTAT databases during the same time period.

In this paper, we examine both accounting-based and market-based earnings characteristics of firms in the banking industry. We investigate changes in earnings persistence and ability to predict future cash flows for public and private affected banks before and after the passage of FDICIA, and compare these earnings quality metrics, as well as earnings response coefficients, for publicly-traded affected banks to those of international banks with ADRs trading in the U.S. market, since ADR firms were not

¹ While FDICIA regulations did bring S&Ls under the auspices of the FDIC, this study examines the impact of FDICIA-mandated internal control reforms on commercial banks. Therefore, we will use the term “bank” or “bank-year” throughout this study to include only commercial banks or commercial bank holding companies.

required to comply with the FDICIA. These two samples allow us to employ a difference-in-differences research design that controls for changes in earnings characteristics unrelated to the passage of FDICIA, thereby isolating the effects of FDICIA regulations. We believe that this setting allows us to gain valuable insights about whether increased monitoring of internal control systems leads to improvements in earnings quality.

While FDICIA-related control reforms may potentially generate improvements in earnings quality, it is possible that any changes documented in the quality of the earnings reports are the result of earnings management. Ryan *et al.* (2006) contend that firms in the banking industry increased their smoothing behavior incrementally during the period of our study. We address this possibility in a variety of ways. First, our difference-in-differences research design should help mitigate any industry-wide incentives to manage earnings. However, it may be the case that the sample firms that are affected by the FDICIA regulations have systematically different earnings management incentives. Therefore, we also examine changes in the relationships between real operating accounts, and the occurrence of benchmark-beating activity.

Our results suggest that earnings quality characteristics improved for firms affected by the FDICIA internal control reforms. Affected firms showed significant increases in earnings persistence and ability to predict future cash flows, and a stronger relationship between earnings and returns in the post-FDICIA period. Our results also suggest that the relationship between the provision for loan losses and actual loans written off by affected firms strengthened in the period after the enactment of FDICIA reforms. Finally, we find that affected firms were less likely to engage in benchmark

beating behavior. Specifically, we find fewer instances of small positive earnings by affected firms in the post-FDICIA period, a result that is inconsistent with improved persistence as a result of earnings management activity. Taken together, we believe that these results are indicative of the internal control reforms mandated by FDICIA leading to improvements in the quality of earnings reports in the banking industry. These results are potentially useful to regulators and standard setters engaged in developing and implementing internal control regulations.

Section 2 provides background information for our study. We develop our hypotheses and discuss our sample selection and research design in Section 3. We discuss our empirical results in Section 4 and conclude in Section 5.

2. Background

2.1 Internal Control Reforms: FDICIA and SOX

FDICIA, which was enacted in 1991 in response to the savings-and-loan crisis, contained many provisions designed to avoid future failures. The provisions of FDICIA that were unrelated to internal controls, such as the requirements that GAAP be the standard for all regulatory filings, that regulators be required to take 1 or more of 10 specific actions against institutions with capital levels below minimum standards, and that regulators must establish safety and soundness standards, applied to all insured depository institutions regardless of size. However, for reasons similar to the distinction made in SOX between large and small businesses, the internal control provisions in FDICIA applied only to institutions with assets exceeding \$500 million (PwC, 2004). Specifically, Section 112 of FDICIA requires these institutions to provide (1) annual assessments by management of the effectiveness of internal control over financial

reporting and compliance with designated laws and regulations, and (2) an auditor's attestation report on internal control over financial reporting. These internal control reporting provisions, and the framework used to perform the assessment, were established by The Committee of Sponsoring Organizations of the Treadway Commission (COSO).

The widely-publicized accounting and financial reporting scandals in the U.S. during 1999-2001 prompted regulators to once again consider reforming internal controls regulation to restore public confidence in financial markets. Building directly on the framework established by COSO and FDICIA, the United States Congress passed the Sarbanes-Oxley Act (SOX) in July, 2002. SOX was designed to improve investor confidence in the financial accounting and reporting practices of publicly-traded U.S. firms. The most extensive reforms relate to internal control system monitoring and reporting. Section 302 requires that management assess the validity of the firm's internal control system and notify the board or directors and auditors about any internal control weaknesses, while Section 404 explicitly requires that management provides an annual report about the adequacy of the firm's internal control system, and that the independent auditor attest to management's assessment.

We believe that the attention given to internal control systems by both FDICIA and SOX as a means to restore confidence in U.S. firms implies that these reforms should be associated with improvements in the quality of reported earnings in the years following the regulation. For reasons discussed below, we contend that an examination of FDICIA and the banking industry is an ideal setting to assess the impact of mandated internal control reforms on earnings quality, and that this setting allows us to draw

inferences about the potential earnings quality improvements generated by the SOX-mandated internal control reforms.

2.2.FDICA and SOX Related Research

Several banking industry studies suggest that the FDICIA reforms may have strengthened the economic viability of the lending industry. A report released by the Department of the Treasury indicated that ROA and ROE for commercial banks doubled between 1991 and 1996 (Carnell [1997]), while Benston and Kaufman (1998) conclude that FDICIA reforms are associated with banks becoming more risk adverse, and less prone to failures. While these studies do provide some evidence that FDICIA may be associated with improvements in the banking industry, whether the increased internal control reporting requirements specified by Section 112 of the Act are associated with improvements in the quality of reported earnings has not been examined.

In contrast, the effects of SOX reforms have received a great amount of attention from researchers, in spite of difficulties isolating the direct effect of the legislation during a volatile economic period. Both Ashbaugh-Skaife *et al.* (2005) and Doyle *et al.* (2005) investigate the characteristics of firms reporting deficiencies in their internal control environments. Doyle *et al.* (2005) find that firms reporting an ICD are more likely to be weaker financially, more complex, growing rapidly, or restructuring. Ashbaugh-Skaife *et al.* (2005) examine the relationship between internal control deficiency (ICD) reporting and accrual quality and find that firms that reported an ICD during the sample period have noisier accruals that do not map as well into cash flows as control firms. Ashbaugh-Skaife, Collins, Lafond, and Kinney (2006) examine whether earnings' properties improve subsequent to the disclosure of remediation of ineffective internal controls and

find evidence consistent with this prediction. These results are consistent with Neimeier's (2006) assessment that "internal control reports are serving as an important tool to expose material misstatement in past and current financial statements," but do not address his concern that they should be "leading indicators of financial reporting problems."

Furthermore these studies, which focus on specific firms that experience deficiencies in their internal control systems, do not consider whether the internal control reforms result in improvements in internal controls and resulting earnings quality for the market as a whole, by eliminating the need to report an internal control deficiency.

We believe our study provides additional insights about the role of internal control reforms by examining the relationship between these reforms and overall earnings quality and will provide useful information about the relationship between mandated reporting reforms and the quality of accounting information. We expect the results of this study to allow regulators and financial statement users to better predict the implications of SOX-mandated reforms on earnings quality.

3. Hypothesis Development

In this paper, we attempt to determine whether changes in internal control monitoring for U.S. banks lead to improvements in earnings quality on average for all banks affected by the regulation. Unlike Ashbaugh-Skaife *et al.* (2005 and 2006) and Doyle *et al.* (2005), we do not focus our attention on those firms that experienced internal control deficiencies. Rather, we choose to focus on the effect of an internal control reporting regime shift on the earnings reports of all firms affected by the regulation. We choose our measures of earnings quality characteristics from existing research looking at

both accounting-based and market-based measures.² If the changes in the internal control reporting regime are expected to improve the quality of financial accounting and reporting, then we would expect to see improvements in these earnings quality characteristics for firms affected by the regulation in the period after the Act.

The first earnings quality characteristic that we examine is earnings persistence, classified as the correlation between current and future earnings. Both Dechow and Dichev (2002) and Wysocki (2005) employ this measure to test the validity of “accounting quality” models. If FDICIA led to improved quality of reported earnings via mandated internal control assessment and reporting, then earnings persistence should significantly increase for affected firms in the post-FDICIA period.

The second measure of earnings quality used by Wysocki (2005) is the ability of earnings to predict future cash flows. Traditionally, this measure is defined as the ability of current earnings to predict future cash flows from operations. Given that the largest accrual in the banking industry is the loan loss provision, and consistent with the previous research on earnings quality in banks (Whalen [1994], Kanagaretnam [2004]) we construct our cash flow measure by adding back this accrual to earnings before taxes³. We expect an increase in the coefficient on our earnings variable in the post-FDICIA period for affected firms if the FDICIA-mandated reforms improve the quality of reported earnings.

We also examine a market-based measure of earnings quality used by Wysocki (2005), which is the association between current reported annual earnings and contemporaneous stock returns. If the FDICIA internal control reforms improve earnings

² Francis et al. (2003), Wysocki (2005)

³ We discuss alternative measurement of cash flows in sensitivity analyses following the reporting of our primary results.

quality, we expect the earnings response coefficient to increase after FDICIA passage for affected firms.

While FDICIA-related control reforms may potentially generate improvements in earnings quality, it is possible that any changes documented in the quality of the earnings reports are the result of earnings management. Ryan *et al.* (2006) contend that firms in the banking industry increased their smoothing behavior incrementally during the period of our study. We address this possibility in a variety of ways. First, our difference-in-differences research design should help mitigate any industry-wide incentives to manage earnings. However, it may be the case that the sample firms that are affected by the FDICIA regulations have systematically different earnings management incentives. We examine both changes in the relationships between real operating accounts, and the occurrence of benchmark-beating activity.

The loan loss provision typically is the largest operating accrual on a bank's balance sheet. If FDICIA reforms are successful in improving the quality of financial reporting, we would expect the association between the balance in the loan loss provision and future loan write-offs to improve in the post-FDICIA period for affected firms. However, if managers are artificially smoothing earnings, we would expect deterioration in the relationship between the provision and charge-offs for affected firms in the post-FDICIA period.

Improvements in real operating activity can lead to higher persistence in earnings, since a system with better controls is easier to monitor and is less likely to be subject to operating surprises that induce earnings volatility. This type of persistence, however, should not result in an abnormal distribution of earnings around certain benchmark

measurements. However, if managers are improving earnings persistence through earnings management in the post-FDICIA period, one potential outcome of this choice would be an improved ability to beat earnings benchmarks. If FDICIA reforms improve the quality of earnings, then we expect to find evidence of persistence that is not indicative of benchmark beating activity.

4. Research Design

FDICIA regulations went into effect during fiscal year 1993, and applied to all U.S. banks with assets exceeding \$500 million. We use these guidelines to identify two distinct control samples of unaffected banks. We use two distinct control groups to alleviate any concerns that any differences documented in the change in earnings properties are caused by differential affects of economic changes on our test and control samples. The first control group is all U.S. bank holding companies with assets less than \$500 million. The second control group is international banks that file U.S. GAAP reports but are not subject to FDICIA. Our difference-in-differences design provides some assurance that any differences documented in the change in earnings properties are not driven by economic changes during the period examined, and should also control for the effects of changes in regulatory capital rules, since both our test and control groups were affected by the adoption of risk-based capital rules during our sample period.

The time period covered by our study provides us with another distinct advantage over SOX-related internal control reform studies. The financial accounting scandals and economic volatility of the SOX-implementation period constrain researchers' abilities to make inferences about the effect of SOX reforms on changes in earnings quality characteristics. As noted in Figure 1, the change in the Dow Jones Industrial Average, as

well as an index of banking industry firms, for the period covered by our study reflects a relatively stable economic environment, helping to mitigate the impact of macro-economic factors on changes in the quality of reported earnings for our sample firms. The figures also present some preliminary evidence about potential FDICIA-related improvements in the banking industry. The graphs in Figure 1 suggest that the economic downturn of the SOX period (2000-2003) does not appear to have been as detrimental to the banking industry as to the market as a whole.

The pictorial evidence is consistent with an under-representation of banking industry firms among those required to report an ICD as a result of SOX Section 404. We obtain internal control report data from Audit Analytics that provides the rate of ineffective internal controls reported in the first year of SOX Section 404 compliance for financial institutions previously affected by FDICIA, versus all other firms with a December 31 fiscal year end. Although the rate of ineffective internal controls is not zero for the FDICIA firms, the proportion of FDICIA firms with ineffective internal controls (11%) is significantly lower (at the 1% level) than for other firms (16%). To determine a reasonable expectation for what the rate of ineffective controls should be in years subsequent to the implementation of the internal control standard, we look at the rate of ineffective controls in the second year of SOX Section 404 compliance for all firms that are not depository institutions. In the second SOX year, the rate of ineffective controls for non-banking firms falls to 11%, suggesting that the rate of ineffective controls for FDICIA firms in the first SOX year is not inconsistent with the rate of new internal control problems even within an internal control regulatory regime. Taken together, this

evidence suggests that previous internal control reforms in the banking industry may have helped to mitigate future economic and internal control weaknesses.

4.1 Sample Selection

Financial data for firms in the banking industry are available from two sources. The most extensive sample of banks is available from the Fed Form Y9-C Regulatory Filing database because it consists of both publicly-traded and privately-owned U.S. banks. We use this database to construct our Regulatory Sample of U.S. banks that are affected and unaffected by FDICIA. While the extent of coverage in this database is an advantage, a disadvantage of this database is that market data is unavailable, so we are restricted to examining accounting-based measures of earnings quality.

U.S. GAAP data for international banks is available on the CRSP/COMPUSTAT databases if the bank trades American Depository Receipts (ADRs) on U.S. exchanges. We use this database to construct our Compustat Sample. Although limited to publicly traded firms, our second sample allows us to compare affected banks to two distinct groups of unaffected banks and it enables us to examine a market-based measure of earnings quality.

We classify all bank-years from 1986-1992 as the pre-FDICIA period, and all bank-years from 1995-2001 as the post-FDICIA period. We omit bank-years 1993-1994 from our analyses because this is the implementation period.

4.2 Earnings Quality Measures

4.2.1 Persistence

Persistence is defined as the coefficient on current period earnings in a regression of future earnings on current earnings. To investigate the effect of FDICIA-mandated

internal control reforms on earnings persistence, we estimate the following regression separately for our Regulatory sample and our Compustat sample:

$$ROA_{t+1} = \alpha + \beta_1 Post + \beta_2 500M + \beta_3 Post*500M + \beta_4 ROA_t + \beta_5 Post*ROA_t + \beta_6 500M*ROA_t + \beta_7 Post*500M*ROA_t + \beta_8 Size_t + \beta_9 Size*ROA_t + e \quad (1)$$

Where:

- ROA_{t+n} – Income before Income Taxes divided by Assets;
- Post – An indicator variable that equals one if ROA_t is measured in the post-regulation period (after 1992), zero otherwise;
- 500M – An indicator variable that equals one if the firm was effected by the FDICIA regulation (Assets > than 500 million) and zero otherwise;
- Size – Natural log of total assets at time t;
- ADR – An indicator variable that equals one if the firm is an international bank with ADRs in the U.S. market, zero otherwise (Compustat sample only);

4.2.2 Predictability

Our second measure of earnings quality is the ability of earnings to predict future cash flows. Specifically, we examine the coefficient on current period net income before taxes in a regression of one period ahead earnings before taxes and the loan loss provision on current period net income before taxes. Since the loan loss provision often represents the largest working capital accrual for lending institutions, we believe that this measure is a reasonable proxy for the relationship between earnings and cash flows from operations in other industries. We estimate the following regression separately for our Regulatory sample and our Compustat sample:

$$EBP_{t+1} = \alpha + \beta_1 Post + \beta_2 500M + \beta_3 Post*500M + \beta_4 ROA_t + \beta_5 Post*ROA_t + \beta_6 500M*ROA_t + \beta_7 Post*500M*ROA_t + \beta_8 Size_t + \beta_9 Size*ROA_t + e \quad (3)$$

Where:

- EBP_{t+1} – Income before Income Taxes and before Loan Loss Provision divided by Assets;
- ROA_t – Income before Income Taxes divided by Assets;
- Post – An indicator variable that equals one if ROA_t is measured in the post-regulation period (after 1992), zero otherwise;

- 500M – An indicator variable that equals one if the firm was effected by the FDICIA regulation (Assets > than 500 million) and zero otherwise;
- Size – the Log of Total Assets at time t;
- ADR – An indicator variable that equals one if the firm is an international bank with ADRs in the U.S. market, zero otherwise (Compustat sample only);

4.2.3 Earnings Response Coefficient

We examine one market-based measure of earnings quality, the association between current reported annual earnings and contemporaneous stock returns. We anticipate that the coefficient will increase in the post-FDICIA period for affected firms.

We estimate the following regression on our Compustat sample only:

$$RET_t = \alpha + \beta_1 Post + \beta_2 500M + \beta_3 Post * 500M + \beta_4 EARN_t + \beta_5 Post * EARN_t + \beta_6 500M * EARN_t + \beta_7 Post * 500M * EARN_t + \beta_8 ADR + \beta_9 ADR * EARN_t + \beta_{10} Post * ADR + \beta_{11} Post * ADR * EARN_t + \beta_{12} MVE_t + e \quad (4)$$

Where:

- RET_t – Calendar year stock return, calculated as (Price_t - Price_{t+1}) + Dividends/Price_t;
- EARN_t – Net Income divided by Price_{t-1};
- Post – An indicator variable that equals one if EARN_t is measured in the post-regulation period (1992), zero otherwise;
- 500M – An indicator variable that equals one if the firm was effected by the FDICIA regulation (Assets > than 500 million) and zero otherwise;
- ADR – An indicator variable that equals one if the firm is an international bank with ADRs in the U.S. market, zero otherwise;
- MVE – The log of the market value of equity at time t;

4.3 Earnings Quality Improvements, or Earnings Management?

4.3.1 Relationship between the Provision for Loan Losses and Actual Write-off Activity:

If FDICIA-related reforms are successful at improving earnings quality through improvements in operating activity, we anticipate an improvement in the relationship between the provision and next period charge-offs, or loans directly written off by the bank. We employ the following model on both our Regulatory and Compustat samples:

$$\text{CHGOFF}_{t+1} = \alpha + \beta_1 \text{Post} + \beta_2 500\text{M} + \beta_3 \text{Post} * 500\text{M} + \beta_4 \text{LLP}_t + \beta_5 \text{Post} * \text{LLP}_t + \beta_6 500\text{M} * \text{LLP}_t + \beta_7 \text{Post} * 500\text{M} * \text{LLP}_t + \beta_8 \text{Size}_t + e \quad (5)$$

Where:

- CHGOFF – Actual loans written off by the bank during period t, scaled by assets at the beginning of the period;
- LLP_t – Provision for loan losses at period t, scaled by assets at the beginning of the period;
- Post – An indicator variable that equals one if ROA_t is measured in the post-regulation period (after 1992), zero otherwise;
- 500M – An indicator variable that equals one if the firm was effected by the FDICIA regulation (Assets > than 500 million) and zero otherwise;
- Size – The Log of Total Assets at time t;
- ADR – An indicator variable that equals one if the firm is an international bank with ADRs in the U.S. market, zero otherwise; (Compustat sample only)

4.3.2 Benchmark Beating

Following the design employed by Beatty, Ke and Petroni (2002), we investigate whether firms affected by the FDICIA reforms were more likely to report small positive earnings changes in the post-FDICIA period. An increase in benchmark beating would be consistent with earnings persistence from earnings management, while improvements in persistence resulting from internal control reforms should be unrelated to benchmark beating. We estimate the following logistic regression on our Regulatory and Compustat samples:

$$\text{Small_Pos}\Delta_t = \alpha + \beta_1 \text{Post} + \beta_2 500\text{M} + \beta_3 \text{Post} * 500\text{M} + \beta_4 \text{Size}_{t-1} + \beta_5 \text{Public}_t + \beta_6 \text{Growth}_t + \beta_7 \text{Loans}_t + \beta_8 \text{NPLoans}_t + \beta_9 \text{Leverage}_{t-1} + \beta_{10} \Delta_ \text{CashFlow}_t + e \quad (6)$$

Where:

- Small_PosΔ_t – An indicator variable taking the value one if the bank has a change in ROA in the interval between 0 and 0.0008, zero otherwise;
- Post – An indicator variable that equals one if ROA_t is measured in the post-regulation period (after 1992), zero otherwise;

500M	– An indicator variable that equals one if the firm was effected by the FDICIA regulation (Assets > than 500 million) and zero otherwise;
Size	– The Log of Total Assets at time t;
Public	– An indicator variable taking the value one if the firm is publicly traded, zero otherwise; (Regulatory sample only)
Growth	– the ratio of book value to market value at time t;
Loans	– Total loan portfolio for the bank, scaled by beginning period total assets;
NPLoans	– Portfolio of non-performing loans, scaled by total loans at beginning of the period;
Leverage	– Total liabilities divided by total assets;
$\Delta_CashFlow$	– First difference in cash flows, divided by total assets at the end of the period. Cash flows are defined as net income plus the loan loss provision;
ADR	– An indicator variable that equals one if the firm is an international bank with ADRs in the U.S. market, zero otherwise (Compustat sample only);
LLP	– Provision for loan losses, scaled by total assets at beginning of the period (Compustat sample only);

4.4 Costs of Documenting Effective Internal Controls

Documenting effective internal controls will result in both direct and indirect costs. Direct costs result from both increased audit fees and increased compensation for Boards of Directors, including Audit Committees. Indirect costs can arise if it takes managers longer to review major decisions, or if important activities are ignored because employees are spending additional hours on things such as fine-tuning internal controls, evaluating and re-evaluating financial reports, and compiling more information for their boards of directors. Measuring the indirect costs of documenting effective internal controls is especially difficult. However, we are able to examine how the non-interest expense of banks affected by FDICIA changed after the implementation of this regulation.

Figure 2 provides the amount of other non-interest expense which includes audit fees and other fees paid to outsiders including directors etc. scaled by total assets by year for banks effected versus unaffected by the FDICIA internal control provisions. The

chart suggests that the non-operating expense ratio was lower for the effected than for the unaffected banks prior to the passage of FDICIA. The expense ratio increased for affected firms in the post-regulation period, although the extent to which the ratio for effected banks exceeds that for unaffected banks has decreased over time. The increase in this expense ratio for the effected banks should be instructive to those who are interested in considering the cost benefit trade-off of adherence to less prescriptive internal control regulations.

5. Results

Table 1 provides descriptive statistics about the firms in each of our two sample groups. On average, the banks in our samples are profitable, with positive returns on assets and earnings before the loan loss provision, our proxy for cash flows from operations in the lending industry. The average size of the banks in our Compustat sample does appear to be larger than in our Regulatory sample. Since all of the ADR firms in this sample are larger than \$ 500 million in assets, when we estimate our multivariate regressions in the following tables we cannot interact our “500M” variable with the ADR indicator variable. All of the ADR firms would be considered affected firms based on size, but serve as control firms because international banks are not subject to FDICIA regulations.

We report the correlations among the variables used in our earnings quality tests for each of our samples in Table 2. The correlation between current period and one period ahead ROA for our regulatory sample is 0.76 and for our Compustat sample is 0.72. These correlations are slightly higher than the 0.67 correlation reported by Dechow and Dichev (2002) and 0.69 correlation reported by Wysocki (2005) for non-financial

COMPUSTAT firms. The correlation between ROA and one-period ahead EBP of 0.73 for our regulatory sample and 0.69 for our Compustat sample are again somewhat higher than the correlation of 0.57 between ROA and one-period ahead cash flows from operations reported by both Dichow and Dichev (2002) and Wysocki (2005).

Peterson (2006) contends that in panel data sets used in accounting and finance research, the residuals may be correlated across firms or across time, and OLS standard errors can be biased. Consequently, all of our analyses were performed using a generalized linear model to control for potential clustering in the data. Table 3 provides the results of our analysis of earnings persistence. For the Regulatory sample, our main variable of interest is the coefficient on ROA in the post- period for affected firms ($\text{Post} \times 500\text{M} \times \text{ROA}_t$) We find a significantly positive relationship, at the 5% level, between this variable and one-period ahead ROA. This finding is consistent with bank-years that were subject to FDICIA mandated internal control reforms reporting earnings numbers that were more persistent than bank-years prior to FDICIA reforms and bank-years unaffected by FDICIA reforms in the post-regulatory period.

Our Compustat sample shows that earnings persistence improved for the FDICIA affected firms in the post-period, and that the coefficient on the interaction of ADR (our control sample) and ROA in the post-period is significantly negative. Taken together, these coefficients provide further evidence that the improvements in earnings persistence noted in the post-FDICIA period are associated with the mandated reforms. Overall, the results for both samples are consistent with the internal control reforms required by FDICIA leading to improvements in earnings persistence for firms affected by the regulation.

We provide the results of our analysis of earnings predictability in Table 4. The variable of interest is once again the coefficient on ROA_t in the post-period for affected firms ($Post*500M*ROA_t$) We find a significantly positive relationship, at the 1% level, between this variable and one-period ahead earnings before the loan loss provision (EBP). This finding is consistent with bank-years that were subject to FDICIA-mandated internal control reforms reporting earnings numbers that were more predictable than bank-years prior to FDICIA reforms and bank-years unaffected by FDICIA reforms in the post-regulatory period.

The significantly positive coefficient on $Post*500M*ROA_t$ in our Compustat sample shows that earnings predictability improved for the FDICIA-affected firms in the post-period. We also find that the coefficient on the interaction of ADR and ROA_t in the post-period is significantly negative. These results indicate that the improvements in earnings predictability noted in the post-FDICIA period are attributable to the mandated reforms, with earnings predictability for ADR firms virtually unchanged.

Table 5 provides the results of our analysis of the relationship between current period earnings and returns, as measured by the earnings response coefficient. This analysis is performed exclusively on the Compustat sample. We find a significantly positive significant coefficient on current period earnings in the post-FDICIA period for affected firms, and a significantly negative coefficient on earnings for ADR firms in the post-period. Taken together, these results show that the improvements in ERCs in the post-FDICIA period are driven by those firms required to adopt mandated control re.

In Table 6, we provide the results of our examination of the relationship between the real operating accounts we expect to be affected by FDICIA internal control reforms.

The primary variable of interest is the coefficient on the loan loss provision, LLP_t , in the post-period for affected firms ($Post*500M*LLP_t$). We find a significantly positive relationship, at the 5% level, between this variable and one-period ahead loan charge-off activity (CHGOFF). This finding is consistent with bank-years that were subject to FDICIA mandated internal control reforms showing improvements in the relationship between accrual activity in operating accounts and real operating activity, in the form of actual loan charge-offs.

The significantly positive coefficient on $Post*500M*LLP_t$ in our Compustat sample shows that the relationship between the loan loss provision and actual charge-off activity improved for the FDICIA-affected firms in the post-period. We also find that the coefficient on the interaction of ADR and LLP_t in the post-period is significantly negative. The results for both the Regulatory and Compustat samples indicate that the improvements in the relationship between operating accounts noted in the post-FDICIA period are attributable to internal control improvements related to real activities, rather than earnings management.

We present the results of our benchmark beating analysis in Table 7. The primary variable of interest is the indicator variable for affected firms in the post-period ($Post*500M$). We find a significantly negative relationship, at the 1% level, between this variable and the reporting of small positive earnings changes. This finding is consistent with bank-years that were subject to FDICIA- mandated internal control reforms being less likely to engage in benchmark beating activity, while still on average reporting earnings numbers with higher persistence into future periods.

The significantly negative coefficient on Post*500M in our Compustat sample is consistent with our findings in the regulatory sample, that benchmark beating among affected firms was less likely in the post-FDICIA period. We also find that the coefficient for ADR firms in the post-period is positive, but not significant under conventional measures. While the Compustat sample results are somewhat weaker, the results for both samples indicate that while FDICIA-affected firms did report improved earnings persistence, this persistence is not associated with increased benchmark beating performance.

Our results suggest that the quality of reported earnings significantly improved in the period after the mandated FDICIA control reforms. Furthermore, the results of both the provision/chargeoff analysis and the benchmark beating analysis indicate that these earnings quality improvements are attributable to internal control reforms and the associated operating activity improvements, and not earnings management.

5.1 Sensitivity Analyses

The FDIC mandated that each bank with assets exceeding \$ 500 million be subject to FDICIA reporting and internal control regulations. Consequently, our “500M” variable is driven by the size of the firm. To provide additional evidence that the improvements in financial reporting quality noted in our study are associated with the passage of FDICIA, and not just a fundamental difference in the characteristics of large banks versus small banks, we refine our size controls for the examination of persistence and predictability for our Regulatory sample. We include an indicator variable, Small, which equals one if the financial institution has total assets less \$250 million, the median

asset size for banks in the Regulatory sample. We also interact this variable with ROA_t and with our post-period indicator variable. The results of this analysis are provided in Table 8 and indicate that the results in our primary analyses are robust to this additional size control. We construct our cash flow measure by adding back the loan loss provision to earnings before taxes. To ensure that our predictability findings are not driven by our choice of cash flow measurement, we also re-estimate our earnings predictability regressions using alternative measures for cash flows, including the cash flow from operations variable from COMPUSTAT, as well as making our own modifications to operating earnings by adjusting for depreciation and amortization. Untabulated results indicate that our findings are not sensitive to the chosen cash flow measurement.

Although we use two distinct control groups to alleviate any concerns that differences documented in the change in earnings properties are caused by differential affects of economic changes on our test and control samples, we also re-estimated our models including control variables for both changes in interest rates and changes in credit spreads during the period to control for changes in economic conditions. We use the change in the difference between the 7 year and the 1 year U.S.Treasury rates to capture changes in interest rates, and use the change in the difference between bonds with BAA and AAA credit ratings to capture the change in the credit spread. Our persistence and predictability results are unaffected by controlling for these changes in interest rates and credit spreads. To alleviate similar concerns in our charge-off regressions, we include also include controls for non-accruing loans and for loan balances. The tabulated relation between charge-offs and loan loss provisions are unaffected by controlling for non-

accruing loans and loan balances. We also examine the sensitivity of our results to growth. The results of estimating our models separately for high growth versus low growth firms also does not affect the results.

6. Conclusion

The internal control provisions of the Sarbanes Oxley Act (SOX) have been the subject of much scrutiny by regulators and practitioners. Regulators are currently debating whether the internal control reports are able to mitigate future internal control failures, and whether the guidance provided to auditors for implementing SOX is appropriate. In particular, regulators are debating the merits of auditing standards that are less prescriptive, but provide “a more streamlined approach that focuses on material risks...that still provides for effective and meaningful internal control audits to protect investors.” Cox (2007).

While researchers have studied firms reporting SOX ineffective internal controls, a direct examination of the effects of the internal control reforms on earnings quality for the market as a whole is challenging due to a short post-implementation period affected by several significant macro-economic events. Furthermore, these studies cannot directly address the question of whether a less prescriptive implementation standard could still provide for “effective and meaningful internal control audits.”

We choose to examine the effect of similar, yet less prescriptive, internal control reforms mandated by FDICIA during the early 1990s to investigate the relationship between earnings characteristics and increased internal control procedures. These internal control reforms from the banking industry serve as the cornerstone of the SOX reforms being implemented today. We identify two sets of control firms that were unaffected by

the FDICIA regulations, and using a difference-in-differences design approach, we examine the impact of internal control mandates on earnings persistence, earnings predictability, and the earnings response coefficient. This research design has many advantages, including the ability to control for macro-economic effects and regulatory changes, allowing us to isolate the impact of FDICIA regulations on changes in our chosen earnings quality characteristics. Our examination of FDICIA also allows us to directly examine whether a less prescriptive implementation standard could be effective.

Our study provides evidence consistent with FDICIA reforms leading to improvements in the characteristics associated with high quality earnings (persistence, predictability, earnings response coefficient). Additional analyses support our conjecture that these improvements are associated with operating and reporting enhancements related to the internal control reforms, and not as a result of increased earnings management activity in the post-FDICA period. Taken together, our results suggest that improvements in internal control monitoring and reporting do lead to improvements in the quality of reported earnings, and that users of financial information are the beneficiaries of higher quality financial statements. Additionally, the results of this study provide valuable information to regulators and practitioners who are currently debating the proper implementation methods for the enforcement of SOX Section 404 reforms, especially while making decisions regarding the appropriateness of principles-based versus rules-based standards for internal control reforms.

References

- Ashbaugh-Skaife, H., D. Collins, W. Kinney. 2005. "The Discovery and Consequences of Internal Control Deficiencies Prior to SOX-Mandated Audits." Working paper, University of Iowa.
- Ashbaugh-Skaife, H., D. Collins, R. LaFond, W. Kinney. 2006. "The Effect of Internal Control Deficiencies and Their Remediation on Accrual Quality." Working paper, University of Iowa.
- Beatty, A., B. Ke, K. Petroni. 2002. "Earnings Management to Avoid Earnings Declines across Publicly and Privately Held Banks." *The Accounting Review* 77: 547-570.
- Benston, G. and G. Kaufman. 1998. "Deposit insurance reform in the FDIC Improvement Act: The experience to date." *Economic Perspectives* 2-20.
- Birr, L. 2001. "Before and After the FDICIA: A look into Commercial Banking Risk Behavior." *The Park Place Economist*. Volume IX, pp. 83-90.
- Carnell, S. 1997. "Treasury defends FDICIA Bank Reform." *Journal of Accountancy*. 183:15.
- Cohen, D., A. Dey, T. Lys. 2005. "Trends in earnings management and the informativeness of earnings announcements in the pre- and post-Sarbanes Oxley periods." Working paper, Northwestern University.
- Compliance Week ICD database. <http://www.complianceweek.com/search/controls-procedures>.
- Cox, C. 2007. "Testimony Concerning Reporting on the Internal Controls of Small Businesses Under Section 404 of the Sarbanes-Oxley Act of 2002." Washington D.C. www.sec.gov
- Dechow, P. and Dichev, I., 2002. The quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review* 77 (Supplement): 35-59.
- Doyle, J., W. Ge, S. McVay. 2005. "Determinants of Weaknesses in Internal Control over Financial reporting and the Implications for Earnings Quality," Working paper, New York University.
- Feldman, A. 2005. "Surviving Sarbanes-Oxley" *Inc. Magazine*.
- Francis, J., LaFond, R., Olsson, P., Schipper, K., 2004. Costs of equity and earnings attributes. *The Accounting Review* 79, 967-1010.

- Hoskins, W.L. 1993. "FDICIA's regulatory changes and the future of the banking industry." *Assessing Bank Reform*. 148-154.
- Kanagaretnam, K., G. Lobo, and D. Yang. 2004. "Joint tests of signaling and income smoothing through bank loan loss provisions." *Contemporary Accounting Research* 21: 843-884.
- Kauffman, G. 1994. "FDICIA: the early evidence." *Challenge*. 37: 53-58.
- Khademian, A. E. 1996. "Checking on Banks: Autonomy and Accountability in Three Federal Agencies." Brookings Institution Press, Washington D.C.
- Li, H., M. Pincus, and S. Rego. 2005 . "Market Reaction to Events Surrounding the Sarbabe-Oxley Act of 2002 and Earnings Management." University of Iowa, Working paper.
- Moysich, A.1997. "The Savings and Loan Crisis and Its Relationship to Banking." *An Examination of the Banking Crises of the 1980s and Early 1990s* FDIC Publications, Washington D.C.
- Murphy, C.W. 2004. "Goodbye FDICIA, Hello Sarbox – Sort of." PricewaterhouseCoopers Publications.
- Murphy, C.W. 2004. "Effects of The PCAOB Internal Control Attestation Standard." PricewaterhouseCoopers Publications.
- Niemeier, C. 2006. "Remarks before the National Association of State Boards of Accountancy." Atlanta, GA. www.pcaobus.org
- Perry, S. 2005. "The Sarbanes-Oxley Act: Opportunities for E-Business" [The Business Forum Journal](#) .
- Peterson, M. 2006. "Estimating Standard Errors in Finance Panel Data Sets: Comparing Approaches." Working paper, Northwestern University.
- Pollack, A. 2005. "Economic Consequences of Sarbanes-Oxley" AEI (American Enterprise institute for Public Policy Research).
- Ryan, S.G., J. Tucker, P. Zarowin. 2006. "Classification and Market Pricing of the Cash Flows and Accruals on Trading Positions." *The Accounting Review* 81.
- Sprayregen, R. 2002. *Coso, FDICIA, and Oxley: A Common Theme*. Moss Adams Publications.
- Wahlen, J.M. 1994. "The nature of information in commercial bank loan loss disclosures." *The Accounting Review* 69 (3):455-78.

Wysocki, P. 2005. "Assessing Earnings Quality: U.S. and International Evidence."
Working paper, Massachusetts Institute of Technology.

Zhang, I. "Economic Consequences of the Sarbanes-Oxley Act of 2002." Working paper,
University of Minnesota.

Table 1

Descriptive statistics for a sample of 16,191 publicly-traded and privately-owned U.S. bank-years with available data from the Fed Form Y9-C Regulatory Filing database during 1986-2001 and for a sample of 4,401 bank-years with available data on the CRSP/COMPUSTAT databases during 1986-2001.

	Regulatory	COMPUSTAT
Variable	Mean (Std. Dev.)	Mean (Std. Dev.)
ROA _{t+1}	0.0163 (0.0067)	0.0131 (0.0091)
EBP _{t+1}	0.0127 (0.0087)	0.0172 (0.0070)
Post	0.5429 (0.4982)	0.7226 (0.4478)
500M	0.2849 (0.4514)	0.7156 (0.2412)
Post*500M	0.1774 (0.3820)	0.4548 (0.4980)
ROA _t	0.0125 (0.0085)	0.0130 (0.0090)
Post*ROA _t	0.0086 (0.0093)	0.0107 (0.0097)
500M*ROA _t	0.0039 (0.0077)	0.0095 (0.0093)
Post*500M*ROA _t	0.0030 (0.0070)	0.0073 (0.0092)
Size _t	5.918 (1.4516)	7.593 (1.8875)
Size*ROA _t	0.0767 (0.0580)	0.0982 (0.0702)
ADR		0.0482 (0.2142)
Post*ADR		0.0405 (0.1973)
ADR* ROA _t		0.0005 (0.0029)
ADR* Post*ROA _t		0.0004 (0.0027)

Variable Definitions:

- ROA_{t+n} – Income before Income Taxes divided by Assets;
EBP_{t+1} – Income before Income Taxes and before Loan Loss Provision divided by Assets;
Post – An indicator variable that equals one if ROA_t is measured in the post-regulation period (after 1992), zero otherwise;

- 500M – An indicator variable that equals one if the firm has Assets > than \$ 500 million (the FDICIA threshold) and zero otherwise;
- Size – The natural log of total assets at time t;
- ADR – An indicator variable that equals one if the firm is an international bank with ADRs in the U.S. market, zero otherwise;

Table 2

Panel A - Correlations of certain earnings quality measures for a sample of 16,191 publicly-traded and privately-owned U.S. bank-years with available data from the Fed Form Y9-C Regulatory Filing database during 1986-2001.

	ROA _{t+1}	ROA _t	EBP _{t+1}
ROA _{t+1}	1.00		
ROA _t	0.76	1.00	
EBP _{t+1}	0.86	0.73	1.00

Panel B - Correlations of certain earnings quality measures for a sample of 4,401 bank-years with available data on the CRSP/COMPUSTAT databases during 1986-2001.

	ROA _{t+1}	ROA _t	EBP _{t+1}	Ret _t	EARN _t
ROA _{t+1}	1.00				
ROA _t	0.72	1.00			
EBP _{t+1}	0.82	0.69	1.00		
RET _t	0.15	-0.04	0.09	1.00	
EARN _t	0.66	0.36	0.44	0.33	1.00

Variable Definitions:

- ROA_{t+n} – Income before Income Taxes divided by Assets;
 EBP_{t+1} – Income before Income Taxes and before Loan Loss Provision divided by Assets;
 RET_t – Calendar year stock return, calculated as (Price_t - Price_{t+1}) + Dividends/ Price_t;
 EARN_t – Net Income divided by Price_{t+1};

Table 3

Estimated coefficients (clustered t-statistics) from a cross-sectional regression analysis of earnings persistence for a sample of 16,191 publicly-traded and privately-owned U.S. bank-years with available data from the Fed Form Y9-C Regulatory Filing database during 1986-2001 and for a sample of 4,401 bank-years with available data on the CRSP/COMPUSTAT databases during 1986-2001.

$$ROA_{t+1} = \alpha + \beta_1 Post + \beta_2 500M + \beta_3 Post*500M + \beta_4 ROA_t + \beta_5 Post*ROA_t + \beta_6 500M*ROA_t + \beta_7 Post*500M*ROA_t + \beta_8 Size_t + \beta_9 Size*ROA_t + e$$

Variable	Predicted Sign	Regulatory	COMPUSTAT
		Coefficient (t-statistic)	Coefficient (t-statistic)
Intercept	+/-	-0.0014 (-0.92)	-0.0009 (-0.52)
Post	+/-	0.0009 (2.87)***	0.0043 (2.73)***
500M	+/-	-0.0007 (-1.41)	0.0013 (0.67)
Post*500M	+/-	0.0007 (1.33)	-0.0016 (-0.89)
ROA _t	+	0.9522 (8.66)***	0.9220 (8.34)***
Post*ROA _t	+/-	-0.0054 (-0.26)	-0.1887 (-2.11)***
500M*ROA _t	+/-	-0.0523 (-1.49)	-0.1692 (-1.42)
Post*500M*ROA _t	+	0.0724 (1.96)**	0.2467 (2.21)***
Size _t	+/-	0.0003 (2.56)***	0.0003 (1.26)
Size*ROA _t	+/-	-0.0156 (-1.70)*	-0.0147 (-1.03)
ADR	+/-		-0.0051 (-2.01)**
Post*ADR	+/-		0.0012 (0.044)
ADR* ROA _t	+/-		0.4034 (2.16)**
ADR* Post*ROA _t	-		-0.3292 (-1.67)**
Number of Observations		16,191	4,401
Adj R-squared		0.5889	0.5384

*, **, *** indicates significance at the 10%, 5% and 1% levels, respectively, based on a one- or two-tailed test, as appropriate.

Variable Definitions:

ROA_{t+n} – Income before Income Taxes divided by Assets;

- Post – An indicator variable that equals one if ROA_t is measured in the post-regulation period (after 1992), zero otherwise;
- 500M – An indicator variable that equals one if the firm has Assets > than \$ 500 million (the FDICIA threshold) and zero otherwise;
- Size – The natural log of Total Assets at time t;
- ADR – An indicator variable that equals one if the firm is an international bank with ADRs in the U.S. market, zero otherwise;

Table 4

Estimated coefficients (clustered t-statistics) from a cross-sectional regression analysis of predictability of earnings before the provision accrual for a sample of 16,191 publicly-traded and privately-owned U.S. bank-years with available data from the Fed Form Y9-C Regulatory Filing database during 1986-2001 and for a sample of 4,401 bank-years with available data on the CRSP/COMPUSTAT databases during 1986-2001.

$$EBP_{t+1} = \alpha + \beta_1 Post + \beta_2 500M + \beta_3 Post*500M + \beta_4 ROA_t + \beta_5 Post*ROA_t + \beta_6 500M*ROA_t + \beta_7 Post*500M*ROA_t + \beta_8 Size_t + \beta_9 Size_t*ROA_t + e$$

Variable	Predicted Sign	Regulatory Coefficient (t-statistic)	COMPUSTAT Coefficient (t-statistic)
Intercept	+/-	-0.0018 (-1.30)	0.0070 (3.83)***
Post	+/-	-0.0026 (-8.25)***	0.0001 (0.11)
500M	+/-	-0.0005 (-1.11)	0.0024 (1.94)**
Post*500M	+/-	-0.0013 (-2.12)**	-0.0029 (-2.28)**
ROA _t	+	0.7167 (7.48)***	0.6010 (5.52)***
Post*ROA _t	+/-	0.1539 (7.22)***	-0.0656 (-1.04)
500M*ROA _t	+/-	-0.0414 (-1.37)	-0.2609 (-2.96)***
Post*500M*ROA _t	+	0.1148 (2.97)***	0.3206 (3.97)***
Size _t	+/-	0.0009 (7.79)***	0.0003 (0.99)
Size*ROA _t	+/-	-0.0156 (-1.96)**	0.0044 (0.27)
ADR	+/-		-0.0025 (-0.91)
Post*ADR	+/-		0.0035 (1.09)
ADR* ROA _t	+/-		0.2860 (1.52)
ADR* Post*ROA _t	-		-0.3363 (-1.52)*
Number of Observations		16,191	4,401
Adj R-squared		0.5593	0.5024

*, **,*** indicates significance at the 10%, 5% and 1% levels, respectively, based on a one- or two-tailed test, as appropriate.

Variable Definitions:

EBP _{t+1}	– Income before Income Taxes and before Loan Loss Provision divided by Assets;
ROA _t	– Income before Income Taxes divided by Assets;
Post	– An indicator variable that equals one if ROA _t is measured in the post-regulation period (after 1992), zero otherwise;
500M	– An indicator variable that equals one if the firm has Assets > than \$ 500 million (the FDICIA threshold) and zero otherwise;
Size	– The Log of Total Assets at time t;
ADR	– An indicator variable that equals one if the firm is an international bank with ADRs in the U.S. market, zero otherwise;

Table 5

Estimated coefficients (clustered t-statistics) from a cross-sectional regression analysis of the response coefficient for a sample of 5,270 bank-years with available data on the CRSP/COMPUSTAT databases from the period 1986-2001.

$$RET_t = \alpha + \beta_1 Post + \beta_2 500M + \beta_3 Post*500M + \beta_4 EARN_t + \beta_5 Post*EARN_t + \beta_6 500M*EARN_t + \beta_7 Post*500M*EARN_t + \beta_8 ADR + \beta_9 ADR*EARN_t + \beta_{10} Post*ADR + \beta_{11} Post*ADR*EARN_t + \beta_{12} MVE_t + e$$

Variable	Predicted Sign	Coefficient (t-statistic)
Intercept	+/-	-0.0458 (-1.31)
Post	+/-	0.0210 (0.55)
500M	+/-	-0.0585 (-1.49)
Post*500M	+/-	-0.1833 (-3.11)***
EARN _t	+	0.8300 (6.09)***
Post*EARN _t	+/-	-0.3726 (-1.48)
500M*EARN _t	+/-	-0.7254 (-4.52)***
Post*500M*EARN _t	+	2.6771 (4.33)***
ADR	+/-	-0.0482 (-0.88)
ADR*EARN _t	+/-	-1.1843 (-3.38)***
Post*ADR	+/-	0.1261 (1.67)*
Post*ADR*EARN _t	+/-	-1.2867 (-1.70) *
MVE _t	+/-	0.0139 (3.41)***
Mve*earn		0.1784 (4.55)
Number of Observations		5,270
Adj R-squared		0.1758

*, **,*** indicates significance at the 10%, 5% and 1% levels, respectively, based on a one- or two-tailed test, as appropriate.

Variable Definitions:

RET_t – Calendar year stock return, calculated as (Price_t - Price_{t+1}) + Dividends/ Price_t;
 EARN_t – Net Income divided by Price_{t-1};

- Post – An indicator variable that equals one if $EARN_t$ is measured in the post-regulation period (1992), zero otherwise;
- 500M – An indicator variable that equals one if the firm has Assets > than \$ 500 million (the FDICIA threshold) and zero otherwise;
- ADR – An indicator variable that equals one if the firm is an international bank with ADRs in the U.S. market, zero otherwise;
- MVE – The log of the market value of equity at time t ;

Table 6

Estimated coefficients (clustered t-statistics) from a cross-sectional regression analysis of relationship between loan charge-off activity and the prior-period loan loss provision for a sample of 16,191 publicly-traded and privately-owned U.S. bank-years with available data from the Fed Form Y9-C Regulatory Filing database during 1986-2001 and for a sample of 4,401 bank-years with available data on the CRSP/COMPUSTAT databases during 1986-2001.

$$\text{CHGOFF}_{t+1} = \alpha + \beta_1 \text{Post} + \beta_2 500\text{M} + \beta_3 \text{Post} * 500\text{M} + \beta_4 \text{LLP}_t + \beta_5 \text{Post} * \text{LLP}_t + \beta_6 500\text{M} * \text{LLP}_t + \beta_7 \text{Post} * 500\text{M} * \text{LLP}_t + \beta_8 \text{Size}_t + e$$

		Regulatory	COMPUSTAT
Variable	Predicted Sign	Coefficient (t-statistic)	Coefficient (t-statistic)
Intercept	+/-	-0.0034 (-4.67)***	-0.0016 (-2.21)**
Post	+/-	-0.0009 (-7.79)***	-0.0003 (-0.48)
500M	+/-	-0.0007 (-3.09)***	-0.0002 (-0.24)
Post*500M	+/-	-0.0002 (-0.87)	-0.0006 (-1.01)
LLP _t	+	0.9704 (6.35)***	1.0021 (7.99)***
Post*LLP _t	+/-	0.0124 (0.24)	-0.3377 (-4.29)***
500M*LLP _t	+/-	0.0853 (1.63)	-0.1199 (-1.29)***
Post*500M*LLP _t	+	0.1406 (1.74)**	0.3498 (3.36)***
Size _t	+/-	0.0004 (6.45)***	0.0004 (5.84)***
Size*LLP _t	+/-	-1.3554 (-1.07)	-0.0291 (-1.63)
ADR	+/-		-0.0026 (-3.93)**
Post*ADR	+/-		0.0026 (2.65)**
ADR*LLP _t	+/-		0.1182 (1.39)
ADR*Post*LLP _t	-		-0.3139 (-1.89)**
Number of Observations		16,191	4,401
Adj R-squared		0.5628	0.5727

*, **, *** indicates significance at the 10%, 5% and 1% levels, respectively, based on a one- or two-tailed test, as appropriate.

Variable Definitions:

CHGOFF	– Actual loans written off by the bank during period t , scaled by assets at the beginning of the period;
LLP _{t}	– Provision for loan losses at period t , scaled by assets at the beginning of the period;
Post	– An indicator variable that equals one if ROA _{t} is measured in the post-regulation period (after 1992), zero otherwise;
500M	– An indicator variable that equals one if the firm has Assets > than \$ 500 million (the FDICIA threshold) and zero otherwise;
Size	– The Log of Total Assets at time t ;
ADR	– An indicator variable that equals one if the firm is an international bank with ADRs in the U.S. market, zero otherwise;

Table 7

Estimated coefficients (chi-squared statistics) from a logistic regression examining the propensity to report small positive earnings changes in the pre- and post-FDICIA periods for a sample of 16,191 publicly-traded and privately-owned U.S. bank-years with available data from the Fed Form Y9-C Regulatory Filing database during 1986-2001 and for a sample of 4,401 bank-years with available data on the CRSP/COMPUSTAT databases during 1986-2001.

$$\text{Small_Pos}\Delta_t = \alpha + \beta_1\text{Post} + \beta_2500\text{M} + \beta_3\text{Post}*500\text{M} + \beta_4\text{Size}_{t-1} + \beta_5\text{Public}_t + \beta_6\text{Growth}_t + \beta_7\text{Loans}_t + \beta_8\text{NPLoans}_t + \beta_9\text{Leverage}_{t-1} + \beta_{10}\Delta_CashFlow_t + e$$

Variable	Predicted Sign	Regulatory Coefficient (t-statistic)	COMPUSTAT Coefficient (t-statistic)
Intercept	+/-	-1.4847 (-11.61)***	-1.2591 (-2.84)*
Post	+/-	0.1739 (7.73)***	1.4231 (5.49)***
500M	+/-	0.0592 (0.24)	1.4756 (5.79)***
Post*500M	+/-	-0.2891 (-6.86)***	-1.3804 (-5.05)**
Size _{t-1}	+	0.0199 (0.44)	0.0317 (0.79)
Public _t	+	0.1074 (4.35)***	N/A
Growth _t	+/-	-0.8404 (-17.48)***	-1.1356 (-16.29)***
Loans _t	+	0.6519 (10.97)***	N/A
NPLoans _t	+/-	-51.6894 (-148.72)***	N/A
Leverage _{t-1}	+/-	2.4841 (7.16)***	5.1982 (7.3520)***
$\Delta_CashFlow_t$	+/-	-71.7919 (-147.21)***	-71.0400 (-75.97)***
ADR	+/-		-0.4893 (-0.61)
Post*ADR	+/-		1.0178 (2.42)
LLP _t	+/-		-86.2411 (-74.97)***
Number of Observations		16,191	4,401

*, **,*** indicates significance at the 10%, 5% and 1% levels, respectively, based on a one- or two-tailed test, as appropriate.

Variable Definitions:

Small_Pos _t	– An indicator variable taking the value one if the bank has an ROA in the interval between 0 and 0.0008, zero otherwise;
Post	– An indicator variable that equals one if ROA _t is measured in the post-regulation period (after 1992), zero otherwise;
500M	– An indicator variable that equals one if the firm has Assets > than \$ 500 million (the FDICIA threshold) and zero otherwise;
Size	– The Log of Total Assets at time t;
Public	– An indicator variable taking the value one if the firm is publicly traded, zero otherwise;
Growth	– the ratio of book value to market value at time t;
Loans	– Total loan portfolio for the bank, scaled by beginning period total assets;
NPLoans	– Portfolio of non-performing loans, scaled by total loans at beginning of the period;
Leverage	– Total liabilities divided by total assets;
Δ_CashFlow	– First difference in cash flows, divided by total assets at the end of the period. Cash flows are defined as net income plus the loan loss provision and non-interest expenses;
ADR	– An indicator variable that equals one if the firm is an international bank with ADRs in the U.S. market, zero otherwise;
LLP	– Provision for loan losses, scaled by total assets at beginning of the period;

Table 8

Estimated coefficients (clustered t-statistics) from a cross-sectional regression analysis of earnings persistence and earnings predictability, controlling for sensitivity to size measures, for a sample of 16,191 publicly-traded and privately-owned U.S. bank-years with available data from the Fed Form Y9-C Regulatory Filing database during 1986-2001.

$$\text{Dep Var} = \alpha + \beta_1\text{Post} + \beta_2\text{500M} + \beta_3\text{Post*500M} + \beta_4\text{ROA}_t + \beta_5\text{Post*ROA}_t + \beta_6\text{500M*ROA}_t + \beta_7\text{Post*500M*ROA}_t + \beta_8\text{Size}_t + \beta_9\text{Size*ROA}_t + \beta_{10}\text{Small} + \beta_{11}\text{Post*Small} + \beta_{12}\text{Small*ROA}_t + \beta_{13}\text{Small*Post*ROA}_t + e$$

		Persistence Dep Var = ROA _{t+1}	Predictability Dep Var = EBP _{t+1}
Variable	Predicted Sign	Coefficient (t-statistic)	Coefficient (t-statistic)
Intercept	+/-	-0.0022 (-1.19)	-0.0043 (-2.44)**
Post	+/-	0.0011 (2.57)**	-0.0025 (-5.87)***
500M	+/-	-0.0006 (-1.28)	-0.004 (-0.91)
Post*500M	+/-	0.0005 (0.84)	-0.0013 (-1.94)**
ROA _t	+	0.9616 (7.36)***	0.8191 (7.08)***
Post*ROA _t	+/-	-0.0160 (-0.52)	0.1401 (4.63)***
500M*ROA _t	+/-	-0.0534 (-1.45)	-0.0517 (-1.65)*
Post*500M*ROA _t	+	0.0812 (1.85)***	0.1252 (2.77)***
Size _t	+/-	0.0004 (2.63)***	0.0011 (7.88)***
Size*ROA _t	+/-	-0.0161 (-2.57)***	-0.0217 (-2.44)**
Small	+/-	0.0003 (0.79)	0.0008 (2.50)**
Post*Small	+/-	-0.0004 (-0.67)	0.0002 (0.37)
Small* ROA _t	+/-	-0.0021 (-0.07)	-0.0406 (-1.49)
Small* Post*ROA _t	+/-	0.0211 (0.52)	0.0094 (0.23)
Number of Observations		16,191	16,191
Adj R-squared		0.5890	0.5602

*, **,*** indicates significance at the 10%, 5% and 1% levels, respectively, based on a one- or two-tailed test, as appropriate.

Variable Definitions:

ROA _{t+n}	– Income before Income Taxes divided by Assets;
Post	– An indicator variable that equals one if ROA _t is measured in the post-regulation period (after 1992), zero otherwise;
500M	– An indicator variable that equals one if the firm has Assets > than \$ 500 million (the FDICIA threshold) and zero otherwise;
Size	– The natural log of Total Assets at time t;
Small	– An indicator variable that equals one if the firm has Total Assets of less than 250 million at time t, zero otherwise;

Figure 1 – Panel A

Dow Jones Industrial Average 1983-2005

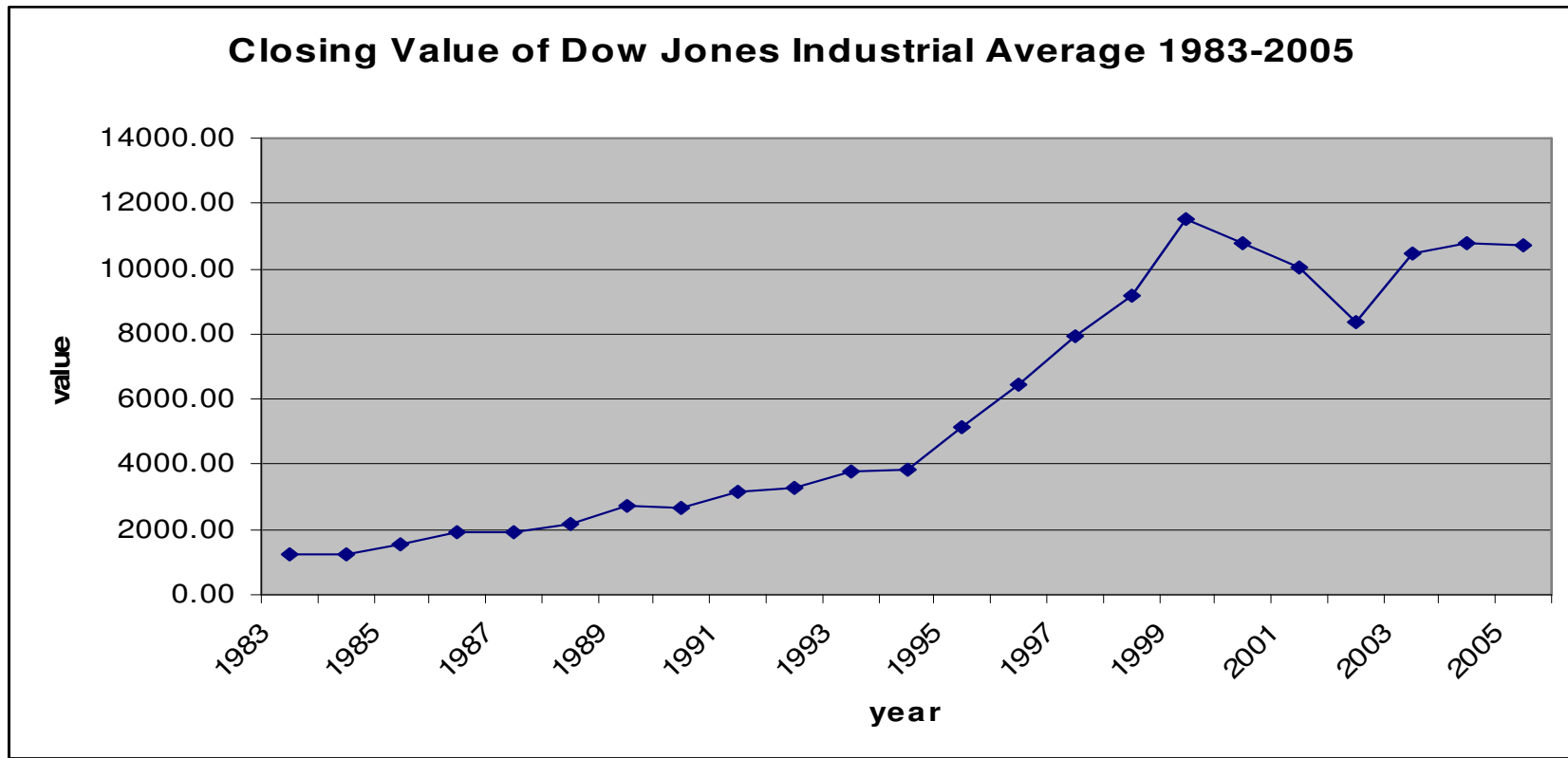


Figure 1 – Panel B
Nasdaq Banking Index 1970-2005

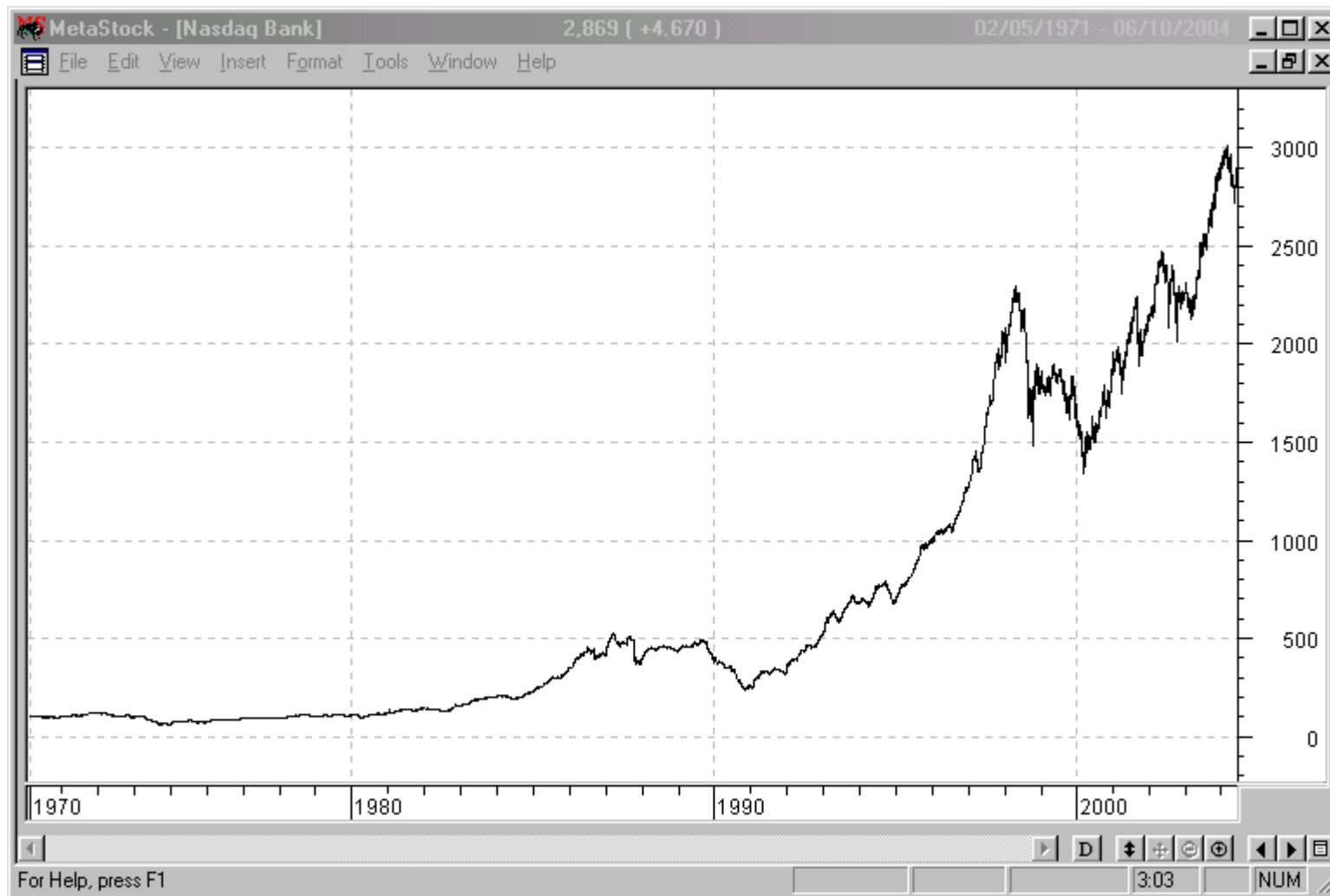


Figure 1 – Panel C
United States Banking Industry Index (All Exchanges) 1930-2005



Figure 2 – Ratio of other expenses to assets for effected (>\$500M) and unaffected (<\$500M) banks

