

The Relationship between an Independent Audit, Restatements, and Financial Reporting Quality: Evidence from Small Private Commercial Banks

David Y. Chan, The Peter J. Tobin College of Business, St. John's University, New York

chand@stjohns.edu

Alexander Kogan, Rutgers, The State University of New Jersey, Newark, New Jersey

kogan@rutgers.edu

Executive Summary

The objective of this study is to examine the relationship between an independent audit and financial reporting quality in the small private commercial bank setting. We hypothesize that the procurement of an independent audit should improve financial reporting quality.

For financial reporting quality, the likelihood of restatements and the magnitude of restatements are used as proxies. We find audited banks had a higher likelihood of having a restatement, but these restatements were of lower magnitude when compared with unaudited banks.

Furthermore, operational complexity, organizational hierarchy, financial leverage, and profitability contribute to the likelihood and magnitude of restatements. These results provide evidence that an independent audit may not increase financial reporting quality in relations to restatements.

I. Introduction

Commercial banks are an integral part of our economy. They provide an essential public financial intermediary service between

borrowers and depositors. Evident by the recent financial crisis, the failure of banks can be catastrophically damaging to economic production. Therefore, it is in the interest of the public to have these institutions carefully monitored.

The FDIC is mandated by the government to independently maintain stability and public confidence in the banking system. The FDIC uses Call Report filings and supervisory examinations as a means to monitor banks. Call Reports are similar to the financial statement filings by public companies with the Securities and Exchange Commission (SEC).

For the FDIC to effectively supervise and examine banks, timely and accurate financial reporting is essential. Material misstatements or misleading information on the Call Reports undermined the ability of Regulators to effectively monitor and supervise banks.

According to (Lindo 2007), the most common causes of material misstatements at banking organizations were relating to the misapplication of accounting principles and calculation errors.

Although not all banks are required to have an independent audit, an audit should have a significant role in reducing material misstatements and the misapplication of accounting principles.

In this study, we analyze whether an independent audit is associated with financial reporting quality. Restatements are used as a proxy for material accuracy in financial reporting. A restatement is required when a material misstatement is discovered subsequently on issued financial statements.

The FDIC is mandated by the government to independently maintain stability and public confidence in the banking system.

Intuition and anecdotal evidence would suggest that consistently audited banks should have fewer restatements due to the fact that an independent expert third party has performed periodic transaction and internal controls testing, and reviewed accounting choices made by management.

Although the Call Report filings are not specifically audited by independent auditors, we make the assumption that a bank that is consistently audited should have higher quality financial reporting information than a bank that is consistently unaudited. However, we find that audited banks have a higher propensity to have restatements compared with peer unaudited banks.

However, on a more positive note, we do find that the restatements of audited banks are of lower magnitude than unaudited banks. We also find operational complexity, organizational hierarchy, financial leverage, and profitability contribute to the likelihood and magnitude of restatements.

The remainder of the paper is organized as follows. In the next section, we discuss the

literature and develop our hypotheses. In Section III, we describe our sample and report descriptive statistics. Section IV presents our research design and empirical models. Section V discusses our main results and findings and Section VI discusses our robustness tests. Section VII elaborates on limitations, concludes the paper, and provides potential future research opportunities and directions.

II. Literature Review and Hypotheses Development

Researchers and regulators have recognized that restatements by public companies are on the rise (Analytics 2007; Plumlee and Yohn 2009; Scholz 2008; Taub 2006; Turner and Weirich 2006). (Plumlee and Yohn 2009) find that during the period of 2003 to 2006, the primary cause of restatements was due to internal company errors and not the complexity of accounting standards.

In the context of banks, (Lindo 2007) finds that the most common causes of restatements at public banking organizations were relating to the misapplication of accounting principles and calculation errors.

The findings of (Plumlee and Yohn 2009) and (Lindo 2007) raise questions about the quality of audits being performed and the relationship between an independent audit and financial reporting quality.

A restatement on audited financial statements is considered a symptom of the auditor's performance of a low quality audit. In other words, a restatement on issued audited financial statements implicates the auditor's failure to discover material misstatements during the audit.

However, it is important to note that the inverse relationship does not hold true. If the audited financial statements are not restated, this does not indicate that a quality audit was performed.

The company being audited could plausibly have had excellent controls over financial reporting irrespective of a low quality audit or that a material misstatement exists but was not discovered subsequently.

A restatement can also be argued to be a negative joint reflection on the effectiveness of financial reporting controls maintained by management and the effectiveness of the audits performed by external auditors.

As part of the Sarbanes Oxley Act of 2002 (SOX), management and their independent auditors of public companies are required to assess the adequacy of the internal controls over financial reporting¹.

Although a joint responsibility exists, ultimately an independent audit is supposed to serve as a compensating control to mitigate the ineffectiveness of management's internal controls over financial reporting and thus to prevent the flow of material inaccuracies into financial statements. Moreover, the auditors have a responsibility to perform an audit with professional due care.

A quality audit was not performed if it failed to detect and correct material misstatements during the audit (DeAngelo 1981). (Turner and Sennetti 2001) find that the probability of a restatement is decreased when a quality audit is performed.

Hence, a company that is consistently audited should have a higher probability that their financial results are more reliable than an unaudited company's financial information.

Furthermore, under similar arguments, the magnitude of those misstatements on audited financial statements is expected to be lower than unaudited financial statements.

The discussions presented above can be summarized into the following hypotheses:

H1: An independent audit decreases the likelihood of having restatements.

H2: An independent audit decreases the magnitudes of restatements.

III. Sample and Descriptive Statistics

The Report of Condition and Income (Call Reports) data is used in this study. U.S. commercial banks are required to submit a Call Report to the FDIC on a quarterly basis. The Call Reports are used by regulators to monitor the performance and stability of banks. In our study, we use the fourth quarter Call Report data (annualized)².

An advantage of analyzing small private commercial banks utilizing Call Report data is that small private commercial banks with less than \$500 million in total assets are exempt from the mandate of having an annual independent audit^{3,4}.

¹ Sarbanes Oxley Act of 2002 – Section 404 (Assessment of Internal Controls).

² FFIEC 031 and 041

³ FDI Act 12 C.F.R. Part 363

⁴ 3 Exceptions:

- 1) Thrifts, regardless of size, with a composite safety and soundness CAMELS rating of 3,4,5;
- 2) Holding companies which control insured financial institution subsidiary(ies) with aggregate consolidated assets of \$500 million or more;
- 3) Any other entity for which the OTS determines an audit is required for safety and soundness reasons; (OTS Audit Rule 12 CFR 562.4) and
- 4) Small banks part of a public holding company.

We only use banks with under \$500 million in total assets for all 10 years under study. The data used ranges from 2001 to 2012 (12 Years) and includes only private U.S. commercial banks⁵.

A restatement is required when a material misstatement is discovered subsequently on issued financial statements.

The largest bank during the period under study has approximately \$499,928,000 in total assets, and hence all the banks in this study are exempted by regulation from having an independent audit.

We construct the three main variables in the study;

- 1) Audit Indicator,
- 2) Restatement, and
- 3) Magnitude of the Restatement.

The audit indicator variable provided by the Call Reports consists of eight categories representing the highest level of accounting or auditing service obtained⁶. We construct our binary independent audit variable using the first two categories.

A commercial bank is categorized as audited if the commercial bank (Category 1) or its parent bank holding company (Category 2) had an independent audit.

We also construct the restatement variables from the Call Report. The FDIC defines a restatement as corrections resulting from;

- (1) mathematical mistakes,

- (2) mistakes in applying accounting principles,
- (3) improper use of information which existed when the prior Reports of Condition and Income were prepared, and
- (4) a change from an accounting principle that is neither accepted nor sanctioned by bank supervisors to one that is acceptable to supervisors.

We transform the continuous numeric restatement variable into two constructed variables; the occurrence of a restatement (dummy variable), and the magnitude of a restatement (absolute value of restatement variable).

There are 3,342 unique commercial banks in the dataset and 1,899 of them are audited. Therefore, approximately 57% of the banks decided to have an audit, absent regulatory requirements.

All banks were active and their decision to have an audit or to not have an audit was persistent for all 12 years.

The purpose of using persistent banks is because the Call Reports are not directly audited, but the financial information used to generate those Call Reports is audited.

Hence, we make the assumption that a bank that consistently obtains an independent audit should have higher quality financial information than a consistently unaudited bank.

⁵The years 2001 and 2010 were removed in analysis because of need for lagging and leading of variables for certain calculations and variable transformations.

⁶FFIEC 031 and 041

Exhibit 1 provides summary statistics and **Exhibit 2** provides Pearson's correlation coefficients for all the variables used in this

study. All the variables used in this study were standardized during analysis to provide comparable and interpretable coefficients.

Exhibit 1 – Summary Statistics

Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
LTA	26,736	11.4707	0.8487	306,680	7.6765	13.1222
OFF	26,736	3.7011	2.8298	98,952	0.0000	24.0000
NIITI	26,736	0.1134	0.0888	3,032	-2.3032	0.9998
OBTA	26,300	0.2318	7.0154	6,095	0.0000	473.2612
MU	26,736	0.0404	0.1969	1,080	0.0000	1.0000
BHC	26,736	0.1385	0.3455	3,704	0.0000	1.0000
GR	26,736	0.0600	0.2135	1,605	-0.8012	27.8154
LTC	26,736	6.3033	3.4142	168,525	0.0000	391.4762
ROAA	26,736	0.0097	0.0161	260	-0.5299	0.7178
AI	26,736	0.5682	0.4953	15,192	0.0000	1.0000
RS	26,736	0.0633	0.2434	1,691	0.0000	1.0000
RSABS	26,736	10.0354	129.2731	268,306	0.0000	9,630.0000

Variable Definitions:

- LTA = Log of total assets;
- OFF = Number of offices, branches, locations, and facilities;
- NIITI = Non-interest income divided by total interest and non-interest income;
- OBTA = Off-balance sheet activities divided by total assets;
- MU = Mutual or stockholder bank (Dummy Variable - 1 if a mutual bank and 0 stock bank);
- BHC = Parent is a bank holding company (Dummy Variable - 1 if the bank's parent is a bank holding company and 0 otherwise);
- GR = Change in total assets divided by beginning total assets;
- LTC = Total loans divided by total equity capital;
- ROAA = Net income (Loss) divided by total average assets (assets at the end of the previous year plus assets at the end of the current year divided by 2);
- AI = Audit indicator (Dummy Variable - 1 if the bank is independently audited and 0 otherwise);
- RS = Restatement occurrence next period (Dummy Variable - 1 if the bank restated and 0 otherwise);
- RSABS = Absolute value of restatement for next period;

Exhibit 1 – Pearson Correlation

	LTA	OFF	NIITI	OBTA	MU	BHC	GR	LTC	ROAA	AI	RS	RSABS	
LTA	1.0000	0.6340	0.0126	-0.0723	0.0708	0.0109	0.0521	0.2147	-0.0432	0.4514	0.0297	0.0544	
		<.0001	0.0397	<.0001	<.0001	0.0737	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	
OFF	0.6340	1.0000	0.1302	-0.0222	-0.0326	-0.0204	0.0300	0.1744	-0.0360	0.3137	0.0313	0.0307	
		<.0001	<.0001	0.0003	<.0001	0.0009	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	
NIITI	0.0126	0.1302	1.0000	0.2402	-0.0943	0.0553	0.0069	-0.0628	0.2933	0.1251	0.0094	0.0028	
		0.0397	<.0001		<.0001	<.0001	<.0001	0.2624	<.0001	<.0001	<.0001	0.1248	0.6423
OBTA	-0.0723	-0.0222	0.2402	1.0000	-0.0052	-0.0101	0.0041	-0.0441	0.4561	0.0239	-0.0063	-0.0017	
		<.0001	0.0003	<.0001		0.3977	0.1009	0.5055	<.0001	<.0001	0.0001	0.3085	0.7856
MU	0.0708	-0.0326	-0.0943	-0.0052	1.0000	-0.0823	-0.0216	-0.0271	-0.0674	0.1758	0.0372	0.0354	
		<.0001	<.0001	<.0001		0.3977	<.0001	0.0004	<.0001	<.0001	<.0001	<.0001	<.0001
BHC	0.0109	-0.0204	0.0553	-0.0101	-0.0823	1.0000	-0.0026	0.0121	0.0432	0.0383	-0.0250	0.0098	
		0.0737	0.0009	<.0001	0.1009	<.0001		0.6664	0.0481	<.0001	<.0001	<.0001	0.1086
GR	0.0521	0.0300	0.0069	0.0041	-0.0216	-0.0026	1.0000	0.0390	0.0071	0.0222	0.0022	-0.0073	
		<.0001	<.0001	0.2624	0.5055	0.0004	0.6664		<.0001	0.2462	0.0003	0.7248	0.2306
LTR	0.2147	0.1744	-0.0628	-0.0441	-0.0271	0.0121	0.0390	1.0000	-0.1153	0.0716	-0.0037	0.0056	
		<.0001	<.0001	<.0001	<.0001	0.0481	<.0001		<.0001	<.0001	0.5471	0.3574	
ROAA	-0.0432	-0.0360	0.2933	0.4561	-0.0674	0.0432	0.0071	-0.1153	1.0000	-0.0428	-0.0263	-0.0196	
		<.0001	<.0001	<.0001	<.0001	<.0001	0.2462	<.0001		<.0001	<.0001	0.0014	
AI	0.4514	0.3137	0.1251	0.0239	0.1758	0.0383	0.0222	0.0716	-0.0428	1.0000	0.0429	0.0321	
		<.0001	<.0001	<.0001	0.0001	<.0001	<.0001	0.0003	<.0001	<.0001	<.0001	<.0001	
RS	0.0297	0.0313	0.0094	-0.0063	0.0372	-0.0250	0.0022	-0.0037	-0.0263	0.0429	1.0000	0.2988	
		<.0001	<.0001	0.1248	0.3085	<.0001	<.0001	0.7248	0.5471	<.0001	<.0001	<.0001	
RSABS	0.0544	0.0307	0.0028	-0.0017	0.0354	0.0098	-0.0073	0.0056	-0.0196	0.0321	0.2988	1.0000	
		<.0001	<.0001	0.6423	0.7856	<.0001	0.1086	0.2306	0.3574	0.0014	<.0001	<.0001	

Variable Definitions:

LTA	=	Log of total assets;
OFF	=	Number of offices, branches, locations, and facilities;
NIITI	=	Non-interest income divided by total interest and non-interest income;
OBTA	=	Off-balance sheet activities divided by total assets;
MU	=	Mutual or stockholder bank (Dummy Variable - 1 if a mutual bank and 0 a stock bank);
BHC	=	Parent is a bank holding company (Dummy Variable - 1 if the bank's parent is a bank holding company and 0 otherwise);
GR	=	Change in total assets divided by beginning total assets;
LTC	=	Total loans divided by total equity capital;
ROAA	=	Net income (Loss) divided by total average assets (assets at the end of the previous year plus assets at the end of the current year divided by 2);
AI	=	Audit indicator (Dummy Variable - 1 if the bank is independently audited and 0 otherwise);
RS	=	Restatement occurrence next period (Dummy Variable - 1 if the bank restated and 0 otherwise);
RSABS	=	Absolute value of restatement for next period;

IV. Research Design and Empirical Models

Material Accuracy and Restatements

We use Probit (**Model 1**) and Gamma Regression (**Model 2**) to model the relationship between procuring an independent audit with the likelihood of having a restatement and the magnitude of those restatements, respectively.

A Probit model is used because the restatement dependent variable is a dummy variable (binary) (Imai et al. 2007b) and a Gamma Model is used because the dependent variable, magnitude of restatement, is positive (Imai et al. 2007a).

... we find that audited banks have a higher propensity to have restatements compared with peer unaudited banks. [But] we do find that the restatements of audited banks are of lower magnitude than unaudited banks.

Common accounting and banking related control variables that may increase or decrease the likelihood of a restatement are used in the model. The log of total assets (LTA) is used to control for the bank's size effect on the likelihood of having a restatement.

We expect that larger banks have better internal controls and management with greater financial expertise than smaller banks.

The number of offices (OFF) (Kohlbeck 2005), non-interest income over total income (NIITI) (Kohlbeck 2005), and off balance sheet activity

(OBTA)⁷ are used as proxies for the complexity of banking operations. The complexity of banking operations may increase the likelihood of having a restatement.

A greater number of branches and offices can impose greater complexity in operations and accounting. Likewise, since commercial banks traditionally earn their income through interest products and services, banks involved in non-interest activities such as issuing insurance and brokering securities can introduce more complex accounting issues and lead to a higher likelihood of misstatements.

Additionally, off balance sheet activities can be more difficult to account for and classify and thus may increase the likelihood of restatements.

We use the variables MU and BHC as proxies for ownership and hierarchical structure type, respectively. *MU indicates whether the bank is owned by its depositors (Mutual Bank) or stockholders (Stockholder Bank).*

Ownership and hierarchical type may influence corporate governance over financial reporting and hence affect the likelihood of a restatement.

We assume that most depositors have very little interest in managing the day to day activities of a bank or even the performance of the banks since their deposits are federally insured. Hence, depositors will not have a demand for quality financial reporting.

However, since we are studying small private commercial banks, there is a higher likelihood that the owners of stockholder banks are

⁷ "Off-balance sheet activities encompass a variety of items including certain loan commitments, certain letters of credit, and revolving underwriting facilities. Additionally, swaps, futures, forwards, and option contracts are derivative instruments whose notional values are off-balance sheet, but whose fair values are recorded on the balance sheet." <https://www.fdic.gov/regulations/safety/manual/section3-8.pdf>

engaged in the day to day activities of the bank. Hence, owners of stockholder banks may have a greater interest in higher quality financial information for measuring the performance of the bank.

The BHC variable indicates whether the commercial bank is part of a bank holding company. Unlike stockholder banks, management of the bank holding company is likely removed from the day to day activities of the commercial bank.

...there is a higher likelihood that the owners of stockholder banks are engaged in the day to day activities of the bank. Hence, [they] may have a greater interest in higher quality financial information for measuring the performance of the bank.

Hence, the bank holding company may have even greater demands than owners at stockholder banks to receive higher quality financial information from its subsidiaries for monitoring purposes.

Growth, profitability, and/or capital deficiency of a bank may also affect its financial reporting

quality. We measure the bank's growth rate using change in total assets (GR), profitability using the return on average assets (ROAA), and the level of capital adequacy using total loans over total equity capital (LTC).

The bank's performance can affect accounting in two contrasting ways. First, a bank's accounting system may be incapable of handling excessive profitability and growth and thus hinder financial reporting quality.

Second, an unprofitable bank or an undercapitalized bank may not be motivated or have the incentive to have accurate financial reporting information. Furthermore, a bank that is less capitalized or highly leveraged can be subjected to regulatory closure.

...an unprofitable bank or an undercapitalized bank may not be motivated or have the incentive to have accurate financial reporting information.

Finally, Audit Indicator (AI) is used in the model to indicate those banks that were audited. An independent audit should reduce the propensity to have a restatement and the magnitude of those restatements.

Restatement Baseline Models

The discussions presented above can be summarized into the following empirical models:

Model 1 – Likelihood of Restatements

$$RS_{it+1} = PROBIT (\alpha + \beta_1 LTA_{it} + \beta_2 OFF_{it} + \beta_3 NIITI_{it} + \beta_4 OBTA_{it} + \beta_5 MU_{it} + \beta_6 BHC_{it} + \beta_7 GR_{it} + \beta_8 LTC_{it} + \beta_9 ROAA_{it} + \beta_{10} AI_{it} + \varepsilon_{it})$$

Model 2 – Magnitude of Restatements

$$RSABS_{it+1} = \text{GAMMA} (\alpha + \beta_1 LTA_{it} + \beta_2 OFF_{it} + \beta_3 NIITI_{it} + \beta_4 OBTA_{it} + \beta_5 MU_{it} + \beta_6 BHC_{it} + \beta_7 AI_{it} + \varepsilon_{it})$$

where,

i	=	Commercial bank identifier;
t	=	Year (2001 to 2012);
RS	=	Restatement occurrence for next period (Dummy Variable - 1 if the bank restated and 0 otherwise);
RSABS	=	Absolute value of restatement for next period;
LTA	=	Log of total assets;
OFF	=	Number of offices, branches, locations, and facilities;
NIITI	=	Non-interest income divided by total interest and non-interest income;
OBTA	=	Off-balance sheet activities divided by total assets;
MU	=	Mutual or stockholder bank (Dummy Variable - 1 if a mutual bank and 0 if a stock bank);
BHC	=	Parent is a bank holding company (Dummy Variable - 1 if the bank's parent is a bank holding company and 0 otherwise);
GR	=	Change in total assets divided by beginning total assets;
LTC	=	Total loans divided by total equity capital;
ROAA	=	Net income (Loss) divided by total average assets (assets at the end of the previous year plus assets at the end of the current year divided by 2);
AI	=	Audit indicator (Dummy Variable - 1 if the bank is independently audited and 0 otherwise); and
ε	=	Error term (Residual).

Restatements – Endogeneity/Selection Bias

The decision to have an independent audit may be endogenous at small private commercial banks. Hence, we may also have an endogeneity issue when analyzing the independent audit effect on the likelihood of a restatement (**Model 1**).

The decision to have an independent audit or not to have an audit is voluntarily made by the banks under study. Certain characteristics of a company may make management more likely to have an audit. These characteristics in turn may also affect the likelihood of a restatement.

In order to control for these potential endogeneity issues, we use the Bi-variate Probit Regression (Greene 2003; Poirier 1980)

to simultaneously model the decision to have (**Model 3**) and the occurrence of a restatement (**Model 1**).

Bi-variate Probit Regression is used instead of Two Stage Least Squares because **Model 3** and **Model 1** have dependent variables that are both binary. In Two Stage Least Squares, the dependent variables in both models have to be continuous.

Model 3 we use characteristics noted by the literature that may increase the likelihood that a company may have an independent audit⁸. The literature cites size, hierarchical and ownership structure, growth, complex operations, and profitability as key characteristics that may influence a company's decision to have a voluntary audit.

⁸(Kohlbeck 2005) also models the decision to procure an audit at banks. However, we decided to use our model because the variables used are noted in the literature as potential reasons to procure an independent audit. Nevertheless, we tested their model and the final results were materially similar.

As a company grows in size it becomes more difficult for owners and managers to be observant of all facets of operations. Hence, (Tauringana and Clarke 2000; Chow 1982; Abdel-Khalik 1993) find that as the company size increases, the likelihood of procuring an audit increases. The log of total assets is used to proxy for size (LTA).

The hierarchical structure of a company (Abdel-Khalik 1993) and managerial ownership (Tauringana and Clarke 2000) can also influence the decision to have an independent audit.

Hierarchical structure is represented by whether the commercial bank is part of a bank holding company (BHC), and managerial ownership is represented by whether the bank is owned by depositors or stockholders (MU).

An independent audit should reduce the propensity to have a restatement and the magnitude of those restatements.

As a company grows it may need to seek out financial experts because of the lack of in house financial expertise (Aier et al. 2005). We use change in total assets to proxy for growth (GR).

Furthermore, the complexity of a company's operations can also affect the decision to have an audit (Kohlbeck 2005).

External auditors can provide expertise to guide the accounting for complex operations because they generally have industry specific expertise and the experience of auditing peer companies.

Non-interest income over total income (NIITI) (Kohlbeck 2005) and off balance sheet activity (OBTA) are used as proxies for the complexity of banking operations.

Banks are traditionally in the business of making interest income, and the accounting complexity for non-interest earning activities may be more challenging. Furthermore, off balance sheet activity can be complicated to account for and may warrant the decision to procure a financial accounting expert.

Lastly, (Kreutzfeldt and Wallace 1987) find that companies with profitability problems have larger and more frequent accounting errors and hence may seek out an audit to have more reliable financial information. Return on average assets (ROAA) is used to represent profitability.

Model 3 – Audit Decision Model

$$AI_{it} = PROBIT(\alpha_{tr} + \beta_1 LTA_{it} + \beta_2 NIITI_{it} + \beta_3 OBTA_{it} + \beta_4 GR_{it} + \beta_5 ROAA_{it} + \beta_6 MU_{it} + \beta_7 BHC_{it} + \varepsilon_{it}),$$

Where,

i	=	Commercial bank identifier;
t	=	Year (2001 to 2012);
AI	=	Audit indicator (Dummy Variable - 1 if the bank is independently audited and 0 otherwise);
LTA	=	Log of total assets;
NIITI	=	Non-interest income divided by total income;
OBTA	=	Off-balance sheet activities divided by total assets;
GR	=	Change in total assets divided by beginning total assets;
ROAA	=	Net income divided by average assets;
MU	=	Mutual or stockholder bank (Dummy Variable - 1 if a mutual bank and 0 if a stock bank);
BHC	=	Parent is a bank holding company (Dummy Variable - 1 if the bank's parent is a bank holding company and 0 otherwise); and
ε	=	Error term (Residual).

For analyzing the magnitude of restatements (**Model 2**), we only examine banks with restatements. Hence, we may have selection bias issue where the dependent variable (magnitude of restatement) is only observed for a restricted non-random sample.

In order to control for potential selection bias, we utilize Heckman's Selection Correction Model (Two-Step Estimation) (Heckman 1979).

In the first stage, a Probit model (**Model 1**) is used to predict the probability of having a restatement, and the Inverse Mills Ratio is calculated⁹.

In the second stage, the Inverse Mills Ratio computed from Stage 1 is used in the restatement baseline model (Model 2) as an additional independent variable to control for selection bias and to determine if we have a selection bias issue.

V. Results & Findings

Restatement Models

H1: An independent audit decreases the likelihood of having restatements.

H2: An independent audit decreases the magnitudes of restatements.

For analyzing the likelihood of restatements, we do not have endogeneity issues (RHO (P-value 0.1844)) (**Exhibit 3B – Model 2**). Hence, we will focus our analysis on the results from the Probit Regression (**Exhibit 3A**) model

instead of the Bi-variate Probit Regression Model (**Exhibit 3B**).

We expect that audited banks should have a lower propensity to have a restatement when compared with unaudited banks. However, the coefficient estimate for the audit indicator variable (AI) is positive (0.0002), which suggests statistically that banks that had an audit were more likely to have restatements.

This finding is counter intuitive, as we expected that audited banks would have a lesser likelihood of having a restatement. In analyzing the magnitude of restatements, we focus our analysis on **Exhibit 4B – Model 2** (Heckman's Selection Correction Model) instead of **Exhibit 4A** (Gamma Regression Model) because the Inverse Mills Ratio variable (IMR) is significant (P-value < 0.0001) and hence we have a selection bias problem.

The decision to have an independent audit or not to have an audit is voluntarily made by the banks under study.

In line with expectations, the coefficient estimate for the audit indicator variable shows that audited banks were more likely to have restatements with lower magnitudes (AI – Negative Coefficient (-0.3806)). Although the finding that audited banks have restatements with lower magnitudes is positive for auditors, the fact that a restatement was necessary in the first place indicates that a quality audit was not performed.

⁹The Inverse Mills Ratio is the ratio of the probability density function (PDF) to the cumulative density function (CDF) for the predicted values from the restatement characteristic baseline model if there was a restatement, and the ratio of the PDF to (1 minus the CDF) if there was no restatement.

Exhibit 3 – Likelihood of Restatements

(A) Probit Regression³

	Coefficient	
Variable	Estimate	P-value
LTA	0.0237	0.2608
OFF	0.0124	0.0303
NIITI	0.4439	0.0010
OBTA	-0.0770	0.0034
MU	0.2276	<0.0001
BHC	-0.1453	0.0001
GR	0.0177	0.5707
LTC	-0.0129	0.0175
ROAA	-5.7310	<0.0001
AI	0.1083	0.0002
RHO		
Pseudo-R ²	0.0044	0.2562
Bank Years	26,300	26,300

(B) Bi-variate Probit Regression

	<u>Model 1₂</u>		<u>Model 2₁</u>	
	Coefficient	P-value	Coefficient	P-value
	0.7987	<0.0001	-0.0294	0.5111
	2.9778	<0.0001	0.0120	0.0250
	0.0265	0.0009	0.2571	0.2263
	2.5098	<0.0001	-0.0719	0.0492
	0.1898	<0.0001	0.1367	0.1367
	0.0068	0.8760	-0.1580	<0.0001
			0.0166	0.7092
			-0.0132	0.0119
			-5.1284	<0.0001
			0.3222	0.0485
			-0.1307	0.1844

Variable Definitions:

i	=	Commercial bank identifier;
t	=	Year (2001 to 2012);
RS	=	Restatement occurrence next period (Dummy Variable - 1 if the bank restated and 0 otherwise);
LTA	=	Log of total assets;
OFF	=	Number of offices, branches, locations, and facilities;
NIITI	=	Non-interest income divided by total interest and non-interest income;
OBTA	=	Off-balance sheet activities divided by total assets;
MU	=	Mutual or stockholder bank (Dummy Variable - 1 if a mutual bank and 0 a stock bank);
BHC	=	Parent is a bank holding company (Dummy Variable - 1 if the bank's parent is a bank holding company and 0 otherwise);
GR	=	Change in total assets divided by beginning total assets;
LTC	=	Total loans divided by total equity capital;
ROAA	=	Net income (Loss) divided by total average assets (assets at the end of the previous year plus assets at the end of the current year divided by 2);
AI	=	Audit indicator (Dummy Variable - 1 if the bank is independently audited and 0 otherwise);
e	=	Error term (Residual) ;
RHO	=	RHO is the correlation parameter that measures dependency; and
IMR	=	Inverse Mills Ratio calculated from the likelihood of restatement model.

¹ Likelihood of Restatement: $RS_{it+1} = PROBIT(\alpha + \beta_1LTA_{it} + \beta_2OFF_{it} + \beta_3NIITI_{it} + \beta_4OBTA_{it} + \beta_5MU_{it} + \beta_6BHC_{it} + \beta_7GR_{it} + \beta_8LTC_{it} + \beta_9ROAA_{it} + \beta_{10}AI_{it} + \varepsilon_{it})$

² Audit Decision: $AI_{it} = PROBIT(\alpha tr + \beta_1LTA_{it} + \beta_2NIITI_{it} + \beta_3OBTA_{it} + \beta_4GR_{it} + \beta_5ROAA_{it} + \beta_6MU_{it} + \beta_7BHC_{it} + \varepsilon_{it})$

³ Multicollinearity tests do not indicate not collinearity issues.

Exhibit 4 – Magnitude of Restatements

(A) Gamma Regression³

Coefficient		
Variable	Estimate	P-value
LTA	0.8633	<0.0001
OFF	-0.0325	0.1598
NIITI	1.7185	0.0412
OBTA	0.4136	0.1091
MU	0.7112	0.0110
BHC	0.4298	0.0226
GR		0.0177 0.6757
LTC		-0.0129 0.0147
ROAA		-5.7300 <0.0001
AI	0.0365	0.7817
RHO		0.1083 0.0002
IMR		-0.3806 0.0004
Pseudo-R ²		0.0051
Bank Years	1,656	26,300
		1,656

(B) Simultaneous Probit - Gamma Regression

Model 1 ₂			Model 2 ₁		
Coefficient		Coefficient		Coefficient	
	Estimate		Estimate		Estimate
LTA	0.0237	0.2472			0.8216 <0.0001
OFF	0.0124	0.0224			-0.0653 <0.0001
NIITI	0.4438	0.0037			0.6054 0.2320
OBTA	-0.0768	0.0296			0.9243 0.0338
MU	0.2276	<0.0001			-0.0264 0.8937
BHC	-0.1453	0.0002			0.8864 <0.0001
GR	0.0177	0.6757			
LTC	-0.0129	0.0147			
ROAA	-5.7300	<0.0001			
AI	0.1083	0.0002			
RHO					
IMR					-3.6202 <0.0001
Pseudo-R ²		0.0051			
Bank Years	1,656	26,300			1,656

Variable Definitions:

i	=	Commercial bank identifier;
t	=	Year (2001 to 2012);
RSABS	=	Absolute value of restatement for next period;
LTA	=	Log of total assets;
OFF	=	Number of offices, branches, locations, and facilities;
NIITI	=	Non-interest income divided by total interest and non-interest income;
OBTA	=	Off-balance sheet activities divided by total assets;
MU	=	Mutual or stockholder bank (Dummy Variable - 1 if a mutual bank and 0 a stock bank);
BHC	=	Parent is a bank holding company (Dummy Variable - 1 if the bank's parent is a bank holding company and 0 otherwise);
GR	=	Change in total assets divided by beginning total assets;
LTC	=	Total loans divided by total equity capital;
ROAA	=	Net income (Loss) divided by total average assets (assets at the end of the previous year plus assets at the end of the current year divided by 2);
AI	=	Audit indicator (Dummy Variable - 1 if the bank is independently audited and 0 otherwise);
e	=	Error term (Residual);
RHO	=	RHO is the correlation parameter that measures dependency; and
IMR	=	Inverse Mills Ratio calculated from the likelihood of restatement model.

¹ Magnitude of Restatements: RSABS_{it+1} = GAMMA ($\alpha + \beta_1 LTA_{it} + \beta_2 OFF_{it} + \beta_3 NIITI_{it} + \beta_4 OBTA_{it} + \beta_5 MU_{it} + \beta_6 BHC_{it} + \beta_7 AI_{it} + \varepsilon_{it}$)

² Likelihood of Restatement: RS_{it+1} = PROBIT ($\alpha + \beta_1 LTA_{it} + \beta_2 OFF_{it} + \beta_3 NIITI_{it} + \beta_4 OBTA_{it} + \beta_5 MU_{it} + \beta_6 BHC_{it} + \beta_7 GR_{it} + \beta_8 LTC_{it} + \beta_9 ROAA_{it} + \beta_{10} AI_{it} + \varepsilon_{it}$)

³ Multicollinearity tests do not indicate not collinearity issues.

For the control variables in **Exhibit 3B**, we expected larger banks to have a lower likelihood of having a restatement. Although the log of total assets has a positive coefficient estimate, the results do not confirm this because of the insignificant p-value (0.2608).

The results indicate that banks with more branches/offices are associated with having more restatement.

Next, we expected banks with a greater number of branches/offices, and that are involved in nontraditional banking products and services, to have more complex accounting and thus have a higher likelihood of a restatement.

The results indicate that banks with more branches/offices are associated with having more restatement (OFF – Positive Coefficient (0.0124)).

Furthermore, we find that banks with greater amounts of non-interest income (NIITI – Positive Coefficient (0.4439)) were more likely to have restatements while banks with greater off balance sheet activity (OBTA – Negative Coefficient (-0.0770)) were less likely to have a restatement.

The result for OBTA is contradictory to what we expected. We expected a bank with more complex off-balance sheet activity to have more restatements. However, perhaps banks with greater OBTA are typically bigger banks and they may have better internal controls to reduce material misstatements.

For ownership type, the results indicate that a mutual bank (MU – Positive Coefficient (0.2276)) was more likely to have a restatement than a stockholder bank. The finding is consistent with our expectation.

For hierarchical type, the results are consistent with this expectation and show that

commercial banks that are part of a bank holding company (BHC – Negative Coefficient (-0.1453)) were less likely to have a restatement. The results show that growing banks (GR) had a Positive Coefficient (0.0177)) but the p-value was not significant.

We expected a bank with more complex off-balance sheet activity to have more restatements. However, perhaps banks with greater OBTA are typically bigger banks and they may have better internal controls to reduce material misstatements.

On the other hand, the results show profitable (ROAA – Negative Coefficient (-5.7310)) and undercapitalized banks (LTC – Negative Coefficient (-0.0129)) are less likely to have restatements. The finding for profitable banks was expected, however, we expected undercapitalized banks to have a higher likelihood of having a restatement.

VI. Limitations and Concluding Remarks

The main contribution of this study to the accounting and auditing literature is to provide insight or direct evidence on whether an independent audit increases financial reporting quality in the small private commercial bank setting. We use restatements as a proxy for measuring financial reporting quality.

The study first finds that audited banks had a greater probability of having a restatement. However, these restatements were of lower magnitude than restatements from unaudited banks.

Hence, these findings provide some evidence that an independent audit may not increase the quality of financial reporting and question the value of an independent audit absent regulatory requirements.

The results of this study are bewildering and may be hard to accept. However, our results are supported and substantiated by empirical analysis and robustness tests.

On the other hand, it can be argued that the results from the study are not surprising based on recent popular press and research.

Furthermore, audit firms should look at their audit methodologies and perhaps innovate to do better audits.

(Whalen and Cheffers 2012) find that 21.8% of Russell 1000 companies audited by the Big Four had errors in their financial statements and required restatements. A former SEC Chief Accountant, Lynn Turner, comments that the results from (Whalen and Cheffers 2012) study call into question the quality of audits, competence of the CFO/Controllers, quality of internal controls, and the role of the audit committee in financial reporting quality.

Other recent studies (Analytics 2007; Plumlee and Yohn 2009; Scholz 2008; Taub 2006; Turner and Weirich 2006) recognized that restatements by public companies are on the rise.

Collectively, the results from these recent studies and the findings from this study suggest that regulators and researchers should look further into the relationship between an independent audit and financial reporting quality.

Furthermore, audit firms should look at their audit methodologies and perhaps innovate to do better audits.

The study has a number of limitations. First, we constrain ourselves to one industry, and hence the results may not be generalizable. However, the study of a homogenous large population allows us to analyze and isolate whether an independent audit has any propensity to increase financial reporting quality.

Second, we do not have data on which auditors audited the banks. In the literature, audits by the Big 4 are often synonymous with quality audits and quality financial reporting.

Third, the Call Reports are not specifically audited by the auditors, but the data extracted from the general ledger (GL) which are used to generate the regulatory reports are audited. Therefore, we expect banks that are consistently audited should have higher quality financial reporting than consistently unaudited banks.

Fourth and last, an audited bank without a restatement does not directly indicate quality auditing. The bank being audited could have had excellent controls over financial reporting and produced high quality financial reports without any regards to audit quality.

Future researchers may want to examine other industries that do not have regulatory audit requirements and provide insights on whether the findings in this study hold true for other private company audits.

Additionally, future researchers may want to use other measurements of financial reporting quality to see if an independent audit improves those measurements.

References

- Abdel-Khalik, A. R. (1993). Why Do Private Companies Demand Auditing? A Case for Organizational Loss of Control. *Journal of Accounting, Auditing & Finance* 8 (1):31-52.
- Aier, J. K., J. Comprix, M. T. Gunlock, and D. Lee. (2005). The Financial Expertise of CFOs and Accounting Restatements. *Accounting Horizons* 19 (3):123-135.
- Analytics, A. (2007). Financial restatements and market reactions: Ives Group Inc.
- Chow, C. W. (1982). The Demand for External Auditing: Size, Debt and Ownership Influences. *Accounting Review* 57 (2):272.
- DeAngelo, L. E. (1981). Auditor size and audit quality. *Journal of Accounting and Economics* 3 (3):183-199.

- Greene, W. H. (2003). *Econometric analysis*. Upper Saddle River, N.J.: Prentice Hall.
- Heckman, J. J. (1979). Sample Selection Bias as a Specification Error. *Econometrica* 47 (1): 153-161.
- Imai, K., G. King, and O. Lau. (2007a). gamma: Gamma Regression for Continuous, Positive Dependent Variables. In *Zelig: Everyone's Statistical Software*.
- . (2007b). probit: Probit Regression for Dichotomous Dependent Variables. In *Zelig: Everyone's Statistical Software*.
- Kohlbeck, M. J. (2005). The Demand for Private Company Audits: Evidence from Private Commercial Banks. *SSRN eLibrary*.
- Kreutzfeldt, R., and W. Wallace. (1987). Error characteristics in audit populations: their profile and relationship to environmental factors. *Auditing: A Journal of Practice & Theory* 5:20-43.
- Lindo, A. (2007). Financial Restatements: Observations from the Federal Reserve. Paper read at AICPA National Banks & Savings Institutions Conference.
- Plumlee, M. A., and T. L. Yohn. (2009). An Analysis of the Underlying Causes Attributed to Restatements. In *Working Paper*: University of Utah.
- Poirier, D. J. (1980). Partial observability in bivariate probit models. *Journal of Econometrics* 12 (2):209-217.
- Scholz, S. (2008). The Changing Nature and Consequences of Public Company Financial Restatements: 1997-2006: The Department of the Treasury.
- Taub, S. A. (2006). Speech by SEC Staff: Remarks Regarding Restatements Before the Financial Executives International Meeting, edited by U. S. S. a. E. Commission.
- Tauringana, V., and S. Clarke. (2000). The demand for external auditing: managerial share ownership, size, gearing and liquidity influences. *Managerial Auditing Journal* 15 (4):160-168.
- Turner, J. L., and J. T. Sennetti. (2001). Post-Audit Restatement Risk and Audit Firm Size. *Journal of Forensic Accounting* 2:67-94.
- Turner, L. E., and T. R. Weirich. (2006). A Closer Look at Financial Statement Restatements: Analyzing the Reasons Behind the Trend. *The CPA Journal*.
- Whalen, D., and M. Cheffers. (2012). A Restatement Analysis of the Russell 1000 Companies: The Extent to which the "Fresh Eyes" of a Newly Engaged Auditor Provided Assistance in the Discover of the Misstatement: Audit Analytics.

Reproduced with permission of copyright owner. Further reproduction
prohibited without permission.