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Abstract

Corporate Risk Management of Bank Holding Companies in the SFAS133 Framework

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Dissertation Submitted in Partial Fulfillment

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Abstract

The goal of this research was to investigate the controversy surrounding the inability of SFAS 133 to portray the economics of hedging. The problem stemming from the initiation of SFAS 133 is that the possibility of increased volatility, which evolved from economic hedges, might have prompted some BHCs to adjust their risk strategy to avoid analysts' negative stock valuations. The purpose of the study was to investigate the extent to which BHCs adapted a more accounting- responsive corporate risk management policy after the 2008 amendment of SFAS 133 to smooth earnings volatility. Following the theoretical framework of corporate risk management, a causal-comparative design was used to determine the different hedging activities of SFAS133-compliant hedgers and SFAS133-accounting hedgers before and after the 2008 amendment of SFAS 133. The derivative activities of the entire population of Peer 1 and Peer 2 BHCs of the Federal Reserve, which consists of 167 banks, were examined. The data were collected from the10-K SEC filings of BHCs. The results of descriptive statistics, *t* tests, and multiple regressions indicated that BHCs which increased their level of accounting hedges and decreased their level of economic hedges experienced a significant decrease in earnings volatility relative to pre-SFAS 133. These findings suggest that BHCs' ability to reduce earnings volatility and increase earnings smoothing to meet analysts' expectations after the 2008 amendment of SFAS 133 has an adverse impact on BHCs' continual use of economic hedges. Analysts and investors are recommended to evaluate further BHCs' risk strategies to gain a better representation of their risk paradigm. This study extends prior research on corporate risk management activities of BHCs and contributes to social change by presenting new affirmation to investors of the influence of SFAS 133 economic hedges on earnings volatility.

# Corporate Risk Management of Bank Holding Companies in the SFAS 133 Framework

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Dedication

This dissertation is dedicated to my father Haralambos Drakopoulos who unfortunately passed away on July 15, 2012. My dad was a pioneer for his time with a deep respect and understanding of humanity. He encouraged me to be independent and live my life to the fullest.

I love you dad… you will always be inside my heart.

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# Chapter 1: Introduction to the Study

## Introduction

In 2008, the Financial Accounting Standards Board (FASB), in response to the explosive derivative activities growth fueled by the financial market innovations and the need to actively manage financial risk exposures inherent in the operations of large financial institutions, amended Statement of Financial Accounting Standard No. 133 (SFAS 133)*, Accounting for Derivative Instruments and Hedging Activities* with the intention to regulate the accounting for corporate hedging strategies with derivatives and minimize the information asymmetry recognized in the standard before amended. The amended standard is effective for financial statements filed with the Securities and Exchange Commission (SEC) after September of 2008 (SFAS 133, 2008, para. 1).

In this study, I investigated whether or not the new disclosure requirements mandated by SFAS 133 affected the corporate hedging strategies with derivatives of the largest bank holding companies (BHCs). As the previous chairman of the Federal Reserve, Alan Greenspan (2005) stated:

> The sophisticated risk-management approaches facilitated by derivatives were the essential factors sustaining the flexibility of the largest financial institutions manifested during the last decades' credit cycle and have been employed more immensely and structurally in the banking and financial services industries because of the proposed Basel II capital requirements. (p. 2)

The controversy surrounding SFAS 133 has centered on its incapacity to represent hedging economic risks and risk management activities. Barnes (2001) supported that the hedge accounting regulations conforming to SFAS 133 led to misrepresentation of economic hedges. Peterson and Thiagarajon (1997) disputed that the different accounting treatment of economically identical transactions (economic hedges vs. SFAS 133 accounting hedges) forced companies to base their hedging decisions on the accounting treatment the hedges received. In the same spirit, Lins, Servaes, and Tamayo (2008) studied the results of SFAS 133 on firms' corporate risk management activities and found that 40% of the surveyed firms had to alter their hedging strategies since they felt their ability to use economic hedges had been compromised.

The hedge accounting and risk reduction philosophy implicit in SFAS 133 is antithetical to the notion and praxis of corporate risk management. Corporate risk management traditionally concentrated on managing risk on a cumulative basis, capturing the corporation's consolidated exposure to various risks (Coughlan, 2004). Guay and Kothari (2003) suggested "that the significance of the derivative positions held by companies is economically small in relation to their entity-level risk exposures" (p. 9).

The FASB supported that restricting a derivative to pertain to an "entity's-wide risk reduction would entail a single, restrictive delineation of risk, such as either fair value risk or cash flow risk" (SFAS133, 2008, para. 357, p. 128). The FASB considered that the valuation of "entity-wide risk reduction" (p. 128) would be unattainable since SFAS No. 133 provides **"**hedge accounting for both fair value risk and cash flow risk" (p.

128). Opposing the FASB 's view, Sigrist (2008) argued that the application of SFAS 133 should not generate conflict between firms' hedge accounting and risk management strategies and concluded that eliminating firms' capabilities to assign individual risks in hedge accounting relationships would cause adversity with the application of hedge accounting, distorting financial statements results.

## Background of the Study

The FASB, in the original pronouncements as amended for accounting for derivative instruments and hedging activities (SFAS 133, 2008), required that:

> An entity should recognize all of its derivative instruments on the balance sheet as either assets or liabilities at fair value. The accounting for gains or losses resulted from changes in the fair value of a derivative depends on whether it has been designated and qualifies as part of a hedging relationship and, if so, on the reason for holding it. For a derivative designated as hedging the exposure to changes in the fair value of a recognized asset or liability, the gain or loss is recognized in earnings in the period of change together with the offsetting loss or gain on the hedged item attributable to the risk being hedged. The effect of that accounting is to reflect in earnings the extent to which the hedge is not effective in achieving offsetting changes in fair value. For a derivative not designated as a hedging instrument, the gain or loss is recognized in earnings in the period of change. (SFAS 133, 2008, para. 17 & 18, p. 15)

The biggest challenge companies face when reporting derivatives on the balance sheet is how to handle the gains and losses originating from changes in derivatives' fair value, since fair value fluctuates periodically (Coughlan, 2003). Hedge accounting reduces earnings volatility by minimizing the potential income statement effect of the risk that is being hedged, since it causes the derivative gains or losses to influence revenues in the period corresponding to the gain or loss consequential to the risk being hedged.

Given that the purpose of hedging is to shield the financial statements from the effect of conflicting fluctuations in interest rates, foreign exchange rates, or credit rates (Coughlan, 2003), it is alleged in the financial markets that companies exercising derivatives for hedging would reassess their risk management approach to one that is more accounting responsive to ensure that all hedges are *highly effective* to qualify for hedge accounting. Consistent with this view, DeMarzo and Duffie (1995) confirmed that the ideal hedging strategy implemented by executives is determined by the accounting information presented to stockholders, clarifying firms' given emphasis on hedging accounting risks rather than economic risks.

The alternative to hedge accounting that is applied to economic hedges that do not qualify for hedge accounting is to recognize fluctuations in the recorded fair value of derivative hedging instruments immediately in earnings, causing redundant volatility in earnings. Proponents of the standard presumed that the hedging activities addressed in SFAS 133 mitigated the economic risks hedged with derivatives. This view is supported by Guay (1999) and Melumad, Weyns, and Ziv (1999), who illustrated that the

accounting method used influenced the manager's hedging decision; under a certain definition of fair-value hedge accounting, Melumad et al. (1999) believed that the hedging choice preserved the ultimate economic hedge, opposed to the hedging choice under no hedge accounting, which diverges from the ultimate economic hedge companies would take on under symmetric and public information.

In the banking industry, there is an intense debate about whether or not recognizing the fluctuations in fair value of derivative hedging instruments that do not comply for hedge accounting immediately in earnings under SFAS 133 would increase reported earnings volatility, subsidizing both banks' competence to administer risk efficiently and sustain customers' demand for derivatives (Park, 2004). Khan (2009) prognosticated that under fair value accounting banks with bigger quotas of derivative assets and liabilities would be influenced more since they countenance the burden to discount their derivate assets prices in a bearing stock market to either prevent sale by others or breach capital adequacy ratios.

Banks' corporate risk valuation is significant, according to Clark, Desisle, and Doran (2008), because of banks' important role as financial intermediaries. Clark et al. (2008) concluded that banks' excessive exposure to foreign exchange, interest rates, and other risks not only causes banks and their customers' potential suffering, but causes capital markets to lose additional access to financing through decreased market liquidity.

SFAS 133 affected both banks' sales and corporate risk management policies for derivatives and hedging activities since banks participating in the derivatives markets

function as both dealers and end users of derivatives. Banks' revenues from sales of derivatives would decrease if the demand for banks' derivative products decreased. Banks' hedging policies could result in the implementation of fewer effective hedges if the perceived notion that the use of derivatives that do not comply for hedging designation might increase earnings volatility. Therefore, SFAS 133 would lead to banks' negative stock price reactions if investors conceive that the implementation of SFAS 133 might affect negatively banks' derivative sales and their ability to hedge using derivative instruments (Park, 2004).

## Problem Statement

The problem stemming from the initiation of SFAS 133 is that the possibility of increased volatility evolved from economic hedges that do not comply for hedge accounting might have prompted some BHCs to adjust their corporate risk management strategies to be more accounting responsive to smooth earnings in order to avoid analysts' negative stock valuations.

Bank holding companies, along with the reassessment of their corporate risk management strategy, must also address the implementation of 2008 SFAS 133, since the standard "placed the burden on management to design an appropriate effectiveness test, and measure the change in fair value or cash flows attributable to the risk being hedged" (SFAS 133, 2008, p. 129), thus advocating an opportunistic earnings management behavior.

The Board recognized that SFAS 133, although clarified and accommodated "hedge accounting for more types of derivatives and different views or risks" (SFAS 133, 2008, para. 242, p. 108) acclaimed that the standard did not provide a distinctive approach for evaluating hedge effectiveness, imposing the responsibility to the management to originate the appropriate hedge-effectiveness tests while taking into consideration the risk management tactics of the corporation, the nature of the hedged risk, and the type of derivatives used as hedging instrument (SFAS 133, 2008, para. 361).

BHCs' design of effectiveness tests are determined by the concern of the additional earnings volatility, possibly evolved from economically effective hedges that do not qualify for hedge accounting. The possibility of additional volatility in the income statement has caused banks' apprehension of negative stock valuations, as supported by the theoretical findings of Suh (2007), Thapa and Brown (2005), Wang (2005), and Park (2004). Specifically, Thapa and Brown (2005) and Park (2004) construed that negative stock price reaction to earnings announcements encourage the negative financial fallout of SFAS 133 and are indicative of investors' views that Standard 133 introduces volatility to reported earnings.

Suh (2007) predicted that firms with a more transient investor base would decrease their hedging activities to a greater extent post SFAS 133 than firms with a more long-term investor base because transient investors are more concerned with the potential

increase in short-term earnings volatility resulting from derivatives that do not comply for hedge accounting.

In order to gain investors' appreciation through a higher price-earnings ratio for implementing an efficient corporate risk management strategy, companies should be able to inform their stockholders for their hedging strategies, according to McCormack (2005), a Morgan Stanley equity researcher, who argued that SFAS 133 reduced the effectiveness of economic risk management practices of companies by making it impractical to hedge real economic risk exposures devoid of earning volatility.

**Purpose of the Study**

The purpose of this study was to examine whether or not BHCs changed their corporate risk management policy after the 2008 amendment of SFAS 133 to one that is more accounting responsive to take advantage of Statement 133's differential treatments of the changes in the fair value of accounting and economic hedges to manipulate earnings.

Specifically, I examined whether BHCs limited the use of derivatives to ones that qualified for hedge accounting to smooth earnings by avoiding increases in earnings volatility and subsequently negative stock valuations by assessing (a) BHCs level of accounting hedges of financial risk exposures in relation to interest rates and (b) BHCs level of optimal economic hedges.

Contributing to the corporate risk management literature, Suh (2007) argued that the hedging disclosures of SFAS 133 did not provide a clear picture of whether

companies' earnings volatility intensifications originated from speculative hedges or from economic hedges. Allayannis, Rountree, and Weston (2008) documented that financial statement volatility is costly and directly affects a firm's value. In the same spirit, Trombey (2003) attested that most financial institutions attempt to decrease earning volatility with hedging since negative earnings surprises signal an incompetent corporate risk management and are viewed negatively by investors and analysts. Wang (2005) documented that, although bad and good earnings news (as measured by the square of standardized unexpected earnings [SUE] increased future return volatility, bad earnings news raised future volatility more than good earnings news did.

The expectation of added volatility in financial statements has instigated significant concern for many BHCs, as they fear it would vanguard lower firm valuations. Fitch Ratings, in a 2004 study, found enormous inconsistencies in the corporate implementations of SFAS 133, which produced significant uncertainty for investors and rating agencies, while the restatements related to the implementation of hedge accounting for certain derivative transactions under SFAS 133 ascended greatly since 2003, from 514 to about 1,200 in 2005 (Corman, 2006).

Bank of America in 2006 restated its historical financial statements for the years 2001-2005 related to the accounting designation for certain derivative instruments under SFAS 133 because "a number of the transactions included in the restatement did not meet the strict requirements of the *shortcut method* of accounting under SFAS 133" (10-K, 2005, Note 1: Summary of Significant Accounting Principles, p. 93). Additionally, Sun

Trust Banks Inc. adjusted their 2006 fourth quarter earnings to correct accounting errors related to certain derivatives transactions from 2003 to 2005, and two Alabama banking companies—Compass Bancshares Inc., and Colonial BancGroup Inc.—also restated earnings in 2006 because of SFAS 133 (Davis, 2006).

The new paradigm for corporate risk management discussed in this study reflected a rational desire to understand how BHCs captured the economic benefits of hedging and at the same time managed any associated accounting volatility derived from the recent major financial restatements of banks due to SFAS 133. This involves differentiating between *SFAS133-accounting hedges* that originate immaterial earnings volatility and *SFAS133-economic hedges* that demote economic risk exposure but add volatility in earnings. While both types of hedges bring economic benefits, they have differing accounting treatments.

## Nature of the Study

The focus of this research is bank holding companies (BHCs), since the derivatives market activity in the United States is monopolized by the five largest BHCs, which constitute 97% of the total notional derivative contracts (OCC, 2009). Secondly, SFAS 133 affected both banks' sales and corporate risk management policies for derivatives and hedging activities since banks participating in the derivatives markets function as both dealers and end users of derivatives (Banking Circular 277, 1993). Thirdly, the banking industry is at the center of the dispute over the relative benefits of

fair-value based income measures because banks' balance sheets are comprised almost entirely of financial instruments (Hodder, Hopkins, & Wahlen, 2006).

Anecdotal evidence suggested that banks lobbied Congress contra the new accounting standard for derivatives (Park, 2004), while the FASB accepted political pressure from the Senate to withdraw the fair value accounting requirements for the financial industry (Carney, 2009; Hughes & Hall, 2008). Fourth, the use of derivatives by banking firms is addressed in this research because of the uniqueness of banks resulting from the deposit insurance provided by the FDIC. The deposit insurance might possibly induce moral hazard problems by presenting BHCs with tradeoff incentives between risk and reward (Pai & Curcio, 2005). Lastly, BHCs are required to register their federal report forms (FR Y-9C) in the Federal Reserve Bank System (Park, 2004); evidently, the collection of the notional amounts of derivatives data for empirical research can be facilitated from both their federal reports and their 10-K SEC filings.

## Research Questions and Hypotheses

The FASB were asked to address many issues on numerous hedge accounting implementation aspects of SFAS 133 since it was originally issued in 1998 (FAS133-1, 2008). The numerous methods to test hedge effectiveness for similar hedging transactions in combination with the challenging requirements to qualify for hedge accounting forced the FASB to amend SFAS 133 several times due to derivatives implementation issues.

The introduction of SFAS 133 has raised concerns about (a) its effect on firms hedging activities, (b) the perceived earnings volatility derived from the statement's lack

of alignment between the accounting and economics of hedging, and (c) entities' possible manipulation of the differential accounting treatment for accounting hedges vs. economic hedges to smooth earnings.

Previous empirical accounting researchers (Singh, 2008; Park, 2004; Zhang, 2009; Zhou, 2009) found that after the implementation of SFAS 133 derivatives users had lower levels of earnings volatility and higher levels of income smoothing proposing that SFAS 133 may have driven companies' earnings management decisions.

A BHC's decision of whether to hedge or not, where hedge accounting treatment is not available is a choice between accepting accounting volatility or economic volatility. The research questions are used to examine whether or not BHCs that increased their level of hedging in response to the new accounting standard experienced a decrease in earnings volatility while BHCs that pursued optimal economic hedges experienced an increase in earnings volatility relative to pre-SFAS 133.

This study focused on Statement 133's implementation issues for hedge effectiveness assessment effectual after January 1, 2008 (SFAS 133-E23, 2008, para. 68) by examining BHCs' hedging policies in 2008 the year Statement 133 was amended and in 2009 one year after the 2008 promulgation of SFAS 133.

To determine whether BHCs reassessed their corporate risk management approach to one that is more accounting responsive or not, the following research questions have been developed:

1. Did BHCs hedge in the optimal economic way (thus recognizing the volatility in earnings originated from economic hedges that did not qualify for hedge accounting), or

Did BHCs hedge in a limited fashion only where hedge accounting could be attained (thus evading additional earnings volatility and decreasing just a limited amount of economic risks)?

2. Did BHCs that increased their level of *SFAS133-accounting hedges* and decreased their level of *SFAS133-economic hedges* in response to the new accounting standard experience a significant decrease in earnings volatility relative to pre-SFAS 133?

3. Did BHCs take advantage of SFAS's 133 differential treatment of the changes in the fair value of derivatives designated as cash flow hedges to manipulate earnings and make them smoother?

The research hypotheses for the second and third research questions, which helped to determine whether or not there is a statistically significant relationship between the variables, are as follows:

$H1_0$: There was no difference in the mean notional value of derivatives for *SFAS133-compliant hedgers* and *SFAS133-accounting hedgers* after the 2008 amendment of SFAS 133.

$H1_a$: There was a difference in the mean notional value of derivatives for *SFAS133-compliant hedgers* and *SFAS133-accounting hedgers* after the 2008 amendment of SFAS 133.

$H2_0$: There was no difference in earnings volatility for *SFAS133-compliant hedgers* and *SFAS133-accounting hedgers* after the 2008 amendment of SFAS 133.

$H2_a$: There was a difference in earnings volatility for *SFAS133-compliant hedgers* and *SFAS133-accounting hedgers* after the 2008 amendment of SFAS 133.

$H3_0$: There was no difference in earnings smoothing for *SFAS133-compliant hedgers* and *SFAS133-accounting hedgers* after the 2008 amendment of SFAS 133.

$H3_a$: There was a difference in earnings smoothing for *SFAS133-compliant hedgers* and *SFAS133-accounting hedgers* after the 2008 amendment of SFAS 133.

## Theoretical Base

Although SFAS 133's "principal purpose of providing special accounting for hedging activities is to mitigate the effects on earnings of different existing recognition and measurement attributes" (SFAS 133, 2008, para. 366, p. 130), the approach of accelerating the earnings recognition of hedges that do not comply for hedge accounting reproduces unrepresentative earnings volatility. Sigrist (2008) concluded that companies that did not qualify for hedge accounting would have to include fluctuations in fair value

for risks that cannot be hedged in the income statement, which would distort earnings and would not be reflective of their intended risk management strategy. The net results of these options, according to Sigrist (2008), were that the accounting for hedge activities would not be reflective of the way companies manage risk, would produce financial statements results that are misleading, and would decrease comparability among preparers.

Supporting the theoretical base that managers focus more on hedging strategies than accounting data in performance evaluation, Kolbasovsky (2009) identified firms that recently restated their financial statements as a result of the misclassification of economic hedges as accounting hedges and found that 58% of these firms continued the use of economic hedges disregarding the increased earnings volatility resultant of the accelerated earnings recognition of the economic hedges. Kolbasovsky (2009) concluded that companies who terminated accounting hedges following the restatement compromised between continuing economic hedges and accepting earnings volatility or discontinuing economic hedges and accepting increases in market risk exposures.

## Definition of Terms

*Asset and Liability management (ALM):* ALM is used by BHCs to protect the balance sheet from mismatches between asset and liability risks associated with changes in interest rates, foreign-exchange rates, liquidity risk, credit risk, and the use of derivatives (Bank of America, 10-K, 2008).

*Association for financial professionals (AFP):* AFP provides training programs in accounting and financial reporting and bank relationship management, grand's the CPT certification, and offers public policy representation to legislators and regulators for a network of 16,000 treasury and corporate finance professionals (AFP Organization, 2013).

*Bank Holding Company (BHC)***:** According to the Bank Holding Company Act of 1956 a BHC is a company in command of another bank by (a) owning 25% or more of its voting rights, (b) appointing the board of directors, and (c) having the authority to exert a control leadership over the management of that bank (Federal Deposit Insurance Corporation).

*Credit risk transfer (CRT):* CRT is a technique to transfer banks' credit risk using financial instruments such as credit derivatives to increase market efficiency, enable portfolios diversification and provide risk management strategies (Bank for International Settlements, 2013).

*Economic hedges*: Economic hedges are derivative instruments such as interest rate swaps who do not qualify for the shortcut method, interest rate lock commitments, mortgage servicing rights, or credit derivatives used to hedge economic risks. Economic hedges do not qualify for hedge accounting under SFAS 133, so consequently the gains and losses from changes in the fair value of these derivatives are reported immediately in earnings causing redundant earnings volatility.

*Financial Accounting Standards Board (FASB):* The FASB was founded by the Financial Accounting Foundation (FAF) in 1973 to establish financial accounting standards for public corporations and not-for-profit organizations (Financial Accounting Foundation, 2013).

*Individual retirement account (IRA):* IRA is a qualified retirement fund that earns voluntary contributions from both the employee and the employer. IRA distributions can be cashed-out when the individual fund holder reaches the age of 70½ (IRS, Publication 590, 2012).

*Joint working group of standard setters (JWG):* The JWG was created in 1997 and its members were selected by the FASB to expound a consistent framework for accounting for derivative instruments and hedging activities (FASB, News Release 1/5/01).

*London Interbank Offered Rate (LIBOR):* is the rate that international banks offer on deposits from other banks (Trombley, 2003).

*Mortgage loans held-for-sale (LHFS)*: LHFS are financial institutions commitments to originate mortgage loan sales agreements that are "mandatory-delivery and best-efforts contracts". LHFS meet the definition of a derivative under SFAS 133 and should be accounted for at fair value on the balance sheet by the issuer bank (Federal Reserve, 2005).

*Mortgage servicing rights (MSRs):* MSRs are the rights to service an existing mortgage through either the purchase or origination of the mortgage loan from the

original mortgage lender (FASB Statement 122 Accounting for Mortgage Servicing Rights, 1995).

*Office of the comptroller of the currency (OCC):* The OCC was created in 1863 as an independent agency of the U.S. Department of the Treasury with the legation to guarantee that national banks and federal savings associations offer to all Americans non-discriminatory and equal access to financial services (US Department of Treasury).

*Speculative position:* If a derivative has been designated as a trading instrument or a speculative position, then fair value or mark-to-market accounting will be appropriate and any gains or losses deriving from variations in the fair value of the derivative should be recognized immediately in earnings (Taylor, 2000).

**Assumptions**

The 2008 amendment of SFAS 133 is assumed to provide an extra step in the FASB's undertaking to address the urgent issues regarding the recognition of derivatives and the measurement of derivatives and hedged items. Also, it is assumed that BHCs adopted SFAS 133 in a timely manner and made necessary financial statement disclosures of their derivatives designated as hedging instruments, providing more reliable data for the empirical tests of this research. Furthermore, it is assumed that BHCs conformed to the amended SFAS 133 and reported separately their derivative instruments, designated as cash flow, fair value, and economic hedges, alleviating noise in the data and enabling me to differentiate between the effects of accounting hedges and the effects of economic hedges on earnings volatility and earnings smoothing.

## Limitations and Delimitations

Since Statement 133 became effective for financial statements registered with the SEC for fiscal years beginning after September 2008, only 1 year of data were available for BHCs derivatives and hedging activities after the 2008 amendment of SFAS 133. For this reason, the scope of this study was limited to the year Statement 133 was amended (2008) and 1 year after the standards' amendment (2009) to make the data collection and analysis feasible for a dissertation study.

This limitation might compromise the ability of this study to produce accurate results about whether or not BHCs adjusted their corporate risk management strategies to be more accounting responsive, in the case that BHCs felt they did not have sufficient time to review, comprehend, and execute the amended requirements of Statement 133 while finalizing all necessary computer-based information system conversions.

## Significance of the Study

This study extended the corporate risk management behavior of BHCs in the framework of SFAS 133 as amended in 2008. Although accounting for derivative instruments and hedging activities has been one of the most debated issues among academics and practitioners, no prior research provided evidence of how the corporate risk management behavior of BHCs depended upon the accounting and the underlying economics of hedging. The new paradigm for corporate risk management discussed reflects BHCs' undertaking to detain the economic benefits of hedging associated with

Statement 133's differential treatment of the gains and losses of accounting vs. economic hedges.

This research improved upon previous research by investigating BHCs' hedging activities to find possible differences in earnings volatility related to the timing of the amount of gains and losses recognized in income on derivative hedging instruments for accounting vs. economic hedges (SFAS 133, 2008, para. 17-35). Prior accounting literature on SFAS 133 failed to measure the influence of economic hedges on earnings volatility and focused only on firms' incentives to reduce reported earnings volatility by measuring whether or not firms moderated the use of derivatives after the adoption of SFAS 133 and increased earnings smoothing through discretionary accruals (see Park, 2004; Singh, 2008; Zhang, 2009; Zhou, 2009).

This study extended prior research on corporate risk management activities of BHCs and may effect social change by presenting new evidence on the effects of SFAS 133 economic hedges on earnings volatility. This research may influence society positively by finding new evidence of the degree and causes of BHCs' earnings volatility and providing the empirical support for the FASB and the SEC to improve the qualitative disclosures of SFAS 133 and increase the transparency and visibility of accounting hedges and economic hedges in the financial statements.

## Summary and Transition

In Chapter 1, the conceptual framework of the controversies surrounding SFAS 133 was established to support the research questions, the problem statement, and the

hypotheses tested in this study. Chapter 2 presents the literature review of BHCs' incentives to use derivatives and hedging activities to smooth earnings and manage earnings volatility relevant to the corporate risk management theory. Various hedging incentives have been proposed, and the literature provided the basis for incorporating these incentives as control variables in testing the research methodology.

Chapter 3 presents the research design and methodology, in addition to the discussion of the variables measurement, the sample selection and data collection, and the validity and reliability of the regression model used. The results and findings are discussed in Chapter 4. Chapter 5 includes a summary and recommendations for future research and improvements in accounting practice.

# Chapter 2: Literature Review

In this study, I empirically investigated the corporate risk management behavior of the largest BHCs after the 2008 amendment of SFAS 133. How the risk management philosophy of SFAS 133 and its accounting treatment of hedging activities diverge from the theory and practice of corporate risk management creating managerial concerns about the impact of SFAS 133 on volatility of earnings are discussed to present a better representation of the FASB's undertaking of the 2008 amendment of SFAS 133. Motivated by the increasing prevalence of hedge accounting in corporate-level risk management behavior of BHCs, an extensive overview and synthesis of the existing literature on the differential accounting treatment of derivative instruments designated as fair value hedges, cash flow hedges, and economic hedges under SFAS 133 is provided.

In 2008, the FASB amended SFAS 133 in response to concerns that previously issued standards were inconsistent and frequently did not result in timely recognition of the consequences of using derivative instruments and hedging activities. Prior literature on the SFAS 133 disclosures before amended are presented to show the inability of FASB statements' on derivatives and hedging activities. The FASB's attempt to ameliorate the transparency of financial reporting by reacting to concerns about derivative's systematic risk and, in 2008, increasing the recognition and disclosure requirements of Statement 133 is discussed.

The asset-liability management policy of BHCs are analyzed to investigate how banks use derivative contracts to preclude reporting variations in the value of cash flow

and fair value hedges due to systematic risk in the balance sheet. Finally, the hedging incentives of banks under the theoretical corporate risk management framework are discussed and critiqued in the context of how accounting earnings volatility and earnings smoothing affected banks income structure.

The literature search strategy was initiated by delving into ProQuest to locate three dissertations on SFAS 133 and corporate use of derivatives. The references found in the three dissertations were investigated to separate any relevant research on SFAS 133 and corporate risk management. To further obtain information on the theoretical incentives of corporate risk management/hedging, corporate derivative usage, earnings volatility, and earnings management (smoothing), Walden's research databases such as the A-to-Z journal list, ProQuest, Google Scholar, and several internet search engines were individually searched.

Lastly, since no information could be attained from the literature on economic hedges, a keyword search on the financial statements of several BHCs were conducted to detect economic hedges used. After identifying the most common economic hedges used by BHCs, Standard 133's reporting requirements for those individual economic hedges were exhaustively researched.

**The Risk Management Philosophy of SFAS 133 as Amended**

Consistent with the central ideology of modern investment theory, systematic risk could not be adjusted with a diversified portfolio, but it could be hedged. One of the most disputable issues in corporate risk management is the proper accounting treatment

of hedging activities. Hedges often generate cash losses and gains, while the transactions they are designed to hedge generate only paper gains and losses (Chance & Brooks, 2007). If the derivatives gains and losses were not reported in the financial statements in unison with the gains and losses of the hedged transactions, the earnings in the income statement would appear increasingly volatile. The FASB, in an attempt to restore the confidence of investors and corporations, responded to the managerial agony of the perceived earnings volatility caused by SFAS 133 by allowing firms to apply hedge accounting and defer any gains (losses) in income on derivatives after the completion of the hedge (SFAS 133, 2008, para. 363).

To meet the requirements of hedge accounting under SFAS 133, the fair value variations of derivative instruments must neutralize the fair value or cash flow variations of the hedged item/transaction (SFAS 133, 2008, para. 21). The FASB's decision to eliminate the ability to hedge by risk and require entities to assess effectiveness based upon total change in fair value of a hedged item/transaction would considerably influence many of their most common hedging strategies since derivatives are usually designated to hedge certain risks, and hedging all risks might not be a practical alternative (Sigrist, 2008).

The Board also supported that "some characteristics of risk management are arduous to differentiate from speculation or position-taking and those speculative activities should not be afforded special accounting" (SFAS133, 2008, para. 352, p. 128). Opposing the Board's position, Geczy, Minton, and Schrand (2007) disputed that

information available in the financial statements regarding companies' corporate hedging risk with derivatives was insufficient to provide investors with the speculating notion of the company.

Barnes (2002) suggested that "mark-to-market accounting motivated bad firms to speculate to pool with good firms to fool the market" (p. 22). The noise in mark-to-market accounting numbers was assessed by Bernard, Merton, and Palepu (1995). The authors relied on the assumption that deviations of net assets from stock prices caused by the put option and information asymmetry between managers and investors would be relatively small, computed the ratio of stock prices to book values to be close to one, reflecting the imperfection of the mark-to-market system.

**Prior Literature on the SFAS 133 Disclosures Before Amended**

The Boards undertaking of the 2008 amendment of SFAS 133 was led by the necessity for factual reporting of derivative instruments and hedging activities in the corporate financial statements relative to the overall advantages of the resulting information (SFAS133, 2008, para. 232). Due to the distinctiveness of many derivatives and the virtual newness of many of these instruments, the accounting profession delayed to coincide with the derivatives world. For many years derivatives were off- balance sheet items, meaning that it was difficult, if not impossible, to determine from traditional financial statements what types of derivatives were being used and the effects of those derivative transactions on earnings. Characteristically, Kawaller (2004) stated that:

> Whether by accident or by design, SFAS 133 has done a poor job of creating greater accounting consistency in terms of how hedges are reported, because "special hedge accounting" is applied or not applied in different ways among the population of derivative users. (p. 24)

Although incorporated in a hedging strategy, many derivative instruments were discharged from the balance sheet because derivatives provide only a reciprocal agreement with slight or no concrete significance disparate to traditional financial instruments such as equity securities, debt securities, and loans, (SFAS133, 2008, para. 219).

Barnes (2001), Park (2004), Bhamornsiri and Schroeder (2004), and Singh (2008) affirmed that the effects of derivatives and hedging activities were not clear in the financial statements since the gains and losses on those derivatives recognized in financial statements "were deferred from earnings recognition and reported as part of the carrying amount of a related item or as if they were freestanding assets and liabilities" (SFAS 133, 2008, para. 234, p. 106).

Duangploy and Helmi (2002) argued that SFAS 133 proved to be a great challenge to the banking industry the prominent user of derivative financial instruments by providing empirical evidence for the effect of SFAS 133 on the measuring and reporting practices of the largest 25 banks in the United States. Duangploy et al. (2002) concluded that users of bank financial statements had to do some "mental gymnastics" (p. 8) to visualize the bottom line since the inconsistent and incomplete disclosures among

the surveyed banks and the disclosure or implied computation of the unrealized gains and losses did not fully reflect whether and how the holdings of these derivative instruments would affect the banks' financial statements or operating performance.

The incompetence of the financial accounting standard for derivatives and hedging activities to provide regulatory laws for reporting derivatives in the financial statements obliged many corporations to look for guidance in outside sources such as the emerging issues of regulatory task forces (EITF issues), the authoritative literature, and the FASB exposure documents ready for comments.

The required accounting treatment for derivative instruments under the previous regulation provided different rules for futures and forward contracts, options and swap financial instruments designated for hedging and the different risks hedged with these derivatives, while it was not apparent if the risk assessment to qualify for hedge accounting was based on the "entity's-wide or individual transaction level" (SFAS 133, 2008, para. 236-237, p. 107).

Peterson et al. (1997) argued that much of the essential data for assessing a firm's risk exposures are obtained from its financial statements. Lack of knowledge about a firm's underlying risk exposures made the creation of accounting guidance for derivatives even more difficult. Hentschel and Kothari (2001) and Geczy, Minton, and Schrand (2007) also disputed that the considerable limitations of the derivatives disclosures under SFAS 133 made it hard to determine whether an entity were trying to reduce risks with hedging or were risk-taking by speculating with derivatives.

Faucette (2003), in the 31st AICPA national conference on current SEC developments, affirmed that the Securities & Exchange Commission (SEC) observed that the SFAS 133 provided no guidance related to the classification of derivatives that do not comply for hedge accounting. The SEC (2004) criticized SFAS 133 as having been essentially "silent on geography" (h2) and acclaimed instances of registrants who reported “in a single line item on the income statement” (h2) the changes in the fair value of economic hedges that did not comply for hedge accounting and named them as “risk management activities.”

Opposing a stringent analysis of the “efficient market hypothesis” Bierstaker, Thosar, and Wiest (2004) suggested that financial analysts focused more on a company’s losses than gains from changes in the fair value of derivatives, while these analysts did not include any gains on derivatives when estimating their price-to-earnings (P/E) ratio for companies that reported their derivatives activities only in a footnote or a line item in the income statement.

Proponents of the standard found that the evaluation factors on derivatives recognized in the financial statements for a sample of banks after SFAS 133 were significantly positive in contrast to the evaluation multipliers on derivative disclosures suggesting that SFAS 133 had been useful in increasing the transparency and visibility of derivative financial instruments (Ahmed, Kilic & Lobo, 2006). Consistent with the value-relevance of derivative disclosures, Schrand (1997) suggested that the proposed

disclosures of SFAS 133 provided value-relevant information about interest rate risks for savings and loan associations.

The recent accounting pronouncement of SFAS 133, according to Koonce, Lipe, and McAnally (2007), increased the salience of derivative outcomes in financial statements. Koonce's et al. (2007) showed that investors assigned a higher value to firms when managers addressed financial risks with derivatives.

Hirst, Hopkins, and Wahlen (2004) theorized that the information presented in the footnotes was not considered as important as the information disclosed in the financial statements for the performance measurement of banks. Bank analysts differentiated banks who reported information about the gains and losses due to changes in the fair value of derivatives in the income statement into risky or low risky, while all banks who only disclosed the same information in the footnotes were evaluated as highly risky.

**Prior Literature on Banks' Use of Derivatives**

The Financial Accounting Standards Board, in an attempt to ameliorate the transparency of financial instruments in the financial statements, reacted to concerns about derivative's systematic risk caused by interest and foreign exchange rates and increased in 2008 the recognition and disclosure requirements of Statement 133. Consistent with the derivatives systematic risk concern, Bartram, Brown, and Conrad (2007), and Brewer, Minton, and Moser (2001) observed that the use of financial derivatives reduced both aggregate and systematic risk evoking that derivatives used to corporate risk management to hedge rather than to speculate, while Shin and Shiu (2007)

indicated that banks total and systematic hedged risk was effectually reduced by interest rate derivatives while it was vaguely increased by currency derivatives.

Khan (2009) investigated any possible connection between contagion and systematic risk in BHCs and SFAS 133. The author found that under the fair-value accounting for financial instruments, BHCs experienced higher contagion risks and more negative stock-market returns when the money center banks faced a subprime lending crisis. Khan (2009) concluded that BHCs represented a higher fair-value accounting regime when their asset/liability ratio was higher for all assets and liabilities measured at fair value.

Interest rates and foreign exchange derivative contracts are used in the asset-liability management (ALM) activities of BHCS to serve as tools to diminish interest rate and foreign exchange risk from lending and deposit-taking activities. Banks use derivatives to protect the balance sheet from interest rate and foreign exchange rate oscillations by hedging the variations in fair value of derivatives and the changeability in cash flows. Interest rate derivatives include swap, collar, option, swaption, futures, and forward contractual agreements between two parties to attain leverage. Foreign exchange derivatives are currency options, currency swaps, forward and futures contracts used to lock in a foreign exchange rate to protect BHCs from the foreign- exchange risk related to currency- based assets and liabilities (Bank of America, 2008, 10K).

**Interest Rate Derivatives**

Gilkeson and Smith (2006) verified that institutional investors such as banks enforced a corporate risk management policy using interest-rate derivatives depended more on their management style than to hedge their exposure to changes in market interest rates. Whidbee and Wohar (1999) found that managerial motivation and public scrutiny affected publicly traded BHCs' decisiveness to use derivatives. Managers who owned shares that exceeded 10% of a company's ownership showed a more risk-averse behavior by taking advantage of the insurance coverage provided by the federal deposit insurance rather than using derivatives to hedge in comparison to managers with equity holdings below 10% which showed a greater likelihood to use derivative reliant on a less risk-averse behavior.

Zhao and Moser (2009) while investigating the association between BHCs' loans and derivative use found that the use of interest rate derivative options, futures, and forwards corresponded into higher commercial and industrial loan growth rates for BHCs. Pai, Curcio, Thorton (2006) while examining the ability of the 55-largest US BHCs to adjust their existing and prospective risk exposures concluded that these largest BHCs were competent to manage successfully all risk exposures affected their long-established banking business of loaning and borrowing.

Purnanandam (2004) suggested that derivative user banks could maintain smoother operating policies than non-derivative user banks since they had to modify their loaning, borrowing and hedging strategies much less than the non-derivative user banks.

Brewer, Minton, and Moser (2001) concluded that BHCs with a higher capital-to-asset ratio were able to enlarge the lending activity in their commercial loan portfolio faster when employed interest rate derivatives.

The prominent inference of Zhao's et al. (2009) study was "that an average-size BHC would have to increment its capital by $209.37 million to move the interest rate beta down by 35 basis points if it did not use interest-rate derivatives to hedge its interest-rate risk" (p. 38). Brewer et al (2001) confirmed that banks who exercised corporate hedging with interest rate derivatives retained a less expensive equity- capital structure denoting that hedging permitted banks to replace equity-capital with a low-cost risk management policy.

The findings of Zhao et al. (2009) were consistent with the results of earlier studies by Hirtle (1996) who attempted to link BHCs on-balance sheet positions and derivatives activities to their interest rate risk exposure; by Choi and Elyasianni (1996) who examined how derivative transactions have affected the interest rate and foreign-exchange rate risk exposures of banking firms; and by Sinkey et al. (2000) who found evidence that banks' net interest income exposure according to the twelve-month interest rate gap model is synchronically related to interest rate derivatives usage.

Hirtle (1996) used the interest rate beta to determine BHCs' common stock sensitivity to interest rates and found that stocks with positive interest rate beta were linearly corresponding to the fluctuations of interest rate derivative prices, while Choi et al. (1996) concluded that the exchange rate risk betas were generally more significant than the interest rate risk betas. Sinkey et al. (2000) found that membership in a BHC

guaranteed access to the financial markets for smaller banks since they could take advantage of the business-level resources, capabilities, and sophisticated derivative strategies of the BHC they were owned by.

**Foreign Exchange Derivatives**

Al-Shboul and Alison (2009) investigated the relationship between the use of foreign currency derivatives and foreign exchange rate exposure with respect to the ownership structure variables and concluded that the foreign- currency derivatives usage reduced foreign- exchange rate exposure. Adkins, Carter, and Simpson (2007) found that strategic variables such as executives' salary benefits and stock ownership were major decision-making incentives to determine the volume of foreign-exchange derivatives executives used. Beber and Fabbri (2008) investigated whether and to what extent "the time-series variation of foreign currency derivatives" was tied to the CEO individual characteristics and found that "currency derivative holdings reacted to the past dynamics of the foreign exchange rate" (p. 29).

Adkins et al. (2007) found that the amount of derivatives used by BHCs to hedge foreign-exchange risks was determined by the financial size category of the BHC, in contrast to Al-Shboul et al. (2009) who found that firm size had no significant effect on foreign exchange rate exposure. Both Adkins et al. (2007) and Al-Shboul et al. (2009) found that the leverage ratio (i.e., ratio of equity to total assets) and the current ratio were negatively and significantly related to the foreign exchange exposure, while Adkins et al. (2007) found that the ratio of foreign interest income to total interest income were the

major determinants of the amount of foreign currency derivatives BHCs used for hedging.

In terms of the effects of corporate governance on the desirability of hedging to reduce exposure, Al-Shboul et al. (2009) found that the "directors", "block-holders" and "institutions" (page 16) had more incentives to diversify their own portfolios, while overseeing the hedging decisions of the firm's management to reduce exposure. Consistent with this idea Beber et al. (2008) showed that 63% of the firms had to annually adjust 30% of their derivative contracts while the annual average change of the foreign-exchange derivatives notional amounts was 56% providing evidence that "executives hedged less (more) after observing the increase (decrease) of the foreign currency" (p. 28). Beber et al. (2008) interpreted their findings as affirmation that managers' dynamic involvement with the foreign exchange market reflected their personal preferences, individual attitudes toward risk, specific skills and opinions. Similarly, Adkins et al. (2007) found a positive parameter estimate for the logarithm of institutional ownership suggesting that institutional block-holders were able to monitor and influence the actions of the firm's management, thus leading to hedging to reduce risk exposure to protect the value of their ownership position.

Muller and Verschoor (2008) concluded that "the value-relevance of accounting disclosures about foreign- exchange risk management practices" were statistically insignificant and suggested that "managers used foreign currency derivatives to hedge only a small proportion of the currency risk", while " investors made systematic errors

when assessing the impact of foreign currency derivatives usage on risk exposures" (p. 30). Similarly, Chamberlain, Howe, and Popper (1996) found that reported accounting indicators described roughly only 25% to 40% of the estimated foreign exchange exposure. Hagelin and Pramborg (2004) suggested that although translation exposure hedges decreased foreign exchange risk they should not be used by firms to hedge the translation of foreign-exchange risk exposures since translation gains (losses) tend to provide insignificant estimations of the variations of a company's actual worthwhile translation exposures do not have an immediate influence on a company's cash flows since they are not realized.

The empirical results of Muller et al. (2008) presented robust "support to the hypothesis that the degree of international involvement approximated by the percentage of foreign sales was a major determinant of firms' currency risk exposure" (p. 11). Muller et al. (2008) contributed to the line of reasoning that tax-loss carry forwards play an important part in portraying companies' usage of foreign-exchange derivative contracts.

Allayannis and Weston (2001), and Muller et al. (2008) concluded that firms with high liquidity ratios, leverage, investments, and progression were extra responsive to foreign- exchange currency fluctuations. Allayannis and Ofek (2001) found that the foreign-exchange derivatives to total-assets ratio adversely affected a company's exposure to foreign-exchange risk. Chamberlain et al. (1996) affirmed the adverse association between the net foreign asset position of a BHC and its foreign exchange exposure.

**Mortgage Banking Risk Management and Accounting for Economic Hedges**

SFAS 133 as the primary directive for the accounting treatment of derivative instruments in the United States requires all entities to disclose information about the interest rate, foreign exchange rate, and credit risk exposures hedged with derivative instruments. Statement 133 constrains financial institutions to distinguish between derivative instruments designated as hedges used for corporate risk management purposes such as fair value hedges and cash flow hedges and derivative instruments used to hedge economic risks such as economic hedges (SFAS133, 2008, para. 44).

Derivatives instruments used by BHCs and designated as economic hedges do not comply for hedge accounting under SFAS 133 and should be included in derivative assets or derivative liabilities. Bank of America in its 2008 10-K stated that:

> Economic hedges used in mortgage banking to decrease the sensitivity of earnings to interest rate and market value fluctuations include: interest rate swaps that do not qualify for the shortcut method (used to open or close gaps identified by the Asset-Liability management (ALM) of banks), mortgage servicing rights (MSRs), interest rate lock commitments (IRLCs), first mortgage loans held-for-sale (LHFS), and credit derivatives. Changes in the fair value of derivatives that serve as asset and liability management (ALM) economic hedges, which do not qualify or were not designated as accounting hedges, should be recorded in other income (loss). Changes in the fair value of derivatives that serve as economic hedges of mortgage servicing rights (MSRs), interest rate lock commitments

> (IRLCs) and first mortgage loans held-for-sale (LHFS) should be recorded in mortgage banking income. Credit derivatives used by a bank do not qualify for hedge accounting under SFAS 133 despite being effective economic hedges and changes in the fair value of these derivatives should be included in other income (loss). (Bank of America, 2008, 10K, p. 112)

**ALM Economic Hedges**

BHCs' utilize interest rate derivatives in their ALM portfolio to decrease earnings volatility resulting from adverse interest rate movements as part of their corporate risk management strategy to protect profitability and capital adequacy ratios. The gains and losses derived from BHCs interest rate derivative instruments are likely to offset increases or decreases of the net interest margin of variable-rate hedged assets and liabilities due to changes in market interest rates.

Interest rate swap derivatives are utilized in BHCs ALM portfolio to manage exposures from fluctuations in interest rates. Interest rate swaps are used to hedge fixed-interest rates against floating- interest rates by providing an agreement between two parties to exchange a fixed payment for a floating payment linked to the LIBOR.

Interest rate swaps that transfer fixed interest rate debt to floating interest debt are fair value hedges and swaps that transfer floating interest rate debt to fixed interest rate debt are cash flow hedges (SFAS 133, 2008, para. 68-70). Interest rate swaps are designated to hedge the gains and losses on the hedged item due to changes in benchmark interest rates such as the U.S. Treasury rates or the LIBOR. The benchmark interest rate

concept was first presented in SFAS 138 as a substitute for the risk-free rate concept that the FASB originally used in Statement 133 (SFAS 133, 2008, para. 540).

The shortcut method can be used for both swap fair value hedges and cash flow hedges if the hedging relationship meets certain conditions simplifying swap accounting. Under the shortcut method of accounting if the fair value of an interest rate swap is zero at the inception of the hedging relationship then no- hedge ineffectiveness is assumed and the changes of the hedged item value offset the estimated changes in value of the swap in every period (SFAS 133, 2008, para. 114). However, if the fair value of an interest rate swap is not zero at the inception of the hedging relationship then the interest rate swap does not comply for the shortcut method and it is considered an economic hedge instead (SFAS 133, 2008, para. 68(b)).

**IRLCs and LHFS Economic Hedges**

Interest rate lock commitments (IRLCs) are derivative loans that expire usually 60 days after the commitment day between a loan borrower and a lender mortgage bank under which the lender agrees to finance a residential loan on a fixed-rate, adjustable-rate or floating- rate basis, without taking into consideration market interest changes (FDIC, 2013).

Under SFAS No. 149, "*Amendment of Statement 133 on Derivative Instruments and Hedging Activities*," derivative loan commitments associated with the commencing of mortgage loans held- for- sale (LHFS) are assumed to be derivatives and are reported

on the balance sheet at fair value while their gains and losses are recognized in mortgage banking income (SFAS133, 2008, para. 6(c) & 10(i)).

Outstanding IRLCs expose BHCs to the risk that the underlying rate of the LHFS might decrease during the commitment period affecting the value of the loan. BHCs economically hedge the risk of prospective changes in the value of the loan by hedging the underlying rate of the mortgage loan with forward loan sales commitments, interest rate swaps and options (Bank of America, 2008, 10K; Ryan, 2007).

**MSR Economic Hedges**

Mortgage servicing rights (MSRs) are the rights of a mortgage lender to service an existing mortgage through either the purchase or origination of the mortgage loan (FASB Statement 122 Accounting for Mortgage Servicing Rights, 1995). According to SFAS 156, "*Accounting for Servicing of Financial Assets,"* MSRs are accounted for at fair value and the gains and losses due to changes in the fair value of those MSRs are recorded in mortgage banking income. Interest rate options and swaps, forward settlement contracts, and euro-dollar futures are used as economic hedges of MSRs to decrease the sensitivity of earnings due to market interest rate variations (Bank of America, 2008, 10K).

According to Hutchison (n. d.) hedging the MSR derivative portfolio is economically speculative and potentially generates considerable cash flow volatility. At the same time MSR accounting causes sizable earnings volatility independent of the cash flow volatility determined by the valuation effects of interest rate shocks on MSRs and

the accounting asymmetry of MSR-origination loans. The author proposed that banks may be forced to uneconomically hedge their mortgage banking loans positions if they the perceived accounting asymmetry on cumulative earnings persists for long periods.

**Credit Derivatives**

Banks enter credit derivatives mainly to economically hedge their credit exposures associated with loans and also to provide credit derivatives to clients who want to intensify or reduce credit-default exposures. Bedendoa and Brunella (2009) presuming on the main hypothetical incentives for credit risk transfer (CRT) found that undercapitalized banks with high credit-risk loan portfolio management, cash-flow shortages, and asymmetric information constraints tend to utilize customary CRT provisions such as guaranteed loans and syndicated & securitized financing, while large banks with satisfying capital adequacy ratios responded to adverse financial shocks by increasing the use of credit derivatives.

Credit derivatives are contractual agreements that allow BHCs to generate or to lessen credit exposure linked to defaulting mortgage loans, foreclosing, liquidation or interest rate and foreign-exchange rate fluctuations. A BHC as the credit protection buyer mitigates customers' default- risk by entering into a credit protection agreement with a protection buyer. A BHC as the protection buyer pays the protection seller a recurring charge during the term of the credit derivative expecting to get compensated from the protection seller in case a customer defaults payments on a loan (Bank of America, 2008, 10K).

Junxun (2008) detailed that model risk (derived from the complex models of credit derivatives, settlement risk (derived from the settlement of credit derivatives following a default), and counterparty credit risk was some of the imposed challenges faced by commercial banks in their attempt to administer the risk of their loan portfolio using credit derivatives.

## Risk Management Incentives of Banks

### Under the Theoretical Framework of Corporate Risk Management

The main objective of corporate risk management is to increase shareholder wealth by enhancing firm value through the management of risk exposures (Boyabatli and Toktay, 2004). Classical finance theory, building on the seminal work of Modigliani and Miller (1958), asserted that under perfect markets, corporate risk management programs do not add any value since the benefits of any risk management activity by firms can be reproduced by shareholders through asset diversification.

Modern finance theory opposing the view of Modigliani & Miller and concludes that under an imperfect capital market corporate hedging can increase shareholder worth. Market imperfections like managerial risk aversion, financial distress, information asymmetry, and underinvestment are identified in the finance literature as reasons for the existence of firm-level risk management (Adkins, Carter & Simpson, 2007; Boyabatli et al., 2004; Muller, Verschoor, 2008; Pai, Curcio & Thornton, 2006).

**Managerial Risk-Aversion**

The Federal Deposit Insurance Corporation (FDIC) guarantees a sizeable fraction of the debt held by depositors, which is the largest cash flow claim of banks. According to the moral hazard problem, the FDIC by insuring a large fraction of this type of debt accord bank shareholders the incentive to expropriate wealth from bondholders by increasing risk. Dissimilarly to the primary bank debt holders that do not have sufficient incentives to monitor the bank, the subordinated (non-depository) debt holders as claimants of junior debt have reasons to examine the bank's risk management strategies but they do not have the competence to control the manager- shareholder agency problems (Kose, Mehran, & Qian, 2007).

In the presence of shareholder- manager agency problems, Demsetz, Saidenberg, and Strahan (1997) claimed that managerial risk aversion counteracted unnecessary risk taking arising from moral hazard. Belkhir and Chazi (2008) observed that shareholders of BHCs with more investment prospects encouraged their CEOs to undertake risk when the potential loss from risk-aversion was high. Belkhir's et al. (2008) recommended that higher incentives to undertake risk-increasing investments, as measured by the sensitivity of CEOs' option portfolios to equity risk, induced higher risk-taking but up to a certain level. At high levels of this sensitivity, CEOs regressed back to their risk-averse behavior and reduced the banks' risk exposure.

Kose et al. (2007) studied managerial compensation in a framework where the optimal bank's CEO compensation intended to reduce the standard shareholder-manager

and the risk-shifting agency problems between shareholders and debt holders. Given the managerial risk aversion between banks' shareholders and subordinated debt holders, Kose et al. (2007) concluded that (1) "the pay-for-performance sensitivity of bank CEO compensation increased with the intensity of monitoring provided by subordinated debt holders and regulators," and (2) "the pay-for-performance sensitivity of bank CEO compensation decreased with the total leverage ratio" (p. 27). Similarly, Chen, Steiner, and Whyte (2006) supported that under the managerial risk aversion hypothesis, managerial compensation (as a proxy of stock option-based compensation relative to total compensation) induced risk-taking in the banking industry.

**Financial Distress**

Purnanandam (2004) concluded that financial distress costs affected banks' hedging decisions by finding that BHCs with a higher possibility to undergo under financial distress maintained lower maturity gaps for their investments in derivative assets and liabilities and used derivatives more intensely to manage their interest rate risk exposures. The author measured maturity gaps by multiplying interest rate changes by the market value of variable-rate assets and liabilities at maturity to assess the interest income or interest expense of those owned assets or liabilities due to interest rates volatility.

Carter and Simpson (2004) debated the theoretical findings of Purnanandam (2004) by arguing that the incentives of non-financial firms to lessen the likelihood of financial distress with hedging were not so apparent to banks because the permanence of

Federal Deposit Insurance Corporation diminished their need for driving their hedging strategies to prevent liquidation. Purnanandam (2004) concluded that financially leveraged banks were more disinclined to hedge than high-leveraged non-financial companies.

Shin et al. (2007) anticipated BHCs to be more risky with an increased financial leverage ratio (the ratio of total- debt to total –equity) than non-financial firms since the federal deposit insurance constituted a substantial fraction of their liabilities, while Carter et al. (2004) expected that the federal deposit insurance coverage might reduce BHCs reliance on hedging to raise the total amount of incurred debt or alternatively their debt capacity.

Ashcraft (2007) argued that although the Federal Deposit Insurance Corporation (FDIC) provides banks with the flexibility to decide on the levels of equity and debt capacity to maintain minimum regulatory capital requirements, investors and lenders still view debt and equity as imperfect substitutes. Ashcraft (2007) documented that the optimal debt-equity mix of BHCs' targeted financial capital structure decreased their likelihood to suffer from financial distress or face bankruptcy issues while banks with a less advantageous debt-equity mix that are heavily financed by debt covenants presented a higher probability of financial distress.

Similarly, Shiu and Shin (2006) concluded that that BHCs with a constrained number of debt securities outstanding that are financing their business activities by selling preferred shares are found to hedge financial distress costs with derivatives.

**Underinvestment Cost**

Under the potentiality of expensive financing Froot, Scharfstein, and Stein (1993) developed a frame of reference to analyze corporate risk management behavior. Froot's et al. (1993) risk management paradigm was the result of three observations: first, hedging would add value to the extent it ensured a firm had accessible internal funding to profit from high-yield investments in positive net-present-value (NPV) projects, if external sources of finance were more costly to firms than internally generated funds. Ju and Yang (2006) debated that NPV investments might not be epitomized by equity-shareholders if they do not want to divide the profits with debt-shareholders since they are the ones who have to encompass all the invested costs of capital.

Ju et al. (2006) concluded that a catalyst in decreasing the underinvestment cost in an effective context is to finance a company at the present time which will strengthen the company's underlying assets along with diminishing the likelihood of the company's credit-default, which the two together reinforce the NPV of future undertakings thus advancing shareholders prospective investing power.

Second, Froot et al. (1993) observed that firms would hedge less when their cash flows were closely connected with prospective investment opportunities while firms would hedge more when their cash flows were closely connected with collateral values and thus with their ability to raise external financing. Gay and Nam (1998) and Lin and Smith (2005) insisted that underinvestment costs determine companies derivative usage while found evidence of a concrete interrelationship among a company's derivatives

positions and progressive investments. Gay et al. (1998) concluded that companies with investments in progressive projects had more derivative positions when they had lower-levels of retained earnings than companies with operational cash-flows directly impacting capital expenditures.

Lin and Smith (2005) advocated that firms with high-growth investments did not hedge to increase leverage, while firms with fewer investment opportunities increased their leverage by hedging. Lin's et al. (2005) results supported Ross's (1996) theorem supports that the underinvestment problem is not abridged by value maximization consistent with high-growth companies hedging to increase debt capacity, while Stulz's (1996) theory supports that the bankruptcy risk can be reduced by value maximization consistent with slow-growth companies hedging to make greater use of the interest tax shields from debt to increase financial leverage.

Third, Froot et al. (1993) observed that under an optimal hedging strategy a company's worth was still not completely shielded from systematic risk fluctuations in equity risk, interest risk, foreign-exchange risk and commodity prices risk. Allayannis and Weston (2001) found in regard to Froot's et al. (1993) third observation that the use of foreign currency derivatives (FCDs) was likely rewarded by investors with higher valuations in the marketplace as it substantially mitigated underinvestment. Allayannis et al. (2001) "using Tobin's Q as an approximation for firm market value" (p. 1) found significant evidence that firms who hedged their foreign currency risk with currency derivatives had a 4.87% higher value.

**Information Asymmetry**

Corporate hedging is considered to add asymmetric information and noise in earnings when BHCs' hedging activities are not clearly communicated to market participants. Nguyen, Faff, and Hodgson (2007) insisted that the existing SFAS 133 framework exacerbated the information asymmetries derived from the plethora of hedging activities provided to manage different types of risks in conjunction to the unique exposure profile reflected by each firm's underlying operating and financing activities.

In the same token, Dadalt, Gay and Nam (2002) reported that the sensitivity of a BHCs' interest-rate risk exposure pertained less asymmetric information as a proxy of the Correctness of Analysts' earnings forecasts than the sensitivity of its foreign-exchange risk exposure due to issues on the application of accounting.

Aboody and Lev (2000), using accounting disclosures as a proxy for asymmetric information supported the theoretical argument that exploitation of insiders' information advantage would pose a risk to uninformed investors and insisted that this exploitation should be reflected in the cost of capital since high (low) earnings quality translated into low (high) cost of capital. In the banking sector, Crouzille, Lepetit, and Tarazi (2004) argued that dependence on junior debt might decrease the asymmetric information on financial statements undetectable earnings volatility.

**Banks and Earnings Volatility**

The new financial market regulations eroded banks' comparative advantages in lending and deposit-taking activities by providing easy access for nonbank financial institutions to enter the market. Young and Roland (1999) in a paper published by the Federal Reserve Bank of Chicago, stated that, in response to the new market regulations, banks started charging a fee income for financial advising in mutual fund investments and individual retirement accounts (IRAs); wealth management investments in hedge and private equity funds; mortgage banking such as lines of credit and debentures; trading stocks and derivatives for customers; and international banking.

Young et al. (1999) found that as banks inclined toward fee income financial services and distant themselves from conventional loan servicing experienced (1) higher revenue fluctuations, higher leverage management and subsequently increases in earnings volatility since earning volatility is the result of volatile revenue and leverage, and (2) higher earnings from fee-income services which subsequently resulted in higher risk-premiums. Young et al. (1999) suggested that bank managers shifted toward fee-based financial services because they believed that increased earnings volatility would enhance the value of shareholders' stock-options in the bank. Excessive earnings volatility might compromise BHCs ability to produce sound financial statements (Couto, 2002) and affect BHCs equity and debt capital ownership structure (Albertazzi & Gamabacorta, 2009).

Shehzad, Scholtens, and Haan (2008) examined how interest and commission income and managerial efficiency affected banks earnings volatility and found no

empirical evidence that interest income and non-performing loans (NPL) caused less volatile earnings while the authors found that commission income and managerial deficiency caused more volatility in earnings for banks.

**Earnings Smoothing**

"Earnings smoothing is a special case of earnings management involving intertemporal smoothing of reported earnings relative to economic earnings; it attempts to make earnings look less variable over time" ( Goel and Thakor, 2003, p. 1).

Corporate earnings management has attracted much attention in the accounting literature. Tucker and Zarowin (2005) and Zarowin (2002) documented the importance of managers' use of financial reporting discretion under the flexibility of the current accounting disclosure requirements. Consistent with the opportunistic earnings management behavior, Zarowin (2002) and Lobo and Zhou (2001) found that corporate disclosures and earnings management were significantly negatively related concluding that firms that disclosed less engaged more in earnings management and vice versa, while Tucker et al. (2005) concluded that income smoothing improved earnings apprehensiveness when executives used their judgment to announce their evaluation of forthcoming earnings, while it made earnings noisier when managers intentionally distorted the earnings numbers.

Dey (2004) indicated that sophisticated investors viewed managers' actions to smooth earnings more as opportunistic rather than informative earnings management, while Goel et al. (2000) indicated that earnings volatility was a source of information

advantage only for informed investors. Dey (2004) concluded that firms with higher institutional investments and more analysts did not manipulate earnings management to smooth their earnings smoothing signifying the importance of capital market considerations in managers' reporting decisions. Sun and Rath (2008) emphasized on two opposing points of view for earnings management; (a) managers' opportunistic treatment of accounting numbers to increase their performance pay and safeguard the future of their career, and (b) potential signaling mechanisms such as dividend payouts, stock repurchasing programs, and resource allocation managers use to maximize firm performance and stockholders wealth.

The findings of Hunt, Moser, and Shevlin (2000) indicated that there were a higher positive association between earnings smoothing through discretionary accruals and the equity value and earnings volatility than earnings smoothing through non-discretionary accruals. Tucker and Zarowin (2005) concluded that the future earnings of a higher-earnings smoothed firm were detained in its current stock price to a larger extent than that of a lower-earnings smoothed firm, while Hunt et al. (2000) insisted that the decreased earnings volatility caused by discretionary accruals were correlated with more persistent earnings recurrence and with low-volatility stock returns. Kanagaretnam, Lobo, and Zhou (2005) investigated the implications of bank managers' discretion over their loan loss provision to empirically assess whether discretionary loan loss provision contained signaling and income smoothing components. Kanagaretnam's et al. (2005) results indicated that an undervalued bank performance played a critical role in

motivating bank executives to use discretionary accruals to signal their private estimates on the bank's future performance.

# Chapter 3: Research Method

The introduction of SFAS 133 has raised concerns about (a) its effect on firms' hedging activities, (b) the perceived earnings volatility derived from the statement's lack of alignment between the accounting and economics of hedging, and (c) entities' possible manipulation of the differential accounting treatment for accounting hedges vs. economic hedges to smooth earnings. The main purpose of this study was to determine whether or not the possibility of increased volatility evolved from economic hedges that do not qualify for hedge accounting under SFAS 133 prompted some BHCs to adjust their corporate risk management strategy to one that is more accounting responsive.

A causal comparative design was used to examine the effects of SFAS 133 on BHCs' corporate use of derivative instruments designated as accounting and economic hedges, earnings volatility and income smoothing one year after the 2008 amendment of SFAS 133. A group of a sample of BHCs classified as *SFAS133- accounting hedgers* was compared to another group of BHCs classified as *SFAS133- compliant hedgers* to determine the different hedging activities of BHCs. This chapter also presents the hypotheses and the measurement of the independent and dependent variables. The research design implemented to test those hypotheses, and the validity of the multiple regression models are discussed, in addition to a description of the sample selection and the sources of data.

## Research Design and Design Appropriateness

A causal comparative study is used to evaluate two different groups to justify possible similarities between them based (a) on the variables of interest and (b) on assumed causes of these differences. Causal comparative research is considered descriptive research since it explains previously existing conditions (Cone & Foster, 2002). Causal comparative design is the appropriate design to use in this study because I attempted to understand the effect of a potential cause, or reason, for preexisting differences of selected groups which in this case are BHCs groups.

Moreover, I attempted to determine the relationship between hedging activities (potential cause) and earnings volatility (effect), based on existing data. Thus, causal comparative design was the most appropriate for this study. In identifying the effect of SFAS 133, I compared two groups of sampled BHCs (SFAS 133-compliant hedgers versus SFAS 133-accounting hedgers) and examined differences between them on the variables of interest such as earnings volatility and earnings smoothing.

## Research Questions and Hypotheses

In this section, the basis for the research questions of the study and their associated hypotheses are discussed. The objective is to establish a foundation for the data collection and analysis methods described in subsequent sections of this chapter.

### Research Question 1

In the existing accounting literature, there is a belief that some BHCs might have been prompted to adjust their corporate risk management strategy to one that is more

accounting responsive to avoid increased earnings volatility with hedge accounting. SFAS 133 has compromised BHCs' capacity to economically hedge financial risks since they are forced to decide between using economic hedges that increase earnings volatility but efficiently handle economic risks or decrease earnings volatility using corporate risk management approaches that are economically ineffective or not practical. These concerns have been supported by the theoretical findings of Kolsasovsky (2009), Lins et al. (2008), Revsine, Collins, and Johnson (2002), Peterson et al. (2000), and DeMarzo et al. (1995). Characteristically, Lins et al. (2008) stated that:

> Firms that operate in an environment where contracts are more likely to be written on accounting data, and firms that attach more importance to the reduction of earnings volatility as a benefit of risk management are more affected and care more about obtaining hedge accounting. (p. 34)

Additionally, Green (2008) stated that Statement 133 does not permit special hedge accounting for all relationships that may be economic hedges. A BHC, in order to designate a hedging relationship for SFAS 133 hedge accounting purposes, must identify the hedged asset, liability, or transaction, but that designation might not necessarily correspond exactly with management's overall economic goals. The author concluded that BHCs would be reluctant to use economic hedges if the accounting income is going to be affected adversely, not by economic events, but by the accounting convention applied to hedges (not allowing hedge accounting).

The Financial Accounting Standards Committee of the American Accounting Association, in a comment letter (1999) to the Joint Working Group of Standard Setters (JWG), defended the idea that SFAS 133, by not allowing a hedge designation for economic hedges, causes financial statements to suffer from material economic earnings volatility due to the lack of a fair value measurement of hedged items. This view was supported by the theoretical findings of Lins et al. (2008), who documented a considerable diminution in derivative instruments with a negative likelihood to comply for hedge accounting under SFAS 133 such as foreign exchange derivatives and nonlinear derivatives such as vanilla options and exotic derivatives.

According to the extant accounting literature, economic hedges used " in mortgage banking to reduce the sensitivity of earnings to interest rate and market value fluctuations" (Bank of America, 10-K, 2008, p. 112) cause increased volatility in earnings since they do not qualify for hedge accounting. Specifically, the accounting treatment of MSRs creates a serious earnings timing difference between the recognition of servicing rights losses and the income from mortgage origination that exposes even an economically (cash flow) hedged mortgage bank to serious earnings volatility. Hutchison (n. d.) suggested that many economically hedge mortgage banks will have incentives to take uneconomic hedge positions against their servicing rights portfolios because that short-term earnings volatility induced by the asymmetric accounting treatment of the servicing and origination franchises is marked and persistent.

Additionally, if the fair value of an interest rate swap is not zero it does not qualify for the shortcut method. In this case, the change in the value of hedged item and the swap are calculated separately, and the difference between the two is charged to income creating earnings volatility, which can be significant if the swap is not well matched to the hedged item (SFAS133, 2008, para. 114).

According to the Office of the Comptroller of the Currency (OCC, 2005) because no hedging forward loan sales commitments are assessed at fair value all through earnings when the fair value of the mortgage loans increase above their cost basis would cause increased volatility in reported earnings. The reported earnings volatility is resulting from realizing in income the amount of loss from changes in the fair value of the forward loan sales commitments without modifying the book value over the costs basis of the mortgage loans.

Therefore, to determine whether the possibility of increased volatility evolved from economic hedges that do not comply for hedge accounting under SFAS 133 prompted some BHCs to adjust their corporate risk management strategy to one that is more accounting responsive, the following research question was proposed:

1. Did BHCs hedge in the optimal economic way (thus recognizing the volatility in earnings originated from those hedges that did not comply for hedge accounting treatment), or did BHCs hedge in a limited fashion only where hedge accounting treatment could be attained (thus evading additional earnings volatility and decreasing just a limited amount of the economic risks)?

$H1_0$: There was no difference in the mean notional value of derivatives for *SFAS133-compliant hedgers* and *SFAS133-accounting hedgers* after the 2008 amendment of SFAS 133.

$H1_a$: There was a difference in the mean notional value of derivatives for *SFAS133-compliant hedgers* and *SFAS133-accounting hedgers* after the 2008 amendment of SFAS 133.

**Research Question 2**

In the existing accounting literature Singh (2004), Park (2004), and Zhang (2008) found that after original pronouncement SFAS 133 derivatives users had lower levels of earnings volatility. Consistent with the hedge effectiveness under SFAS 133, the gains and losses on the derivative instrument and the hedged item equalize each other and are synced in earnings in the same accounting period protecting the income statement from any volatility instigated from variations in the derivatives' underlying such as foreign-exchange and interest rates and only the hedge ineffectiveness between the gains and losses on the derivative instrument and the hedged item are reported directly in income causing averse volatility.

While the effects of SFAS 133 on earnings volatility is of pertinent concern, Zhang (2008) indicated the importance of disaffiliating the effects of SFAS 133 on BHCs corporate risk management behavior and immediate earnings volatility while making the presumption that BHCs did not adopt an accounting responsive risk management strategy. Zhang (2008) came to the conclusion, that after the implementation of SFAS

133, financial analysts would not detect any additional earnings volatility if BHCs felt that any additional earnings volatility would be detrimental and material and attuned their derivatives contracts in anticipation of these detriments. Singh (2004) concluded that, after the original pronouncement of SFAS 133, the intensification given to hedging and smoothing conferred managers' intentions to avoid increases in earnings volatility through earnings smoothing.

Park (2004) argued that BHCs either overstated the impact of SFAS 133 on earnings volatility to ease the formation of SFAS 133 or they already had attuned their hedging strategies in expectancy of earnings volatility amplifications. Park's (2004) tests of earnings volatility showed that the "three income-affecting sources (TIPs) (i.e., ineffective hedge gains/losses, gains/losses excluded in hedge assessment, and effects from cancelled forecasted transactions previously designed as cash flow hedges)" (p. 15) arisen from SFAS 133 did not increase earnings volatility and concluded that variations in the fair value of derivative instruments not qualifying for hedge accounting might had an effect on earnings volatility increases.

Therefore, to determine whether some BHCs adjusted their corporate risk management strategy to one that is more accounting responsive to achieve a decrease in earnings volatility, the following research question and associated hypotheses are proposed:

2. Did BHCs that increased their level of *SFAS133-accounting hedges* and decreased their level of *SFAS133-economic hedges* in response to the new accounting

standard experience a significant decrease in earnings volatility relative to pre-SFAS 133?

$H2_0$: There was no difference in earnings volatility for *SFAS133-compliant hedgers* and *SFAS133-accounting hedgers* after the 2008 amendment of SFAS 133.

$H2_a$: There was a difference in earnings volatility for *SFAS133-compliant hedgers* and *SFAS133-accounting hedgers* after the 2008 amendment of SFAS 133.

**Research Question 3**

The majority of entities view earnings, especially earnings-per-share ratio (EPS), as the key metric for financial analysts (Graham, Harvey, & Rajgopal, 2005). The Association for Financial Professionals (AFP) (2008), in a comment letter on the FASB's projected amendment to SFAS 133, confirmed that financial statement preparers and users often disregarded gains and losses not realized in the income statement appointing nongeneral accepted accounting principles (GAAPs) performance evaluating metrics to earnings-per-share ratio (EPS) because of the derivatives accounting distortions caused by the differential earning's recognition of accounting vs. economic hedges.

Graham et al. (2008) found that 300 out of 401 surveyed financial executives would sacrifice economic hedging to achieve smoother earnings. In the extant accounting literature, there is a prevalent concern that BHCs might take advantage of the nonuniform earnings recognition for hedging gains/losses to manipulate earnings to achieve earnings smoothing. The non-uniform earnings recognition derives from the differential treatment

of the gains and losses from variations in the fair value of derivatives designated as fair value hedges, cash flow hedges, and economic hedges.

Singh (2008) attested that the earnings management choices of directors were determined by SFAS 133 by showing that the largest derivative users and companies disclosing a transition adjustment for fair value hedges of interest rate risks or expiring of derivatives had the highest level of smoothing after the pronouncement of SFAS 133 compared to other users. Zhang (2009) suggested that companies engaged in more judgmatic risk-management behavior after the implementation of SFAS 133, while Couto (2002) suggested that banks with negative or declining earnings might assume imprudent risks in attempting to increase their earnings.

Zhou (2009) investigated the prominence of SFAS 133 in the banking industry's income statement by examining whether the differential accounting treatment of different categories of hedging activities under SFAS 133 induced opportunistic earnings management behavior and affirmed that BHCs took advantage of the differential accounting treatment of cash flow hedges that delays the recognition of derivative gains/losses to avert earnings decreases.

To examine if BHCs took advantage of SFAS's 133 differential treatment of the changes in the fair value of accounting versus economic hedges to manipulate earnings, the following research question and associated hypotheses were proposed:

3. Did BHCs take advantage of SFAS's 133 differential treatment of the changes in the fair value of derivatives designated as cash flow hedges to manipulate earnings to make them smoother?

$H3_0$: There was no difference in earnings smoothing for *SFAS133-compliant hedgers* and *SFAS133-accounting hedgers* after the 2008 amendment of SFAS 133.

$H3_a$: There was a difference in earnings smoothing for *SFAS133-compliant hedgers* and *SFAS133-accounting hedgers* after the 2008 amendment of SFAS 133.

## Measurement of Variables

### Measurement of Derivatives

"The FASB decided to define derivative instruments based characteristics rather than simply referring to financial instruments commonly known to be derivatives" (Trombley, 2003, p. 26). The FASB wanted to make sure that as new derivatives are invented, Statement 133 would continue to apply to them as long as their characteristics are similar to those of currently available derivatives (Trombley, 2003).

Financial instruments have three characteristics according to the FASB's definition of derivatives, included in the scope the definition of SFAS 133 (2008, para. 6). First, "derivatives should have one or more underlying prices or values and one or more notional amounts and/or contract payment provisions" (p. 8). Second, derivative contracts should require a zero invested capital to initiate or an invested capital that is

lesser than comparable investment contracts with analogous expected responses to financial market changes. Third, derivatives should necessitate a cash payment settlement between the contract parties or settlement by delivery of an asset that can be easily converted into cash or is another derivative.

In the extant literature, the notional principal amounts of the overall derivatives positions (swaps, forwards, futures and options based on interest rates, exchange rates, and other underlying instruments) is used to measure derivatives as a proxy for hedging (Bartram, et al., 2007; Gilkeson et al., 2006; Hirtle, 1996; Park; 2004; Purnanandam, 2004; Zhao et al., 2006). The total notional amount of derivative instruments designated as economic hedges of MSRs, IRLCs, LHFSs, ALMs, and credit derivatives and the total notional amount of the derivatives instruments and other securities designated as fair value hedges and cash flow hedges were used as a measure of derivatives.

**Measurement of Income Smoothing**

Derivatives and accruals as stated by Hunt et al., (1997), Barton, (2001), and Zarowin, (2002) act as substitute proxies in managing reported earnings. In line with the literature, the most widespread proxy for BHCs income smoothing behavior is the loan loss provision which is the largest accrual of BHCs (Cornett, McNutt, & Tehranian, 2009; Kanagaretnam, 2000; Kilic, Lobo, Ranasinghe, & Sivaramakrishnan, 2009). As a proxy for income smoothing, the ratio of loan loss provisions (LLPs) is adopted, which is the ratio of a BHC's loan loss provision to net interest income used in Laeven and Levin (2009).

BHCs corporate governance could influence their earnings management since they maintain the freedom to choose the amount of the loan loss provisions in addition to the realized amount of the hedged gains and losses from derivative instruments. BHCs in periods of low earnings could use earnings management to smooth earnings by overstating capital adequacy ratios, deferring the recording of loan loss provisions and increasing the realization of derivative hedging gains (Cornett et al., 2009). Kilic et al. (2009) using a sample of US BHCs over the period of 1996-2006, found that banks whose income was most likely affected by SFAS 133 increased their reliance on loan loss provisions for income smoothing post-SFAS 133, while the authors did not find evidence of SFAS 133 improving the value relevance of earnings before taxes and provisions.

Alternatively, the ratio of the total notional value of derivatives used as hedging instruments divided by total assets (Attia, 2012; Barton, 2001) was used to measure any possible differences in earnings smoothing between *SFAS133-Compiant Hedgers* and *SFAS133-Accounting Hedgers*. According to Attia (2012), the ratio of notional value of hedging derivatives to total assets can provide advantageous quantitative information about the recognition of derivatives hedging relationships.

**Measurement of Earnings Volatility**

Measures of volatility are estimated to evaluate the effects of SFAS 133 on BHCs earnings volatility. Volatility is measured by the coefficient of variation of earnings one year before and after the 2008 amendment of SFAS 133 following Bartons' (2001), Barnes' (2001), and Zhangs' (2008) prior research. Zhang (2008) imposed eight quarters

of non-missing data as the lowest possible data condition to lessen the noise in estimating earnings volatility. Laeven and Levine (2009) defined the coefficient of variation of earnings as the average standard deviation of the ratio of total earnings before taxes and loan loss provisions to average total assets.

**Information Asymmetry Proxy**

It has been observed in the literature of corporate risk management that symmetric information benefits both private investors and shareholders since these companies are valued higher by financial analysts. Anecdotal evidence suggests due to the pertaining weaknesses of information asymmetry companies with a higher number of financial analysts following the company year around and private investors tend to feel more pressured to hedge their risk exposures with derivatives.

Geczy, Minton, and Schrand (1997) showed that there is a complimentary relationship between the use of foreign-exchange derivatives and private investors & financial analysts following the company year around suggesting that information asymmetry was not influential when in small levels. Wang (2005) found that for firms with more asymmetric information regarding their earnings, measured by the dispersion of analysts' forecast, earning news increased future volatility more than it did for firms whose earnings information were less asymmetric to the market.

Therefore, the logarithm of the number of analysts following the firm each year is used to measure the probability of information asymmetry following prior research on the

determinants of hedging information asymmetry costs similar to Singh (2008), Geczy et al. (1997), and Brown (2001).

**Underinvestment Cost Proxy**

Financial theory proposed that underinvestment costs were connected with the degree of financial leverage in bank lending. Bank underinvestment is a contributing factor in credit crisis since bank capital typically declines in recessions due to loan losses efficiently escalating financial leverage. Banks with moderately low quality loans, capital, and more underinvestment opportunities encounter poorer loan growth. Subordinated debt and capital requirements improved overinvestment but at the same time worsen banks underinvestment incentives. Consequently, BHCs with high market-to-book ratios, a proxy for underinvestment costs would be less reliant on subordinated debt (Stanton, 2008).

Therefore, the market-to-book ratio is used to measure the probability of underinvestment cost following prior research on the determinants of hedging underinvestment costs similar to Zwang (2009), Singh (2008), and Park (2004).

**Managerial Risk Aversion Proxy**

Based on the managerial risk-aversion hedging theory, Purnanandam's (2004) finding that banks with a higher managerial vega (measured as the managers' stock-option holdings sensitivity on the volatility of the stock's return) increased the maturity GAP of their portfolios and used less derivatives supporting the theoretical view of Barton (2001) that earnings volatility changes were determined by the manager's

responsiveness to their stock- options compared to the company's stock returns. As a proxy for hedging managerial risk aversion (MRA), Chen's et al. (2006) ratio of CEOs stock option-based compensation relative to total compensation was adapted.

**Financial Distress proxy**

Fehle and Tsyokakov (2005) found a non-monotonous correspondence between financial distress and corporate risk management activities. Carter et al. (2004) expected that banks with higher leverage were more disinclined to hedge and expected to decrease the probability of financial distress through the deposit insurance.

According to Basil II Accord (2004), BHCs should maintain a Tier 1 Leverage ratio that is equal or higher than three percent to meet the minimum banking requirements and be considered sufficiently capitalized. The Tier 1 Leverage ratio is measured by dividing the Tier 1 Capital by the quarterly average total assets after certain adjustments. Tier 1 Capital is the paid-in capital consisting of common stock, non-redeemable non-cumulative preferred stock, and retained earnings. The Tier 1 Capital is the nucleus of a BHCs' economic power from the bank regulators viewpoint (Bank of America, 2008, 10K).

Therefore, the Leverage ratio is used to measure the probability of financial distress following the capitalized regulatory requirements of Basel II Accord (2004) and prior research on the determinants of hedging financial distress costs similar to Carter et al. (2004), Shiu et al. (2006), Ashcraft (2007), and Shin et al. (2007).

**BHCs Capital Adequacy Proxy**

The Board of Governors of the Federal Reserve System (FDIC) (2010) to support the capital adequacy valuation of BHCs and limit BHCs' ability to leverage their equity capital base requires "well-capitalized" financial institutions to sustain a Tier 1 Capital and Total Capital ratio that is 200 basis points higher than the minimum requirement of 4% for the Tier 1 Capital ratio and 8% for Total Capital ratio.

During this heightened period of market stress, BHCs management should continuously evaluate opportunities to build their capital position due to the limited ability to source meaningful private-sector capital. Therefore, BHCs management should remain focused on managing asset-liability levels appropriately ensuring the deployment of minimum capital requirements to core lending businesses and trim other assets and liabilities in non-core businesses. The Tier 1 Capital ratio is used to control BHCs adequate capital ability to manage the financial risks derived from problematic loans. Alternatively, the Tier 1 Capital ratio is used as a proxy for BHCs economic and executive decision- making susceptibility, as well as a proxy for BHCs growth progression.

The risk-based capital guidelines provide computations of the Tier 1 Capital as established by FDIC's (2010) "Risk Management Manual of Examination Policies" and it could be found at http://www.fdic.gov/regulations/safety/manual/section17-1_capcalc.html .

**Interest Rate Risk Exposure Coefficients**

BHCs ALM portfolio preserves a risk management approach that integrates interest rate and foreign exchange derivative contracts to control earnings volatility initiated by interest rate and foreign exchange rate changes. Changes in interest rates and foreign-exchange rates influence the market demand for mortgage loans financing and subsequently BHCs total origination and service fee earnings for proving mortgage financing services.

The question arises is whether BHCs use derivatives for hedging to manage the changeability of the value of cash-flow hedges and fair-value hedges in the balance sheet attributable to interest rate and foreign exchange rates fluctuations or for speculation to manage movements in interest rate and foreign- exchange rate sensitivities to manipulate net interest income.

Judge (2006) believed that in order to determine how a company feels about the two sides of derivative usage (hedging or speculating), the firm's sensitivity to risk exposures have to be identified in order for analysts and investors to determine whether the firm is hedging or speculating with derivatives. Guay and Kothari (2000) argued that investors have to recognize the level of a firm's risk exposure hedged with derivatives to evaluate their corporate effectiveness to manage risks with a portfolio of derivative contracts.

Guay et al. (2000) concluded that if a company's derivatives portfolio were subjected into a three standard deviation synchronized change in interest rates, foreign-

exchange rates, and commodity prices, the portfolios' value-worth would increase by $31 million and it would deliver $15 million cash- distribution for the company. Shin and Shiu (2007) recommended that intensive hedgers should be obliged to provide a more comprehensive picture of the overall derivative contract types used for hedging by disclosing more detailed measures of their interest-rate risk and derivative exposures.

Therefore, the systematic risk of the sampled BHCs is controlled by computing each BHCs' interest- rate risk exposure coefficient for December of 2008, and 2009 and including the interest-rate risk exposure coefficient in the regression as proxies for hedging. Following the approach of Guay (1999) and Zwang (2008), BHCs *interest rate risk exposure* is computed "as the absolute value of the estimated coefficient from a regression of an entity's monthly stock returns on the monthly percentage change in LIBOR" (p. 37).

**Sample Selection and Data Collection**

The primary data examined in this study are for U.S. BHCs in Peer 1 and Peer 2 Groups with total assets greater than $10 and $3 billion respectively. The list of the BHCs Peer Groups as of the third quarter of 2009 was obtained from the National Information Center of the Federal Reserve Board home page found at http://www.ffiec.gov/nicpubweb/content/BHCPRRPT/BHCPR_Peer.htm. A list of the BHCs included in the sample and their total asset size is provided in Appendix B. The focus of this study is on the largest financial institutions because BHCs in Peer 1 and Peer 2 Groups epitomize the derivative activities of the entire banking industry which helps

avoid sample selection bias. According to the Comptroller of the Currency (2009), in the United States the derivatives market is controlled by the five largest BHCs which represent 97% of the total financial industry's notional amount of derivatives (OCC, 2009). Additionally, the OCC (2009) trusts that these financial institutions have the sophisticated tools and expertise needed to operate in the "highly specialized business of structuring, trading, and managing derivatives transactions" (p. 1).

The data for the derivative instruments and hedging activities of the sampled BHCs were collected from their annual financial statements (10Ks) found in the Edgar Filing System of the SEC by using the open full reader search and keyword searches such as notional, cash flow hedges, fair value hedges, economic hedges, derivatives, and SFAS 133 from fiscal year 2008 to fiscal year 2009. In the BHCs official website under investor relations, data for the CEOs stock option-based compensation were retrieved from the BHCs proxy statements, while data on the number of analysts following the company were retrieved under analyst coverage.

**Sample Size**

This study examined the entire target population of Peer 1 Group and Peer 2 Group of BHCs which consists of 167 banks. Peer 1 Group pertain 75 banks and Peer 2 Group pertain 92 banks. The entire target population of 167 BHCs were classified in the following three groups: (1) BHCs that use both derivatives designated as accounting and economic hedges (Group 1), (2) BHCs that use only derivatives designated as

accounting hedges (Group 2) , and (3) BHCs that use derivatives not designated as hedges (either accounting or economic) (Group 3).

After the 167 BHCs were classified in the three groups, the BHCs in Group 3 were disregarded since they are not representative to the study and the total number of BHCs in Group 1 and Group 2 determined the sample size for this research.

**Data Analysis**

To determine whether BHCs reassessed their corporate risk management approach to one that is more accounting responsive or not, BHCs were classified as either *SFAS133- accounting hedgers*, or *SFAS133- compliant hedgers*. This classification translates into differentiating between BHCs that changed their risk management philosophy to qualify for (a) only SFAS133- accounting hedges that do not originate earnings volatility and (b) SFAS133- compliant hedges which include both accounting hedges and economic hedges that reduce economic risks but add earnings volatility in financial statements.

BHCs were classified as *SFAS133- accounting hedgers* when they use only derivatives qualifying for hedge accounting under SFAS 133 comprising those instruments designated as fair value and cash flow hedges. Alternatively, BHCs were classified as *SFAS133- compliant hedgers* when they use both derivative instruments designated as fair value and cash flow hedges under SFAS 133 and economic hedges that do not qualify for hedge accounting under SFAS 133.

**Research Question 1**

To test research question one and investigate whether or not BHCs exhibited a more accounting responsive risk management approach after the 2008 amendment of SFAS 133, descriptive statistics were used to measure if there is a significant difference on the use of derivative instruments designated as accounting hedges and economic hedges by BHCs in 2008 (the year SFAS 133 was amended) and in 2009 (one year after the 2008 amendment of SFAS 133).

Descriptive statistics provided information about (1) the total notional value of cash flow hedges, fair value hedges, and economic hedges of *SFAS133-accounting hedgers* and *SFAS133-compliant hedgers,* (2) the dependent and independent variables of both groups, and (3) the effects of derivative instruments on the income statement for both groups.

More specifically, t-tests were conducted to compare possible differences in the mean notional value of derivatives designated as cash flow hedges, fair value hedges, and economic hedges of the two groups of BHCs as reported in their 2008 and 2009 financial statements.

Furthermore, to test research question one, Singh's (2008) multivariate regression model was referenced**.** Using Singh's (2008) modified regression model, the mean notional value of derivative instruments for *SFAS133-accounting hedgers* and *SFAS133-compliant hedgers* is regressed on their motivation to decrease earnings volatility and on regression control variables that proxy for the hedging incentives of these two groups of

BHCs. These control variables proxied for financial distress, managerial risk aversion, underinvestment costs, information asymmetry, and the regulatory capital adequacy of BHCs based on prior literature on theoretical corporate risk management. A definition of the variables utilized in this research is presented in Appendix A.

Additionally, two dummy variables were incorporated in the regression equation to proxy for the period after the 2008 amendment of SFAS 133 (After) and to designate BHCs as accounting or compliant hedgers (HAT). The use of the two dummy variables helped evaluate the coefficient differentiations of the independent variables after the 2008 amendment of SFAS 133 relative to the coefficients before the 2008 amendment of SFAS 133 for both BHCs groups. After is a dummy variable coded as 1 for the post-2008 amendment of SFAS 133 and coded as 0 otherwise. HAT is a dummy variable coded as 1 when BHCs use both economic and accounting hedges and coded as 0 otherwise. Particularly, the multivariate regression took the following form:

$$Notional_{it} = \beta_0 + \beta_1 EVol_{it} + \beta_2 ESmooth_{it} + \beta_3 ESmooth1_{it} + \beta_4 FINLEV_{it} + \beta_5 CapAdeq1_{it} + \beta_6 UNDERC_{it} + \beta_7 INFOASY_{it} + \beta_8 MNGRisk_{it} + \beta_9 IRLibor + \varepsilon_{it} \quad (1)$$

**Research Question 2**

A univariate comparison between *SFAS133- accounting hedgers* and *SFAS133- compliant hedgers* were performed to test research question two and investigate the differences on the mean value of BHCs perceived earnings volatility (dependent variable) and their corporate risk management incentives to hedge using accounting vs. economic

hedges (independent variables). If the mean value of earnings volatility of *SFAS133-compliant hedgers* is less than or equal to that of *SFAS133-accounting hedgers* (at the alpha = 0.05 level) as determined by a one-tailed t-test, then earnings volatility was not due to economic hedges. If the mean value of earnings volatility of *SFAS133-compliant hedgers* is higher than *SFAS133-accounting hedgers*, then BHCs earnings volatility resulted from economic hedges.

According to the extant accounting literature, the income statement effect of hedging activities under SFAS 133 depends upon whether a derivative instrument has been designated as a fair value, cash flow hedge or economic hedge. If the derivative is designated as a fair value or cash flow hedge, only the ineffective portion of the hedging gains/losses is recognized in current earnings causing reluctant volatility, while for economic hedges both realized and unrealized gains and losses from changes in fair value of derivatives are recorded in earnings causing more volatile earnings.

For highly effective hedges variations in the fair value of derivative instruments and the underlying hedged items mainly offset each other causing not material hedge ineffectiveness and leading to significant lower earnings volatility (Coughlan, 2003).

To disentangle the effects of SFAS 133 on earnings volatility caused by economic or accounting hedges two control variables were added in the multiple regressions. These two control variables are HEDGEINF and NETGains (Losses). HEDGEINF measures BHCs value of cash flow and fair value cash ineffectiveness, while NETGains (Losses)

measures both the realized and unrealized gains and losses due to changes in fair value of economic hedges recorded in earnings.

$$EVol_{it} = \beta_0 + \beta_1 Notional_{it} + \beta_2 ESmooth_{it} + \beta_3 ESmooth1_{it} + \beta_4 FINLEV_{it} + \beta_5 CapAdeq1_{it} + \beta_6 UNDERC_{it} + \beta_7 INFOASY_{it} + \beta_8 MNGRisk_{it} + \beta_9 IRLibor + \beta_{10} HEDGEINF_{it} + \beta_{11} NETGains\ (Losses)_{it} + \varepsilon_{it} \quad (2)$$

**Research Question 3**

The concern before the 2008 amendment of SFAS 133 was that BHCs manipulated earnings by taking advantage of the standard's differential treatment of the variations in the fair value of derivatives designated as cash flow hedging instruments to smooth earnings and avoid negative stock valuations (Thapa et al., 2005; Park, 2004; Suh, 2007).

The dilemma in the accounting for cash flow hedges is that the effective portion from the hedging instrument's gain or loss is reported in other comprehensive income while the hedged item's ineffective portion is reported currently in earnings (SFAS 133, para. 30). BHCs could manipulate the re-classification of the hedged gains/losses on the respective hedged cash flows to increase/decrease income or increase/decrease expenses according to their needs.

This deferral mechanism imposes a high correlation between cash flow hedging with deferred revenues (Eckstein, et al., 2008) and "such deferral mechanism can result in higher or lower earnings quality depending on the relative advantage of timely recognition vs. deferral accounting" (Zhou, 2007, p. 12).

To investigate whether or not BHCs took advantage of SFAS's 133 differential treatment of the changes in the fair value of cash flow hedges to manipulate earnings, a univariate comparison between *SFAS133- accounting hedgers* and *SFAS133- compliant hedgers* were performed to test research question three and investigate the differences on the mean value of BHCs perceived earnings smoothing. If the difference in mean value of earnings smoothing between the compliant and accounting hedgers of the sampled BHCs is not statistically significant ($p>0.05$) as determined by a two-tailed t-test, then earnings smoothing were the same for both of BHCs groups denoting than earnings smoothing was not due to SFAS133-accounting hedges.

To further disentangle the effects of SFAS 133 on earnings smoothing caused by cash flow hedges, a paired sample t-test were conducted to compare BHCs mean amount of gains/ losses on derivatives designated as cash flow hedges reclassified from AOCI into income (OCI).

To provide appropriate data to the hypothesis associated with research question three, multiple regression model #3 were used to test if the corporate-risk management hedging variables of *SFAS133-accounting hedgers* and *SFAS133-compliant hedgers* significantly predicted any Earnings Smoothing , (a) through loan loss provisions (ESmooth) and, (b) through derivative hedging gains (ESmooth1) in 2009 one year after the amendment of SFAS133. The regression took the following form:

$$ESmooth_{it} = \beta_0 + \beta_1 Notional_{it} + EVol_{it} + \beta_4 FINLEV_{it} + \beta_5 CapAdeq1_{it} + \beta_6 UNDERC_{it} + \beta_7 INFOASY_{it} + \beta_8 MNGRisk_{it} + \beta_9 IRLibor + \beta_{10} HEDGEINF_{it} + \beta_{11} NETGains\ (Losses)_{it} + \varepsilon_{it} \quad (3)$$

## Validity and Reliability

Reliability denotes stability or the magnitude a measure does not include random error, while validity expresses the analogy between a definition and the theoretical notion it is supposed to explain (Singleton & Straits, 2005). Validity and reliability allow the researcher to precisely assess and represent conclusions to a sample (Creswell, 2005). An instrument is reliable when scores from an instrument remains stable on repeated tests (Cone & Foster, 2002). An instrument is valid when the instrument measures "what it is supposed to measure" (Cone, et al., 2002, p. 156).

### Internal Validity

Internal validity refers to the magnitude that independent variables can correctly produce a pragmatic result. Internal validity can be achieved when the effect of the dependent variable is solitary due to the independent variable(s).

One threat for not achieving internal validity is selection. A selection threat is generated when there is variability in the comparison-groups. The same comparison-groups, the *SFAS133-accounting hedgers* and the *SFAS133-compliant hedgers* were used throughout the entire study , while the control procedures were followed in categorizing all BHCs in Peer 1 and Peer 2 into those two groups as discussed in the data analysis and sample selection sections.

Another threat for internal validity is instrumentation caused by variations with the testing instrument. For the purpose of this study, the Edgar Filing System of the Securities & Exchange Commission is used as the only source to collect the data limiting differences in financial statement data and the SPSS software were used to conduct data analysis to ensure consistency in the instrument used.

Furthermore, the multivariate regressions used to investigate whether the new disclosure requirements for accounting and economic hedges affected the corporate risk management behavior of Peer 1 & 2 Groups of BHCs should be reliable, since they have been adapted by the accounting literature on derivatives and include control variables based on the theoretical literature of corporate hedging.

Specifically, the notional value of derivative instruments designated as SFAS 133 accounting vs. economic hedges used in the multivariate analysis derived from BHCs 10-Ks. Second, the two sources of earnings volatility were adapted by the accounting literature and were used as control variables in the multiple regressions to provide reliable results of the effects of SFAS 133 on earnings volatility and smoothing.

In addition, to determine the validity of the multiple regression models assumptions, the following were tested: (a) the normal probability plot of the residuals to justify if the residuals are normally distributed, (b) the weighted least squares (WLS), in the case of heteroscedasticity – a violation of the assumption of equal error variance, and (c) the variance inflation factor (VIF) to determine possible problems caused by possible multicollinearity of the independent regression variables.

**External Validity**

External validity denotes the inference of the results of a study beyond the sample. In regards to external validity, this study's procedure for selecting the sampled BHCs represents the banking industry as a whole; since BHCs in Peer 1 & 2 Groups represent the banking industry's derivative and hedging activities as a whole which helps avoid sample selection bias.

## Protection of Human Participants

The data used in this research were for SEC-registered BHCs and their real-time filings are derived from the SEC's EDGAR Filing System. All financial statements are retrieved by each BHC's Standard Industrial Classification (SIC) code for 2008 and 2009 fiscal year's end. No human participants were used in this research study.

## Summary

This study reflects a causal-comparative research design featuring an investigation on the effects of SFAS 133 on BHCs corporate use of derivatives designated as accounting and economic hedges, earnings volatility, and income smoothing one year after the 2008 amendment of SFAS 133. As per the selected research design, there is a need to select two comparison groups. One group is composed of a sample of BHCs classified as *SFAS133- accounting hedgers* while the other group is composed of BHCs classified as *SFAS133- compliant hedgers*. These two groups were compared to determine the different hedging activities of BHCs.

The primary data to be examined in this study are for U.S. BHCs in Peer 1 & 2 Groups. The focus of this study is on the largest financial institutions because BHCs in Peer 1 & 2 Groups represent the banking industry's derivative activities as a whole which helps avoid sample selection bias. The data from a sample of 167 BHCs were subjected to descriptive, univariate, and multivariate statistical analyses to address the research questions and hypotheses and arrive at conclusions as to whether BHCs reassessed their corporate risk management approach to one that is more accounting responsive or not. The final two chapters present the data and the data analysis, as well as the conclusions and recommendations of the study.

# Chapter 4: Results

## Introduction

This chapter presents the results of the statistical methodology used to test the research questions and hypotheses and subsequently examine the effects of SFAS 133 on BHCs' hedging activities in 2008, the year SFAS 133 was amended, and in 2009, 1 year after its amendment. The results of descriptive statistics are presented to test the effect the risk management philosophy of SFAS 133 and its accounting treatment of hedging activities had on the corporate risk management behavior of the largest BHCs.

Paired *t*-tests results are presented to examine if any of the corporate risk management variables significantly predicted a corporate risk management approach that is more accounting responsive for *SFAS133-accounting hedgers,* while it is more optimal in an economic way for *SFAS133-compliant hedgers.* Lastly, the multiple regression analysis results are presented to test if the corporate risk management incentives of the two groups of BHCs to hedge using accounting versus economic hedges significantly predicted any possible earnings volatility and earnings smoothing in their financial statements.

## Descriptive Statistics

In this study, I examined the entire target population of Peer 1 and Peer 2 Bank Holding Companies of the Federal Reserve System. Appendix C provides a listing of BHCs in Peer Groups 1 and 2 based on their reporting of derivatives designated as hedging instruments in compliance with SFAS 133 as of December 31, 2009.

Of the entire target population of 167 BHCs, 62 BHCs used derivatives that qualified for hedge accounting, 76 BHCS used derivatives that did not qualify for hedge accounting, Twenty three BHCs did not use any derivatives, 5 BHCs only used trading derivatives, and 3 BHCs used derivatives that complied with international financial reporting standards (IFRS). Specifically, 45 BHCs from Peer 1 Group and 17 BHCs from Peer 2 Group used derivatives that qualified for hedge accounting. In Peer 1, 20 BHCs were classified as *SFAS133-compliant hedgers* and 25 BHCs were classified as *SFAS133-accounting hedgers*. In Peer 2, four BHCs were classified as *SFAS133-compliant hedgers* and 13 BHCs were classified as *SFAS133-accounting hedgers*.

Table 11 provides descriptive statistics for the 2008 and 2009 total notional value of hedging instruments designated as accounting, cash flow, fair value, and economic hedges for *SFAS133-compliant* and *SFAS-accounting hedgers* to investigate whether or not BHCs increased their level of accounting hedges and decreased their level of economic hedges in response to the 2008 amendment of SFAS 133.

For *SFAS133-accounting hedgers* results suggest that the 2009 notional value of cash flow hedges ($M = 1.05$, $SD = 2.46$), fair value hedges ($M = 0.73$, $SD = 1.88$), and accounting hedges ($M = 2.96$, $SD = 3.34$) were significantly higher than the 2008 notional value of cash flow hedges ($M = 0.26$, $SD = 2.68$) , fair value hedges ($M = 0.12$, $SD = 1.79$), and accounting hedges ($M = 2.20$, $SD = 4.40$).

For *SFAS133-compliant hedgers* results suggest that for 2009 the notional value of fair value hedges ($M = 0.97$, $SD = 1.88$) and accounting hedges ($M = 1.89$, $SD = 4.26$)

were significantly higher than the 2008 notional value of fair value hedges (*M* = 0.94, *SD* = 1.26) and accounting hedges (*M* = 1.03, *SD* = 2.33), while for 2009 the notional value of cash flow hedges (*M* = 1.41, *SD* = 2.42) and economic hedges (*M* = 1.79, *SD* = 3.45) were significantly lower than the 2008 notional value of cash flow hedges (*M* = 1.68, *SD* = 2.38) and economic hedges (*M* = 1.95, *SD* = 3.61).

Table 12 provides descriptive statistics for the 2008 and 2009 dependent variables for *SFAS133-compliant* and *SFAS133-accounting hedgers* to investigate whether or not BHCs that hedged in an optimal economic way or in a limited fashion only where hedge accounting treatment could be attained, experienced a change in earnings volatility and earnings smoothing after the 2008 amendment of SFAS 133.

For *SFAS133-accounting hedgers* results suggest that the 2009 value of ESMOOTH (*M* = 0.57, *SD* = 1.55) and ESMOOTH1 (*M* = 1.99, *SD* = 2.21) were higher than the 2008 value of ESMOOTH (*M* = 0.17, *SD* = 0.56) and ESMOOTH1 (*M* = 0.31, *SD* = 0.41), while the 2009 value of EVOL (*M* = 0.46, *SD* = 1.63) and NOTIONAL (*M* = 1.37, *SD* = 2.56) were lower than the 2008 value of EVOL (*M* = 0.80, *SD* = 2.19) and NOTIONAL (*M* = 1.42, *SD* = 2.57).

For *SFAS133-compliant hedgers* results suggest that the 2009 value of ESMOOTH (*M* = 0.75, *SD* = 1.49), ESMOOTH1 (*M* = 0.76, *SD* = 1.18), and NOTIONAL (*M* = 2.12, *SD* = 3.88) were higher than the 2008 value of ESMOOTH (*M* = 0.31, *SD* = 0.94), ESMOOTH1 (*M* = 0.10, *SD* = 1.65), and NOTIONAL (*M* = 0.61, *SD*

= 1.77), while the 2009 value of EVOL (*M* = 1.38, *SD* = 1.77) were lower than the 2008 value of EVOL (*M* = 1.76, *SD* = 3.21).

Table 13 provides descriptive statistics for the 2008 and 2009 independent variables for *SFAS133-compliant* and *SFAS133-accounting hedgers* to investigate the effect the risk management philosophy of SFAS 133 and its accounting treatment of hedging activities had on the corporate risk management behavior of the largest BHCs.

For *SFAS133-accounting hedgers* results suggest that the 2009 value of CapAdeq1 (*M* = 0.12, *SD* = 0.24) and UNDERC (*M* = 0.11, *SD* = 0.83) were higher than the 2008 value of CapAdeq1 (*M* = 0.11, *SD* = 0.22) and UNDERC (*M* = 0.10, *SD* = 0.58). There was no change in the 2009 value of FINLEV (*M* = 0.09, *SD* = 0.14), INFOASY (*M* = 0.24, *SD* = 0.75), and MNGRisk (*M* = 0.24, *SD* = 0.20) and the 2008 value of FINLEV (*M* = 0.09, *SD* = 0.15), INFOASY (*M* = 0.24, *SD* = 0.75), and MNGRisk (*M* = 0.24, *SD* = 0.17). Finally, the 2009 value of IRLIBOR (*M* =- 0.14, *SD* = 0.23) were lower than the 2008 value of IRLIBOR (*M* = -0.54, *SD* = 0.76).

For *SFAS133-compliant hedgers* results suggest that the 2009 value of FINLEV (*M* = 0.09, *SD* = 0.23), CapAdeq1 (*M* = 0.12, *SD* = 0.16), and IRLIBOR (*M* =- 0.12, *SD* = 0.31) were higher than the 2008 value of FINLEV (*M* = 0.08, *SD* = 0.19), CapAdeq1 (*M* = 0.10, *SD* = 0.16), and IRLIBOR (*M* = -0.35, *SD* = 0.80). There was no change in the 2009 value of UNDERC (*M* = 0.10, *SD* = 0.61) and INFOASY (*M* = 0.28, *SD* = 0.66), and the 2008 value of UNDERC (*M* = 0.10, *SD* = 0.52) and INFOASY (*M* = 0.28, *SD* =

0.65). Finally, the 2009 value of MNGRisk ($M$ = 0.27, $SD$ = 0.25) were lower than the 2008 value of MNGRisk ($M$ = 0.28, $SD$ = 0.26).

To investigate if BHCs manipulated the differential treatment of the changes in the fair value of derivatives designated as hedging instruments (cash flow hedges, fair value hedges, and economic hedges) to smooth earnings and decrease earnings volatility in an attempt to increase the intrinsic value of their stock, the hedging activities of *SFAS133-compliant and accounting hedgers* were researched.

Descriptive statistics for the 2008 and 2009 classification of hedging instruments is presented in Table 14 for *SFAS133-compliant hedgers* and in Table 15 for *SFAS133-accounting hedgers* including the timing of recognition in income of the gains and losses on hedging instruments and the reported ineffectiveness in hedging relationships for accounting vs. economic hedges.

For *SFAS133-compliant hedgers* results suggest that for cash flow hedging instruments, the 2009 amount of (a) gain recognized in OCI on derivative ($M$ = 3.16, $SD$ = 2.85), (b) gain recognized from AOCI into income ($M$ = 2.12, $SD$ = 1.20), and (c) gain reclassified in income on derivative (ineffective portion) ($M$ = 2.04, $SD$ = 1.65), were higher than the 2008 amount of (a) loss recognized in OCI on derivative ($M$ = -3.60, $SD$ = 1.68), (b) loss recognized from AOCI into income ($M$ = -3.07, $SD$ = 1.07), and (c) loss reclassified in income on derivative (ineffective portion) ($M$ = -8.71, $SD$ = 6.73).

For fair value hedging instruments the results suggest that the 2009 amount of (a) gain recognized in income on derivative ($M$ = 1.98, $SD$ = 2.68), and (b) loss recognized

in income on derivative (ineffective portion) (*M* = -6.02, *SD* = 5.16), were lower than the 2008 amount of (a) gain recognized in income on derivative (*M* = 7.80, *SD* = 3.32), and (b) loss recognized in income on derivative (ineffective portion) (*M* = -9.20, *SD* = 2.28).

For economic hedges the results suggest that the 2009 amount of (a) gain recognized in income on derivative (*M* = 3.08, *SD* = 9.89), were lower than the 2008 amount of (a) gain recognized in income on derivative (*M* = 8.00, *SD* = 2.31).

For *SFAS133-accounting hedgers* results suggest that for cash flow hedging instruments the 2009 amount of (a) gain recognized in OCI on derivative (*M* = 8.49, *SD* = 2.89), (b) gain recognized from AOCI into income (*M* = 1.43, *SD* = 1.19), and (c) gain reclassified in income on derivative (ineffective portion) (*M* = 2.25, *SD* = 1.05), were higher than the 2008 amount of (a) gain recognized in OCI on derivative (*M* = 1.07, *SD* = 3.26), (b) gain recognized from AOCI into income (*M* = 1.03, *SD* = 1.86), and (c) gain reclassified in income on derivative (ineffective portion) (*M* = 0.24, *SD* = 1.84).

For fair value hedging instruments the results suggest that the 2009 amount of: (a) gain recognized in income on derivative (*M* = 9.83, *SD* = 1.56), were higher than the 2008 amount of (a) gain recognized in income on derivative (*M* = 4.50, *SD* = 2.61), while the 2009 amount of (b) loss recognized in income on derivative (ineffective portion) (*M* = -2.20, *SD* = 2.12), were lower than the 2008 amount of (b) gain recognized in income on derivative (ineffective portion) (*M* = 2.40, *SD* = 6.03).

**Paired *t* tests**

**Research Question 1.** To investigate whether or not BHCs exhibited a more accounting responsive corporate risk management approach after the 2008 amendment of SFAS 133, a paired sample *t* test was conducted to compare the total notional value of derivative instruments of SFAS133-*compliant hedgers* and *SFAS133-accounting hedgers.*

Table 1 provides the *t* test results of the differences between the total notional value of cash flow hedges, fair value hedges, and economic hedges of the two groups of BHCs in 2009, one year after the amendment of SFAS 133.

Table 1

*Two-Sample t-test: 2009 Differences in Notional between AHs & CHs*

| 2009 | *N* | *M* | *SD* |
|---|---|---|---|
| SFAS133 Accounting Hedgers (AH) | 38 | 1.37 | 2.56 |
| SFAS133 Compliant Hedgers (CH) | 24 | 0.21 | 0.38 |
| difference (AH-CH)= 1.16 | | | |
| standard error of difference =0.52 | | | |
| *t* test of difference = $H_0$: $\mu_1 - \mu_2 = 0$: *t*=-2.20, *p*=.0316, *df*=60 | | | |

The *t* test revealed that there was a statistically significant difference between the mean notional values of derivative instruments of the two BHC groups, $t\ (60) = -2.20$, $p \leq .05$ (two-tailed test). The mean notional value of derivative instruments of "*SFAS133-Accounting Hedgers*" (M=1.37, SD=2.56) was higher than the mean notional value of derivatives of "*SFAS133-Compliant Hedgers*" (M=0.21, SD=0.38).

Table 2 provides the *t* test results of the differences between the total notional value of cash flow hedges, fair value hedges, and economic hedges of the two groups of BHCs in 2008, the year SFAS 133 was amended.

Table 2

*Two-Sample t-test: 2008 Differences in Notional between AHs & CHs*

| 2008 | *N* | *M* | *SD* |
|---|---|---|---|
| SFAS133 Accounting Hedgers (AH) | 38 | 2.57 | 4.26 |
| SFAS133 Compliant Hedgers (CH) | 24 | 0.56 | 1.48 |
| difference (AH-CH)= 2.01 | | | |
| standard error of difference =2.93 | | | |
| *t* test of difference = $H_{0:}\ \mu_1 - \mu_2 = 0$: t= -0.69, *p*=.4953, *df*=60 | | | |

The *t* test revealed that there was not a statistically significant difference between the mean notional values of derivative instruments of SFAS133 *accounting hedgers* (M=2.57, SD=14.26) and *SFAS133 compliant hedgers* (M=0.56, SD=1.48), conditions; *t* (60) = -2.20, $p \geq .05$ (two-tailed test), in 2008 the year SFAS 133 was amended.

Table 3 provides the *t* test results of the difference between the 2009/2008 notional values of economic hedges of *SFAS 133 compliant hedgers*.

Table 3

*Two-Sample t-test: 2009/2008 Differences in Notional of Economic Hedges of CHs*

| Groups | *N* | *M* | *SD* |
|---|---|---|---|
| SFAS133 Compliant Hedgers (CH) 2009 | 24 | 0.17 | 0.34 |
| SFAS133 Compliant Hedgers (CH) 2008 | 24 | 0.19 | 0.36 |
| difference (CH2009-CH2008)= -0.016 | | | |
| standard error of difference =0.10 | | | |
| *t* test of difference = $H_{0:}\ \mu_1 - \mu_2 = 0$: t=-0.16, *p*=.4379, *df*=60 | | | |

The *t* test revealed that there was not a statistically significant difference between the 2009 mean notional values of economic hedges (M=0.17, SD=0.34) and the 2008 mean notional values of economic hedges (M=0.19, SD=0.36) of *SFAS133 compliant hedgers*, conditions; $t\ (60) = -0.16$, $p \geq .05$ (one-tailed, lower).

The results suggest that *SFAS133- accounting hedgers* exhibited a more accounting responsive corporate risk management approach in 2009 after the 2008 amendment of SFAS 133. *SFAS133- accounting hedgers*, along with the reevaluation of their risk management approach captured the benefits of hedge accounting and effectively addressed the implementation of SFAS 133 since it requires early methodical planning to determine the evaluation of hedge effectiveness (Coughlin, 2003) in an attempt to manage any associated earnings volatility.

*SFAS133- compliant hedgers,* on the other side, did not exhibit an accounting responsive corporate risk management approach in 2009 after the 2008 amendment of SFAS 133, and continued hedging in an optimal economic way (thus recognizing the

volatility in earnings originated from those hedges that did not qualify for hedge accounting but decreasing economic risks).

**Research Question 2.** To investigate whether or not BHCs that increased their level of SFAS133-accounting hedges and decreased their level of economic hedges in response to the 2008 amendment of SFAS 133 experienced a significant change in earnings volatility, a paired samples *t* test was conducted to compare the mean earnings volatility of "SFAS133-compliant hedgers" and "SFAS133-accounting hedgers." Table 4 provides the *t* test results of the difference between the 2009/2008 mean earnings volatility of the two groups of BHCs.

Table 4

*Two –Sample t-test: 2009/08 Differences in EV between AHs & CHs*

| Groups | *N* | *M* | *SD* |
|---|---|---|---|
| SFAS133 Accounting Hedgers (AH) | 38 | 0.46 | 1.63 |
| SFAS133 Compliant Hedgers (CH) | 24 | 1.38 | 1.73 |
| difference (AH-CH)= -0.92 | | | |
| standard error of difference =0.44 | | | |
| *t* test of difference = $H_{0:}\ \mu_1 - \mu_2 = 0$: t=2.09, *p*=.0413, *df*=60 | | | |

The t- test revealed that there was a statistically significant difference between the mean earnings volatility of the two groups, $t\ (60) = 2.09$, $p \leq .05$ (two-tailed test). The mean earnings volatility of "*SFAS133-accounting hedgers*" (M=0.46, SD=1.63) was lower than the mean earnings volatility of "*SFAS133-compliant hedgers*" (M=1.38,

SD=1.73), hence this is an indication that BHCs' earnings volatility resulted from economic hedges.

According to the extant accounting literature, income statement earnings volatility is either caused by the cash flow hedge ineffectiveness and/or fair value hedge ineffectiveness of SFAS 133 accounting hedges or it is caused by economic hedges. To further disentangle the effects of SFAS 133 accounting hedges and economic hedges on earnings volatility, a paired sample *t* test were conducted to compare the mean ineffective amount of the gains (losses) recognized in income on derivatives designated as cash flow hedges (HEDGEIN $_{\text{cash flow hedges}}$), fair value hedges (HEDGEIN $_{\text{fair value hedges}}$, and economic hedges (NETGains (Losses) for both "*SFAS133-compliant hedgers*" and "*SFAS133-accounting hedgers."*

Table 5 provides the *t* test results of the mean difference between the 2009 cash flow hedge ineffectiveness of the two groups of BHCs.

Table 5

*Two-Sample t-test: Differences in Cash Flow Hedge Ineffectiveness between AH & CH*

| 2009 | *N* | *M* | *SD* |
|---|---|---|---|
| SFAS133 Accounting Hedgers (AH) | 38 | 0.23 | 1.06 |
| SFAS133 Compliant Hedgers (CH) | 24 | 0.20 | 1.65 |
| difference (AH-CH)= 0.272 | | | |
| standard error of difference =0.37 | | | |
| *t* test of difference = $H_{0:}\ \mu_1 - \mu_2 = 0$ : *t*= -0.07, *p*= .09, *df*=35 | | | |

The *t* test revealed that there was not a significant difference in the 2009 cash flow hedge ineffectiveness of "*SFAS133-compliant hedgers*" (M=0.20, SD=1.65) and

"*SFAS133-accounting hedgers"* (M=0.23, SD=1.06), conditions; $t(35)= -0.07$, $p \geq 0.05$ (two-tailed test).

Table 6 provides the *t* test results of the mean difference between the 2009 fair value hedge ineffectiveness of the two groups of BHCs.

Table 6

*Two-Sample t-test: Differences in Fair Value Hedge Ineffectiveness between AC & CH*

| 2009 | *N* | *M* | *SD* |
|---|---|---|---|
| SFAS133 Accounting Hedgers (AH) | 38 | -0.46 | 0.92 |
| SFAS133 Compliant Hedgers (CH) | 24 | -0.56 | 3.04 |
| difference (AH-CH)= -0.1 | | | |
| standard error of difference =0.1631 | | | |
| *t* test of difference = $H_{0:} \mu_1 - \mu_2 = 0$: $t= -0.07$, $p= .09$, $df=48$ | | | |

The t- test revealed that there was not a significant difference in the 2009 fair value hedge ineffectiveness of "*SFAS133-compliant hedgers*" (M= -0.56, SD=3.04) and "*SFAS133-accounting hedgers"* (M= -0.46, SD=0.92), conditions; $t\ (48) = -0.06$, $p \geq 0.05$ (two-tailed test).

Table 7 provides the *t* test results of the mean difference between the 2009 and 2008 gains or (losses) recognized by *SFAS133- compliant hedgers* in income on derivative instruments designated as economic hedges.

Table 7

*Two-Sample t-test: 2009/2008 Difference in Economic Hedges Net Gain/ (Loss) of CHs*

| 2009/2008 | *N* | *M* | *SD* |
|---|---|---|---|
| SFAS133 Compliant Hedgers (CH) (2009) | 25 | 0.26 | 0.98 |
| SFAS133 Compliant Hedgers (CH) (2008) | 25 | 0.59 | 2.13 |
| difference (CH2009-CH2008)= - 0.33 | | | |
| standard error of difference =0.47 | | | |
| *t* test of difference = $H_{0:}\ \mu_1 - \mu_2 = 0$: *t*= -0.70, *p*= .0003, *df*=33 | | | |

The *t* test revealed that there was a significant difference in the 2009 economic hedges NETGain(Loss) (M= 0.26, SD=0.98) and the 2008 economic hedges NETGain(Loss) (M= 0.59, SD=2.13) of "*SFAS133-compliant hedgers,*" conditions; $t(33) = -0.70$, $p \leq 0.05$ (two-tailed test). The results suggest that apprehension of earnings volatility caused by economic hedges under SFAS 133, led *SFAS133-compliant hedgers* to adjust their hedging behavior to attain more desirable accounting results by drastically reducing the use of economic hedges and subsequently reducing the amount of gains (losses) recognized in income on derivative instruments designated as economic hedges.

This is an implication that BHCs facing a trade-off between employing economic hedges which increase earnings volatility and discontinuing economic hedges to avoid increases in earnings volatility, reciprocate between risk management and earnings volatility while suffering increases in market risk exposure (Kolbasovsky, 2009).

Coughlan (2003) suggested that the implementation of hedging decisions should balance both economic and accounting performance. This translates into BHCs validating

the economic benefits and parallel assessing whether or not a hedging instrument would qualify for SFAS 133 hedge accounting. BHCs should consider the impact of economic hedges on earnings volatility alongside with the impact of hedging instruments that do or do not qualify for SFAS 133 hedge accounting.

**Research Question 3.** BHCs during periods of low profit could manipulate earnings management to smooth earnings by deferring to report loan loss accruals and escalating the recognition of derivative instruments hedged gains (Cornett et al., 2009).To disentangle BHCs propensity to smooth earnings through loan loss provisions and/or derivative hedging gains, the loan loss provision ratio and the ratio of total notional value of derivatives were adopted.

Following prior literature (Attia, 2012; Barton,2001; Laeven et al., 2009;), earnings smoothing was estimated (a) as the ratio of BHCs loan loss provisions to net interest income (ESmooth), and (b) as the ratio of BHCs total notional value of derivatives used as hedging instruments divided by totals assets (ESmooth1).

Table 8 provides the *t* test results of the mean difference between the 2009 and 2008 earnings smoothing *(ESmooth)* between *SFAS133- compliant hedgers* and *SFAS133-accounting hedgers*.

Table 8

*Two-Sample t-test: Difference in Earnings Smoothing (ESmooth) between CHs & AHs*

| 2009/08 ESmooth | *N* | *M* | *SD* |
|---|---|---|---|
| SFAS133 Accounting Hedgers (AH) | 38 | 0.56 | 0.54 |
| SFAS133 Compliant Hedgers (CH) | 24 | 0.74 | 0.49 |
| difference (AH2009-CH2008)= - 0.17 | | | |
| standard error of difference =0.13 | | | |
| *t* test of difference = $H_{0:}\ \mu_1 - \mu_2 = 0$: t= 1.30, *p*= .1980, *df*=60 | | | |

The *t* test revealed that there was not a significant difference in the 2009 ESmooth of "*SFAS133-compliant hedgers*" (M= 0.74, SD=0.49) and "*SFAS133-accounting hedgers"* (M= 0.56, SD=0.54), conditions; $t\ (60) = 1.30$, $p \geq 0.05$(two-tailed test).

Table 9 provides the *t* test results of the mean difference between the 2009 and 2008 earnings smoothing *(Esmooth1)* of *SFAS133-compliant hedgers* and *SFAS133-accounting hedgers*.

Table 9

*Two-Sample t-test: Difference in Earnings Smoothing (Esmooth1) between CHs & AHs*

| 2009/2008 ESmooth1 | *N* | *M* | *SD* |
|---|---|---|---|
| SFAS133 Accounting Hedgers (AH) | 38 | 1.98 | 2.21 |
| SFAS133 Compliant Hedgers (CH) | 24 | 0.76 | 1.17 |
| difference (AH-CH)= 1.22 | | | |
| standard error of difference =0.49 | | | |
| *t* test of difference = $H_{0:}\ \mu_1 - \mu_2 = 0$: *t*= 2.49, *p*= .0156, *df*=60 | | | |

The *t* test revealed that there was a significant difference in the 2009 ESmooth1 of "*SFAS133-compliant hedgers*" (M= 0.76, SD=1.17) and "*SFAS133-accounting hedgers"* (M= 1.98, SD=2.21), conditions; $t$ (60) = -2.49, $p \leq 0.05$(two-tailed test).

To further investigate whether or not BHCs took advantage of SFAS's 133 differential treatment of the changes in the fair value of cash flow hedges to manipulate earnings, a paired sample *t* test was conducted to compare BHCs mean amount of gains/ losses on derivatives designated as cash flow hedges reclassified from AOCI into income (OCI).

Table 10 provides the *t* test results of the mean difference between the 2009 and 2008 amount of (OCI) for *SFAS133- compliant hedgers* and *SFAS133-accounting hedgers*.

Table 10

*Two-Sample t-test: Difference in OCI between CHs & AHs*

| 2009/2008 OCI | *N* | *M* | *SD* |
|---|---|---|---|
| SFAS133 Accounting Hedgers (AH) | 38 | 0.407 | 1.71 |
| SFAS133 Compliant Hedgers (CH) | 24 | -0.940 | 2.87 |
| difference (AH-CH)= -0.533 | | | |
| standard error of difference =0.582 | | | |
| *t* test of difference = $H_0$: $\mu_1 - \mu_2 = 0$: *t*= -1.76, *p*= .0183, *df*=60 | | | |

The *t* test revealed that there was a significant difference in the 2009 (OCI) of "*SFAS133-compliant hedgers*" (M= -0.94, SD=2.87) and "*SFAS133-accounting hedgers"* (M= 0.40, SD=1.71), conditions; $t$ (60) = -1.76, $p \leq 0.05$(two-tailed test).

The results suggest that *SFAS133-accounting hedgers* had smoother earnings than *SFAS133-compliant hedgers* due to derivative usage but did not take advantage of the differential treatment of cash flow hedges to manipulate earnings.

**Multiple Regression Analysis**

**Research Question 1.** Table 16 on page 170 presents the multiple regression results of Hypothesis 1. Multiple regression model #1 were used to test if the corporate risk management variables significantly predicted a corporate risk management approach that is more accounting responsive for *SFAS133-accounting hedgers*, while it is more optimal in an economic way for *SFAS133-compliant hedgers* one year after the 2008 amendment of SFAS133.

To test the effects of SFAS 133 on BHCs corporate risk management approach the total notional value of all derivative instruments designated as cash flow hedges, fair value hedges and economic hedges (NOTIONAL) for both groups of BHCs, were regressed against the following predictor variables: EVol, ESmooth, ESmooth1, FINLEV, INFOASY, UNDERC, MNGRisk, CapAdeq1, IRLIBOR, $HEDGEIN_{\text{cash flow}}$, and $HEDGEIN_{\text{fair value}}$ and, $NET_{\text{Gains/Losses}}$ (only for *SFAS 133-compliant hedgers*).

The results of the regression indicated that the combination of the variables explained 68.9% of the variance in NOTIONAL for *SFAS133-accounting hedgers* ($R^2$ =.689, $F_{(11, 26)}$=5.24, $p$<.005), while they explained 86.1% of the variance in NOTIONAL for *SFAS133-compliant hedgers* ($R^2$ =.861, $F_{(13, 10)}$=4.78, $p$<.005).

***SFAS133-Accounting Hedgers.*** Multiple regression analysis were used to test if the corporate-risk management hedging variables significantly predicted a more accounting responsive corporate risk management approach for SFAS133-accounting hedgers one year after the 2008 amendment of SFAS133.

The variables produced a coefficient of determination $R^2$ of .998 ($F_{(11, 26)} = 9.90$, $p = 3.57$) for the prediction of *SFAS133-accounting hedgers'* corporate risk management approach (NOTIONAL). The predictor with the lowest non-significant regression coefficient (EVol, $\beta = 4.8$, $t_{(df=26)} = 40.4$, $p = 5.33$) were removed. The final regression analysis conducted had a coefficient of determination $R^2$ of .689 ($F_{(11, 26)} = 5.24$, $p =$ .0003) with INFOASY ($p = .0359$, $\beta = 1.2485$, $t = 2.213$) as the strongest predictor. INFOASY explained 68.9% of the variation and were positively related to *SFAS133-accounting hedgers'* corporate risk management approach (NOTIONAL). Finally, tests for multicollinearity indicated that a very low level of multicollinearity was present for INFOASY (*VIF* = 0.1249).

***SFAS133-Compliant Hedgers.*** Multiple regression analysis were used to test if the corporate-risk management hedging variables significantly predicted a less accounting responsive corporate risk management approach for *SFAS133-compliant hedgers* one year after the 2008 amendment of SFAS133.

The variables produced a coefficient of determination $R^2$ of .861 ($F_{(13, 10)} = 4.78$, $p = .009$) for the prediction of *SFAS-compliant hedgers'* corporate risk management approach (NOTIONAL), with three significant predictors of NOTIONAL -- MNGRisk,

HEDGEIN $_{\text{cash flow}}$, and HEDGEIN $_{\text{fair value}}$. The predictors explained 86.1% of the variation in NOTIONAL for *SFAS133-compliant hedgers*. The strongest predictor was HEDGEIN $_{\text{fair value}}$ ($p$ = .0006), followed by MNGRisk ($p$ = .0034), and HEDGEIN $_{\text{cash flow}}$ ($p$ = .0388). MNGRisk (β = 0.614, $t$ = 3.811) was positively related to NOTIONAL, while HEDGEIN $_{\text{cash flow}}$ (β = -0.0072, $t$ = -2.377) and HEDGEIN $_{\text{fair value}}$ (β = -0.0063, $t$ = -4.905) were both negatively related to NOTIONAL. Finally, tests for multicollinearity indicated that a low level of multicollinearity were present for MNGRisk (VIF=2.050), HEDGEIN $_{\text{cash flow}}$ (*VIF* = 3.036), and HEDGEIN $_{\text{fair value}}$ (VIF=2.097).

**Research Question 2.** Table 17 on page 171 presents the multiple regression results of Hypothesis 2. Multiple regression model #2 was used to test if the corporate risk management incentives of *SFAS133-compliant hedgers* and *SFAS133-accounting hedgers* to hedge using accounting vs. economic hedges significantly predicted any possible earnings volatility on their financial statements.

To test the effects of SFAS 133 on BHCs earnings volatility caused by economic vs. accounting hedges the following control variables were added in the multiple regression: cash flow hedges ineffectiveness (HEDGEIN $_{\text{cash flow}}$), fair value hedges ineffectiveness (HEDGEIN $_{\text{fair value}}$), and the realized/unrealized gains/losses of economic hedges (NETGains/Losses).

A multiple regression was conducted with the following predictor variables: NOTIONAL, ESmooth, ESmooth1, FINLEV, INFOASY, UNDERC, MNGRisk,

CapAdeq1, IRLIBOR, HEDGEIN $_{\text{cash flow}}$, and HEDGEIN $_{\text{fair value}}$ and, NET$_{\text{Gains/Losses}}$ (only for *SFAS 133-compliant hedgers*).

The results of the regression indicated that the combination of the variables explained 48% of the variance in earnings volatility for SFAS133-*accounting hedgers* ($R^2$ =.478, $F_{(10, 27)}$=2.47, $p$<.005), while they explained 70% of the variance in earnings volatility for SFAS133-*compliant hedgers* ($R^2$ =.678, $F_{(10, 13)}$=2.74, $p$<.005).

***SFAS133-Accounting Hedgers.*** *The* regression was employed to help determine which of the eleven corporate-risk management hedging variables could be used to predict the Earnings Volatility of *SFAS133-accounting hedgers* one year after the amendment of the SFAS133.

The variables produced a coefficient of determination $R^2$ of .993 ($F_{(10, 27)}$ = 3.00, $p$ = .8) for the prediction of Earnings Volatility (EVol). The predictor with the lowest non-significant regression coefficient (HEDGEIN $_{\text{fair value}}$, β = .18, $t_{(df=26)}$ = 42.6, $p$ = 1.37) was removed and the final regression analysis conducted had a coefficient of determination $R^2$ of .478 ($F_{(10, 27)}$ = 2.47, $p$ = .03), with four significant predictors of Earnings Volatility (EVol) -- ESmooth2, FINLEV, INFOASY, and MNGRisk.

Together, these four predictors explained 48% of the variation in earnings volatility for *SFAS133-accounting hedgers*. The strongest predictor was INFOASY ($p$ = .0063), followed by ESmooth2 ($p$ = .0173), FINLEV ($p$ = .0187), and MNGRisk ($p$ = .0301). INFOASY (β = 1.0937, $t$ = 2.965) and ESmooth2 (β = 0.0487, $t$ = 2.544) were

both positively related to EVol, while FINLEV (β = -0.4758, $t$ = -2.502) and MNGRisk (β = -3.5257, $t$ = -2.289) were both negatively related to EVol.

Finally, tests for multicollinearity indicated that a very low level of multicollinearity was present (*VIF* = 1.503 for INFOASY, 2.374 for ESmooth2, 1.513 for FINLEV, and 1.583 for MNGRisk).

***SFAS133-Compliant Hedgers.*** Multiple regression analysis was used to test if the corporate-risk management hedging variables significantly predicted the Earnings Volatility of *SFAS133-compliant hedgers* in 2009 one year after the amendment of SFAS133.

The variables produced a coefficient of determination $R^2$ of .695 ($F_{(12, 11)} = 2.09$, $p$ = .10) for the prediction of Earnings Volatility (EVol). The predictors with the highest VIF coefficients (HEDGEIN $_{\text{fair value}}$, VIF=5.416 & NOTIONAL, VIF=5.068) were removed from the regression since a VIF value greater than 5 indicates that some degree of multicollinearity exists with respect to these two variables.

The final regression analysis conducted had a coefficient of determination $R^2$ of .678 ($F_{(10, 13)} = 2.74$, $p$ = .04), with two significant predictors of Earnings Volatility (EVol) -- INFOASY, and HEDGEIN $_{\text{cash flow}}$. The predictors explained 67% of the variation in earnings volatility for SFAS133-Compliant Hedgers. The strongest predictor was HEDGEIN $_{\text{cash flow}}$ ($p$ = .0076) followed by INFOASY ($p$ = .05). HEDGEIN $_{\text{cash flow}}$ (β = 0.6742, $t$ = 3.156) and INFOASY (β = 1.8149, $t$ = 2.063) were both positively related to EVol. Finally, tests for multicollinearity indicated that a very low level of

multicollinearity was present for HEDGEIN $_{\text{cash flow}}$ ($VIF$ = 1.605) and INFOASY (VIF=1.814)

**Research Question 3.** Tables 18 and 19 on pages 172 and 173, respectively, present the multiple regression results of Hypothesis 3. Multiple regression model #3 were used to test if the corporate-risk management hedging variables of *SFAS133-accounting hedgers* and *SFAS133-compliant hedgers* significantly predicted any Earnings Smoothing , (a) through loan loss provisions (ESmooth) and, (b) through derivative hedging gains (ESmooth1) in 2009 one year after the amendment of SFAS133.

A multiple regression was conducted with the following predictor variables: NOTIONAL, EVol, FINLEV, INFOASY, UNDERC, MNGRisk, CapAdeq1, IRLIBOR, HEDGEIN $_{\text{cash flow}}$, and HEDGEIN $_{\text{fair value,}}$ and NET$_{\text{Gains/Losses}}$ (only for *SFAS133-compliant hedgers*).The results of the regression indicated that there is no linear relationship between the variables and earnings smoothing for *SFAS133-accounting hedgers* ($R^2$ =.330, $F_{(11, 26)}$ =1.16, $p$>.005), while they explained 70% of the variance in earnings smoothing for SFAS133-*compliant hedgers* ($R^2$ =.693, $F_{(10, 13)}$ =2.94, $p$<.005).

***SFAS133-Accounting Hedgers.*** For the prediction of ESmooth the variables produced a coefficient of determination $R^2$ of .336 ($F_{(12, 25)} = 1.06$, $p = .4332$). The predictors with the highest VIF coefficient (NOTIONAL, VIF=12.839; EVol, VIF=7.446; and ESmooth1, VIF=8.377) were removed from the regression due to multicollinearity. There was no evidence found of a linear regression relationship between the independent variables and earnings smoothing through loan loss provisions for *SFAS133-accounting hedgers*, since the final regression analysis conducted had a low coefficient of determination $R^2 = .330$, $F_{(11, 26)} = 1.16$, and a high *p-value* = .3581.

For the prediction of ESmooth1 the variables produced a coefficient of determination $R^2$ of .623 ($F_{(12, 25)} = 3.44$, $p = .0044$), with four significant predictors of earnings smoothing through derivative hedging gains (ESmooth1) for *SFAS133-accounting hedgers* -- NOTIONAL, EVol, UNDERC, and IRLIBOR. The strongest predictor was NOTIONAL ($p = .0022$), followed by UNDERC ($p = .0061$), EVol ($p = .0211$), and IRLIBOR ($p = .0224$). NOTIONAL ($\beta = 0.586$, $t = 3.420$) were positively related to ESmooth1, while EVol ($\beta = -0.542$, $t = -2.462$), UNDERC ($\beta = -0.454$, $t = -2.993$), and IRLIBOR ($\beta = -0.407$, $t = -2.435$) were negatively related to ESmooth1.

Finally, tests for multicollinearity indicated that a very low level of multicollinearity was present (*VIF* = 1.944 for NOTIONAL, VIF=3.206 for EVol, VIF=1.526 for UNDERC, and VIF=1.851 for IRLIBOR).

***SFAS133-Compliant Hedgers.*** For the prediction of ESmooth the variables produced a coefficient of determination $R^2$ of .676 ($F_{(13, 10)} = 1.61$, $p = .2289$). The predictors with the highest VIF coefficient (NOTIONAL, VIF=6.768; EVol, VIF=7.710; and HEDGEIN $_{\text{fair value}}$, VIF=6.911) were removed from the regression due to multicollinearity. There was no evidence found of a linear regression relationship between the independent variables and earnings smoothing through loan loss provisions for *SFAS133-compliant hedgers*, since the final regression analysis conducted had a coefficient of determination $R^2 = .625$, $F_{(10, 13)} = 2.17$, and a high *p-value* = .0962.

For the prediction of ESmooth1 the variables produced a coefficient of determination $R^2$ of .705 ($F_{(13, 10)} = 1.84$, $p = .1688$). The predictors with the highest VIF coefficient (NOTIONAL, VIF=6.877; EVol, VIF=7.110; and HEDGEIN $_{\text{fair value}}$, VIF=6.100) were removed from the regression due to multicollinearity.

The final regression analysis conducted had a coefficient of determination $R^2$ of .693 ($F$ (10, 13) = 2.94, $p = .0360$), with two significant predictors of earnings smoothing through derivative hedging gains (ESmooth1) for *SFAS133-compliant hedgers* – INFOASY and CapAdeq1. The strongest predictor was INFOASY ($p = .0060$) followed by CapAdeq1 ($p = .0490$). INFOASY ($\beta = -1.429$, $t = -3.282$) were negatively related to ESmooth1, while CapAdeq1 ($\beta = 0.371$, $t = 2.172$) were positively related to ESmooth1. Tests for multicollinearity indicated that a low level of multicollinearity was present for INFOASY (*VIF* =2.515) and CapAdeq1 (VIF=2.408).

## Summary

### Research Question 1

The results of descriptive statistics and paired t-tests support Hypothesis I showing that *SFAS-accounting hedgers* increase the level of accounting hedges and did not use any economic hedges, while *SFAS133-compliant hedgers* increase the level of accounting hedges and decrease the level of economic hedges. This is an indication that *SFAS-accounting hedgers* hedge in a limited fashion only where hedge accounting treatment is attained thus evading additional earnings volatility and decreasing just a limited amount of economic risks, while *SFAS133-compliant hedgers* hedge in a more optimal economic way thus recognizing the volatility in earnings originated from those hedges that do not qualify for hedge accounting. The multiple regression analysis results suggest that the increased level of attention corporate risk management received under

SFAS 133 (Coughlin, 2003) and the different recognition and measurement method of accounting hedges and economic hedges complicated BHCs hedging decisions and subsequently their risk management course of action.

*SFAS-accounting hedgers'* concern of how investors will react to the possibility of increased volatility evolving from economic hedges that do not qualify for hedge accounting under SFAS 133 has driven them to adjust their corporate risk management strategy to one that is more accounting responsive to avoid analysts' negative stock valuations. *SFAS-accounting hedgers'* acuity that earnings volatility will be negatively deciphered by investors instigated them to give up the benefits of economic hedges in

order to avoid earnings volatility at all costs. *SFAS133- accounting hedgers* in an attempt to manage any associated earnings volatility re-evaluated their risk management approach and captured the benefits of hedge accounting by successfully addressing the implementation of SFAS 133 since it requires early methodical planning to determine the evaluation of hedge effectiveness (Coughlin, 2003). *SFAS133-compliant hedgers*, on the other side, acknowledge that it is unfeasible to engage in a hedging policy that is economically advantageous without meeting half way with the accounting impact. Compliant hedgers instigate a new exemplar for corporate risk management with the intent to find a better equilibrium between the economic risks and accounting volatility.

**Research Question 2**

The results of descriptive statistics and paired t-tests support Hypothesis II showing that *SFAS133-accounting hedgers* have lower earnings volatility than *SFAS133-compliant hedgers* in 2009 one year after the 2008 amendment of SFAS 133. This is an indication that *SFAS133-accounting hedgers* who increase the level of accounting hedges and decrease or discontinue the level of economic hedges in response to the 2008 amendment of SFAS 133 experience a significant reduction in earnings volatility.

To further disentangle the effects of SFAS 133 accounting hedges and economic hedges on earnings volatility, the mean ineffective amount of the gains (losses) recognized in income on derivatives designated as cash flow hedges (HEDGEIN $_{\text{cash flow hedges}}$), fair value hedges (HEDGEIN $_{\text{fair value hedges}}$), and economic hedges (NETGains (Losses)) is compared for both *SFAS133-compliant hedgers* and *SFAS133-accounting*

*hedgers.* The results of the t-tests indicate that income statement earnings volatility is caused by economic hedges since there is no difference in the mean cash flow and fair value hedge ineffectiveness of *SFAS133-compliant hedgers* and *SFAS133-accounting hedgers.* As a result of discontinuing economic hedges *SFAS133-accounting hedgers* experienced less volatility in earnings, while SFAS133-*compliant hedgers* just by moderating the use of economic hedges experience more volatile earnings than *SFAS133-accounting hedgers*. The multiple regression analysis results suggest that SFAS133-*accounting hedgers* converging exclusively on hedge accounting disregarding the economics of hedging will be viewed more inauspiciously by investors than SFAS133-*compliant hedgers* that focus on both the economics and the accounting of hedging.

**Research Question 3**

The results of descriptive statistics, paired t-tests, and multiple regression support Hypothesis III show that *SFAS133-accounting hedgers* had smoother earnings than *SFAS133-compliant hedgers* due to derivative use but did not take advantage of the differential treatment of cash flow hedges to manipulate earnings. The results suggest that corporate governance mechanisms affect earnings management since BHCs withhold discretion with respect to the realization of gains and losses from derivative instruments designated as cash flow hedges. The hedge accounting rules under SFAS 133 fully determine the hedging behavior of *SFAS-accounting hedgers*, since they captured the accounting benefits of hedging while compromising the economic benefits of hedging in an attempt to manage any associated accounting volatility and smooth earnings.

# Chapter 5: Discussion, Conclusions, and Recommendations

## Interpretation of Findings

### Research Question 1

In this study, I examined the derivatives and hedging activities under SFAS 133 of the entire population of the Peer 1 and Peer 2 BHCs of the Federal Reserve System. From the entire target population of 167 BHCs only 62 banks use derivatives that qualify for hedge accounting from which 38 BHCs are classified as *SFAS133-accounting hedgers* and 24 BHCs are classified as *SFAS133-compliant hedgers*. The limited number of derivative users confirms that hedge accounting is very expensive for small banks to implement and maintain (Pollock, 2005), since they do not have the enormous resources needed to dedicate to training their personnel in derivatives, hedge accounting, and hedge effectiveness testing" (Wolf, 2003, p. 46). Whalen (2004) argued that "the Fed's effort to make the world safe for derivatives, fails from the incompetence of small banks to understand and execute derivatives triggering major difficulties in the U.S. financial system" (as cited in Christen, 2006, p. 11).

Although hedge accounting under SFAS 133 made it possible for companies to smooth their financial statements by preventing earnings from "the gyrations in value" of certain derivative hedging instruments (Norris, 2005), hedge effectiveness has asserted many challenges for many corporations, and hedge accounting has been criticized for its complexity derived from the fact that not all hedges qualify for hedge accounting (Hughen, 2010).

According to the extant accounting literature, economic hedges that do not comply for hedge-accounting, while reducing market risk exposure and earnings volatility in economic terms, increase earnings volatility in accounting terms since SFAS 133 obliges all fair-value variations of derivative instruments with no-accounting hedging designation to be recognized in income.

Consequently, executives are obligated to use only accounting hedges concentrating on accounting earnings regardless of the economic risk exposure or use economic hedges concentrating on economic earnings regardless of the associated earnings volatility (Hughen, 2010; Kolbasovsky, 2009; Revsine et al., 2002).

The descriptive results in Table 11 provide the 2008 and 2009 total notional value of derivative instruments designated as accounting, cash flow, fair value, and economic hedges for both groups of BHCs showing that *SFAS-accounting hedgers* increased the level of accounting hedges and did not use any economic hedges, while *SFAS133-compliant hedgers* increased the level of accounting hedges and decreased the level of economic hedges.

For *SFAS133-accounting hedgers* the results suggest that the 2009 notional value of cash flow hedges, fair value hedges and accounting hedges is significantly higher than the 2008 notional value. For *SFAS133-compliant hedgers* the results suggest that the 2009 notional value of fair value hedges and accounting hedges is significantly higher than the 2008 notional value, while the 2009 notional value of cash flow hedges and economic hedges is significantly lower than the 2008 notional value. The descriptive

results in Table 11 show that *SFAS-accounting hedgers* hedge in a limited fashion only where hedge accounting treatment is attained thus evading additional earnings volatility and decreasing just a limited amount of economic risks, while *SFAS133-compliant hedgers* hedge in a more optimal economic way thus recognizing the volatility in earnings originated from those hedges that do not comply for hedge accounting.

There is a belief in the existing accounting literature that some BHCs might have been prompted to adjust their corporate risk management strategy to one that is more accounting responsive since SFAS 133 has compromised BHCs competence to economically hedge financial and economic risks. Supported by the theoretical findings of Kolsasovsky (2009), Lins et al. (2008), Revsine, Collins, and Johnson (2002), Peterson et al. (2000), and DeMarzo et al. (1995), there are concerns that the fear of increased earnings volatility derived from economic hedges that do not oblige for hedge accounting forced BHCs to decide between reducing earnings volatility in accounting terms exploiting less- competent economic risk management strategies or manage economic risks with economic hedges disregarding accounting earnings volatility.

Singh (2008), Park, (2004), Zhang, (2009), and Zhou (2009) found that after the implementation of SFAS 133, derivatives users had lower levels of earnings volatility and higher levels of income smoothing proposing that SFAS 133 may have driven companies' earnings management decisions. Lins et al. (2008) claimed that "companies that operate in an environment where contracts are more likely to be written on accounting data" (p. 34), and award earnings volatility reduction as a risk management

lead tactic will be more apprehensive to use derivatives that qualify for hedge accounting. The authors documented a considerable decline in the use of foreign- exchange and no-linear derivative instruments after the implementation of SFAS 133 for the reason that it is unlikely they will qualify for hedge accounting.

Green (2008) avowed that SFAS 133 by not allowing special hedge accounting for all relationships that may be economic hedges disinclines BHCs to use economic hedges if they feel their accounting income is going to be affected adversely, not by economic events, but by the accounting convention applied to a hedge. Eckstein, Markelevich, and Reinstein (2008) substantiated the correspondence of fair-value hedges with deferred debits/assets and cash-flow hedges with deferred credits/revenue imposing that the new guidance in SFAS 133 could encourage BHCs to manipulate earnings management and objectively defer the recognition of their hedging activities in the financial statements.

The results of paired *t* tests in Table 1 support Hypothesis I illustrating that there is a statistically significant difference in the mean notional value of derivative hedging instruments for *SFAS-accounting hedgers* and *SFAS133-compliant hedgers* in 2009 one year after the 2008 amendment of SFAS 133. The results of paired *t* tests in Table 2 show that there is not a statistically significant difference in the mean notional value of derivative instruments for SFAS133 *accounting hedgers* and *SFAS133 compliant hedgers* in 2008 the year SFAS 133 was amended. The *t* test results in Table 3 reveal that for *SFAS133-compliant hedgers* there is not a statistically significant difference between the

2009 means notional values of economic hedges and the 2008 mean notional values of economic.

The mean notional value of derivatives designated as hedging instruments for 2009 is 1.37 for *SFAS133- accounting hedgers* and 0.21 for *SFAS133- compliant hedgers*. The mean notional value of derivatives designated as hedging instruments for 2008 is 0.25 for *SFAS133- accounting hedgers* and 0.56 for *SFAS133- compliant hedgers.* In 2009 the mean notional value of hedges for *SFAS133- accounting hedgers* exceeds that of *SFAS133- compliant hedgers* by 65%, while the mean notional value of hedges for *SFAS133- accounting hedgers* is 55% higher in 2009. From the entire population of Peer Group 1 and Peer Group 2, *SFAS133-accounting hedgers* represent 61% of the BHCs that use only derivatives instruments designated as accounting hedges and *SFAS133-compliant hedgers* represent 38% of the BHCs that use derivatives instruments designated as economic hedges.

The results suggest that *SFAS133- accounting hedgers* exhibited a more accounting responsive corporate risk management approach than the *SFAS133- compliant hedgers* in 2009 one year after the 2008 amendment of SFAS 133. This study evokes that hedge accounting under SFAS 133 do actually affect the hedging behavior of *SFAS133- accounting hedgers* and *SFAS133- compliant hedgers* in different ways. *SFAS133- accounting hedgers* in an attempt to manage any associated earnings volatility re-evaluated their risk management approach and captured the benefits of hedge accounting

by successfully addressing the implementation of SFAS 133 since it requires early methodical planning to determine the evaluation of hedge effectiveness (Coughlin, 2003).

The hedge accounting rules of SFAS 133 advocate an opportunistic earnings management behavior. BHCs along with the reassessment of their corporate risk management strategy have to deal with the implementation of SFAS 133 since the standard "places the burden on management to design appropriate effectiveness tests, and measure the change in fair value or cash flows attributable to the risk being hedged" (SFAS 133, 2008, p. 129). The results are consistent with prior empirical accounting studies who found that derivatives users after the implementation of SFAS 133 had lower levels of earnings volatility and higher levels of income smoothing proposing that SFAS 133 determine the earnings management decisions of companies (Singh, 2008; Park, 2004; Zhang, 2009; Zhou, 2009).

Furthermore, the results of this study are in accordance to the results of Hughen (2010) and Glaum and Klocker (2011). Hughen (2010) found that "firms' ability to meet earnings is positively associated with managers focusing more on accounting earnings than on economic earnings" (p. 1052) concluding that managers will maintain an economic hedge if they consider that the economic risk exposure is imperative compared to the volatility in earnings.

Glaum et al. (2011) presumed that firms with higher leverage and revenue-orientated hedging policies are more inclined to revise their corporate risk management practice to safeguard the implementation of hedge accounting accepting an elevated

economic risk exposure than larger firms with regularly derivative usage and higher growth opportunities.

The multiple regression analysis shows that the most significant determinant of hedging for *SFAS-accounting hedgers* is *information asymmetry* which is computed as the logarithm of the number of financial analysts assessing the performance of a BHC annually *and* for *SFAS133-compliant hedgers* is hedge ineffectiveness which measures BHCs ineffective portion of the amount of gain (loss) recognized in income on derivatives designated as cash flow or fair value hedges. The results suggest that the increased level of attention corporate risk management received under SFAS 133 (Coughlin, 2003) and the different recognition and measurement method of accounting hedges and economic hedges convoluted BHCs hedging decisions and subsequently their risk management course of action.

*SFAS-accounting hedgers'* concern of how investors will react to the possibility of increased volatility evolving from economic hedges that do not comply for hedge accounting under SFAS 133 has driven them to adjust their corporate risk management strategy to one that is more accounting responsive to avoid analysts' negative stock valuations. *SFAS-accounting hedgers'* acuity that earnings volatility will be negatively deciphered by investors instigated them to give up the benefits of economic hedges in order to avoid earnings volatility at all costs. *SFAS133-compliant hedgers*, on the other side, acknowledge that it is unfeasible to engage in a hedging policy that is economically advantageous without meeting half way with the accounting impact. Compliant hedgers

instigate a new exemplar for corporate risk management with the intent to find a better equilibrium between the economic risks and accounting volatility.

**Research Question 2**

The leading purpose of hedging is to diminish erratic earnings changes since earnings volatility and negative earnings surprises are frequently scrutinized by investors and analysts as a warning of unsuccessful company management. Conversely, smooth and predictable earnings trends are approvingly prospected by investors and analysts and augment the repute of a competent company management. A hedging policy that curtails inconsistent earnings changes can be advantageous for both directors and the stockholders of a company (Trombley, 2003). Certain hedge accounting rules lead to ominous earnings volatility which makes the decision to hedge anchored in the company's willingness to accept or not the likelihood of earnings volatility (Glaum et al., 2009; Hughen, 2010; Kolbasovsky, 2009; Sigrist, 2008; Trombley, 2003).

Hypothesis II posit that there is a significant difference in earnings volatility for *SFAS133-accounting hedgers* and SFAS133-*compliant hedgers* in 2009 one year after the 2008 amendment of SFAS 133. Earnings volatility is measured by the coefficient of variation of earnings over four quarters before and after the 2008 amendment of SFAS 133 (Barnes, 2001; Barton, 2001; Zhang, 2008), and the coefficient of variation of earnings is measured as the average standard deviation of the ratio of total earnings before taxes and loan loss provisions to average total assets (Laeven et al., 2009).

The *t* test in Table 4 reveals that *SFAS133-accounting hedgers* have lower earnings volatility than *SFAS133-compliant hedgers* in 2009 one year after the 2008 amendment of SFAS 133. The descriptive results in Table 12 show that the earnings volatility of *SFAS133-accounting hedgers* is 0.46 billion in 2009 and the earnings volatility of *SFAS133-compliant hedgers* is 1.38 billion in 2009, indicating that the earnings volatility of *SFAS133-compliant hedgers* is three times higher the earnings volatility of *SFAS133-accounting hedgers.* The results of the paired sample t-test and descriptive statistics show that BHCs who increased the level of accounting hedges and decreased or discontinued the level of economic hedges in response to the 2008 amendment of SFAS 133 experienced a significant change in earnings volatility.

The results of this research accede with the results of Singh (2004), Park (2004), and Zhang (2008) who found that derivative users had lower levels of earnings volatility after the introduction of SFAS 133. Given that the major purpose of hedging is to shelter the income statement from variations in interest rates, foreign-exchange rates, or credit rates, *SFAS133-accounting hedgers* exercising derivatives for hedging reassessed their risk management approach to one that is more accounting responsive to ensure that most hedges are *highly effective* to qualify for hedge accounting. Hedge accounting reduces earnings volatility by minimizing the potential income statement effect of the risk that is being hedged since it causes the derivative gains or losses to influence earnings in the corresponding period as the gains or losses ensued from the risk being hedged. The alternative to hedge accounting that is applied to derivatives designated as economic

hedges is to recognize variations in the recorded fair value of the derivative instrument immediately in earnings causing redundant volatility in earnings (Coughlan, 2003). Income statement earnings volatility is caused by either the cash flow or fair value hedge ineffectiveness of SFAS 133 accounting hedges or economic hedges according to the extant accounting literature (Nan, 2007; Park, 2004; Singh, 2004; Trombley, 2003; Zhang, 2008). For SFAS 133 fully effective accounting hedges, changes in the fair value of the hedging instrument precisely offset changes in the fair value of the hedged item ascribed to the hedged risk and are realized in earnings in the same accounting period (SFAS 133, 2008, para. 18) protecting the income statement from the earnings volatility resulting from changes in the fair value of the derivative instrument (Trombley, 2003), while any difference occurring from the gains/losses on the hedging instrument that do not offset the loss/gain on the hedged item ascribed to the hedged risk is the effect of hedge ineffectiveness and it is immediately recognized in earnings creating earnings volatility (SFAS 133, 2008, para. 21 & 22).

Trombley (2003) argues that even when hedging relationships are highly-effective they still might not be perfect into offsetting changes in the fair value of the hedged item and the hedging instrument causing the ineffective portion of the change in the fair value of the hedging instrument to be recognized immediately in earnings causing earnings volatility. Although, SFAS's 133 "principal purpose of providing special accounting for hedging activities is to mitigate the effects on earnings of different existing recognition and measurement attributes" (SFAS 133, 2008, para. 366, p. 130), the approach of

accelerating the earnings recognition of hedges that do not comply for hedge accounting reproduces unrepresentative earnings volatility.

To further disentangle the effects of SFAS 133 accounting hedges and economic hedges on earnings volatility, the mean ineffective amount of the gains (losses) recognized in income on derivatives designated as cash flow hedges (HEDGEIN $_{\text{cash flow hedges}}$), fair value hedges (HEDGEIN $_{\text{fair value hedges}}$), and economic hedges (NETGains (Losses)) is compared for both *SFAS133-compliant hedgers* and *SFAS133-accounting hedgers*.

The *t* test results in Table 5 reveal that the 2009 mean cash flow hedge ineffectiveness is 2.04 million for *SFAS133-compliant hedgers and* 2.31 million for *SFAS133-compliant hedgers.* There is not a significant difference in the cash flow hedge ineffectiveness of *SFAS133-compliant hedgers* and *SFAS133-accounting hedgers* since $p \geq 0.05$. The *t* test results in Table 6 reveal that the 2009 mean fair value hedge ineffectiveness is -0.56 million for *SFAS133-compliant hedgers and* -0.46 million for *SFAS133-compliant hedgers.* There is not a significant difference in the fair value hedge ineffectiveness of *SFAS133-compliant hedgers* and *SFAS133-accounting hedgers* since $p \geq 0.05$. The *t* test results in Table 7 reveal that the mean amount of gain recognized in income on derivatives designated as economic hedges is 0.26 million in 2009 and 0.59 million in 2008 for *SFAS133-compliant hedgers.* There is a significant difference in the 2009 and 2008 amount of economic hedges NETGain (Loss) of *SFAS133-compliant hedgers* since $p \leq 0.05$, indicating that *SFAS133-compliant hedgers* reduced the amount of

gain recognized in income by economic hedges by 50% in 2009. The results of the t-tests indicate that income statement earnings volatility is caused by economic hedges since there is no difference in the mean cash flow and fair value hedge ineffectiveness of *SFAS133-compliant hedgers* and *SFAS133-accounting hedgers.* The results are consistent with Nan (2007) which claims that SFAS 133 with the early recognition requirement intends to detain speculative activities through financial derivatives. The author argues that companies who are engaged in speculative activities through financial derivatives experience more volatile earnings "caused by the early recognition of unrealized gains/losses, while firms who effectively hedge through financial derivatives do not have this adverse effect in earnings" (p.14). Park's (2004) tests of earnings volatility shows that the "three income-affecting sources (TIPs) (i.e., ineffective hedge gains/losses, gains/losses excluded in hedge assessment, and effects from cancelled forecasted transactions previously designed as cash flow hedges) arisen from SFAS 133 did not increase earnings volatility" (p. 15).

Overall, the results in Tables 5, 6, and 7 support hypothesis II. However, additional insight can be obtained by analyzing the differences in the 2009 and 2008 classification of hedging instruments between the two groups.

For *SFAS133-compliant hedgers* the descriptive statistics in Table 14 show that for cash flow hedges the ineffective portion of the amount of gain (loss) recognized in income on derivatives for 2009 is a gain of 0.20 million while for 2008 is a loss of -0.87 million. For fair value hedges the ineffective portion of the amount of gain (loss)

recognized in income on derivative for 2009 is a loss of -0.60 million while for 2008 is a loss of -0.90 million. For economic hedges the amount of gain (loss) recognized in income on derivative for 2009 is a gain of 0.30 million while for 2008 is a gain of 0.80 million. *SFAS133-compliant hedgers* adjusted their hedging behavior in 2009 and de-designated their hedges in an attempt to overstate their income with derivatives converging more for the economic benefits of hedging and tormenting less for earnings volatility. These results are consistent with Liu, Seow, and Xie's (2011) findings that SFAS 133 hedge ineffectiveness is beneficial for evaluating the corporate risk management activities of BHCs because banks with significant hedge ineffectiveness gains or losses are considered riskier since they are exposed to higher variations in interest rates, they have a higher credit default risk, and lower return rates.

For *SFAS133-accounting hedgers* the descriptive statistics in Table 15 show that for cash flow hedges the ineffective portion of the amount of gain (loss) recognized in income on derivative for 2009 is a gain of 0. 22 million while for 2008 is a gain of 0.24. For fair value hedges the ineffective portion of the amount of gain (loss) recognized in income on derivative for 2009 is a loss of -0.22 while for 2008 is a gain of 0.24. *SFAS133-accounting hedgers* adjusted their hedging behavior in 2009 and de-designated their hedges in an attempt to understate earnings volatility by discontinuing economic hedges and realizing more desirable accounting results. These results are consistent with Zhou's (2011) findings that the earnings recognition of fair value hedge ineffectiveness under SFAS 133 "improves the value and risk relevance of accounting earnings" (p.27)

while the informational content of the ineffective portion of the gains/losses recognized in income on derivative is higher for BHCs since they have more expertise in corporate risk management modus operandi giving them a comparative advantage over nonfinancial firms.

While the impact of SFAS 133 on earnings volatility has become an increasing concern in the accounting literature, Zhang (2008) argued that it is important to disaffiliate the effects of SFAS 133 on BHCs corporate risk management behavior and earnings volatility assuming that BHCs did not adopt an accounting responsive risk management strategy.

This study separated the effects of SFAS 133 on earnings volatility and BHCs corporate risk-management behavior concluding that the apprehension of earnings volatility caused by economic hedges under SFAS 133 led *SFAS133-accounting hedgers* and *SFAS133-compliant hedgers* to adjust their hedging behavior to be more accounting responsive. As a result of discontinuing economic hedges *SFAS133-accounting hedgers* experienced less volatility in earnings, while SFAS133-*compliant hedgers* just by moderating the use of economic hedges experience more volatile earnings than *SFAS133-accounting hedgers*.

Consistent with the findings of Zhang (2008), Singh (2004), and Park (2004) the results of this study show that after the 2008 amendment of SFAS 133 BHCs exhibited a more accounting responsive corporate risk management approach in apprehension of the increased earnings volatility caused by economic hedges.

After the original pronouncement of SFAS 133, Zhang (2008) supposed that financial analysts would not detect any additional earnings volatility if BHCs felt that any additional earnings volatility would be detrimental and material and attuned their derivatives contracts in anticipation of these detriments, while Singh (2004) concluded that the intensification given to hedging and smoothing conferred managers' intention to avoid increases in earnings volatility through earnings smoothing. In the same token, Park (2004) argued that BHCs either overstated the impact of SFAS 133 on earnings volatility to ease the formation of SFAS 133 or they already had attuned their hedging strategies in expectancy of earnings volatility amplifications.

The multiple regression analysis shows that the most significant determinants for earnings volatility are information asymmetry for *SFAS-accounting hedgers* and hedge ineffectiveness for *SFAS133-compliant hedgers.*

SFAS 133 vanguard increased earnings volatility for SFAS133-*compliant hedgers* since they engage in risk management strategies that are driven by both the economic and the accounting benefits of hedging. Although, firm valuations have traditionally been negatively related to earnings volatility, SFAS133-*compliant hedgers* should not worry that their stock price will be devalued because of the additional earnings volatility arising from economic hedges. Given hedging is uniform with a logical risk management strategy that is clearly presented in the financial statements, investors and analysts have denoted that they will appraise companies based on an economic and not an accounting-driven analysis.

Couglan (2003) suggested that SFAS133-*accounting hedgers* converging exclusively on hedge accounting disregarding the economics of hedging will be viewed more inauspiciously by investors than SFAS133-*compliant hedgers* that focus on both the economics and the accounting of hedging. The author believes that BHCs should engage investors more on their risk management policy and demonstrate that their hedging strategy is effectively administered, examined, and managed, while Willis (2002) recommended that BHCs with increased earnings volatility should educate investors about the causes by voluntarily disclosing in their financial statements additional information regarding their hedging activities to assist analysts recognize the impact of economic hedges and accounting hedge ineffectiveness on earnings volatility. Panaretou, Shackleton, and Taylor (2009) argued that eminent "information regarding derivative instruments and hedges lessens the noise contained in earnings" (p. 6), reducing analysts' forecasted errors and lowering the information asymmetry between analysts and BHCs.

**Research Question 3**

Hypothesis III focuses on the earnings smoothing activities of BHCs through the use of discretionary accruals and cash flow hedges. Smoother earnings can be achieved by delay reporting loan losses (Cornett et al., 2009; Barton, 2001; Hunt et al., 1997; Kanagaretnam, 2000; Kilic et al., 2009; Zarowin, 2002), and/or manipulate the deferral mechanism of the gains/losses of cash flow hedges to artificially inflate reported capital adequacy ratios (Cornett et al., 2009).

ESmooth is used to disentangle the propensity of BHCs to smooth earnings through loan loss provisions which is the ratio of BHCs loan loss provisions to net interest income (Barton, 2001; Laeven et al., 2009). ESmooth1 is used to disentangle the propensity of BHCs to smooth earnings through the deferral mechanism of the gains/losses of cash flow hedges which is the ratio of total notional value of derivatives used as hedging instruments divided by totals assets (Attia, 2012).

The ratio of notional value of hedging derivatives to total assets can provide advantageous quantitative information about the recognition of derivatives hedging relationships (Attia, 2012), while the loan loss provision ratio is the largest accrual and the most widespread proxy for BHCs income smoothing (Cornet, et al., 2009; Kanagaretnam, 2000; Kilic, et al., 2009).

For *SFAS133-accounting hedgers* descriptive results in Table 2 show that earnings smoothing through discretionary accruals and cash flow hedges are much higher in 2009 one year after the 2008 amendment of SFAS 133. Earnings smoothing through discretionally accruals is 0.57 million for 2009 and 0.17 for 2008, indicating that earnings smoothing through loan loss provisions is three times higher in 2009. Earnings smoothing through cash flow hedges is 1.99 million for 2009 and 0.31 million in 2008, indicating that earnings smoothing through cash flow hedges is six times higher in 2009.

For *SFAS133- compliant hedgers* descriptive results in Table 2 show that earnings smoothing through discretionary accruals and cash flow hedges are much higher in 2009 one year after the 2008 amendment of SFAS 133. Earnings smoothing through discretionally

accruals is 0.75 million for 2009 and 0.31 for 2008, indicating that earnings smoothing through loan loss provisions is almost three times higher in 2009. Earnings smoothing through cash flow hedges is 0.76 million for 2009 and 0.10 million in 2008, indicating that earnings smoothing through cash flow hedges is almost eight times higher in 2009. The results suggest that BHCs corporate governance could influence their earnings management since they maintain the freedom to choose the amount of the loan loss provisions in addition to the realized amount of the hedged gains and losses from derivative instruments.

Hypothesis III posits that the use of discretionally accruals and cash flow hedges result in higher earnings smoothing. The results of paired *t* test in Table 8 shows that there is not a significant difference between the 2009 and 2008 earnings smoothing through loan loss provisions for *SFAS133- compliant hedgers* and *SFAS133-accounting hedgers*. In the contrary, the results of paired *t* test in Table 9 showed that there is a significant difference between the 2009 and 2008 earnings smoothing through cash flow hedges for *SFAS133- compliant hedgers* and *SFAS133-accounting hedgers*. The t-test results show that earnings smoothing through cash flow hedges is 1.98 million for *SFAS133-accounting hedgers* and 0.76 million for SFAS133-*compliant hedgers.* Earnings smoothing through cash flow hedges is almost three times higher for *SFAS133-accounting hedgers* than *SFAS133-compliant hedgers.*

To further disentangle whether smoother earnings is due to derivative usage and/or the differential treatment of the changes in the fair value of cash flow hedging

instruments, the amount of BHCs gains/ losses on derivatives designated as cash flow hedges reclassified from AOCI into income (OCI) is examined.

Theoretically, hedge accounting entails the hedging instrument gains or losses to be realized in earnings simultaneously with the offsetting losses or gains on the hedged item ascribable to the hedged risk (SFAS133, 2008, para. 22-23). The problem presented by hedge accounting for cash flow hedges is that SFAS 133 requires "the effective portion of the gain or loss on the derivative instrument to be reported in accumulated other comprehensive income and reclassified in earnings in the same period during which the hedged forecasted transaction affects earnings" (SFAS133, 2008, para. 18, p. 15), while the mechanism which the hedging gain or loss is reclassified from AOCI to earnings depends on the nature of the hedged item.

For example, if the hedged item is a forecasted inventory purchase, the deferred gain or loss from the sale of inventory to customers is reclassified to earnings either by adjusting the inventory purchase amount from the cost of goods sold account or by recognizing the gain or loss as other income or expense (Trombley, 2003). Smoother earnings can be achieved by benefiting from the deferral mechanism of the gains/losses of cash flow hedges to selectively defer the recognition of forecasted hedged transactions into earnings.

Descriptive statistics in Table 15 show that *SFAS133-accounting hedgers* did not manipulate the differential treatment of cash flow hedges to smooth earnings since the amount of OCI in 2009 is a gain of 0.14 million, while for 2008 is a gain of 0.10 million

which is not a significant difference. In the contrary, descriptive statistics in Table 14 show that *SFAS133-compliant hedgers* did try and manipulate the differential treatment of cash flow hedges to smooth earnings since the amount of OCI in 2009 is a gain of 0.21 million, while for 2008 is a loss of -0.30 million which is a significant difference. Additionally, the t- test revealed that there was a significant difference in the 2009 (OCI) of "*SFAS133-compliant hedgers*" (M= -0.94, SD=2.87) and "*SFAS133-accounting hedgers"* (M= 0.40, SD=1.71), conditions; $t$ (60) = -1.76, $p \leq 0.05$(two-tailed test). The results suggest that *SFAS133-accounting hedgers* had smoother earnings than *SFAS133-compliant hedgers* due to derivative usage but did not take advantage of the differential treatment of cash flow hedges to manipulate earnings.

These findings have been validated in the accounting literature for derivatives and hedging activities under SFAS 133. Papa (2010) supported that "the use of derivatives is an alternative way of smoothing earnings" (page 16) and concludes that hedge accounting for cash flow hedges reduces the use of accruals by finding evidence that that SFAS 133 propels the abridged effect of accruals on derivates use. By the same token, Singh (2004) attains that there is a partial substitution relationship between derivative use and accruals concluding that derivatives use affects accruals. Huang, Zhang, Deis & Moffitt (2009) finds that firm value decreases with the artificial earnings smoothing through accruals and increases with the real earnings smoothing through derivatives use. Attia (2012) showed that derivative use and accounting contravention are earnings smoothing catalysts

and that hedging is encouraged in firms with good governance while earnings smoothing is discouraged in these firms.

Campbell (2012) suggested that companies do not use cash flow hedges to speculate against interest rates, foreign- exchange rates, and commodity prices. The author questions the illicit nature of reporting the cash flow gains and losses in OCI and outside earnings due to their differential treatment under no hedge designation. Cornett et al. (2009) originated that BHCs during periods of low profit can manipulate earnings management to achieve smoother earnings by deferring to report loan loss accruals and escalating the recognition of derivatives instruments hedged gains.

Contrary to the belief that earnings smoothing is caused by derivative use Kilic et al. (2009) found that banks whose income is more likely affected by SFAS 133 increase their reliance on loan loss provisions than derivatives and hedging for earnings smoothing and Lobo and Man (2011) argued that the obligatory recognition of hedge ineffectiveness under SFAS 133 moderates the capacity of banks to smooth earnings through derivatives.

The multiple regression analysis shows that the most significant determinant of earnings smoothing for *SFAS-accounting hedgers* is derivative use, while for *SFAS133-compliant hedgers* is information asymmetry. The multiple regression results corroborate with the t-test results that the smoother earnings of *SFAS133-accounting hedgers* are attributable to derivative use and not the differential treatment of cash flow hedges. The literature granted some anecdotal evidence on the relationship between derivatives, information asymmetry, and earnings smoothing. Information asymmetry motivates the

hedging decisions of firms since they face a higher demand of smoother earnings via derivative activities. Firms with higher percentage of institutional investors and analysts face the burden to hedge their risk exposures with financial derivatives (Brown, 2001).

In the United States the derivatives market is controlled by the five largest BHCs which represent 97% of the total financial industry's notional amount of derivatives (OCC, 2009). This is an indication that BHCs with an intent to achieve smoother earnings as a leading corporate risk management strategy, have a comparative advantage compared to non-financial institutions to apply hedge accounting since they regularly use derivatives and are more experienced with the implementation of SFAS 133.

The results of this study suggest that hedge accounting rules under SFAS 133 fully determined the hedging behavior of *SFAS-accounting hedgers*. *SFAS-accounting hedgers* to ascertain the implementation of effective hedges captured the benefits of hedge accounting while compromised the economic benefits of hedging in an attempt to manage any associated accounting volatility.

## Implications for Social Change

This research anticipates improving the visibility of BHCs new corporate risk management paradigm. It aims to help BHCs address the challenges provided by the 2008 amendment of SFAS 133 and provides a framework to help analysts and investors navigate the complexities of hedge accounting for economic and accounting hedges. The social implication of this research is to hopefully bridge the gap between SFAS 133, BHCs' derivatives and hedging activities, and Wall Street. It suggests the hedging

decisions of BHCs should balance between the economic and accounting benefits of hedging with primary focus on maximizing the firm value and stockholders' interests.

Certainly most BHCs will use hedges that qualify for hedge accounting whenever is possible but the new paradigm for corporate risk management proposes that BHCs should capture the economic benefits of hedging and simultaneously control for any earnings volatility associated with hedge accounting. Companies should distinguish between SFAS133-compliant hedges that generate little or no volatility and economic hedges that reduce risk in economic terms but because they don't qualify for hedge accounting increase earnings volatility. Although, both types of hedges are important risk management tools, BHCs should handle them distinctively because of their conflicting accounting treatment.

This study extends prior research on corporate risk management activities of BHCs and impacts social change by presenting new evidence on the effects of SFAS 133 economic hedges on earnings volatility. This research by finding evidence on the degree and causes of BHCs' earnings volatility impacted the investing society positively. It provides the empirical support for the FASB and the SEC to increase the transparency and visibility of economic hedges and accounting hedges in the financial statements.

## Recommendations for Action

A major concern for BHCs approaching the implementation of SFAS 133 is how investors and analysts will react in response to the 2008 amendments of SFAS 133. BHCs have reservations about the negative impact of the anticipated increase in earnings

volatility associated with economic hedging activities on stock prices. This study suggests that investors and analysts look beyond any SFAS 133-generated earnings volatility all through the underlying economics of hedging.

BHCs should not be chastised for any volatility emerging from their corporate risk management approach, provided that approach is economically advantageous, reliable and described in detail. Investors and analysts' viewpoint of SFAS 133 should be focused on the radical accounting and reporting changes for derivative instruments and hedging activities standards. The increased level of corporate risk management awareness established by SFAS 133 is an assurance for investors and analysts that BHCs engage in apposite hedging policies, while it offers BHCs the opportunity to communicate their risk management policy and increase the investors' comprehension of how they manage their financial risks.

**Recommendations for Further Study**

This study found that BHCs' ability to reduce earnings volatility and increase earnings smoothing to convene with analysts' expectations after the 2008 amendment of SFAS 133 has an adverse impact on BHCs continual use of economic hedges. BHCs propensity to earnings management is excessively related to income smoothing through accounting hedges.

To gain a better representation of BHCs intended corporate risk management policy, this study recommends future researchers to evaluate the goals and objectives, risk inclination and risk strategies by incorporating a comprehensive approach across all

the risk categories of BHCs. The test of Hypothesis I of this study can be extended in further studies by closer examining BHCs policies regarding mortgage banking risk management, ALM, and risk management with derivatives and hedges to determine if BHCs altered their corporate risk management behavior to one that is more accounting responsive.

Future researchers should further examine the effects of SFAS 133 on BHCs corporate use of derivatives designated as accounting and economic hedges, earnings volatility and income smoothing four years after the 2008 amendment of SFAS 133. The hedging activities of *SFAS133- accounting hedgers* should be compared with the hedging activities of *SFAS133- compliant hedgers* in 2008 the year SFAS 133 was amended and in the preceding years until 2012.

## Conclusions

This study concludes that hedge accounting under SFAS 133 did affect the hedging behavior of *SFAS133- accounting hedgers* and *SFAS133- compliant hedgers* in different ways. The increased level of attention corporate risk management received under SFAS 133 (Coughlin, 2003) and the different recognition and measurement methods of accounting and economic hedges convoluted BHCs hedging decisions and subsequently their risk management course of action. For BHCs with a major aspiration to increase earnings smoothing and decrease earnings volatility through corporate risk management was easy to apply hedge accounting since they are frequent users of

derivatives and they are more technologically sophisticated, and knowledgeable of SFAS 133.

*SFAS133-accounting hedgers'* concern of how investors will react to the possibility of increased volatility evolving from economic hedges that do not comply for hedge accounting under SFAS 133 has driven them to adjust their corporate risk management strategy to one that is more accounting responsive and give up the benefits of economic hedges in order to avoid earnings volatility at all costs. By re-evaluating their risk management approach *SFAS133-accounting hedgers* captured the benefits of hedge accounting and successfully addressed the implementation of SFAS 133 since it requires early methodical planning to determine the evaluation of hedge effectiveness (Coughlin, 2003).

*SFAS133-compliant hedgers*, on the other side, acknowledged that it is unfeasible to engage in a hedging policy that is economically advantageous without meeting half way with the accounting impact and instigated a new exemplar for corporate risk management with the intent to find a better equilibrium between the economic risks and accounting volatility.

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Appendix A: Definition of Variables

| Construct | Proxy | Variable |
|---|---|---|
| **Total Notional Value of Derivatives Designated as Accounting & Economic Hedges** | Aggregate total notional value of derivative contracts designed as economic hedges of MSRs, IRLCs, LHFSs, ALMs, fair value hedges and cash flow hedges | NOTIONAL |
| **Earnings Volatility** | The average standard deviation of the ratio of total earnings before income taxes and loan loss provisions to average total assets | EVol |
| **Earnings Smoothing** | The ratio of loan loss provisions to net interest income | ESmooth |
| | The ratio of the total notional value of derivatives used as hedging instruments divided by total assets | ESmooth2 |
| **Financial Distress** | Tier 1 Leverage ratio defined as Tier 1 Capital divided by adjusted quarterly average total assets after certain adjustments | FINLEV |
| **Information Asymmetry** | The logarithm of the number of analysts following the firm each year | INFOASY |
| **Underinvestment Cost** | Market-to-book ratio computed as market value per share of common stock to book value per share | UNDERC |
| **Managerial Risk Aversion** | Ratio of CEOs stock option-based compensation relative to total compensation | MNGRisk |
| **BHCs Capital Adequacy** | Tier 1 Capital which is Total Equity Capital minus (plus) accumulated net gains (losses) on cash flow hedges. | CapAdeq1 |

| | | |
|---|---|---|
| **Interest Rate Coefficient** | The absolute value of the estimated coefficient from a regression of each BHCs monthly stock returns on the monthly percentage change in LIBOR | IRLIBOR |
| **Hedge Ineffectiveness** | Measures BHCs ineffective portion of the amount of gain (loss) recognized in income on derivatives designated as cash flow or fair value hedges | HEDGEINF |
| **Economic hedges** | Measures both realized and unrealized gains and losses recognized in income due to changes in fair value of derivatives designated as economic hedges | NETGain(Loss) |
| **Net gains (losses) reclassified from OCI to income** | OCI measures the net realized gains/losses reclassified from AOCI into income on derivatives designated as cash flow hedges | OCI |

Appendix B: List of BHCs

| RANK | INSTITUTION NAME | TOTAL ASSETS 12/31/2009 |
|---|---|---|
| | **PEER GROUP 1** | |
| 1 | BANK OF AMERICA CORPORATION | 2,443,068,000 |
| 2 | JPMORGAN CHASE & CO | 2,031,989,000 |
| 3 | CITIGROUP INC | 1,856,646,000 |
| 4 | WELLS FARGO & COMPANY | 1,243,646,000 |
| 5 | MORGAN STANLEY | 771,462,000 |
| 6 | TD BANK US HOLDING COMPANY | 557,210,000 |
| 7 | METLIFE, INC | 539,314,000 |
| 8 | PNC FINANCIAL SERVICES GROUP, INC | 269,863,000 |
| 9 | US BANCORP | 268,360,000 |
| 10 | BANK OF NEW YORK MELLON CORP. | 212,224,000 |
| 11 | SUNTRUST BANKS, INC | 175,442,000 |
| 12 | HSBC NORTH AMERICA HOLDING | 171,079,000 |
| 13 | CAPITAL ONE FINANCIAL CORPORATION | 169,646,000 |
| 14 | BB&T CORPORATION | 165,764,000 |
| 15 | STATE STREET CORPORATION | 157,946,000 |
| 16 | REGIONS FINANCIAL CORPORATION | 142,318,000 |
| 17 | AMERICAN EXPRESS COMPANY | 125,145,000 |
| 18 | FIFTH THIRD BANCORP | 114,856,000 |
| 19 | KEYCORP | 93,287,000 |
| 20 | NORTHERN TRUST CORPORATION | 74,314,200 |
| 21 | M&T BANK CORPORATION | 67,472,000 |
| 22 | MARSHALL & ILSLEY CORP | 60,262,526 |
| 23 | CIT GROUP INC | 60,027,400 |
| 24 | COMERICA INCORPORATED | 59,249,000 |
| 25 | HUNTINGTON BANCSHARES INC | 51,554,665 |
| 26 | ZIONS BANCORPORATION | 51,123,000 |
| 27 | DISCOVER FINANCIAL SERVICES | 46,020,987 |
| 28 | BANCO POPULAR,INC | 36,569,370 |
| 29 | SYNOVUS FINANCIAL CORP. | 34,423,617 |
| 30 | FIRST HORIZON NATIONAL CORP | 28,147,800 |
| 31 | BOK FINANCIAL CORPORATION | 23,516,831 |
| 32 | ASSOCIATED BANC-CORP | 22,874,142 |
| 33 | CITY NATIONAL CORPORATION | 21,078,757 |
| 34 | COMMERCE BANCSHARES, INC | 18,120,189 |

| | | |
|---|---|---|
| 35 | WEBSTER FINANCIAL CORP | 17,739,197 |
| 36 | FIRST CITIZENS BANCSHARES, INC | 17,557,484 |
| 37 | CULLEN/FROST BANKERS, INC | 16,288,038 |
| 38 | FIRST NIAGARA GROUP, INC | 14,584,833 |
| 39 | VALLEY NATIONAL BANCORP | 14,284,153 |
| 40 | SUSQUEHANNA BANCSHARES, INC | 13,689,262 |
| 41 | SVB FINANCIAL GROUP | 12,841,000 |
| 42 | WINTRUST FINANCIAL CORP | 12,215,620 |
| 43 | CITIZENS REPUBLIC BANCORP, INC | 11,595,670 |
| 44 | MB FINANCIAL, INC | 10,865,393 |
| 45 | FIRST MERIT CORPORATION | 10,539,902 |
| | **PEER GROUP 2** | |
| 46 | IBERIA BANK CORPORATION | 9,695,955 |
| 47 | TRUSTMARK CORPORATION | 9,526,018 |
| 48 | NATIONAL PENN BANCSHARES, INC | 9,483,910 |
| 49 | UNITED COMMUNITY BANK, INC | 8,269,000 |
| 50 | OLD NATIONAL BANCORP | 8,005,335 |
| 51 | UNITED BANKSHARES, INC | 7,805,101 |
| 52 | FIRST MIDWEST BANCORP, INC | 7,710,672 |
| 53 | FIRST FINANCIAL BANCORP | 6,657,593 |
| 54 | FIRST MERCHANTS CORPORATION | 4,674,590 |
| 55 | PLAINSCAPITAL CORPORATION | 4,570,769 |
| 56 | TAYLOR CAPITAL GROUP, INC | 4,403,502 |
| 57 | RENASANT | 3,641,081 |
| 58 | SUN BANCORP, INC | 3,578,905 |
| 59 | SCOTIABANK | 3,504,190 |
| 60 | SIMMONS FIRST NATIONAL CORP | 3,093,322 |
| 61 | INDEPENDENT BANK CORP. | 2,965,364 |
| 62 | STERLING BANCSHARES, INC | 2,165,609 |

Appendix B: SFAS 133 Classification of BHCs

| | INSTITUTION NAME | SFAS 133 CLASSIFICATION |
|---|---|---|
| 1 | BANK OF AMERICA CORPORATION | COMPLIANT HEDGER |
| 3 | CITIGROUP INC | COMPLIANT HEDGER |
| 4 | WELLS FARGO & COMPANY | COMPLIANT HEDGER |
| 6 | METLIFE, INC | COMPLIANT HEDGER |
| 8 | PNC FINANCIAL SERVICES GROUP, INC | COMPLIANT HEDGER |
| 9 | US BANCORP | COMPLIANT HEDGER |
| 11 | SUNTRUST BANKS, INC | COMPLIANT HEDGER |
| 12 | CAPITAL ONE FINANCIAL CORP. | COMPLIANT HEDGER |
| 13 | BB&T CORPORATION | COMPLIANT HEDGER |
| 15 | REGIONS FINANCIAL CORPORATION | COMPLIANT HEDGER |
| 17 | AMERICAN EXPRESS COMPANY | COMPLIANT HEDGER |
| 18 | FIFTH THIRD BANCORP | COMPLIANT HEDGER |
| 21 | CIT GROUP INC | COMPLIANT HEDGER |
| 23 | COMERICA INCORPORATED | COMPLIANT HEDGER |
| 27 | DISCOVER FINANCIAL SERVICES | COMPLIANT HEDGER |
| 28 | BANCO POPULAR,INC | COMPLIANT HEDGER |
| 30 | FIRST HORIZON NATIONAL CORP. | COMPLIANT HEDGER |
| 31 | BOK FINANCIAL CORPORATION | COMPLIANT HEDGER |
| 32 | ASSOCIATED BANC-CORP | COMPLIANT HEDGER |
| 48 | FIRST NIAGARA GROUP, INC | COMPLIANT HEDGER |
| 42 | WINTRUST FINANCIAL CORP. | COMPLIANT HEDGER |
| 52 | OLD NATIONAL BANCORP | COMPLIANT HEDGER |
| 58 | SUN BANCORP, INC | COMPLIANT HEDGER |
| 61 | UNITED BANKSHARES, INC | COMPLIANT HEDGER |
| | | |
| 2 | JPMORGAN CHASE & CO | ACCOUNTING HEDGER |
| 5 | MORGAN STANLEY | ACCOUNTING HEDGER |
| 7 | HSBC NORTH AMERICA HOLDING INC. | ACCOUNTING HEDGER |
| 10 | BANK OF NEW YORK MELLON CORP. | ACCOUNTING HEDGER |
| 14 | STATE STREET CORPORATION | ACCOUNTING HEDGER |
| 16 | TD BANK US HOLDING COMPANY | ACCOUNTING HEDGER |
| 19 | KEYCORP | ACCOUNTING HEDGER |
| 20 | NORTHERN TRUST CORPORATION | ACCOUNTING HEDGER |

| | | |
|---|---|---|
| 22 | M&T BANK CORPORATION | ACCOUNTING HEDGER |
| 24 | MARSHALL & ILSLEY CORPORATION | ACCOUNTING HEDGER |
| 25 | ZIONS BANCORPORATION | ACCOUNTING HEDGER |
| 26 | HUNTINGTON BANCSHARES, INC | ACCOUNTING HEDGER |
| 29 | SYNOVUS FINANCIAL CORP. | ACCOUNTING HEDGER |
| 33 | FIRST CITIZENS BANCSHARES, INC | ACCOUNTING HEDGER |
| 34 | CITY NATIONAL CORPORATION | ACCOUNTING HEDGER |
| 35 | COMMERCE BANCSHARES, INC | ACCOUNTING HEDGER |
| 36 | WEBSTER FINANCIAL CORPORATION | ACCOUNTING HEDGER |
| 37 | CULLEN/FROST BANKERS, INC | ACCOUNTING HEDGER |
| 38 | VALLEY NATIONAL BANCORP | ACCOUNTING HEDGER |
| 39 | MB FINANCIAL, INC | ACCOUNTING HEDGER |
| 40 | SUSQUEHANNA BANCSHARES, INC | ACCOUNTING HEDGER |
| 41 | SVB FINANCIAL GROUP | ACCOUNTING HEDGER |
| 43 | CITIZENS REPUBLIC BANCORP, INC | ACCOUNTING HEDGER |
| 44 | FIRST MERIT CORPORATION | ACCOUNTING HEDGER |
| 45 | FIRST FINANCIAL BANCORP | ACCOUNTING HEDGER |
| 46 | FIRST MERCHANTS CORPORATION | ACCOUNTING HEDGER |
| 47 | FIRST MIDWEST BANCORP, INC | ACCOUNTING HEDGER |
| 49 | IBERIA BANK CORPORATION | ACCOUNTING HEDGER |
| 50 | INDEPENDENT BANK CORP. | ACCOUNTING HEDGER |
| 51 | NATIONAL PENN BANCSHARES, INC | ACCOUNTING HEDGER |
| 53 | PLAINSCAPITAL CORPORATION | ACCOUNTING HEDGER |
| 54 | SCOTIABANK | ACCOUNTING HEDGER |
| 55 | RENASANT | ACCOUNTING HEDGER |
| 56 | SIMMONS FIRST NATIONAL CORP | ACCOUNTING HEDGER |
| 57 | STERLING BANCSHARES, INC | ACCOUNTING HEDGER |
| 59 | TAYLOR CAPITAL GROUP, INC | ACCOUNTING HEDGER |
| 60 | TRUSTMARK CORPORATION | ACCOUNTING HEDGER |
| 62 | UNITED COMMUNITY BANK, INC | ACCOUNTING HEDGER |

Table 11

*Descriptive Stats: Notional Value of Hedging Instruments for SFAS133 AHs & CHs*

| | SFAS 133 ACCCOUNTING HEDGERS | | | SFAS 133 COMPLIANT HEDGERS | | | |
|---|---|---|---|---|---|---|---|
| | ACCOUNTING HEDGES* | CASH FLOW HEDGES | FAIR VALUE HEDGES | ACCOUNTING HEDGES* | CASH FLOW HEDGES | FAIR VALUE HEDGES | ECONOMIC HEDGES |
| **2009 NOTIONAL VALUE** | | | | | | | |
| N | 4 | 23 | 22 | 6 | 16 | 13 | 24 |
| M | 2.960 | 1.054 | 0.733 | 1.898 | 1.413 | 0.971 | 1.790 |
| SD | 3.344 | 2.462 | 1.880 | 4.264 | 2.423 | 1.887 | 3.450 |
| Min | 4.057 | 0.037 | 0.019 | 0.002 | 0.000 | 0.005 | 0.001 |
| Max | 7.873 | 95.00 | 79.807 | 10.60 | 6.672 | 5.926 | 1.484 |
| SEM | 1.672 | 5.134 | 4.009 | 1.774 | 0.605 | 0.523 | 0.070 |
| $Q_1$ | 1.262 | 0.195 | 0.269 | 0.080 | 0.015 | 0.013 | 0.012 |
| Mdn | 1.781 | 0.550 | 0.501 | 0.216 | 0.187 | 0.017 | 0.050 |
| $Q_3$ | 3.479 | 5.101 | 2.080 | 0.293 | 1.175 | 0.632 | 0.102 |
| **2008 NOTIONAL VALUE** | | | | | | | |
| N | 4 | 27 | 21 | 6 | 15 | 12 | 24 |
| M | 2.205 | 0.260 | 0.122 | 1.031 | 1.680 | 0.946 | 1.950 |
| SD | 4.407 | 2.680 | 1.790 | 2.337 | 2.380 | 1.261 | 3.610 |
| Min | 5.011 | 0.001 | 0.0025 | 0.023 | 0.001 | 0.244 | 0.001 |
| Max | 8.817 | 0.850 | 0.550 | 5.800 | 0.669 | 4.743 | 1.530 |
| SEM | 2203 | 0.051 | 0.039 | 0.954 | 0.061 | 0.364 | 0.073 |
| $Q_1$ | 0.016 | 0.049 | 0.014 | 0.034 | 0.006 | 0.407 | 0.010 |
| Mdn | 0.023 | 0.157 | 0.019 | 0.052 | 0.012 | 0.626 | 0.038 |
| $Q_3$ | 2.206 | 0.344 | 0.275 | 0.186 | 0.273 | 0.929 | 0.151 |

* Accounting Hedges include both the Notional Value of Cash Flow and Fair Value Hedges

Table 12

*Descriptive Stats: Dependent Variables for SFAS133 AHs & CHs*

| | ***SFAS-133 Accounting Hedgers*** | | | | ***SFAS-133 Compliant Hedgers*** | | | |
|---|---|---|---|---|---|---|---|---|
| | EVOL | ESMOOTH | ESMOOTH 2 | NOTIONAL | EVOL | ESMOOTH | ESMOOTH 2 | NOTIONAL |
| **2009 DEPENDENT VARIABLES** | | | | | | | | |
| N | 38 | 38 | 38 | 38 | 24 | 24 | 24 | 24 |
| M | 0.46 | 0.57 | 1.99 | 1.37 | 1.38 | 0.75 | 0.76 | 0.21 |
| SD | 1.63 | 1.55 | 2.21 | 2.56 | 1.77 | 1.49 | 1.18 | 0.38 |
| Min | 1.97 | -0.86 | 0.00 | 0.02 | 5.20 | 0.00 | 0.01 | 0.00 |
| Max | 8.74 | 1.79 | 7.29 | 9.5 | 6.97 | 2.17 | 4.39 | 12.38 |
| SEM | 2.65 | 0.09 | 0.36 | 0.41 | 3.62 | 0.10 | 0.24 | 0.79 |
| $Q_1$ | 3.51 | 0.22 | 0.03 | 0.32 | 1.56 | 0.46 | 0.05 | 0.16 |
| Mdn | 7.39 | 0.46 | 1.14 | 1.06 | 8.23 | 0.64 | 0.17 | 0.25 |
| $Q_3$ | 1.40 | 0.90 | 3.73 | 1.04 | 1.55 | 1.04 | 0.86 | 1.10 |
| **2008 DEPENDENT VARIABLES** | | | | | | | | |
| N | 38 | 38 | 38 | 38 | 24 | 24 | 24 | 24 |
| M | 0.80 | 0.17 | 0.31 | 0.25 | 1.76 | 0.31 | 0.10 | 0.56 |
| SD | 2.19 | 0.56 | 0.41 | 0.42 | 3.21 | 0.94 | 1.65 | 1.48 |
| Min | 1.24 | -0.28 | 0.00 | 2.60 | 2.08 | -0.21 | 0.13 | 0.88 |
| Max | 1.24 | 3.28 | 0.18 | 0.81 | 1.12 | 0.37 | 5.86 | 0.29 |
| SEM | 3.56 | 0.92 | 0.67 | 0.23 | 0.65 | 0.19 | 0.33 | 0.12 |
| $Q_1$ | 3.59 | 0.10 | 0.52 | 0.22 | 1.36 | 0.20 | 0.38 | 0.55 |
| Mdn | 8.15 | 0.21 | 0.15 | 0.12 | 5.57 | 0.79 | 0.72 | 0.10 |
| $Q_3$ | 0.34 | 1.06 | 0.51 | 0.47 | 1.10 | 0.54 | 0.15 | 0.44 |

Table 13

*Descriptive Stats: Independent Variables for SFAS133 AHs & CHs*

| | ***SFAS-133 Accounting Hedgers*** | | | | | | ***SFAS-133 Compliant Hedgers*** | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FINLEV** | **Cap Adeq1** | **UNDERC** | **INFOASY** | **MNG Risk** | **IRLIBOR** | **FINLEV** | **Cap Adeq1** | **UNDERC** | **INFOASY** | **MNG Risk** | **IRLIBOR** |
| **2009 INDEPENDENT VARIABLES** | | | | | | | | | | | | |
| N | 38 | 38 | 38 | 38 | 38 | 38 | 24 | 24 | 24 | 24 | 24 | 24 |
| M | 0.09 | 0.12 | 0.11 | 0.24 | 0.24 | -0.14 | 0.09 | 0.12 | 0.10 | 0.28 | 0.27 | 0.12 |
| SD | 0.14 | 0.24 | 0.83 | 0.75 | 0.20 | 0.23 | 0.23 | 0.16 | 0.61 | 0.66 | 0.25 | 0.31 |
| Min | 0.58 | 0.94 | 0.26 | 0.00 | 0.00 | -0.50 | 0.54 | 0.92 | 0.25 | 0.13 | 0.00 | -0.86 |
| Max | 0.12 | 0.18 | 0.52 | 0.33 | 0.72 | 0.44 | 0.15 | 0.16 | 0.33 | 0.36 | 0.80 | 0.53 |
| SEM | 0.24 | 0.40 | 0.14 | 0.12 | 0.03 | 0.38 | 0.49 | 0.34 | 0.12 | 0.13 | 0.05 | 0.64 |
| $Q_1$ | 0.81 | 0.11 | 0.70 | 0.22 | 0.02 | -0.30 | 0.75 | 0.10 | 0.65 | 0.23 | 0.00 | -0.16 |
| Mdn | 0.93 | 0.12 | 0.99 | 0.25 | 0.26 | 0.16 | 0.88 | 0.11 | 0.93 | 0.31 | 0.23 | -0.49 |
| $Q_3$ | 0.96 | 0.13 | 1.50 | 0.30 | 0.37 | 0.57 | 0.97 | 0.12 | 1.15 | 0.33 | 0.42 | 0.25 |

Table 13 (continued)

| | *SFAS-133 Accounting Hedgers* | | | | | | *SFAS-133 Compliant Hedgers* | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **FINLEV** | **Cap Adeq1** | **UNDERC** | **INFOASY** | **MNG Risk** | **IRLIBOR** | **FINLEV** | **Cap Adeq1** | **UNDERC** | **INFOASY** | **MNG Risk** | **IRLIBOR** |
| **2008 INDEPENDENT VARIABLE** | | | | | | | | | | | | |
| N | 38 | 38 | 38 | 38 | 38 | 38 | 24 | 24 | 24 | 24 | 24 | 24 |
| M | 0.09 | 0.11 | 0.10 | 0.24 | 0.24 | -0.54 | 0.08 | 0.10 | 0.10 | 0.28 | 0.28 | -0.35 |
| SD | 0.15 | 0.22 | 0.58 | 0.75 | 0.17 | 0.76 | 0.19 | 0.16 | 0.52 | 0.65 | 0.26 | 0.80 |
| Min | 0.66 | 0.83 | 0.28 | 0.00 | 0.00 | -0.19 | 0.48 | 0.78 | 0.46 | 0.13 | 0.00 | -0.17 |
| Max | 0.13 | 0.20 | 0.23 | 0.33 | 0.66 | 0.96 | 0.12 | 0.15 | 0.23 | 0.36 | 0.87 | 0.87 |
| SEM | 0.24 | 0.37 | 0.09 | 0.12 | 0.02 | 0.12 | 0.38 | 0.32 | 0.10 | 0.13 | 0.05 | 0.16 |
| $Q_1$ | 0.81 | 0.10 | 0.58 | 0.21 | 0.12 | -0.12 | 0.68 | 0.97 | 0.60 | 0.23 | 0.12 | -0.99 |
| Mdn | 0.90 | 0.11 | 0.90 | 0.25 | 0.23 | -0.50 | 0.85 | 0.10 | 0.81 | 0.31 | 0.21 | -0.50 |
| $Q_3$ | 0.98 | 0.12 | 1.45 | 0.29 | 0.33 | -0.85 | 0.96 | 0.11 | 1.25 | 0.33 | 0.38 | 0.35 |

Table 14

*Descriptive Stats: SFAS 133 Compliant Hedgers' Classification of Hedging Instruments*

| | CASH FLOW HEDGES | | | FAIR VALUE HEDGES | | ECONOMIC HEDGES |
|---|---|---|---|---|---|---|
| | Amount of Gain (Loss) Recognized in OCI on Derivative | Amount of Gain (Loss) Reclassified from AOCI into Income | Amount of Gain (Loss) Recognized in Income on Derivative (Ineffective Portion) | Amount of Gain (Loss) Recognized in Income on Derivative | Amount of Gain (Loss) Recognized in Income on Derivative (Ineffective Portion) | Amount of Gain (Loss) Recognized in Income on Derivative |
| **2009** | **SFAS 133 Compliant Hedgers** | | | | | |
| N | 24 | 24 | 24 | 14 | 10 | 24 |
| M | 3.167 | 2.127 | 2.04 | 1.986 | -6.020 | 2.690 |
| SD | 2.853 | 1.201 | 1.65 | 2.608 | 5.162 | 9.892 |
| Min | -6.915 | -8.140 | -3.59 | 5.600 | -1.052 | -7.827 |
| Max | 8.540 | 4.022 | 7.03 | 7.802 | 1.127 | 3.620 |
| SEM | 5.824 | 2.451 | 3.37 | 6.971 | 1.632 | 2.019 |
| $Q_1$ | -0.010 | -1.403 | -1.00 | 2.165 | -3.300 | -5.435 |
| Mdn | 0.000 | 7.500 | 0.00 | 5.065 | -5.100 | 6.515 |
| $Q_3$ | 3.275 | 1.910 | 0.25 | 3.320 | 6.500 | 2.307 |

Table 14 (continued)

| | CASH FLOW HEDGES | | | FAIR VALUE HEDGES | | ECONOMIC HEDGES |
|---|---|---|---|---|---|---|
| | Amount of Gain (Loss) Recognized in OCI on Derivative | Amount of Gain (Loss) Reclassified from AOCI into Income | Amount of Gain (Loss) Recognized in Income on Derivative (Ineffective Portion) | Amount of Gain (Loss) Recognized in Income on Derivative | Amount of Gain (Loss) Recognized in Income on Derivative (Ineffective Portion) | Amount of Gain (Loss) Recognized in Income on Derivative |
| **2008** | **SFAS 133 Compliant Hedgers** | | | | | |
| N | 24 | 24 | 24 | 13 | 9 | 24 |
| M | -3.608 | -3.075 | -8.71 | 7.080 | -9.200 | 5.990 |
| SD | 1.689 | 1.071 | 6.73 | 3.320 | 2.880 | 2.311 |
| Min | -3.231 | -4.542 | -3.15 | -7.840 | -8.585 | -2.991 |
| Max | 6.013 | 9.480 | 6.90 | 6.800 | 1.770 | 1.069 |
| SEM | 3.449 | 2.185 | 1.37 | 9.200 | 9.580 | 4.718 |
| $Q_1$ | -1.735 | -2.963 | 0.00 | 2.450 | -1.00 | 3.525 |
| Mdn | 0.000 | 0.000 | 0.00 | 3.430 | 9.00 | 2.265 |
| $Q_3$ | 1.950 | 1.445 | 1.00 | 1.68 | 5.00 | 3.519 |

Table 15

*Descriptive Stats: SFAS 133 Accounting Hedgers' Classification of Hedging Instruments*

| | CASH FLOW HEDGES | | | FAIR VALUE HEDGES | |
|---|---|---|---|---|---|
| | Amount of Gain (Loss) Recognized in OCI on Derivative | Amount of Gain (Loss) Reclassified from AOCI into Income | Amount of Gain (Loss) Recognized in Income on Derivative (Ineffective Portion) | Amount of Gain (Loss) Recognized in Income on Derivative | Amount of Gain (Loss) Recognized in Income on Derivative (Ineffective Portion) |
| **2009** | **SFAS 133 Accounting Hedgers** | | | | |
| N | 38 | 38 | 38 | 18 | 8 |
| M | 8.490 | 1.438 | 2.254 | 9.831 | -2.209 |
| SD | 2.890 | 1.193 | 1.056 | 1.563 | 2.128 |
| Min | -5.360 | -3.547 | -6.200 | 1.330 | -4.660 |
| Max | 8.200 | 5.234 | 6.010 | 5.681 | 3.170 |
| SEM | 4.690 | 1.936 | 1.712 | 3.683 | 7.523 |
| $Q_1$ | 0.000 | 0.000 | 0.000 | 9.560 | -1.725 |
| Mdn | 1.940 | 1.750 | 0.000 | 2.415 | -6.000 |
| $Q_3$ | 2.430 | 1.985 | 0.000 | 1.000 | 1.248 |

Table 15 (continued).

| | CASH FLOW HEDGES | | | FAIR VALUE HEDGES | |
|---|---|---|---|---|---|
| | Amount of Gain (Loss) Recognized in OCI on Derivative | Amount of Gain (Loss) Reclassified from AOCI into Income | Amount of Gain (Loss) Recognized in Income on Derivative (Ineffective Portion) | Amount of Gain (Loss) Recognized in Income on Derivative | Amount of Gain (Loss) Recognized in Income on Derivative (Ineffective Portion) |
| **2008** | **SFAS 133 Accounting Hedgers** | | | | |
| N | 38 | 38 | 37 | 17 | 8 |
| M | 1.079 | 1.0315 | 0.241 | 4.506 | 2.400 |
| SD | 3.265 | 1.863 | 1.848 | 2.610 | 6.030 |
| Min | -8.512 | -8.519 | -9.380 | -3.436 | -1.200 |
| Max | 1.752 | 5.400 | 3.280 | 8.202 | 1.720 |
| SEM | 5.297 | 3.022 | 3.038 | 6.331 | 2.130 |
| $Q_1$ | 0.000 | 0.000 | 0.000 | -2.960 | 1.500 |
| Mdn | 3.500 | 6.250 | 0.000 | 1.270 | 4.000 |
| $Q_3$ | 3.467 | 5.962 | 0.100 | 6.320 | 8.000 |

Table 16

*Research Question 1: Regression Analysis for Variables Predicting Notional*

| NOTIONAL | SFAS-133 ACCOUNTING HEDGERS | | | SFAS-133 COMPLIANT HEDGERS | | |
|---|---|---|---|---|---|---|
| | B | SE B | β | B | SE B | β |
| ***Variables*** | | | | | | |
| EVol | | | | 0.1781 | 0.2848 | 0.3376 |
| ESmooth | -0.016 | 0.6756 | -0.0084 | -0.060 | 0.1015 | -0.6172 |
| ESmooth1 | 0.8666 | 0.1562 | 0.1113 | -0.061 | 0.4681 | 0.2858 |
| FINLEV | -0.006 | 0.2911 | -1.0571 | 0.1185 | 0.2330 | 0.3072 |
| INFOASY | 0.332 | 0.5642 | 0.1249 | 0.1318 | 0.1070 | -0.0002 |
| UNDERC | -0.024 | 0.4177 | -0.0083 | -0.1463 | 0.7287 | -1.4274 |
| MNGRisk | -0.004 | 0.2322 | -0.0056 | -0.0020 | 0.1611 | 6.1410 |
| CapAdeq1 | -0.048 | 0.1647 | -0.0056 | 0.0381 | 0.3089 | -0.3786 |
| IRLIBOR | 0.164 | 0.1667 | 0.0198 | -0.1225 | 0.1554 | 0.0670 |
| HEDGEIN $_{\text{cash flow}}$ | -0.057 | 0.3911 | -1.8257 | 0.0431 | 0.3018 | -0.0072 |
| HEDGEIN $_{\text{fair value}}$ | -0.245 | 0.4731 | -0.7712 | -0.0237 | 0.1284 | -0.0063 |
| NETGains(Losses) | | | | -0.0490 | 0.3901 | -0.0388 |
| OCI | -0.090 | 0.084 | -0.6488 | -0.0993 | 0.1212 | -0.1378 |

Table 17

*Research Question 2: Regression Analysis for Variables Predicting Earnings Volatility*

| Earnings Volatility | SFAS-133 ACCOUNTING HEDGERS | | | SFAS-133 COMPLIANT HEDGERS | | |
|---|---|---|---|---|---|---|
| | B | SE B | β | B | SE B | β |
| ***Variables*** | | | | | | |
| NOTIONAL | -1.2979 | 1.2957 | -1.2979 | | | |
| ESmooth | -0.3641 | 0.4876 | -0.3641 | 0.1790 | 0.1023 | 0.6418 |
| ESmooth1 | 0.1625 | 0.1566 | 0.1625 | 0.2880 | 0.4772 | 0.6605 |
| FINLEV | -0.4758 | 0.1901 | -0.4758 | -0.1210 | 0.2739 | -0.9018 |
| INFOASY | 1.0937 | 0.3688 | 1.0937 | 0.0560 | 0.2537 | 0.6097 |
| UNDERC | -0.0344 | 0.3060 | -0.0344 | -0.2420 | 0.3562 | -0.7080 |
| MNGRisk | -0.3525 | 1.5405 | -0.3525 | 0.7180 | 0.7216 | 1.9351 |
| CapAdeq1 | 0.1658 | 0.1164 | 0.1658 | -0.2890 | 0.9756 | 0.2015 |
| IRLIBOR | -0.0136 | 0.1258 | -0.0136 | -0.3800 | 0.2103 | 0.2153 |
| HEDGEIN $_{\text{cash flow}}$ | 0.2593 | 0.2830 | 0.2593 | 0.6970 | 0.1465 | 0.7471 |
| HEDGEIN $_{\text{fair value}}$ | | | | 0.2440 | 0.2459 | 1.3379 |
| NETGains(Losses) | | | | -0.069 | 0.3927 | 0.1245 |

Table 18

*Research Question 3: Regression Analysis for Variables Predicting ESmooth*

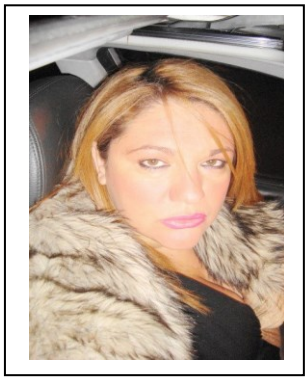
| **ESmooth** | **SFAS-133 ACCOUNTING HEDGERS** | | | **SFAS-133 COMPLIANT HEDGERS** | | |
|---|---|---|---|---|---|---|
| | B | SE B | β | B | SE B | β |
| ***Variables*** | | | | | | |
| FINLEV | -0.055 | 0.0087 | -0.0020 | 0.449 | 0.0049 | 0.0093 |
| INFOASY | 0.163 | 0.0160 | 0.0118 | -0.004 | 0.0202 | -0.0002 |
| UNDERC | -0.000 | 0.0130 | -0.0031 | 0.325 | 0.0169 | 0.0265 |
| MNGRisk | 0.116 | 0.0753 | 0.0322 | -0.073 | 0.0450 | -0.0141 |
| CapAdeq1 | -0.398 | 0.0050 | -0.0089 | -0.393 | 0.0079 | -0.0118 |
| IRLIBOR | 0.332 | 0.0048 | 0.0077 | 0.610 | 0.0042 | 0.0096 |
| HEDGEIN $_{\text{cash flow}}$ | -0.029 | 0.0000 | -0.0000 | -0.551 | 0.0000 | -0.0000 |
| HEDGEIN $_{\text{fair value}}$ | -0.228 | 0.0000 | -0.0000 | -0.321 | 0.0000 | -0.0000 |
| NETGains(Losses) | | | | 0.238 | 0.0000 | 0.0000 |
| OCI | 0.258 | 0.0000 | 0.0000 | 0.196 | 0.0000 | 0.0000 |

Table 19

*Research Question 3: Regression Analysis for Variables Predicting ESmooth1*

| **ESmooth1** | **SFAS-133 ACCOUNTING HEDGERS** | | | **SFAS-133 COMPLIANT HEDGERS** | | |
|---|---|---|---|---|---|---|
| | B | SE B | β | B | SE B | β |
| ***Variables*** | | | | | | |
| FINLEV | 0.083 | 0.1468 | 0.1232 | -0.294 | 0.1047 | -0.1449 |
| INFOASY | -0.230 | 0.2710 | -0.6686 | -0.799 | 0.4357 | -1.4299 |
| UNDERC | -0.125 | 0.2202 | -0.3286 | 0.285 | 0.3644 | 0.5532 |
| MNGRisk | 0.059 | 0.1274 | 0.6633 | 0.219 | 0.9700 | 1.0099 |
| CapAdeq1 | 0.107 | 0.8447 | 0.9511 | 0.518 | 0.1708 | 0.3710 |
| IRLIBOR | 0.039 | 0.8155 | 0.3589 | -0.193 | 0.0900 | -0.0728 |
| HEDGEIN $_{\text{cash flow}}$ | 0.066 | 0.0014 | 0.0013 | 0.191 | 0.0000 | 0.0000 |
| HEDGEIN $_{\text{fair value}}$ | -0.188 | 0.0021 | -0.0044 | 0.148 | 0.0001 | 0.0001 |
| OCI | 0.189 | 0.0112 | 0.0241 | 0.159 | 0.0001 | 0.0001 |
| NETGains(Losses) | | | | -0.114 | 0.0023 | -0.0013 |

# Curriculum Vitae



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## EDUCATION

Walden University Online, Minnesota, MN
**Ph.D. in Applied Management and Decision Sciences, Specialization in Accounting** **2013**
Dissertation: Corporate Risk Management of Bank Holding Companies in the SFAS 133 Framework

New York Institute of Technology, New York, NY
**MBA in Business Management** **2002**

State University of New York, New Paltz, NY
**B.S. in Business Management** **1998**

## TEACHING EXPERIENCE

DeVry Keller Graduate School of Management **2013-Present**
**Visiting Faculty**
Accounting Faculty teaching graduate level accounting courses onsite and online in e-college

Everest University Online **2013-Present**
**Online Instructor**
Online Accounting Instructor teaching undergraduate level basic accounting courses in e-college

American Public University, Charles Town, WV
**Online Adjunct Faculty** **2009-2011**
Taught Financial Management, and Basic Accounting embracing fully the community of inquiry framework of teaching, cognitive, and social presence

Laboratory Institute of Merchandising (LIM), New York, NY
**Accounting faculty** **2009-2010**
Taught Survey of Accounting in a hybrid environment utilizing classroom lectures and online discussions with students in Blackboard

ASA College, New York, NY
**Accounting Instructor** **2008-2009**
Taught Intermediate Accounting and Cost Accounting complying with ASA's guidelines and expectations for quality faculty classroom engagement

Technical Career Institute (TCI), New York, NY
**Accounting Instructor** **2008-2009**
"Teach-out" of Interboro's existing students majoring in accounting

Long Island Business Institute, Flushing, NY
**Adjunct Instructor** **2005-2007**
Taught an expansive category of accounting courses including Peachtree, QuickBooks, Financial Accounting, and Taxation

Interboro Business Institute, New York, NY
**Full-Time Faculty** **2003-2008**
Taught a variety of accounting courses including Accounting Principles, Intermediate Accounting, Taxation, and Computerized Accounting

## RELATED EXPERIENCE

Star Alliance Capital, LLC
**Self Employed Equities day Trader** **2009 – PRESENT**
Analyzed different financial market conditions and traded remotely by observing stock price patterns, industry sectors and market trends. Analyzed models, deployed equity trading strategies and improved upon trading system performance. Experienced in technical analysis, fundamental analysis, and Blackwood Pro Software

Liberty Tax Services
**Tax Instructor** **2006-2010**
The curriculum taught covered the fundamentals of basic income tax preparation and income tax code including all the latest tax changes, schedules, credits and forms that can be filed with an individual tax return

## RESEARCH PAPERS

*"Accounting for Derivatives and Hedging Activities"*
Paper Presented as a KAM sample at Walden's Research Forum, Online **2009**

*"Accounting for Investments in Equity Securities: Fundamental vs. Technical Analysis"*
Paper Presented as a KAM sample at Walden's Research Forum, Online **2010**

## RESEARCH SKILLS & QUALIFICATIONS

- Extensive knowledge of SEC's Edgar filing system, FASB's XBRL taxonomy, and SAS statistical program
- Proficiency in Excel, Peachtree, QuickBooks, and Microsoft Office
- Experience in curriculum development; (2) Commitment to mentoring junior faculty and encouraging faculty development; (3) Excellent interpersonal skills; (4) Previous administrative & professional experience; (5) Effective teaching skills; (6) Previous experience with initial application for AACSB accreditation or familiarity with the accreditation process.

## LANGUAGES

English – speak fluently and read/write with high proficiency
Greek-Native Language

## CERTIFICATES

APUS NEW FACULTY SAKAI TRAINING CERTIFICATION PROGRAM **12/29/2008**

## PROFESSIONAL AFFILIATIONS

AICPA Student Affiliate and Non-CPA Faculty Associate
American Accounting Association Member
9/11 Memorial Volunteer
Long Island City Community Boathouse Volunteer Treasurer